BLOCKCHAIN TECHNOLOGIES IN ENTREPRENEURSHIP

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Abstract. This paper remind of a huge role that private enterprise plays both in the economy of the country and in the lives of all people. In the era of modern technology, new businesses are actively using the latest IT inventions to increase the income and to grow. Paper concludes efficiency of that symbiosis and evaluate the effectiveness of the interaction between business and IT.

Keywords: *entrepreneurship, IT, modern technologies, blockchain*.

Introduction

The life of all people nowadays is connected with information technology. The government and large private companies use computer networks and various programs for calculating taxes, controlling traffic, organizing bookkeeping and controlling airplane flights.

As for entrepreneurship, experience shows that relatively small start-ups in the IT sphere can very quickly develop and become large companies thanks to the use of the latest technologies. A good examples are popular services like Snapchat and Instagram.

Kevin Systrom posted the first photo to Instagram on July 16, 2010 and in March 2012; the Wall Street Journal reported that Instagram was raising a new round of financing that would value the company at $500 million, details were confirmed the following month, when Instagram raised $50 million from venture capitalists with a $500 million valuation. The same month, Facebook bought Instagram for $1 billion in cash and stock, with a plan to keep the company independently managed.

Obviously, in a competitive environment, those who quickly adapt to the changing needs of the world and successfully use the latest inventions and developments in the IT sphere will achieve a great success.

In order to show this, we will consider an old technology, which has received mass distribution only recently - a blockchain.

Blockchain

A blockchain is a digitized, decentralized, public ledger of all cryptocurrency transactions. Constantly growing as ‘completed’ blocks (the most recent transactions) are recorded and added to it in chronological order, it allows all participants to keep track of all transactions without central recordkeeping (Jordan M., 2017). Each node (which can be even your personal computer or smartphone) gets a copy of the blockchain, which is downloaded once and then automatically updates after each transaction.

It was originally developed as the accounting method for the virtual currency Bitcoin, Bitcoin has been called “digital gold,” and for a good reason. To date, the total value of the currency is close to $9 billion US.

Currently, the technology is primarily used to verify transactions, any data can be digitized and placed into blockchain network. Doing so creates an indelible record that cannot be changed.

A block is the ‘current’ part of a blockchain, which records some or all of the recent transactions. Once completed, a block goes into the blockchain as a permanent database. Each time a block gets completed, a new one is generated. There is a countless number of such blocks in the blockchain, connected to each other (like links in a chain) in proper linear, chronological order. Every block contains a hash of the previous block. The blockchain has complete information about different user addresses and their balances right from the genesis block to the most recently completed block (Blockchain, 2018-02-16).

The blockchain was designed so these transactions are immutable, meaning they cannot be deleted. The blocks are added through cryptography, ensuring that they remain meddle-proof: The data can be distributed, but not copied. However, the ever-growing size of the blockchain is considered by some to be a problem, creating issues of storage and synchronization.

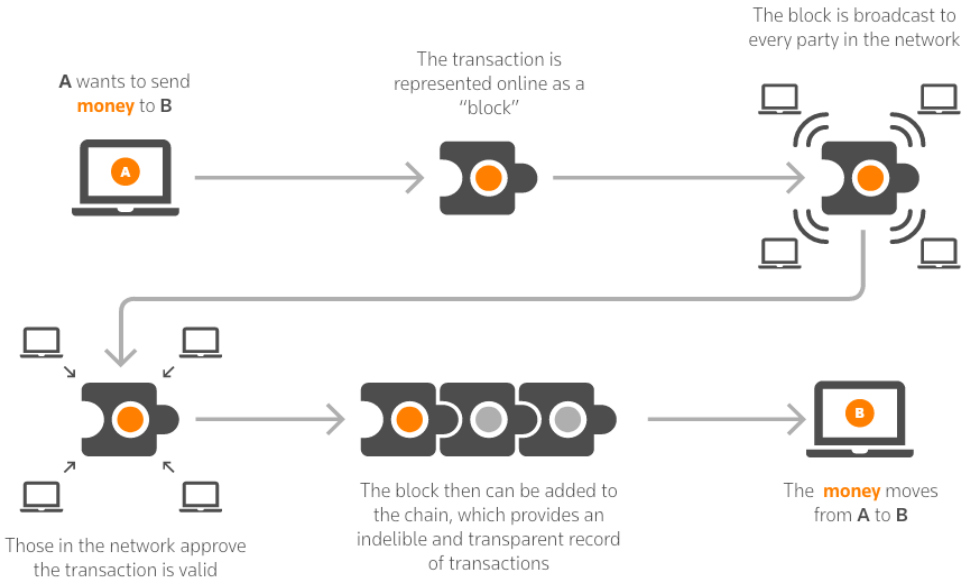

Figure 1. The process of making transactions in blockchain network

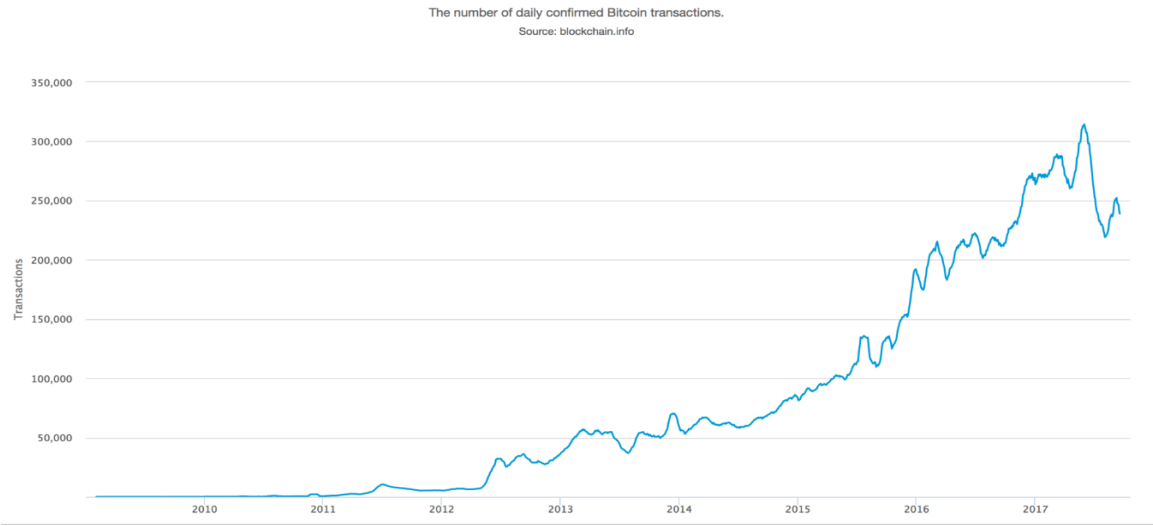

Figure 2. Bitcoin transactions (January 2009 – September 2017)

To use conventional banking as an analogy, the blockchain is like a full history of a financial institution's transactions, and each block is like an individual bank statement. However, because it's a distributed database system, serving as an open electronic ledger, a blockchain can simplify business operations for all parties. For these reasons, the technology is attracting not only financial institutions and stock exchanges, but also many others in the fields of music, diamonds, insurance, and Internet of Things (IOT) devices. Advocates have also suggested that this kind of electronic ledger system could be usefully applied to voting systems, weapon or vehicle registrations by state governments, medical records, or even to confirm ownership of antiquities or artwork.

Blockchain in entrepreneurship

Given the potential of this distributed ledger technology (DLT) to simplify current business operations, new models based on blockchain have already begun to replace the expensive and inefficient accounting and payment networks of the financial industry. Blockchain technology could free up billions of dollars: A recent Goldman Sachs report suggested that it could save stock market operators up to $6 billion a year.

Attracted by the idea of removing the middleman and moving towards democratization and decentralization, tech startups are adopting blockchain technology with the goal of disrupting a variety of industries.

Among the startups leveraging blockchain technology for IOT devices is 21 Inc. The Silicon

Valley-based startup received a total of $116 million in funding in 2015. According to the firm, the funding will be used to embed Bitcoin mining chips into connected IOT devices and cell phones.

Storj is just one company that is currently beta-testing the concept of developing cloud storage based on a blockchain-powered network, with the goal of improving security while decreasing users' dependency on a single storage provider's centralized system. The company even offers users the opportunity to rent out storage capacity they do not need, similar to the way that property owners rent out extra rooms on Airbnb (Blockchain, 2018-02-1).

Efficiencies resulting from DLT can add up to some serious cost savings. DLT systems make it possible for businesses and banks to streamline internal operations, dramatically reducing the expense, mistakes, and delays caused by traditional methods for reconciliation of records.

The widespread adoption of DLT will bring enormous cost savings in three areas, advocates say:

- Electronic ledgers are much cheaper to maintain than traditional accounting systems; the employee headcount in back offices can be greatly reduced.
- Nearly fully automated DLT systems result in far fewer errors and the elimination of repetitive confirmation steps.
- Minimizing the processing delay also means less capital being held against the risks of pending transactions.
- In addition, some smaller number of millions will be saved by shrinking the amount of capital that broker/dealers are required to put up to back unsettled, outstanding trades. Greater transparency and ease of auditing should lead to savings in anti-money laundering regulatory compliance costs, too.

Blockchain's removal of almost all human involvement in processing is particularly beneficial in cross-border trades, which usually take much longer because of time-zone issues and the fact that all parties must confirm payment processing.

R3 CEV, a fintech innovation company, and a consortium of more than 80 of the world’s biggest financial institutions is bankrolling research into methods to harness the speed, accuracy, and efficiency of the blockchain. In 2016, it successfully trialed five distinct blockchain technologies in parallel, using multiple cloud technology providers in a first-of-its-kind test, and is currently marketing its Corda, a "financial-grade" distributed ledger platform for commercial use.

In 2017, after three years of work, Goldman Sachs Group Inc. (NYSE: GS) received a patent for the SETLcoin, which would create near instantaneous trade settlement times.

In 2016, four major banks came together to develop the utility settlement coin (USC), a new digital currency whose use (mainly to buy securities) would be recorded via blockchain. Led by UBS Group AG (NYSE: UBS), they include Bank of New York Mellon Corporation (NYSE: BK), Deutsche Bank AG (NYSE: DB) and Banco Santander S.A. (NYSE: SAN), along with broker ICAP PLC (LON: IAP). In 2017, six more banks joined them: Barclays Bank, Credit Suisse Group AG (CS), Canadian Imperial Bank of Commerce, HSBC Holdings PLC (HSBC), MUFG and State Street Corp (NYSE: STT). The consortium is aiming for a 2018 commercial release (Blockchain, 2018-02-10).

However, for that to happen, a USC-based system or its competitor would need to obtain the approval of commercial institutions, central banks and regulators. And, although it is clearly almost there, blockchain technology is not quite ready for prime time.

The roadblocks to DLT today are not just technical. The real challenge is politics, regulatory approval, and the many thousands of hours of custom software design and front and back-end programming still required to link up the new blockchain ledgers to current business networks.

Problems that still need to be addressed include:

- DLT must interface with other parts of the operational processes seamlessly. Blockchain should enable more rapid setup, training, and reduce problem resolution time. Achieving the efficiency gains must be easy enough/cheap enough for all parties involved to grasp and leverage.
- Security also remains a concern. Several central banks, including the Federal Reserve, the Bank of Canada and the Bank of England, have launched investigations into digital currencies. According to a February 2015 Bank of England research report: “Further research would also be required to devise a system which could utilize distributed ledger technology without compromising a central bank’s ability to control its currency and secure the system against systemic attack.”
- Banks are not interested in an open-source model for identity. Both banks and regulators want to maintain close control. The development of a single digital identity passport authorizer is a critical next step.
- Regulation is also critical in creating an open digital environment for commerce and financial transactions. Current physical certificates must be digitized to gain the full benefits of a fully electronic system. Other

questions to be answered include: Who is responsible for maintaining and managing the blockchain? Who admits new participants to the blockchain? Who validates transactions? and who determines who sees which transactions?

Investors interested in getting on the blockchain technology bandwagon will find it is now easier than ever to do so. In 2015, the venture capital concern Digital Currency Group launched, intending to build what it refers to as "the largest early-stage investment portfolio in the digital currency and blockchain ecosystem." Additionally, according to a report published by the American Software-as-a-Service (SaaS) company NASDAQ Private Market, the amount of venture capital being funneled into cryptocurrency-using firms was anticipated to exceed $1 billion. Companies have even become so interested in the technology that many have begun to play around with the idea of creating their own private blockchains (Swan M., 2015).

Nevertheless, blockchain startups are not without challenges. Among the most significant is the fact that most consumers simply do not understand the extremely complicated concept of blockchain technology. In order to overcome this challenge, companies will need to find ways to precisely explain what they do in easily understandable language – and how they intend to deal with issues like secure online transactions and consumer privacy.

Conclusions

Given the incredible opportunity for decentralization, blockchain technology offers the ability to create businesses and operations that are both flexible and secure. Whether companies will succeed in deploying blockchain technology to create products and services consumers will trust and adopt remains to be seen. Nevertheless, this is definitely a space investors should watch. The demand for blockchain-based services is on the rise, and the technology is maturing and advancing at a rapid pace.

The potential applications for blockchain technology are almost limitless. At the moment, several of these applications are still either in the development stage or in beta testing. With more money being poured into blockchain-based startups, consumers should not be surprised to see DLT services and products becoming more mainstream in the near future.

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