Report On

Ether Wallet

Submitted in partial fulfillment of the requirements of the Course project in Semester VII of fourth year Computer Science Engineering (Data Science)

by

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CERTIFICATE

This is to certify that the project entitled "**Ether Wallet**" is a bonafide work of **"Tanvi Patil (Roll No. 45), Aditya Joshi (Roll No. 24), Chirag Thanth (Roll no. 50)"** submitted to the University of Mumbai in partial fulfilment of the requirement for the Course project in Semester VII of fourth year Computer Science Engineering (Data Science).

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Introduction

1.1 Introduction

Abstract Businesses and organizations have for long been trying to tackle the most prominent issues regarding identity management and systems. Traditionally, the proof of trust concerning the identification of a citizen, a customer or a participant in any business or transaction consisted always in a physical evidence (e.g., a signature, fingerprint, photo or other) whose value would rely on a trusted third-party such as a notary or attorney that confirmed the veracity of that physical evidence.

1.2 Problem Statement

The Tradition online wallets don’t guarantee to customers that they are secured with the type of wallets they choose. With time it has been proven that there is no such technology exists that can empower the banking system and protect customers' rights and customers against financial frauds. As goodwill comes with a cost that is a trust which takes years of time to build. The problem with the wallets is that they have a certain length of a password which can be obtained easily by the hackers. Similarly, OTP verification can be bypass through the system in fever cases such as credit cards to facilitates and steal the money.

1.3 Objectives

The objective is to develop an Ethereum wallet solution that addresses these problems, providing a user-friendly, secure, and efficient experience for managing digital assets and interacting with the Ethereum network. The objective is to develop an Ethereum wallet solution that addresses these problems, providing a user-friendly, secure, and efficient experience for managing digital assets and interacting with the Ethereum network. The target audience includes both newcomers to the Ethereum ecosystem and experienced users who seek a more user-friendly and secure wallet solution.

Chapter 2
Literature Survey

2.1 Analysis of literature

Sr. No.	Title of the Paper	Advantages	Disadvantages
1	Blockchain Technology: Transforming Libertarian Cryptocurrency Dreams to Finance and Banking Realities	Security : Blockchain technology used to generate cryptographically secure wallet records.	Complexity: The complexity of blockchain technology might hinder mainstream public acceptability.
2	Research of a Possibility of Using Blockchain Technology without Tokens to Protect Banking Transactions	Many people trust the traditional system as it has been in use for a long time and is seen as less susceptible to manipulation compared to electronic systems.	It takes a long time we have to make very long queues and the process is slow.
3	Blockchain platform and future bank competition	Efficiency: wallet process, reducing wait times and long queues at bank places	The system overcomes the problem of queues however its main weakness is that it can be hacked and the results manipulated.
4	Crypto Wallet: A Perfect Combination with Blockchain and Security Solution for Banking	High Availability: many nodes totally distributed and storing the whole database.	The smart contract lacks a formal verification or analysis of its security and correctness.
5	An automatic pattern recognition value system with listed banks based on blockchain	Easy to define one common starting point, where to store the data, always attached it to the last block in the longest chain.	The proposed system's performance and cost are not compared with other existing wallet systems or platforms.

2.2 Research Gap

Despite the growing interest in the intersection of blockchain technology and supply chain sustainability, several gaps and opportunities for further research exist:

a. Holistic Sustainability Metrics: Current research often focuses on the traceability aspect of supply chain sustainability, such as tracking the origin of products. However, there's a need for comprehensive sustainability metrics and frameworks that consider environmental, social, and economic factors impacted by blockchain adoption in supply chains.

b. Impact on Stakeholder Behavior: While blockchain can improve transparency, little is known about how it influences the behavior of stakeholders along the supply chain. There's a gap in understanding the incentives, motivations, and potential resistance from different actors.

c. Regulatory and Legal Implications: As blockchain adoption grows, there's a lack of comprehensive research on the regulatory and legal challenges posed by the technology in the context of supply chain sustainability. Understanding these challenges and potential solutions is crucial.

d. Interoperability: The integration of various blockchain solutions and systems across different supply chain stages and partners is a significant challenge. Research is needed to address interoperability issues and propose standards for a seamless blockchain-enabled supply chain.

e. Cost-Benefit Analysis: While blockchain is seen as a promising technology, there's a need for more research into the cost-benefit analysis of implementing blockchain in supply chains, particularly for small and medium-sized enterprises (SMEs) and developing economies.

f. Behavioral Change and Adoption: Studies should explore the psychological and organizational factors influencing the adoption of blockchain technology for sustainable supply chain management. Understanding how to encourage adoption and overcome barriers is crucial.

Chapter 3
Proposed System

3.1. Introduction

The block chain is one of the most talked-about topics in the corporate and academic world. A Distributed and network based technology "Blockchain" is a place into which information is stored in a Digital form into Shared Distributed Database . Bitcoin has lead to the popularity of Blockchain Technology. In order to ensure the security and control over the data, Bitcoin equips Blockchain Technology . The word Blockchain means storage of data into digital blocks and form a chain so that every time a new record is added to a block it becomes a part of existing chain. In order to keep a record, blockchain uses a ledger based system such that all the transactions are recorded onto it and it is accessible by everyone making it a public ledger. Blockchain was the only founding stone using which cryptocurrency was invented and designed. Cryptocurrency is one of the key reasons this technology has made really famous. The cryptocurrencies also contain digital currencies and virtual currencies. Bitcoin is the first Blockchain technology to use crypto-money . The virtual currency such as Bitcoin doesn't require any existence of central authority to facilitate the transaction and its processing. Bitcoin came into existence for the first time in the year 2008, right after the Global great financial depression that has sunk the markets all over the globe . One of the main reasons for creating bitcoin was to overcome financial crises as they clearly demonstrated flaws in the traditional banking systems around the globe! The bitcoin was invented to facilitate the money transaction at the cheapest price per transaction internationally. But the journey of bitcoin never went exactly how it was planned. In short, the bitcoin was used widely in activities related to money laundering and its purchases in the black market. This has left only one choice for the governments around the global, that is to ban the use of it. There are a lots of misconceptions when we talk about bitcoin and blockchain . To make the difference clear, the bitcoin is a currency, a digital currency that uses blockchain to facilitate the transaction management and processing. The Blockchain technology can be used in other industries and in has several applications to offer. The highest potential of Blockchain exists in the finance and banking sectors.

3.2. Algorithm and Process Design

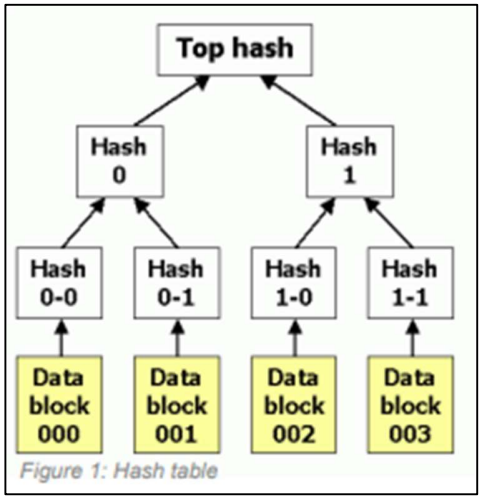

fig 3.1 Hash Table

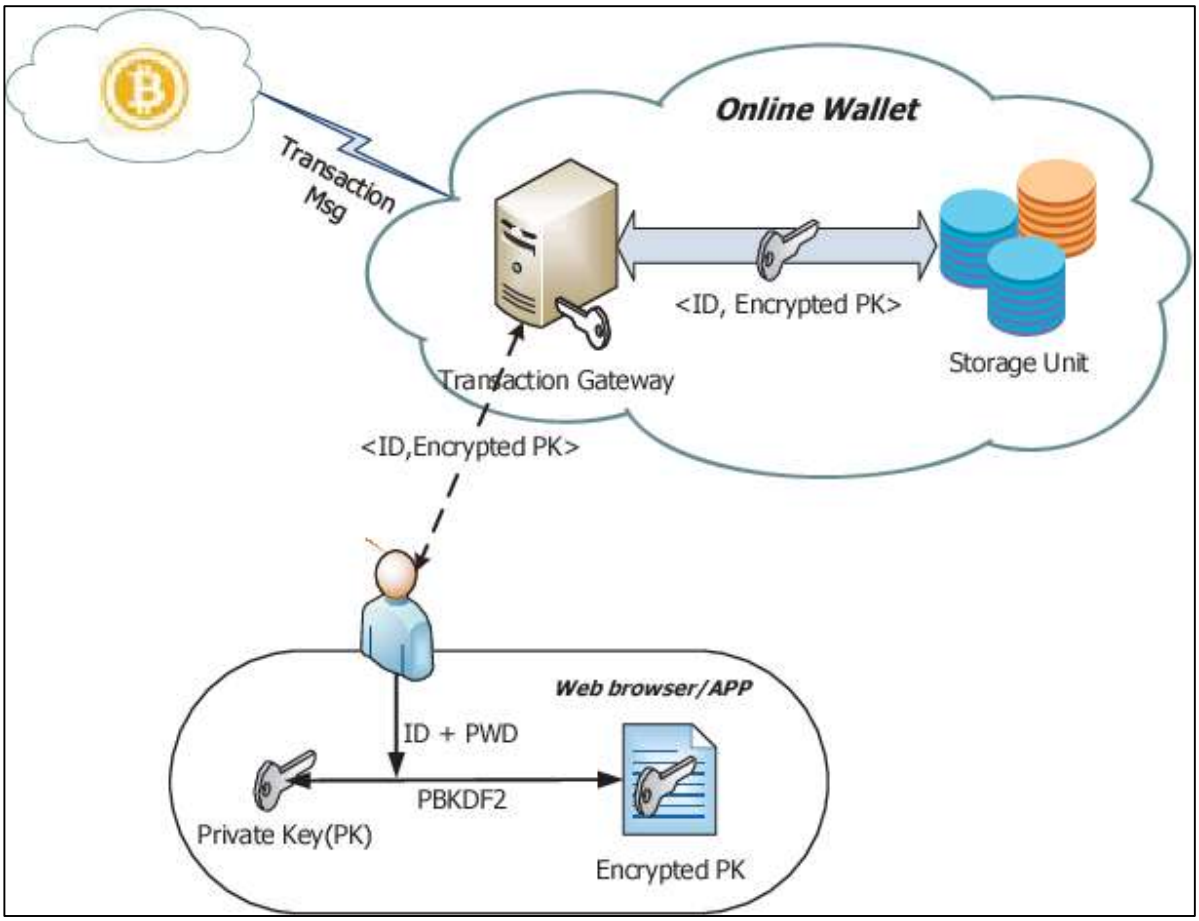

fig 3.2 Simplified Ether Wallet Block

3.3. Details of Hardware & Software

Hardware details:

- Processor: Intel(R) Core(TM) i5-10300H CPU @ 2.50GHz 2.50 GHz
- Memory (RAM): 8.00 GB DDR4
- Storage: 512 GB SSD

Software details:

- Remix Ethereum IDE: For initial contract development and testing.
- VS-Code.
- MetaMask
- Truffle and Ganache

3.4. Experiment and Results

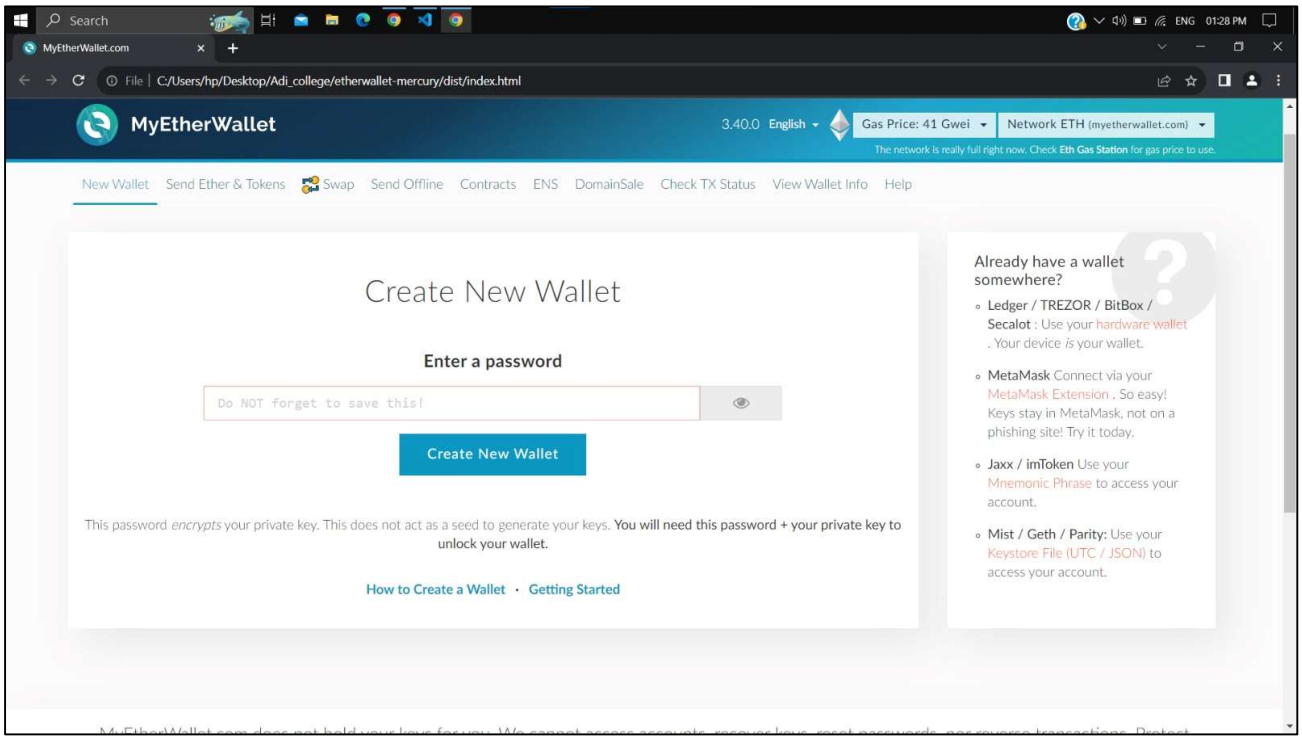

fig 3.4. Create New Wallet

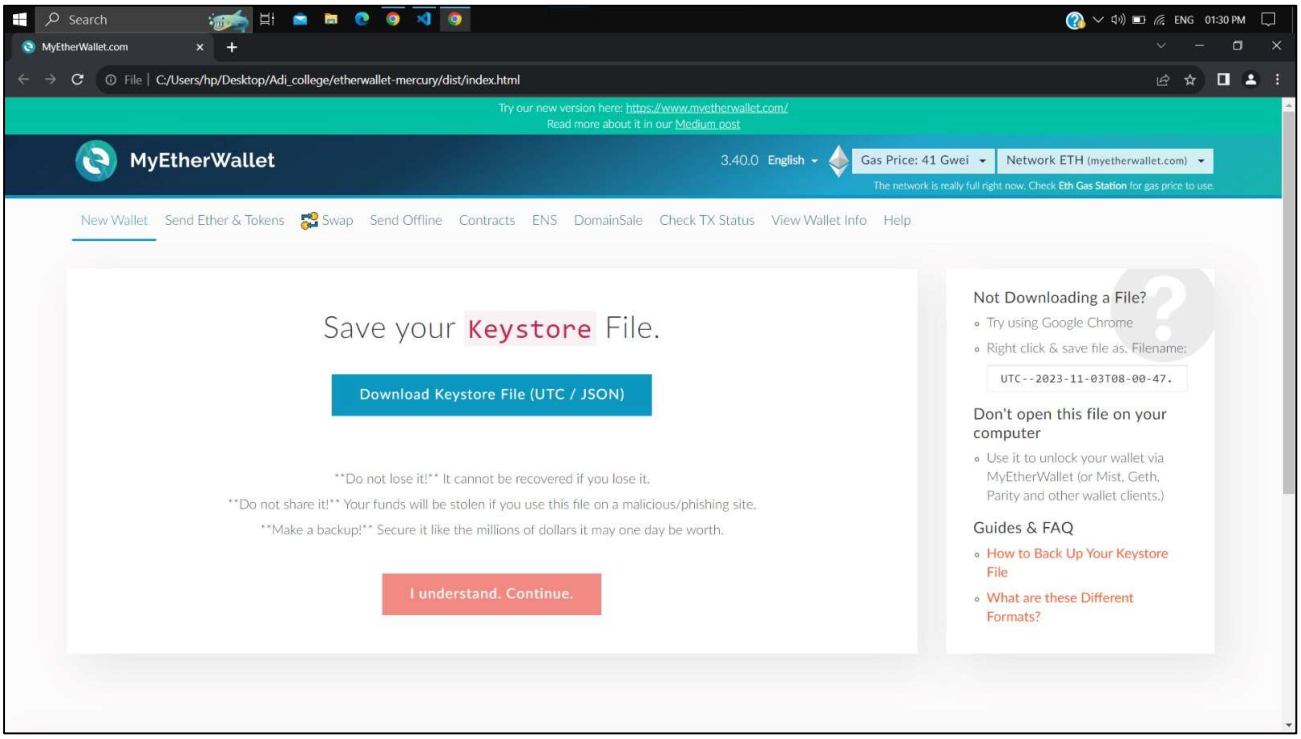

fig 3.5. Save your Keystore File

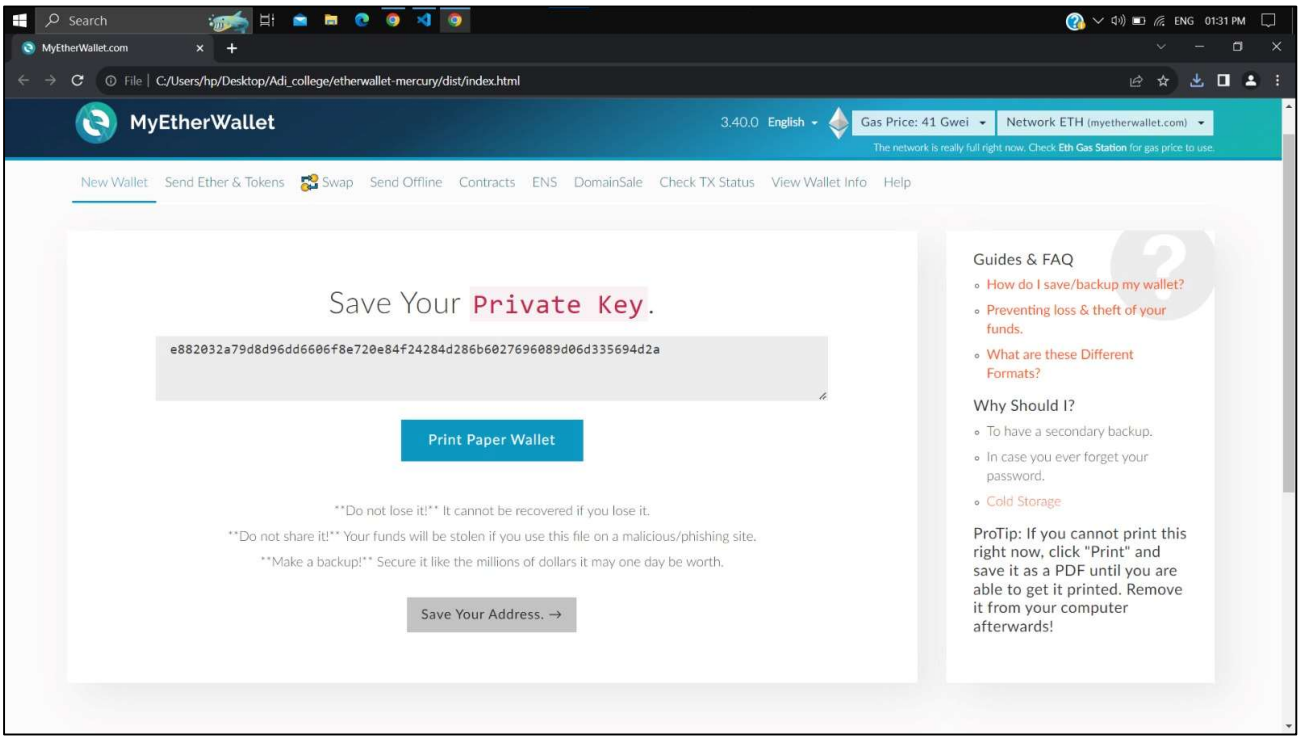

fig 3.6. Save your Private Key

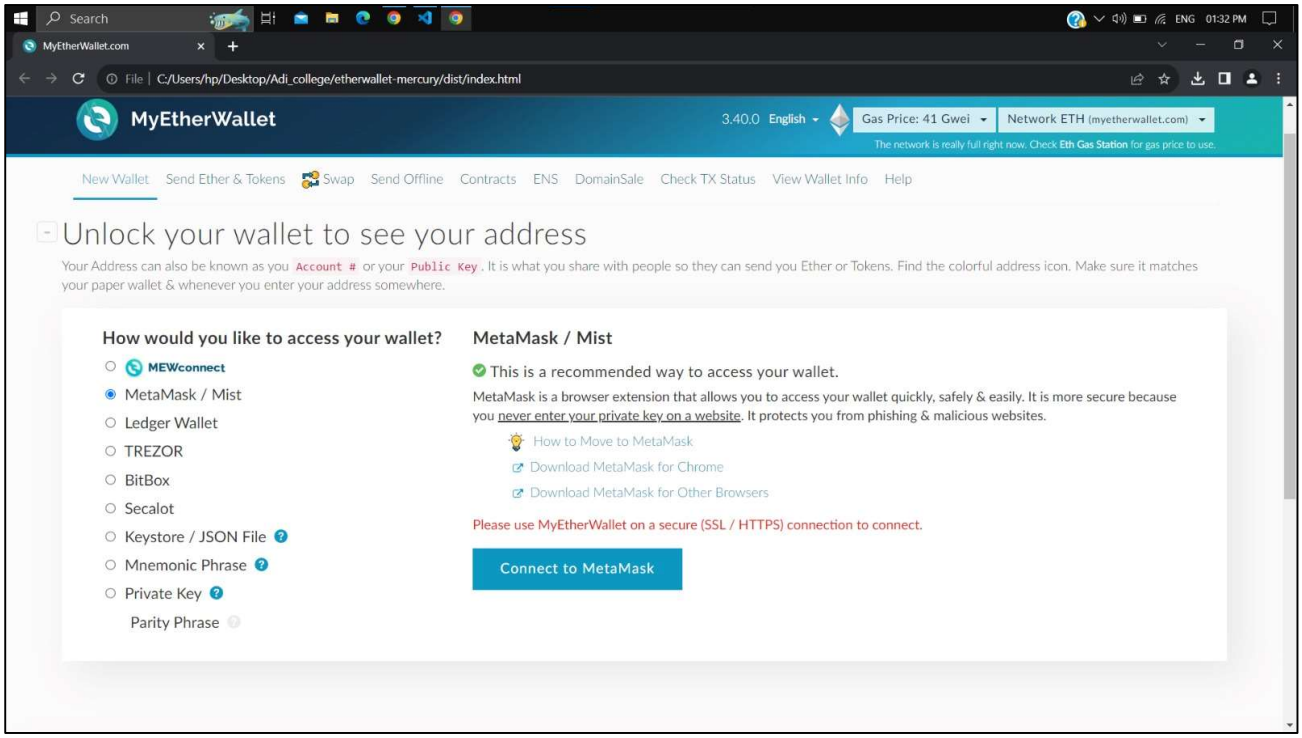

fig 3.7. Unlock Your Wallet

3.5 Result Analysis

We do require blockchain implementation in the core banking system so that we can ensure that each transaction is authenticated and it is initiated by the user itself. Although the adoption of this technology is very feasible and reduces the security overhead that comes with a traditional banking system such as centralization. Blockchain-based wallet system and banking system dismantles the centralization of data and stores the data at several places since its key to success is the distribution of data across the network at the distributed databases. The data and customers both are very secured in the hands of the blockchain-based technology banking system.

One of the remarkable attributes of blockchain technology is its ability to dismantle the centralization that is characteristic of traditional banking systems. In a blockchain-based banking system, data is no longer concentrated in a single repository vulnerable to breaches. Instead, it is distributed across a network of databases, creating a resilient and secure infrastructure. This decentralization means that even if one node or database is compromised, the rest of the network remains unharmed, preserving the integrity of the system.

The blockchain-based banking system introduces e-wallets as a secure and efficient means of managing digital assets and transactions. The inherent nature of blockchain ensures that every transaction is meticulously authenticated and initiated by the user. This authentication process not only

enhances the security of the banking system but also offers customers peace of mind, knowing that their financial interactions are safeguarded against unauthorized access and fraud.

3.6 Conclusion

The adoption of technology depends on the requirements of the business here in the case is for the banking system. The no of profits margin derives the adoption of technology. Most of the Banks around the globe have adopted blockchain as they value customer's privacy in the first place. There are always pros and cons related to each technology which goes the same in the case of blockchain too. They only problem with technology is the cost. The cost drives the business day to day operations, so this is where the banks have to think carefully before the adoption of this technology. The blockchain-based banking system becomes more temper proof when it is powered by blockchain.

One technology that has garnered significant attention and widespread adoption in the banking industry is blockchain. This is primarily because of the paramount importance placed on customer privacy and data security. Banks across the globe have been increasingly turning to blockchain as a solution to safeguard customer information and transactions. Blockchain's decentralized ledger system offers inherent security features that can significantly reduce the risk of fraud and errors, instilling confidence in both customers and the banking institution itself.

However, as with any technology, blockchain comes with its own set of pros and cons. The advantages include increased security, transparency, reduced fraud, and the potential to rebuild trust in the financial system. On the other hand, challenges like scalability, regulatory concerns, and the initial setup costs are hurdles that need to be carefully considered. Not all banking applications may be suited for blockchain, so a comprehensive cost-benefit analysis is crucial before adoption.

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