



# THE IMPACT OF BLOCKCHAIN TECHNOLOGY ON FINANCIAL MARKETS

**Prof.Nishant Ranjan,**

Assistant Professor , International Institute of Management Studies, Pune

## **Abstract:**

Every digital event and transaction is documented in the decentralised database known as blockchain. These transaction records are exchanged between parties and stored in blocks. The parties who maintain the blockchain blocks share ownership of these records. Each Block is examined, confirmed, and stored by the parties that make up the network/system. The specifics of a single transaction are included in each block, along with the hash key from the block before it. The technology behind Bitcoin and other digital currencies is called blockchain. Blockchain technology ensures error-free record keeping and is exceedingly secure by design. Peer-to-peer transactions can be conducted using Bitcoin, a decentralised digital currency. Electronic payments have made tremendous advancements in the Indian financial sector.

This paper investigates how blockchain technology will affect conventional financial markets. The research gives a general overview of blockchain technology's present use in financial markets and its potential for future growth. The paper evaluates the difficulties faced by blockchain-based financial systems as well as the possible advantages and disadvantages of utilising blockchain technology in conventional financial markets. According to the study's findings, the financial industry is closely monitoring blockchain technology's acceptance and implementation since it has the potential to have a big impact on conventional financial markets. According to the report, despite these difficulties, blockchain technology will continue to advance and thrive in the future due to the potential advantages it might have in the financial markets.

**Keywords:** Blockchain technology, Financial markets, Growth, Development, efficiency,

**DOI Number: 10.48047/nq.2021.19.12.NQ21255**

**NeuroQuantology 2022; 19(12):555-564**

## **Introduction:**

The adoption of blockchain technology has sparked excitement in the financial community and upended several established banking systems. The decentralised, secure, and open platform for transactions provided by blockchain technology has the potential to fundamentally alter the way that traditional financial markets operate. This research paper attempts to examine the effects of blockchain technology on established financial markets and how these effects may alter how these markets function.

Intermediaries who enable transactions between buyers and sellers, like banks, stockbrokers, and clearing houses, define financial markets. With its decentralised

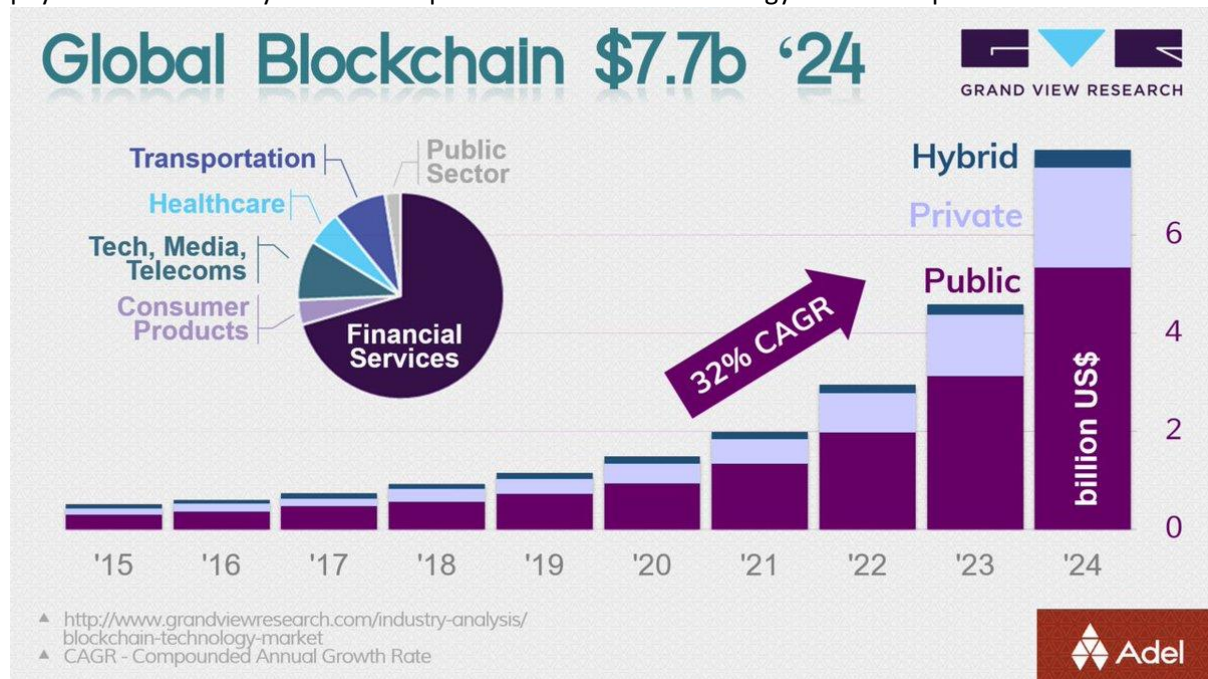
structure, blockchain technology has the potential to do away with the need for middlemen, creating a more effective, affordable, and secure financial system. The possible advantages and disadvantages of implementing blockchain technology in the financial markets, such as more transparency, lower costs, and faster transaction times, will be examined in this study.

Blockchain is a technology that was primarily created for the Bitcoin cryptocurrency. It is a distributed method for managing transactions and data. Blockchain technology has gained greater popularity since it was first introduced in 2008. Interest in Blockchain has been sparked by its key features, including its secrecy, opacity, and lack of a third party



affiliation regulating the agreements. This is especially true when you take into account the unique challenges and constraints it presents. At the moment, a third party association oversees and heavily centralises financial transactions between people and companies. A bank or credit card provider is required to serve as a middleman and receive money for their services each time a digital payment or currency transfer is performed.

Numerous other businesses, such as gaming, music, software, etc., employ similar strategies. Instead of the two primary realities involved in the transaction, these sale systems are usually centralised, and all data and information are controlled and handled by a third party agency. In a decentralised system, where only the people involved have control over transactions and data, blockchain technology was developed.



Source: [www.sicher.com/CAGR](http://www.sicher.com/CAGR)

A distributed database called blockchain controls an expanding set of data records. The information is kept in a public list along with information on each profitable sale. This method produces a decentralised result without the assistance of a middleman. Each bump has access to and involvement in the data of every completed sale in the Blockchain. This unique characteristic makes the system more transparent as compared to centralised transactions via a third party. It is also much safer for other bumps to approve the deals because every bump in Blockchain is anonymous. Blockchain technology was first employed with Bitcoin. With the help of Bitcoin, a decentralised ecosystem for cryptocurrencies was established where users could deal with digital billionaires. Blockchain appears to be a reasonable choice for carrying out cryptocurrency transactions, but it still has certain unique issues that need to be investigated and fixed. High degrees of

transaction security and integrity are required by blockchain technology, as well as the sequestration of bumps, to avoid transaction disruptions.

**Blockchain technology on traditional financial markets.**

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.

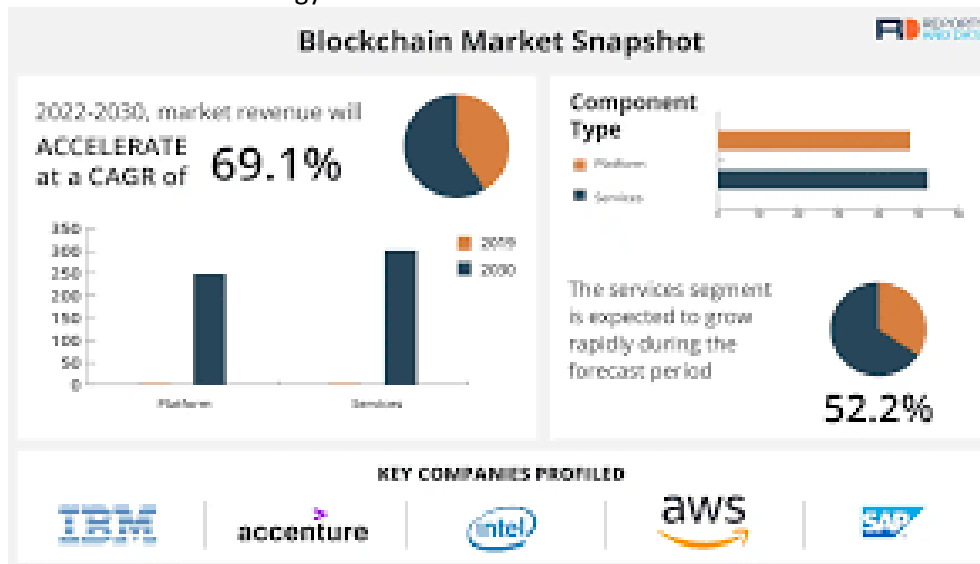
As more businesses become aware of its potential to boost productivity, lower expenses, and boost security, blockchain technology has becoming increasingly used in financial markets in recent years. Decentralised exchanges, digital wallets, and stablecoins are just a few of the financial



services and products that have been built on the blockchain as a result.

Blockchain technology holds a lot of promise for future advancement in the financial sector. As a result, fewer middlemen will be required, and financial transactions will be more efficient. The technology has the

potential to upend many conventional financial processes. The production and exchange of digital assets can also be facilitated by blockchain technology, opening up new investment opportunities and enabling new ways to create wealth.



Source: [www.ingmarket.capital](http://www.ingmarket.capital)

Regulatory issues, cybersecurity risks, and technological limits are just a few of the obstacles that must be overcome for blockchain technology to be adopted in the financial markets. Despite these obstacles, many experts think that blockchain technology will continue to advance because of the potential advantages it could provide in the future of the financial systems.

### Review of literature

The public's faith in the government's operations can be boosted with the use of blockchain technology. For example, they can boost public exposure by maintaining the votes on a blockchain network. Blockchain enables the people to communicate their thoughts in an unbreakable network and can be utilised in and by nations where there is a great deal of fear of repression. Blockchain is mostly supported in the background by AI algorithms, and when associated new technologies are abandoned, it frequently encounters issues. Artificial intelligence (AI) systems commonly exhibit similar problems, such as process transparency and outgrowth trustability (Chakraborty and Kar, 2017). Additionally, since individual biases now have more sophisticated distributive capabilities

and weaker cyphers as mobile computing advances, access to truly high distributed computing is altered (Suankaewmanee et al., 2018). With this added justification, mobile operations can be set up to avoid the blockchain-based platforms that field workers utilise to deliver services.

Since Nakamoto introduced cryptocurrencies in 2008, blockchain technology has become more well-known. Its creation solved the problem of counterfeit money. Since the bumps on the blockchain are publicly stored, each bump is informed of the sale and consents to it being recorded. Users of blockchain systems often have access to data that is transparent, safe, and dependable in a decentralised, open environment. The current centralised information management systems can thus be replaced by it. According to Swan (2015), blockchain technology has advantages for politics, society, and philanthropy in addition to financial ones. Palychata (2016) draws a comparison between the invention of the machine or combustion engine and the potential of blockchain to alter trade. Blockchain technology is being studied in both academic and industrial contexts as a cutting-edge technology that may be used in a range



of businesses (White, 2017). The insurance sector has always been slow to adopt new technologies. However, the sector has started to benefit from adding technology to its value chain. According to the industry's Gartner hype cycle, the technology is now at the invention detector phase, which implies that not every part of the operation has been carefully examined. The possible applications of blockchain technology and smart contracts in the insurance sector, the best blockchain architecture for those applications, and the readiness of the technology for use are all topics that insurance companies are starting to inquire about (Gatteschi et al., 2018a, 2018b). Preventing erroneous claims continues to be the primary objective of technical promotion in the insurance sector. The primary goal of utilising blockchain will be to automate the administration of claims and payments in order to decrease the possibility of false claims being submitted. The possibility of any intermediaries, such as brokers, who frequently serve as the insurers' public face, can also be eliminated if blockchain is abandoned. Technology has the ability to improve and streamline the industry's current operating procedures as well as turn existing items into new ones, such as peer-to-peer insurance or the participatory frugality model. 2020 is Sayegh and Desoky's year. Songster (2019) contends that despite technology's ability to assist the business in this area, bogus claims continue to threaten the integrity of the insurance sector globally. Blockchain technology has the ability to drastically alter business, manufacturing, and supply chain operations because it is decentralised, transparent, and visible (Upadhyay, 2020). Because no reality depends on the honesty of a specific counterpart, blockchain might be seen as an uncertain system. Rigid sale records and decentralised governance boost network confidence (Tapscott&Tapscott, 2017; Swan, 2015). Blockchain technology is a crucial part of the several operating systems that make up modern banking efficiency. It has the ability to transform banking diligence by streamlining processes. According to Rossit et al. (2019), more than 90 central banks are testing

distributed tally technology, which 80 percent of institutions will soon employ.

E. Ducas, A. Wilner, (2017). Blockchain technology's effects on security and finances: Canada's regulatory framework for new technologies. A technological development called the blockchain, which serves as the foundational protocol for bitcoin, has the power to revolutionise financial services and challenge long-standing norms in the fields of security, finance, and public safety. Finding the right balance between regulation and innovation is Canada's biggest problem.

Koepl, T. V., et al. 2020.Settlement for Trading of Assets on the Blockchain. Financial Studies Review A blockchain's main benefit is quicker and more flexible settlement; in contrast, settlement failures where participants fork the chain to reverse trade losses must be ignored. When implementing a proof-of-work protocol, the blockchain must impose a speed limit on transaction processing in order to produce transaction fees, which cover the cost of mining. Our predictions for the U.S. corporate debt market show net advantages from a blockchain in the range of 1-4 bps, despite mining being a deadweight cost.

Wang, L., 2021, He Technology based on blockchains, macroeconomic ambiguity, and investment. Blockchain is better than traditional banking systems in terms of risk management. As macroeconomic uncertainty increases, blockchain technology may be able to assist companies in reducing systemic risks and increasing investment efficiency.

#### **Statement of the problem**

As blockchain technology has the ability to completely change the way that financial transactions are carried out, there is considerable interest in how it may affect conventional financial markets. A decentralised, secure, and transparent platform for transactions is provided by blockchain technology, which has the potential to do away with the need for middlemen, lower prices, and boost the speed and efficiency of financial transactions. 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 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 how blockchain technology is affecting conventional financial markets.

**Objectives of the study**

1. To determine and assess the advantages and disadvantages of applying blockchain technology to conventional financial markets.
2. To research the difficulties that blockchain-based financial systems encounter and offer viable solutions to these difficulties.
3. To give a thorough insight of how blockchain technology is affecting conventional financial markets.

**Scope of the study**

Analysis of the possible advantages and disadvantages of implementing blockchain technology in conventional financial markets, including improvements to efficiency, cost reduction, transparency, and transaction speed. Analysis of the difficulties blockchain-based financial systems face, such as interoperability problems, security and

privacy issues, and regulatory and compliance problems.

The study won't get too technical about 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 utilising blockchain technology in financial markets, as well as the difficulties faced by blockchain-based financial systems and potential solutions to these difficulties. For individuals wanting to comprehend the possibilities of blockchain technology in conventional financial markets, the study will be pertinent.

**Research methodology**

The research approach for the study on "The impact of blockchain technology on traditional financial markets" would combine qualitative and quantitative research techniques. This includes a thorough analysis of the case study and the literature. The findings will give a thorough analysis of how blockchain technology affects conventional financial markets and show if it has the potential to increase the effectiveness, security, and transparency of financial transactions. A thorough study of the subject has been provided through the research approach.

**Data Analysis and Interpretation**

**H1: There is significant difference between financial services and blockchain technology in India.**

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.17	8	6.79	4.89	0.001
Within Groups	121.24	92	1.47		
Total	141.41	100			

**Interpretation:**

The above result indicates that the significant value is less than 0.01; hence, the f test is rejected. The null hypothesis is disproved and the alternative hypothesis is approved as a result. The degree to which Indians comprehend blockchain technology varies significantly, as evidenced by this study.

Due to increased interest from financial institutions and groups looking into its potential benefits, blockchain technology is

currently evolving quickly in the financial markets. Despite the fact that the technology is still in its infancy, a number of financial institutions have already started to use it for a number of operations, including cross-border payments, trading in digital assets, and the settlement of securities.

Blockchain technology is not yet widely used in the financial markets, nevertheless, due to issues with the law, cybersecurity dangers,



and technological limitations. The potential benefits of blockchain technology in the financial markets, according to many analysts,

will drive its growth and improvement in the future, despite these obstacles.

**H2: There is significant difference between awareness and people perception towards block chain in India.**

ANOVA Table

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.46	8	3.23	3.79	0.02
Within Groups	59.62	92	0.43		
Total	66.108	100			

**Interpretation:**

The significance value is more than 0.01 according to the results of the f test, which are acceptable. As a result, the null hypothesis is supported and the alternate hypothesis is refuted. There are no discernible distinctions in how each Indian understands blockchain, it has been found.

As more companies become aware of its potential to raise productivity, reduce costs, and improve security, the use of blockchain technology in financial markets has recently expanded. Decentralised exchanges, digital wallets, and stable coins are just a few of the financial services and goods built on the blockchain that have been developed as a result.

Future development of blockchain technology in the financial sectors has enormous potential. The technology has the ability to change a lot of traditional financial practises by reducing the need for middlemen and enhancing the efficiency of financial transactions. Blockchain technology may also make it simpler to generate and trade digital assets, expanding the pool of potential investments and wealth-generating opportunities.

**Conclusions**

In conclusion, the financial industry is carefully observing the effects of blockchain technology since it has the potential to significantly alter existing financial markets. Decentralisation, automation, and the exchange of digital assets are some of the advantages of blockchain technology. Efficiency, security, and accessibility have also

benefited. Scalability, regulation, adoption, interoperability, and security are a few issues that blockchain-based financial systems must also contend with. Depending on the acceptance rate and use cases, the blockchain technology's potential to transform conventional financial markets will be determined. Even though there are some difficulties, the advantages of blockchain technology point to its potential for growth in the financial markets.

The technology behind blockchain has the power to transform how transactions are carried out in daily life. The uses of Blockchain, however, are not just restricted to virtual currency. This technology might be used on different platforms where certain types of transactions are carried out. Future research on the potential of blockchain in applications is undoubtedly exciting, but for the time being, blockchain is constrained by technical issues. Anonymity, data integrity, and security characteristics present a variety of intriguing problems and issues that need to be resolved and evaluated through thorough research. Another problem that needs to be resolved for future requirements is scalability. Therefore, it is crucial to compile all pertinent research in order to identify and comprehend the present status of study undertaken on blockchain. Then, it will be possible to assess which problems and queries have been solved as well as which ones remain unresolved in Blockchain.

**Future scope of the study**

To better comprehend the potential impact of blockchain technology on traditional financial



markets, more research could be done on specific use cases of the technology. The cost-effectiveness and efficiency of blockchain-based financial transactions vs conventional financial transactions could be compared through research. To solve the problems of regulation and interoperability, research might be done on the legal and regulatory frameworks for blockchain-based financial systems. It would be possible to conduct research on the adoption of blockchain technology in conventional financial markets and examine the factors that affect adoption. Studies could be done to determine how blockchain technology might affect many traditional financial markets, including the stock market, bond market, foreign exchange market, and commodities market.

### References

1. Wu, B., &Duan, T. (2019, March). The application of blockchain technology in financial markets. In *Journal of Physics: Conference Series* (Vol. 1176, No. 4, p. 042094). IOP Publishing.
1. .Thommandru, A., Espinoza-Maguiña, M., Ramirez-Asis, E., Ray, S., Naved, M., & Guzman-Avalos, M. (2023). Role of tourism and hospitality business in economic development. *Materials Today: Proceedings*, 80, 2901-2904.
2. Voumik, L. C., Islam, M. A., Ray, S., Mohamed Yusop, N. Y., &Ridzuan, A. R. (2023). CO2 emissions from renewable and non-renewable electricity generation sources in the G7 countries: static and dynamic panel assessment. *Energies*, 16(3), 1044.
3. Bhargava, A., Bhargava, D., Kumar, P. N., Sajja, G. S., & Ray, S. (2022). Industrial IoT and AI implementation in vehicular logistics and supply chain management for vehicle mediated transportation systems. *International Journal of System Assurance Engineering and Management*, 13(Suppl 1), 673-680.
4. Rakhra, M., Sanober, S., Quadri, N. N., Verma, N., Ray, S., &Asenso, E. (2022). Implementing machine learning for smart farming to forecast farmers' interest in hiring equipment. *Journal of Food Quality*, 2022.
5. Al Ayub Ahmed, A., Rajesh, S., Lohana, S., Ray, S., Maroor, J. P., &Naved, M. (2022, June). Using Machine Learning and Data Mining to Evaluate Modern Financial Management Techniques. In *Proceedings of Second International Conference in Mechanical and Energy Technology: ICMET 2021, India* (pp. 249-257). Singapore: Springer Nature Singapore.
6. Pallathadka, H., Leela, V. H., Patil, S., Rashmi, B. H., Jain, V., & Ray, S. (2022). Attrition in software companies: Reason and measures. *Materials Today: Proceedings*, 51, 528-531.
7. Sharma, A., Kaur, S., Memon, N., Fathima, A. J., Ray, S., & Bhatt, M. W. (2021). Alzheimer's patients detection using support vector machine (SVM) with quantitative analysis. *Neuroscience Informatics*, 1(3), 100012.
8. Mehbodniya, A., Neware, R., Vyas, S., Kumar, M. R., Ngulube, P., & Ray, S. (2021). Blockchain and IPFS integrated framework in bilevel fog-cloud network for security and privacy of loMT devices. *Computational and Mathematical Methods in Medicine*, 2021.
9. Ray, S. (2020). How COVID-19 changed dimensions of human suffering and poverty alleviation: economic analysis of humanitarian logistics. *ВестникАстраханскогогосударственноготехническогоуниверситета. Серия: Экономика*, (4), 98-104.
10. Akbar, A., Akbar, M., Nazir, M., Poulouva, P., & Ray, S. (2021). Does working capital management influence operating and market risk of firms?. *Risks*, 9(11), 201.
11. Dutta, A., Voumik, L. C., Ramamoorthy, A., Ray, S., &Raihan, A. (2023). Predicting Cryptocurrency Fraud Using ChaosNet: The Ethereum

- Manifestation. *Journal of Risk and Financial Management*, 16(4), 216.
12. Polcyn, J., Voumik, L. C., Ridwan, M., Ray, S., &Vovk, V. (2023). Evaluating the influences of health expenditure, energy consumption, and environmental pollution on life expectancy in Asia. *International Journal of Environmental Research and Public Health*, 20(5), 4000.
  13. Sajja, G. S., Jha, S. S., Mhamdi, H., Naved, M., Ray, S., &Phasinam, K. (2021, September). An investigation on crop yield prediction using machine learning. In *2021 Third International Conference on Inventive Research in Computing Applications (ICIRCA)* (pp. 916-921). IEEE.
  14. Ali, N. G., Abed, S. D., Shaban, F. A. J., Tongkachok, K., Ray, S., & Jaleel, R. A. (2021). Hybrid of K-Means and partitioning around medoids for predicting COVID-19 cases: Iraq case study. *Periodicals of Engineering and Natural Sciences*, 9(4), 569-579.
  15. Gupta, S., Geetha, A., Sankaran, K. S., Zamani, A. S., Ritonga, M., Raj, R., ...& Mohammed, H. S. (2022). Machine learning-and feature selection-enabled framework for accurate crop yield prediction. *Journal of Food Quality*, 2022, 1-7.
  16. Gupta, S., Geetha, A., Sankaran, K. S., Zamani, A. S., Ritonga, M., Raj, R., ...& Mohammed, H. S. (2022). Machine learning-and feature selection-enabled framework for accurate crop yield prediction. *Journal of Food Quality*, 2022, 1-7.
  17. Ma, W., Nasriddinov, F., Haseeb, M., Ray, S., Kamal, M., Khalid, N., & Ur Rehman, M. (2022). Revisiting the impact of energy consumption, foreign direct investment, and geopolitical risk on CO2 emissions: comparing developed and developing countries. *Frontiers in Environmental Science*, 1615.
  18. Shukla, S. (2017). Innovation and economic growth: A case of India. *Humanities & Social Sciences Reviews*, 5(2), 64-70.
  19. Soham, S., &Samrat, R. (2021). Poverty and financial dearth as etiopathogen of psychotic and neurotic diseases. *Заметкиученого*, (4-1), 568-578.
  20. Park, J. Y., Perumal, S. V., Sanyal, S., Ah Nguyen, B., Ray, S., Krishnan, R., ...&Thangam, D. (2022). Sustainable marketing strategies as an essential tool of business. *American Journal of Economics and Sociology*, 81(2), 359-379.
  21. Роков, А. И.,Дубаневич, Л. Э., &Рэй, С. (2021). Повышениеэкономическойэффективноститрудоасчетизменениясистемыоплаты. *E-Scio*, (9 (60)), 53-62.
  22. Ray, S. (2021). How Emotional Marketing can help better understand the Behavioral Economic patterns of Covid-19 pandemic: Economic Judgments and Falsifications from India Samrat Ray-Alagappa University, Tamil Nadu, India. samratray@rocketmail. com. *Вестник МИРБИС*, (2), 26-34.
  23. Ravi, S., Kulkarni, G. R., Ray, S., Ravisankar, M., krishnan, V. G., &Chakravarthy, D. S. K. (2023). Analysis of user pairing non-orthogonal multiple access network using deep Q-network algorithm for defense applications. *The Journal of DefenseModeling and Simulation*, 20(3), 303-316.
  24. Priya, P. S., Malik, P., Mehbodniya, A., Chaudhary, V., Sharma, A., & Ray, S. (2022, February). The relationship between cloud computing and deep learning towards organizational commitment. In *2022 2nd International Conference on Innovative Practices in Technology and Management (ICIPTM)* (Vol. 2, pp. 21-26). IEEE.
  25. Ray, S., &Leandre, D. Y. (2021). How entrepreneurial university model is changing the Indian COVID–19



- Fight?. *Путеводитель предпринимателя*, 14(3), 153-162.
26. Inthavong, P., Rehman, K. U., Masood, K., Shaukat, Z., Hnydiuk-Stefan, A., & Ray, S. (2023). Impact of organizational learning on sustainable firm performance: Intervening effect of organizational networking and innovation. *Heliyon*, 9(5).
27. Rajendran, R., Sharma, P., Saran, N. K., Ray, S., Alanya-Beltran, J., & Tongkachok, K. (2022, February). An exploratory analysis of machine learning adaptability in big data analytics environments: A data aggregation in the age of big data and the internet of things. In *2022 2nd International Conference on Innovative Practices in Technology and Management (ICIPTM)* (Vol. 2, pp. 32-36). IEEE.
28. Elkady, G., & Samrat, R. (2021). An analysis of Blockchain in Supply Chain Management: System Perspective in Current and Future Research. *International Business Logistics*, 1(2).
29. Korchagina, E., Desfontaines, L., Ray, S., & Strekalova, N. (2021, October). Digitalization of Transport Communications as a Tool for Improving the Quality of Life. In *International Scientific Conference on Innovations in Digital Economy* (pp. 22-34). Cham: Springer International Publishing.
30. Kumar, A., Nayak, N. R., Ray, S., & Tamrakar, A. K. (2022). Blockchain-based Cloud Resource Allocation Mechanisms for Privacy Preservation. In *The Data-Driven Blockchain Ecosystem* (pp. 227-245). CRC Press.
31. Wawale, S. G., Bisht, A., Vyas, S., Narawish, C., & Ray, S. (2022). An overview: Modeling and forecasting of time series data using different techniques in reference to human stress. *Neuroscience Informatics*, 2(3), 100052.
32. Batool, A., Ganguli, S., Almashaqbeh, H. A., Shafiq, M., Vallikannu, A. L., Sankaran, K. S., ...& Sammy, F. (2022). An IoT and Machine Learning-Based Model to Monitor Perishable Food towards Improving Food Safety and Quality. *Journal of Food Quality*, 2022.
33. Verma, K., Sundararajan, M., Mangal, A., Ray, S., & Kumar, A. (2022, April). The Impact of COVID-19 to the Trade in India Using Digital, IOT and AI Techniques. In *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)* (pp. 01-05). IEEE.
34. Bangare, J. L., Kapila, D., Nehete, P. U., Malwade, S. S., Sankar, K., & Ray, S. (2022, February). Comparative Study on Various Storage Optimisation Techniques in Machine Learning based Cloud Computing System. In *2022 2nd International Conference on Innovative Practices in Technology and Management (ICIPTM)* (Vol. 2, pp. 53-57). IEEE.
35. Kiziloglu, M., & Ray, S. (2021). Do we need a second engine for Entrepreneurship? How well defined is intrapreneurship to handle challenges during COVID-19?. In *SHS Web of Conferences* (Vol. 120, p. 02022). EDP Sciences.
36. Samajpaty, S., & Ray, S. (2020). Innovation strategies in health economics: a force that makes blood move and game of gravity in it-futuristic economic plans. *Московский экономический журнал*, (9), 397-409.
37. Nikam, R. U., Lahoti, Y., & Ray, S. (2023). A Study of Need and Challenges of Human Resource Management in Start-up Companies. *Mathematical Statistician and Engineering Applications*, 72(1), 314-320.
38. Yanbin, X., Jianhua, Z., Wang, X., Shabaz, M., Ahmad, M. W., & Ray, S. (2023). Research on optimization of crane fault predictive control system based on data mining. *Nonlinear Engineering*, 12(1), 20220202.

39. Ray, S., Abinaya, M., Rao, A. K., Shukla, S. K., Gupta, S., & Rawat, P. (2022, October). Cosmetics Suggestion System using Deep Learning. In *2022 2nd International Conference on Technological Advancements in Computational Sciences (ICTACS)* (pp. 680-684). IEEE.
40. Bhaskar, T., Shiney, S. A., Rani, S. B., Maheswari, K., Ray, S., & Mohanavel, V. (2022, September). Usage of Ensemble Regression Technique for Product Price Prediction. In *2022 4th International Conference on Inventive Research in Computing Applications (ICIRCA)* (pp. 1439-1445). IEEE.
41. Kanade, S., Surya, S., Kanade, A., Sreenivasulu, K., Ajitha, E., & Ray, S. (2022, April). A Critical analysis on Neural Networks and Deep Learning Based Techniques for the Cloud Computing System and its Impact on Industrial Management. In *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)* (pp. 325-331). IEEE.
42. Pallathadka, H., Tongkachok, K., Arbune, P. S., & Ray, S. (2022). Cryptocurrency and Bitcoin: Future Works, Opportunities, and Challenges. *ECS Transactions*, *107*(1), 16313.
43. Li, Y. Z., Yu, Y. H., Gao, W. S., Ray, S., & Dong, W. T. (2022). The Impact of COVID-19 on UK and World Financial Markets. *Jundishapur Journal of Microbiology*, *373-399*.
44. Samrat, R., Elkadyghada, E. G., Rashmi, N., & Elena, K. (2022). UPSKILLING AND RESKILLING FOR A GREENER GLOBAL BUSINESS ECOSYSTEM: WEB 4.0 PERSPECTIVE. *Журнал прикладных исследований*, *1*(11), 49-60.
45. Gaidhani, S., Arora, L., & Sharma, B. K. (2019). Understanding the attitude of generation Z towards workplace. *International Journal of Management, Technology and Engineering*, *9*(1), 2804-2812.
46. Arora, L., Singh, P., Bhatt, V., & Sharma, B. (2021). Understanding and managing customer engagement through social customer relationship management. *Journal of Decision Systems*, *30*(2-3), 215-234.
47. Arora, L., & Mail, B. K. S. (2018). Influence of review quality, review quantity and review credibility on purchase intention in context of high involvement products. *European Journal of Applied Business and Management*, *4*(4).
48. Choubisa, L., & Babel, H. (2018). Morphometric study of pedicles of dried adult human lumbar vertebrae in Udaipur zone. *Int J Anat Res*, *6*(3.3), 5660-66.
49. Paliouras, K., & Siakas, K. V. (2017). Social customer relationship management. *International Journal of Entrepreneurial Knowledge*, *5*(1).
50. Irshad, M., Ahmad, M. S., & Malik, O. F. (2020). Understanding consumers' trust in social media marketing environment. *International Journal of Retail & Distribution Management*, *48*(11), 1195-1212.
51. Arora, L., & Dhingra, R. (2006). Unusual nerve supply of biceps from ulnar nerve and median nerve and a third head of biceps. *Indian Journal of Plastic Surgery*, *39*(02), 172-174.
52. Singh, P., Arora, L., & Choudhry, A. (2022). Consumer Behavior in the Service Industry: An Integrative Literature Review and Research Agenda. *Sustainability*, *15*(1), 250.
53. Maharshi, N., Arora, L., & Chaturvedi, R. (2013). Management Education in India: From Challenges to Opportunities. *Asia Pacific Journal of Management & Entrepreneurship Research*, *2*(1), 72.