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A Survey and Analysis of Blockchain's Potential Financial Service Applications

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Abstract

Organizations that provide monetary services may benefit from using blockchain technology since it helps with verification. Many businesses remain accepting block chain technology in the direction of increase efficiency and transparency, provide new revenue streams, and facilitate the creation of smart contracts between market players. The conventional clearing and settlement procedure is rendered obsolete by blockchain technology. Blockchain's ability to keep records is unparalleled. Financial institutions, such as banks, are adopting IDs embedded with blockchain technology as a first step in the consumer identification process. It's important to address issues related to both the process of transferring ownership of assets and the keeping of an accurate financial ledger. First, you'll need to take care of the paperwork involved in changing who owns what. Financial information measurement, financial information transmission, and financial information analysis are three areas where accountants must place special attention. According to financial experts, blockchain's distributed ledger structure makes it simple to identify asset owners and assign responsibilities. It also has the potential to boost productivity as a whole. A variety of Blockchain-based financial services, as well as associated tools, techniques, and features, are discussed below. A customer's financial well-being might be profoundly affected by the details included in their credit report. Conventional server-based credit reporting does not provide nearly as much security as blockchain-based credit reporting, as recent data breaches have revealed. Because of their malleability, digital financial products may be tailored to meet the specific needs of investors, issuers, and risk managers, all of which contribute to the growth of the investor market. That's because everyone on the network can trust in the same set of standards, protocols, and practices that have been established via collaboration. Corporate network users may now communicate with one another more quickly, better manage their data, and reach consensus on the usage of this technology as a whole.

Keywords: Banking Transaction Blockchain, Customer, Finance

Introduction

Blockchain allows users to update the blockchain network in a decentralized manner. No banks or other financial organizations can tamper with blockchain networks. Blockchains are a digital ledger system that may be used to record data and make that data easily accessible. It may be used to have one-on-one conversations with others who are connected to a network. Blockchain offers a trustworthy system for conducting financial dealings. Blockchain technology's wide popularity comes from the reliability of its security system. Each business now handles its own accounting, which requires more manpower and time to reconcile data. Transactional, contractual, and other types of data may all be recorded in near-real time on a distributed ledger using blockchain technology, which solves this problem. This means that checks for legal conformity will be made automatically. The organization's operations will become far more efficient as a result. Potential benefits include a safer user experience and more reliable identity and financial data exchanges. Blockchain operates on the premise of a distributed ledger, which is a digital record of all transactions that cannot be altered once recorded. This innovation may assist to ensure that user data is protected while the digital revolution continues to develop. Data management may improve, and there could be a greater focus on privacy. When there is confidence in and up-to-datedness of accounting papers between counterparties, audits may go more quickly and efficiently. Instead of analyzing several routine transactions, auditors may choose to concentrate on more complex and contentious issues. As a consequence, the need for accountants and auditors has not vanished despite the rise of automated procedures. Blockchain and artificial intelligence are two very distinct technologies that may be used in very different contexts. In contrast, AI is a centralized service that can only function with private, immutable data. Their partnership has several benefits, notably in terms of financial aid. Blockchains are not limited to only recording Bitcoin and other cryptocurrency transactions. The banking sector has long relied on cutting-edge tech to ensure the safety of customer information and internal operations. The financial industry has been an early adopter of blockchain technology.

Using this system, digital blocks may be linked together to hold information about financial dealings, legal agreements, and contact lists. Businesses are vulnerable to errors in judgment and misinterpretation of data because financial system laws are often vague or nonexistent. The bulk of these issues are solved by blockchain technology, which also drastically reduces financial risk. The value of Blockchain is gradually being recognized by the general public. In the beginning, banks were established so that people could securely and effectively do business with one another. The blockchain is a platform that simplifies many processes on a global scale.

Use Cases for Blockchain

Since smart contracts may be made on Blockchain, third-party regulators are unnecessary. As a consequence, the equity markets are preparing to become less centralized. Using blockchain technology, all investor-company interactions may be made safely and directly, eliminating the need for costly middlemen.

For a very long time, the financial industry has been plagued by a number of problems. While many

problems have been addressed and resolved as a result of technological advancements, certain inventions have also given rise to new ones. Therefore, people try to find an all-encompassing answer to their difficulties. Exciting and potentially solving significant business problems, Blockchain's application to the financial services industry is worth watching. The banking sector must disperse a large volume of money across several companies because of centralization.

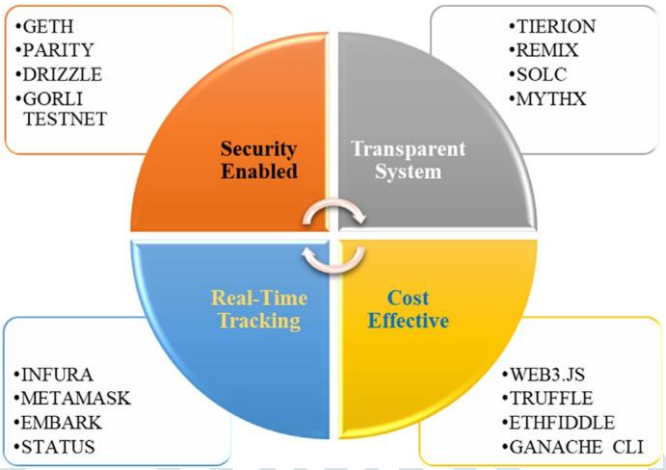


Figure - 1

Objectives of Research

Companies have long been frustrated by the cumbersome nature of traditional trade finance methods, which may delay transactions and make it difficult to keep track of cash flow. Blockchain technology may simplify international business and banking. It allows for the safe conduct of commerce across national borders and other geographic distances. Use cases that need immutable data, such as tracking commodities in real time as they are transported between partners in a supply chain, are well suited to blockchain technology. Businesses that provide a wide range of products and services might benefit from using blockchain technology.

RO1: - In the process of summarizing Blockchain and its impact on the banking sector,

RO2: - Blockchain techniques and their potential financial uses are up for discussion.

RO3: - Possible uses of blockchain technology in banking are investigated.

RO4: - The mission is to discover and assess the most consequential uses of Blockchain technology in the banking and capital markets sectors.

Blockchain based financial services tools and strategies

Figure 1 depicts the many effective methods and instruments used in blockchain-based financial service applications. Smart and useful solutions like these may be used to solve real-world monetary problems using Blockchain technology. These highly sophisticated resources will further assure the continued success of blockchain applications in the future, especially in the realm of financial services. For the last decade, many working in banking and other financial sectors have wondered what Blockchain may mean for their

company. Blockchain may be thought of as a public ledger of all financial transactions ever made. This journal is published and kept in a number of different places. Each copy of the ledger is updated whenever a new block is generated, thus all transactions are always reflected. This ensures that all financial dealings are properly documented. It simplifies the development and deployment of tamper-proof, deterministic smart contracts that may be used to streamline corporate processes, increase productivity, and foster confidence. Digital securities may be issued with more speed and efficiency than traditional securities. Issuers may tailor digital financial products to the specific needs of their target markets of investors. Included in this category are tokenized micro-economies, instantaneous, scalable, and secure asset transfers, and fractional ownership of physical assets. Benefits include more openness and accountability in governance, more efficient corporate operations, and more balanced incentives for all stakeholders. In order to combat fraud and money laundering, most banks require their customers to go through an identity verification procedure. Each transaction is recorded in a separate block, which is then appended to the growing digital ledger. Because of the many advantages that blockchain ledgers have over traditional digital ledgers, their potential for usage in the financial sector has grown. Using blockchain technology, a decentralized digital ledger may be developed. This means that not even a single intermediary is required to process or store transaction data. Using Blockchain can prevent transaction data hacking since there is no centralized repository for storing this information with its own security mechanism.

Financial blockchain applications might simplify and reduce the cost of banking services. Blockchain's security features are only one of many reasons why it's a good fit for the financial sector. The blockchain's encrypted ledger protects all of its transactions. Therefore, the information could be accessed only by those who had the secret key. The financial industry now has access to a wide variety of fintech solutions. Due to the need for several middlemen and the centralization of most financial data, transparency suffers. The only things that may compromise data safety are insecure databases and middlemen. However, even the most secure databases may be breached via hacking attempts.Legislators may encourage the development of blockchain-related educational resources. Users may be better protected from the widespread blockchain scams, and companies may find more resources to use the technology. Blockchain technology might be used by policymakers to achieve a variety of aims. This might aid both public and commercial sector organizations in determining whether or not the technology can be used to address specific problems. This might make it easier for businesses to incorporate blockchain technology into their existing infrastructure. The blockchain might be used by legislators to clarify existing laws and regulations or to draft whole new ones.

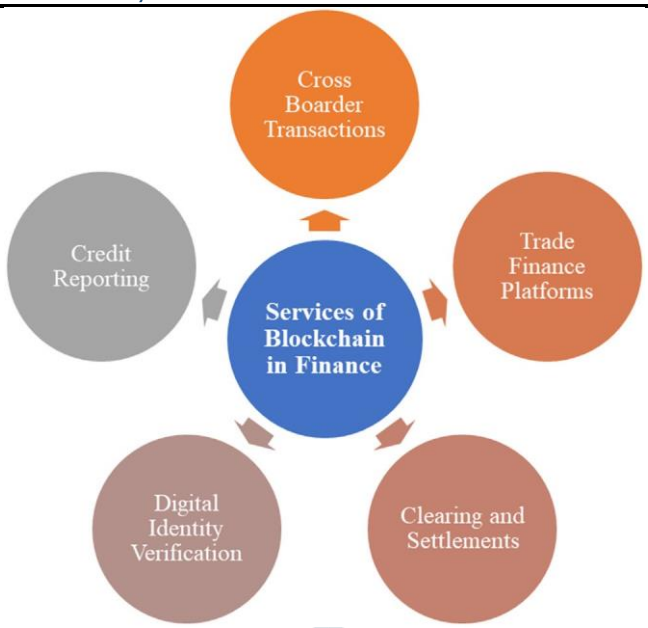


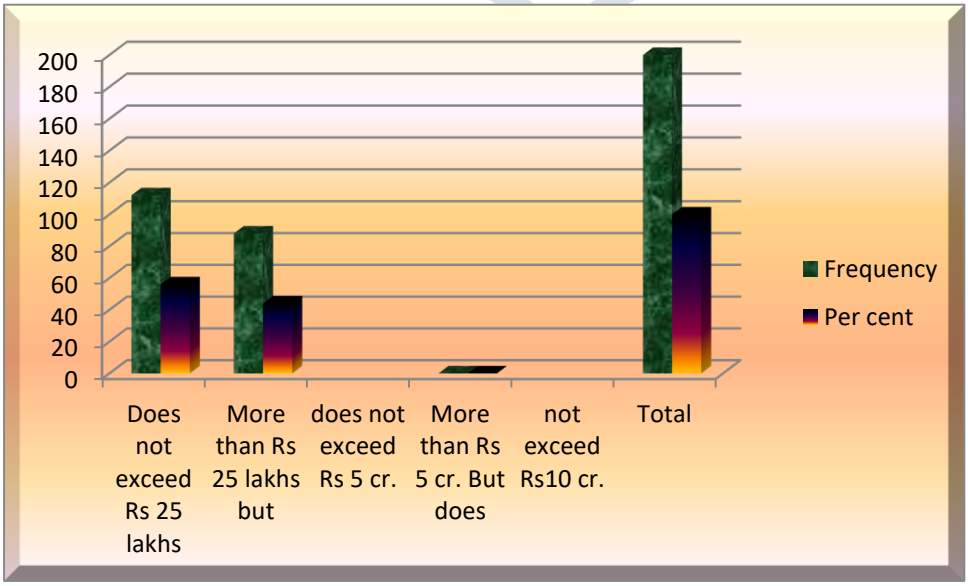
Figure 2: Typical and specific blockchain applications in the banking and finance industries.

This will make it easier for companies and other stakeholders to feel at ease using blockchain solutions by reducing uncertainty about the possible regulation of diverse technology implementations.There are two sorts of security keys used in blockchain applications: private and public. The public key can be accessed by anybody on the network, while the private key can only be accessed by the parties involved in a particular transaction. Participants in a network can only view the details of a transaction, but those within the network can see the transaction itself. Blockchain has the potential to keep the financial system open while protecting the privacy of individuals' financial information during transactions. Blockchain technology has the potential to significantly alter business practices across essentially all global sectors. As Blockchain matures and more use cases emerge, it will help companies improve the openness, auditability, and efficiency of their contracts and other business dealings. In order to realize Blockchain's full potential, financial institutions are exploring its use in areas such as product development, regulatory compliance, and the identification and evaluation of risks and their associated controls.Several highlighted services have been developed to make financial services more effective in real-time applications. Many of the highlighted services are shown in Fig. 2. These include international money transfers, trade finance platforms, accurate credit reporting. The financial industry may benefit from the services and innovations highlighted here because of the blockchain's potential.Financial companies may save costs thanks to these blockchain advantages. Historical roles of financial intermediaries have been labor-intensive and complex, which has slowed down transactions. Blockchain's immutability makes it an obvious choice for use in monetary transactions.Blockchain technology allows for the efficient and secure recording of transactions without the possibility of tampering. This makes it ideal for monetary transactions across national boundaries. The whole process may be automated on the Blockchain, which both increases efficiency and decreases reliance on the many middlemen often involved in such deals. If financial institutions aren't needed to settle transactions, the use of blockchain technology may reduce transaction fees. Keeping records is essential for regulatory oversight, and there's no denying that the penalties for not doing so are severe. Companies, therefore, can't afford to take any chances with compliance. Regulators and businesses may potentially obtain real-time record updates using Blockchain, cutting down on delays and making it simpler to uncover

inconsistencies. The use of fee-charging middlemen in the financial services industry, such as custodian banks and clearers, may become redundant with the advent of blockchain technology. Blockchain's ability to lower operating expenses for banks means better capital optimization. In the present moment, blockchain transactions may be automated and programmed. These cornerstones provide the groundwork for the financial services sector to attain the most sought-after levels of efficacy, openness, and safety. The blockchain's increased adaptability to user needs. Trade efficiency may be improved by switching from time-consuming paper operations to digital ones. Using a distributed ledger technology like Blockchain, financial transactions may be settled immediately and monitored more effectively than with present techniques. In the financial industry, high-tech securities are gradually displacing more traditional ones. The company has begun Blockchain testing by mimicking recent asset transactions on the distributed ledger. However, the blockchain solution has not yet reached its full potential. The immutability of Blockchain's transaction log is a major benefit. The amount of crimes committed against banks will decrease as a result of this. Blockchain technology has enabled the creation of smart contracts. The participants' promises are laid down in a set of digital agreements. With its tunable features, protocol that enables the execution and automated processing of contract terms.Bitcoin and other cryptocurrencies aren't the only use for blockchain technology. Blockchain technology can record and monitor the ownership and transactions of any item, physical or intangible, including real estate and intellectual property. Contracts might also be automated, which would streamline the negotiation and execution processes.

Table Total investment of the Block chain Technology units

"Total investment in units	Frequency	Per cent
Does not exceed Rs 25 lakhs	112	56.0
More than Rs 25 lakhs but does not exceed Rs 5 cr.	88	44.0
More than Rs 5 cr. But does not exceed Rs10 cr.	0	0
Total	200	100.0"



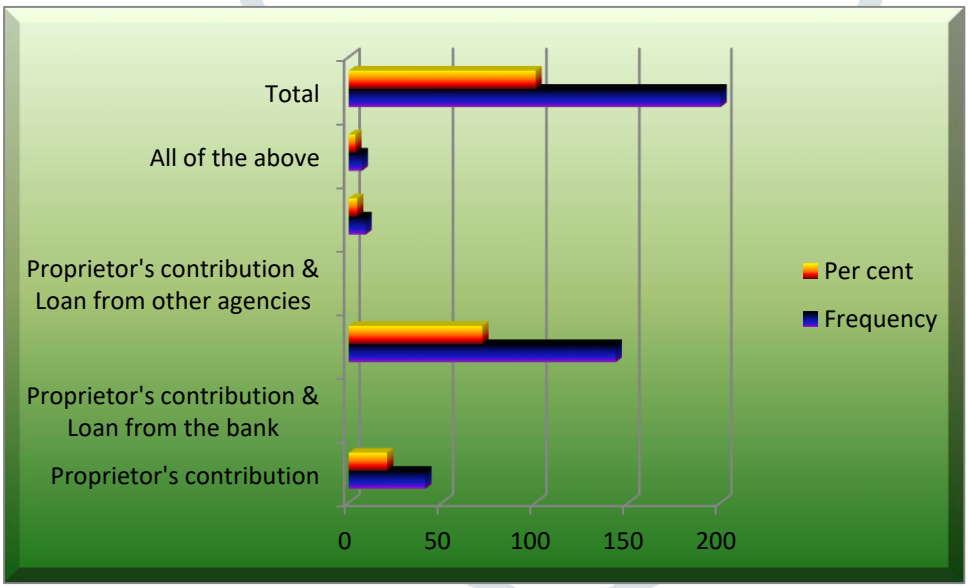
In the cohort study 56% of the blockchain technology businesses have invested up to Rs 25 lakhs in their

operations. In 44% of the samples, the total investment was more than Rs 25 lakhs but less than Rs 5 crores.Funding Mechanism for Establishing the Organization

71.5% of the sample Block chain Technology units were funded at launch using a combination of proprietor contributions and bank loans.

Twenty percent of the businesses had owner funding from the outset. It is shown in above Table.Table Source of finance for starting the Block chain fiancial service unit

Source of finance	Frequency	Per cent
Proprietor's contribution	41	20.5
Proprietor's contribution & Loan from the bank	143	71.5
Proprietor's contribution & Loan from other agencies	9	4.5
All of the above	7	3.5
Total	200	100



Nearly five per cent of the sample units utilize both loans from agencies other than banks and contribution from the proprietor. For blockchain technology Fianacial services Bank loan, loan from other agencies and proprietor's contribution constitute the sources of finance in 3.5 per cent of the sample units.

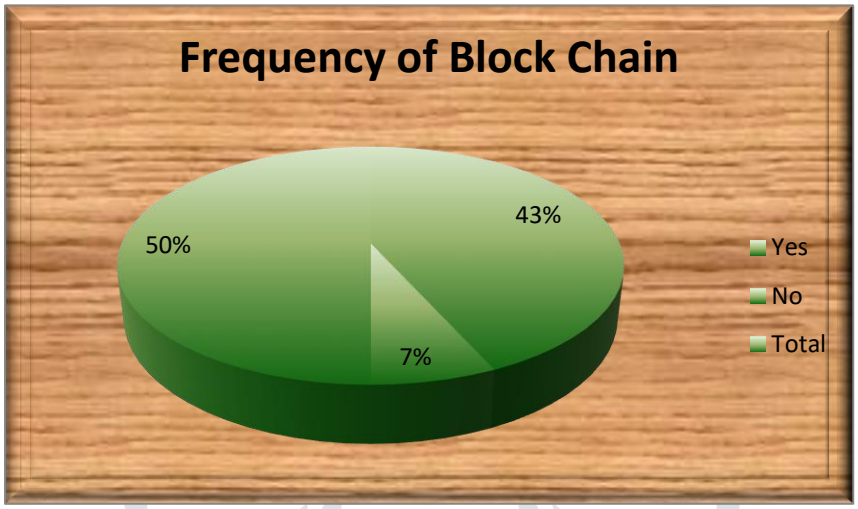
Hardware for use with distributed ledger systems Whether or not the Unit is Profitable

When the sample group is asked whether they are working in profit or loss 86.5 per cent of the entrepreneurs opined that their enterprises are making profit. Table 4.8 shows the results.

Table whether the block chain unit is working in profit or loss

Unit working under profit	Frequency	Per cent
Yes	173	86.5
No	27	13.5
Total	200	100.0

Among the sample units 13.5 per cent enterprises are running in loss.



Limitations

Information stored on a blockchain cannot be changed. Blockchain has the advantage of making it difficult to alter previously recorded information, but this might be an issue for financial institutions. In order to use Blockchain, businesses would need to make certain changes to the way they operate now. Our improvements in transaction processing and interoperability are the two most important developments in blockchain to watch for, since they will expand.Instead, financial institutions will conduct pilot programs to evaluate Blockchain's viability and then incorporate it into their existing infrastructure in stages.

Blockchain technology is still in its infancy. Due its constant shifts, it faces a number of challenges. There is no mechanism for authorizing data modifications on the Blockchain. No two Blockchains may share or utilize each other's data in any way. As a result, smaller financial institutions may be hesitant to invest in new systems or infrastructure. These include the risks to consumers and the financial system from the existing lack of consumer safeguards, as well as the possibility that technology may be exploited to support illegal activity. Most of the major problems that arise in any application may be too much for blockchain to manage.

Scope of Future

Implementing blockchain technology is challenging. There are certain drawbacks, but hundreds of banks may utilize it, and blockchain stocks are legitimate investments. The financial industry clearly recognizes the benefits of Blockchain and the growing role it will play in the future of financial services. Therefore, the parties involved and the specifics of the transaction are only available to the owner of the private key, but

the transaction itself is visible to anybody with access to the network thanks to the public key. It will protect the privacy of users' financial information while yet ensuring that the system is transparent.With Blockchain, large institutions will be able to revolutionize their intercompany relationships and transactions by establishing a single, immutable truth, automating Financial authorities are optimistic that this particular use of blockchain technology would lead to more openness, less bureaucracy, quicker transactions, lower costs, tighter security, and fewer instances of financial crime. Smart contracts are Blockchain-based, self-executing contracts having the potential to automate a wide range of human functions, from ensuring compliance and processing claims to distributing the assets in a will.The banking industry has tried to put Blockchain to the test by recreating the processes now used to transfer assets. Digital assets may be transferred instantly between market players using blockchain software as the underlying infrastructure. By making more information available to all market players, this technology will help level the playing field. As blockchain applications grow across multiple sectors, the role of blockchain in banking in the next years is crucial to explore.

Conclusion

As the world's factories become increasingly interconnected, blockchain technology is being used by many of them. The modern factory of the future will be made up of a complex web of suppliers, manufacturers, and logistics firms all working together to produce a wide variety of products. An immutable record for digital assets such as bitcoins is the primary focus of this technology. As a result of the data integrity provided by blockchain applications, businesses may more accurately target certain customer demographics, and musicians can earn more money for their work. This method of making financial transactions is gaining popularity. Banks can now keep tabs on all their transactions in real time thanks to blockchain technology. With this innovation, financial institutions will be able to settle trades on a distributed ledger. There are a number of criteria that banking executives must meet before the technology may get widespread adoption in the banking industry. Sharing data and temporarily lending out assets through blockchain technology might have a profound impact on how we move about. Solutions to problems like electromobility may be found and used immediately if smart contracts were implemented on the Blockchain. Businesses using Blockchain in finance may employ smart contracts to record invoices on the distributed ledger. Payment schedules, quantities, and customer details are just some of the information that might be stored on a blockchain. As soon as a client pays an invoice, the smart contract marks it as paid and alerts the appropriate parties. Blockchain technology will play a crucial role and oversee many financial processes in the future.

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