The essence and functions of cryptocurrencies

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Abstract

With the development of electronic systems, ideas have repeatedly arisen to create an electronic analogue of cash for remote payment. Cryptocurrency technology was originally aimed at the absence of a trusted node - one whose actions are guaranteed to be true and who can confirm the correctness of other people's operations. For the first time, this problem was solved in the Bitcoin system due to the artificial complication of making changes to the transaction history register.

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Cryptocurrency is a digital payment system that does not involve banks in verifying transactions. It is a peer-to-peer system that allows anyone, anywhere, to send and receive payments. Cryptocurrency payments exist exclusively digitally in an online database describing specific transactions. They do not imply transactions with physical money that have circulation and the possibility of exchange exchange in the real world. When transferring funds in cryptocurrency, transactions are recorded in a public ledger. The first cryptocurrency was Bitcoin, created in 2009 and the most famous nowadays.

How is cryptocurrency applied?

Cryptocurrencies are processed in a distributed public registry - a blockchain, where records of all transactions are stored, updated by currency holders. Cryptocurrency units (coins) are created during the mining process. This is a process in which the computing power of a computer is used to solve complex mathematical problems, as a result of which coins are generated. Users can also buy currency from brokers and then store and spend it using cryptographic wallets. Cryptocurrency is not a material object, it is a key that allows you to move a record or unit of measure from one person to another without a trusted third party. Bitcoin has been around since 2009, but financially, cryptocurrencies and the application of blockchain technology are still in their infancy. Their rapid development is expected in the future. In the future, cryptocurrencies can be used in trading transactions with stocks, bonds and other financial assets [1].

Examples of cryptocurrencies.

There are thousands of cryptocurrencies. The most famous of them are listed below.

Bitcoin

Created in 2009, became the first cryptocurrency and still retains the highest popularity. The currency was designed by Satoshi Nakamoto and is believed to be a pseudonym for a person or group of people, while the exact identity of the developer remains unknown.

Ethereum

The Ethereum blockchain platform was developed in 2015. It has its own cryptocurrency Ether (ETH) or Ethereum. It is the most popular cryptocurrency after bitcoin.

Litecoin

This currency is most similar to bitcoin, but innovations such as faster payments and processes that allow more transactions are more quickly developed in it.

Ripple

Ripple is a distributed ledger system founded in 2012. Ripple can be used to track many different types of transactions, not just cryptocurrencies. The Ripple platform developer has worked with various banks and financial institutions.

Centralized and decentralized approaches to the organization of electronic money systems.

The study of electronic money cannot be limited only to knowledge in finance and economics, it requires specific knowledge in the field of information technology, primarily in the field of storage and transmission of financial information. That is why the study of the organization of electronic money systems is an integral part of the study of this topic. A feature of electronic money is the possibility of their existence both in centralized EPS and in decentralized cryptographic systems. The implementation of a centralized electronic money system involves the storage and processing of information on a dedicated server having a single interface for interacting with users. Each operation is performed on a dedicated server and stored in a single database. The client device is not involved in the process of processing and storing information [2].

With the development of the Internet and communication technologies, systems have appeared that provide remote access to a bank account. The rise of e-commerce and the need to speed up settlements and payments have contributed to the emergence of non-bank EPS. In order to control and audit organizations offering a new method of payment, and to regulate their activities, the main condition for the work was to obtain a license for operations with electronic money.

Options	Centralized approach	Decentralized approach
Information processing device	Dedicated server or group of servers	Distributed network of servers
Data storage	Database	Distributed databases
Format of reporting unit of account records	Numeric entries on user accounts	Block transaction records signed with the user's private key
Public key analog	Accaount number	Wallet number
Private key analog	Password	Unique user id

Safety and Risks of decentralized cryptocurrencies.

Cryptocurrencies are usually based on the use of blockchain technology, which describes the way transactions are recorded in blocks with time stamps. This is a rather complex technical process, which results in a digital ledger of cryptocurrency transactions that is sufficiently resistant to hacking. In addition, two-factor authentication is required to complete transactions. However, all these security measures do not exclude the possibility of cryptocurrencies being hacked. Unlike government-backed money, the value of virtual currencies is entirely determined by supply and demand. This can cause sharp fluctuations that can bring investors both significant profits and significant losses. In addition, investments in cryptocurrencies are subject to much less regulatory protection than traditional financial products such as stocks, bonds, and mutual funds [3].

Legal regulation of cryptocurrencies.

The legal regime for cryptocurrencies varies greatly from country to country and is still uncertain or changing in many of them.While some countries have allowed cryptocurrencies, others have banned or restricted them. For example, the People's Bank of China banned Chinese financial institutions from bitcoin transactions in early 2014, but did not prohibit citizens from transactions with cryptocurrencies. In Russia, cryptocurrencies as such are not subject to prohibitions or restrictions on ownership, but cannot be used as a means of payment, since it is illegal to buy goods in any currency other

than rubles, however, the circulation of cryptocurrencies is subject to law 159, 172 of the Criminal Code of the Russian Federation. Government agencies, departments and courts in different countries classify cryptocurrencies in different ways. In March 2014, the U.S. Internal Revenue Service (IRS) ruled that bitcoin would be treated as property for tax purposes and not as a currency. This means that bitcoin will be subject to capital gains tax. One advantage of this solution is that it clarifies the status of bitcoin. Investors no longer need to worry about bitcoin investments or profits being illegal or how to report them to the Internal Revenue Service. An article published by researchers at Oxford and Warwick showed that bitcoin has characteristics closer to the precious metals market than to the traditional currency market, in line with the IRS decision. On October 22, 2015, the European Court of Justice ruled that bitcoin-to-fiat transactions are exempt from Value Added Tax(VAT). Transactions in bitcoins were classified as payment transactions with currencies, coins and banknotes, and therefore are not subject to VAT [4]. The court recommended that all EU member states exclude cryptocurrencies from the list of assets subject to taxation. In March 2016, the Cabinet of Ministers of Japan approved a package of bills that, in particular, recognized Bitcoin as legal tender.

Storage of cryptocurrencies.

After the acquisition, it is necessary to ensure reliable storage of the cryptocurrency, which guarantees protection against hacking and theft. Cryptocurrency is usually stored in crypto wallets. These are physical devices or online programs used to securely store private keys to cryptocurrencies. Some exchanges provide wallet services, which the storage of cryptocurrency funds is carried out directly by the platform itself, however, not all exchanges and brokers automatically provide such services. There are also different wallet providers. There are two types of funds storage: “hot wallet” and “cold wallet”.

- A hot wallet is a cryptographic storage that uses online programs to protect private keys to assets.

- A cold wallet (also called a hardware wallet), unlike a hot wallet, uses offline electronic devices to securely store private keys.

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