

CRYPTOCURRENCY AND PROSPECTS OF ITS DEVELOPMENT

Demur SICHINAVA

*Ivane Javakhishvili Tbilisi State University, Georgia**demur.sichinava@tsu.ge***Abstract**

The article discusses the essence and peculiarities of cryptocurrency, as a modern type of electronic money and blockchain technology, an electronic wallet and its characteristic features, dynamics of development of cryptocurrency types, especially bitcoin, methods of cryptocurrency mining and earning, also conditions for cryptocurrency mining and investing, and emission of the local currency in Georgia, the factors influencing the cryptocurrency rate, condition in regulation over the cryptocurrency circulation in different countries of the world, considerations of different famous researchers on the future of cryptocurrency, and the author's conclusions are made.

Keywords: *Electronic money, cryptocurrency, blockchain technology, electronic wallet, mining of cryptocurrency in Georgia, preconditions to cryptocurrency circulation.*

JEL Classification: *E42, E51, F31*

I. INTRODUCTION

The issue concerning the arrangement of the money relations is one of the topical problems in economic development of the mankind. That's why different forms of non-cash settlement were historically used for its solution, among them, electronic money (Bukia, G., Sichinava, D., 1976). Truly landmark event in the mentioned field is cryptocurrency with blockchain technology. Despite some of its present shortcomings, it becomes a serious subject of scientific research.

Cryptocurrency – this is a modern variety of electronic, virtual – money, which by today mostly depends on the Internet, though its existence without the Internet is also possible.

Popularity of the use of electronic money is caused by a number of its advantages compared with ordinary money. With more or less full-value it performs the functions of ordinary money: it can be received, transferred to another person, can be payment for the cost of goods and services, to obtain information about the operation after its spending and remaining balance, etc (Sichinava D., Magradze M., 2018).

100 years have passed in 2018 since electronic money appeared in circulation. Everything started when the USA Reserve Bank in 1918 for the first time sent the money by telegraph (<https://otvet.mail.ru/question/21776190>).

Electronic money for the first time appeared in Japan in the 1980s in the form of pre-remunerating cards with chips in the transport, telephone and trade companies. Later their use started in other fields as well. In Europe, use of pre-paid electronic products of payment started in the 1990s.

Important role in the development of electronic money was played by the experiment conducted by David Chaum, Doctor of Informatics and Management of the University of California, in the company founded in 1994 – DigiCash (Holland). He was the first to emit electronic money under the name eCash (https://www.peoples.ru/technics/programmer/david_chaum/).

The first electronic payment by DigitCash was conducted in 1994 (https://www.peoples.ru/technics/programmer/david_chaum/). In 1996, such companies as: Visa, Mastercard, Microsoft expressed interest in the project. Already in 1997, more than 150 projects of electronic money existed worldwide (<https://infourok.ru/evolyuciya-i-perspektivi-razvitiya-elektronnih-deneg-3069583.html>).

Appearance of such type of electronic money as cryptocurrency in the monetary-credit system is a classical example of permanent development of the process of electronic money circulation.

II. GENERAL ANALYSIS

Majority of the cryptocurrency is built on the basis of blockchain technology. It is technology of the future and is created for safe storage of information, acceleration of transactions and abolishment of mediatory circles (banks, notaries, different systems of payment, etc). By today its functioning is decentralized. The information in it is stored in the form of blocks and high level of their protection is provided. In the process of transactions the information simultaneously comes to all the computers involved in the cryptocurrency network

and they are copied. That's why transaction is considered to be completed only when it is witnessed by all the users involved in the network. Such system enables to refuse mediators and excludes stealing or change of information from any block, because for this it would be necessary to break all the computers involved in the cryptocurrency network. This is practically too difficult and cannot be achieved, because the system automatically reveals falsification or the attempts of stealing the data in result of cryptological encrypting the information and use of the algorithms of hashing in the blockchain technology (<https://golos.io/ru--kriptografiya/@uanix/kheshirovanie-prosto-i-naglyadno>).

The blockchain system is both open and anonymous. To conduct a transaction, the user receives a special personal code, with which he can enter the system and use it. Identification and authentication of the personality standing behind these codes is today impossible.

The blockchain system is also open from the viewpoint that any user can observe the system development and can familiarize with archives of deals. The user's information is protected from non-sanctioned penetration. By means of blockchain in the process of transactions the commission fee is not paid to the third person. Its amount in other cases is too large.

For circulation of the electronic money it is necessary to have electronic wallet. This is a computer program, which enables the user to store electronic money and conduct non-cash settlement by means of the Internet.

The electronic wallet is an analogue to a bank account, a convenient instrument of payment, means of online payment. It uses virtual money, which can be exchanged to cash, can be transferred to the bank account, can be placed on the plastic card, etc.

Before putting the electronic wallet, the user should choose the electronic payment system, tariff of the commission fee, etc. Its efficient use much depends on this choice. The methods to fill and to withdraw the electronic wallet are diverse, according to the types of currency. Respectively, different types of electronic wallet exist: online, mobile, local, apparatus.

Bitcoin is first and basic type of cryptocurrency. According to one of the most spread versions, bitcoin was created by Satoshi Nakamoto (the same Craig Wright). At the end of 2008 he publicly informed about his own invention and published the confirming document, and from 2009 he put into the computer network the corresponding system. Its algorithm considered emission of 21 mln bitcoins, which will continue till the amount of mined bitcoins reaches 21 million (<https://hype.ru/@ns3230/pochemu-bitcoin-ogranichen-21-mln-j100az4k>).

By 22 April of 2018, 17 million bitcoins were mined (<https://2bitcoins.ru/dobyto-17-millionov-bitkoinov-chto-eto-znachit-i-pochemu-eto-vazhno/>).

In 2009, when bitcoin was formed, general volume of all types of money being in circulation worldwide, calculated in US dollar, was about \$50 trillion [8]. If we divide this sum to 21 million, we'll receive supposed cost of one bitcoin, which equals 2 million 381 thousand dollars. But such payment unit is too large and even useless for all the processes of circulation. That's why bitcoin possesses the smallest unit of payment - satosh, which is a hundred millionth part of bitcoin.

If we divide 2 mln 381 thousand dollars to 100 million, we'll receive 2, 381 cents, which can already be considered to be a real payment unit, i.e. this is a payment unit with which it is possible to buy the cheapest goods.

At present, more than several thousand types of cryptocurrency are known in the world. Use of their certain amount is stable; the demand on all of them is not similar.

The process of forming the new types of cryptocurrency is characterized by the tendency of growth (<https://cryptomagic.ru/base/vidy-kriptovalyut.html>), which is the most positive event in development of electronic money, as it will, supposedly, raise the issue of the need for moving over to the united world cryptocurrency at least within certain limits.

Despite the great risk of making investment in cryptocurrency, investing in the mentioned field in the world does not stop. With this aim in view, of great importance for a businessman is the information about the size of cryptocurrency capitalization, rate of exchange at the exchanges, its popularity, etc.

General capitalization in cryptocurrency in the world by 31 December, 2017 made up \$570 billion, and by 2018 it was \$130, 85 billion (<https://forklog.com/gorizont-sobytij-kak-ros-rynok-kriptovalyut-v-2017-godu/>). These data point to great volatility of cryptocurrency.

General capitalization in cryptocurrency equals the product of the amount of coins emitted by that moment multiplied to the cost of one coin. This indicator is sometimes called "market capitalization" as well. In the beginning of 2019, capitalization of most popular first ten forms of cryptocurrency [Bitcoin (BTC), Ethereum (ETH), Ripple (XRP), Litecoin (LTC), EOS (EOS), Bitcoin Cash (BCH), Stellar (XLM), TRON (TRX), Cardano (ADA), Monero (XMR)] in the general capitalization of cryptocurrency made up about \$110, 482764657 billion (<https://coinmarketcap.com/>). This indicator as well as composition of the cryptocurrencies in this ten, is permanently changing. Despite this, bitcoin occupies the first place.

For recognition of cryptocurrency as a permitted means of payment it is necessary to possess the means, methods and existence of proper trust in the society required for its formation and emission. By today the methods for cryptocurrency mining and earning are not basically separated in the literature.

The methods of cryptocurrency obtaining, i.e. mining, are as follows: its mining on the own computer, cloud technology, etc.

Initially, mining of the cryptocurrency on the own computer was conducted by the videocards. Today far more developed instrument than the videocards exists; it is called ASIC (Application Specific Integrated Circuit – integral scheme of special designation). It was created in China in 2016.

More convenient method of cryptocurrency mining is cloud technology, which is a new model for emission of the digital money. It is formed by groups (pool - minings) for getting more incomes and by using not own computer, but the computer of a rent-holder. In this case, all the problems with the hardware and software of the process of mining are settled by a rent-holder. To get the cryptocurrencies the following services are used (companies), which possess the datacenters (cryptofarm). The datacenters of cloud mining are located in Canada, Russia, Iceland and China.

Cryptocurrency earning methods are: crane, trade in cryptocurrency at the exchange, etc.

Due to popularity of the cryptocurrency many people wish to earn it without making an investment. One of the methods of this is crane. It is the simplest method for earning the currency. Earning of the cryptocurrency is also possible in result of trade in any type of the cryptocurrency at the exchange (Sichinava D., Magradze M., 2018).

Cryptocurrency capitalization experiences changing according to its rate, which is influenced by a number of factors. First of all, this is a balance of the cryptocurrency demand and supply. The balance, in its turn, is determined by many circumstances. One of the first among them is the information background in the mentioned field. According to which information source is and whether the information is positive or negative, the cryptocurrency rate strengthens or falls. The rate of cryptocurrency is also influenced by its recognition or rejection as a means of payment by the state, etc.

Appearance of cryptocurrency exchanges, exchange centers, ATMs (<https://ruscoins.info/news/v-gruzii-ustanovlen-bitkoin-bankomat/>), etc in different countries of the world, in Georgia among them, positively influences the cryptocurrency rate.

Cryptocurrency mining started in France, Iceland and Georgia in 2014 on the basis of own devices (<https://bitcoins-mining.ru/skolko-bitkoinov-vsego.html>).

Georgia is on the third place in the world by the cryptocurrency mining after China and the USA. Quite a great number of people in Georgia are involved in the processes of mining, investing, etc.

Two powerful cryptocurrency centers function in Georgia – in Tbilisi and Gori. By the data of 2017, Tbilisi datacenter in Gldani district - Bitfury, probably, possesses 16, 7 billion GEL (Georgian national currency – lari) (<https://bit.ly/2tvTKWw>).

By the recent data, Georgia formed its own new Georgian cryptocurrency called – the Golden Fleece ([HTTP://WWW.BM.GE/KA/ARTICLE/QUOTOQROS-SAWMISIQUOT---PIRVELI-QARTULI-KRIPTOVA-LUTA/13217](http://www.bm.ge/ka/article/quotoqros-sawmisiquot---pirveli-qartuli-kriptova-luta/13217)).

To recognize the cryptocurrency as a means of payment in the world, it is necessary to regulate the processes of its mining, earning and circulation both within separate countries and worldwide.

By today, there exists no single legislation in the world concerning regulation over the processes connected with the cryptocurrency. At present it differs according to countries and regions.

Cryptocurrency circulation now is forbidden in many countries (Russia, China, England, South Korea, Singapore, Bolivia, Ecuador, Kyrgyzstan, etc (<https://happycoin.club/v-kakih-kriptovalyutyi/>), though there are countries, where just on the contrary, the law permits emission and circulation of the cryptocurrency (the USA, Canada, Australia, partially EU, Japan, Germany, Philippines, Czech republic, Norway, Venezuela, Belarus, Thailand, etc) (<https://bitexpert.io/wiki/cryptocurrencies/top-10-stran-gde-razreshena-kriptovalyuta/>). There are countries in which the cryptocurrency circulation is not recognized, but is not prohibited either (Denmark, Finland, Great Britain, Georgia, etc).

In some countries of the world use of cryptocurrency is free; it is neither prohibited nor permitted and not regulated by the state (<https://cryptonisation.ru/obzor-birzh-kriptoaljut-2018/>).

In total, positive dynamics in possible recognition of the cryptocurrency as a means of payment in perspective is witnessed by the fact that hundreds of decentralized crypto-exchanges are formed and successfully function in the world today. The cryptocurrency exchange is the internet-resource, which gives a possibility to buy-sell the electronic money in the online regime. The cryptocurrency exchanges develop annually in the world and their amount permanently keeps increasing (<https://cryptonisation.ru/obzor-birzh-kriptoaljut-2018/>).

It is impossible to make precise prognosis of the cryptocurrency market. Respectively, it's too complicated to determine their course in perspective.

Proceeding from the mentioned above, the authors' considerations, concerning the present condition in use of the cryptocurrency and its perspectives, are divided into two. Part of them – John McAfee [22], Ronnie

Maos [22], Robert Merton [23], Valeriy Vavilov [24], James Altusher [25], Christine Lagarde [26] and some others are optimistic to the cryptocurrency, the other part –Warren Buffett [27], Joseph Eugene Stiglitz, Nouriel Rubin and Kenneth Rogoff [28], Robert Schiller [29] and others, are pessimistic. Respectively, the term appeared in the literature “cryptofans” and “crypto critics” [30].

Comparative analysis is very interesting made by Vladimer Papava, Georgian scientist-economist, academician, concerning considerations of world famous researchers about the cryptocurrency future (Papava V.. 2018).

III. CONCLUSION

In perspective, fate of cryptocurrency and blockchain will depend not only on the world technological progress, but on socio-economic condition in separate countries and also on the level of development of international relations, political and legal barriers in the mentioned field, etc.

As it is known, any citizen can form the cryptocurrency. That’s why some countries are very cautious towards it, because this will make possible for them to loose monopoly on the emission and control over its circulation and, respectively, appearance of some undesirable tendencies and problems in the mentioned field. Despite this, the amount of cryptocurrency types grows daily and the process of its use is supposed to become irreversible.

Thus, in the contemporary civilized world, as it seems, the conditions have already been prepared that in the nearest future cryptocurrency will, probably, be recognized as a means of payment in some highly-developed countries and the issue will be raised, at least in certain limits, on its use worldwide

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