



# KYC Verification Using Blockchain

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**Abstract:** As we have learned earlier through professionals and scientists, data on the internet is not secure and anyone with good hacking skills can easily penetrate your system. However, it's not the case now, thanks to the freshly emerged blockchain technology, which has made it possible to keep our data private and secure. In the near future, many businesses and institutions will use blockchain technology for financial transactions and safeguard confidential information. In this paper, we present a proposed blockchain system that can be used in KYC document verification for financial institutions. Moreover, this paper will also explain some of the most important aspects of using blockchain.

**Index Terms - Blockchain, KYC process, Digital Identity, Fintech, Know your customer, Smart Contracts .**

## I. INTRODUCTION

With the emerging cryptocurrency exchange and data sharing, the Blockchain system has seen good growth since its development in 2008. In simple terms, a blockchain is a system that helps in recording information and securing it. Blockchain systems have been used in keeping data secure such that no one can easily change or hack the system. The transactions made using blockchain are the most secure ones for now. Its characteristics such as immutability, enhanced security, and consensus make it perfect for the financial sector. As we all know, the traditional KYC verification process for any bank is tiring for both parties. Thus, If we can utilize blockchain technology for verifying crucial documents at once, it will definitely be a significant achievement. Hence, using blockchain technology for verifying the KYC documents and safeguarding them will work as the best way to keep the system adaptive and uncorrupted. As blockchain technology has numerous applications in different industries, it can surely bring some changes in the banking industry.

## II. BLOCKCHAIN CHARACTERISTICS

Blockchain technology has a lot of outstanding characteristics which can help us in the KYC document verification process. The key characteristics of a blockchain are given as follows.

### 1. Decentralized

A blockchain system is decentralized, which means no one governs it. No financial institutions or a group will have access to the data unless it has the right key. This feature of blockchain technology will help in verifying and maintaining the system's integrity.

### 2. Enhanced security

As said earlier, a system that will use blockchain technology will be decentralized and only people with the access tokens will have access. Moreover, the data will be secured by cryptography which uses complex algorithms to encrypt the data. The hashing is done using the SHA algorithm which makes it secure.

### 3. Immutability

A transaction once done, cannot be denied or changed in a blockchain. However, you can do other transactions but the previous transaction will always be there. This immutability feature of a blockchain maintains a record of transactions. Hence, if the previous documents don't match with the new ones, an individual won't be trusted.

### 4. Distributed ledgers

Blockchain cannot be owned and governed by any specific organization. It is a distributed system that is to be used by a network of organizations. KYC documents can be used by multiple organizations at the same time.

III. OBJECTIVES

The objectives of this research paper are as follows:

1. To explain how a blockchain-based system can be used in the KYC document verification and storage process by any financial institutions and individuals.
2. To check whether the blockchain technology can be fully trusted by any financial institution for KYC verification

IV. LITERATURE REVIEW

In [1] we observe that to make an efficient KYC verification system using blockchain, we do not require any regulators, third parties or middlemen to interfere between the process. The KYC process will be distributed and won't be governed by any financial institutions. further, the system can easily verify someone's identity and retrieve the documents from the blockchain.

In [2] we found out that a blockchain uses a peer to peer communication network where its nodes communicate with each other and keep the data secure. Moreover, a customer can encrypt their transactions using hashing algorithms. This makes sure the transactions and other data stays safe, also all the nodes in a blockchain reflect the same changes.

in [3] we observed that the current KYC process is very inconvenient and inefficient. hence using a digital signature to verify the documents is a better way to avoid redundancy and fraudulent transactions.

In [4] we discovered that there are many unsolved issues with the existing KYC verification process. Hence, if we use the blockchain technology for the KYC verification, it will definitely help in decreasing the expenses.

V. THE EXISTING KYC PROCESS

The KYC verification process is the backbone of any financial institution. If it's not done right, the institution can suffer huge losses through fraudulent transactions. It became mandatory for every financial institution to verify the KYC documents of their customers to prevent malpractices such as money laundering and illegal funding. The current KYC process works such that an individual who wants to work with any financial institution is required onboard with valid documents. The identity, address, and sometimes biometrics are verified during KYC verification. Further, these documents are authenticated by the banks and then only the customer is trusted. The customer needs to follow this procedure every time with a new financial institution. It is a lengthy and tiring process for both parties, especially for the customer as the middlemen extort money from them for passing the documents. In the diagram below, we can see that a customer needs to carry the same set of documents to bank A, bank B, and bank C for the KYC verification process. In India, a person can use documents such as an Aadhar card, Pan card, Voter ID, Driving license, and passport during the process of identity verification. Also, other than their own safety, banks follow the KYC process strictly because the Indian government has made it mandatory. Moreover, if the banks don't follow the process, they are heavily fined.

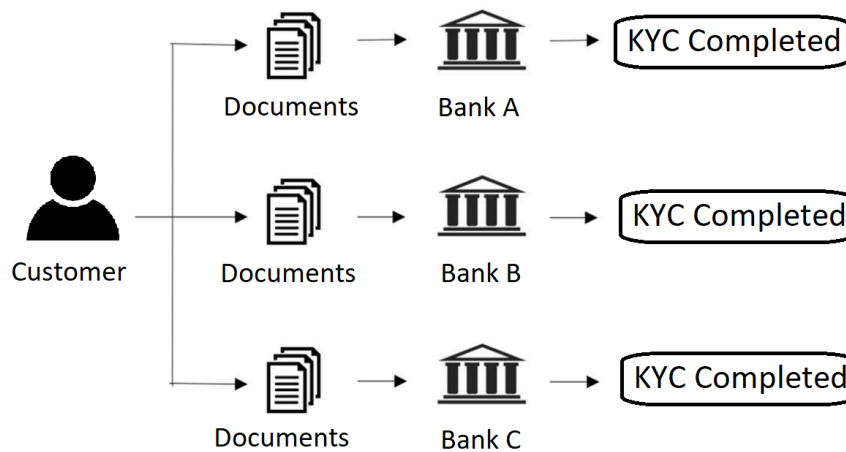


Figure 01:The existing KYC process

## VI. PROPOSED METHODOLOGY WITH BLOCKCHAIN

The blockchain system is controlled by its nodes, there is no central authority required. All the nodes have the same information with them, thus the data in a blockchain cannot be changed. We can add new documents, but only when they match the previous documents. In this paper, we have proposed a way we can utilize blockchain for KYC document verification using smart contracts. It will save a lot of effort, paperwork, and time for both parties. The smart contract makes the process even easier and better as it works as per the specified conditions. If a set of documents are not valid according to its conditions, it will reject them. Whereas the current KYC system will take a long time to determine whether a document is valid or not.

In the figure 1 given above of the existing KYC system, we can see that the customer verified the same set of documents individually at bank A, bank B, and bank C. The efforts, resources, and money used during this process will get wasted. On the other hand, if we apply blockchain technology to the existing KYC system, as shown in the figure 2, we can see that the customer verifies their documents only once to a bank and while working with other banks, the customer won't need KYC verification. This system will help customers and financial institutions to save paperwork, cut down costs, and minimize fraudulent activities.

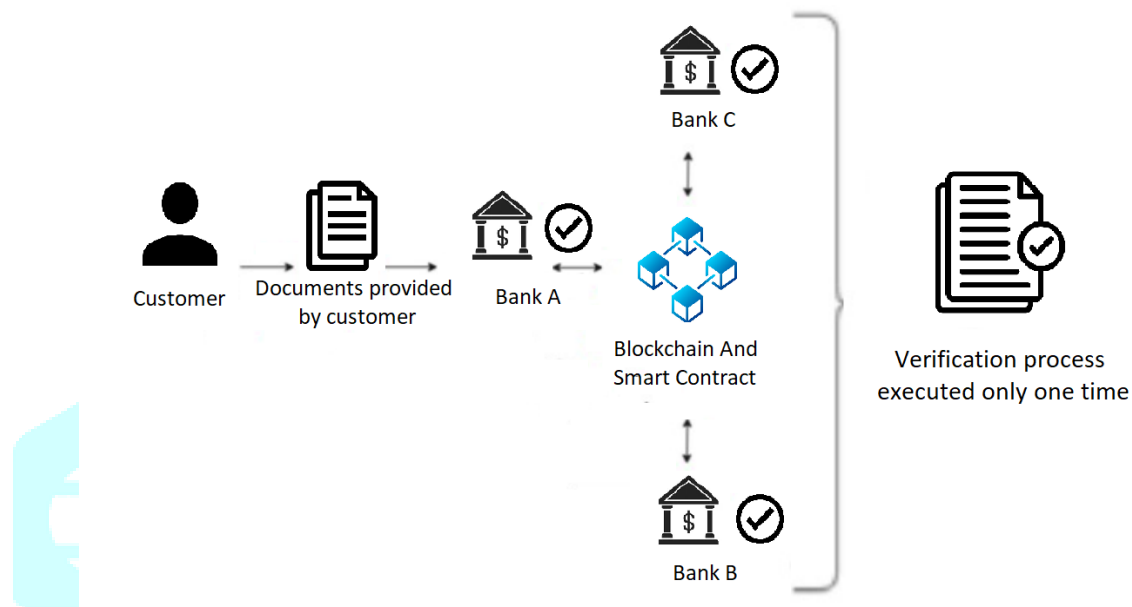


Figure 02: Proposed methodology

## VII. SYSTEM ARCHITECTURE DIAGRAM

The proposed architecture of the KYC verification process includes two major parts, namely the application layer and the fabric layer. The application layer will include the user interface which will let the banks communicate with the regulatory body for access to the private blockchain. Besides the application layer, the fabric layer is the one that works the most. It includes actual programming, private blockchain, and the smart contract.

Let's take a brief look at the layers of the architecture with the working of this blockchain KYC verification system

### Working

In figure 3 we can see that when a customer goes to bank A with the required documents for KYC verification, bank A verifies the documents and rejects or accepts them according to their validity. Further, if the documents are approved, then only they are sent to the fabric layer and stored in the protected and permissioned database. Accordingly, the smart contract will have some of its conditions to check whether or not the documents are valid. If they are valid, the smart contract will store those documents in the private blockchain which will be governed by a regulatory body such as the government. Once this process gets completed, the customer will be given a token that will help them in further bank interactions.

When the same customer goes to bank B or C, he simply has to present the token to the bank through which they can send a verification request to the governing body using the user interface. Further, at the backend i.e. the fabric layer, if the verification request is approved, the already verified documents are fetched using the smart contract from the blockchain. After the verification process is completed, the token is returned to the customer.

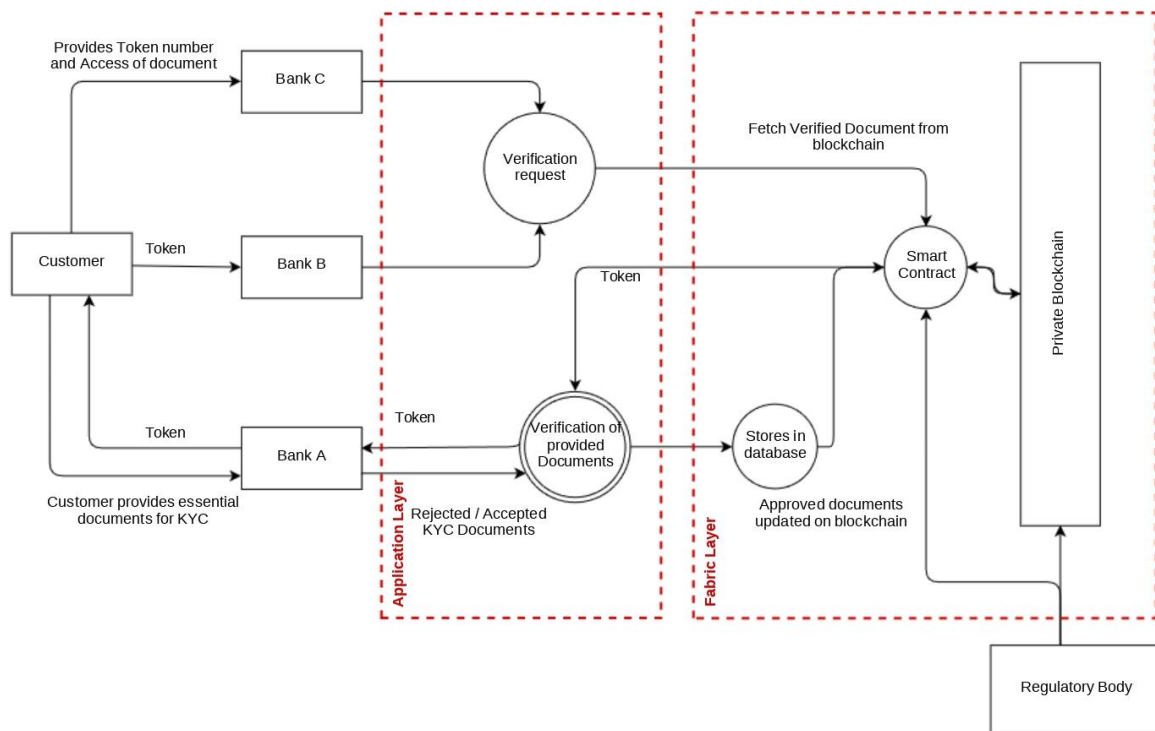


Figure 03: System Architecture diagram

## VIII. CONCLUSION

In this paper, we have suggested a KYC verification using blockchain technology and its architecture which might help in cutting down the costs of KYC verification and make the process easier for customers. The current financial system might see good growth if only valid users can access it and for that, this KYC verification system can surely bring some changes. The proposed architecture in this paper can help in the anti-money laundering initiatives taken by the government and reduce fraudulent transactions. Moreover, unlike the current financial system where it takes months for authentication and to work with a financial institution, a customer can be authenticated within days and can start working early. Apart from that, blockchain technology is secure, cost-effective, and requires less time. Blockchain technology has many applications which will surely do a lot of development. Hence, in the near future, it will bring a lot of opportunities for people to develop and explore it.

## References

- [1] "Blockchain as the Newest Regtech Application- the Opportunity to Reduce the Burden of KYC for Financial Institute". [https://www.academia.edu/39393562/Blockchain\\_as\\_the\\_Newest\\_Regtech\\_Application\\_the\\_Opportunity\\_to\\_Reduce\\_the\\_Burden\\_of\\_KYC\\_for\\_Financial\\_Institutions](https://www.academia.edu/39393562/Blockchain_as_the_Newest_Regtech_Application_the_Opportunity_to_Reduce_the_Burden_of_KYC_for_Financial_Institutions)
- [2] "Optimized and dynamic KYC system based on blockchain technology." [https://www.researchgate.net/publication/328211101\\_Optimized\\_and\\_Dynamic\\_KYC\\_System\\_Based\\_on\\_Blockchain\\_Technology](https://www.researchgate.net/publication/328211101_Optimized_and_Dynamic_KYC_System_Based_on_Blockchain_Technology)
- [3] "A Blockchain Based Approach For An Efficient Secure KYC Process With Data Sovereignty." <https://www.ijstr.org/final-print/jan2020/A-Blockchain-Based-Approach-For-An-Efficient-Secure-Kyc-Process-With-Data-Sovereignty.pdf>
- [4] "KYC Optimization using Blockchain Smart Contract Technology." [https://www.researchgate.net/publication/350093013\\_KYC\\_Optimization\\_using\\_Blockchain\\_Smart\\_Contract\\_Technology](https://www.researchgate.net/publication/350093013_KYC_Optimization_using_Blockchain_Smart_Contract_Technology)