5.Перспективи та можливості використання блокчейн технологій на фінансових ринках

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REVEALING BLOCKCHAIN POTENTIALS

Innovation enthusiasts and Internet community experts strongly believe that introduction of the blockchain technology is a real breakthrough of the 21ˢᵗ century, equivalent to invention of Internet in the past century. However, to the most of web-users this technology still remains a blind spot. So what is blockchain intended for? What are the technology highlights? And finally, what are the key potential application fields for this technology in the nearest future? This article will try to answer the above questions andreveal the nature of blockchain technology to a wider audience.

Blockchain is an ever-growing chain of blocks, linked and secured by means of cryptography. Blocks are added to the existing chain in a linear and chronological order. Every block normally contains a cryptographic hash (a kind of a reference link) of the previous block, a timestamp and transaction data. Structurally, a blockchain is a decentralized distributed ledger used to record transactions and track assets across a number of computers (nodes) within a specific business network. Virtually, any item of value, including tangible (houses, cars, lands) and intangible (patents, copyrights etc.) assetscan be tracked and/or traded within the blockchain network. Such a network structure prevents records from being altered retrospectively without changing all subsequent blocks. The blockchain database is governed autonomously through a peer-to-peer network and distributed servers. Each transaction in the ledger is verified by a consensus of most participants of the network. The transaction history is stored within the blockchain network starting from the genesis block (the very first block in the chain) to the most recent block.And, once entered, the data can never be erased. This technology advantage provides vast opportunities for development of reliable data storage and management systems.

In order to realize how a blockchain works and to evaluate its huge potential for revolutionizing business networks and data management systems, the following crucial blockchain highlightsmust be considered.

1. Distributed ledger technology (DLT): A ledger itself is not a novelty, as it has been used in bookkeeping since the 13ᵗʰ century. However, the blockchain technology implies a new approach to the ledger concept: it is supposed that all network participants have access to this ledger. With a shared ledger, transactions are recorded only once eliminating the data duplication, which is typical of traditional business networks. In addition, the DLT suggests that all the data are stored in multiple servers

worldwide and there are no central authorities to control the network. So, the distributed ledger key point is decentralized data storage.

2. P2P network: A peer-to-peer (P2P) network suggests that all the tasks and workloads are distributed between equally privileged system participants (peers), forming a network of nodes. Apart from a traditional client-server model, the P2P system implies that peers are both suppliers and consumers of certain resources. A P2P technology suggests there is no central server, whereas all the data are stored in nodes worldwide.

3. Permissions: Blockchain can be either permissioned, or permissionless. The permissioned (private) network provides each system participant with a unique identity code, enabling the user to access the network and transaction details. Permissioned blockchains are similar in nature to traditional banks, as they are controlled and governed by respective blockchain founders. A permissionless (public) network suggests that anyone with proper hardware and software can join it. Every node of such a network has as much transmission power, as others.

4. Consensus: A consensus algorithm is a computing process used to achieve agreement on a single data value among distributed processes or systems. This algorithm is designed to achieve reliability in a network with multiple unreliable nodes. Solving this issue, known as the consensus problem, is important in distributed computing and multi-agent systems, like blockchain. In the blockchain the consensus can be achieved by employment of such computing algorithms as Proof-of-Work (PoW), Proof-of-Stake (PoS), Proof-of-Burn (PoB), Proof-of-Elapsed-Time (PoET), and Practical Byzantine Fault Tolerance (PBFT).

5. Smart contracts: A smart contract is a digital agreement or a set of rules that regulate a business transaction. It is stored on the blockchain and executed automatically as a part of a transaction. The purpose of the contract is to ensure higher transaction security, as compared to the conventional contractual law, and to reduce the costs and delays associated with traditional contracts. In addition, smart contracts allow performing credible transactions without involving third parties. These transactions are normally trackable and irreversible.

Despite and owing to the complicated technology infrastructure, the blockchain is capable to significantly facilitate the data transfer, storage and management processes in the most diverse fields of application. Some of the most prominent blockchain use casesare listed below.

1. Bitcoin [1]& Ether [2]: The blockchain is best known as a technology behind such a cryptocurrency, as Bitcoin. It is the first decentralized digital currency, initially serving as a reward for a process known as mining – the process of generating new blocks in the chain by computation of a complicated puzzle. Bitcoin was originally created as an alternative medium of payment in the most impoverished countries. Unlike Bitcoin, the primary purpose of Ether (another blockchain-powered digital currency) is to facilitate and monetize the operation of Ethereum (open-source public platform and operating system) to enable developers to build and run distributed applications (DApps).

2. Hyperledger [3]: Linux Foundation launched this umbrella project of open-source blockchains and related tools in December 2015. The objective of the project is to promote the cross-industry collaboration by developing blockchains and distributed

ledgers in order to improve performance and reliability of these systems. Currently Hyperledger runs 4 blockchain platforms: Hyperledger Burrow (permissioned Ethereum smart-contract blockchain); Hyperledger Fabric (permissioned blockchain infrastructure aimed at DLT projects); HyperledgerIroha (mobile applications), and HyperledgerSawtooth (blockchain using the "Proof-of-Elapsed-Time" consensus algorithm).

3. Bitfury [4]: This multi-business blockchain-oriented company is the biggest industrial mining facility beyond China. In addition, the company is a leadingsoftware developer and hardware designer for Bitcoin blockchains. The company's offices are scattered around the globe and are available particularly in the US, Hong Kong, Great Britain, the Netherlands, Iceland and Georgia.

This list of blockchain-related projects is far from being complete. However,it is alsoadvisable tofocus on outstanding blockchain potentials in other fields of application.

1. Government services: Blockchain is capable to facilitate the provision of government services, including circulation, submission and management of public documents especially in developing countries. On April 13, 2017 the State Agency for e-Governance of Ukraine and The Bitfury Group signed an unprecedented "Memorandum of Interaction and Cooperation" intended to create the first full-scale blockchain e-governance program in Ukraine. One year prior to this event, The Bitfury Group announced that it had signed an agreement with the Government of Georgia to launch there the pilot blockchain-based land register, which is currently integrated into the governmental digital records system [5].

2. Insurance: For insurance providers it is critical to efficiently process claims, verify the actual insurable event occurrence, and provide customers with fair and timely payouts. In case of using blockchain in this field, the policy conditions are written into smart contracts that are stored on the blockchain and the publicly available data can be accessed via Internet. So, whenever an insurable event occurs, the insurance policy is triggered automatically.The claim is processed in accordance with the terms of the policy specified in the smart contract, and the customer is paid.

3. Identity services: This must be one of the most promising fields for blockchain application. The blockchain-based identity can be employedto manage passports, ID cards, birth, wedding and death certificates, etc.

Certainly, this is just a short list of all potential blockchain use cases, as the full list of its immense opportunities seems to be infinitely long.

Consequently, despite the relative infancy of the blockchain technology as compared to conventional data storage and communication systems, the blockchain has already become a real breakthrough in the world of digital data management. The ever-growing interest in this know-howamong developers, business experts, private and state companies contributes to advancement and rapid penetration of this novelty into new application fields. Moreover, taking the huge blockchain potential into account, the further successful technology development seems to be doubtless.

References:

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ПЕРСПЕКТИВИ ТА МОЖЛИВОСТІ ВИКОРИСТАННЯ БЛОКЧЕЙН ТЕХНОЛОГІЙ НА ФІНАНСОВИХ РИНКАХ

Насьогодні блокчейн технології швидко розвиваються і торкаються усіх сфер нашого життя. Щодо фінансових ринків , то блокчейн технології допоможуть подолати дуже багато проблем , таких як: швидкість переказів, комісія переказів, прозорість та фінансові операції без участі посередників.

Аналіз McKinsey&Company показує, що сукупний дохід світового ринку платежів в 2015 році оцінювався більш ніж в $ 1,8 трлн. Сегментміжнародних платежів становить близько 17-20% цього ринку, а загальна виручка фінансових інститутів від цих сервісів склала в 2015 році значні $ 300 млрд. [6]

Ринок міжнародних платежів можна умовно розділити на B2B і C2C-перекази.

Сегмент приватних переказів займає 0,5% ринку, або $ 405 млрд платежів в 2015 році, при виручці $ 25 млрд і операційної рентабельності близько 6%. На відміну від ринку приватних переказів, корпоративний сегмент має воістину величезні масштаби - $ 135 трлн платежів на рік. У 2015 році дохід від корпоративного сегмента склав близько $ 240 млрд, а операційна рентабельність - близько 0,2%.[6]

Рівень плати за транзакцію в B2B-сегмент варіюється в залежності від банку. Середньосвітовий рівень становить $ 30-40 при сумі платежу $ 15 000-20 000. [6]

Очевидно, що рівень плати за транзакції в міжнародному сегменті вищий, ніж для внутрішніх платежів. Виникає питання, чому зовнішні платежі настільки дорожче внутрішніх.

Відповідь проста: цей сегмент в меншій мірі піддається конкуренції і набагато повільніше трансформується. До сих пір зберігається складна структура взаємодії кореспондуючих банків, також необхідно дотримуватися різні регуляторні правила, через що дублюється функціонал.