A Survey on Online Banking Transactions using Blockchain

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ABSTRACT
Today we live in the digital world. With continuous data streaming and increasing digitization the amount of structured and unstructured data being generated from various sources – transactions, social media networks, sensors, machines, mobile applications, and other applications sources. This paper presents framework to improve online banking transactions using blockchain, different frameworks are presented using Diamond Bank PLC, comprehensive classification of blockchain-enabled applications. So, it can become to proposed framework for Individual Credit Scoring System, Credit Application for Industries has become a growing field in the blockchain technology. Large amounts of data perform more effectively but working with them can be limited due to processing frameworks, which are a critical part of Online Banking Transactions Using Blockchain. Using this technology, it is now able to transfer money, and electronic transactions are now easier and safer than with the standard payment method. This paper presents valuable insights into the understanding techniques analysis frameworks for online banking transactions using blockchain.

Keywords
Blockchain, Transactions, Applications

1. INTRODUCTION
In the world Today, The Blockchain is a distributed ledger technology (DLT) that enables community validation to support most cryptocurrency adaptations through coordinated ledger contents duplicated across millions of users, which is at the heart of most cryptocurrency adaptations. Bitcoin, for example, is one of the cryptocurrencies that uses blockchain technology, which is a distributed peer-verified time-stamped ledger that shows all authorized exchanges sequentially [1]. The Digital transformation has entered a period of opportunity., traditional cash payment and transfer systems were replaced by the mobile banking system. However, the system is a manual process between the clients and the bank staff with settlement through a third party [2]. A blockchain is a constantly growing collection of archives maintained by a peer-to-peer (P2P) system that is widely used in a variety of technology contexts, typically in conjunction with artificial intelligence [3]. A blockchain can execute secure computations and only the data owner has access to the raw data [4]. through the availability of online service access. This has led to the development of online banking, which allows banking services over the internet. Internet banking refers to computer-based systems that allow bank customers to access personal accounts and general information about bank products and services [5].

Almost a decade ago Satoshi Nakamoto, the unknown person/group behind Bitcoin, described the Blockchain is a method of storing data in such a way that it is difficult or impossible to alter, hack, or cheat it. A blockchain is a digital log of transactions that is duplicated and distributed across the blockchain's complete network of computer systems [6]. Each block in the chain contains a number of transactions, and each time a new transaction takes place on the blockchain, a record of that transaction is added to the ledger of each participant. Distributed Ledger Technology is a decentralized database that is administered by various people (DLT) [7]. distinguish three keys inquire about streams: (i) classification of the run of blockchain-based applications over a tremendous array of divisions (ii) appropriateness of the blockchain innovation to make value in these segments taking under consideration the different confinements this technology presents, and (iii) directing analysts by giving a guide of promising investigate roads, challenges and opportunities for which assist inquire about is required. It is worth noticing that this survey cannot by any implies be considered as exhaustive since blockchain innovation is continuously developing at an awfully quick pace [8].
The release of Bitcoin, a decentralised cryptocurrency, in 2009 generated interest in the field of blockchain technology. The blockchain technology, which was previously mainly used for bitcoin peer-to-peer transactions, has now been extended to include smart contracts, which are applications that self-enforce contract requirements on the blockchain [9]. Although, when a person approaches a bank for a loan, it is always in excess of the basic credit limit, which may be given out in bulky, simple monthly payments, so the bank is more concerned to check out the customer's financial abilities of credit history and credit score, As a result, if a single blockchain framework is built that can handle both a retailer's transaction and credit orders, the process will be much more efficient and transparent[10].
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2. RELATED WORK
The previous research attempted to solve the problems of online banking transactions between clients and central banks and explore blockchain technology and its potential applications for bank transaction. This section will present a literature review of the research area. The first subsection will present blockchain technology, followed by a subsection about financial inclusion and mobile financial services. This section is concluded with presenting the theoretical frameworks that support and structure the study. Many

researchers have made studies on a framework for online banking transaction using blockchain.

Chakraborty S, et al. (2019), Presented a blockchain based environment may allow for the evaluation of a customer's qualifications over the order limit or credit limit that has been requested, as well as the analysis of the customer's qualifications to stand credit to protect from any risk to account and the calculation of the customer's credit score based on the agreement of different stakeholders in the network, such as banks, insurance companies, and other third-party financial organizations. The authors applied two different types of credit scoring systems presented, Individual Credit Scoring System or Credit Application for Industries Prefers to the scoring of an individual's credit, which the individual might use to obtain loans or credit. Invoices. We also propose a system in the second framework. This applies blockchain as a transaction management system for keeping track of client credit orders in order to push out blocked orders. Their result showed that the framework provided in the work appears to be the most optimal, relying solely on the management of the customer's entire and diverse history data, as well as determining all current credit points that the customer has left open. The framework's focus is on the amalgamation of different stakeholders into blockchain, where the customer's access grant is used [10].

Junis, F., Prasetya, et al. (2019), proposed a preliminary framework for the application of blockchain-based smart contract in the academic field., then according to This research aims to revisit blockchain-based smart contract technology in order to better understand and explain the research gaps identified in previous studies, to facilities smart contract with customer depend on revisit on blockchain. . Smart contracts built on the blockchain have become a growing field in blockchain technology. What was formerly thought to be a solution for resolving digital transaction concerns has turned out to have a wide scope. , as well as to make recommendations for future research. in this paper are two types of blockchain-based smart contract platforms now available: EVM-compatible platforms and non-EVM-compatible platforms. Almost all smart contract research is done on the Ethereum platform, then we conclusion the result blockchain-based smart contract technology is a developing topic, there are several prospects for additional research and future effort. There is a need for more research into the scalability and performance issues to based framework of based smart. Finally, a more thorough investigation of blockchain-based smart contract platforms technology is needed, particularly to determine advantages and disadvantages of each platform [9].

Casino, F., et al. (2019), We also evaluated the problems identified in the relevant literature, including the limitations of blockchain technology and how these limitations show themselves across diverse sectors. We highlight large number of research needs and limitations exploratory routes based on these findings, which are expected to be of major use to both academics and users then we provided a complete classification of blockchain - enabled applications across diverse sectors such as supply chain, business, healthcare, IoT, privacy, and data management, based on a structured, systematic review and thematic content analysis of the discovered literature. We conclude in this paper, result showed that to identity theft reduction, more secure, faster exchange, cost reduction, improved information quality, KYC, brilliant contracts, payments, and exchanging stage, the majority of banks must transform into blockchain innovation. Another calculated edge work for using mobile instalment blockchain is presented in this paper. Which can reduce the risk of banks and money experts and welcomes the clients (the two) Technicians and customers) expect faster, safer, and less expensive service [8].

Ojeniyi, J. A., et al. (2019), evaluated the security risk analysis and management in Online Banking transactions using. The bank should improve on their banking transaction application to maintain integrity given customer account information. The aim of the research, Using Diamond Bank plc, Nigeria as a case study, this study aimed to examine the information risk associated with internet banking transactions. A structured questionnaire was developed to gather the primary source of data, which was designed to examine the danger to information security of financial transactions in the banking industry. The results showed that the paper research attempted to solve, he study discovered that most of the respondents have fundamental knowledge of security risk in terms of disclosing their online bank transactions details, indication shows that more need to be done in terms of bank client awareness about saving transaction details and passwords on transaction devices, should bank prevent personal data from any hacking by using security risk in Online Banking Transactions [11].

Saleh, M., et al. (2021), presented a framework for using mobile payment blockchain that can address banks and financial authorities concerns while also meeting the needs of customers (both merchants and retailers) for faster, safer, cheaper, real-time, and improve secure payments. The need for the transaction to be approved and reconciled by the intermediate parties The framework minimizes the amount of time it takes to complete tasks. Because all transactions are transparent and definitive, there is an operational risk. block on the Blockchain can get the initiated transaction by the customer and check for eligibility and create the block for this transaction, each customer has his own bank account, and the account is connected on his mobile number via IBAN, each node for the bank has to validate each transaction to be authorized transaction. The results showed that a framework to enhance the Blockchain Implementation to Manage Banking Mobile Payments using to solve the problem for both ways and reduce risk, prevent hacking data from bank, show that blockchain innovation for extortion decrease, secure, quicker exchange, bring down the cost, enhanced information quality, KYC, brilliant smart contracts, payments, and exchanging stage, then provide the gatherings to solution the exchange for both customers with high secured in online baking. [1].

Awotunde, J. B., et al.(2020), proposed a Blockchain-based framework for protecting and securing financial data transfer on mobile devices. Then To protect mobile online banking, a multi-level authentication protocol was employed, as well as two-factor authentication protocol to generate a time-based one-time password received and request code at the same time to confirmation to log in with users (TOTP) for more secured money transfer via applications, the obtained results testify to the planned Framework's authority. So, the banks must manage blockchain-oriented data transfer and inter-bank liquidation network as Society for Worldwide Interbank Financial Telecommunications (SWIFT)-oriented capital transfer before entering the global chain. Their result showed the proposed solution creates a local peer network that distributes the blockchain platform to all peers. Finally, we

create a blockchain-based system for protecting the security of financial data [12].

3. BLOCKCHAIN ARCHITECTURE DIAGRAM

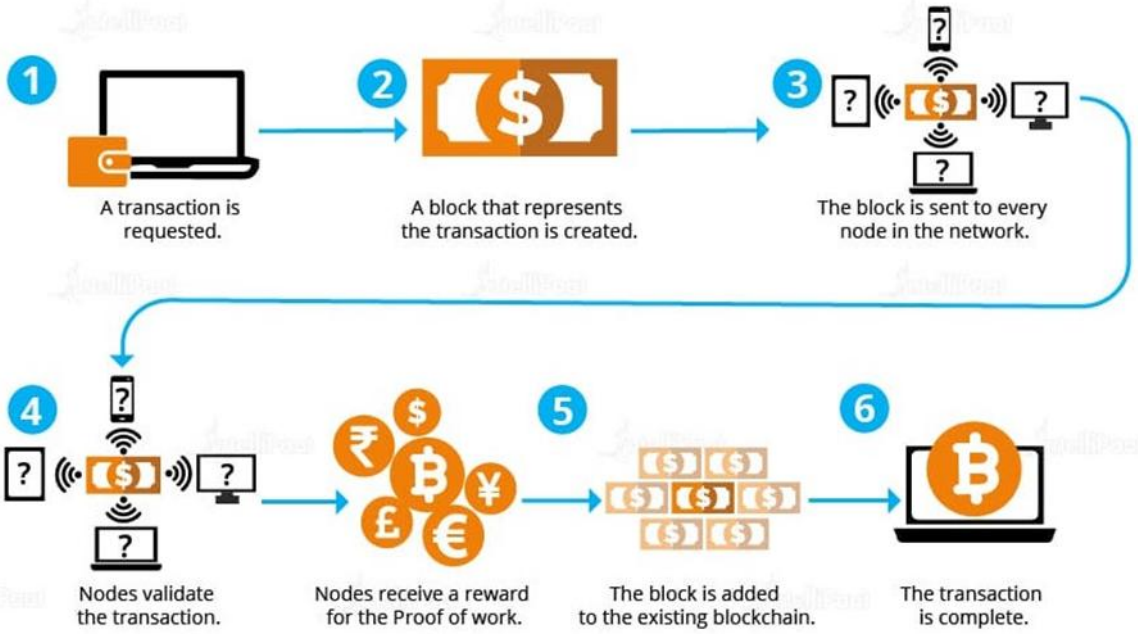

Fig 1: If necessary, the images can be extended both columns

4. RESEARCH PROBLEM

Borrowing loans from bank involves various procedures and formalities. Bank will demand collateral security for granting loans. This study identifies the problems faced by the customers regarding the borrowing of the loan [6].
Actual score of problem faced customers by the defaulting borrowers to taking loan:

- Complicated formalities
- Unfavorable attitude of bank officials
- Need for repeated visit to bank
- Lack of proper guidance from bankers
- Delay in arranging security requirements of bank
- No timely support from the bank
- Delay in sanctioning loan
- Past loan history of parents.
- Rejection of loan application by another bank
- Political Interference in the Lending Process

5. RESEARCH OBJECTIVES

This research aims to find a framework to improve bank loans transactions using blockchain technology.
Blockchain technology holds the potential for being applied in financial processes specially banks loans transactions. Blockchain offers solutions like:
Reduction of Costs
Reduction of time-consuming in data entry
Reduction in total TAT (Turnaround time)
Improve Efficiency
Enhancing bank transaction' Ability to Provide High-Quality for clients
Reduce the fraud
Supporting the improvement of the bank transaction through recording the client's data without any additional effort.

6. RESEARCH METHODOLOGY

This research uses different surveying techniques to prove that the research problem is important to be solved. Furthermore, theses surveying techniques will be used to verify the previous solutions for the research problem. This research will be conducted based on the following steps:

1- Surveying financial transactions problems.
2- Surveying the previous studied which adopted solutions to solve the research problem
3- Adopt a framework that helps in solving the research problem and enhance the bank transaction of loans using Blockchain.
4- Implementation of the proposed framework.
5- Evaluation of the suggested framework on real case studies.
6- Documenting for the data derived from the previous steps

7. CONCLUSION

online banking transactions using blockchain analysis for storage over data and reduce the results is undoubtedly a huge challenge. There are many solutions to address online transactions requirements. The majority of online banking transactions using blockchain to improve frameworks benefit from different systems to develop complete solutions. Most of the frameworks for online banking transactions using blockchain benefit from different systems to develop complete solutions and more efficiency. The main concern with blockchain technology is the security of all transactions, made mainly online. Many private data have been stolen through different illegal activities so there is no legal route for them to have been through. so, Blockchain is already well-known for online banking transactions and is critical to many banks and other institutions in securing their normal daily financial activities, although it still has many problems, through This process using blockchain technology is complex, and because it is once decentralized and encrypted, As this study has predicted, blockchain technology is the world routing technology in various techniques. This study will

briefly examine multiple blockchain technology's importance in the present world for enhance online banking transactions. finally, these are all the most immediate issues with blockchain technology at the current, although if they can all be resolved using current techniques.

8. REFERENCES

[1] Saleh, M., & Aqel, M. (2021). Blockchain Implementation to Manage Banking Mobile Payments. Journal of Information Science & Engineering, 37(6).

[2] Avital, M., Hedman, J., Albinsson, L., & Design, M. (2017). Smart money: blockchain-based customizable payments system. Dagstuhl Reports, 7(3), 104-106.

[3] Omohundro, S. (2014). Cryptocurrencies, smart contracts, and artificial intelligence. AI matters, 1(2), 19-21.

[4] Manset, D.: Big data and privacy fundamentals: toward a "digital skin". In: The Digitization of healthcare, pp. 241–255. Palgrave Macmillan, London (2017)

[5] Sarma, G., & Singh, P. K. (2010). Internet banking: Risk analysis and applicability of biometric technology for authentication. International Journal of Pure and Applied Sciences and Technology, 1(2), 67-78.

[6] Nakamoto, S. (2008). Bitcoin: A peer-to-peer electronic cash system. Decentralized Business Review, 21260.

[7] Crosby, M., Pattanayak, P., Verma, S., & Kalyanaraman, V. (2016). Blockchain technology: Beyond bitcoin. Applied Innovation, 2(6-10), 71.

[8] Casino, F., Dasaklis, T. K., &Patsakis, C. (2019). A systematic literature review of blockchain-based applications: Current status, classification and open issues. Telematics and informatics, 36, 55-81.

[9] Junis, F., Prasetya, F. M. W., Lubay, F. I., & Sari, A. K. (2019). A revisit on blockchain-based smart contract technology. arXiv preprint arXiv:1907.09199.

[10] Chakraborty, S., Aich, S., Seong, S. J., & Kim, H. C. (2019, February). A blockchain based credit analysis framework for efficient financial systems. In 2019 21st International Conference on Advanced Communication Technology (ICACT) (pp. 56-60). IEEE.

[11] Ojeniyi, J. A., Edward, E. O., & Abdulhamid, S. M. (2019). Security risk analysis in online banking transactions: Using diamond bank as a case study. International Journal of Education and Management Engineering, 9(2), 1-14.

[12] Awotunde, J. B., Ogundokun, R. O., Misra, S., Adeniyi, E. A., & Sharma, M. M. (2020, December). Blockchain-based framework for secure transaction in mobile banking platform. In International Conference on Hybrid Intelligent Systems (pp. 525-534). Springer, Cham.