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Blockchain technology and the banking industry

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Abstract:

This paper aims to analyze the principles of Blockchain technology and its potential for the banking sector even in Albania. The Banking Sector itself is served by a lot of inter-organizational systems that Banks, financial institutions and regulatory authorities need to ensure the daily operations between them. The Financial Sector, all over the World, is trying to benefit from the possibilities that blockchain brings. Although blockchain is usually associated to bitcoin, the technology itself is applicable in a lot of other cases in Banking.

In this paper, we will try to explain how this technology makes transactions fast and easy. Blockchain is already transforming payments industry, is applicable in know your customer, contract management, fraud systems and a lot more. This paper will try to explain the way that banking industry innovating with blockchain technology and will also try to bring some thoughts and raise some future questions regarding the scalability and the effort needed to support blockchain.

Keywords: Blockchain, Banking, Finance, Technology, Fraud

1. INTRODUCTION

The main word of everyday announces in the business world is 'blockchain technology' and the way banks and companies are using this technology to improve business models. There are lots of

definitions and descriptions regarding blockchain. According to the open source platform the Hyperledger Fabric [IBM18], a blockchain is an immutable transaction ledger, maintained within a distributed network of peer nodes. These nodes each maintain a copy of the ledger by applying transactions that have been validated by a consensus protocol, grouped into blocks that include a hash that bind each block to the preceding block. It records transactions on this public and distributed ledger and gets rid of the need for a third party in most cases. The data that are entered cannot be erased. It contains a true and verifiable record of every transaction ever made in the system putting the trust at the core of what blockchain technology represents. With blockchain the rules are going to change. As a network oriented software implementation, shifts the risk and responsibility of code execution and data storage from centralized machines to decentralized networks. [GC17] This technology is expected to change the way we exchange value. If fully adopted, it will enable banks to process payments more quickly, to have new digital currency, new payments systems, new records managements and also it will help reducing transaction processing costs.

2. BLOCKCHAIN TECHNOLOGY DURING THE YEARS

Even today, there are many who think Bitcoin and blockchain are one and the same, even though they are not. Blockchain provides the means to record and store Bitcoin transactions, but blockchain has many uses beyond Bitcoin. Bitcoin is only the first use case for blockchain [GM17]. Those who started to realize around 2014 that blockchain could be used for more than cryptocurrency, started to invest in and explore how blockchain could alter many different kinds of operations. Firstly, bankers have been skeptical about how secure blockchain technology will be for their regulated industry, but during the years the banking industry has been more familiar with this technology and started to think about how they can use blockchain to achieve more cost benefits and new revenue.

According to a research that was made during August and early September of 2016 by Accenture Service Company, that interviewed 32 commercial banking professionals to learn about the evolution of the global transaction banking markets, banks are definitely interested in blockchain. In fact, nine in ten participating executives said their bank

is currently exploring the use of blockchain in payments largely because of the myriad compelling benefits blockchain offers.

Santander was the first bank in the UK to use blockchain to transfer live international payments through a mobile app. The solution uses technology provided by Ripple, the creator and developer of the blockchain-based Ripple payment protocol and exchange network.

Five banks in the Philippines are reportedly grouping up to use Visa's blockchain-based payment platform. As part of a new arrangement, the Union Bank of the Philippines (UnionBank) will assist four unnamed rural banks that are seeking to boost the efficiency of their payments processes by building a local platform base on top of Visa's B2B Connect system.

Deutsche Bank is exploring blockchain for payments and settlement of fiat currencies, asset registries, enforcement and clearing derivative contracts, and regulatory reporting. In August 2017, six banks including Barclays, HSBC, State Street, MUFG Credit Suisse, Canadian Imperial Bank of Commerce joined a UBS-led effort to develop a 'utility settlement coin' (USC). With plans to launch the product at the end of 2018, the USC would be part of a digital cash system created via blockchain technology. Without the need of third-party verification and the security of a shared ledge, it will enable faster payments between bank accounts than before.

Another project, entitled Batavia, has been spearheaded by IBM and UBS but also involves the Bank of Montreal, Erste Bank, Commerzbank and Caixabank, hopes to start using the technology with real transactions. Many experts say the technology has the potential to transform trade finance for cross-border transactions, due to the swiftness of the blockchain system. This is through the use of smart contracts – which allows the almost immediate transfer of money worldwide.

Only the few past weeks the second largest bank in Italy, Intesa Sanpaolo, and 13 other banks have successfully completed the first phase of a blockchain-based system aimed at enhancing interbank operations. This project had in focus to reduce the amount of time needed to identify mismatched transactions between two banks using a single communication protocol. The group is now preparing for the next phase of the project in which the banks will utilize the blockchain technology for everyday transactions. According KPMG's Pulse of

Fintech Q2 report, blockchain firms raised more than $240m of venture capital money in the first six months of 2017, much of it from banks, including $107m raised by R3, the New York firm owned by 40 of the world's biggest lenders. That follows an almost doubling of venture capital investment in blockchain firms last year to $367m.

3. CHARACTERISTIC OF BLOCKCHAIN TECHNOLOGY

Referring to William Mougayar in "The Business Blockchain" book, we can list some of the most powerful feature of this technology. The blockchain is applicable in Digital Cryptocurrency, it is a Decentralized Computing Infrastructure where each device running the blockchain software is known as a node and is connected to the network of nodes running that software and only identical copies of the blockchain software may interact with each other [GC17].

Blockchain can be a transactions platform and by 2019 is estimated that the transactions per second will be virtually unlimited. Technology providers like IBM or Microsoft, are offering different solutions dedicated to blockchain aiming to bring a BaaS blockchain as a service platform [6]. The following graph shows the trend of growing in size of blocks and transactions [7].

A blockchain is a transparent and autonomous decentralized ledger that keeps track of every transaction ever processed on its network. The ledger can be shared across multiple parties [GC17]. The blockchain has introduced an innovative mechanism to share transactional information which always refers to the previous block and it achieves a secure, transparent, immutable, repository of truth, designed to be highly resistant to outages, manipulation, and unnecessary complexity. [BY17]. Data in blockchain is stored in blocks. Blocks are consecutives and each block saves information regarding the predecessor. The blockchain is not a replacement of databases [GM17].

4. WHAT BLOCKCHAIN CAN DO FOR THE FINANCIAL AND BANKING INDUSTRY

Blockchain technology can potentially change the financial industry that we know and use today. Here are just some of the most important ways it's believed it will transform it.

4.1 Payments

A payment is the transfer of one form of good, service or financial asset in exchange for another form of good, service or financial asset in proportions that have been previously agreed upon by all parties involved.

The truth is that nowadays there are so many ways of making payments. According to a survey made between 26 March and 6 April 2018 by ING International Survey which asked nearly 15,000 people in Europe, the USA and Australia about their preferences, 42% of online shopping in Europe is paid for with a card; PayPal accounts for another 32% of transactions. 61% of European smartphone owners use the device to bank; up from 48% in 2017. 58% in Europe so far have stuck with their main bank; 42% have explored third-party services such as fund transfers or peer-to-peer payments. 42% of e-tail payments are by card 42% have gone beyond their bank 60% of in-person payments are by card of smartphone owners' bank with it and just 32% are made with cash in Europe.

The most obvious and basic use for blockchain technology is its use as a payments system. While it is still debatable in many countries the use of cryptocurrency like Bitcoin as a legitimate way to make payments, blockchain technology on the other hand is turning in a new trend in the banking industry.

According to the Financial Times a blockchain-based payment project led by JPMorgan has now signed up 75 banks to help testing. Santander and Societe Generale are testing the Interbank Information Network (IIN). JPMorgan built the information sharing program, on its own proprietary blockchain platform, Quorom, and has been testing it with a handful of lenders since October 2017.

Even others financial institutions are showing an interest in using this technology. Fact is that Mastercard has won a patent for a proposed system that would allow for the launch of different kinds of blockchains – including those that support multiple currencies. Even Visa has also gotten involved with blockchain technology, since last year with its Visa B2B Connect payment platform. The company realized that it could use blockchain as a way to get involved with digital currency and improve the types of payment options offered for cross-border transactions. Also American Express has added blockchain technology to its payment system that could provide a

solution for how to improve the speed and functionality of its existing card networks.

The advantages of this technology in payments and transfers is that these transactions are borderless. Also, transaction costs are minimal, costing only a few cents per transaction making it a much cheaper way to send money around the world.

4.2 KYC – Know your customer using blockchain services.

For a bank, getting to know their customers, is not only a good banking practice bur is also a legal and mandatory requirement. KYC stands for "Know your costumer" and is now a standard banking practice. It helps prevent financial frauds, money laundry, identity theft or terrorism financing. Financial institutions spend anywhere from $60 million up to $500 million per year to keep up with Know your Customer (KYC) and customer due diligence regulations according to a Thomson Reuters Survey. Anonymous accounts are restricted entry into the banking system. Preliminary pieces of information such as names, birth dates, addresses and contact numbers are collected.The elements of KYC include everything from identifying a costumer, to monitoring transactions and risks.

When the costumer open an account the bank will ask him for the documents requirement under the law, such as the id document and the address, phone number and other personal information. The blockchain technology in KYC would allow the independent verification of one client by one organization to be accessed by other organizations so the KYC process wouldn't have to start over again. Whenever a new customer enters into the ecosystem, the 'Trusted Party' i.e. the bank verifies the documents. Once checked for veracity, the bank uploads this data in the blockchain. Whenever any new data is needed to be appended, the ledger could enable encrypted updates to the ledger. These updates can be accessed by other entities in real time as and when required. A Digital Identity—analogous to a digital passport—of the on-boarded customer can then be used as a trust sign for future transactions.

4.3 Blockchain and Fraud reduction

The main concern of financial institutions such as banks are, all over the world, is vulnerability.

According to 2018 Identity Fraud: Fraud Enters a New Era of Complexity from Javelin Strategy & Research, in 2017, there were 16.7 million victims of identity fraud, a record high that followed a previous record the year before.

Most banking systems around the world are built on a centralized database that is more vulnerable to cyberattack because it has one point of failure rather than many—once hackers breach the one system they have full access. The blockchain is essentially a distributed ledger where each block contains a timestamp and holds batches of individual transactions with a link to a previous block. Blockchain technology resists hacking, DDOS attacks, and other forms of fraud. This technology would eliminate some of the current crimes being perpetuated online today against the financial institutions.

4.4 Blockchain technology and Smart Contracts

A contract itself is an agreement between two parties creating a legal obligation for both of them, to perform a service, provide a product or commit to an act enforceable by law.

On the other hand, a smart contract is the contract that the conditions are both evaluated and executed by computer code making it trustless. The whole idea of a smart contract is that the parts don't have to rely on a third one to make good on their word or even worse, relying on lawyers and the legal system to remedy things should something go wrong, a smart contract executes what's supposed to happen timely and objectively. Mostly, the main rule smart contracts work are the "if/when-then" statement written on a blockchain. A network of computers executes the actions when all the conditions have been verified. The blockchain is then updated when the transaction is completed.

The benefits of smart contracts, since that they are automatized, they are more trustable, more secure and can save more time and effort to the parties involved.

This technology, if it will be fully adopted it will decrease the costs of the financial institutions, such as banks are. Transparency offered by the decentralized ledger based smart contracts will decrease the review, audit and inspection costs of the business and the IT infrastructure and administration costs will also be minimized.

5. BLOCKCHAIN TECHNOLOGY IN ALBANIA

Blockchain was and still is the most talked-about topic in the financial and banking institutions in the world. Even in Albania this topic was very popular during the past two years. The most common word people use when it comes to this technology is bitcoin, which caused lots of debate over the last year in Albania.

Following the example of developed countries, even Albania should enter in a road of digitalization and modernization in the Financial system. Even if it is argued that defining standards too early in the evolution of a technology lifecycle could be detrimental, as competition for innovation and commoditization could produce counterproductive practices and alliances that fragment the market [HS17], it is crucial for the market to have some new rules appearing in order to let the Financial Sector experiment with this new technology.

The interest in this technology keep growing. Lots of information meeting and trainings had taken place in Tirana during this year.

6. CONCLUSIONS

A lot of questions and need for future research came up, while we were trying to investigate the technology and the behavior behind the new era of Banking. Blockchain is still relatively new, although banks and other industries are already innovating with blockchain technology. At this point, business would definitely benefit in near future from a considered, methodical and sustained approach to implementing blockchain in their processes. The technology would provide banks with efficiency, speed, security and reduced costs in many of their processes. This would directly result in both a price reduction and improvement in the quality of services for end-users. There is need to further investigate the Banking regulated environment from a legal point of view and to further look at the possibilities that different studies reveal regarding the way that blockchain is stored and operated.

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