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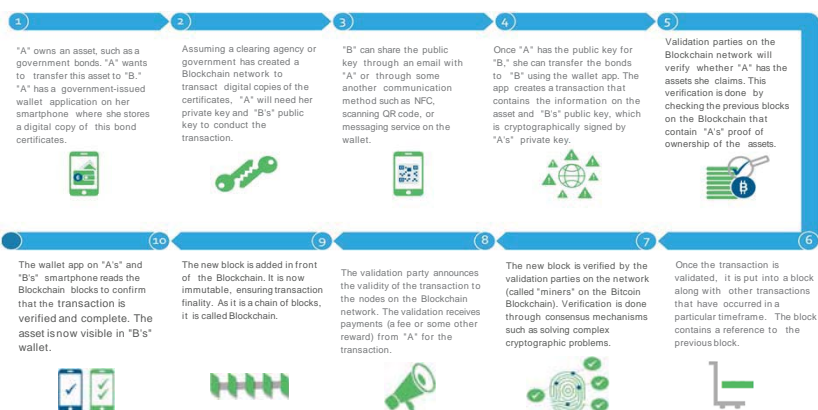
Economic opportunities and security challenges of blockchain technology



Defining Blockchain

A distributed ledger technology

- Blockchain is a cryptographic, or encoded ledger - a database of transactions in the form of blocks arranged in a chain. These are validated by multiple users through consensus mechanisms (such as proof-ofwork in Bitcoin mining) shared across a public or private network.
- Blockchain technology could cut banks' infrastructure costs for cross-border payments, securities trading, and regulatory compliance



Potential benefits of Blockchain technology for the industry

- Reduce costs of overall transactions and IT infrastructure
- Reduction in systemic risks (eliminate credit and liquidity risks)
- Near-instantaneous clearing and settlement
- Irrevocable and tamper-resistant transactions
- Ability to store and define ownership of any tangible or intangible asset
- Improved security and efficiency of transactions
- Consensus in a variety of transactions
- Increased accuracy of trade data and reduced settlement risk
- Enabling effective monitoring and auditing by participants, supervisors, and regulators

Smart contracts: realizing true benefits of blockchain

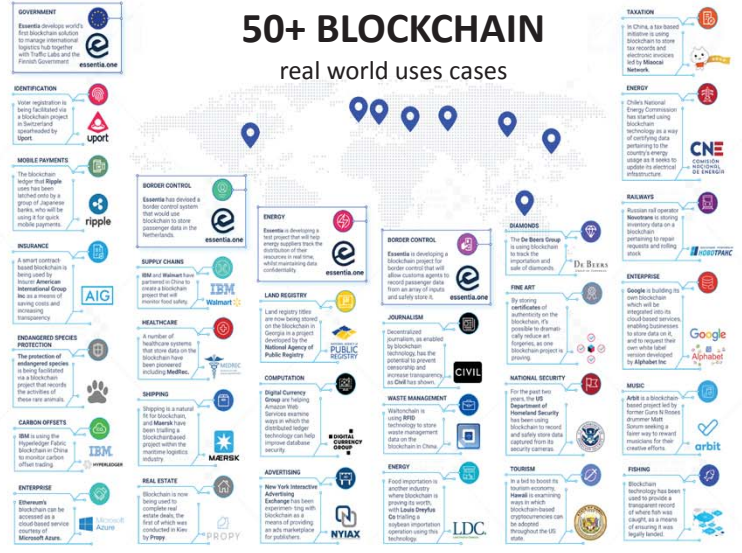
Blockchain is a cryptographic or encoded ledger (database) of transactions in the form of blocks arranged in a chain

Smart contract. a complex set of software codes with components designed to automate execution and settlement, is the application layer that makes much of the benefits of blockchain technology a reality



50+ BLOCKCHAIN

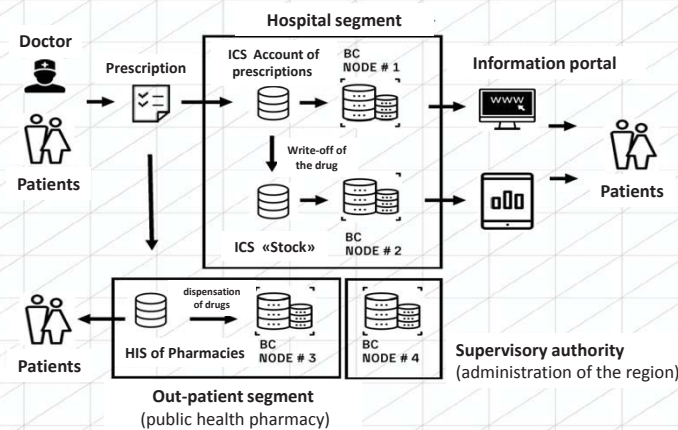
real world uses cases



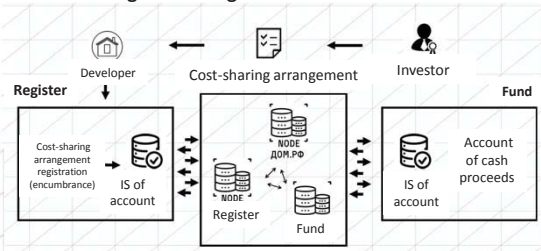
Implementation of Russian blockchain projects: examples

VEB BANK FOR DEVELOPMENT Bank of Development «VEB»

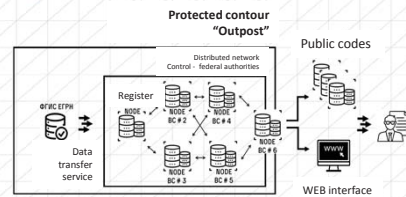
A pilot project "Preferential medicinal product": control over the circulation of subsidized medicines, transparency of the treatment process for the patient.



A pilot project «Cost-sharing arrangement»: accounting of building real estate



A pilot project "Title": creating of an unmodifiable story of change of ownership rights over the immovable property



Implementation of Russian blockchain projects: examples



Bitfury Group

National Banks

Blockchain can be used to conveniently manage credit projects and internal processes.

ISSUES

- High organizational costs;
- Complicated audit;
- High risk of system failure.



Healthcare: Prescription Drugs

Blockchain provides an infrastructure solution for the tracking and storage of prescription drugs.

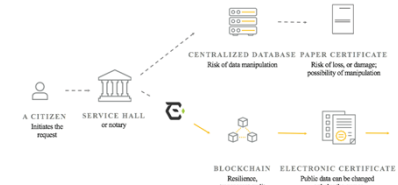
ISSUES

- Falsification of prescriptions;
- Lack of stock distribution transparency;
- Much paper work due to severe drugs regulations;
- Frequent and expensive audits required.



Registries

Blockchain creates a transparent, efficient framework for government registries



Identification

Blockchain could allow for online passport storage and verification.

ISSUES

- Slow paperwork;
- Possible data manipulation;
- No shared system of identification information;
- Unreliable intermediaries.



Supply Chain

Blockchain tracks goods on one distributed ledger and ensures compliance with established rules and procedures.

ISSUES

- Overdue deliveries;
- Inaccuracy of orders;
- Corruption throughout procurement and delivery.



Financial Services: Insurance

Blockchain provides a secure, efficient way of managing insurance products and audit requirements.

ISSUES

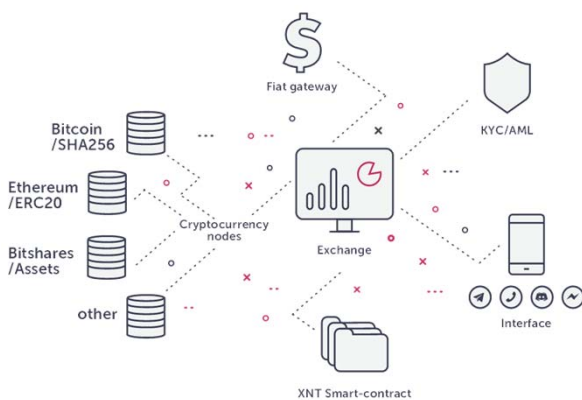
- Lack of trust for complex insurance products;
- Overdue deliveries;
- Lack of technological flexibility for a fast-developing industry;
- Fraud via data manipulations;
- Costly audit.



Implementation of blockchain projects: examples



Bitlish Ltd.



Powerful API

Simple HTTP and low-latency WebSocket API with events. Full platform functionality is available: it is possible to trade, deposit and withdraw funds, receive events on orderbook changes, matches and payments - totally automated.

Low or zero fees

0% Maker fee: no trade fee is charged for user's orders put into the orderbook. Market and instant trades with low fee. Deposit and withdrawals with industry competitive fees.

User security

Accounts are protect with different multi-factor authentication methods. Which include: SMS, email, Authy, U2F hardware tokens. All passwords are salted and encrypted. User account fraud monitoring is 24/7.

Vouchers

Instantly deposit and withdraw funds with vouchers. Transfer money to other users via vouchers without any fee.

Reliable platform

Cold Storage for coins safety, SSL secure connection, PCI DSS certified bank card processor, distributed system architecture for maximum reliability, DDoS protection.

Legal and privacy

Platform operates under strict anti-money laundering, fraud prevention and privacy policies compliant with laws of European Union.

Crowdfunding: statistics

New means of attracting investment

The World Bank estimated that crowdfunding would reach \$90 billion by 2020.

To put that in perspective, venture capital averages roughly \$30 billion per year and in 2014 accounted for roughly \$45 billion in investment, whereas angel capital averages roughly \$20 billion per year invested.

Amounts of funds raised on different crowdfunding models:

- 1) **Crowdlending** – \$25,1 billion
- 2) **Donation-based crowdfunding** – \$5,4 billion
- 3) **Crowdinvesting (equity crowdfunding)** – \$2,56 billion

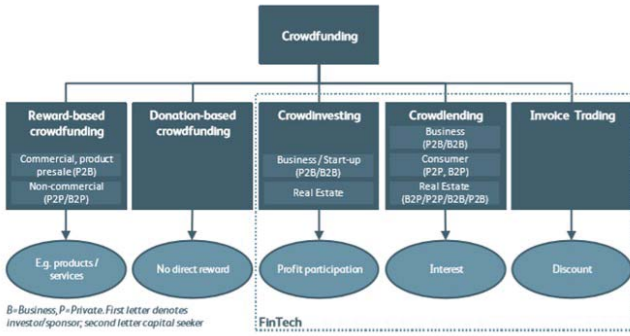
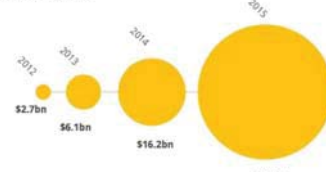


Figure 1: Types of crowdfunding and consideration for each crowdfunding segment

Total Funding Volume



Total Funding Volume: 2015

\$34.44bn



Position of international organizations to blockchain technology usage regulation



Organisation for Economic Co-operation and Development (OECD)

Blockchain is an outstanding, advanced and innovative technology, emphasizing its originality and possibility of use in different spheres: from commerce to public administration.



Financial Action Task Force on Money Laundering (FATF GAFI)

Actively working on development of AML/CFT standards applied to cryptocurrency transactions and identification of major risks of cryptocurrency circulation; forms channels for inter-State exchange of information about effective methods of investigation of crimes which are connected with Legalization of Criminal Proceeds through cryptocurrency circulation.



British Commonwealth of Nations (The Commonwealth)

Draws attention to necessity to establish legal regime of cryptocurrency circulation (including an ATM usage), inter-State collaborations between regulatory authorities on cryptocurrency circulation issues, comply with the AML/CFT legislation and implement the KYC system.



World Trade Organization (WTO)

No blockchain technology use regulation yet to be formulated, the issue will become an agenda at The Public Forum – 2018, which will take place at the WCO office.



United Nations (UN)

Sees possible future of use of this technology on a global scale, as illustrated by existing projects in realization process (designing of a digital system based on blockchain, giving an opportunity to identify people without a passport) and possible planes for new blockchain-based projects realization.



European Union Agency for Law Enforcement Cooperation (Europol)

Positions cryptocurrency as a key factor for cybercriminality development, resulting in encouraging global collaboration between states' law-enforcement agencies in the field of digital currencies.



International Organization for Standardization (ISO)

Implements concrete steps aimed at standards development for blockchain technology.



Group of Twenty (G20)

Considering an opportunity of cryptocurrency use as an alternative to national currency and present economic system.

The legal regulation of blockchain technology use in foreign countries

! Technological neutrality

- Law should not regulate technology development process;
- Law is the way of progress facilitation;
- Law should not determine the future of progress.

Status of blockchain technology in the financial sector in foreign countries

By the example of cryptocurrency as a form of currency or a barter bargain object

Approaches to regulation:

- ✓ Countries which do not have a **concrete attitude** to regulation and prohibition of blockchain technology use (the majority of them);
- ✓ Countries which **do not ban the use of blockchain technology** but do not regulate this sphere at the moment (86 countries);
- ✓ Countries which **ban the use of blockchain technology in individual economic sectors** (24 countries);
- ✓ Countries which **have already implemented blockchain technology use in its territory** (45 countries).



The legal problems of blockchain technology use and their solutions

Problems

1. Lack of a harmonized approach to blockchain technology use regulation in countries.
2. Lack of protection of blockchain-based services' users rights and accountability mechanisms for an perpetrator in contentious relations, born with the use of blockchain technology.
3. Lack of a legal smart-contract definition, its implementation mechanisms, possibility of its revocation and acknowledgement as an evidence by a judicial body.
4. Mal-adaptation of sector-specific legislation: about legalization and money-laundering, blockchain services' clients identification, taxation, protection of personal data, etc.



Solutions

1. To develop recommendations for regulation of blockchain technology use in different economic sectors at the international organizations level.
2. Implementation of established approaches at the international organizations level according to the law enforcement problems.



With the use of the technology it will create a single blockchain-market for foreign trade transactions, reduce transaction and administrative costs and also criminal level.

Institutional framework for law problems solution

Currently, a number of state authorities and civil society organizations have established structures aimed at law problems solution in the area of digitalization.

Structures established under state authorities and other public and legal institutions

The President of the Russian Federation

The Presidential Economic Council Working Group on digital economy

The Federation Council of the Russian Federation

The Council for digital economy development

The State Duma of the Russian Federation

The Working Group on cryptocurrency circulation risk assessment;

The Working Group on robotic technologies and application of artificial intelligent legal regulation;

The Working Group on mining;

The Expert Council for digital economy and blockchain technology;

The Expert Council for new technological generation economy development.

The Government of the Russian Federation

The Government Commission on information technologies use for quality of life and business environment improvement

The Central Bank of Russia

“Regulatory Sandbox” and two Expert Councils under it

Structures established under civil society organizations

Russian Union of Industrialists and Entrepreneurs

Committee on Digital Economy of the Russian Union of Industrialists and Entrepreneurs;

The Working Group on legislative and regulatory activities coordination in the field of digitalization of the Russian Union of Industrialists and Entrepreneurs.

Skolkovo Innovation Centre

Digital Economy Regulatory Competence Centre, headed by the Fund «Skolkovo».

Chamber of Commerce and Industry of the Russian Federation

Committee on financial markets and credit organizations

Autonomous Non-profit Organization «Agency for Strategic Initiatives»

The ASI Expert Council

Bills, aimed at blockchain technology use regulation in the Russian Federation

- Currently, a number of international organizations are developing unify regulation recommendations for digital assets circulation. Regulation of this process in foreign countries takes place on a national level.
- The need for adoption of a specific law, which regulates digital assets circulation, is caused by economic and legal nature of the new digital products, which are polifuntional.
- The Working Group on legislative and regulatory activity coordination in the field of digitalization under the Governance Office of the Russian Union of Industrialists and Entrepreneurs has developed an alternative Digital Assets Draft Law.

Draft laws, which were introduced to the State Duma of the Russian Federation and passed the first reading

The Amendments to the First, Second and Fourth Parts of the Russian Civil Code Draft Law

Aimed at establishment of institution of “digital rights” and regulation of smart-contracts use.

The Digital Financial Assets Draft Law

Aimed at tokens and cryptocurrency circulation regulation.

The Alternative Ways of Attracting Investments (Crowdfunding) Draft Law

Aimed at crowdfunding organization and conducting regulation.

Draft laws which were developed by civil society organizations and were not introduced to the State Duma or did not pass the public discussion

1. A project of the amendments to [the Small and Medium-size Enterprises in the Russian Federation Federal Law](#) and to individual acts of the Russian Federation»;
2. A project of [the System of Decentralized National Mining Federal Law](#);
3. A project of [the Accreditation of Organizations which Provide an Opportunity of Digital Tokens Issuance Government decision](#);
4. A project of the amendments to [the Consumer Cooperation Law](#);
5. A project of [the Digital Rights Circulation in Financial Sphere Federal Law](#) and amendments to individual acts of the Russian Federation.

The concept of the Digital Assets Draft Law

The regulation has a framework construction, the basic provisions are fixed and the legal foundation for the digital assets circulation in the territory of Russia are laid.

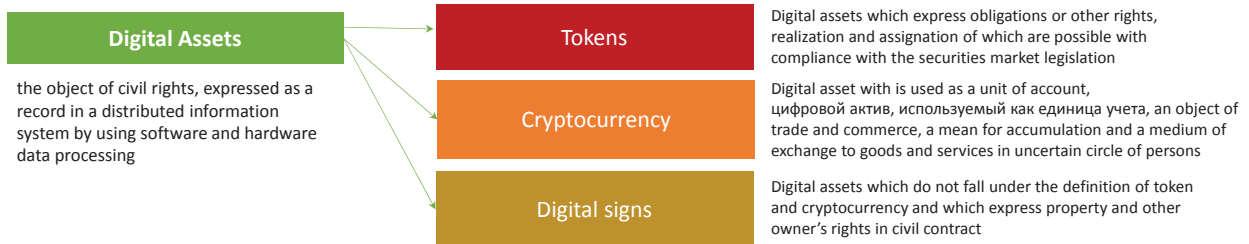
In contrast to the Digital Financial Assets Draft Law the technical aspects of the functioning of blockchain technology are left outside the scope of the draft law. Three types of digital assets trade organizers are highlighted. The activity of token trade organizers is regulated with governing securities market and organized trading legislation. Cryptocurrency trade organizers act on basis of the license on activities to organization and conduction cryptocurrency trade. Activity of digital signs trade organizers is not to be licensed. The legal status of digital assets trade participants is defined.

Advantages of the draft laws introduced to the State Duma of the Russian Federation are taken into account

According to the draft law, digital assets are not legal means of payment in the Russian Federation; digital assets are to be understood as an object of civil rights.

Unlike the previous draft laws, all existing types of digital assets are taken into account, their definitions are given taking into consideration the current legislation.

3 types of digital assets are provided by the draft law: tokens, cryptocurrencies and digital signs. The terms are correlated with the current Russian legislation.



Thank you for attention!