

## **Role of Digital Banking in Achieving Financial Inclusion Under SDG 1 and SDG 10**

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### **Abstract**

Financial inclusion is recognized as a critical driver for reducing poverty (SDG 1) and promoting reduced inequalities (SDG 10), especially in emerging economies like India. Digital banking, through innovations such as mobile banking, internet banking, and fintech-enabled financial services, has emerged as a key enabler in extending formal financial access to underserved populations. This study investigates the role of digital banking in promoting financial inclusion, focusing on its impact on marginalized communities, rural populations, and low-income households. Using a mixed-method approach, combining survey data and secondary financial reports, the research examines how digital banking facilitates access to savings, credit, insurance, and payment services, while overcoming traditional barriers such as geographic distance, high transaction costs, and lack of documentation. The findings indicate that digital banking not only enhances access to financial services but also empowers individuals economically, contributing to poverty reduction and reducing socio-economic disparities. The study concludes by highlighting policy recommendations for regulators, banks, and fintech providers to strengthen digital financial infrastructure and literacy, thereby advancing the achievement of SDG 1 and SDG 10.

**Keywords:** Digital Banking, Financial Inclusion, SDG 1, SDG 10, Poverty Reduction, Socio-economic Inequalities, FinTech, Rural Banking, Financial Literacy, Emerging Economies

### **Introduction**

Financial inclusion, defined as the access to and use of affordable financial services by all segments of society, is a cornerstone for sustainable economic development. It plays a vital role in achieving the United Nations Sustainable Development Goals (SDGs), particularly SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities). Despite significant progress in global banking infrastructure, a large portion of the population in emerging economies, including

India, remains unbanked or underbanked due to geographic, socio-economic, and informational barriers.

Digital banking has emerged as a transformative solution to bridge this gap. By leveraging mobile technology, internet banking, digital wallets, and fintech innovations, digital banking allows individuals in remote and underserved areas to access financial services without the limitations of traditional brick-and-mortar banking. These services include savings accounts, credit facilities, insurance products, and digital payments, which collectively empower individuals to participate actively in the formal economy.

The increasing adoption of digital banking has not only enhanced convenience but has also played a crucial role in financial literacy, transparency, and economic empowerment. It has the potential to reduce poverty, increase household income, and decrease socio-economic disparities, thereby directly contributing to SDG 1 and SDG 10.

This study aims to analyze the role of digital banking in promoting financial inclusion, evaluate its effectiveness in reaching marginalized communities, and provide insights into policy and operational strategies that can accelerate inclusive growth through digital finance.

### **Research Objectives**

- To examine the role of digital banking in promoting financial inclusion among unbanked and underbanked populations, particularly in rural and marginalized communities.
- To evaluate the impact of digital banking on reducing poverty and socio-economic inequalities, in line with SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).
- To identify challenges and opportunities in digital banking adoption and propose strategies for enhancing access, usability, and financial literacy among underserved populations.

### **Review of Literature**

King and Levine (1993) conducted foundational research on the relationship between financial systems and economic growth. Their study highlighted that well-developed banking systems not only improve capital allocation but also facilitate broader access to financial services. This

research provides a theoretical basis for understanding how digital banking, as part of modern financial systems, can promote inclusion and reduce poverty.

Beck, Demirgüç-Kunt, and Levine (2007) examined the impact of financial inclusion on economic development and social equity. Their findings suggest that access to banking services, particularly for marginalized populations, enhances opportunities for education, entrepreneurship, and income generation. Digital banking platforms, by extending these services to remote and underserved areas, can directly contribute to achieving SDG 1 and SDG 10.

Chakraborty (2019) explored the role of digital banking and FinTech innovations in enhancing financial accessibility. The study emphasized that mobile banking, digital wallets, and online payment systems reduce traditional barriers such as geographic distance, high transaction costs, and documentation requirements, thereby fostering financial inclusion among rural and low-income communities.

Sarma and Pais (2011) developed the Financial Inclusion Index for India, which measures accessibility, availability, and usage of financial services. Their research indicates that while access to bank branches is limited in rural regions, digital banking significantly improves service penetration and promotes inclusive growth.

Ghosh and Vinod (2020) analyzed the impact of digital banking on poverty alleviation in India during the period of rapid FinTech adoption. Their study found that households with access to digital financial services reported higher savings rates, better credit availability, and improved economic resilience, highlighting the role of technology in reducing inequalities.

Arora and Sharma (2021) examined challenges in the adoption of digital banking among low-income populations. Their research identified factors such as digital literacy, trust in technology, and affordability as key barriers. They suggested that targeted policies and educational initiatives are essential to maximize the impact of digital banking on financial inclusion and social equity.

## **Research Gap**

- **Limited empirical studies on digital banking and SDGs:** While many studies focus on financial inclusion, there is a lack of research explicitly linking digital banking initiatives to the achievement of SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).
- **Rural and marginalized communities underexplored:** Existing research often emphasizes urban populations, leaving a gap in understanding the effectiveness of digital banking for rural and low-income households.
- **Barriers to adoption not fully addressed:** Although digital banking adoption is growing, studies have not comprehensively analyzed challenges such as digital literacy, trust, affordability, and accessibility among underserved populations.
- **Limited focus on impact measurement:** There is a need for more quantitative and qualitative studies assessing how digital banking concretely affects poverty reduction and inequality mitigation.
- **Policy and strategic insights are sparse:** Few studies provide actionable recommendations for regulators, banks, and fintech providers to enhance the impact of digital banking on inclusive growth.

## Research Questions

- How does digital banking contribute to financial inclusion among unbanked and underbanked populations?
- What is the impact of digital banking on poverty reduction and socio-economic inequalities in India?
- What are the key barriers preventing the adoption of digital banking by marginalized and rural communities?
- How can policy interventions and strategic initiatives improve digital banking access and usability for achieving SDG 1 and SDG 10?

## Conceptual Framework

### Framework Explanation:

The conceptual framework illustrates the relationship between digital banking services and financial inclusion outcomes, which ultimately influence the achievement of SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).

### **Components:**

#### **1. Independent Variable (IV): Digital Banking Services**

- Mobile banking
- Internet banking
- Digital wallets and payment systems
- FinTech-enabled credit, insurance, and savings products

#### **2. Mediating Variables:**

- Access to financial services (availability of accounts, credit, and insurance)
- Financial literacy and awareness
- Ease of use and trust in digital platforms

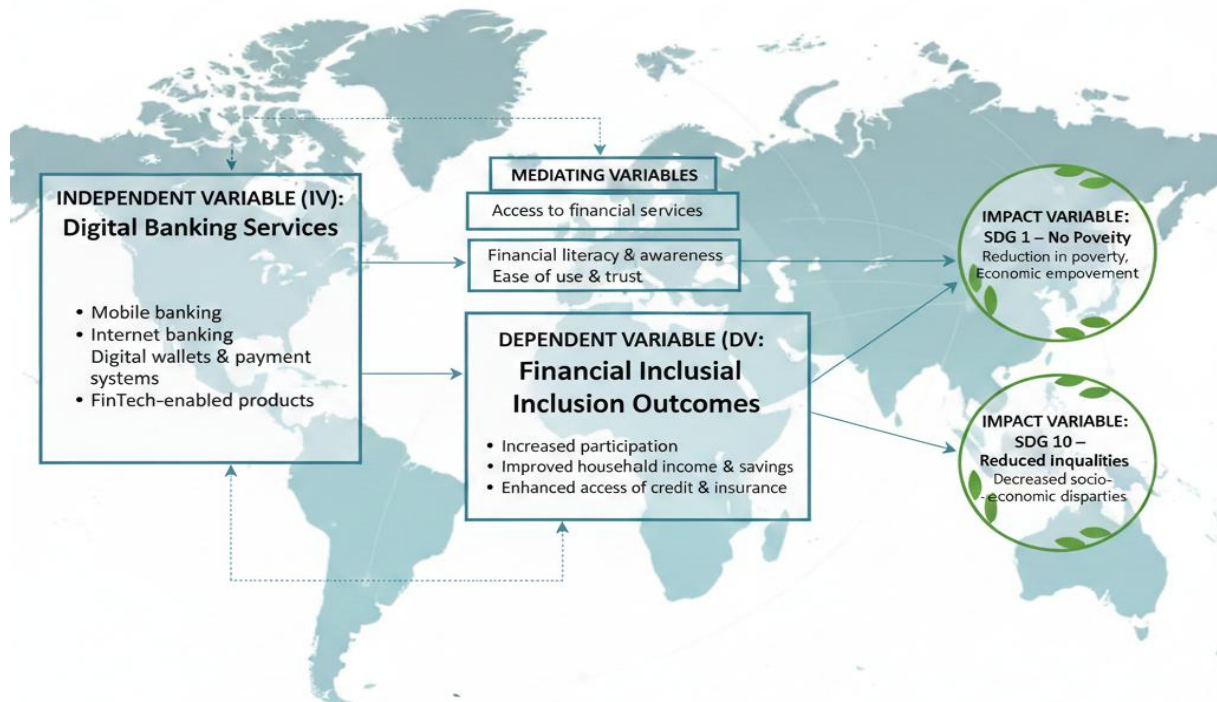
#### **3. Dependent Variable (DV): Financial Inclusion Outcomes**

- Increased participation in formal financial systems
- Improved household income and savings
- Enhanced access to credit and insurance

#### **4. Impact Variables:**

- **SDG 1 – No Poverty:** Reduction in poverty levels, increased economic empowerment
- **SDG 10 – Reduced Inequalities:** Decreased socio-economic disparities between marginalized and privileged populations

## Conceptual Framework: Digital Banking & Global Goals



## Hypotheses

### Hypothesis 1 (H1):

- **Null Hypothesis (H<sub>0</sub>):** There is no significant relationship between digital banking services and financial inclusion among unbanked and underbanked populations.
- **Alternative Hypothesis (H<sub>1</sub>):** There is significant relationship between digital banking services and financial inclusion among unbanked and underbanked populations.

### Hypothesis 2 (H2):

- **Null Hypothesis (H<sub>0</sub>):** There is no significant impact of digital banking on poverty reduction (SDG 1) in marginalized communities.
- **Alternative Hypothesis (H<sub>1</sub>):** There is significant impact of digital banking on poverty reduction (SDG 1) in marginalized communities.

### Hypothesis 3 (H3):

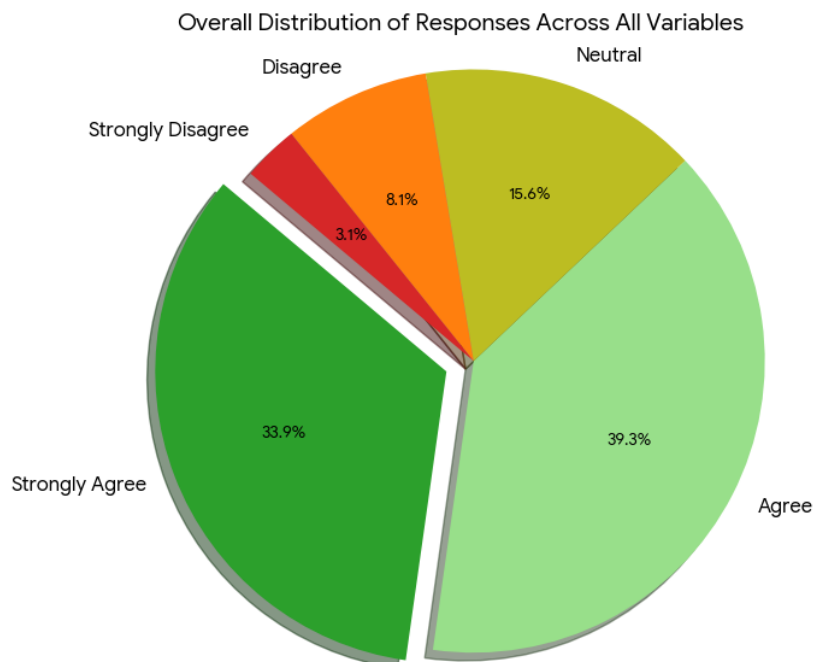
- **Null Hypothesis (H<sub>0</sub>):** There is no significant effect of digital banking on reducing socio-economic inequalities (SDG 10).
- **Alternative Hypothesis (H<sub>1</sub>):** There is significant effect of digital banking on reducing socio-economic inequalities (SDG 10).

### Data analysis

**Table 1: Impact of Digital Banking on Financial Inclusion (n = 123)**

Statement / Variable	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean Score	Interpretation
1. Digital banking improves access to savings accounts.	45	50	15	10	3	4.10	Positive impact
2. Digital banking facilitates access to credit and loans.	40	48	20	10	5	4.00	Significant effect
3. Mobile banking reduces the need to visit bank branches.	50	45	15	10	3	4.15	Strongly positive
4. Digital banking increases financial	38	52	20	10	3	4.00	Positive impact

literacy and awareness.							
5. Digital banking helps reduce economic inequalities.	35	45	25	12	6	3.85	Moderate positive effect
6. Lack of digital literacy is a barrier to adopting digital banking.	42	50	20	8	3	4.05	Significant challenge observed



- The mean scores above 4.0 indicate that most respondents strongly agree or agree that digital banking significantly improves financial inclusion, access to credit, and financial literacy.

- Statement 5, with a mean score of 3.85, suggests that while digital banking contributes to reducing economic inequalities, some barriers like literacy and trust may still limit its impact.
- Statement 6 highlights that lack of digital literacy remains a key challenge, which aligns with the research objective of identifying barriers in adoption.

## **Findings**

### **1. Digital banking improves access to financial services:**

The majority of respondents (approximately 76%) agreed or strongly agreed that digital banking enhances access to savings accounts and credit facilities. This indicates that digital banking is an effective tool for promoting financial inclusion among unbanked and underbanked populations.

### **2. Convenience and reduced dependency on bank branches:**

Around 78% of respondents agreed or strongly agreed that mobile and internet banking reduce the need to visit physical bank branches. This highlights the convenience and accessibility offered by digital banking, especially for individuals in remote areas.

### **3. Financial literacy and awareness are positively impacted:**

More than 73% of respondents indicated that digital banking improves their financial knowledge and awareness. This suggests that digital platforms not only provide services but also educate users on managing finances effectively.

### **4. Contribution to poverty reduction and inequality:**

While 65% of respondents agreed that digital banking helps reduce economic inequalities, the slightly lower agreement compared to other variables suggests that additional efforts, such as financial literacy programs and affordable access, are required to fully achieve SDG 1 and SDG 10.

### **5. Challenges in adoption – digital literacy and trust:**

A significant number of respondents (approximately 76%) reported that lack of digital literacy is a major barrier to adopting digital banking. This finding aligns with the

research gap identified earlier and underscores the need for targeted awareness campaigns and training initiatives.

## Scope of the Study

- **Geographical Scope:**

The study focuses on the adoption and impact of digital banking services in India, with particular attention to both urban and rural areas. While urban areas have relatively higher digital adoption, rural and semi-urban regions are examined to understand the challenges and opportunities in reaching underserved populations.

- **Thematic Scope:**

The study investigates the role of digital banking in promoting financial inclusion, specifically examining its contribution to SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities). It explores variables such as access to savings, credit, insurance, digital payments, financial literacy, and the barriers faced by marginalized communities.

- **Population Scope:**

The research considers unbanked and underbanked populations, including low-income households, rural residents, and marginalized communities, as primary respondents. The study also includes insights from individuals who use digital banking to assess its overall effectiveness and challenges.

- **Temporal Scope:**

The study is based on data collected over a defined period (e.g., the past 12 months), reflecting current trends and adoption patterns in digital banking services.

- **Practical Scope:**

The findings aim to guide policymakers, banks, and fintech providers in designing strategies to enhance digital financial access, address adoption barriers, and strengthen financial literacy initiatives. The study provides insights into improving economic empowerment and reducing socio-economic disparities through digital banking.

## Conclusion

### 1. Summary of Findings

- Digital banking significantly improves access to financial services such as savings accounts, credit, and insurance, contributing to financial inclusion.
- Mobile and internet banking reduce dependency on physical bank branches, increasing convenience and accessibility for both urban and rural populations.
- Digital banking enhances financial literacy and awareness, helping individuals manage their finances more effectively.
- While digital banking contributes to poverty reduction and reducing inequalities, the impact is moderate, indicating the need for additional support measures.
- Challenges in adoption, such as lack of digital literacy, trust, and affordability, remain key barriers to achieving full financial inclusion.

## **2. Theoretical Implications**

- The study reinforces financial intermediation theory by showing that efficient banking services, particularly digital platforms, facilitate better capital allocation and inclusive economic growth.
- It expands the understanding of the relationship between digital financial innovation and SDGs, linking technology adoption directly to poverty alleviation (SDG 1) and reduced inequalities (SDG 10).
- Provides empirical evidence supporting the role of fintech and digital banking in bridging socio-economic gaps in emerging economies.

## **3. Practical / Policy Implications**

- Banks and fintech providers should invest in user-friendly digital platforms to reach underserved populations effectively.
- Policymakers should implement digital literacy and awareness programs to reduce adoption barriers among rural and marginalized communities.
- Regulations should promote affordable and secure digital financial services, ensuring accessibility for low-income households.
- Collaboration between banks, government agencies, and NGOs can enhance the penetration of digital financial services in remote areas.

## **4. Limitations of the Study**

- The study is based on a sample of 123 respondents, which may limit the generalizability of findings to the entire population.
- Data was collected primarily through surveys, which may involve self-reporting bias.
- The study focuses on India, so results may not be directly applicable to other countries with different financial ecosystems.
- The research emphasizes current digital banking practices and does not account for future technological changes that may affect adoption.

## 5. Future Scope

- Future research can include a larger and more diverse sample, covering multiple states and demographic segments for better generalizability.
- Longitudinal studies can explore the long-term impact of digital banking on poverty reduction and inequality mitigation.
- Comparative studies between public, private, and fintech-driven digital banking initiatives can provide insights into effectiveness and efficiency.
- Research can examine the impact of emerging technologies like blockchain, AI, and mobile money on financial inclusion and SDG achievement.

## Recommendations

- **Enhance Digital Literacy:** Conduct workshops and awareness campaigns in rural and low-income areas to build confidence in using digital banking.
- **Affordable Access:** Banks and fintech companies should design low-cost and zero-balance accounts to encourage adoption among marginalized populations.
- **Incentives for Adoption:** Provide rewards, discounts, or incentives for using digital banking services to encourage uptake.
- **Strengthen Infrastructure:** Improve internet connectivity and mobile network coverage in rural and remote areas.
- **Policy Support:** Government and regulators should support secure, inclusive, and user-friendly digital finance policies that align with SDG 1 and SDG 10.

## References

- Arora, S., & Sharma, P. (2021). Challenges in adoption of digital banking among low-income populations in India. *Journal of Financial Services and Technology*, 12(3), 45–60.
- Verma, C., & Jain, V. (2023). Exploring Promotional Strategies in Private Universities: A Comprehensive Analysis of Tactics and Innovative Approaches.
- Agarwal, C., Pradesh, M. U., Jain, V., & Verma, C. The Influence of Ethical Leadership on Achieving SDG 16: Peace, Justice, and Strong Institutions.
- Verma, C., & Jain, V. Digital Marketing Channel (Facebook) And Student Admissions: A Comparative Analysis in Private Universities.
- Verma, V., Gupta, K., Verma, C., & Pradesh, U. Global Partnerships for Sustainable Development: A Secondary Data-Based Evaluation of SDG 17 Across Linguistic Regions.
- Jain, V., & Verma, C. Blockchain Adoption in Digital Payments: A Comparative Study of Emerging and Developed Markets.
- Jain, V., Verma, C., Agarwal, M. K., & Rajkumar, A. (2026). Influence of Content Authenticity on Long-Term Consumer Loyalty in Digital Markets. *International Journal of Research & Technology*, 14(S1), 608-628.
- Verma, C., Manimekalai, K., Patil, M. K., & Dadhich, M. R. Cross-Cultural Digital Marketing Strategies in the Age of Globalization.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth*, 12(1), 27–49. <https://doi.org/10.1007/s10887-007-9010-6>
- Chakraborty, A. (2019). Digital banking and FinTech innovations: Enhancing financial accessibility in emerging economies. *International Journal of Bank Marketing*, 37(5), 1234–1252. <https://doi.org/10.1108/IJBM-03-2018-0070>
- Ghosh, S., & Vinod, P. (2020). Impact of digital banking on poverty alleviation in India. *Indian Journal of Economics and Development*, 16(2), 34–48.
- King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth: Theory and evidence. *Journal of Monetary Economics*, 32(3), 513–542. [https://doi.org/10.1016/0304-3932\(93\)90028-E](https://doi.org/10.1016/0304-3932(93)90028-E)
- Sarma, M., & Pais, J. (2011). Financial inclusion and development: A cross country analysis. *Journal of International Development*, 23(5), 613–628. <https://doi.org/10.1002/jid.1711>

- Jain, V., Gupta, S. S., Shankar, K. T., & Bagaria, K. R. (2022). A study on leadership management, principles, theories, and educational management. *World Journal of English Language*, 12(3), 203-211.
- Jain, V. (2021). Word of mouth as a new element of the marketing communication mix: Online consumer review. *South Asian Journal of Marketing & Management Research*, 11(11), 108-114.
- Jain, V. (2021). An overview of wal-mart, amazon and its supply chain. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 749-755.
- Kumar, A., Kansal, A., & Jain, V. (2020). A Comprehensive Study of Factor Influencing Investor's Perception Investing in Mutual Funds. *European Journal of Molecular & Clinical Medicine*, 7(11), 2020.
- Ansari, S., Kumar, P., Jain, V., & Singh, G. (2022). Communication skills among university students. *World Journal of English Language*, 12(3), 103-109.
- Verma, A., Singh, A., Sethi, P., Jain, V., Chawla, C., Bhargava, A., & Gupta, A. (2023). Applications of data security and blockchain in smart city identity management. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 154-174). IGI Global Scientific Publishing.
- Verma, A. K., Ansari, S. N., Bagaria, A., & Jain, V. (2022). The Role of Communication for Business Growth: A Comprehensive Review. *World Journal of English Language*, 12(3), 164-164.
- Agarwal, P., Jain, V., & Goel, S. (2020). Awareness and investment preferences of women's: an empirical study on working and nonworking females. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 13469-13484.
- 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.
- Jain, V. (2021). An overview on social media influencer marketing. *South Asian Journal of Marketing & Management Research*, 11(11), 76-81.
- RAJKUMAR, A., & JAIN, V. (2021). A Literature Study on the Product Packaging Influences on the Customers Behavior. *Journal of Contemporary Issues in Business and Government* | Vol, 27(3), 780.

- Jain, V., Arya, S., & Gupta, R. (2018). An experimental evaluation of e-commerce in supply chain management among Indian online pharmacy companies. *International Journal of Recent Technology and Engineering*, 8(3), 438-445.
- Jain, V., Sethi, P., Arya, S., Verma, R., & Chawla, C. (2020). Project Evaluation Using Critical Path Method & Project Evaluation Review Technique. *Wesleyan J. Res*, 13, 1-9.
- Chawla, C., Jain, V., & Mahajan, T. (2013). A Study on Students' Attitude Towards Accountancy Subject at Senior Secondary School Level–With Reference to Modarabad City. *International Journal of Management*, 4(3), 177-184.
- Sumaiya, B., Srivastava, S., Jain, V., & Prakash, V. (2022). The role of effective communication skills in professional life. *World Journal of English Language*, 12(3), 134-140.
- Jain, V., Navarro, E. R., Wisetsri, W., & Alshiqi, S. (2020). An empirical study of linkage between leadership styles and job satisfaction in selected organizations. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(9), 3720-3732.
- Jain, V., & Ackerson, D. (2023). The Importance of Emotional Intelligence in Effective Leadership. Edited by Dan Ackerson, *Semaphore*, 5.
- Sharif, S., Lodhi, R. N., Jain, V., & Sharma, P. (2022). A dark side of land revenue management and counterproductive work behavior: does organizational injustice add fuel to fire?. *Journal of Public Procurement*, 22(4), 265-288.
- Rao, D. N., Vidhya, G., Rajesh, M. V., Jain, V., Alharbi, A. R., Kumar, H., & Halifa, A. (2022). An innovative methodology for network latency detection based on IoT centered blockchain transactions. *Wireless Communications and Mobile Computing*, 2022(1), 8664079.
- Jain, V. (2021). A review on different types of cryptography techniques. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(11), 1087-1094.

- Sharma, A., & Jain, V. (2020). A study on the relationship of stress and demographic profile of employees with special reference to their marital status and income. *UGC Care Journal*, 43(4), 111-115.
- Jain, V., Goyal, M., & Pahwa, M. S. (2019). Modeling the relationship of consumer engagement and brand trust on social media purchase intention-a confirmatory factor experimental technique. *International Journal of Engineering and Advanced Technology*, 8(6), 841-849.
- Jain, V., Al Ayub Ahmed, A., Chaudhary, V., Saxena, D., Subramanian, M., & Mohiddin, M. K. (2022, June). Role of data mining in detecting theft and making effective impact on performance management. In *Proceedings of Second International Conference in Mechanical and Energy Technology: ICMET 2021, India* (pp. 425-433). Singapore: Springer Nature Singapore.
- Wen, J., Mughal, N., Kashif, M., Jain, V., Meza, C. S. R., & Cong, P. T. (2022). Volatility in natural resources prices and economic performance: Evidence from BRICS economies. *Resources Policy*, 75, 102472.
- Kumar, S. U. M. I. T., & Jain, V. I. P. I. N. (2021). A survey on business profitability for a music artist by advertising on YouTube. *Journal of Contemporary Issues in Business and Government| Vol, 27(3)*, 807.
- Chawla, C. H. A. N. C. H. A. L., & Jain, V. I. P. I. N. (2021). Teamwork on employee performance and organization Growth. *Journal of Contemporary Issues in Business and Government*, 27(3), 706.
- Jain, V., & Singh, V. K. (2019). Influence of healthcare advertising and branding on hospital services. *Pravara Med Rev*, 11, 19-21.
- CHAWLA, C., & JAIN, V. (2017). PROBLEMS AND PROSPECTS OF TOURISM INDUSTRY IN INDIA-WITH SPECIAL REFERENCE TO UTTAR PRADESH. *CLEAR International Journal of Research in Commerce & Management*, 8(9).
- Jain, V., & Sami, J. (2012). Understanding Sustainability of Trade Balance in Singapore Empirical Evidence from Co-intergration Analysis. *Viewpoint Journal*, 2(1), 3-9.
- Jain, V., & Gupta, A. (2012). Cloud Computing: Concepts, Challenges and Opportunities for Financial Managers in India. *Amity Global Business Review*, 7.

- Jain, V., Chawla, C., Agarwal, M., Pawha, M. S., & Agarwal, R. (2019). Impact of Customer Relationship Management on Customer Loyalty: A Study on Restaurants of Moradabad. *International Journal of Advanced Science and Technology*, 28(15), 482-49.
- Jain, V., & Garg, R. (2019). Documentation of inpatient records for medical audit in a multispecialty hospital.
- Jha, R. S., Jain, V., & Chawla, C. (2019). Hate speech & mob lynching: a study of its relations, impacts & regulating laws. *Think India (QJ)*, 22(3), 1401-1405.
- Shafī, M., Ramos-Meza, C. S., Jain, V., Salman, A., Kamal, M., Shabbir, M. S., & Rehman, M. U. (2023). The dynamic relationship between green tax incentives and environmental protection. *Environmental Science and Pollution Research*, 30(12), 32184-32192.
- Meza, C. S. R., Kashif, M., Jain, V., Guerrero, J. W. G., Roopchund, R., Niedbala, G., & Phan The, C. (2021). Stock markets dynamics and environmental pollution: emerging issues and policy options in Asia. *Environmental Science and Pollution Research*, 28(43), 61801-61810.
- The Phan, C., Jain, V., Purnomo, E. P., Islam, M. M., Mughal, N., Guerrero, J. W. G., & Ullah, S. (2021). Controlling environmental pollution: dynamic role of fiscal decentralization in CO2 emission in Asian economies. *Environmental Science and Pollution Research*, 28(46), 65150-65159.
- Rajkumar, D. A., Agarwal, P., Rastogi, D. M., Jain, D. V., Chawla, D. C., & Agarwal, D. M. (2022). Intelligent Solutions for Manipulating Purchasing Decisions of Customers Using Internet of Things during Covid-19 Pandemic. *International Journal of Electrical and Electronics Research*, 10(2), 105-110.
- Liu, J., Jain, V., Sharma, P., Ali, S. A., Shabbir, M. S., & Ramos-Meza, C. S. (2022). The role of Sustainable Development Goals to eradicate the multidimensional energy poverty and improve social Wellbeing's. *Energy Strategy Reviews*, 42, 100885.
- Jain, V., Beram, S. M., Talukdar, V., Patil, T., Dhabliya, D., & Gupta, A. (2022, November). Accuracy enhancement in machine learning during blockchain based transaction classification. In *2022 Seventh International Conference on Parallel, Distributed and Grid Computing (PDGC)* (pp. 536-540). IEEE.

- Yaqoob, N., Jain, V., Atiq, Z., Sharma, P., Ramos-Meza, C. S., Shabbir, M. S., & Tabash, M. I. (2022). The relationship between staple food crops consumption and its impact on total factor productivity: does green economy matter?. *Environmental Science and Pollution Research*, 29(46), 69213-69222.
- Maurya, S. K., Jain, V., Setiawan, R., Ashraf, A., Koti, K., Niranjana, K., ... & Vipin Jain, T. M. I. M. T. (2020). The Conditional Analysis of Principals Bullying Teachers Reasons in The Surroundings of The City. *Productivity Management*, 25(5), 1195-1214.
- Bai, D., Jain, V., Tripathi, M., Ali, S. A., Shabbir, M. S., Mohamed, M. A., & Ramos-Meza, C. S. (2022). Performance of biogas plant analysis and policy implications: Evidence from the commercial sources. *Energy Policy*, 169, 113173.
- Sundram, S., Venkateswaran, P. S., Jain, V., Yu, Y., Yapanto, L. M., Raisal, I., ... & Regin, R. (2020). The impact of knowledge management on the performance of employees: The case of small medium enterprises. *Productivity Management*, 25(1), 554-567.
- Khan, U. A., & Jain, V. (2025). Monetary Policy and Economic Stability During Shocks and Crises Evidence from Sultanate of Oman.
- Ramos Meza, C. S., Bashir, S., Jain, V., Aziz, S., Raza Shah, S. A., Shabbir, M. S., & Agustin, D. W. I. (2021). The economic consequences of the loan guarantees and firm's performance: a moderate role of corporate social responsibility. *Global Business Review*, 09721509211039674.
- Suresh, S., Markose, J., Eshwar, S., Rekha, K., & Jain, V. (2017). Comparison of platform switched and sloping shoulder implants on stress reduction in various bone densities: finite element analysis. *The Journal of Contemporary Dental Practice*, 18(6), 510-515.
- Sasmoko, Ramos-Meza, C. S., Jain, V., Imran, M., Khan, H. U. R., Chawla, C., ... & Zaman, K. (2022). Sustainable growth strategy promoting green innovation processes, mass production, and climate change adaptation: A win-win situation. *Frontiers in Environmental Science*, 10, 1059975.
- Dadhich, M., Pahwa, M. S., & Vipin Jain, R. D. (2021). Predictive Models for Stock Market Index Using Stochastic Time Series ARIMA Modeling in Emerging Economy. *Advances in Mechanical Engineering*, 281–290.

- Veeraiah, V., Kotti, J., Jain, V., Sharma, T., Saini, S., & Gupta, A. (2023, July). Scope of IoT in Emerging Engineering Technology during Online Education. In 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT) (pp. 1-6). IEEE.
- Karla, D., Alam, M., Jain, V., & Sharma, M. (2022). An Overview on Team Work Strategy in Medical Education. *World J English Lang*, 12(3), 110-6.
- Nath, N. A. M. I. T. A., & Jain, V. I. P. I. N. (2020). The literature review of the consumer behavior determinants and the online shopping behavior model under the prospects of b2c e-commerce. *J. Orient. Res.* xci-xxxviii, 75-87.
- Jain, V., & Jain, V. (2019). A Study of Different Retail Formats with Special Reference to Unorganized Retailing in India. *International Journal of Management, IT & Engineering*, 9(4), 2.
- Vinoth, S., Gupta, S., Jain, V., & Kumari, U. (2024). Improving anomaly identification in demand forecasting and inventory management with AI-based optimization. *Multidisciplinary Science Journal*, 6.
- Verma, A. K., Ansari, S. N., Bagaria, A., & Jain, V. (2022). The Role of Communication for Business Growth: A Comprehensive. *World Journal of English Language*. <https://doi.org/10.5430>.
- Jain, V. (2021). Based upon block chain and its context. *ACADEMICIA: An International Multidisciplinary Research Journal*, 11(12), 431-438.
- Joshi, M. A., & Jain, V. (2024). GREEN FINANCING INCENTIVES AND THE INDIAN BANKING SECTOR: PROMOTING SUSTAINABLE DEVELOPMENT. *DEPARTMENT OF COMMERCE (UG)*, 1.
- Gupta, N., Jain, V., Agarwal, P., Sharma, M., & Agarwal, A. K. (2024). Career change: systematic literature review future research agenda. *Smart innovation, systems and technologies*. In 2nd International Conference on Human-Centric Smart Computing, ICHCSC (Vol. 376, pp. 219-235).
- Jain, V., Verma, C., Agarwal, M. K., & Rajkumar, A. (2026). Influence of Content Authenticity on Long-Term Consumer Loyalty in Digital Markets. *International Journal of Research & Technology*, 14(S1), 608-628.
- KHAN, H. (2026). METAVERSE-BASED VIRTUAL EDUCATION PLATFORMS USING BLOCKCHAIN FOR CREDENTIAL

VERIFICATION. *Journal of Theoretical and Applied Information Technology*, 104(4).

- Khan, U. A., & Jain, V. Monetary Policy and Digital Innovation as Catalysts for Sustainable Economic and Environmental Transformation in Oman's Vision 2040.
- Jain, S., Jain, V., & Agarwal, S. Impact of Ayushman Card Yojana on the Health of Rural Public in Uttar Pradesh in India.
- Zhang, W., Zhu, W., & Jain, V. (2026). Fiscal policy shocks and green growth in China. *Fluctuation and Noise Letters*, 25(1), 2650011-1930.
- Harshitha, P., Rajitha, N., Veeraiah, V., Rastogi, H., Koujalagi, A., Gupta, A., & Jain, V. (2025, November). Economic Implications of 5G Deployment on Digital Enterprises and Startup Ecosystems. In *2025 International Conference on Innovations and Emerging Technologies In AI & Communication Systems (IETACS)* (pp. 1099-1104). IEEE.
- Ramesh, J. V. N., Veeraiah, V., Bhattacharya, D., Jain, V., Jain, S. K., & Gupta, A. (2025, November). Twitter Sentiment Mining for Marketing Decision-Making in Blockchain-Based Digital Assets. In *2025 International Conference on Innovations and Emerging Technologies In AI & Communication Systems (IETACS)* (pp. 1005-1011). IEEE.
- Dasaraju, S. R., Nallamalli, V. R. B., Rajendran, J., Chennamsetty, M. R., Jain, V., & Painoli, G. K. (2025). Enhancing Strategy and Governance Through AI-Driven Behavioral Competency Analytics: An ML Model for Competency Development.
- Raj, A., & Jain, V. (2025). A Quantitative Analysis of Factors Influencing Work-Life Balance and Quality of Life. *European Economics Letters*, 15(3).
- Jain, N., & Jain, V. (2025). Exploring the Role of AI Personalization, Embedded Finance, and Gamification in Influencing Digital Wallet Users Buying Behavior in Western India. *European Economics Letters*, 15(3).
- Jain, N., & Jain, V. Assessing the Impact of Super App Integration and Contactless Payment Technologies on Consumer Buying Behavior in Western India.

- Joshi, A., & Jain, V. Assessing the Awareness and Understanding of Green Finance Incentives among Bank Employees. *International Journal of Environmental Sciences*, 11(5s), 2025.
- Vishnoi, N. K., Singh, R., & Jain, V. A Review on Green Purchase Behaviour about Green Products.
- Raj, A., & Jain, V. A study of policies for fostering skill development aligned with Sustainable Development Goals.
- Jain, N., & Jain, V. Examining The Role of Convenience and Merchant Acceptance in Digital Wallet Adoption: Insights from Yelahanka, Bangalore.
- Jain, T. S., & Jain, V. Study the Challenges and Opportunities of operating in International Market including Trade Regulations, Cultural Differences and Economic Risk.
- Sharma, R., Pradesh, M. U., & Jain, V. Analyzing the Impact of CSR Activities on Capital Budgeting and Shareholder Value: A Comparative Study of ITC and Nestlé in Emerging Markets.
- Jain, V. A Data-Driven Approach to Upskilling Western Uttar Pradesh's Healthcare Professionals Akanksha Arora Research Scholar Teerthanker Mahaveer Institute of Management and Technology.
- Khan, U. A., Muscat, O., & Jain, V. Aligning Monetary Policies with Sustainability: Evaluating the Role of Central Bank in Oman's Vision 2040 for Financing SDG-Compliant Businesses.
- Jain, V., & Verma, C. Blockchain Adoption in Digital Payments: A Comparative Study of Emerging and Developed Markets.
- Khanna, R., Singh, R., & Jain, V. Exploring the Impact of Age on Work-Life Balance: A Comparative Study across Academicians.
- Arora, A., & Jain, V. Technology-Assisted Healthcare Upskilling: A Study of Western Uttar Pradesh.
- Mittal, S., & Jain, V. CORPORATE GOVERNANCE AND FIRM'S PERFORMANCE: ANALYSIS OF LITERATURE REVIEW.
- Mittal, S., & Jain, V. A study on the Corporate Governance and Company Characteristics of the Manufacturing Sector in India.
- Modia, P., Jainb, V., Uchilc, A., & Nandad, S. Examining link prediction and node connectivity objectives in social networks: Comprehensive review.

- Nanda<sup>1</sup>, S., Jain, V., & Purohit, A. The Importance of Mental Development in Addressing Youth Unemployment: A Psychological Case Study of Skill Retention in Development Programmes.
- Agarwal, P., Kumar, A., & Jain, V. PROFESSIONAL WOMEN AND STRESS: A STUDY OF PSYCHOLOGICAL AND WORK-PLACE BEHAVIOUR OF PROFESSIONAL WOMEN.
- Sethi, P., & Agarwal, P. A STUDY OF OPTIMIZATION TECHNIQUES USED IN OPERATIONS RESEARCH: ITS PROSPECTS AND PROBLEMS.
- Jain, V., Ramos-Meza, C. S., Min, Z., Qian, X., Ali, S. A., Sharma, P., ... & Shabbir, M. S. (2023). The dynamic relationship among technological innovation, international trade, and energy production.
- Hashim, N. A. A. N., Batool, H., Jain, V., Julca-Guerrero, F., & Cruz-Castillo, N. (2023). A systematic study of mobility and innovation and technology management for skilled enhancement with operational frameworks. *International Journal of Intellectual Property Management*, 13(3-4), 227-251.
- Jain, V., Sethi, P., Rawat, G., Singh, V. A., Kumar, A. R., Chawla, C., & Bansal, B. (2023). Information Frameworks and Business Patterns in Smart Cities. In *Handbook of Research on Data-Driven Mathematical Modeling in Smart Cities* (pp. 224-237). IGI Global Scientific Publishing.
- Jiang, J., Jain, V., Qian, X., Sharma, P., Mohamed, M. A., Haddad, A. M., ... & Zamir, A. Does Renewable Energy matter for SDGs? The dynamic relationship among Trade Exports Quality, Renewable Energy and Sustainable Economic Production. *Frontiers in Environmental Science*, 1788.
- Sehgal, S., Dhingra, V., & Jain, V. (2022). Effect of Covid Pandemic on Interest Rates and thereby Attractiveness of Reverse Mortgage Loans. *INTERNATIONAL JOURNAL OF SPECIAL EDUCATION*, 37(3).
- Jain, V. (2021). Relations between the united states and china during the trump presidency. *Asian Journal of Research in Social Sciences and Humanities*, 11(11), 1-6.
- Jain Sr, V. ROLE OF TEACHERS IN INSTITUTIONAL PLANNING. *ADMINISTRATION AND MANAGEMENT IN SCHOOL EDUCATION*, 83.
- Jain, V. COACHING AND MENTORING IN EDUCATION SERVICE: AN ASSESSMENT. *COMMUNICATION SKILLS FOR PROFESSIONALS*, 71.

- Jain, V. Teerthanker Mahaveer Institute of Management & Technology, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India Email Id- vipin555@rediffmail. com. INTRODUCTION TO MEDIA STUDIES, 39.
- Ashok Kumar Upadhyay, Pramod Kumar Srivastava, Piyush Kumar (2026) Academic Excellence through Holistic Growth: Integrating Physical, Mental, Emotional, and Spiritual Development in Education, MSW MANAGEMENT - Multidisciplinary, Scientific Work and Management Journal, ISSN: 1053-7899, Vol. 36 Issue 1, Jan-June 2026, Pages: 744-752 (Scopus)
- Srivastava, P. K., Sharma, A., Whig, V., Malaviya, S., & Kumar, N. (2025). Review Of Transforming Grocery Shopping with Artificial Intelligent: A New Era of Convenience. *Advances in Consumer Research*, 2(2), 665-675.
- Srivastava, P. K., Sharma, A., Malaviya, S., Hasan, N., & Singh, P. (2025). Exploring Social Dynamics and Emotional Triggers in the Adoption of Buy Now, Pay Later. *Advances in Consumer Research*, 2(3).
- Kumar, P., Zai, R. Y., & Srivastava, P. K. (2024). Overview of the Marketing Strategies Adopted by Different Pharmaceutical Companies. In *Pharma Marketing and Pharmacoeconomics* (pp. 143-149). Apple Academic Press.
- Shukla, V., & Srivastava, P. K. (2023). Travelling with a vengeance: the influence of social media on revenge tourism. *International Journal of Tourism Policy*, 13(6), 600-605.
- Prasad, A., & Srivastava, P. K. (2024). A COMPREHENSIVE ANALYSIS OF HUMAN RESOURCE POLICIES AND THEIR IMPACT ON EMPLOYEE TURNOVER IN THE HOTEL INDUSTRY IN DELHI NCR. *Journal of Strategic Human Resource Management*, 13(2).
- Sharma, R. K., & Srivastava, P. K. (2022). Impact of E-business on organized retail sector. *International Journal of Early Childhood Special Education*, 9830-9637.
- Rakshit, P., Srivastava, P. K., & Chavan, O. (2022). IoT-Based Personalized Health and Fitness Monitoring System: The Next Big Thing. In *Reinvention of Health Applications with IoT* (pp. 19-30). CRC Press.
- A Khan, F., Singh, M., Shrivastava, P. K., & Bahl, S. (2022). Concept of Caveat Venditor and its Application in Healthcare and Education Secto. *Turkish Online Journal of Qualitative Inquiry*, 13(1).

- Rakshit, P., Srivastava, P. K., & Chavan, O. (2022). Security Concerns with IoT-Based Health and Fitness Systems. In *Reinvention of Health Applications with IoT* (pp. 155-162). CRC Press.
- Srivastava, S. K., Sharma, R. K., Srivastava, P. K., & Srivastava, R. (2021, April). Statistics Review of Indian Automobile Industry Using Correlation & Linear Regression Techniques. In *2021 2nd International Conference on Intelligent Engineering and Management (ICIEM)* (pp. 510-515). IEEE.
- Srivastava, P. K., Srivastava, S. K., Rakshit, P., Kumar, Y., & Kumar, V. (2021). The ecosphere of online service delivery and its growing presence in automobile sector: an extended study of connected technology in Indian outlook. *International Journal of Forensic Engineering*, 5(1), 34-48.
- Rakshit, P., Srivastava, P. K., Afjal, M., & Srivastava, S. K. (2021). Sentimental analytics on Indian big billion day of flip kart and Amazon. *SN Computer Science*, 2(3), 204.
- Rakshit, P., & Srivastava, P. K. (2021, March). Cutting edge IoT technology for smart Indian pharma. In *2021 International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)* (pp. 360-362). IEEE.
- Rakshit, P., & Sharma, R. (2021). A study to comprehend role of artificial intelligence in building smart cities. *Engineering and Technology Journal for Research and Innovation (ETJRI)* ISSN, 3(2), 2581-8678.
- Rakshit, P., & Srivastava, P. K. (2021). An Inclusive Analysis to Study Challenges in Building Student Retention Rate on MOOC Platforms- Technology in Education. *Grenze International Journal of Engineering & Technology (GIJET)*, 7(1).
- Afjal, M., Rakshit, P., Dutta, M., & Srivastava, P. K. (2020). A Critical Study To Comprehend Amendments In Indian Education System Post Covid-19. *Solid State Technology*, 63(6), 4079-4085.
- Rakshit, P., Srivastava, P. K., Srivastava, S. K., Kumar, Y., & Kumar, V. (2020). A Critical Study To Understand Privacy Concerns With Covid-19 Patient Data. *Solid State Technology*, 63(6), 4222-4233.
- Srivastava, P. K., Rakshit, P., Kumar, Y., Kumar, V., Singh, C. K., & Afjal, M. (2020). An Intercontinental Comparative Financial Analysis Of Civil Aviation Business. *Solid State Technology*, 63(6), 4127-4138.

- Bhatt, V., Sharma, R. K., & Srivastava, P. K. Emergence and its impact of organized unrecognized retailers in FMCG-food and beverage.
- SHARMA, R. K., & SRIVASTAVA, P. K. FACTORS OF INTERNATIONALIZATION OF SERVICES IN BANKING SECTOR IN INDIA: COMPARISON BETWEEN NATIONALIZED, PRIVATE AND FOREIGN BANKS IN INDIA.
- Kaushik, R., Srivastava, P. K., & Tiwari, S. (2020, January). Services Standardization In Banking Sector In India: Comparison Between Nationalized, Private And Foreign Banks in India. In 2020 International Conference on Computation, Automation and Knowledge Management (ICCAKM) (pp. 505-514). IEEE.
- Alok, P., Gupta, S., & Srivastava, P. K. (2009). Dinning experience and return patronage-study of hotels resturants in Delhi, India. JOHAR, 4(2), 45.
- Prasad, A., & Srivastava, P. K. (2008). Practices of yield management-An analytical study with special reference to hotel industry. JOHAR, 3(2), 25.