

Package logistics should be considered as an integrated approach, where both the packaging system and logistics interact, complement and adapt to each other.

Information logistics refers to the flow of information between people and / or machines within or between any numbers of organizations that in turn form a value creation network. Logistics is the information activity of the stock movement through the supply chain. Information logistics is closely linked with information management, data operations and data technologies. So, in consideration of provide excellent customer service, the information system plays an important role.

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## **BLOCKCHAIN TECHNOLOGY**

What is Blockchain and why there are so many discussions nowadays in IT industry about this technology? I should notice that the exceptional importance of Blockchain can be comparable to the invention of the Internet and ubiquitous smartphonization, literally piercing the modern world and changing everything around: both the way we work, and how we relax, and how we communicate with each other. Let's survey in-depth what is the Blockchain, it's benefits and drawbacks.

Briefly speaking, the Blockchain is a continuous sequential chain of blocks containing information, built according to certain rules. Blockchain can be imagined as a perpetual digital distributed register of economic transactions, which can be programmed to record not only financial transactions, but also for tracking authentication and authorization events, recording of completed vehicle inspections etc. In this case, the event is considered to have happened, if a record about it was included in the log.

The concept of chains of blocks was created in 2008 by Satoshi Nakamoto. For the first time it was released in 2009 as a component of the digital currency – bitcoin, where the block is the main general register for all transactions with bitcoins. Thanks to the technology of Blockchain, bitcoin has become the first digital currency that solves the problem of double expenses (unlike physical coins or tokens, electronic files can be duplicated and spent twice) without the use of any authoritative authority or central server.

Blockchain is a chain of data blocks that are created and stored on the computers of the participants of the chain. All members of the network are divided into two categories: ordinary users who create new records, and the miners who create the blocks. Miners check the records that ordinary users create, form blocks from them, and then send these blocks through the network. Ordinary users receive these blocks and store them in their computer. Each user checks the correctness of the new data. If the data is valid and authentic, the users store and pass it to the network.

In the meantime, it can significantly simplify the tracking of suspicious transactions and improve the general transparency of transactions. In fact, this is a technology of distributed transaction confirmation, which is by nature a huge distributed database.

The participants check the authenticity of transactions, confirm and form the blocks of records. This approach is of great interest for society because there is no need for intermediaries that process transactions and, as a result, the processing speed of operations is increased and the cost for the end user is reduced.

All Blockchain users form a network of computers, where each computer has a copy of the data in Blockchain. Usually this means an absolute copy of all the blocks, but optionally you can store only the data you need on a specific computer. Therefore, it is almost impossible to switch off or break the Blockchain, because, in order for this action to succeed, it is necessary to switch off or break all the computers in the network. While there is at least one user, Blockchain continues to exist. Each new user expands and enforces the network. And all computers are equal, there are no organizers, moderators, controllers or managers. Everyone is in charge of himself only.

The reliability and security of the Blockchain network is held by cryptographic encryption keys, with which you can easily verify the validity and correctness of the data. In fact, the key itself is a very large number, calculated by using a special algorithm called a hash function. The trick is that for a given dataset, the hash function gives a strictly one key that has two very important properties:

By possessing a key, it is impossible to know the initial data set;

The possibility to find another set of data, given the same key, is almost non-existent.

If you have only a key, you know nothing and can't do any harm. But, after seeing the initial data, you can easily verify that they correspond to the given key. Here is one more important feature of the keys that should be mentioned: even a minimal change in the source data will change the key completely.

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## **TRANSPORTATION OF GAS**

Liquid carbohydrate gases, like fuel, have all the advantages of natural and man-made gases, as well as liquid fuels. They are transported to places of consumption in various ways: by transport, by pipelines, by rail (in tanks), by aircraft (by airplanes, by helicopters), by water (sea and river vessels) and by automobile (automobile tanks, onboard and special vehicles carrying cylinders).

Gas network is a system of pipelines (gas pipelines), which serves for the transport of fuel gases and their distribution among consumers. In addition, it is a key element of the gas supply system of the population and industry.

Depending on the purpose, the following gas networks are distinguished: distribution, intended for the supply of gas from the MRS, MRP and gas storage facilities to the places of consumption and the introduction into the houses and constructions, through which the gas enters directly to consumers. Inside buildings (constructions) gas is distributed through in-building gas pipelines.

Gas supply systems represent a complex of constructions. The choice of gas supply system in the city is influenced by a number of factors. This is primarily the size of the