



Investigating the use of Blockchain Technology in facilitating International Fund Transfer with respect to Banking Sector of Sultanate of Oman

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The significance in Block chain applications has been ever-increasing since its introduction in 2008 due its major characteristics focusing on privacy, inscrutability and information integrity without any third-party concern in handling of the transactions. Consequently initiating interesting research subjects, particularly from the outlook of technical challenges and limitations. Block-chain is broadly considered as a next-generation technology with a lot of prospective upsides in various domains beyond digital currencies

The study investigates the use of block chain technology in facilitating international fund transfer in banking sector, with special reference to Sultanate of Oman. Also, the study makes an effort to find the demand for block chain implementation in banking industry of Oman and also look into the benefits and challenges involved with the application of block-chain applications in banking sector of Oman

Introduction

Blockchain has the prospective to change various industries and make progressions more democratic, safe, transparent, and effective. With increased volumes of data getting created every day as a result of digitization of records, it turns out to be significant for each organization to efficiently deal with the security threats and accomplish considerable cost efficiencies (Shah and Jani, 2018). This is where Blockchain, with its undertaking of decentralized ownership, cryptographic security of records, is grabbing the attention of the C-suite officers. As it employs cryptography that facilitates a number of users to adapt the transactions on a safe network each one retrieving their node of records.

With the exponential technology innovation such as blockchain in Oman and worldwide. Many schemes have been implemented to build awareness of the prospective advantages of blockchain in the digital economy. Employing a cloud-based system, blockchain technology is considered as safe, that is, innately resilient to adaptation. Comparatively, banks are in better shape, being further improved by novel corporate governance policies that support a more sustainable market.

Possibly more than any other growth, blockchain has taken over financial news recently with many electrifying initiatives. This might let smaller entities to handle business at a minimal expense, whilst having parallel safety, transparency and interoperability remunerations. As stated in report of KPMG, (2018) in a worldwide level, blockchain is being regarded by many as a universal remedy to the numerous challenges banking sector is experiencing in defrayal and clearing, KYC, trade investment, bankroll or digital identities

Moreover, given the limitations of the as-is process with international fund transfer, blockchain and the conception of the distributed ledger has been reverberating well among the banking industry. Blockchain is an inclusive ledger exists in a distributed network that is available to everyone in the

network. Therefore every node in the system will have an entire copy of the database or the ledger and any changes to the same should be appropriately verified by other parties to authorize on the changes done. Accordingly it necessitates an accord of nodes to chosen the position of the ledger for it to be applicable. As pointed out by Achanta, (2018) this would denote that direct transfers could take place right away and without any fear of exploitation even for international fund transfer, since there are no third party or correspondent banks entailed

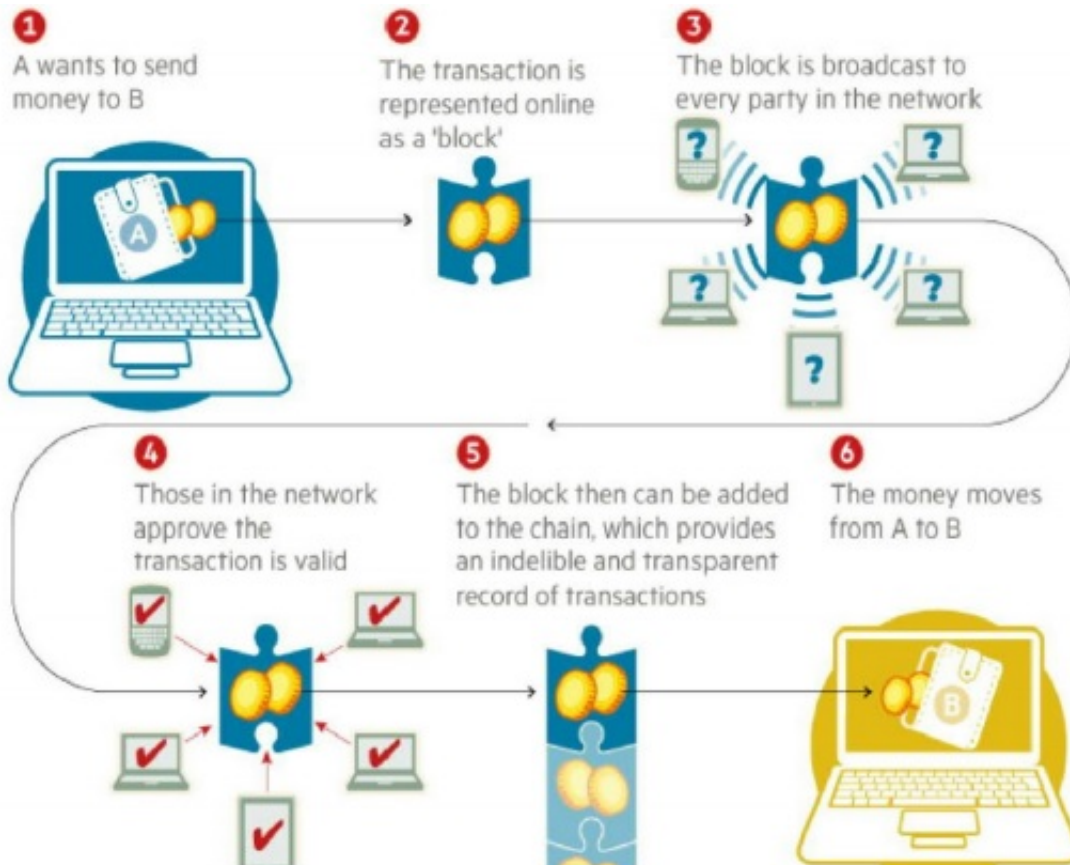


Figure 1. Financial Transactions using Blockchain Technology (Crosby et al., 2015)

However, there are certain obstacles involved in implementing blockchain technology in banking sector. Decentralization from an entirely technological perspective does subsist in certain models. For instance, for Bitcoin and some other digital currencies, inclusive decentralization facilitates them to do operations without the demand for third parties. Though, in the real world, various scenarios should be protected by a large extent of centralization. Accomplishing true decentralization is quite complicated and could even be impracticable; therefore, true disintermediation cannot be accomplished. Chang and Han (2016) pointed out that though blockchains have a technical benefit over banks as credit mediators, it is yet primitive period for this technology to absolutely interrupt the available financial system.

Significance of the Study

Blockchain is currently recognized as the new Internet of Bankroll. Blockchain could develop a credit mechanism in a setting wherein there is inadequate mutual trust amongst parties, thus settling the high costs created by the non-technical elements of centralization. The progressions of financial services are filled with problems, for example efficiency blockages, transaction lag, deceits, and operational risks. It is projected that the mainstream of these issues could be solved in consequence of using blockchain technology, which is clearly explained in the current study. The



study contributed to emphasize that blockchain technology could become the core, and boon to Oman banking sector despite its challenges.

Literature Review

Blockchain

Crossby et al (2016) explain blockchain to be a distributed DB of public ledger or records of entire digital events or transactions that have been shared and executed among involving parties. In the public ledger every transaction is verified by consensus of most of the users in the system. Once the data is registered then the data cannot be removed. The block chain comprises a verifiable and certain record of each single transaction made. Bitcoin is the most familiar instance that is tied to block chain technology intrinsically. Therefore, stating blockchain to be a controversial technology as it allows individuals to undertake multibillion dollars worldwide anonymous transaction without any control of government

Sultan et al (2018) mentioned that the blockchain technology innovation emerged from multi-disciplinary sectors of distributive computing, software engineering, economic game theory and cryptographic science. Blockchains perform at the interlink of these sectors that offers the footing for a scalable and stable infrastructure of software, a base for digital assets security, support for a global decentralized peer network along with economic wages for these peers to be better performers in network. Block chain technology as a discipline concerned with the consumption, transfer and production of wealth using cryptography, game theory and computer networks to develop group's prosperity in future and present economies of digital market. Similarly, Yaga et al (2019) defined block chains as DDL (distributed digital ledgers) of signed transactions cryptographically that are grouped into blocks. Every block is linked to the previous one cryptographically after validation and facing a consensus decision. The older blocks become much critical to change as new blocks are added. New blocks are replicated across ledger copies within the network and any disruptions are automatically resolved using already set up norms.

Blockchain technology in Banking Sector

Cocco et al (2017) reviews the opportunities and challenges of implementing block chain technique across banking. Believing that block chain technique can optimize the global structure of finance, accomplishing sustainable growth using much effective systems than at present. Several banks are presently concentrating on block chain technique to enhance economic development and enhance the green technologies development

Hassan et al (2018) argued that currently banking sector globally is open to cyber-attacks and threats of fraud. As banking sector is widely constructed on centralized DB, making it simple for attacker to penetrate such DB, compromising entirety of customer's data. This vulnerability can be mitigated by re-constructing the banking sector as per block chain technique; thereby decentralizing the database architecture which decreases the threat of being hacked. As the transactions over the block chain technique are verified by every chain nodes

Shah and Jani (2018) also mentioned that new disruptive digital technology is altering the models of business globally. With Block chain technology generating essential concern across vast number of sectors in India due to industry leaders developing and tailoring the technology to fit numerous use cases. The block chain technology is liable for developing next step in the decentralized method for creating applications.

Blockchain Technology in Middle East countries

Sayed and Abbas (2018) explained that crypto currency is a digital currency form where every

transaction using the block chain technology use is recorded automatically over digital ledgers handled by various users linked to their different servers. Crypto currency has established a cheaper, convenient and safer transaction mode needing reduced procedural needs for individuals transacting over this currency mode. Gulf States are identified as developing markets mostly developing the growth of different revolution of economy

Alabassi and Sandhu (2019) believe that the block chain technology has become an essential and epidemic decision that firms may take in the upcoming years as combined solution of business enables institutions to combine the operations, processes and functions of business in a decentralized technology of distributed ledger. Accordingly, with the greater complexity and demanding of developing economies namely GCC nations the requirement for a typical solution of technology is a game changer. The outcome of this will lead GCC countries to solid economy base. The block chain technology can be applicable in various areas namely education, health care, banking, trade, finance, government, etc.

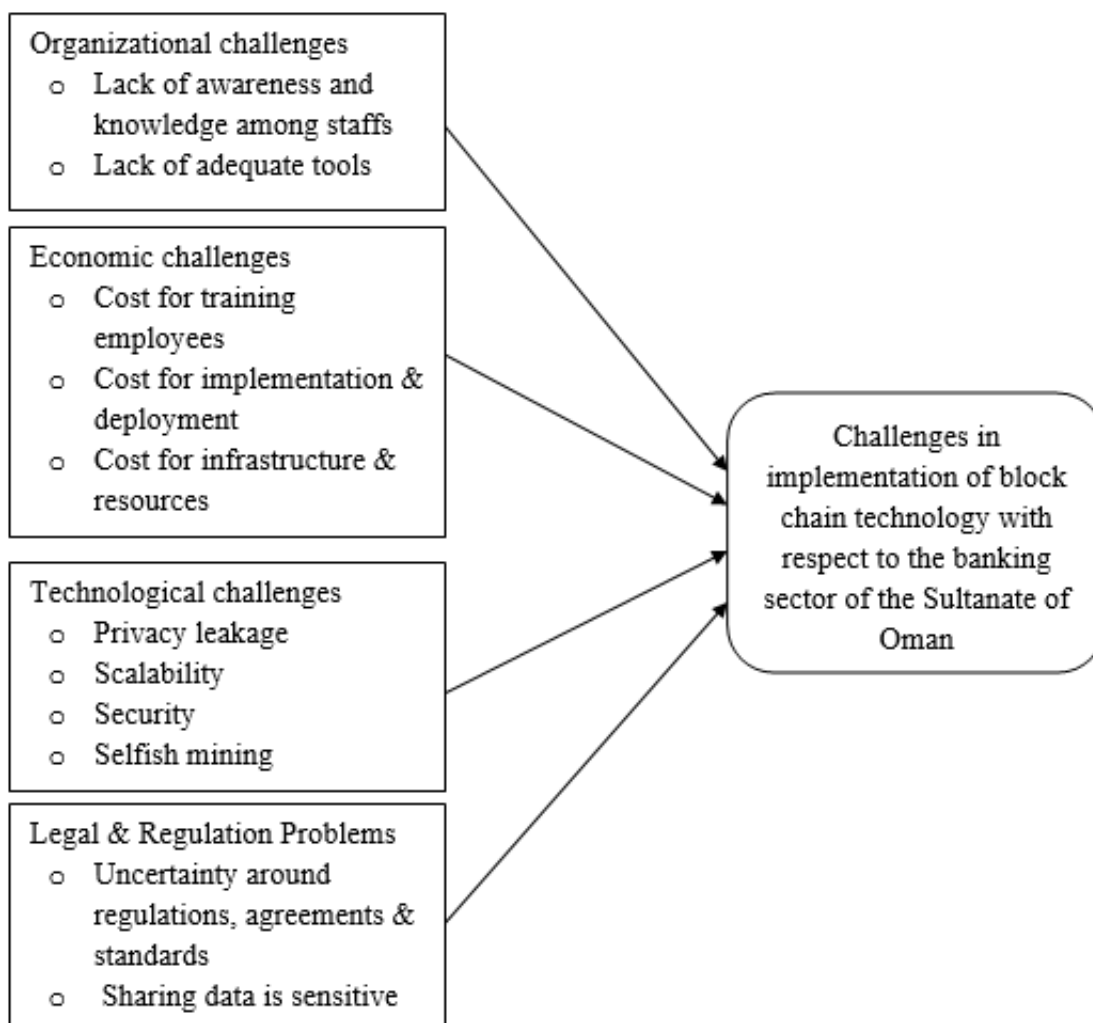


Figure 2. Conceptual Framework for Blockchain in Banking Sector of Oman

Analysis

Anova Analysis

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.649	33	.292	.718	.000 ^b
1 Residual	8.144	20	.407		
Total	17.793	53			

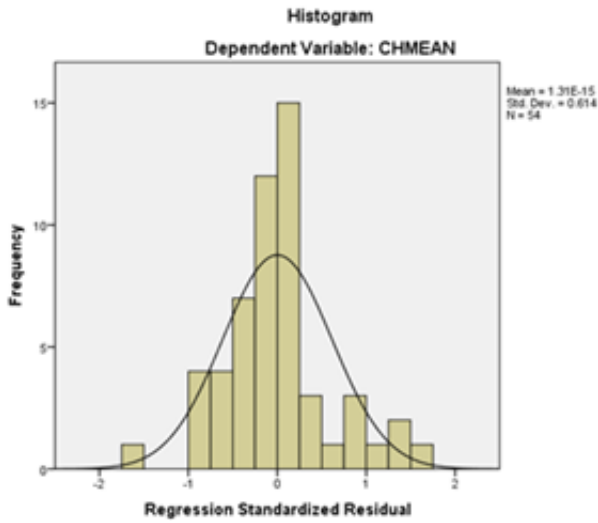


Figure 3.

For conducting this research, researcher has chosen positivism since it deals quantitative (deductive) approach. This study adopted simple random sampling method and descriptive research design. This research collects data for primary data by using survey methods and researcher will provide closed end questionnaires to targeted 68 respondents (Bank Managers in Muscat). Here, in this proposed study, the secondary data was collected by researcher through varied and reliable sources such as journals, reports, academic researches, etc. to support the proposed topic “the use of block chain technology in facilitating international fund transfer with respect to the banking sector of the Sultanate of Oman”. The collected data was analyzed by using appropriate called Multiple Linear Regression and Chi square test. In addition to these, the software ‘SPSS’ was utilized in this research and the outcomes are verified for by using validity and reliability for its accuracy and consistency.

Results

Organizational Challenges in Blockchain Implementation

As the concept of blockchain develops and evolves, organizations in all industries will continuously compound potentially notorious array of problems and dependencies. Lack of awareness such as an extensive lack of knowledge how it exactly works is considered as one of the major challenges associated with block chain network, especially in banking sector (Deloitte, 2017). The current study also reported the same thing and 54% of the respondents agreed to the current statement

Moreover, while blockchain has potential to largely builds value for organizations in many industries such as healthcare, education and so on. Implementation of blockchain suffer the same issue as many existing techniques, i.e. being stove-piped in its development. As organizations are building their individual block chains and application systems to work on top of existing systems.

Kramer, (2019) pointed out that the main reasons for this are poor knowledge, emerging nature of Block chain networks, and application incorporation challenges and also the primary step carried out by the organizations is to develop an internal team focused to be familiar with the technology, its influence, and regions of usage



Economic Challenges in Blockchain Implementation

Though block chain application could save users funds on transaction costs, the technology are a long way from free. The “proof of work” technique, that block chain employs to authenticate transactions, for instance, uses up large amounts of money (Cocco, et al 2017). The majority of banks are trying out the block chain applications, betting on its capability to endorse financial development by easing up business, so as to accelerate the rate of technological innovation, and its capability to initiate faster development of advanced technologies

There are concerns regarding scalability, funds, and safety to be overcome before being approved for extensive usage (Guo and Liang 2016). As there are concern regarding whether this technology will be capable of achieving the processing speed of an automatic clearing house, in terms of the more computational power essential to every contributing block of a block chain, and also regarding the actual capability to reduce costs compared to conventional payment methods while larger transaction level will be entailed.

Technological Challenges in Blockchain Implementation

While blockchain is largely regarded as a tamper-proof ledger, yet, various security threats take place in block chain applications, which makes banking sector unsure whether block chain technology could be made reliable and safe enough from third parties. Block chains are exposed to a sequence of attacks which emerge from its design structure, its basic peer-to-peer system, and the functions that utilize this technology

Double spending threats, mining/pool Threats and network threats are some of the largely occurred threats in block chain technology. Selfish mining is a well-known threat in block chain technology used by miners to pilfer block rewards (Solat and Potop-Butucaru 2016). As soon as a selfish miner identifies a challenging block in his secretive chain, he is enforced into a compete condition wherein he vies with the hash speed of the rest of the system in order to expand his personal chain before someone else adds a block on the major block-chain

The majority of the respondents are well-known about these threats and the study emphasized that technological factor is one of the challenges in the implementation of block chain technology. Saad, et al (2016) pointed out that the most important objective of selfish mining is to acquire an unjust reward that is particularly larger than their portion of computer power exhausted, and confound other reliable miners and make them exhaust their resources in a very wrong direction. There might be new legal problems including regulation of those registering information onto the block-chain, as flaws made on this applications are clearly noticeable and approachable, but could not be upturned unilaterally (Liu, et al 2018). Employing block chain application, for safety, is a means of assuring that all of the information that is stored anywhere is consensually expected to be right. This might not stop one’s information from being shared, however it does make sure that their data could not be changed without the system’s notice.

Recommendations

As per the research findings, the concept of blockchain can be incorporated within Banking Sector of Oman through implementation of regulatory oversight for better value-adding and competence development. Thereby improving increasing convenience and consequently financial inclusiveness

However, the study didn’t consider the various security threats affecting the in block-chain technology. Hence future studies within the field should evaluate the factors affecting utilization of blockchain from security perspective.

Therefore, understanding the role of Blockchain as well as measures to mitigate the security



threats efficiently. In addition to determining the complications and limitations of blockchain within the banking sector will enable its incorporation within the Banking Sector of Oman

Conclusion

Block chain has possibly become a major buzzwords in both finance and banking sector. Proponents publicized it as the technology which has the capacity to transforming the banking services, referring to its capability to run without a main authority and as well store records in a means of tamper-proof system. But they as well consider it will be advantageous to various sectors beyond finance and technology, predominantly ones overwhelmed by a massive follow of paper records and outmoded technology — be it health care, real-estate, etc.

In recent period, blockchain applications has conquered financial news with a large part of stimulating measures already publicized. As various initiatives have been already taken globally and in Oman to build awareness of the prospective benefits of block chain in the digital era. As a result of the remarkable features, for example transparent, security and tamper-proof, an application like block-chain can be extensively employed in banking sector

Nevertheless snail-pace transaction speed and a poor standardization such as endanger to inhibit block chain's progression. Block chain is like a bookkeeping ledger, only it stores transactions across a large network system and is decentralized, indicating it doesn't demand any chief authority to administer it.

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