

A Study on Individual Awareness and Perception Towards Blockchain Technology in India

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Abstract: Blockchain is a decentralised database that records every transaction and digital occurrence. The parties who maintain the blockchain blocks share ownership of these transaction records, which are exchanged between parties and recorded in blocks. The parties who make up the network/system examine, confirm, and store each Block. Each block includes the specifics of a single transaction as well as the hash key from the preceding block. Blockchain serves as the foundation for Bitcoin and other forms of digital currency. Blockchains are very secure by design, and the technology guarantees error-free record keeping. Bitcoin is a decentralized digital money that is used for peer-to-peer transactions. In the Indian banking industry, electronic payments have achieved a significant breakthrough. They also continue to develop as fresh innovations are introduced to the current system. Paper-based transactions are gradually being replaced with electronic payments, saving time and money. More transparency has led to a rise in transaction volume, and the industry is showing good growth. The financial and banking industries have undergone a paradigm shift as a result of the entry of Bitcoin and other cryptocurrencies into these industries. Blockchain secures fundamental aspects of ownership, trust, and commerce and performs a disruptive intervention on the entire transaction management system. Exploring this technology constructively and critically in the context of India would open up new perspectives on how it should be used. This paper will summarise the present level of blockchain adoption in India in addition to highlighting the opportunities and challenges in this field.

Keyword: Bitcoin, Blockchain, Cryptocurrency, Encryption, Digital Transaction

1. Introduction

The blocks that make up each transaction are distributed to each computer in the network through blockchain technology. As the block is verified and added to the chain, the network's computers do so. The history of the transaction is left indelible by this chain, which serves as its digital footprint. Without the consent of each party/computer that maintains the chain, these transactions cannot be changed.

A valuable tool for bank transactions will be provided by blockchain in banking applications, accelerating and streamlining them. The technology appears to be

challenging due to cryptography, distributed databases, computer networks, etc., even though the user interface will be implemented simply for the benefit of banking staff and end consumers. Blockchain not only speeds up banking industry trade, but also virtually prohibits hackers from changing stored transaction data and gets rid of any errors and duplication that could result from procedural shortcomings.

Blockchain was primarily developed for the Bitcoin cryptocurrency. It is a decentralised data management and transaction system. Since its initial introduction in 2008, blockchain technology has drawn more attention. The core characteristics of Blockchain, such as its secrecy, opacity, and lack of a third party affiliation overseeing the agreements, have sparked interest in it. This is especially true when you consider the particular difficulties and limitations it poses. Financial transactions between individuals or businesses are currently highly centralised and governed by a third party association. Every time a digital payment or currency transfer is completed, a bank or credit card provider is required to act as a middleman and is also compensated with a service fee. Similar techniques are used by many other industries, including gaming, music, software, etc. These sale systems are frequently centralised, and instead of the two main realities involved in the transaction, all data and information are controlled and handled by a third party organisation. Blockchain technology was created to create

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a decentralised environment where transactions and data are controlled only by the parties involved.

Blockchain is a distributed database that manages an ever-growing collection of data records. The data is stored in a public list, along with details about each successful sale. This technique is a decentralised outcome with no involvement from a third party in the middle. Every bump has access to and participation in the information of every sale that is completed in the Blockchain. When compared to centralised transactions involving a third party, the system is more transparent because to this specialised feature. Additionally, since every bump in Blockchain is anonymous, it is much safer for other bumps to ratify the deals. Bitcoin was the initial use of the Blockchain technology. Bitcoin created a decentralised ecosystem for cryptocurrencies where consumers could transact with virtual oligarchs. Even while Blockchain seems like a decent option for carrying out cryptocurrency transactions, it still has some particular problems that need to be looked at and fixed. Blockchain technology calls for high levels of transaction security and integrity, as well as the sequestration of bumps, to prevent transaction disruptions.

Currently, cryptocurrency transactions are recorded using blockchain as a decentralised ledger. The three cryptocurrencies Ethereum, Monero, and Ripple are the most widely used. Compared to Blockchain 1.0, Blockchain 2.0 is more concerned with creating, verifying, and transferring contracts. The use of smart contracts and blockchain technology is a key component of this phase. The blockchain has a feature known as smart contracts, which are contracts with specific terms that only take effect when they are satisfied. The fact that this may be done without any middleman assistance should be kept in mind above all else. This is accomplished with the help of so-called "oracles," which are businesses that gather data from the outside world and input it into the blockchain's fundamental laws. Operations using intelligence can leverage smart contracts.

Blockchain technology can help the government increase public trust in how it does business. By keeping the votes on a blockchain network, for instance, they can increase public exposure. Blockchain can be used in and by countries where there is a lot of fear of repression, enabling the public to express their ideas in an unbreakable network. Blockchain is primarily supported in the background by AI algorithms, and it regularly faces challenges from related developing technologies when it is abandoned. Similar issues, such as process transparency and outgrowth trustability, are frequently observed in systems that use artificial intelligence (Chakraborty and Kar, 2017). Additionally, as mobile computing develops, access to truly high distributed computing is changed

since individual biases now have more complex distributive capabilities and lower cyphers (Suankaewmanee et al., 2018). This additional justification makes it possible to deploy mobile operations to get around blockchain-based systems that are used by field agents to provide services.

Since 2008, when Nakamoto debuted cryptocurrencies, blockchain technology has grown in prominence. Its development addressed the issue of duplicate currencies. Each bump is informed of the sale and gives their approval for it to be recorded because the bumps on the blockchain are publicly stored. Blockchain typically offers a decentralised, open setting that gives system users access to data that is transparent, secure, and reliable. As a result, it can take the place of the current centralised information management systems. Swan (2015) asserts that blockchain technology's benefits extend far beyond financial ones and have an effect on politics, society, and philanthropy. Palychata (2016) contrasts blockchain's ability to revolutionise trade with the invention of the machine or combustion engine. Blockchain technology is being researched in academic settings and in manufactured environments as a cutting-edge technology that has the potential to be helpful in a variety of enterprises (White, 2017). The insurance industry has always been sluggish to embrace new technologies. The industry has begun to take the advantages of incorporating technology into its value chain, though. The technology is currently at the invention detector phase, which implies that not every aspect of the operation has been thoroughly examined, according to the industry's Gartner hype cycle. Insurance companies are starting to ask questions about the industry's potential uses for blockchain technology and smart contracts, the ideal blockchain architecture for those uses, and if the technology is ready for use (Gatteschi et al., 2018a, 2018b). In the insurance industry, preventing false claims remains the main goal of technological promotion. In order to reduce the likelihood of fraudulent claims being submitted, the main objective of employing blockchain will be to automate the administration of claims and payments. In addition, if blockchain is abandoned, the potential for any intermediaries, like as brokers, who are often the insurers' public face, can also be eliminated. Technology has the power to transform existing goods into new ones, such as peer-to-peer insurance of the participatory frugality model, in addition to improving and streamlining the industry's current operational methods. Sayegh and Desoky's year 2020. Songster (2019) believes that false claims continue to undermine the integrity of the insurance sector internationally, although technology can support the industry in this area.

Since blockchain technology is decentralised, transparent, and visible, it has the potential to significantly disrupt

business, manufacturing, and supply chain activities (Upadhyay, 2020). Blockchain could be viewed as an uncertain system because no reality depends on the honesty of a certain counterpart. Network confidence is increased through rigid sale records and decentralised governance (Tapscott & Tapscott, 2017; Swan, 2015). A key component of the several operating programmes that make up modern banking efficiency is blockchain technology. By streamlining procedures, it has the potential to change banking diligence. Over 90 central banks are testing distributed tally technology, which 80 percent of institutions will soon use, according to Rossit et al. (2019).

Blockchain in India

The blockchain network for international remittances and trade finance was formally launched by ICICI Bank and Emirates NBD as a pilot. A blockchain-based supply chain finance application being developed by The Mahindra Group and IBM, a leading global provider of IT solutions, has the potential to totally alter the nation's supplier-to-manufacturer financial transaction structure. Bajaj Electricals will manage the financing of suppliers and contractors using a smart contract built on the blockchain. With assistance from IBM, Yes Bank, and a financial start-up named Cateina Technologies. The Land Records Department and the Transport Department of the Government of Andhra Pradesh have just started a Blockchain trial. Perhaps for the first time in the telecom sector, the Telecom Regulatory Authority of India (TRAI) is adopting blockchain technology to cut down on annoying spam calls and messages. Without a question, the UIDAI's Aadhar project is the government organization's largest application of biometric and demographic technologies to date.

One difficulty in creating a standalone Blockchain solution in India is the absence of a clearly defined system for profit or commission. ICOs and cryptocurrencies are essential for blockchain companies to raise financing, but neither has made significant advancements to date. There is a significant shortage of skilled Blockchain professionals in India, and prestigious schools have only recently started to offer Blockchain courses. Further blockchain-related concerns include those relating to interoperability, energy utilisation, legal framework, and other difficulties. The rules it must follow at an authorised level present another challenge. Additionally, it is expected to grow quickly.

The use of blockchain is strongly advised by the Indian government. The cost of using Blockchain will drop as more locals conduct business online. Some of the potential use cases for blockchain include digital identification, digital records, protected voting, health care, digital payments, insurance, and smart contracts. These

application cases are highlighted by features including expanding infrastructure, cross-sector acceptance, data security, and data privacy. Numerous job opportunities in the blockchain industry would be made possible by the NITI Aayog pilot project India Chain.

2. Review of Literature

Through a technological infrastructure that allowed for peer-to-peer electronic monetary transfers between two parties without going through a middleman, Satoshi Nakamoto (2008) established the use of Bitcoin. This led to the idea of leveraging blockchain technology for secure transactions.

Melanie Swan (2015) asserts that the Blockchain platform can be used to construct a decentralised database that will maintain a public record of transactions involving both tangible and intangible things, such as money transfers, inventory logistics, and information about property registration. Harsha Gandhi, et al. (2019) claim that the Blockchain's hash function is impenetrable because it uses public key encryption. This hash function also offers increased portability, faster processing, and more security.

Wilner, A., Ducas, E. (2017). Blockchain technology's financial and security ramifications: Canadian regulation of new technologies. A technical innovation that has the potential to revolutionise financial services and challenge long-standing security, financial, and public safety norms is the blockchain, which serves as the foundation for bitcoin. Canada's challenge is finding the right mix between regulation and innovation.

Chiu, J., and T. V. Koepl (2019). Asset Trading Settlement on the Blockchain. Inquiry into Financial Studies Faster and more flexible settlement is the main benefit of a blockchain; nevertheless, settlement failures when participants fork the chain to reverse transaction losses must be ignored. When utilising a proof-of-work protocol, the blockchain must set a transaction processing speed restriction in order to produce transaction fees, which cover the cost of mining. Despite mining being a deadweight expense, our predictions for the U.S. corporate debt market show net advantages from a blockchain in the range of 1-4 bps.

Wang, L., He, K., and Chen W. (2021), Investment, macroeconomic uncertainty, and blockchain technology. Blockchain is superior to traditional financial systems for risk management. As macroeconomic uncertainty increases, blockchain technology may be able to assist firms in reducing systemic risks and increasing investment efficiency.

Gayathri G. in 2022. A study on the factors influencing the acceptance of blockchain-enabled green bond issuance is required to boost investment in a decarbonized

economy. The research's conceptualization of blockchain-enabled green bond issuance tries to ascertain financial professionals' predisposition for such behaviour. The importance of incorporating blockchain in a number of industries, including database administration, supply chain management, and health care, has been taken into account by a sizable corpus of study on blockchain adoption.

Blockchain Economics and Financial Market Innovation, UMIT HACIOGLU (2019). The author discusses various economic systems' applications for blockchain technology as well as strategies for investing in the cryptocurrency markets. Before assessing it from an assessment and investment viewpoint, it first discusses the topic from a conceptual and theoretical perspective. It also examines any political repercussions, such as curbing bitcoin speculation, as well as the benefits and drawbacks of taxing cryptocurrencies.

Problem Statement of the study

People used to conduct all banking transactions face-to-face at the bank up until the early 1990s. After the Internet became widely used in the late 1990s, banks began to provide eTransfers, which greatly sped up and simplified the transfer procedure. Credit cards were later developed, enabling customers to conduct cashless transactions. The payment and money transfer processes have advanced thanks to smart phones and mobile apps, which have made them very user-friendly and effective. Later, around the middle of the 2010s, a number of payment gateways and apps emerged, allowing customers too quickly, conveniently, and from any location make online purchases and pay bills. Even if technology was developing on one side, the inherent risk associated with eTransfers and payments has exponentially expanded as well, which is posing a threat to their development and advantages. To guarantee the safety and security of all these electronic ways of transactions, a foolproof method is required.

There is a lot of curiosity in how blockchain technology can disrupt traditional financial markets since it has the potential to totally transform the way that financial transactions are conducted. Blockchain technology offers a decentralised, secure, and transparent platform for transactions that has the potential to eliminate the need for middlemen, reduce costs, and increase the speed and efficiency of financial operations. However, there are other difficulties that must be resolved, such as interoperability problems, security and privacy issues, and regulatory and compliance problems. This study aims to examine how blockchain technology affects conventional financial markets, as well as the potential advantages and

Results and Discussions of the study

disadvantages of using it there. It also examines the difficulties blockchain-based financial systems face and possible solutions to those difficulties. The goal is to give a thorough understanding of individual awareness and perception towards block chain in India.

3. Objectives of the Study

The primary goal is to investigate how people perceive their own awareness of and attitudes towards the current usage of blockchain technology in India and to comprehend the benefits and difficulties it presents. Through a survey, the report also reveals how widely accepted Blockchain is in a population.

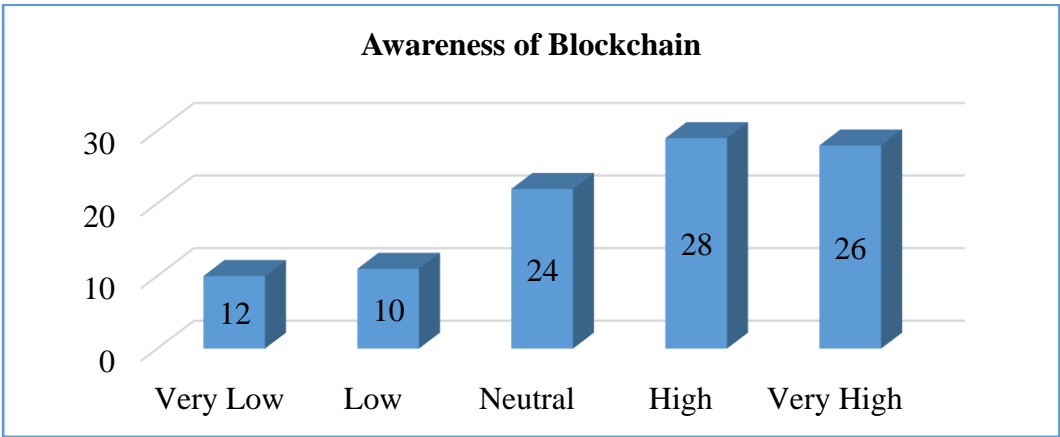
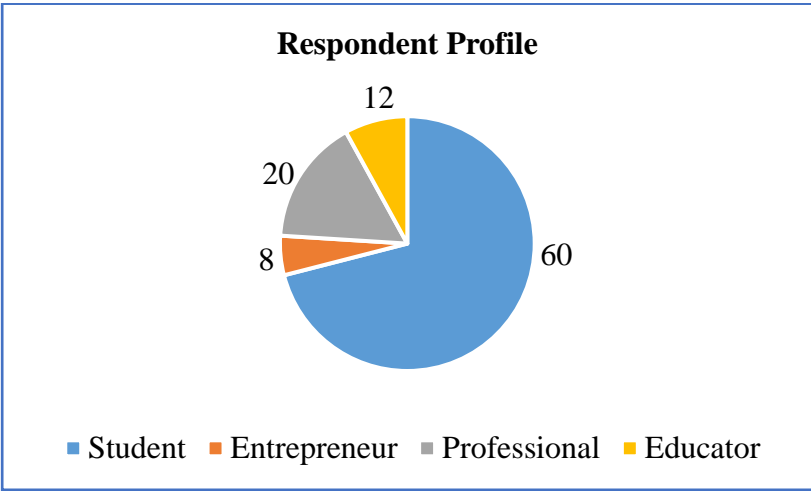
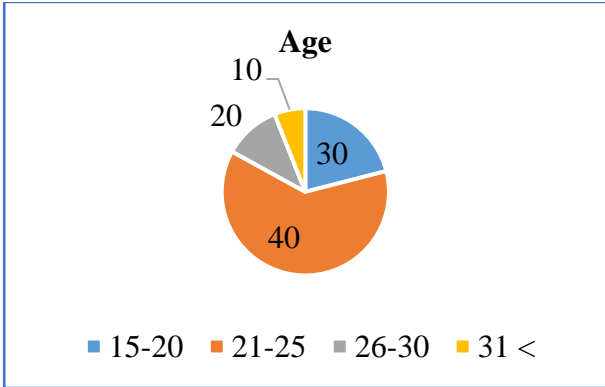
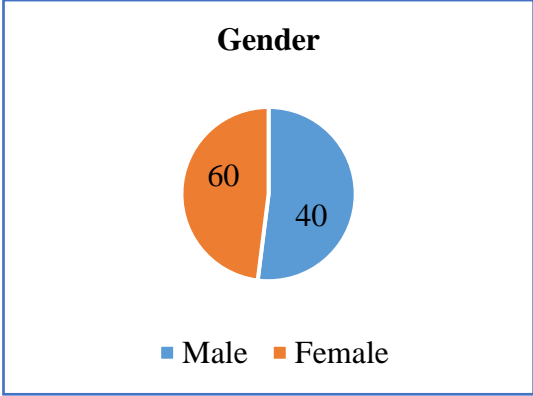
1. To identify and analyze the potential benefits and drawbacks of using blockchain technology in individual awareness and perception towards block chain in India.
2. To study the challenges faced by blockchain-based financial systems and provide potential solutions to individual awareness and perception towards block chain in India.
3. To provide a comprehensive overview of the impact of blockchain technology on traditional financial markets with respect to individual awareness and perception towards block chain in India.

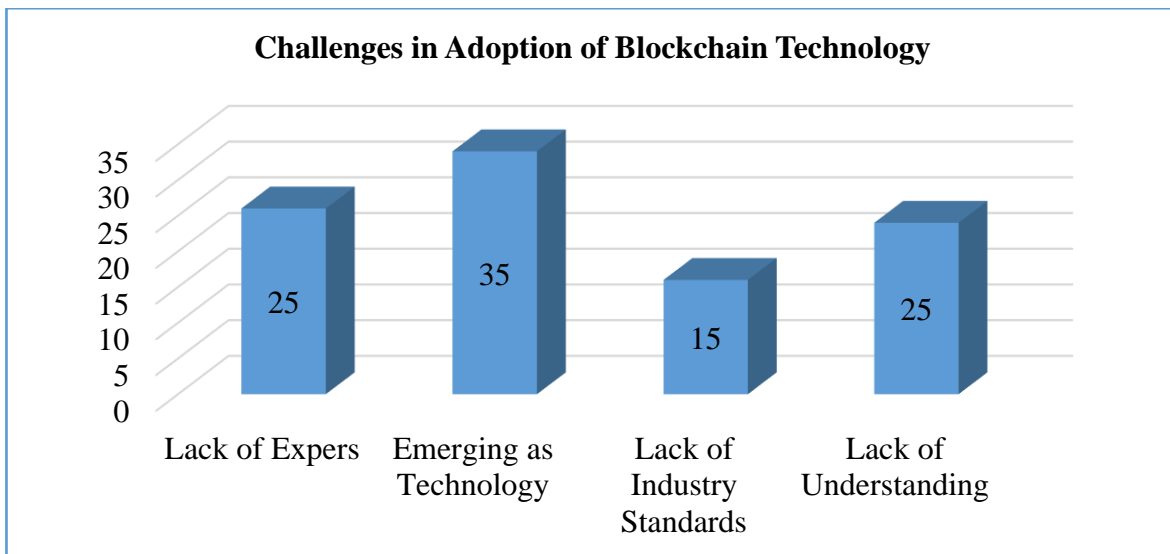
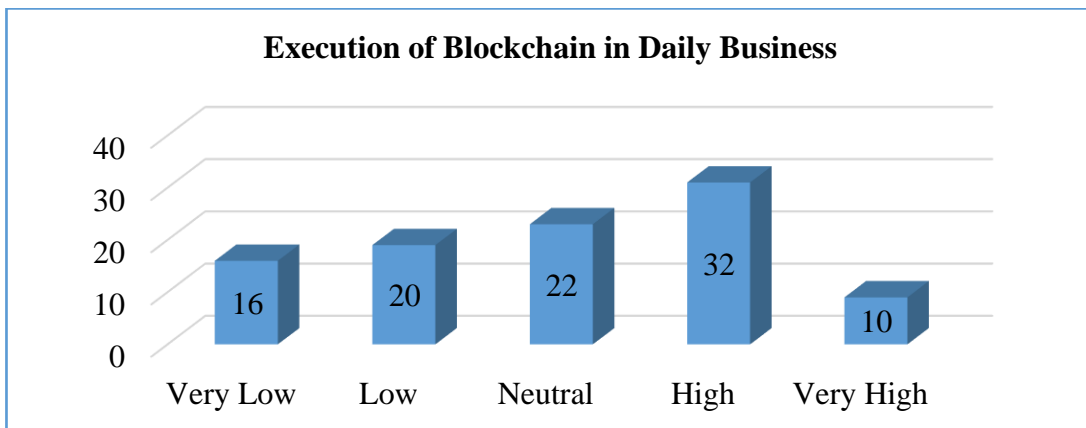
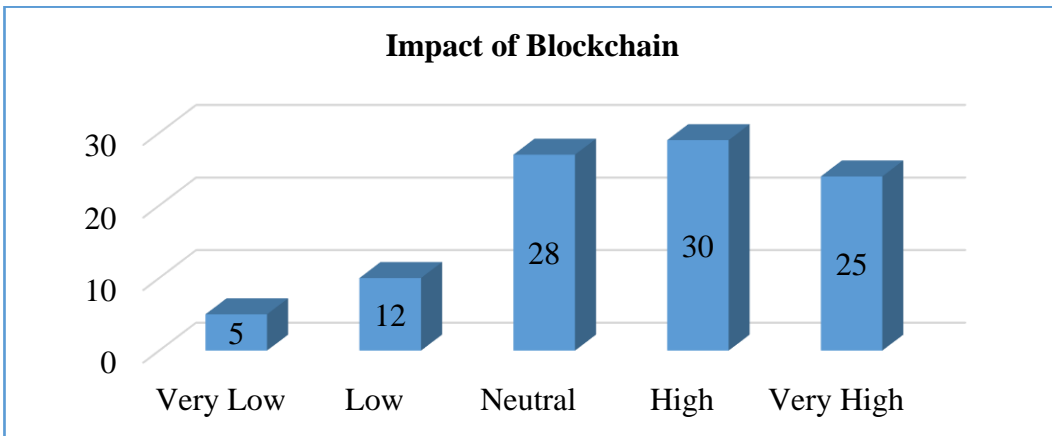
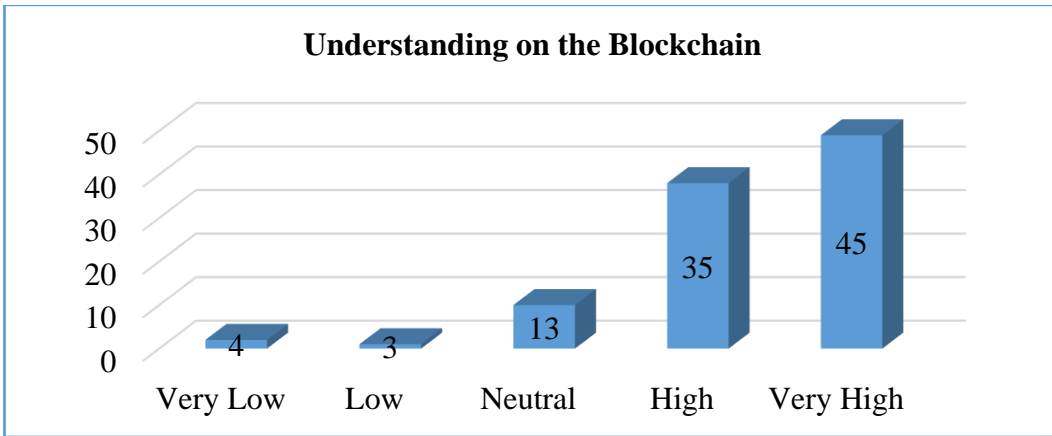
Scope of the study

The study won't go into the technical details of blockchain technology; instead, it will concentrate on how it affects conventional financial markets. The study will be based on a thorough analysis of the literature already in existence and offer insights into the potential advantages and disadvantages of applying blockchain technology to financial markets, as well as the difficulties faced by blockchain-based financial systems and potential solutions to these difficulties. The study will be helpful for individuals who want to comprehend the possibilities of blockchain technology in established financial markets with respect to individual awareness and perception towards block chain in India.

4. Research Methodology

The basic sources of the study are the survey questionnaire responses. Through email questionnaires, a simple random sample size of 100 respondents from all around India participated in the survey. This sample strategy is a tried-and-true way to get response data from a variety of populations. This approach is more time and money efficient, but the survey's success depends on the demographic chosen. Data was thusly gathered, processed using the chi square test, and the outcomes were correctly examined and interpreted.





H1: There is no significant difference between age and

individual awareness with respect to individual awareness and perception towards block chain in India.

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23.55	3	7.23	5.59	0.001
Within Groups	133.25	96	1.41		
Total	152.77	99			

Interpretation:

The f test is refused since the aforementioned result shows that the significant value is less than 0.01. As a result, the alternative hypothesis is accepted and the null hypothesis is rejected. It has been shown that there are considerable differences in India's level of understanding about blockchain technology.

Discussion of Hypothesis 1

Blockchain technology is currently undergoing a rapid evolution in the financial markets as more financial institutions and organisations research its potential advantages. Though the technology is still in its infancy, several financial institutions have already begun to employ it for a variety of purposes, including cross-border

payments, trading in digital assets, and the settlement of securities.

However, there are obstacles to the adoption of blockchain technology in the financial markets, including legal concerns, cybersecurity risks, and technological limits. Despite these difficulties, many experts think that blockchain technology's future expansion and advancement will be fueled by its potential advantages in the financial markets.

H2: There is no significant difference between education and individual perception level towards block chain in India.

ANOVA Table for Individual Awareness

ANOVA Table for Individual Perception

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.34	3	2.11	4.37	0.024
Within Groups	64.77	96	0.59		
Total	71.21	99			

Interpretation:

The f test is accepted because the aforementioned result shows that the significant value is greater than 0.01. As a result, the alternate hypothesis is disproved and the null hypothesis is accepted. It has been discovered that there are no appreciable differences in how each people perceives blockchain in India.

Discussion of Hypothesis 1

The usage of blockchain technology in financial markets has increased recently as more businesses become aware of its potential to boost productivity, save costs, and boost security. As a result, several blockchain-based financial services and products have been created, such as decentralised exchanges, digital wallets, and stablecoins.

Blockchain technology has a lot of potential for future growth in the financial sectors. By eliminating the need for middlemen and increasing the effectiveness of financial transactions, the technology has the potential to

upend many conventional financial procedures. Blockchain technology can also make it easier to create and trade digital assets, opening up new investment possibilities and opening up new ways to create wealth.

Major Findings from the Study

Security Issues: More robust security controls, like as multi-factor authentication, encrypted communication protocols, and frequent security audits, could assist address security issues and improve the overall security of blockchain-based financial systems.

Costs of Implementation: The development of scalable and cost-effective blockchain technology solutions as well as increasing investment in infrastructure and technology may be able to handle the costs of implementing blockchain technology in financial markets.

Insufficient user adoption: The creation of user-friendly and accessible blockchain technology solutions, along with increased education and awareness-raising activities,

might all contribute to greater user acceptance and ensure that financial market participants use blockchain-based financial systems on a large scale.

The first aspect, comfort and security, asks how safe it is to transfer money or pay bills online. While 43% believe that the current systems are secure, 55% still feel that internet transactions are insecure and need to be made more secure. 80% of people say that, despite security concerns, online transactions are secure.

The second aspect is awareness; only 35% and 45% of people, respectively, are aware of Bitcoin and Blockchain, thus greater understanding of transaction security is needed, followed by the technology and procedures that make security possible.

In relation to the third component, acceptance, 25% of respondents concur that blockchain technology is required for digital payments, secure voting, and health care, and 15% strongly concur that smart contracts make sense with blockchain technology.

5. Conclusion

In order to save time and money and ensure secure and safe transactions, there are several areas where a distributive approach is required in India. Although 54% of respondents think blockchain is essential for managing transactions, there isn't much awareness about it. India will become more productive by using Blockchain to convert more governments, regulators, and agencies' service offerings, which will save time and effort. The adoption of Blockchain in India has begun across a variety of industries, but it may take some time for it to gain public approval and be implemented throughout several day-to-day transaction interventions.

Blockchain technology has the ability to completely change how business is done. Blockchain, however, is not just used for digital currency. This technology may be utilised on numerous platforms where particular types of transactions are done. Blockchain is now constrained by technological constraints, but future research on the applications of blockchain is undoubtedly intriguing. To address and examine the exciting issues and challenges that anonymity, data integrity, and security characteristics provide, a significant amount of study is required. For future demands, scalability is a new problem that needs to be resolved. It is crucial to compile all pertinent studies in order to recognise and comprehend the present state of research being done on blockchain.

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