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A Bi-Annual Research Journal



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MANTHAN

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The journal aims at disseminating original, scientific, theoretical or applied research for providing a platform for publishing research and result with a strong empirical element so as to channel the significant gap existing between research and practice. This can be done only by encouraging the publication of original, industry-relevant research and practical advances in management, humanities, and social sciences.

The journal is targeting at having content published in peer-reviewed, indexed with International databases and having high impact factor. It aims to bring its readers the very best analysis and discussion in the developing field of management and humanities and social sciences.

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Message from the desk of
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It is with immense pleasure that we announce the inaugural publication of the Journal of Sarala Birla University (SBU), fittingly christened “Manthan- Journal of Management & Humanities”. This scholarly periodical broadens the scope of the Management & Humanities discipline, welcoming contributions from academics across the nation.

The essence of university education lies in fostering a conducive environment for emerging researchers to disseminate their investigative insights. This journal aspires to serve as a nexus for the scientific community, focusing on subjects that are integral to the universal diffusion of knowledge. This initiative will undoubtedly elevate the University’s stature and significantly impact the professional trajectories of our faculty and research scholars, culminating in the advancement of our community and society.

We extend our heartfelt congratulations to all contributors whose relentless efforts have culminated in the successful publication of this journal’s maiden issue. We express our profound gratitude to the editorial team for their commendable work and eagerly anticipate the journal’s continued triumphs in the forthcoming years.

Thank you,

Gopal Pathak

Prof. Gopal Pathak
Vice Chancellor, SBU, Ranchi

*Message from the desk of
Patron*



It is with profound satisfaction that I author this preface for the proceedings of the National Conference on Emerging Trends in Innovative and Sustainable Business Practices, destined for publication in the esteemed journal “MANTHAN”. I extend my heartfelt felicitations to the Faculty of Commerce and Management for addressing the imperative need for scholarly inquiry in Management through the issuance of this edition.

In the current global scenario, sustainability has ascended as a pivotal area of concentration in research, pedagogy, and commercial practices. Sustainable Development, a harmonious blend of environmental and societal considerations with economic progression, is the blueprint for our future. I express my admiration for the editorial team for their steadfast commitment and diligence in materializing this ambition. I also extend my congratulations to all the authors whose scholarly articles have been selected for this journal.

This edition is envisaged to impart novel insights to researchers, practitioners, and educators on the most recent innovations, trends, and concerns, as well as the practical challenges encountered and solutions adopted in the fields of Emerging Trends in Innovative & Sustainable Business Practices. The contents of the proceedings will undoubtedly serve as a valuable compass for budding scientists and researchers in charting their future endeavors.



Dr. Pradip Kumar Varma
CEO, SBU, Ranchi

*Message from the desk of
Co-Patron*



It is with profound gratification, humility, and anticipation that we commemorate the inauguration of the Journal of MSJCMH with this premier issue. On behalf of the MSJCMH Editorial Team, I extend a cordial welcome to our readership. I seize this opportunity to express gratitude to our authors, editors, and anonymous reviewers, all of whom have voluntarily contributed to the journal's success.

MSJCMH serves as an exemplary platform for the exchange of information on a plethora of topics and more, in various formats: comprehensive and concise research papers, survey papers, progress reports on promising developments, case studies/best practice articles penned by industry experts, and tutorials on imminent technological breakthroughs.

The journal's editorial board is firmly convinced that this initiative will provide scientifically rigorous, peer-reviewed articles adhering to the stringent international processes and editorial standards expected by the scientific community. MSJCMH is published biannually. To ensure swift dissemination of information, we aim to complete the review process of each paper within two months of initial submission. MSJCMH is committed to publishing all manuscripts receiving a high or top priority recommendation during the review process, while those receiving medium priority will be considered for publication on a case-by-case basis. Furthermore, the publication of manuscripts receiving top priority will be expedited.

I conclude this message by inviting everyone to submit their groundbreaking research to MSJCMH. All papers receiving a high degree of enthusiasm in the peer-review process will find a home in MSJCMH. Therefore, we are committed to publishing all discoveries, methods, resources, and reviews that significantly advance the field of Applied Science and Engineering.

Once again, I welcome you to this journal – your journal! With your support as authors, reviewers, and editors, I foresee a bright future for MSJCMH to serve science and the scientific community even better. Ultimately, we will improve more lives and, consequently, our communities.

We look forward to hearing from you soon, and we welcome your feedback! If you have any questions, suggestions, or concerns, please address them to us. We hope you will find this journal informative.



Prof. Vijay Kumar Singh
Registrar, SBU, Ranchi

Message from the desk of
Editor-in-Chief



We are delighted to introduce Volume III, Issue I of “SBU-Mathan”, ISSN No: 2582-8517. As we are all aware, research is a continuous journey that necessitates constant refinement and enhancement. This journal provides a platform for researchers and practitioners to explore contemporary issues related to management.

This forum unites distinguished minds from diverse sectors of society, making it an excellent venue for idea exchange. Let us all absorb these ideas and propel the world forward.

As the Editor-in-Chief, I acknowledge the importance authors place on high-quality, unbiased peer reviews conducted promptly. We also understand the significance of swift publication, and have accordingly structured our editorial team.

I am thrilled to undertake this crucial role and would like to express my appreciation to the leadership and the selection committee of the National Conference for appointing me as the Editor-in-Chief of this influential journal.

The call for contributions from authors has received an overwhelming response. Despite our best efforts, some articles/papers could not be included in the current issue due to the decisions of the editorial board and the referee review board.

Dr. Sandeep Kumar
Dean,
Faculty of Commerce & Business Management,
SBU, Ranchi

Message from the desk of
Managing Editor



I am deeply honored and privileged to be associated with this esteemed peer-reviewed journal and its exceptionally proficient team, whose dedication ensures its continued status as a trusted authority in the field of Management.

The ongoing success of the journal owes gratitude to the diligent work of our predecessors and the internationally diverse assembly of editors, board members, anonymous reviewers, contributors, readers, and support personnel. A significant amount of effort has been invested in enhancing the journal, with a notable anticipated outcome being expedited decision-making processes. The current volume of the Journal aims to advance the comprehension of managerial practices and organizational dynamics within global contexts. The papers featured in this edition address a critical concern in today's global economy: Innovative Sustainable practices.

This volume showcases contributions from scholars, policymakers, and professionals across both business and non-profit sectors. Our primary objectives moving forward are to fortify the journal's boundaries, augment our reviewer database, and inspire potential authors to engage with the journal. I extend heartfelt congratulations to both the authors and the entire team for their outstanding contributions and dedication.

Prof. Neelima Pathak
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MANTHON-SBU JOURNAL OF COMMERCE, MANAGEMENT & HUMANITIES

A Bi-Annual Research Journal

AIM

The main aim of the journal is to deliver a knowledgeable platform for the national and international scholars. It also aims towards the promotion of interdisciplinary studies in various fields like commerce and management as well as humanities and social science and become the leading journal in its area.

The Journals also gives emphasis towards the development and retention of outstanding scholars. It aims at empowering the scholars towards maximizing their potential contribution and encouraging them to be entrepreneurial. It further aims to bring its readers the very best analysis and discussion in the developing field of Management and Humanities.

Scope

The journal covers all topics under the field of Management, Humanities, English Literature, Global Studies, and Art Discipline. Given below are the main topics being covered, however the scope of this journal is in no way limited

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Dynamics of 4P's in India

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Abstract

The Marketing Mix is a strategic approach used by firms to launch products, consisting of four components: Product, Price, Place, and Promotion. These variables help firms make strategic decisions for a competitive advantage. The marketing mix involves determining the price of a product, which may vary depending on the market. Companies in India must adapt their products to meet local market needs, understanding cultural nuances and regional variations. They must also cater to diversity in product preferences due to India's diverse regions, languages, and cultures. India's large population with varying income levels is highly price sensitive, necessitating companies to carefully price their products to cater to different income segments. Price promotions and discounts significantly influence consumer behaviour, making it crucial for companies to devise appropriate pricing strategies. India's vast geography complicates distribution networks, necessitating companies to establish efficient channels for reaching urban and rural markets. E-commerce has gained popularity, and companies must consider rural vs. urban focus. Developing a comprehensive strategy is crucial for effective distribution. Digital marketing is a crucial tool in India, enabling companies to advertise, engage on social media, and conduct e-commerce. Cultural sensitivity is essential for successful campaigns, and localization of promotional content is crucial for resonating with the diverse population.

The mix changes based on marketing conditions and environmental factors. It is a set of controllable variables that a company can use to influence buyer responses. The marketing manager determines the level of marketing expenditure and divides the total budget among the marketing mix tools.

Keywords: *Marketing Mix, Consumer Behaviour, Digital Marketing, Distribution networks, Ecommerce, Cultural sensitivity, Controllable variables and Digital Marketing.*

Introduction

In India, the market is diverse and dynamic, necessitating companies to develop products that cater to the cultural, regional, and demographic preferences of the Indian consumer. Products, which include tangible goods like furniture and services like services, are the key element of any marketing mix, and must be tailored to meet the needs and aspirations of the Indian consumer.

The Product Life Cycle refers to the stages through which a product's sales change over time, including introduction, growth, maturity, and decline. As a product gains more customers, it stabilizes the market, becomes mature, and eventually withdraws due to the introduction of superior competitors. The Customer Life Cycle (CLC) focuses on building lifelong customers by creating and delivering value throughout their lives. This concept is marketing-oriented rather than product-oriented.

In a price-sensitive market like India, companies must balance offering value for money with maintaining profitability. Various pricing models, discounts, and strategies are employed to appeal to the Indian consumer. Price is the amount the consumer must exchange to receive the offering. As the price of a product changes constantly, it should be dynamic to accommodate these changes. The key factors in pricing include determining product cost, marketing strategy, distribution, advertisement expenses, and market price variations. If all variables change, the product's pricing may also vary

accordingly.

India's diverse geography and infrastructure development pose challenges to distribution, necessitating companies to establish effective channels for urban and rural markets. E-commerce growth has influenced distribution strategies, including distribution channels, warehousing facilities, transportation modes, and inventory control management. The marketing mix, which includes price, product uniqueness, and customer feedback, is interconnected. Increasing product prices reduces demand and requires fewer distribution points. Focusing on brand awareness and better pricing can lead to increased brand recognition. The overall marketing mix can also result in dynamic modeling based on customer feedback for product improvement and launch.

A business product requires a business team to interact with clients and ensure availability. Distribution significantly impacts profitability, so a firm should have an effective supply chain and logistics management plan. The marketing mix consists of four variables: price, product USP, pricing, and customer feedback. Increasing product prices reduces demand and requires fewer distribution points. Focusing on brand awareness and better pricing can lead to better product pricing. Dynamic modeling based on customer feedback can improve a product and launch it as an upgraded version.

India's diverse geography and infrastructure development pose challenges for distribution, necessitating effective channels for urban and rural markets, while the rapid growth of e-commerce influences distribution strategies.

The marketing mix involves distribution channels, warehousing facilities, mode of transportation, and inventory control management. It is a mechanism for moving goods and services from service providers to consumers. For business products, a business team interacts with clients to ensure product availability. Distribution significantly impacts profitability, so a firm should have an effective supply chain and logistics management plan. The marketing mix is interconnected, with increasing product prices reducing demand and requiring fewer distribution points. Focusing on brand awareness and better pricing can lead to better product pricing. The overall marketing mix can result in dynamic modeling based on customer feedback for product improvement and launch.

Review literature

Medis & Wanninayake (2007) found that packaging is crucial in the purchasing process, as it influences consumer decisions. The design of packaged FMCG products should be more favorable, as they are increasingly found in larger supermarkets and hypermarkets, offering a wide range of options.

Ahmad (2011) investigates factors influencing customer impulse buying behavior in the FMCG sector in India's retail market. A hypothetical model is developed, revealing that increasing income and Western culture influence purchasing power, leading to increased impulse buying due to retail player pricing strategies and full festival offerings.

Hasan & Nasreen (2012) explore the impact of cognitive dissonance on consumer buying behavior, identifying factors causing dissonance post and before purchase, and identifying customer involvement in product purchases.

The study by **Zaman et al. (2012)** investigates the impact of customer satisfaction, trust, and corporate reputation on customer loyalty in Pakistani FMCG companies. The research involved 200 respondents from Rawalpindi and Islamabad, and used multiple regression and correlation coefficient to examine the relationship. The results showed that satisfaction, trust, and corporate reputation significantly increased customer loyalty by 79.0%.

Ullah and Prince(2012) The Fast Moving Consumer Goods (FMCG) sector in Bangladesh has experienced significant growth in recent years, particularly in the consumer durables segment. However, the industry faces challenges such as brand deletion or competition from low-cost competitors. To smoothen the progress of the FMCG industry in Bangladesh, the study recommends focusing on sales promotion, time constraints, and brand unavailability to address these factors.

Sikroria's (2012) paper explores the promotional mix of fast-moving goods (FMCG) brands in Indian

rural markets. The researchers explore new variables that may influence the promotional mix, using principal component analysis, to determine the most effective marketing strategies for these brands in both urban and rural markets.

Objectives

The role involves developing and managing products that meet the Indian market's needs and preferences, ensuring product quality, innovation, and adaptation, implementing competitive pricing strategies, establishing effective distribution channels, and adapting placement strategies based on the diverse geographic and demographic characteristics of India.

The individual is responsible for developing and executing promotional campaigns that effectively engage the Indian audience, utilizing various marketing strategies to enhance brand awareness and loyalty.

To compare marketing mix adopted by different company across different regions of India.

To study the factors of satisfaction level on various marketing mix adopted by different company in India.

Hypothesis

H_0 : There is no significant difference in products adopted by different company across India.

H_A : There is significant difference in product adopted by different company across India.

H_0 : There is no significant difference in price of marketing mix adopted by different company across India.

H_A : There is significant difference in price of marketing mix adopted by different company across India.

H_0 : There is no significant difference in place of marketing mix across India..

H_A : There is significant difference in place of marketing mix across India.

H_0 : There is no significant difference in promotion of marketing mix across India.

H_A : There is significant difference in promotion of marketing mix across India.

Research Methodology

In this research paper 5 point Likert scale used for collecting responses. Nominal and ordinal scale is used for data analysis. Proposed sample size is 80. Area of study Durgapur. Descriptive research have been conducted.

Correlation regression technique applied for measuring the performance of Dependent and Independent variables.Crunch back alpha is used for reliability and validity purpose.ANOVA will be applied for measuring significant difference.Purposive sampling technique is applied.

SPSS software is used for statistical Analysis.

Results & Analysis

The 4 Ps of marketing are essential for businesses to succeed in today's competitive business environment. Product strategies, pricing, place, and promotion are all interconnected elements that influence the success of a business. Product strategies can increase brand loyalty, customer satisfaction, and market share, while pricing strategies directly impact revenue and profitability. Dynamic pricing optimizes revenue in real-time, but requires careful monitoring of market conditions and competitor pricing. Balancing perceived value and cost is crucial, and companies must adapt their strategies based on market fluctuations, competitive actions, and consumer behavior. Place strategies ensure products reach the target audience efficiently, and companies must evaluate the most suitable channels based on their product and target market. Ethical considerations, transparency, and authenticity are critical in promotional activities to build trust with consumers. In conclusion, the 4 Ps are interconnected and crucial for a comprehensive marketing strategy. Continuous monitoring, adaptation, and

responsiveness to market trends are essential for the sustained success of a product or service. A customer-centric approach, data-driven decision-making, and agility in adjusting marketing mix elements are key to navigating the dynamic landscape of modern marketing.

Findings

The digital landscape in India is rapidly evolving, affecting promotion dynamics through digital marketing, social media, and e-commerce platforms. The e-commerce sector has grown significantly, impacting traditional distribution dynamics. Companies are using online platforms to reach a wider audience, including rural areas. Price sensitivity is a key factor in the Indian market, necessitating flexible pricing strategies to cater to diverse economic demographics and value-conscious consumers. Successful companies use localization strategies to address cultural and linguistic diversity, customizing products, promotions, and pricing based on regional preferences. With growing health and sustainability awareness among Indian consumers, companies are adapting their offerings and promotional messaging. Recognizing the potential of the rural market, companies invest in customized distribution channels, product adaptations, and targeted promotional campaigns.

Government policies like "Make in India" and "Digital India" can impact business product and promotion strategies. Understanding consumer behavior, global trends, lifestyle changes, and technological advancements is crucial for effective product development and promotional strategies. The competitive landscape in India, particularly in FMCG sectors, requires companies to innovate and differentiate through the 4Ps to stay ahead in the market.

Implication

The 4Ps dynamics in India require businesses to consider cultural sensitivity, price sensitivity, digital transformation, rural market opportunities, regulatory compliance, competitive landscape, economic disparities, localization strategies, environmental and social responsibility, consumer education, and supply chain efficiency. These factors require businesses to offer value for money, adapt to digital penetration, cater to regional preferences, stay informed, innovate, and adapt to changing consumer values. Successful businesses must continuously monitor market changes and tailor their strategies to meet the diverse needs of Indian consumers.

Conclusions

Successful Indian companies understand the significance of adapting their marketing mix to local contexts, including customizing products and promotions, and considering regional variations in pricing and distribution strategies. The digital revolution has significantly influenced the promotion aspect of the 4Ps, with companies leveraging digital marketing, e-commerce platforms, and social media to connect with consumers. This shift has implications for product availability and pricing strategies, especially in remote and rural areas.

The Indian market is characterized by price sensitivity, requiring companies to balance offering competitive prices with ensuring value for the diverse consumer base. Businesses are focusing on the rural market, adjusting their offerings and distribution strategies to resonate with rural consumers. Government initiatives and the regulatory landscape shape the dynamics of the 4Ps, requiring companies to align their strategies with national campaigns and navigate the complex regulatory landscape. The competitive landscape in India is intense, driving innovation and differentiation in product quality, pricing strategies, distribution efficiency, and promotion. Understanding and adapting to changing consumer behavior is crucial for businesses to remain relevant and meet their evolving needs. A nuanced and flexible approach is needed to navigate the market and build successful strategies around the 4Ps.

Limitations

India's diverse culture, language, and traditions make marketing strategies adaptable across regions. The country's economic disparity necessitates pricing strategies that cater to affordability while offering value to higher-income segments. Distribution strategies must consider rural and urban markets' differing needs and preferences. India's complex regulatory environment, including pricing, advertising standards, and industry-specific rules, also poses challenges for businesses in understanding and complying with these regulations.

The digital divide in India, particularly in rural areas, hinders promotional efforts. Rapid social and technological changes influence consumer behavior, making it challenging for companies to adapt marketing strategies. The highly competitive Indian market requires innovation and differentiation. Consumers are becoming more environmentally and socially conscious, necessitating companies to integrate sustainability and social responsibility into their business practices, which may not be explicitly covered by traditional 4Ps.

Globalization necessitates Indian companies to adapt to global marketing trends and international standards, which may not always align with local preferences. Dynamic economic conditions, including inflation, currency fluctuations, and geopolitical events, can influence pricing and promotional strategies. Companies must be aware of these limitations and stay updated on market trends and consumer behavior.

Recommendations

The 4Ps (product, price, promotion, place, price, place, price, promotion) are essential for businesses to navigate the Indian market. These include market segmentation, innovation, dynamic pricing models, promotional pricing, omni-channel distribution, and rural market focus. Market segmentation helps identify diverse consumer needs and develop a product portfolio that caters to different segments. Innovation emphasizes continuous product development, integrating local flavors and trends. Dynamic pricing models consider economic disparities and offer a range of price points to accommodate different income levels. Promotional pricing strategies, such as during festivals or special occasions, maximize consumer engagement. An omni-channel distribution strategy, integrating both online and offline channels, and targeted rural market focus are also recommended. To succeed in the Indian market, businesses should create culturally relevant promotional campaigns that resonate with the diverse population. Utilize digital marketing platforms, such as social media and influencers, to engage urban consumers and traditional media for rural outreach. Stay informed about market trends, consumer behavior, and regulatory changes. Foster a two-way communication channel with consumers through feedback, surveys, and social media. Integrate sustainability practices into product development and promotional efforts to align with environmental and social consciousness among Indian consumers. Explore collaborations with local businesses, influencers, and community organizations to enhance brand credibility and build trust. By incorporating these recommendations, businesses can navigate the complexities of the Indian market, capitalize on opportunities, and build lasting relationships with a diverse consumer base.

References

- Ahmad, T. "The Impulse Buying Behavior of Consumers For The FMCG Products in Jodhpur", Australian Journal of Basic and Applied Sciences, 5(11): 1704-1710, 2011.
- Amos, C, Holmes, G and Strutton, D 2008, International Journal of Advertising, Vol. 27, No. 2, 2008, pp.209-234
- Anand and Hundal, B.S. (2008), "Perceptions of consumers towards promotional schemes for durables: a study in Punjab", The ICFAI University Journal of Consumer Behavior. Vol.3 No. 2, 17-31.

- Anand, Sandeep and Krishna, Rajnish (2008), “Rural brand preference determinants in India”, In Conference on Marketing to Rural Consumers — Understanding and tapping the rural market potential,IIMK, pp. 1-5
- Anand, S. (2008), Rural Brand Preference Determinants in IndiaConference on “Marketing to Rural Consumers — Understanding and Tapping the Rural Market Potential”, April 2008, IIMK. (Also as a chapter in a Book edited by Sanal Kumar Velayudhan, Guda Sridhar. Title of the book: Marketing to rural consumers: understanding and tapping the rural market potential. 2009. 1st Edition. Excel Books. NewDelhi .pp 260-265)
- Ansoff, H.I., Strategies for Diversification, Harvard Business Review, Vol. 35 Issue 5, Sep.-Oct 1957, pp. 113-124.
- Arens, F. William (2006), Contemporary Advertising, 10 e, McGraw- Hill/Irwin, New York
- Arora, J.S. and Arora, J.S. (2012j, “New Rural Marketing Strategies of FMCG Companies in India: a study of selected rural Markets of Punjab and Madhya Pradesh”, International Journal of Research in Commerce & Management, Vol. 3, Issue 9, pp. 85-90.
- Bijapurkar, Rama (2000), “The Marketing in India, The Economic Times, September 18, pp. 6.
- Bishnoi, V.K. and Bharti (2007), “Awareness and consumption pattern of rural consumers towards home and personal care products”, In Conference on Marketing to Rural Consumers, IIM K, pp. 93-106

Appendix Questionnaire

Name _____

Age _____

Income(Monthly) _____

Educational Qualification _____

Religion: _____

Name of The company _____

1. What factors influence your preference for a particular brand or product?
2. What strategy company implement to differentiate a product from crowded market?
3. What role does packaging play in overall perception and success of product?
4. How important is brand loyalty when it comes to purchasing products?
5. Which product features do you find most crucial when making a purchase decision?
6. Are there specific features you look for in products that are particularly important in the Indian market?
7. How important is product quality in your decision-making process?
8. Do you prefer products with a longer lifespan or durability?
9. To what extent does product innovation influence your purchasing decisions?
10. Are you more likely to purchase products that incorporate the latest technology?
11. How important is it for products to be culturally sensitive or relevant to Indian values? 12. Are there specific cultural considerations that should be taken into account for certain products?
13. Does the packaging of a product influence your perception or decision to buy?
14. Are there cultural aspects that you think should be considered in product packaging in India?
15. How much do environmental considerations, such as eco-friendly packaging, impact your product choices?

16. Are ethical practices of a company a factor in your decision to purchase a product?
17. Do you prefer products that are specifically designed or tailored for the Indian market? 18. How important is it for products to reflect local tastes and preferences?
19. How much do recommendations from friends, family, or influencers impact your product choices?
20. Are online reviews and ratings influential in your decision-making process?
21. How much do current trends and fashion influence your choice of products?
22. Are there specific product categories where you are more likely to follow trends?
23. How do pricing strategies affect your purchasing behavior?
24. Are you more inclined to purchase products during discount/sale periods?
25. What factors do you consider when evaluating the price of a product?
26. How would you describe your level of sensitivity to product prices?
27. Are there specific product categories where you are more price-sensitive?
28. How important is getting value for money in your purchasing decisions?
29. Do you feel that higher-priced products generally offer better quality?
30. How much do discounts and promotional offers influence your decision to purchase a product?
31. How much do discounts and promotional offers influence your decision to purchase a product?
32. Are you more likely to make a purchase during sales events or festive seasons?
33. What factors make you perceive a product as expensive?
34. Are there situations where you are willing to pay a premium for a product?
35. How comfortable are you with bargaining or negotiating prices, especially in markets or informal settings?
36. Do you feel that negotiation is a common practice when purchasing products in India?
37. How do you typically compare prices before making a purchase decision?
38. Are there specific platforms or tools you use for price comparison?
39. Do you prefer specific payment methods (cash, digital wallets, credit/debit cards) based on the price of the product?
40. Are there incentives or discounts that influence your choice of payment method?
41. How do you perceive products with lower prices?
42. Does it impact your perception of quality?
43. Are there product categories where you avoid lower-priced options?
44. How much does the perceived value of a product influence your willingness to pay a certain price?
45. Are there instances where you've found a product to be worth paying more than its market price?
46. How comfortable are you with bargaining or negotiating prices, especially in markets or informal settings?
47. Where do you prefer to shop for products? (Physical stores, online platforms, etc.)
48. How important is the accessibility and convenience of the sales channels to you?
49. Have you noticed any regional variations in product availability or pricing?
50. Where do you prefer to shop for products most frequently? (Physical stores, online platforms, etc.)
51. How have your shopping preferences evolved over the past few years in terms of the retail channel?
52. How important is the accessibility of the retail location or online platform in your decision to make a purchase?
53. Does the convenience of the shopping location influence your choice?
54. What factors contribute to your decision to shop online?
55. Are there specific types of products you prefer to purchase online rather than in physical stores?
56. Do you prefer shopping at local markets or established retail chains? Why?
57. Are there product categories where you prefer one over the other?
58. How important is the speed and reliability of product delivery when shopping online?

58. Are you willing to pay extra for expedited delivery services?
59. How much does the in-store experience influence your decision to make a purchase?
60. Are there specific aspects of the in-store experience that matter most to you?
61. Have you ever faced challenges in finding a specific product in your preferred shopping location?
62. How do you feel about products that are exclusively available online or in specific stores?
63. Do you engage in cross-border shopping for specific products? If yes, why?
64. How do you perceive the quality and authenticity of products purchased from international sources?
65. Are you a member of any loyalty programs or shopping memberships that influence your choice of shopping location? b. How do loyalty programs impact your overall shopping experience?
66. How has the COVID-19 pandemic influenced your shopping behaviors, particularly in terms of where you shop?
67. How do advertisements and promotional activities influence your awareness of products?
68. Which promotional channels (social media, TV, print, etc.) do you find most effective?
69. Do cultural or regional preferences impact your response to promotional campaigns?
70. How has your shopping behavior evolved with the rise of e-commerce in India?
71. Are there any cultural factors that significantly influence your purchasing decisions?
72. In your opinion, what are the most significant challenges faced by marketers in India?
73. How do you usually become aware of new products or services in the market?
74. Which channels or platforms do you rely on for information about promotions and product launches?
75. To what extent do advertisements influence your decision to try a new product?
76. Are there specific types of advertisements (TV, online, print) that you find more persuasive?
77. How active are you on social media platforms for discovering and engaging with promotional content?
78. Have you ever made a purchase based on a social media advertisement or recommendation?
79. How important is word-of-mouth marketing in influencing your purchasing decisions?
80. Do you actively seek recommendations from friends or family before making a purchase?
81. Do celebrity endorsements impact your perception of a product or influence your purchase decision?
82. Are there instances where a celebrity endorsement has persuaded you to try a new product?
83. How likely are you to engage with promotional offers, such as discounts, buy-one-get-one-free, or cashback?
84. Are there specific types of promotions that catch your attention more than others?
85. Are you more likely to stick to a brand that offers loyalty rewards or membership programs?
86. How do loyalty programs influence your overall perception of a brand?
87. How important is it for advertisements to be culturally sensitive or tailored to the Indian audience?
88. Are there examples where cultural aspects in advertising have positively or negatively impacted your perception of a brand?
89. How much do online reviews and testimonials influence your decision to try a product?
90. Do you actively seek and trust user-generated content before making a purchase?
91. How much are you influenced by viral marketing trends when it comes to trying new products?
92. Do you actively participate in or share content related to viral marketing campaigns?

MSME's Role in the Sustainable Growth of Indian Economy Through the Scheme of Atma-Nirbhar Bharat

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Introduction

The Atma Nirbhar Bharat Scheme launched to boost the MSME sector's growth and competitiveness and here comes the importance of sector. The scheme aims to promote self-reliance and provide support to MSME's through various initiatives and measures such as access to credit, marketing support, and technology up gradation.

The scheme also seeks to find out the challenges faced by MSMEs and enable them to contribute to the sustainable development of the country. This research paper aims to evaluate the effect of the Atma Nirbhar Bharat scheme on the sustainable development of India, focusing on the growth, competitiveness, and resilience of MSMEs.

The paper will review the existing literature on the topic, analyze the various initiatives and measures under the scheme, and assess their effectiveness in facilitating the growth and development of MSMEs. The study will also identify the situations faced by MSMEs and provide insights into the role of MSMEs in fostering sustainable development in India.

This research is important as it will provide a holistic understanding of the effect of the Atma Nirbhar Bharat scheme on MSMEs and the resultant contribution to sustainable development in India.

The finding of this research will be useful to the policy makers, stakeholders, and MSMEs themselves, as it will offer recommendations for improving the scheme and supporting the growth of the MSME sector. Overall, this research paper aims to contribute to the existing body of knowledge on the effect of MSMEs in sustainable development, and provide a detailed analysis of the effect of the Atma Nirbhar Bharat scheme on MSMEs in India.

Review of Literature

Researchers studied the effects of COVID-19 on SMSEs and discovered that the pandemic has caused additional issues for people all around the world. It led to working migrants losing their jobs and returning to their home cities, aggravating the precarious situation.

The MSME sector and this handicraft sector have given people jobs, helped them develop and upgrade their skills, and helped start businesses at the local level that have given people more jobs to solve problems. Even with its lack of organisation, the handicraft sector has been hindered by other issues such as inadequate institutional structure, low capital, limited exposure to new technologies, and a lack of market intelligence. Uma Shankar Yadav, Mitu Mandal, and Ashish Kumar (2022) Using a variety of programmes, including ECLGS, startup India SAMRIDH, Startup India Seed Fund scheme to SME, MSME, and Atma Nibhar Bharat contribution towards MSME and SME, Mahesh K.M., P.S. Aithal, and Sharma K.R.S. (2023) assess economic growth.

It also emphasised the significance of ONDC, OCEN, and NDEA in boosting fintech, productivity, and the seamless operation of e-commerce as well as in generating jobs and employment possibilities that boost the national economy.

The Indian government has been launched a lot of initiatives in order to solve the MSMEs' problems, but as per the experts, no measure is adequate in this catastrophe. Union Minister Mr. Nitin Gadkari also mentioned that the MSMEs of India are in the verge of collapse (Borpuzari, 2020). The government should be using the opposition talent in order to tackle the economic situation as well as the COVID-19

crisis. Finance Minister Shree Nirmala Sitharaman introduced the 20-lakh crore economic packages including 3 lakh crores for MSMEs in order to revive their business activities.

As per the experts, the steps taken by central government with the introduction of such economic package is not enough, more measures are needed to be taken as suggested by former governor of RBI, Mr. Raghuram Rajan and Nobel Prize Winner Prof. Abhijit Banerjee and many more. Dr. Pushkar Dubey, Kailash Kumar Sahu (2020). After studying the devastating impact and various revival strategies, Ramesh Prasad, Dr. Amitava Mondal (2020) found that business practices of Indian MSMEs will be totally changed COVID-19 pandemic. Rupees 3 lakh crore credit guarantee announcement by the government for MSMEs will keep their heads above the water even as the economy slow down.

Objectives

The objectives of this study are -

- To examine the effect of MSMEs in sustainable development in India.
- To analyze the impact of the Atma Nirbhar Bharat scheme on MSMEs in India.
- To assess the challenges faced by MSMEs in India contributing to sustainable development.
- To identify best practices and recommendations for promoting MSMEs in India for sustainable development.
- To evaluate the effectiveness of the Atma Nirbhar Bharat scheme in supporting MSMEs in achieving sustainable development goals.

Research Methodology

As this is a descriptive study, secondary data is used as the foundation for this paper. Data was collected and compiled with the help of books, websites, periodicals, newspapers, NABARD published RRB reports, Asian Development Bank publications, and fresh research articles published on various websites.

Role of MSMEs in Sustainable Development

Micro, Small and Medium Enterprises (MSMEs) play a vital role in development as they contribute significantly to the economic growth and prosperity and nation. MSMEs are considered to be the backbone of the economy as they provide employment to a large portion of the population, create opportunities for entrepreneurship, and help reduce poverty. In addition to their economic impact, MSMEs can also play a crucial role in promoting sustainability by adopting environment friendly practices and promoting sustainable development in their operations and supply chains.

Promoting Economic Growth: MSMEs drive economic growth by creating jobs and generating income in local communities. They provide employment opportunities to people, especially in rural areas where job opportunities are limited. MSME's also contribute to the diversification of the economy by producing a variety of goods and services, thus reducing the dependence on a single industry. This not only boosts the economy but also helps to reduce the impact of economic shocks.

Fostering Entrepreneurship: MSMEs promote entrepreneurship and innovation by providing opportunities for individuals to start and grow their own businesses. They also help to develop entrepreneurial skills and provide access to capital, which is essential for the growth of small businesses. By providing support and resources to entrepreneurs, MSMEs help to foster a culture of entrepreneurship and create an ecosystem that promotes innovation and new business creation.

Encouraging Local Development: MSMEs contribute to local development by supporting local supply chains, reducing import dependency, and offering more personalized products and services. By sourcing inputs locally and selling products in the local market, MSMEs help to boost the local economy and promote sustainable development. MSMEs also help to empower local communities by providing employment opportunities, increasing income, and promoting decentralized decision-making.

Promoting Sustainability: MSMEs can also play a vital role in promoting sustainability by adopting environmental friendly practices, reducing waste, and promoting sustainability in their operations and supply chains. For example, MSMEs can adopt renewable energy sources, use eco-friendly materials, and implement waste management practices.

Additionally, MSMEs can promote sustainable development by engaging in fair trade practices. Finance sourcing inputs sustainably, and promoting environmentally friendly products and services. In

conclusion, MSMEs play a critical role in fostering sustainable development by contributing to economic growth, fostering entrepreneurship, encouraging local development, and promoting sustainability.

In conclusion, MSMEs play a pivotal role in promoting sustainable development by contributing to economic growth, fostering entrepreneurship, encouraging local development, and promoting sustainability. To support MSMEs in their efforts to promote sustainable development, governments and other stakeholders can provide access to finance training and capacity building, and promote a fostering environment for MSMEs to thrive. By doing so, MSMEs can continue to play a critical role in fostering sustainable development and creating a better future for all.

Impact of Atma Nirbhar Bharat Scheme

The Atma Nirbhar Bharat scheme, launched in 2020 by the Indian government, is a comprehensive package aimed at boosting the country's economy by focusing on several key sectors, including micro, small, and medium enterprises (MSMEs). The scheme has had a significant impact on the MSMEs in India. One of the key components of Atma Nirbhar Bharat scheme is the provision of financial support to MSMEs. This includes loan guarantees, subsidies, and interest-free loans, all of which have helped businesses to access the capital they need to grow and expand. Additionally, the scheme has provided tax breaks and other incentives to MSMEs, which has helped to reduce the cost of doing business and made it easier for these companies to compete in the market. Another important aspect of the Atma Nirbhar Bharat scheme is the focus on digitalization.

The government has made a concerted effort to promote the use of technology and tools by MSME. This has increased the efficiency and competitiveness. This has included the launch of a number of digital platforms and initiatives designed to support MSMEs, such as the Udyam registration process, which makes it easier for businesses to register and access government support. Furthermore, the Atma Nirbhar Bharat scheme has also focused on strengthening the supply chains of MSMEs. This has involved promoting local manufacturing and production, as well as supporting the development of export-oriented businesses. This has helped to increase the competitiveness of MSMEs and create new opportunities for growth and expansion.

In conclusion, the Atma Nirbhar Bharat scheme, the financial support, digitalization initiatives and focus on supply chains have helped to improve the competitiveness and growth prospects of MSMEs. Additionally, the scheme has played a critical role in helping MSMEs to recover from the effects of the COVID-19 pandemic. Overall, the Atma Nirbhar Bharat scheme is a major step forward for the MSME sector in India, and will play a crucial role in shaping future of this critical segment of the economy.

Challenges Faced by MSMEs in India in Contributing to Sustainable Development

MSMEs in India face several challenges in contributing to sustainable development, including:

1. Access to finance: MSME's often have limited access to financial resources and struggles to secure loans from traditional banking resources.
2. Lack of Technological Knowledge: Many MSMEs do not possess the knowledge and resources needed to adopt new technologies and adopt sustainable practices.
3. Infrastructural Constraints: MSMEs often face infrastructural constraints such as erratic power supply, inadequate transportation and communication facilities, and lack of industrial parks.
4. Inadequate Policy Support: MSMEs at times lack support from government policies and programs, including access to markets, skill development, and technology upgrading.
5. Compliance with Environmental Regulations: MSMEs often struggle to comply with environmental regulations, which can be costly and time-consuming.
6. Competition from larger firms: MSME's face intense competition from larger firms both domestic and international markets and compete on price and quality.
7. Marketing and Distribution: MSMEs often lack the marketing and distribution networks needed to reach customers and effectively promote their products.

Findings

MSMEs and their role in the growth of Indian economy through the Atma Nirbhar Bharat scheme vary. However, the following are some commonly observed findings.

Financial Support: The Atma Nirbhar Bharat scheme has provided increased access to credit and tax reliefs to MSMEs, which has helped them in their growth and development.

Improved Technology: The scheme has also focused on improving the technology and infrastructure of MSMEs, which has helped in boosting their competitiveness and sustainability.

Increased Employment: The scheme has led to the creation of new jobs in the MSME sector, contributing to the overall employment scenario of the country.

Boost to Exports: The scheme has also helped MSMEs in enhancing their exports and accessing new markets, contributing to the overall growth of the Indian economy.

Implementation Challenges: Some research papers have also highlighted the challenges in implementation of the Atma Nirbhar Bharat scheme, including lack of awareness, red-tapism and inadequate infrastructure.

Conclusion:

In conclusion, the Atma Nirbhar Bharat scheme has played a pivotal role in fostering sustainable development in India by providing support and resources to MSMEs. The scheme has helped MSMEs to overcome the challenges posed by the COVID-19 pandemic and has provided them with the necessary resources to grow and become self-reliant.

The impact of MSMEs in sustainable development cannot be overemphasized and it is important that the government continues to support and provide resources to MSMEs in order to ensure their growth and success.

References

- Kumar, A., Mandal, M., & Yadav, U. S. (2022). Business and entrepreneurial strategies for development of Indian small industries (MSME) during post-pandemic COVID-19 Indian artisans as entrepreneurs. *Empir Econ Lett*, 21(4), 153-162.
- Sarma, A. K. (2022). Implications of policy initiatives for MSMEs amid economic disruptions caused by COVID-19. *Vikalpa*, 47(1), 7-18.
- Lahiri, R. (2022). A Study on the Impact of COVID-19 on Indian MSMEs. In *Economic and Societal Transformation in Pandemic-Trapped India: Emerging Challenges and Resilient Policy Prescriptions* (pp. 379-396). Singapore: Springer Nature Singapore.
- Dubey, P., & Sahu, K. K. (2020). MSMEs in COVID-19 crisis and India's economic relief package: a critical review. *AJIR Preprints*, 207.
- Prasad, R., & Mondal, A. (2020). Impact of COVID-19 pandemic on Indian Economy with special reference to Indian MSME Sector. *ResearchGate*, 15(7), 16-21.
- Sipahi, E. (2020). COVID 19 and MSMEs: A revival framework. Research Journal in Advanced Humanities, 1(2), 7-21.
- Mahesh, K. M., Aithal, P. S., & Sharma, K. R. S. (Government Initiatives And Digital Innovation For Atma Nirbhar Msmes/Smes: To Achieve Sustainable And Inclusive Economic Growth.
- Chaturvedi, P., Dahiya, S., & Agrawal, S. (2015, February). Technological innovation: A necessity for sustainable MSME sector in India. In *2015 International Conference on Futuristic Trends on Computational Analysis and Knowledge Management (ABLAZE)* (pp. 206-211). IEEE.

Metaverse in Healthcare : A Review

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Abstract

The well-being of people around the world depends largely on the quality of healthcare they receive. Healthcare systems aim to provide services that improve, maintain, restore, and support health. Technology has played a key role in transforming this field, enabling better communication and collaboration among patients, caregivers, and other stakeholders. Digital health services, which use digital and internet tools, have changed the way patients and physicians interact, with innovations such as blockchain, augmented reality, and virtual reality. To meet the expectations of consumers, monitor health conditions, and improve medication adherence, it is vital to use advanced digital tools and services. The Metaverse is a virtual healthcare service that uses advanced technologies such as AI, AR, VR, telepresence, digital twinning, and blockchain to create virtual environments for patients. It allows surgeons to plan complex surgeries by turning CT scans into 3D models using headsets, improving surgical skills and medication-based treatments. Leading institutions are gradually adopting Virtual Reality-based technology, Augmented Reality, Mixed Reality, and Artificial Intelligence for training medical professionals. The Metaverse has four dimensions: intimacy, externality, augmentation, and simulation. It combines these technologies to create new ways of delivering healthcare that may lower costs and improve patient outcomes. However, there are challenges that need to be overcome before it can be widely adopted, such as integrating it smoothly with existing medical infrastructure, balancing costs, and dealing with data security and privacy issues. It could have negative impacts on well-being if not handled properly. Key companies in the Metaverse include Facebook, Epic, Microsoft, and NVIDIA Corporation. It presents numerous potentials in healthcare, including mental health support, fitness and wellness, plastic surgeries, pain management, and radiology.

Keywords: *Metaverse, Health, Healthcare, Artificial Intelligence and Blockchain*

Introduction

"Healthcare stands as one of the foremost factors in ensuring the overall physical, social, and mental well-being of the global population. The primary aim of any healthcare system is to direct its efforts toward activities that support, rehabilitate, sustain, and enhance healthcare services. This field has witnessed rapid growth and transformation, largely influenced by technological advancements, with the goal of improving the interaction between caregivers, patients, and relevant stakeholders. The introduction of digital health services, utilizing digital and internet tools, has significantly impacted the interaction between patients and physicians on a grand scale, with changes driven by technologies such as blockchain, augmented reality, and virtual reality. The recent COVID-19 pandemic has placed immense pressure on the global healthcare sector, affecting its workforce, infrastructure, and supply chain management. In the post-pandemic era, substantial foundational shifts have occurred in the healthcare industry. Consumers (patients) and their evolving needs and objectives serve as the driving force behind innovations in this field. The imperative to implement advanced digital tools and services

has become essential to ensure optimal consumer satisfaction, facilitate health status monitoring, and enhance medication adherence." The current outlook emphasizes a shift from healthcare to the broader concept of health and well-being, which is driving alteration in the services and delivery methods.

The healthcare system included in the Metaverse offers a reciprocal, immersive, and enjoyable healthcare service made according to individual patients. The Metaverse encompasses cutting-edge technological innovations, including artificial intelligence, augmented reality (AR), virtual reality (VR), telepresence, digital twinning, and blockchain, all of which inculcates a significant influence on healthcare. In the Metaverse, a virtual world is created using the internet, allowing for the simulation of human gestures and emotions. Metaverse can greatly assist healthcare professionals in significant disease drafting and diagnosis. Within the Metaverse environment, advanced surgical preoperative planning is facilitated by converting CT scans into 3D reconstructions using headsets. This enables surgeons to precisely view, isolate, and manipulate anatomical regions, improving their ability to perform critical surgeries. Metaverse also enhances prescription-based treatments.

When it is regarding plastic surgeries, the utilization of Virtual Reality within the Metaverse plays a significant role. In this context, the potential outcome of a plastic surgery procedure could be accurately predicted by an avatar. Metaverse surgeries necessitate a comprehensive understanding of the anatomy and the capability to utilize instruments that offer greater dexterity, flexibility, and personalization. The scope of these surgeries ranges from straightforward procedures to intricate operations, such as tumor removal and complex spine surgeries.

Within the realm of radiology, the Metaverse holds immense potential to unlock further capabilities in image visualization. This would empower radiologists to examine dynamic images in finer detail, leading to improved diagnostic accuracy and decision-making. In the healthcare Metaverse, there exists an opportunity to upgrade patient engagement through high-quality saturated contents and gamification features. These tools assist clinicians in explaining complex concepts to patients, providing step-by-step explanations of procedures they are about to undergo, and ensuring that patients adhere to their prescribed medications.

Leveraging digital twin solutions within the Metaverse will ensure that patients are kept well-informed and engaged with their treatment. This approach involves integrating a patient's vital signs, CT scans, medical records, and genetic test results to create a digital representation of their anatomy and physiology. This digital simulation is then used to continuously monitor the patient's health and generate insights about their condition. Metaverse systems can utilize augmented reality (AR) glasses to enable real-time video and audio communication with healthcare professionals. These AR solutions empower patients to interact directly with healthcare providers and even facilitate the live broadcasting of emergency situations to distant clinicians. This enables swift timely intervention and treatment.

Utilizing augmented reality (AR) offers an ideal environment for conveying practical procedures rather than simply imparting theoretical knowledge. Distinguished institutions are gradually transitioning towards Virtual Reality based technology, Augmented Reality, Mixed Reality, and Artificial Intelligence for the education of medical professionals. These technologies simulate convoluted real-time procedures and furnish detailed information about the cellular-level aspects of human anatomy. Metaverse possesses the capability to offer a comprehensive 360-degree visualization of medical conditions within the body, making it an invaluable tool for surgical training. It promotes a high level of collaboration and immersion. While this technology is currently in the experimental phase, its potential implementation holds the promise of delivering significant advancements in healthcare education and training.

The Metaverse encompasses four dimensions: intimacy, externality, augmentation, and simulation. Intimacy and augmentation involve monitoring and issuing alerts. Augmentation and externality pertain to aiding surgical and interventional procedures. Externality and simulation relate to medical education. Lastly, intimacy and simulation encompass virtual consultations.

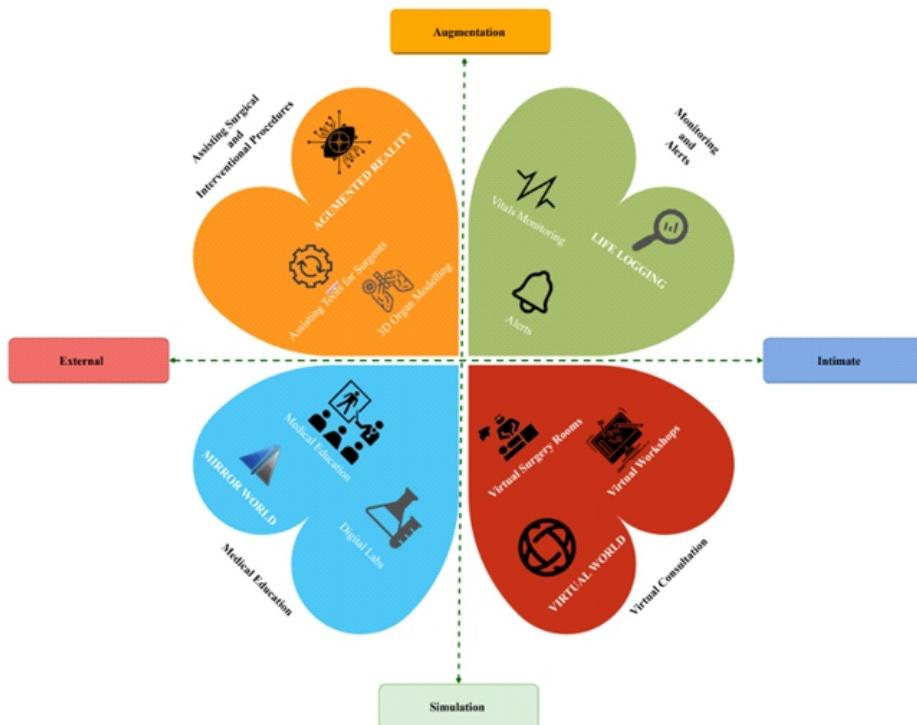


Figure 1. Metaverse Implementation in Healthcare

Source: Rajeswari Chengoden, Nancy Victor et.al, IEEE Access,2017

Current Digital and Smart Healthcare Technologies

Cutting-edge technologies facilitating digital and intelligent healthcare encompass sensors, extensive data analysis, artificial intelligence, the Internet of Things, cloud computing, as well as immersive technology.

Metaverse represents convergence of three prominent technological trends, each with the periphery to impact healthcare on its own. However, when combined, they could establish entirely new avenues for healthcare delivery that may reduce costs and significantly enhance patient related outcomes. These trends are enabling individuals to virtually be together, even when physically distant, also known as Telepresence, digital twinning, and blockchain.

- **Telepresence**

Known as telemedicine in healthcare, it involves the provision of medical services remotely. During the Covid-19 pandemic, its popularity has increased significantly. Before 2020, only 43% of medical facilities had enough capacity to provide remote medical services. Today, this number reaches 95%. For routine visits that do not require a physical exam or those that can be performed visually, health care providers are finding that they can diagnose many minor illnesses, which make up most of their cases, more quickly and efficiently over phone or video consultation. This trend will likely continue in the metaverse. However, virtual reality, a key technology that enables the kind of immersive experiences associated with the metaverse, offers a whole new realm of possibilities. Those who have experienced VR through headset-based interaction understand that it provides a much greater sense of "being there" than other virtual environments such as websites, messaging apps, or social networks.

- **Digital Twins**

A digital twin is essentially a virtual representation of an object or system, designed using real-world data. Its main goal is to gain a deeper understanding of the corresponding real entity. This digital twin can be created to mimic each patient. Jack Latus, CEO of Latus Health, an online healthcare

provider specializing in occupational health, envisions digital twins evolving into predictive models for individuals. These models can serve as a kind of “pseudo-test,” predicting different outcomes such as recovery from surgery or the effects of specific drugs on us.

- **Blockchain Technology**

Known as the underlying technology of cryptocurrency, blockchain is essentially a decentralized and encrypted database. They facilitate the secure storage and transmission of data in a way that prevents tampering by anyone other than the data owner. Many consider them an important part of the Metaverse concept, as they allow for the management of decentralized communities through smart contracts, as well as keeping digital records of “ownership” of space digital or even digital objects. In healthcare, their most obvious application is to manage and protect our extremely valuable health information. Currently, data is often exchanged between multiple organizations in a way that is both inefficient and lacking in transparency from the perspective of the data owners, including us as patients. The fact that health records are often stored on centralized servers puts them at risk of data theft (with reports suggesting that a single health record can fetch between \$70 and \$100 on the dark web). Furthermore, even legal access to this data, such as by a treating professional, often requires a long and arduous process.

Challenges in Implementing Metaverse in Healthcare Sector

Metaverse could become a significant technology disruptor in healthcare by 2022, much like telemedicine was in the recent past. The potential of Metaverse in healthcare is incredible as it combines virtual reality and augmented reality technology to operate in virtual environments. It is important to recognize the hurdles that must be overcome before its widespread adoption. Metaverse represents a fundamental shift in healthcare and stakeholders need to be aware of a variety of factors, from ensuring seamless integration with existing healthcare infrastructure to balancing costs fees and address data privacy and security issues. Poor management of the metaverse can pose health risks.

The scope of distortion presented by the Metaverse is profound:

- It has the capacity to rapidly cater to large populations.
- Assessing the consequences of adverse effects could be a lengthy process.
- Reversing these effects may prove to be challenging.

A few of the hurdles in integrating the Metaverse into healthcare comprise:

- **Attracting the Audience**

The responsibility for building commercial momentum for any new technology lies with its users. This gives rise to various questions regarding the reliability and practicality of the Metaverse.

- **Privacy and Security**

As society becomes increasingly dependent on technology, it is important to pay increased attention to personal privacy and the cybersecurity solutions provided. The healthcare industry is particularly vulnerable to data security breaches, and the costs associated with such breaches are among the highest in the world. Many people are increasingly concerned about the privacy and security of their health data as this can be highly sensitive information. To increase the likelihood of widespread adoption of the Metaverse, developers and technology companies operating there should explore strategies to ensure the privacy and security of health data.

- **Cost of Technology**

Advanced high-tech equipment is important for monitoring patient vital signs. However, the cost of these materials is still very high, and the company cannot afford it. Therefore, this technology will primarily be available to those who can afford it, and these technologies will continue to evolve and receive upgrades. Therefore, the new capabilities offered by these technologies will require updated equipment in line with ongoing advances, often requiring

more frequent replacement, in the same way as electrical upgrades. smart phone. Additionally, infrastructure costs for healthcare providers are expected to be huge, especially in surgical facilities where high-speed connectivity such as 5G is needed.

Factors Driving the Healthcare Metaverse

The healthcare industry is rapidly adopting Metaverse, and this integration involves several transformative technologies. These technologies are poised to revolutionize health and healthcare and dramatically improve patient outcomes. In recent times, augmented reality and virtual reality have made great advances and are now routinely used in medical training, educational modules, and precisely guided surgical procedures, facilitates complex surgical procedures with excellent precision. These elements are also integrated into software and hardware to improve the performance of medical devices and equipment. Several factors are expected to drive the market expansion soon. These include the growing global patient population, growing demand for improved patient outcomes, and continued technological advances in the healthcare sector.

Key Companies Involved in Metaverse

Globally, some of the key companies in the Metaverse Market include –

- Meta Platforms (Facebook)
- Roblox
- Epic Games
- NVIDIA Corporation
- Microsoft
- Tencent
- Intuitive Surgical, and several others.

With the development and awareness about the metaverse and favorable policies by various governments, other new companies are expected to enter the healthcare Metaverse segment.

Conclusion

In recent years, the Metaverse have garnered significant attention across various sectors, attracting individuals, industries, and organizations. It is increasingly viewed as the foundational framework for the future level of the internet. Across the globe, prominent tech companies are pro-actively exploring its potential within the healthcare domain. The Metaverse technology is constantly evolving and improving, with ongoing enhancements and developments. As the Metaverse continues to evolve, its applications in the field of medicine are also expected to advance. Simultaneously, new firms are anticipated to enter this domain. The Metaverse could potentially revolutionize, enhance, and even reshape healthcare in the future. While there are undoubtedly risks involved, the opportunities it presents are vast. The prospect of empowering digitally literate young individuals to take charge of their healthcare, motivating them to learn, adopt wellness practices, and educate their peers within a safe virtual social setting, is a powerful notion. The precision capabilities it offers to clinicians, facilitating worldwide collaboration with the aid of augmented reality, opens up possibilities to address healthcare worker shortages. Moreover, it introduces the potential for communities, patients, and experts to be rewarded for their efforts in improving healthcare, thereby creating a new economy and earning opportunities.

This is a rapidly advancing new world, and our understanding of it grows alongside the innovators who are shaping these emerging Metaverses. The prospect of establishing a sustainable and cost-effective healthcare paradigm is within reach, and healthcare leaders should actively participate in its creation. It's time to explore and fully comprehend the possibilities it holds. It is increasingly viewed as the

foundational framework for the next-generation internet. The Metaverse technology is in a constant state of evolution and improvement, with ongoing enhancements and developments.

As the Metaverse continues to evolve, its potential applications in the field of medicine are also expected to advance. Simultaneously, new entrants are anticipated to enter this domain. The Metaverse could potentially revolutionize, enhance, and even reshape healthcare in the future. While there are undoubtedly risks involved, the opportunities it presents are vast. The prospect of empowering digitally literate young individuals to take charge of their healthcare, motivating them to learn, adopt wellness practices, and educate their peers within a safe virtual social setting, is a powerful notion. This is a rapidly advancing new world, and our understanding of it grows alongside the innovators who are shaping these emerging Metaverses. The prospect of establishing a sustainable and cost-effective healthcare paradigm is within reach, and healthcare leaders should actively participate in its creation. It's time to explore and fully comprehend the possibilities it holds.

Lastly, while advancements in digital healthcare are praiseworthy for their role in expanding access to care to a broader spectrum of individuals, it's crucial to address the ethical considerations that accompany them. Widespread societal issues such as discrimination, breaches of privacy, lack of transparency, and concerns about public safety don't disappear simply because healthcare has shifted to virtual platforms. While the potential of home-based healthcare is promising, it is equally important to ensure that technology becomes more affordable, that apps undergo thorough vetting, and that healthcare providers receive comprehensive training. As the Metaverse continues to take shape, it will be imperative for healthcare providers, users, and lawmakers to collaborate in establishing a virtual environment that engages users worldwide while ensuring their safety and well-being.

References

- [1] O. Maki, M. Alshaikhli, M. Gunduz, K. K. Naji, and M. Abdulwahed, "Development of digitalization road map for healthcare facility management," *IEEE Access*, vol. 10, pp. 14450–14462, 2022.
- [2] M. N. Bhuiyan, M. M. Rahman, M. M. Billah, and D. Saha, "Internet of things (iot): a review of its enabling technologies in healthcare applications, standards protocols, security, and market opportunities," *IEEE Internet of Things Journal*, vol. 8, no. 13, pp. 10474–10498, 2021.
- [3] A. Kapoor, S. Guha, M. K. Das, K. C. Goswami, and R. Yadav, "Digital healthcare: The only solution for better healthcare during covid-19 pandemic?" pp. 61–64, 2020.
- [4] M. Alshamrani, "Iot and artificial intelligence implementations for remote healthcare monitoring systems: A survey," *Journal of King Saud University-Computer and Information Sciences*, 2021.
- [5] Y. Siriwardhana, G. Gür, M. Ylianttila, and M. Liyanage, "The role of 5g for digital healthcare against covid-19 pandemic: Opportunities and challenges," *ICT Express*, vol. 7, no. 2, pp. 244–252, 2021.
- [6] T. Shakeel, S. Habib, W. Boulila, A. Koubaa, A. R. Javed, M. Rizwan, T. R. Gadekallu, and M. Sufiyan, "A survey on covid-19 impact in the healthcare domain: worldwide market implementation, applications, security and privacy issues, challenges and future prospects," *Complex & Intelligent Systems*, pp. 1–32, 2022.
- [7] S. M. Lee and D. Lee, "Opportunities and challenges for contactless healthcare services in the post-covid-19 era," *Technological Forecasting and Social Change*, vol. 167, p. 120712, 2021.
- [8] W. M. Carroll, "Digital health and new technologies," in *Nursing and Informatics for the 21st Century—Embracing a Digital World*, 3rd Edition, Book 1. Productivity Press, 2022, pp. 29–48.
- [9] M. U. Rehman, A. Shafique, Y. Y. Ghadi, W. Boulila, S. U. Jan, T. R. Gadekallu, M. Driss, and J. Ahmad, "A novel chaos-based privacy-preserving deep learning model for cancer diagnosis," *IEEE Transactions on Network Science and Engineering*, 2022.

- [10] C. Mistry, U. Thakker, R. Gupta, M. S. Obaidat, S. Tanwar, N. Kumar, and J. J. Rodrigues, “Medblock: An ai-enabled and blockchain-driven medical healthcare system for covid-19,” in ICC 2021-IEEE International Conference on Communications. IEEE, 2021, pp. 1–6.
- [11] S.-M. Park and Y.-G. Kim, “A metaverse: Taxonomy, components, applications, and open challenges,” Ieee Access, vol. 10, pp. 4209–4251, 2022.
- [12] T. R. Gadekallu, T. Huynh-The, W. Wang, G. Yenduri, P. Ranaweera, Q.-V. Pham, D. B. da Costa, and M. Liyanage, “Blockchain for the metaverse: A review,” arXiv preprint arXiv:2203.09738, 2022.
- [13] L. Petrigna and G. Musumeci, “The metaverse: A new challenge for the healthcare system: A scoping review,” Journal of Functional Morphology and Kinesiology, vol. 7, no. 3, p. 63, 2022.
- [14] L. Locurcio, “Dental education in the metaverse,” British Dental Journal, vol. 232, no. 4, pp. 191–191, 2022.
- [15] Y. Zeng, L. Zeng, C. Zhang, and A. S. Cheng, “The metaverse in cancer care: Applications and challenges,” p. 100111, 2022.

Performance Analysis of Selected Mutual Funds Offered by HDFC Mutual Fund

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Abstract

This paper focuses on the entire journey of the mutual fund industry in India. It's Origin, Its Fall and Rise Throughout all these years and tried to predict what could happen in these years and in the future for mutual fund investors. A mutual fund company, also known as an investment company, is an investment vehicle that deposits the money of many investors. The manager of the fund uses the money collected from mutual fund investors to purchase securities such as stocks and bonds debentures. Purchased securities known as the fund's portfolio. Certain restrictions on comparing between various products may have acted as a catalyst for the development of primary market, i.e money market and (short term) bond funds. This study was done to analyze and compare the performance of various types of mutual funds scheme in India and concluded that equity funds outperform income funds. This study further concludes that equity fund managers have significant market timing capabilities and institutional Fund managers can make their investments on time, but the funds run by brokers do not show the time potential of the market.

Keywords : *Mutual fund, Hdfc, Performance, Investors, Economic Development*

Introduction

Mutual funds are a managed group of securities owned by several corporations. These corporations receive. Dividends on the shares they hold and realize capital gains or losses on their securities. Investors buying invest in a mutual fund as if it were personal securities. Earnings, after paying operating costs Dividend, capital gains or losses of mutual funds distributed to investors, in proportion to the amount of Invested money. Investors expect a loss on one holding to be made from again on another. Follow the proverb Holders of mutual fund shares are collectively able to get the "don't put all your eggs in one basket" profit by diversifying their investments, which may go beyond their financial means individually. Mutual funds can be either an open-ended or a closed-end fund. Open-end mutual funds do not have a set number of shares; this may happen Considered as liquid capital stock. The number of shares changes when investors buy or sell their shares. Investors are able to invest and redeem mutual fund any point of time in open ended mutual fund.

History Of Mutual Funds

The first modern mutual fund was set up in Belgium in 1822. This form of investment soon spread to the Great Britain and France. Mutual funds became popular in the United States in the 1920s and remained popular Since the 1930s, especially open-ended mutual funds. Mutual funds globally have tremendous growth after World War II, especially in the 1980s and 1990s. LIC set up its mutual fund in June 1989 while GIC set up in December 1990 in his mutual fund. With the entry of private sector assets management company (Mutual funds company) in 1993, a new era in Indian began. 2

The mutual fund industry gives Indian investors a wide choice of fund families. Also, 1993 was the year in which the first Mutual Fund Regulations came into existence in India, under which all mutual funds houses i.e AMC except UTI were to be registered and governed. A mutual fund was registered in July

1993. The number of mutual fund houses kept increasing with many foreigners, the establishment of mutual funds in India and the industry have been also seen many mergers and acquisitions. as at the end of January 2003, in India 33 mutual funds houses with total assets under management of Rs. 1,21,805 crores. The Unit Trust of India was ahead of other mutual funds with assets worth Rs 4,561 crore under management.

HDFC Mutual Funds History:-

HDFC Mutual Funds is one of the India's largest mutual fund managers with ₹4.4 trillion in assets under management. Started since, 1999. It is set up as a joint venture between Housing Development Finance Corporation Limited ("HDFC") and abrdn Investment Management Limited (erstwhile known as Standard Life Investments Limited). HDFC Asset Management Company ("HDFC AMC") is the investment manager to the schemes of HDFC Mutual Fund ("HDFC MF"). HDFC mutual funds offer a comprehensive savings and investment products across various asset classes, which provide income and wealth creation opportunities to investors at large retail and institutional customer base of 9.2 million live accounts. It has a dominant position in equity investments, with one of the highest market shares in actively managed equity-oriented mutual funds. HDFC mutual fund schemes have weathered multiple market cycles and carry track records of up to 26 years. its currently have over 70 thousand empanelled IFA distributors which include qualified mutual fund distributors, national distributors and various banks. HDFC mutual fund serve its customers and distribution partners in over 200 cities through network of 227 branches and 1,203 employees. It has 30-member investment team is highly qualified, experienced and competent with a high performance and stability track record of, and a deep understanding of mutual fund businesses.

Growth Of Mutual Funds In India

In India mutual fund industry stared in 1963 with the incorporation of Unit trust of India (UTI) initiative of the Reserve Bank of India and Government of India.

Average Assets Under Management (AAUM) of Indian Mutual Fund Industry upto the month of December 2021 stood at ₹ 37,91,811 crore. Assets Under Management (AUM) of Indian Mutual Fund Industry as on December 31, 2021 stood at ₹37,72,696 crore. The AUM of the Indian MF Industry has grown from as on December 31, 2011 ₹ 6.11 trillion to ₹37.73 trillion as on December 31, 2021 more than 6 times increase in 10 years. From December 31, 2016 to December 31, 2021 The MF Industry's AUM has grown from ₹ 16.46 trillion to ₹37.73 trillion more than 2 times increase in 5 years.

The Industry's AUM had crossed the milestone of ₹10 Trillion (₹10 Lakh Crore) for the first time in May 2014 and in a short period of three years, the assets under management (AUM) had increased more than two times and crossed ₹ 20 trillion (₹20 Lakh Crore) for the first time in India in August 2017. The Assets under management (AUM) had crossed ₹ 30 trillion (₹30 Lakh Crore) in November 2020. The mutual fund Industry AUM reached at ₹37.73 Trillion (₹ 37.73 Lakh Crore) as on December 31, 2021. 3

The mutual fund industry has achieved a milestone of 10 crore investors folios during the month of May 2021.

The total number of accounts created (or folios as per mutual fund record) as on December 31, 2021 reached at 12.02 crore approx. (120.2 million), while the number of folios under various mutual fund scheme maximum investment is from retail segment stood at 9.74 crore (97.4 million).

Literature Review:-

Abey (2017)1 – The paper contemplated the different elements impacting investment choice in mutual fund plans. It found that age and instructive capability doesn't influence the investment disposition. The paper shows that transient investment period is more liked than to hang tight for exceptional yield at cost of high risk. The paper upheld for mutual fund investments for better enhancement. Retirement pay

plans are more liked by investors relying on their assignment or pay level. The expert management framework additionally impacts mutual fund investment choices as investment portfolios by giving applicable monetary data.

Agarwal et al (2017)2 – The paper has done an examination on 100 mutual funds for a period of time of a long time from 2013-2016. The 100 funds incorporate a mix of broadened value plans, charge saving plans, enormous cap funds, long haul blame funds, long haul pay funds, momentary pay funds, little mid-cap funds and super transient funds. Their examination uncovers the outperformance of 90% plans, particularly long, short and super short obligation funds, ELSS and mid/little cap funds. It has additionally been discovered that Valued at Risk for value based mutual funds is higher than obligation funds. Additionally, value funds draw in more cost proportion than obligation funds because of greater management exercises. Nonetheless, it is additionally redundant that low cost proportion funds will give a low return. The examination likewise announced that the fund's return may differ inside a similar classification. It might fluctuate as per an arrangement of various plans.

Alamelu et al (2017)3 - The analysts firmly contended the idea of Systematic Investment Plan (SIP) for retail investors as a cutting edge and unrivaled investment road. The paper proposed risk taker investors to go for a little and mid-cap value fund. Additionally, value mutual fund plans are appropriate for such investors who can contribute just with a low sum. It has been discovered that enormous cap value development funds give less return in long haul when contrasted with little and mid-cap, Tax saving fund plans. Because of less risk, the funds get back to be low. During their investigation, ICICI, Reliance, and UTI offered value plans are found to give preferable returns over different funds.

Bandi (2017)4 - The paper examines the insight and conduct of specialists and counsels with respect to investment in mutual fund's Micro SIP. It incorporates investment design, stock selectivity, selling revenue for Micro SIP, monetary consideration and financial improvement of mutual fund industry. It has been discovered that larger part of specialist offer a wide range of administration, still, 10% offer either value obligation funds and 5% specialists practice just in duty saving plans. Month to month assortment premise is generally liked by specialist than day by day, week by week or yearly premise. Additionally, the greater parts are keen on the offer of Micro SIP, yet at the same time there is some level of specialist who is reluctant for same. Concerning of Micro SIP, greater part position of investors 4 gives a positive reaction. Another reality has been uncovered that specialists will offer Micro SIP for their own advantage as well as for financial turn of events. It has been accounted for that limit of specialists sells mutual fund plots when contrasted with dealers of securities, protection arrangements and Ponzi plans. Fewer specialists are discovered to be a merchant of RD and FD in the financial area. It likewise demonstrates that advancement is exceptionally continued in mutual fund area than in banking and protection area.

Baliyan et al (2017)5 – The creator assessed the presentation of foundation mutual funds in India. A short examination has been made between HDFC mutual fund, Reliance mutual fund, ICICI Prudential mutual fund, Birla Sun life mutual fund, UTI mutual fund, and SBI mutual fund. The creator discovered HDFC and ICICI mutual fund to be safer and Birla sun life mutual fund as better entertainer. Nonetheless, their figuring show that Reliance mutual fund is high riskier. The creators express the requirement for promoting efforts by Reliance. 1328 Further, the investigation expresses that public organization's funds are more liked because of security and less risk. For a similar explanation, obligation funds are likewise sought after than value based funds.

Banerjee et al (2017)6 - The paper considers the different components influencing investment choices of people. It is discovered that investors of current investment roads have the instructive and expert foundation. Just 10% - 25% of complete investment funds are invested in the mutual fund, and furthermore they anticipate 15% - 20% of the profit for their investment. 30-50 years of people are keen on specialized investment design. Youthful investors are risk takers. Open-finished plans are more liked

than close-finished plans. Alongside fund, organization notoriety and fund supervisors history are likewise a significant determinant for investment choices. Market-situated investments with normal pay likewise impact investments.

Objectives of The Study:-

The objectives of the study are as follows:-

1. To evaluate of the performance of selected HDFC mutual fund schemes.
2. To evaluate of the performance on the basis of compounded annual growth rate (CAGR) of selected HDFC mutual fund schemes.
3. To evaluate the selected scheme Benchmark and additional benchmark of the selected HDFC mutual funds.

Scope Of The Study:-

This study provides information about the performance of various HDFC mutual funds schemes. It helps to compare whether HDFC mutual funds' performance can beat the benchmark index or not. It also helps investors make informed decisions about investment in HDFC mutual funds. In this study, data is obtained from secondary sources.

Various HDFC mutual funds scheme have been selected for analysis and interpretation are following:-

HDFC FLEXI CAP FUND 5

HDFC Capital Builder Value Fund

HDFC Top 100 Fund

HDFC TAXSAVER FUND

HDFC HYBRID DEBT FUND

HDFC Balanced Advantage Fund

Methodology Used:-

This study is based on secondary source of data. The secondary data is collected from the HDFC Mutual Funds website, various publication, AMFI, RBI, SEBI, and Journals.

Data Analysis & interpretation:-

In this section the analysis and interpretation of the data collected from various sources of various scheme of HDFC mutual funds.

1.PERFORMANCE OF HDFC FLEXI CAP FUND

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC Flexi cap Fund	74.79	12.66	14.37
Scheme Benchmark: - NIFTY 500 Total Return Index	70.26	13.67	15.59
Additional Benchmark:- NIFTY 50	63.98	14.59	15.27

Source*-www.hdfcfund.com

2. PERFORMANCE OF HDFC Capital Builder Value Fund

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC Capital Builder Value Fund	61.91	10.09	12.98
Scheme Benchmark: - NIFTY 500 Total Return Index	60.77	15.00	15.40
Additional Benchmark:- NIFTY 50	54.58	15.00	15.08

Source*-www.hdfcfund.com

3. PERFORMANCE OF HDFC Top 100 Fund

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC Top 100 Fund	63.39	11.50	13.28
Scheme Benchmark: - NIFTY 100 Total Return Index	63.12	13.94	15.32
Additional Benchmark:- S&P BSE SENSEX	61.66	15.04	15.68

Source*-www.hdfcfund.com

4. PERFORMANCE OF HDFC TAX SAVER Fund

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC TAXSAVER FUND	51.98	9.19	10.88
Scheme Benchmark: - NIFTY 500 Total Return Index	60.77	15.00	15.40
Additional Benchmark:- NIFTY 50	54.58	15.00	15.08

Source*-www.hdfcfund.com

5. PERFORMANCE OF HDFC HYBRID DEBT Fund

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC HYBRID DEBT FUND	19.95	9.70	8.10
Scheme Benchmark :-NIFY50 HYBRID COMPOSIT DEBT	12.47	11.24	9.37
Additional Benchmark:- CRISIL 10 YEAR GILT INDEX	4.68	9.10	6.42

Source*-www.hdfcfund.com

6. PERFORMANCE OF HDFC Balanced Advantage Fund

SCHEME NAME	1 ST YEAR	2 ND YEAR	5 TH YEAR
	CAGR (%)	CAGR (%)	CAGR (%)
HDFC Balance dAdvantage Fund	42.23	7.92	11.66
Scheme Benchmark :-NIFY50 HYBRID COMPOSIT DEBT	34.44	12.16	13.05
Additional Benchmark:-NIFTY 50 (Total Returns Index)	49.89	12.22	14.70

Source*-www.hdfcfund.com

There is no doubt from the policies of structural liberalization that the Indian economy is likely to return to a somewhat higher growth path.

Years. Therefore mutual fund organizations need to upgrade their skills and technology. Mutual Fund Success.

However, depending on the implementation of suggestions will be bright. In relation to mutual fund investor.

Our view is that the investor needs to adopt two important skills for a successful investment i.e. the spirit of the times

And both investment discipline needs to be adopted at the same time.

REFERENCES:

- AbeyJoji, "Mutual Fund: Investors Perception on Investment", International Journal of Sciences: Basic and Applied Research (IJSBAR), Volume 34, No. 3, Pp. 55-67, ISSN 2307 – 4531, 2017.
- Agrawal Gaurav and Jain Mini, "Investor's Preference towards Mutual Fund in Comparison to other Investment Avenues", Journal of Indian Research, ISSN: 2321 – 4155, Vol. 1, No. 4, Pp – 115 -131, October–December 2013.
- Alamelu. K. and Indhumathi. G., "Analysis of Sip Investments of Mutual Funds In India", International Journal of Economic Research, Vol. 14, ISSN: 0972-9380, Available at [Http: www. SerialJournal.Com](http://www.SerialJournal.Com), Nov. 2017.
- Bandi Swati "The Mutual Fund Industry: A View of Agents and Advisors on Micro Sip's (Systematic Investment Plan)", International Journal of Engineering Technology Science and Research (IJETSR), Vol. 4, Issue 9, ISSN: 2394-3386, Sep 2017.
- BaliyanMeenu and RathiPunjika, " Performance Evaluation of Emerging Mutual Fund", Scientific Society of Advanced Research and Social Change (SSARSC) International Journal of Management, Vol. 3, Issue 1, ISSN 2349 – 6975,, Jan – June 2017.
- Banerjee Sudip, and GoyalMeenu, "Performance and Prospects of Mutual Funds With Special Reference To Large Capital Equity Oriented Schemes", Abhinav National Monthly Referred Journal of Research in Commerce and Management, Vol.6, Issue 8, ISSN.: 2277-1166, August 2017.

Land Revenue and Other Sources of Income of State Government with Special Reference to Jharkhand State

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Abstract

This article investigates various sources of income for state government specifically Jharkhand state. The land revenue was estimated at INR 1500 crore in the year 2023-24 and there is vast scope for the enhancement of land revenue via proper land tenancy policy and improved land revenue policy. The state government revenue receipt was broken into various parts such as State tax, State non-tax, share in Central taxes, Grants-in-aid from the centre, non-debt capital receipts, etc. The major sources of the state's tax revenue were state GST, sales tax/VAT, stamp duty and registration fees, taxes on vehicles, state excise, land revenue, taxes and duties on electricity, etc. The largest source of Jharkhand's non-tax revenue comes from mining. Mineral concession fees, rents, and royalties comprise 78% of state nontax revenue and 14% of revenue receipt. Whereas state GST is estimated to be the largest component of Jharkhand tax revenue which is estimated to increase by 27% over the revised estimates of 2022-23. But a mineral-rich state Jharkhand has been suffering from a resource curse. Lack of effective governance, displacement of tribal communities, poor infrastructure, and Naxal problems have kept the state backward, and despite its mineral wealth Jharkhand's GDP per capita is a mere INR 75,000. As suggested by the Tendulkar Committee 36.96% population live below the poverty line. So, it is high time that all the stakeholders took responsibility and accountability for this. The government needs to expand the industrial areas in other districts as well as establish a proper education system to provide a skilled and educated workforce to the present and upcoming industries in the state so that our youth does not migrate to another state in search of job opportunities. By ensuring political stability, easy land acquisition policy, and development of infrastructure facilities such as roads water supply, and electricity coverage various local level issues can be solved at the grassroots level. This article discusses the current issue of the land revenue system and other revenue systems discusses various unexplored revenue generation sources of Jharkhand and does a comparative study of the Jharkhand revenue system with its bordering state.

Keywords: *Land Revenue, Tax Revenue, Non-tax Revenue, Gross State Domestic Product (gsdp), Infrastructure, Tenancy Act.*

Introduction

Jharkhand, a state with a rich historical tapestry, has undergone significant reforms in its land revenue system.

The nuanced blend of tradition and progress is evident in the dynamic evolution of the state's agrarian economy. A key stride in this transformation is the digitization of land records and the introduction of online services. This technological leap simplifies the revenue collection process also fosters transparency, mitigating corruption and ensuring convenient access for landowners. Crucially, Jharkhand has prioritized the protection of land rights for tribal communities. Special provisions have been implemented to ensure equitable resource distribution and uphold the rights of these communities,

contributing to a more inclusive societal fabric.

Beside land revenue there are other source of income of state as well. Jharkhand's abundant mineral wealth, including coal, iron ore, and bauxite, positions it as a key contributor to India's mining sector. Coal extraction forms a substantial part of the state's revenue. The industrial landscape of Jharkhand is marked by significant steel production, with major players like Tata Steel influencing the sector. Industrial zones and corridors facilitate the growth of manufacturing industries, contributing to the state's economic development. The services sector, including trade, transport, and communication, contributes to the state's income. Urban areas like Ranchi, Jamshedpur, and Dhanbad are hubs for commercial activities. Jharkhand's tourism potential lies in its natural beauty, wildlife, and cultural heritage. Tourist destinations like Betla National Park, Netarhat, and Deoghar attract visitors. The state budget allocates funds for social welfare programs, education, healthcare, and poverty alleviation. Central government contributions further bolster these initiatives, reflecting a commitment to inclusive development. The multifaceted economic narrative of Jharkhand, the state's financial landscape is dynamic.

1.1 Land Revenue The origin of land revenue can be traced back to ancient times when agricultural societies emerged. Land revenue is essentially a form of tax or rent imposed on individuals or communities for the use and occupation of land. The land revenue has traversed the tunnel of history, intertwining with the evolution of human societies and their intricate relationship with the land. This journey unfolds through various civilizations, each contributing to the development and transformation of land revenue systems in response to changing economic, social, and political landscapes.

1.2 Tax Revenue- Sum of all receipts from taxes and duties under the government. There are two types of tax revenue direct taxes or indirect taxes. Direct taxes are imposed on the property and income of an individual and a company. Direct taxes can be progressive, regressive, or proportional. Indirect taxes affect the income and property of an individual and a company through their consumption expenditure. Indirect taxes are known to be compulsory payments as they are imposed on goods and services.

1.3 Non-Tax Revenue - Recurring income that is earned from sources other than taxes. Some major sources of non-tax revenue are interest received by the government, Power supply, License fees, fines and penalties, escheats, Grants from international organizations and foreign governments, interest on loans given, Fees for communication services etc.

1.4 Gross State Domestic Product(GSDP) - The sum of the total volume of all finished goods and services produced within the geographical boundaries of state during a given period usually a year. It is classified under three broad sectors such as primary sector, secondary sector and tertiary sector and is compiled economic activity as per the methodology prescribed by the National Accounts Division, National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India.

1.5 Infrastructure – The basic physical systems of a business ,region, or nation and often involves the production of public goods or production processes. The capital-intensive investment in infrastructure is vital to a region's economic development. Projects related to infrastructure improvements may be funded publicly, privately, or through public-private partnerships.

1.6 The Chota -Nagpur Tenancy Act -The land rights statute that was enacted with the help of the British for prohibiting the transfer of land to non tribals to ensure network ownership.

Objectives of the study

To understand how to improve the system land revenue and other source of income of the state.

government

Research Methodology

This research has been done to know the impact of land revenue on the state Government This research is mainly based on secondary data. For the study, the details are gathered from internet sources like Jharbhoomi, Census 2011, and Land Manual Books.

Land Revenue: Historical Foundations to Modern Dynamics

Land revenue, a fundamental element of economic systems, has an indelible mark on the socio-economic fabric throughout history. The origins of land revenue systems date back to ancient civilizations, where the intrinsic value of land as an economic asset became evident. Ancient Egypt, with its sophisticated taxation system based on agricultural produce, and medieval Europe, operating under feudal systems reliant on agricultural tributes, exemplify early instances of land revenue practices. In India, the Mughal Empire introduced the Zamindari system, decentralizing revenue collection to zamindars or landowners. The British colonial period witnessed the Permanent Settlement of 1793, marking a transformative phase in India's land revenue structure with fixed taxes that often burdened farmers. In the modern era, land revenue adapting to the complexities of contemporary societies. Various models of land revenue systems are deployed seeking to strike a balance between economic sustainability, social equity, and administrative efficiency. In agrarian economies, like India, land revenue is linked to agricultural activities.

Taxes on agricultural income are levied to generate revenue for public expenditure and bolster rural development. As urbanization advances, land revenue extends beyond agriculture. Local governments impose taxes on urban land, factoring in property values and usage. These revenues serve to fund municipal services and infrastructure development. Some jurisdictions adopt the Land Value Tax (LVT) model, taxing the unimproved value of land rather than the total property value. LVT aims to discourage land speculation, encourage efficient land use, and generate revenue for public services. Land revenue includes royalties from the extraction of minerals and natural resources. Resource-rich countries often derive a substantial portion of their income from levies on mining activities. Despite its crucial role, land revenue systems face challenges such as land inequality, valuation discrepancies, and tax evasion. To address these challenges Countries are exploring innovative reforms such as technology integration , equitable land distribution, environmental considerations, progressive tax models etc .The adoption of digital platforms for land records, valuation, and tax collection enhances transparency, reduces corruption, and streamlines administrative processes. Land reforms are underway in some countries to ensure fair and equitable land distribution, promoting social justice and sustainable economic development. Integrating

environmental considerations into land revenue systems, including taxes on environmentally sensitive land use, encourages sustainable practices and conservation. Progressive taxation models, such as the Land Value Tax, aim to address wealth inequality by taxing the unimproved value of land. This approach promotes efficient land use and discourages speculative practices. Land revenue, deeply entrenched in

historical agrarian societies, has evolved into a multifaceted economic instrument with global ramifications. Whether supporting rural agriculture, funding urban development, or sustaining national economies through resource royalties, land revenue remains integral to fiscal policies worldwide. In the 21st century, as nations confront contemporary challenges, innovative reforms and a focus on equity and sustainability will determine the continued relevance of land revenue systems in the dynamic landscapes of the modern world.

CHOTA NAGPUR TENANCY ACT :-

The Chota Nagpur Tenancy Act (CNT Act) stands as a cornerstone in the legal landscape with profound

implications for land tenure and tribal rights. Enacted in 1908 during the British colonial era, the CNT Act was crafted to protect the interests of tribal communities in the face of changing landownership dynamics. The enactment of the CNT Act was a response to colonial attempts to alter established landownership patterns and encroach upon tribal territories. The Act emerged as a protective shield, aiming to secure customary land

rights for the tribal communities against external influences. This Act rigorously prohibits the transfer of tribal land to non-tribals without explicit permission from the Deputy Commissioner. Tribal land is precisely defined, encompassing property owned and occupied by tribal individuals or granted to them under the Act.

Acknowledging the primary occupation of tribal communities as agriculture, the Act imposes restrictions on using agricultural land for non-agricultural purposes. Non-agriculturists are barred from acquiring land for any purpose other than agriculture without prior approval from the Deputy Commissioner. The Act places constraints on non-agriculturists, categorizing individuals or communities whose primary livelihood is not agriculture, preventing them from acquiring tribal land without official permission. The CNT Act provides a robust legal framework that empowers tribal communities to protect their land rights. Violations of the Act can be legally contested, allowing for the redressal of grievances and reinforcing the rule of law but striking a balance between development and conservation remains a key challenge. Striking a harmonious balance between preserving tribal rights and facilitating responsible development is essential. Amendments could be explored to allow for strategic land use changes while safeguarding tribal interests.

SOURCES OF INCOME FOR THE STATE GOVERNMENT

In the 21st century, as states grapple with economic complexities and evolving challenges, innovative reforms and a judicious approach to resource management will continue to shape the financial narratives of state governments, ensuring sustainability in the dynamic landscapes of governance. There are two types of sources of income for state government Tax revenue and Non-tax revenue.

1. TAX REVENUES:-

At the heart of state government finances lies a robust structure of tax revenues, encompassing both direct and indirect taxes.

DIRECT TAXES :- A cornerstone of revenue, both individual and corporate income taxes contribute significantly to state coffers. Operating on a progressive scale, these taxes vary based on income levels. Taxation on corporate profits forms a substantial part of direct tax collections, fuelling state-level initiatives and developmental projects.

INDIRECT TAXES :- A transformative force, GST is levied on the supply of goods and services, consolidating indirect taxes. States receive a share, fostering efficiency and transparency. In specific states, VAT remains applicable on certain goods, bolstering indirect tax revenue.

2. NON-TAX REVENUES :-

Beyond the realm of taxes, state governments diversify their revenue streams through various non-tax sources. Charges for services, licenses, permits, and fines constitute a substantial portion of non-tax revenues. These encompass educational fees, professional licensing charges, and penalties for infringements. Imposing fees for the utilization of public facilities and services, such as tolls on roads and charges for utilities, contributes to non-tax revenue.

3. Financial assistance from the central government, in the form of grants and transfers, provides vital support for state governments. Allocated for specific purposes, central grants fund an array of

initiatives, ranging from infrastructure projects to social welfare programs. The Finance Commission plays a pivotal role in determining fund distribution among states based on diverse criteria.

4. BORROWING :-

To meet the demands of expenditure, particularly for long-term projects, state governments have the authority to borrow funds, albeit within the confines of maintaining fiscal discipline. Issuing bonds and securing loans from financial institutions enables states to finance developmental projects. Repayment is typically managed through future revenues and grants.

5. REVENUE FROM NATURAL RESOURCES :-

States blessed with natural resources derive income from their exploitation, encompassing mining activities, royalties on minerals, and fees for forest resource utilization. A significant source of revenue, mining royalties are levied on companies engaged in mineral extraction, contributing substantially to a state's economic development.

6. DIVIDENDS AND PROFITS :-

Investments in public-sector enterprises and corporations provide an avenue for state governments to garner income through dividends and profits. Profits and dividends earned from state-owned enterprises contribute to the revenue pool, offering financial sustenance.

7. LOTTERY AND GAMBLING REVENUE :-

In certain states, revenue is generated from lotteries and gambling activities, with governments regulating and taxing these pursuits. State-operated lotteries contribute to revenue through ticket sales, with funds often earmarked for specific purposes like education or healthcare.

8. MISCELLANEOUS SOURCES :-

Unique sources of income further diversify the financial portfolio of state governments. Unclaimed assets and properties, if not returned to rightful owners, become a potential source of revenue through escheatment. Selling stakes in state-owned enterprises or assets provides a one-time infusion of funds, contributing to financial stability.

TAX STRUCTURE IN JHARKHAND :- DIRECT TAXES :-

INCOME TAX which is levied on individuals and businesses based on their income. The state receives a share of income tax collections and CORPORATE TAX which is applicable to the profits of corporations operating within the state.

INDIRECT TAXES :-

GOODS AND SERVICES TAX (GST) which is a comprehensive indirect tax levied on the supply of goods and services. It subsumed various indirect taxes, and states get a share of GST revenue.

STATE-SPECIFIC TAXES :-

States may also have their own taxes, such as state excise duty, stamp duty, and registration fees. Jharkhand, like other states in India, adheres to a diverse tax structure encompassing both direct and indirect taxes but there are several factors influence tax collection. The level of economic activities within the state significantly impacts tax revenues. Robust industrial, agricultural, and service sectors contribute to higher tax collections. The presence of industries and mining activities can contribute substantially to tax revenues.

Jharkhand, known for its mineral resources, may generate revenue through mining royalties.

Agriculture plays a vital role in Jharkhand's economy. The state may collect taxes related to agricultural income and other agricultural activities. Tax collection is influenced by government policies, including tax rates, exemptions, and incentives provided to different sectors. Efficient tax administration and high compliance rates contribute to increased tax collections. Measures to curb tax evasion and streamline the tax collection process are crucial. There are various challenges associated with tax collection a significant portion of economic activities in some regions may be informal, making it challenging to bring them into the tax net. The effectiveness of tax collection depends on the administrative capacity of the state. Adequate infrastructure and trained personnel are essential. Measures to tackle tax evasion and promote voluntary compliance are crucial for enhancing tax collections. Economic downturns can impact businesses and individuals, leading to lower incomes and, consequently, reduced tax collections.**Jharkhand revenue receipt as per budget 2023-2024:-**

The total revenue receipt was estimated to be Rs 98,337 crore which increased by 18% over the revised estimate of 2022-23. From this Rs 98,337 crore 49% will be raised by the state through its own resources and 51% will come from centre.

Land revenue is estimated to be Rs 1500 crore and there is 0% change from revised estimate 2022-23 to budget estimate 2023-24.

State GST is estimated to be the largest source of own tax revenue (45% share) which increase by 27% over the revised estimates of 2022-23.

Sales tax/VAT is estimated to be the second largest element of own tax revenue in 2023-24, comprising 28% of Jharkhand's own tax revenue which is estimated to increase significantly, from 2022-23 revised estimates, by 40%. In 2023-24, state excise is estimated to contribute 8% of Jharkhand's own tax Revenue which is increased by 15% increase from 2022-23 revised estimates. However, in 2022-23, state excise is estimated to be 18% lower than budget estimates. The largest component of Jharkhand's own non-tax revenue comes from mining-related receipts. In 2023- 24, the state will receive an estimated Rs 13,441 crore from mineral concession fees, rents and royalties which is estimated 42% higher than revised estimates for 2022- 23. Mineral concession fees, rents and royalties comprise 78% of the state's own non-tax revenue, and 14% of revenue receipts. In 2022-23, all Indian states were estimated to receive 49% of their revenue receipts from their own tax revenue, and only 9% from non-tax revenue. Other states with significant non-tax revenue from mining include Odisha and Chhattisgarh, they earned more than 60% of their non-tax revenue from mining and metallurgical industries since 2015-16.

Exploration of state government Expenditure:-

State governments emerges as a central force, shaping policies, driving development, and meeting the diverse needs of their populations. The heartbeat of a state's fiscal ecosystem resonates in its tax revenues. The budgetary symphony of states orchestrates a delicate balance between capital and revenue expenditures. While capital expenses conduct the rhythm of long-term investments, infrastructure development, and asset creation, revenue expenditures harmonize the daily operational cadence, encompassing salaries and essential services. The allocation of funds across various sectors is akin to a harmonious composition, each sector playing a unique note. Whether it be education, healthcare, infrastructure, or social welfare, discerning the distribution of funds paints a vivid mural of the state's thematic priorities. A significant portion of state expenditures takes center stage in the theater of infrastructure development. Investments in roads, bridges, and public facilities spotlight the state's commitment to laying a robust foundation for sustained economic growth. The spotlight then shifts to the protagonists – education and healthcare. Allocations in these critical sectors serve as a testament to the state's dedication to nurturing human capital. Scrutinizing budgetary provisions in these sectors unveils the state's commitment to fostering a healthy and educated populace. Supporting characters in

the narrative are the allocations for social welfare programs. These funds act as a safety net, uplifting marginalized communities and ensuring a more inclusive development. The execution of projects and programs becomes a pivotal plot point, revealing the effectiveness of a state's governance. This expenditure ensures sustainable development, economic prosperity, and the holistic well-being of their citizens, making the financial narrative a saga of governance in its truest sense.

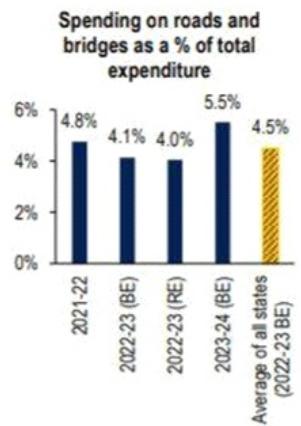
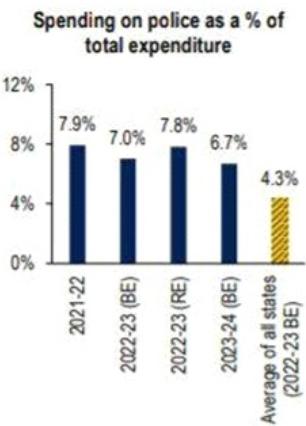
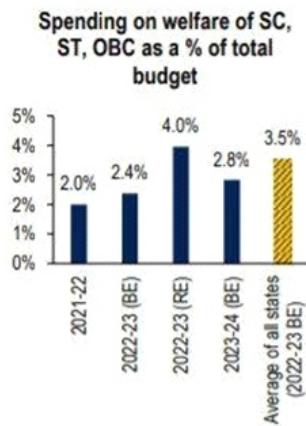
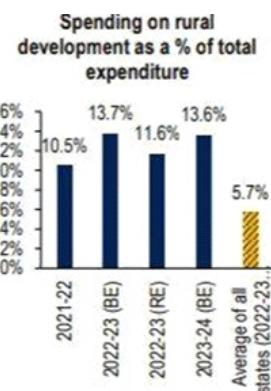
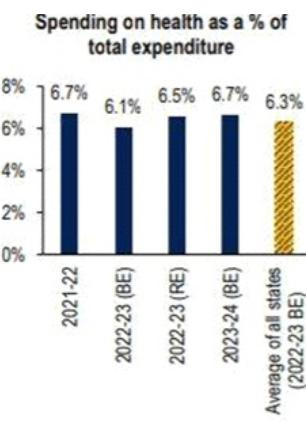
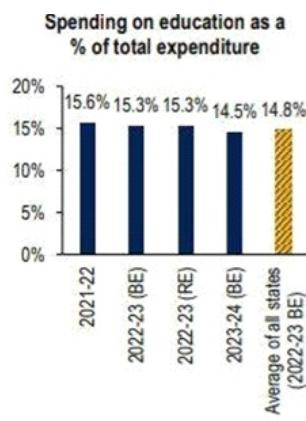
In Jharkhand the budget (2023-24) estimates a revenue surplus of Rs 13,661 crore. In 2022-23, the revenue surplus is expected to be Rs 9,453 crore which increased from the budget estimate of Rs 6,752 crore. As per the 15th Finance Commission recommendations, Jharkhand will not receive any revenue deficit grant in 2024-25 and 2025-26.

As per the revised estimates, in 2022-23, the fiscal deficit of the state is expected to be 2.3% of GSDP, which is lower than the budget estimate of 2.81% of GSDP. Fiscal deficit is projected to be under 3% of GSDP up to 2025-26.

In 2023-24, the fiscal deficit is estimated to be 2.8% of GSDP. For 2023-24, the central government has permitted fiscal deficit of up to 3.5% of GSDP to states, of which 0.5% of GSDP will be available only upon carrying out certain power sector reforms.

At the end of 2023-24, the outstanding liabilities is targeted at 27.0% of GSDP, lower than the budget estimate for 2022-23. The outstanding liabilities have risen significantly as compared to 2019-20 level.

Comparison of state's expenditure on key sectors:-



Note: 2021-22, 2022-23 (BE), 2022-23 (RE), and 2023-24 (BE) figures are for Jharkhand.
Sources: Annual Financial Statement, Jharkhand Budget 2023-24; various state budgets; PRS.

As per budget 2023-24 Jharkhand has allocated 14.5% of its expenditure on education, 6.7% of its total expenditure towards health, 13.6% of its expenditure on rural development, 2.8% of its total expenditure on welfare of Scheduled caste and Scheduled tribes and other backward classes, 6.7% of its total expenditure towards police, 5.5% of its total expenditure towards roads and bridges.

In 2022-23 Jharkhand has allocated 14.8% of its total expenditure on education, 6.3% of its total expenditure on health, 5.7% of its total expenditure on rural development, 3.5% of its total expenditure on welfare of scheduled tribes, Scheduled castes, other backward classes, 4.3% of its total expenditure on police, 4.5% of its total expenditure towards roads and bridges.

JHARKHAND RESOURCE PARADOX :-

Jharkhand stands as a reservoir of natural wealth, offering a diverse array of resources. The subterranean treasures include coal, iron ore, bauxite, and limestone, catapulting the state into a prominent position in the mining industry. Dense forests, teeming with diverse flora and fauna, and rivers contributing to water resources for agriculture and industry further characterize Jharkhand's natural endowment. The extraction and utilization of these resources should have propelled Jharkhand into a hub of economic development but there are various challenges associated with this like monoculture of mining as the state's economic landscape is dominated by mining activities, particularly in coal and iron ore. This singular focus renders Jharkhand susceptible to fluctuations in global commodity prices, leaving its economic foundation exposed to volatility. Large-scale mining projects have resulted in the displacement of indigenous communities. The loss of ancestral lands and livelihoods has given rise to social unrest and heightened tensions. The environmental degradation and pollution associated with mining operations have translated into severe health issues for local populations. Respiratory problems, water-borne diseases, and other health challenges have become prevalent. Despite being the original inhabitants of the land, Adivasi communities often find themselves marginalized. Challenges in participating in decision-making processes related to resource utilization exacerbate social inequalities. The resource-centric economic model has not fostered inclusive development. Basic amenities and infrastructure in many parts of the state remain inadequate.

Jharkhand's nomenclature as a resource curse state epitomizes a complex interplay of historical, economic, social, and governance factors. Despite being bestowed with abundant natural resources, the state has grappled to harness these assets for sustainable and inclusive development. Escaping the resource curse entails a holistic approach that addresses environmental concerns, social disparities, and governance challenges. Only through concerted efforts and visionary policies can Jharkhand transform its resource wealth into a catalyst for comprehensive and equitable development.

Scope for improvement in revenue system :-

Transforming and fortifying a state's revenue systems requires a strategic and proactive approach. Delving into comprehensive reforms and embracing innovation can pave the way for a resilient and dynamic financial foundation. Eliminate unnecessary exemptions and introduce measures to broaden the tax base, ensuring fairness in distribution. Implement real-time data reporting and analysis to enhance decision-making and detect potential areas of revenue leakage promptly. Foster entrepreneurial ecosystems and support industries with high growth potential to naturally expand the tax base. Prioritize sectors with high economic impact and potential for job creation, thus contributing organically to increased tax revenues.

Utilize GIS (Geographic Information System) and advanced analytics for accurate property assessments and efficient tax collection. Review and optimize user charges and fees for government services, ensuring they align with actual service costs. Leverage digital platforms and community engagement initiatives to create a culture of voluntary tax compliance. Introduce incentives for voluntary tax compliance, such as discounts for early payments or loyalty programs. Establish responsive and user-friendly channels for addressing taxpayer concerns and providing real-time support. Collaborate with international organizations and share insights to continuously improve revenue administration. Foster an agile mindset, conducting regular reviews of the revenue system and adapting strategies to align with emerging economic trends and technological advancements. This proactive and transformative approach aims not only to revitalize state revenue systems but to position them as agile, adaptive,

and responsive to the ever-evolving challenges and opportunities in the economic landscape.

Scope for improvement in expenditure system :-

Optimizing state government expenditure is a multifaceted endeavor that demands a strategic approach focused on efficiency, transparency, and innovation. Embrace a results-oriented budgeting approach that aligns expenditures with the state's overarching goals and priorities. Establish a robust system for performance monitoring and evaluation to gauge the impact of government programs. Integrate cutting-edge digital procurement systems to streamline operations, reduce bureaucratic hurdles, and minimize corruption risks. Integrate advanced technologies for financial management, including state-of-the-art tools for budget tracking, accounting, and real-time reporting. Transition to an outcome-based management approach, ensuring that expenditures are directly tied to specific, measurable results. Align spending decisions with the state's broader vision, fostering a more impactful and goal-oriented financial strategy. Identify and prioritize key sectors such as education, healthcare, and infrastructure based on their impact on societal well-being. Implement PPPs for projects where private sector involvement can enhance outcomes without compromising public interests. Prioritize continuous training and development for government employees, empowering them with enhanced financial management skills. Regularly monitor existing debts to prevent unnecessary interest payments and maintain fiscal sustainability. Enhance communication about budget decisions and expenditure plans to foster transparency. Actively engage citizens in the budgeting process, seeking input and creating a sense of shared responsibility. Continuously benchmark state expenditure practices against international best practices. Stay informed about innovative strategies and successful models implemented globally to foster a culture of continuous improvement. By following this revitalized blueprint, a state government can position itself for enhanced efficiency and innovation in expenditure management, ensuring that public resources are strategically allocated to foster meaningful and sustainable development.

CONCLUSION:-

Efficient tax collection is the cornerstone of economic stability and government functionality. To achieve sustainable revenue growth, a comprehensive strategy is essential, focusing on innovation, fairness, and administrative effectiveness. By adopting various strategies like data driven decision making, technology integration, simplification of tax codes, progressive taxation policies, public awareness campaigns, incentivizing voluntary compliance, capacity building, international cooperation, strategic tax audits, public private partnerships, taxpayer education programs, digitalization of tax records, reward systems for tax collectors, review and update tax laws, whistleblower programs, efficient dispute resolution, geospatial technology integration, cross-department collaboration, dynamic tax policy responses, social responsibility initiatives, review tax exemptions and incentives, encourage electronic payment methods and continuous monitoring and evaluation. Incorporating these strategies into a cohesive and adaptive tax collection framework can foster sustained revenue growth, ensuring the financial stability needed for effective governance and societal progress.

REFERENCES

1. World Bank, 2004, "Global Monitoring Report 2004, Policies and Actions for achieving the MDGs and Related Outcomes" (Washington: World Bank)
2. "Munro and the Ryotwari Settlement in Madras, 1820-27", in R. C. Dutt, The Economic History of India Under Early British Rule
3. Tiwari, P. (2017). Assessing Factors Affecting Revenue Management in Public Sector: The Case of Halaba Special Woreda Town Administration Ethiopia (SNNPR). IRA-International Journal of Management & Social Sciences (ISSN 2455-2267), 6(2), 188-234.
4. IMF (2011). "Revenue Mobilization in Developing Countries." Fiscal Affairs Department
5. Handbook of Statistics on State Government Finances-2010' and 'State Finances: A Study of Budgets', Reserve Bank of India, various issues.
6. THE CONSTITUTION OF INDIA Act of 26 November 1949
7. Distribution of Powers between Centre, States and Local Governments archived from the original on 11 June 2007, retrieved 18 April 2009

8. <https://theindianlaw.in/land-tenure-system-in-ancient-india/>
9. <https://theindianlaw.in/land-tenure-system-in-medieval-india/>
10. Bipin Chandra, Mridula Mukherjee and Aditya Mukherjee (1999). India After Independence:1947–2000. New Delhi: Penguin Books.
11. <https://www.worldbank.org/en/topic/taxes-and-government-revenue>
12. <https://www.fao.org/3/y5026e/y5026e0b.htm>
13. Government of India, Planning Commission (1956). Second Five-Year Plan, New Delhi.
14. Thimmaiah G., and Abdul Aziz (1984). The Political Economy of Land Reforms. New Delhi: Asish Publishing House.

Cooperative Banks: Building Rural India

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Abstract

Cooperative banks have been playing a crucial role in the economic development of rural India by providing financial services to the unbanked and underbanked population, particularly farmers and small businesses. Co-operatives continue to be the single most important institutions, which touch the life of villagers and rural farmers, the most. Over the years, the number of cooperative banks in India has increased and as of March 2022, the number stood at 1,05,074, comprising of 1514 Urban cooperatives and 1,03,560 rural cooperatives. According to a report, Banks and cooperatives have disbursed Rs.17.09 lakh crore worth of agriculture credit during 2021-22 against a target of Rs.16.5 lakh crore, making cooperatives instrumental in helping farmers and small businesses in rural India to invest in their livelihoods and improve their standard of living. The government of India has also been promoting the use of cooperative banks as a means of achieving financial inclusion and making rural India Atmanirbhar (Self-Reliant) through various schemes such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Pradhan Mantri Fasal Bima Yojana (PMFBY). One of the significant functions of cooperative banks in India is the disbursement of loans to the priority sector, which includes agriculture, small-scale industries, and other marginalized sections of society. In this article, loan disbursement to the priority sector by cooperative banks in India has been studied. This journal tries to explore the role of cooperative banks in strengthening rural India and the challenges they face in achieving this goal.

Keywords: Cooperative Bank, Atmanirbhar Bharat, Financial Inclusion, Rural India

Introduction:

Cooperative Banks

“Cooperatives are a reminder to the International community that it is possible to pursue both economic viability and social responsibility.” **Ban ki Moon**

Cooperative banks have played a vital role in the economic development of rural India. These banks, also known as cooperative credit societies, are owned and controlled by their members, who are also borrowers. The Reserve Bank of India (RBI) defines a cooperative bank as a "*banking company in which the paid-up capital and reserves are held by the co-operative society and which carries on the business of banking for the benefit of its members.*" Broadly, the cooperative structure in India is divided into two segments. Urban Cooperative Banks (UCBs) work in Urban areas while Rural Cooperatives work in Rural area. Cooperative banks in India are governed by the Reserve Bank of India (RBI) Act, 1934, and the Cooperative Societies Act, 1912. These banks provide a range of services including savings and deposit accounts, short-term and long-term credit, and insurance. They also provide services such as money transfers, pension schemes, and micro-credit to the rural population. According to the Reserve Bank of India (RBI) development report, as of March 2010, there were 98,425 cooperative banks in India, comprising 1675 UCBs and 96,751 Rural Cooperatives while at the end of March 2022, there were 98,042 cooperatives, consisting of 1534 UCBs and 96,508 Rural Cooperatives

showing a decline in the number of cooperatives working in India. According to a study by the NABARD (National Bank for Agriculture and Rural Development), as of March 2010, cooperative banks had a network of 1,35,622 branches and served over 8 crores (80 million) customers in rural and semi-urban areas (NABARD, 2010). Over the years, the network of branches of cooperative banks has increased and as of March 2020, the number stood at 1,62,922 branches, serving over 9 crores (90 million) customers in rural and semi-urban areas (NABARD, 2020). This highlights the importance of cooperative banks in providing financial services to the unbanked and underbanked population of rural India, particularly farmers and small businesses.

State of the Art:

Shri Anand Sinha, Deputy Governor, RBI at the international conference on 'Perspective on Co-operation' said that cooperatives play an important role in poverty reduction. Cooperative institutions are built on the principles of self-help and mutual cooperation as they enable inclusive growth by involving even less privileged, engaged in basic banking.¹

Rural credit cooperatives in India were originally envisaged as a mechanism for pooling the resources of people with small means and providing them access to cheap and cost-effective financial services.²

The Impact of Cooperative Banks on Financial Inclusion in India: A Study of Gujarat State by Dr. B.B. Gohil and Dr. S.K. Dey: This study examines the role of cooperative banks in promoting financial inclusion in the state of Gujarat. The findings indicate that cooperative banks have played a significant role in promoting financial inclusion, especially in the rural areas of the state.⁴ Loan Disbursement of Cooperative Banks in India: A Study of Tamil Nadu by M. Murugan and Dr. R. Chandrasekaran: This study analyses the loan disbursement of cooperative banks in Tamil Nadu and examines the factors affecting their loan disbursement. The study found that factors such as non-performing assets, competition from other financial institutions, and government policies have a significant impact on the loan disbursement of cooperative banks in the state.⁵ The Role of Cooperative Banks in the Development of Agriculture in India by R. Sridhar and P. Prakash: This study explores the role of cooperative banks in the development of agriculture in India. The findings suggest that cooperative banks have played a significant role in providing credit to the agriculture sector, which has helped in increasing agricultural productivity and rural incomes⁶. Impact of Financial Inclusion on the Growth of Cooperative Banks in India by V. Chitra and Dr. M. Ravi: This study examines the impact of financial inclusion on the growth of cooperative banks in India. The findings suggest that financial inclusion has a positive impact on the growth of cooperative banks, especially in terms of their loan portfolio and profitability.⁷ Cooperative Banks and Rural Development in India: A Study of Karnataka by Dr. H.R. Shankar Narayana and Dr. S. Ravi: This study investigates the role of cooperative banks in rural development in the state of Karnataka. The study found that cooperative banks have played a significant role in providing credit to the rural areas, which has helped in promoting rural development and reducing poverty.⁸

Objectives

- To study the Priority sector lending of Cooperative Banks from 2018-22.
- To find the growth in the lending pattern of Agriculture, Micro & Small enterprises, Housing loans, and Education loans.
- Role of Cooperative Banks in Strengthening Rural India.
- To identify the challenges of Cooperative Banks.

Methodology

The study attempts to find the lending of Urban Cooperative Banks in the priority sector by evaluating the priority sector lending of urban cooperative banks from the year 2018-22. Data has been collected from the official website of RBI and report published on the Development of Cooperative Banks by RBI. Growth in lending of urban cooperative banks has been studied.

Loan disbursement to the priority sector by cooperative banks in India

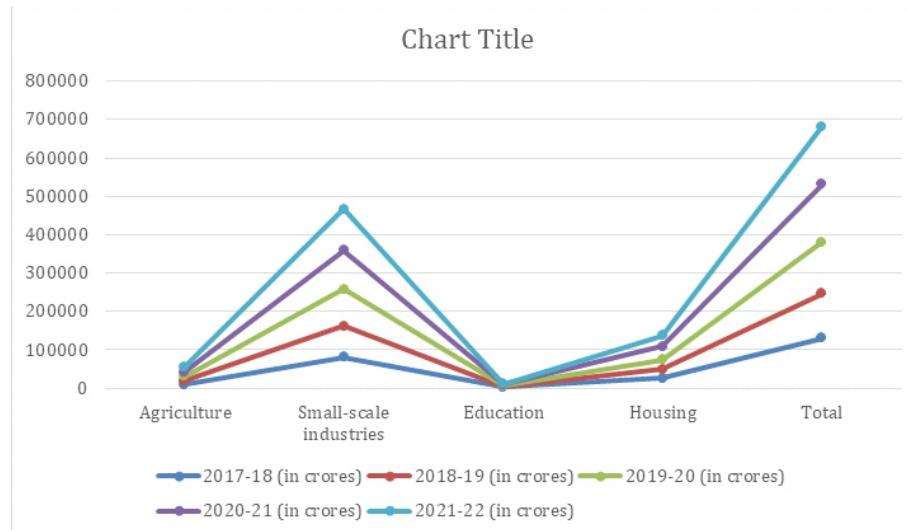
It is worth mentioning that the Reserve Bank of India (RBI) has mandated that all banks, including cooperative banks, should disburse at least 40% of their total loans to the priority sector. The objective of this mandate is to provide easy and affordable credit to the marginalized sections of society and to promote the development of the priority sectors. Cooperative banks play a crucial role in achieving this objective as they are present in rural areas and have a better understanding of the credit requirements of the rural population.

Let us now look at the loan disbursement to the priority sector by cooperative banks in India from 2018 to 2022.

Table 1: Loan Disbursement to the Priority Sector by Cooperative Banks in India (from 2018 to 2022)

Category	2017-18 (in crores)	2018-19 (in crores)	2019-20 (in crores)	2020-21 (in crores)	2021-22 (in crores)
Agriculture	9,400	9,803	11,716	12,245	13,213
Small-scale industries	81,200	81,387	95,102	1,01,340	1,07,847
Education	2,400	1,910	2,434	2,374	2,629
Housing	26500	22,721	25,359	35,211	26,803
Total	130,600	115,821	134,611	151,170	150,492

Table 1 shows the loan disbursement to various categories of the priority sector by cooperative banks in India from 2018 to 2022. As we can see from the table, the loan disbursement to the priority sector by cooperative banks has been increasing over the years. Agriculture has the highest share of loan



disbursement, followed by small-scale industries. Education, housing have a relatively smaller share of loan disbursement.

Table 2: Percentage of Loan Disbursement to the Priority Sector by Cooperative Banks in India (from 2018 to 2022)

Sector	Priority Sector				
	Percentage Share in total advances				
	2018	2019	2020	2021	2022
Agriculture Credit	3.4	3.2	3.8	3.9	4.2
Micro & Small Enterprises	29	26.9	31.1	32.4	34.3
Education Loans	0.9	0.6	0.8	0.8	0.8
Housing Loans	9.4	7.5	8.3	8.1	8.5
Advances to Weaker Section	11.1	9.3	11.7	10.7	11.1

If we compare the loan disbursement by Urban Cooperative banks under different heads, it has been found that MSMEs have received the maximum amount of loan during the study period. There is a need to focus more on agriculture and education as the percentage of loans issued to these sectors is still very less or even growing at a very slow rate but still credit provided by the cooperative banks has been instrumental in helping farmers and small businesses in rural India to invest in their livelihoods and improve their standard of living. The government of India has been promoting the use of cooperative banks as a means of achieving financial inclusion and making rural India Atmanirbhar through various schemes such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Pradhan Mantri Fasal Bima Yojana (PMFBY). The PMJDY was launched in 2014 and aimed to provide universal access to banking facilities. As per the data from January 2021, over 38 crores (380 million) accounts were opened under this scheme (RBI, 2021). The PMFBY is a crop insurance scheme for farmers and it was launched in 2016. The scheme aims to provide financial protection to farmers against crop loss due to natural calamities, pests, and diseases. Cooperative banks have been particularly important for farmers and small businesses in rural India. According to a study by the NABARD, as of March 2010, cooperative banks had disbursed over Rs. 1.1 lakh crore (1100 billion) in agricultural credit and over Rs. 75,000 crores (750 billion) in non-agricultural credit (NABARD, 2010). Over the years, the disbursement of credit by cooperative banks has increased and as of March 2020, the number stood at over Rs. 1.4 lakh crore (1400 billion) in agricultural credit and over Rs. 1.2 lakh crore (1200 billion) in non-agricultural credit (NABARD, 2020).

Role of Cooperative Bank in Strengthening Rural India

Cooperative banks have been playing a significant role in strengthening the rural population of India. These banks are owned and controlled by the members who use their services, and they serve as a reliable source of credit and financial support for the rural population. Here are some of the ways in which cooperative banks have been contributing to the development of rural India:

Providing Access to Credit: One of the significant challenges faced by rural communities is limited

access to credit. Cooperative banks provide credit facilities to farmers, small businesses, and self-help groups at reasonable interest rates, which are often lower than those offered by commercial banks. This helps the rural population to start and expand their businesses and improve their standard of living.

Promoting Savings: Cooperative banks encourage rural communities to save their money and promote a culture of thrift. They offer savings accounts with attractive interest rates, which helps in mobilizing savings in rural areas. The savings collected by cooperative banks are then used for lending to members, which helps in creating a self-sustaining financial ecosystem in rural India.

Providing Financial Literacy: Cooperative banks provide financial literacy to their members, which helps in creating awareness about the importance of savings, credit, and other financial services. They educate rural communities about the benefits of financial planning, investment, and management of their finances, which helps in creating a financially literate rural population.

Encouraging Entrepreneurship: Cooperative banks provide credit facilities to rural entrepreneurs who want to start their own businesses. This helps in creating employment opportunities in rural areas, reducing rural-urban migration, and promoting sustainable economic growth.

Supporting Agriculture: Cooperative banks provide credit facilities to farmers for crop cultivation, livestock rearing, and other agricultural activities. They also offer technical assistance and training programs to farmers, which helps in improving the productivity and quality of agricultural produce. This helps in promoting rural development and reducing poverty in rural areas.

Challenges

Despite the progress made by cooperative banks in providing financial services to rural India, there are still a number of challenges they face in achieving financial inclusion.

Limited Capital: Cooperative banks have limited capital compared to commercial banks, which limits their ability to expand their operations and increase their lending capacity. The lack of adequate capital also restricts their ability to adopt new technologies and modernize their operations.

Weak Governance and Management: The governance and management of cooperative banks also need improvement. As per the RBI data, as of March 2020, out of the 1,54,743 cooperative banks, 6,823 were under liquidation or in the process of liquidation. This highlights the need for effective governance and management of these banks to ensure their sustainability. The lack of professional management and accountability often leads to poor decision-making and mismanagement of funds. This can result in a loss of public confidence and trust in the cooperative banking system.

Non-Performing Assets (NPAs): Cooperative banks in India are also grappling with the problem of non-performing assets (NPAs). NPAs are loans that are not repaid on time or are defaulted by the borrowers. The high level of NPAs in the cooperative banking sector affects the financial health of these banks and limits their ability to lend to new borrowers.

Regulatory Challenges: The regulatory framework for cooperative banks in India is complex and fragmented, which creates regulatory challenges for these banks. The regulatory burden often leads to compliance costs that are disproportionate to the size and scale of cooperative banks.

Limited Access to Technology: Many cooperative banks in India lack access to modern technology

and digital platforms. Cooperative banks, particularly in rural areas, still rely on traditional methods of banking such as manual record-keeping and cash transactions. This makes it difficult for these banks to provide modern banking services such as internet banking and mobile banking, which are increasingly in demand.

Competition from Commercial Banks: Cooperative banks face intense competition from commercial banks that have a more significant presence and offer a wider range of financial products and services. The competition often leads to a loss of market share for cooperative banks and limits their growth prospects.

Conclusion

In conclusion, cooperative banks have played a vital role in providing financial services to the unbanked and underbanked population of rural India. However, to make it successful in true sense, it is important that the challenges faced by cooperative banks such as limited reach, limited technological capabilities, and governance issues are addressed. In order to address these challenges, it is important that the government and other stakeholders continue to support the growth and development of cooperative banks. This can be done by increasing the reach of cooperative banks in rural areas through the opening of more branches, providing financial assistance for the modernization of technology and infrastructure, and implementing stricter governance and management standards for cooperative banks. Additionally, the government should also focus on providing training and capacity building for the staff of cooperative banks to improve their knowledge and skills in providing modern banking services.

References:

1. Anand Sinha(2012),Perspective on cooperation, Cooperative enterprises a better world.
2. Dr. Deepali Pant Joshi(2014), National Meet of state cooperative banks.
3. Dr. Satyajeet S Deshpande(2017) GROWTH OF COOPERATIVES IN INDIA, GAP INTERDISCIPLINARITIES
4. Gohil, B.B. & Dey, S.K. (2017). The Impact of Cooperative Banks on Financial Inclusion in India: A Study of Gujarat State. International Journal of Marketing, Financial Services & Management Research, 6(12), 96-103.
5. Murugan, M. & Chandrasekaran, R. (2019). Loan Disbursement of Cooperative Banks in India: A Study of Tamil Nadu. International Journal of Research in Finance and Marketing, 9(1), 1-14.
6. Sridhar, R. & Prakash, P. (2015). The Role of Cooperative Banks in the Development of Agriculture in India. International Journal of Economics and Financial Issues, 5(1), 171-178.
7. Chitra, V. & Ravi, M. (2019). Impact of Financial Inclusion on the Growth of Cooperative Banks in India. Journal of Commerce and Accounting Research, 8(2), 1-9.
8. Narayana, H.R.S. & Ravi, S. (2016). Cooperative Banks and Rural Development in India: A Study of Karnataka. International Journal of Economic Research, 13(2), 605-613.
9. Report on Development of Cooperative Banks in India by RBI

How Microfinance Helps in Rural Development

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Abstract

Microfinance is a tool, not a financial system, that helps reduce poverty and bring about social change. It especially improves the position of women in our nation, enabling them to become self-sufficient. There are currently 268 significant microfinance organizations in India that provide small loans to individuals in order to lift them out of poverty. The conceptual underpinning of Indian microfinance organizations is described in this research. The study tried to identify how microfinance contributed to the growth of the rural era. Through an analysis of microfinance programs, the function of microfinance in rural development is being brought to light. The study comes to the conclusion that the weaker segments of the Indian economy are in desperate need of credit-earning money lending techniques. Thus, microfinance initiatives should play a significant role in addressing the needs of the underprivileged and raising their standard of living, both of which promote economic growth.

Keywords: *Microfinance, Microinsurance, Microcredit, Microloan, Initiative, Future scope, Issues, Growth and Expansion.*

INTRODUCTION

Rural communities confront enormous obstacles in their pursuit of sustainable development and economic prosperity, as they are frequently typified by restricted access to mainstream financial institutions. With its ability to provide financial services specifically designed to meet the requirements of rural communities, microfinance has become a potent instrument in the fight against this inequality in recent years. This study investigates how microfinance promotes rural development and looks at how it affects women's empowerment, poverty reduction, and the general socioeconomic environment. Our goal as we explore the complex web of microfinance interventions is to identify the processes by which modest financial projects support rural communities' empowerment. This study aims to shed light on the transformative potential of microfinance in driving rural economies towards resilience and self-sufficiency by examining the dynamics of microcredit, analysing financial inclusion techniques, and deconstructing case examples.

With this investigation, we hope to learn more about the complex aspects of microfinance as well as the

underlying causes that affect its efficacy in various rural environments. We want to offer insights that can influence policy, direct practitioners, and contribute to the continuing conversation on utilizing financial tools for sustainable rural development by critically analysing success stories and recognizing obstacles.

LITERATURE REVIEW

Vani Kamath (2010) presented the following issues in her thesis, "Finding usage in access to banking and scope for microfinance in Gulbarga District, Karnataka: A study of Financial Inclusion on Below Poverty Line Families." The lack of understanding among rural households and financial inclusion are two very different things. The financial inclusion of a community and institutional bank carelessness are very different. Household attitudes regarding official and informal sources of finance varied significantly. The two things—having access to and using a savings account—are very different. Household attitudes of chit funds and self-help group savings are not very different.

According to Aminu Sulemana and Samuel Appiah Adjei (2015), microfinance significantly contributed to the rise in agricultural output. It was also discovered that, in spite of the unfathomable demand for agricultural loans, players in the field face difficulties such a deficiency of knowledge regarding the loan acquisition procedure and a lack of collateral securities. The study's main conclusions led to the following recommendations being made.

Renu Mehta Soni and Dr. Sangita Bharuka (2015), One of the main conclusions drawn from this research is that, when used as a crucial component of programs aimed at reducing poverty, microfinance can help address the issue of inadequate housing and rural services. In the long run, it would be great to raise the impoverished people's creditworthiness, increase their bankability, and make it possible for them to meet the criteria for long-term financing from the official sector.

According to Ravikumar (2016), "Contribution of Microfinance in empowering the women entrepreneurs in Gulbarga city," women entrepreneurs have benefited from the dynamic guidance and support of microfinance institutions in various aspects of their business operations and social status. If women entrepreneurs continue to receive the proper guidance and training, this will undoubtedly increase the profitability of their enterprises and ensure a bright and prosperous future.

Vani Kamath (2017) and Dr. Roopali Patil (2017) To put it briefly, microfinance serves as a bridge between the formal institutional network and the poor in order to bridge the gap by providing small loans to the underprivileged. It also aims to address the shortcomings and failures of the current financial institutions and development programs.

OBJECTIVE OF MICROFINANCE

- To understand how microfinance affects rural development.
- To understand how rural development and microfinance are related.
- To study about the importance of microfinance for the rural development.

RESEARCH METHODOLOGY

This descriptive analysis draws upon secondary data from a variety of official publications issued by the Indian government in addition to reports from Indian banks, public and private sector organizations, and other sources.

Journal publications, Article kinds include industry practitioner papers and policy reports. that were used in the review. Article selection was carried out by hand. A thorough search was carried out on Google Scholar by utilizing both article abstract and body searches. This strategy was chosen with the understanding that the dominating micro finance keywords from the article search would be present in both the abstract and the body of the article. Articles from theses and dissertations were not included in

the review. A follow-up Google search was done to retrieve helpful policy reports and practitioner white papers.

MICROFINANCE DEFINITION:-

In the context of rural development, microfinance is a complex financial approach meant to tackle the particular financial difficulties that people in impoverished and frequently economically disadvantaged rural areas encounter. Fundamentally, microfinance is a collection of financial services designed to meet the unique requirements of small-scale business owners, farmers, and those without access to regular banking institutions.

The fundamental component of microfinance is the availability of small loans, which are usually distinguished by their low monetary value. These loans, which are also known as microcredit, work as stimulants to start or grow small enterprises, farms, or other revenue-producing endeavors in rural areas. In addition to lending, microfinance comprises a variety of financial instruments, including insurance, remittance services, and savings accounts. These tools are all intended to increase financial inclusion and provide people the ability to overcome financial obstacles.

Microfinance is distinguished by its focus on inclusivity, which extends its reach to underprivileged groups, particularly women, in addition to people. Microfinance projects actively encourage women's engagement in economic activities because they recognize the transforming impact on gender dynamics. Microfinance facilitates women's empowerment by equipping them with financial resources and promoting entrepreneurial skills. This allows women to take on leadership roles, make well-informed financial decisions, and initiate good changes in their communities.

TYPES OF MICROFINANCES

Microfinance services come in a variety of forms, each intended to meet certain financial needs of the intended clientele. These are a few typical kinds:

➤ **Microcredit:**

Microcredit is the process of giving small loans to people, especially company owners, in order to assist them in launching or growing their enterprises. These loans are frequently utilized for ventures that generate revenue.

➤ **Micro savings:**

Providing basic savings services to people who might not have access to traditional banks is known as micro savings. It gives people a secure location to save their money and promotes a culture of saving.

➤ **Microinsurance:**

Microinsurance offers insurance plans designed to meet the requirements of those with modest incomes. This could involve crop insurance, health insurance, or other types of risk-specific coverage.

➤ **Remittances and payment services:**

Some microfinance organizations provide services for payments and remittances, making it easier for people to send money to one another and offering a safe environment for financial transactions.

➤ **Microleasing:**

Offering productive assets, like machinery or equipment, through lease agreements is known as microleasing. Users are able to utilize resources without having to pay for them up front.

MICROFINANCE SECTOR IN INDIA

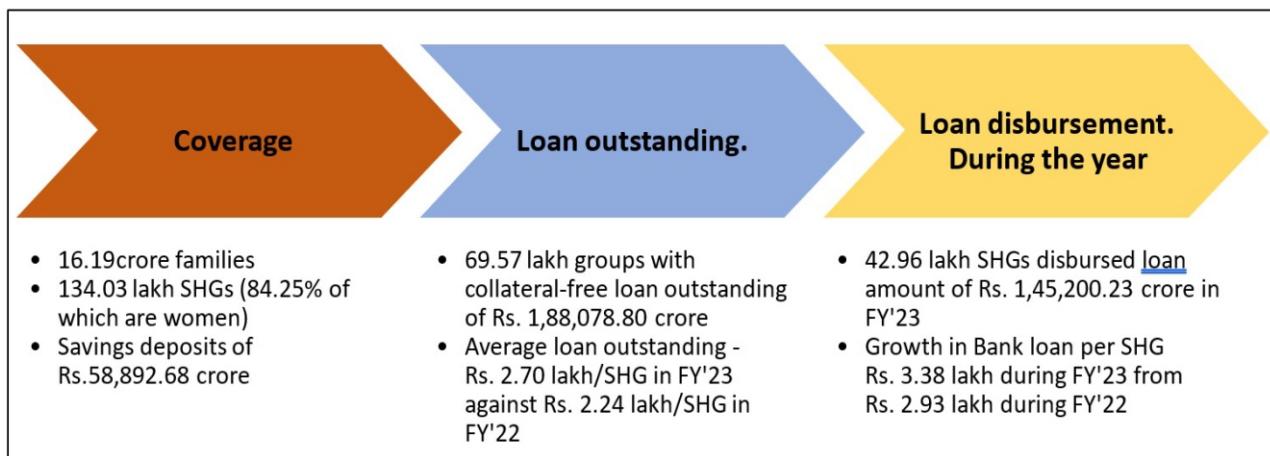
Microfinance stands as one of the most promising and cost-effective tools in the fight against global poverty.

— Jonathan Morduch

About 100 million rural households have seen an increase in income throughout the course of microfinance's three-decade history, making it a means of improving lives. Regulations and governmental interventions have aided in the sector's growth, providing direction for its expansion.

In FY 2022–2023, the first full year after the COVID-19 pandemic, the microfinance sector enjoyed development and stabilization, much like other economic sectors. 16.19 crore rural households were covered by the SHG-BLP as of March 31, 2023. 134.03 lakh SHGs held savings associated with the banking industry, amounting to Rs. 58,892.67 crore, an increase of 13% and 25% over the previous year. Among these, 112.92 lakh Self-Help Groups (SHGs) with a total savings of Rs. 52,455.48 crore were run entirely by women, making up 84% and 89% of all SHGs and savings, respectively.

As of March 31, 2023, 69.57 lakh SHG owed banks a total of Rs. 188,078.80 crore; nevertheless, the credit deficit widened to 48.09% in FY 2023–24 from 43.33% in FY 2022–23.



Source- Status of Microfinance (G-20) Report 2022-23.

The primary cause of the development in the credit gap was the inability of the SHGs with outstanding loans (3.2%) to keep up with the growth in savings linkage. This emphasizes the necessity of expanding and deepening the microfinance system, especially to areas and pockets with greater potential for growth.

The principal factor contributing to the widening credit gap was the SHGs' (3.2%) incapacity to maintain pace with the expansion of savings linkages while still having outstanding loans. This demonstrates the necessity of expanding and deepening the microfinance system, especially to areas and locations with more economic potential.

With the great potential that digital marketing and e-commerce platforms offer to improve demand-side dynamics, open direct B2C and B2B channels, improve price discovery and incomes for SHGs and JLGs, and strengthen forward linkages, NABARD launched a program in 2022–2023 to help microentrepreneurs, POs, JLGs, and SHGs sell their products online with the support of industry players.

In India, MFIs are a significant player in the distribution of small loans, particularly to underprivileged groups who lack collateral. Their contributions to the nation's financial inclusion agenda are enormous. The microfinance industry is highly heterogeneous, with a wide range of companies operating under different legislative frameworks. It encompasses Banks, SFBs, NBFCs, NBFC-MFIs, and Non-Profit MFIs.

MICROFINANACE AND POVERTY REDUCTION FOR RURAL DEVELOPMENT IN INDIA:

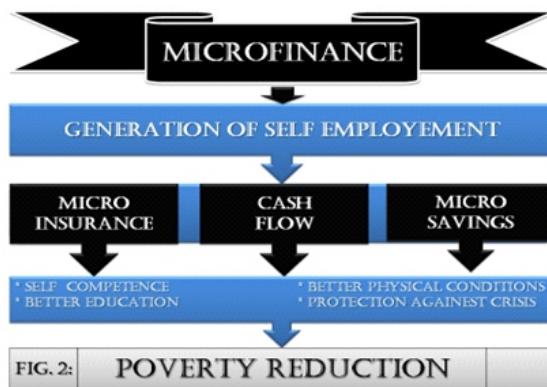
More than 25% of people in India live below the poverty level. According to the World Bank, there are between 260 and 290 million impoverished people residing in India; If the percentage of people who

live on less than \$1 USD per day is considered poverty. In India, 133 million people—mostly in the three states of Uttar Pradesh, Bihar, and Madhya Pradesh—live in poverty. The growing disparity between urban and rural areas supports the assertion that three-fourths of India's impoverished reside in rural areas.

Microfinance institutions focus on one facet of poverty reduction: improving rural livelihoods. The majority of the impoverished manage resources over time to build their homes and businesses. Financial services could speed up the process of assembling incomes, assets, and economic security by empowering the impoverished to take the initiative.

Low-income families and households headed by women seldom receive loans from traditional financial institutions. Regardless of size, the income of a large number of self-employed households is unstable. To help the impoverished, a lot of little loans are required, but bankers would rather deal with big loans in tiny quantities in order to save money on administration. They also search for assurance, which is something that many low-income homes lack.

The underprivileged can, however, repay their debts and use the revenues to increase their assets and income if they are given timely and attentive financial services at market rates, as demonstrated by the past ten years' successful experiences lending money to small business owners and producers.



Source- Google

MICROFINANCE AND SELF-HELP GROUPS (SGHs) FOR RURAL DEVELOPMENT:

Microfinance India uses the Grameen system and the self-help group method as its two common approaches. An unofficial group with ten to twenty members is called a SHG. The SHG's members are united with the express intent of supporting its members' access to credit and savings services. Members' pooling of resources to establish a common fund makes this possible. The goal of SHGs' social involvement and procedure is to empower members by giving them the tools they need to eventually run and administer SHGs independently, giving them more freedom to make financial decisions and to participate in broader social activities. SHG meetings are scheduled to occur at a specified time and on a regular basis.

Members of the group are selected based on their shared socioeconomic background and are expected to participate and contribute equally. The groups are led by one lead member at a time; this role is frequently rotated to allow for capacity building for all members. All financial transactions, group decisions, and activities are accurately and precisely documented, and meetings are well-organized and precise. In order to gain access to more financial support, Self-Help Groups (SHGs) are urged to create connections with other SHGs and eventually financial institutions.

MICROFINANCE AND WOMEN EMPOWERMENT FOR RURAL DEVELOPMENT:

Women play a vital role in society. Women play a very small part in economic activity and decision-making. Microfinance programs are essential for boosting women's involvement in the economy and decision-making. In order to handle microfinancial activities, the number of organizations known as

Microfinance Institutions (MFIs) has significantly increased. The MFIs in India have both great potential and challenges in the field of microfinance due to the growing demand for financing in rural areas and the scarcity of institutional sources. 85–95% of members of self-help groups (SHGs) in India are women. This is because women are accustomed to handling money, which makes them prompt, dependable, and trustworthy savers. Women's empowerment is also crucial to achieving many development objectives.

Women's empowerment is crucial to the objective of ending poverty since they contribute significantly to the economy and the fight against poverty through paid and unpaid labor at home, in the community, and at work. SHGs are recognized as a successful means of empowering women.

ACTIONS TAKEN BY THE INDIAN GOVERNMENT:

➤ National Rural Livelihood Mission (NRLM)

Launched on June 3, 2011, the National Rural Livelihood Mission (NRLM) aims to reduce poverty and accelerate the achievement of the Millennium Development Goals (MDG) by 2015. However, as of November 2015, it was renamed Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM). Table 1 following provides information on NRLM coverage as of March 31, 2023.

INITIATIVES TAKEN BY NABARD

Under the Financial Inclusion Fund (FIF), NABARD kept carrying out a number of initiatives aimed at promoting, enhancing the capabilities of, and developing the enterprises of Self-Help Groups (SHGs). In 2022–2023 SHPIs received grant support of Rs. 513.37 lakh, which resulted in the linking of 4,489 SHGs to savings and 9,305 SHGs to credit. Through the WSHG Development Fund, NABARD also

Table 1: Status of progress under NRLM (As on 31 March 2023)		
s. no	Particulars	Number
A.	Coverage of blocks	
	Blocks with intensive approach	6498
	Blocks with non-intensive approach	70
	Blocks covered under NRETP	577
B.	Formation of Vos, CLFs	
	Village Organisations (VO) formed	377648
	SHGs under VO	3879676
	Cluster Level Federations (CLF) formed	25302
	SHGs under CLF	2830549
	Total Federations	402950
	SHGs under Federations	6710225
Source: www.nrlm.gov.in		

carries out the Women SHG program in 150 districts afflicted by Left Wing Extremism (LWE). In 2022–2023, the program will utilize Rs. 1,066.01 lakh.

LOAN ASSISTANCE FOR THE PROMOTION AND NURTURING OF SHGS TO PARTNER AGENCIES:

Since 1992, the SHG-BLP program has been growing across the country through the grant support provided by NABARD to NGOs, SHG Federations, Commercial Banks, Co-operative Banks, RRBs, NGO-MFIs, PACS, Farmers' Clubs, and Individual Rural Volunteers (IRVs) for the promotion, development, and credit linking of SHGs. The financial assistance granted by NABARD to various SHPIs up until March 31, 2023, is detailed in Table 2.

As of March 31, 2023, the total amount of grant support approved and disbursed under the FIF & WSHG Fund was 180.38 crore and 428.39 crore, in that order. 6.85 lakh SHGs were cumulatively savings connected under the FIF, compared to 4.14 lakh SHGs that were credit linked. NABARD is currently offering grant assistance for SHG formation extremely selectively and only in locations where NRLM is not operating heavily, but support for various stakeholders' capacity building and

Agency	Table 2: Grant support to Partner Agencies (R lakh)							
	During 2022-23				As on 31.03.2023			
	Sanctions	Release	Cumulative Sanctions	Cumulative Release	Amount	SHGs promoted (No.)	Amount	SHGs Saving linked (no.)
NGOs	10.00	31	429.75	2946	38246.30	702708	16489.46	553871
RRBs	0.00	0	0.00	0	1764.38	61656	666.90	55288
Coop. Banks	0.00	0	22.72	1543	1295.21	66782	632.05	61518
IRVs	0.00	0	0.00	0	455.18	26350	78.25	12313
Farmers Clubs	0.00	0	0.00	0	46.13	5138	20.45	4469
PACS					669.61	14925	97.08	3441
SHG Federations	0.00	0	0.00	0	25.40	200	12.37	46
NGOs – MFIs	0.00	0	60.9	0	337.13	5869	102.6	1126
Total	10.00	31	513.37	4489	42839.34	883626	18099.16	692072
Women SHG Scheme (in 150 LWE affected and backward districts)								
Anchor NGOs	nA	nA	1066	-	20438.10	204381	15009.00	129167

Source- Status of Microfinance (G-20) Report 2022-23.

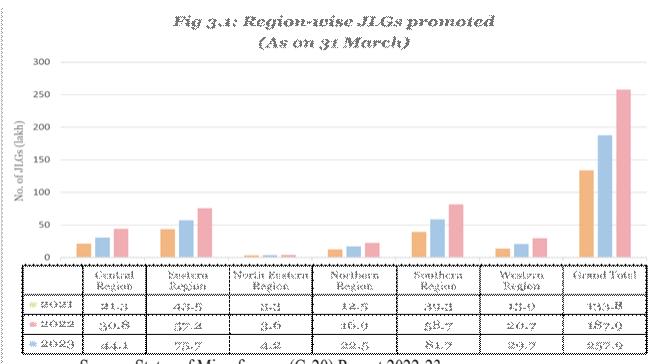
training is nevertheless offered consistently. Financial literacy, studies, documentation, awareness-raising, livelihood promotion, SHG/JLG formation and linkage through SHPIs/JLGPIs, stakeholder capacity building, mentorship, handholding, and innovation are all supported by the FIF & WSHG Fund. Out of the total funds allocated for these operations in 2022–2023, Rs. 105 crores were spent, compared to a budget of Rs. 138 crores. Statements IX-A through IX-J provide agency- and state-specific information about grant assistance provided to partner agencies under the Scheme.

SCHEME FOR WOMEN SHG PROMOTION IN INDIA'S BACKWARD AND LWE DISTRICTS:

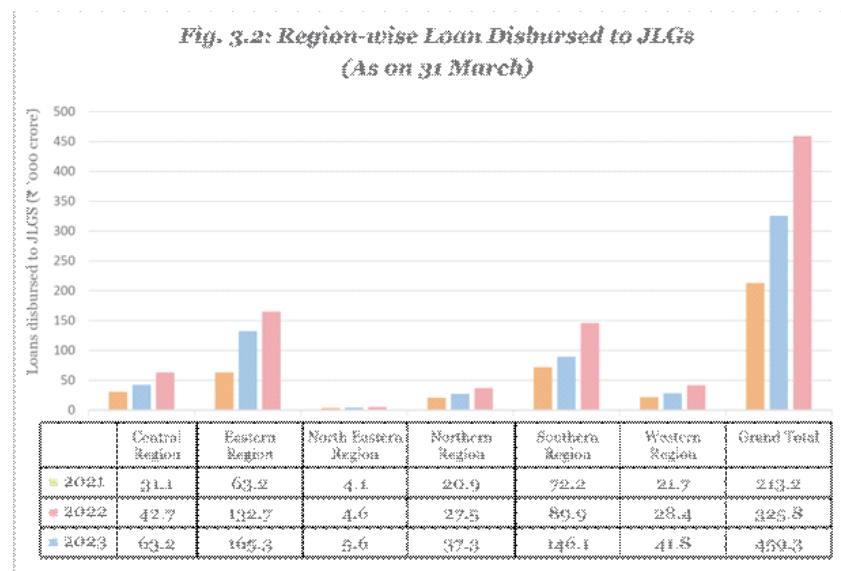
In 150 districts identified as Left-Wing Extremism (LWE) and Backward areas of the country, NABARD is collaborating with the Department of Financial Services, Ministry of Finance, Government of India, to support and encourage Women Self Help Groups. This collaboration began in 2011–12. 2.11 lakh women's self-help groups (SHGs) were linked to savings as of March 31, 2023, out of which 1.29 lakh were tied to credit through banks. The Fund called for a three-year implementation term, or until 2015–16. Therefore, there are no new penalties for the scheme's promotion of female SHGs. However, in 2022–2023, Rs. 1066.01 lakh was made available as part of a plan to increase the capacity of different stakeholders and launch marketing campaigns for Self-Help Group (SHG) members in the designated districts. Additionally, money has been maintained for projects like Gram-Dukan, impact evaluation study funding, movies, exposure trips, publications, exhibitions, melas, and marketing partnership promotion throughout 2022–2023. Statement X provides a full progress report on the program as to March 31, 2023.

PROMOTION OF JLGS (JOINT LIABILITY GROUPS):

- JLG funding was introduced by NABARD as a test project in 2004–05. NABARD not only assists banks with refinancing but also extends financial support to banks and other institutions that assist JLGs in order to foster their establishment and expansion as well as to assist stakeholders in enhancing their capabilities. To support the creation and expansion of JLGs, NABARD provides financial assistance of Rs. 2000 per JLG for NGOs serving as JLGPIs and public sector commercial banks, and Rs. 4000 per JLG for RCBs, RRBs, SFBs, and private sector banks. A business model plan was created in 2017 in order to fund JLGs within the terms and circumstances specified in the Memorandum of Understanding (MoU) that banks (PSBs, RRBs, and Co-operative Banks) execute with NABARD. Ultimately, 70 lakh JLGs were promoted in 2022–2023 as opposed to 54.09 lakh in 2021–2022. There were 257.92 lakh JLGs promoted overall as of March 31, 2023, a 37% increase over 2021–2022. In terms of cumulative JLGs promoted as of March 31, 2023, the Western and Central areas witnessed the highest Y-o-Y growth rates throughout the 2022–2023 year, at 44% and 43%, respectively (Fig 3.1).
- The Southern region had the most JLGs promoted throughout the year (23 lakh), making up 33% of all JLGs financed in India. The Eastern region came in second with 26% (18.53 lakh). The total amount of loans that banks had provided to JLGs as of March 31, 2023, was Rs. 4,59,310.48 crore, a 41% increase from Rs. 3,25,937.63 crore on the same date



in 2022. The loan disbursed per JLG was greatest in the Southern area at Rs. 2.44 lakh per JLG, with an average of Rs. 1.90 lakh (Fig. 3.2).



Source- Status of Microfinance (G-20) Report 2022-23

To increase awareness among program stakeholders about non-financial support interventions, NABARD has been organizing training sessions and field trips to successful JLGs for officials from various institutions, including financing banks. A range of training programs were implemented for 11,400 participants in 2022–2023. All told, these programs have helped about 1,03,671 people. Statement VIII-B provides information.

NABARD'S SHG-BASED LIVELIHOOD INTERVENTION

❖ Micro Enterprise Development Programme (MEDP)

15-day MEDPs for 30 participants are organized with financial assistance of up to Rs. 1 lakh thanks to NABARD. Since its launch in 2006–07, MEDPs have been utilized to develop the abilities of SHGs and provide them a foundation upon which to build microenterprises. A component of the program includes grant assistance for training in livelihood activities that can be done both on and off farm. Throughout the year, 917 MEDPs provided training to 26,859 members, and grants totalling Rs. 1001 lakh enabled them to start microbusinesses. Together, 20,174 MEDPs have taught 5.85 lakh SHG members as of March 31, 2023, with grant support amounting to Rs. 52.39 crore.

❖ Livelihood and Enterprise Development Programme (LEDP)

NABARD mainstreamed the Livelihood and Enterprise Development Programme (LEDP) in 2015–16 with the aim of stimulating sustainable livelihood among SHG members and optimizing the impact of skill upgradation. For SHG clusters in nearby villages involved in agricultural and off farm enterprises, LEDPs provide intensive skill development, refresher training, backward-forward linkages, value chain management, end-to-end solutions, handholding, and escort services over the course of two loan cycles. During the year, 59,523 SHG members received skill and entrepreneurship training at a cost of Rs. 28.96 crore, enabling them to build livelihood units through 508 LEDPs. As of March 31, 2023, 2.67 lakh members of Self-Help Groups had received grant support amounting to Rs. 106.10 crore through 2,149 LEDPs.

❖ **Pilot project for Entrepreneurship Development**

FWWB was granted approval for the pilot project "Nurturing Women's Livelihoods and Entrepreneurship" in 2021–2022, with funding totalling Rs. 65.42 lakh. Across three states (Gujarat, Nagaland, and Manipur), it is being implemented in nine districts, including three aspirational and five WSHG regions. The objective is to encourage 800 rural women to create microbusinesses, 400 of which need to be supported. An anticipated 25% boost in household income was part of the strategy. As of March 31, 2023, 842 beneficiaries in all three states received instruction in a variety of subjects, including baking, pickling, canning, and processing fruit, as well as bamboo crafts and sewing. 570 of these trainees have additionally been linked to credit.

❖ **Assistance in enhancing the skills and abilities of microfinance customers.**

Important actors such as bankers, trainers, NGOs, government officials, SHGs and SHG Federations, and government officials were the targets of a variety of training and capacity building efforts. In 2022–2023, 2.59 lakh persons underwent training via a range of programs. As of March 31, 2023, 4.90 lakh members of WSHGs and 46.40 lakh members of FIFs had completed training, encouraging the formation of strong, competent teams to implement the microfinance initiatives. A breakdown of the number of stakeholders who have undergone NABARD training by area is provided in Statements VIII (A) and VIII (C).

❖ **Grant support for village level programmes:**

In order to improve the interface between bankers and SHGs and to facilitate the opening of SHG accounts, their credit linkage, and regular loan repayments in addition to promoting financial inclusion at the village level, NABARD sponsors Village Level Programs (VLPs), which are carried out with the support of banks and NRLM. In 2022–2023, NABARD provided support for the implementation of VLPs in conjunction with the Department of Financial Services, MoF, GoI's experimental Financial Inclusion Campaign at the Gram Panchayat level. The campaign ran from October 15, 2022, to November 26, 2022, not only in the six campaign states chosen, but all over the nation. Over the course of 2022–2023 there were 27,589 Village Level Programmes funded, involving 5.52 lakh participants. This brings the total number of VLPs and beneficiaries covered to 50,563 and 16.79 lakh, respectively.

➤ **CREDIT GUARANTEE FUND FOR MICRO UNITS (CGFMU)**

The CGFMU's dispensation, which permits loans to Self Help Groups (SHGs) under the DAY-NRLM for amounts between Rs. 10 lakh and Rs. 20 lakhs without the need for collateral or a third-party guarantee, is applicable to SHGs. Regardless of the availability of guarantees under JLG, this dispensation was extended in 2022–2023 to cover micro units and companies, whether they are new or established, including those founded by JLGs individually or collectively. For any sector covered by PMMY or as defined by the MSMED Act, 2006, JLGs may receive support for loans up to Rs. 10 lakhs, provided that they

- (i) meet the Fund's qualifying requirements and
- (ii) the credit requirement does not exceed the PMMY's stipulated ceiling.

• **Examining microbusiness loans from public sector banks, sfbs, and mfis (with links to the SHG)**

There were 192 participants in the study, 48 branches of PSBs, MFIs, and SFBs, and 144 microenterprises. The study was conducted in eight districts across four states, namely Uttar Pradesh, Tamil Nadu, Karnataka, and Maharashtra. The study's main objectives were to:

- (i) identify the key characteristics of the microenterprise space;
- (ii) evaluate the dynamics of credit flow and demand in the industry; and
- (iii) evaluate the microenterprises under consideration's consequent funding gap.

❖ Major Findings

- ✓ Financing institutions mostly use a group-based methodology to lend to women-owned microenterprises in the sample. The sample clientele is roughly forty years old on average, and they possess strong financial knowledge.
- ✓ The manufacturing sector is followed by retail or trading operations for the majority of microenterprises.
- ✓ Multiple formal institution memberships were noted as a result of insufficient funding, loans not being available when needed, and challenges obtaining a second or third loan cycle.
- ✓ MFIs provide sample microenterprises with a total loan supply that accounts for 37.5% of the total debt supply, with SFBs coming in second.
- ✓ Getting a loan from an MFI is recommended because of its quick approval process, minimal paperwork requirements, collateral-free lending, and adjustable payback terms.
- ✓ SFBs charged interest at a significantly greater rate than MFIs and PSBs.
- ✓ Risks associated with lending, documentation, loan recovery, increased operating costs, and multiple lending were the main obstacles financing institutions encountered in the microcredit space.

MICROFINANCE: pathway to achieving the SDGS by 2030

Sustainability is described by the UN as "development that satisfies present needs without compromising the ability of future generations to meet their own needs." In it, social inclusion, economic progress, and environmental protection are "harmonized" thrice. 17 Sustainable Development Goals (SDGs) are contained in the UN publication "Transforming Our World: The Sustainable Development Agenda of 2030," which has 169 goals total. The eight Millennium Development Goals (MDGs), which were created in 2000, served as the foundation for these objectives, which had to be accomplished by 2015. The Sustainable Development Goals (SDGs) offer a way forward that both the environment and people can agree upon for future prosperity and peace. They understand that initiatives to end poverty and other forms of deprivation, deal with climate change, protect our oceans and forests, and promote economic growth must coexist with policies that enhance health and education, lessen inequality, and promote economic growth.

SDG 1: NO POVERTY

Numerous studies have demonstrated the beneficial impact of microfinance on attaining Sustainable Development Goal 1. A selection of these studies is provided below.

- Improved capital formation and savings helped members become more capable of taking on risk and financing themselves.
- Several NABARD research on the effectiveness of the SHG Bank Linkage program showed that SHGs could get larger loan amounts, which improved households' access to finance and allowed SHG members to diversify their sources of income. The study also unambiguously shown that members of the SHG program can overcome poverty.
- Estimates indicate that, most likely as a result of 6% annual income increase, the proportion of members living below the poverty line dropped from 58% in the pre-SHG scenario to 33% in the post-SHG scenario.

According to a Sa-Dhan report on the Impact Assessment study of Microfinance Institutions (MFIs) clients conducted in 17 Indian states between 2022 and 2023, 46% of microloans are given to families with monthly incomes of less than Rs. 20,000, i.e., serving the underprivileged. Additionally, 31% of

loans are used for income-generating assets, such as cattle, and 52% of loans are used seeking working finance to support their revenue-producing endeavors. The initial loan cycle is mostly utilized to launch new businesses, while following loan cycles are used for working capital needs. Moneylender dependency dropped significantly, from 20.1% to 8.3%, and impoverished populations were institutionalized as the economy gradually improved.

SDG 2: ZERO HUNGER

Without women's participation, the difficult goals of eradicating hunger and enhancing nutrition cannot be accomplished.

- A lot of SHGs and their federations work to raise member awareness of nutrition.
- The majority of SHG members borrow money to raise cattle and grow crops and vegetables, which increases and boosts domestic consumption.
- SHG loans are somewhat taken out for spending in order to make up for the decline in purchasing power brought on by seasonal cash inflows.
- SHG members can engage in livelihood activities that allocate income flows in accordance with consumption patterns within a year by carefully arranging their endeavors.

SDG 3: GOOD HEALTH & WELL-BEING

SDG 3 calls for women's active involvement in order to ensure healthy lifestyles and improve wellbeing for all people, regardless of age. Better financial stability, better power dynamics in families and society, increased health awareness, a larger role for women in family decision-making alongside men, and acceptance and recognition of women by men are all examples of empowerment. Maternal mortality can be decreased with safe births and more attention to the health of the mother and child. Additionally, there has been a positive shift in household, neighborhood, and village hygiene habits, and women are increasingly benefiting from various government initiatives.

SDG 4: QUALITY EDUCATION

It is well recognized that participation in SHGs increases access to education. About 80% of members of an empirical study on the effects of SHGs reported having more access to education. Many Self-Help Groups (SHGs) advocated for the establishment of a school in the hamlet, gave books to underprivileged kids, suggested an English-medium school, and raised awareness among parents about the need of educating girls through campaigns and talks. Many Self-Help Groups (SHGs) sponsored evening sessions for their members and debated in group meetings the value of education.

SDG 5: GENDER EQUALITY

- Compared to non-members, members of Self-Help Groups (SHGs) have been shown to have better roles in family and community decision-making, higher levels of confidence when interacting with people outside of their homes and in various situations, the ability to speak out against violence against themselves and fellow members, and the responsibility to ensure their children's education.
- Women make up over 98% of MFI borrowers, and they are crucial in raising funds to help the family launch and operate a business.
- Of the sample included in the Sa-Dhan survey, about 22% reported utilizing UPI for cashless purchases, and 62% reported that their spouse or other family members did the same.

SDG 8: DECENT WORK AND ECONOMIC GROWTH

Through improving member productivity and generating job possibilities, SHGs advance decent work

and economic progress. They support a variety of industries, including agriculture, handicrafts, food processing, dairy, poultry, etc., which encourages innovation and diversification in the rural economy. SHGs also help people connect with banks, NGOs, government programs, and partners in the commercial sector so they can take advantage of possibilities and obtain resources.

EXPANDING THE AREA OF SKILLING

NABARD offers underprivileged populations chances for skill development through its MEDPs and LEDPs. The recipients receive instruction in a variety of skills, including pickling, making jam and candies, bamboo crafts, beauty parlour services, creating papads, sewing, and more. To transition from traditional to creative services in line with the shifting demands of the times, a re-examination is necessary.

To address this, there is potential to expand the scope of skill-building, reskilling, and upskilling opportunities for SHGs and MEDP/LEDP recipients. Services for elderly and home care, transportation services (such as buses and taxis), food cart enterprises, and catering are possible areas of investigation.

- **DIGITAL ECOSYSTEM FOR SHGS**

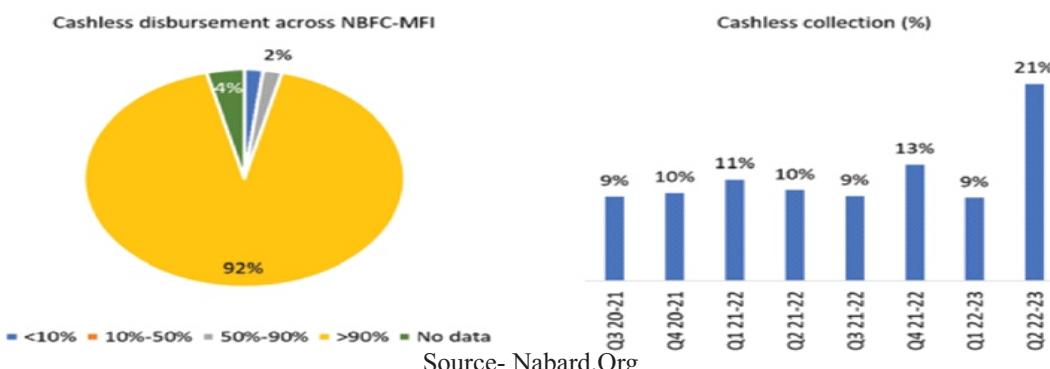
The entire system of livelihoods and lifestyles has undergone a metamorphosis since the advent of digital technology. Several areas present opportunities for microfinance, including:

- The NPCI's dual authentication facility, if implemented, will benefit SHGs and other stakeholders like banks and Bank Sakhis.
- Using SHGs' networks can help overcome structural obstacles and accelerate the digital revolution. This can be done by teaching and raising their awareness of the need to switch to digital internal lending via smartphones and features. This will enable them to properly track their finances.
- Through SHGs, Bima Sugam of the IRDAI can close protection gaps and serve as a guide for upcoming paths.

DATA ANALYSIS

Microfinance institutions, or MFIs, have adopted technology in a way that has enhanced underwriting models, reduced expenses, and increased operational efficiency—all the while keeping a focus on the needs of their customers. Initiatives to digitize have been coordinated with the increasing spread of smartphones and the rising comfort that borrowers are feeling with digital modes of transaction, taking into account the low income and low literacy levels of microfinance borrowers. The quality and

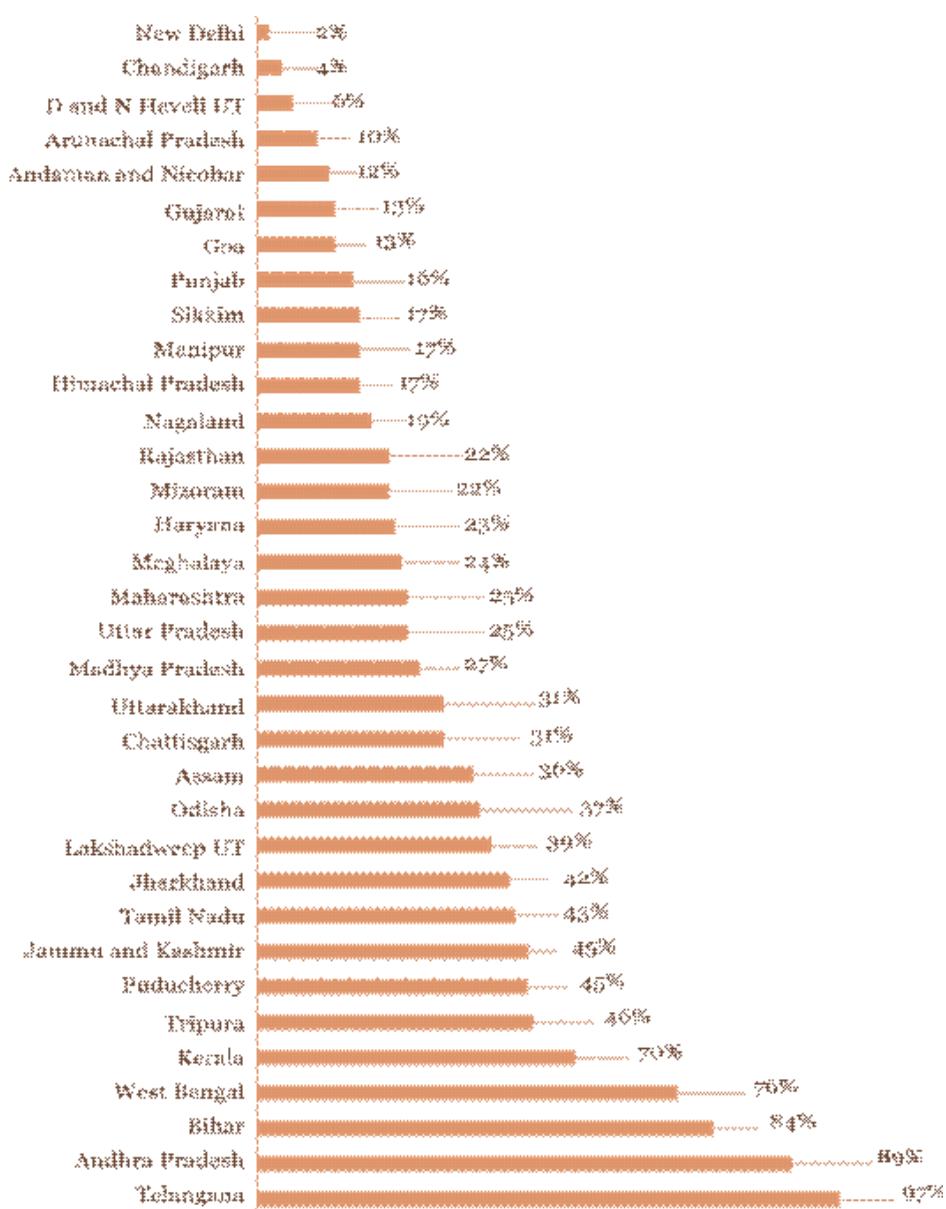
- **CASHLESS COLLECTIONS & DISBURSEMENTS**



timeliness of the data sent to the credit bureaus has improved due to improvements in MFI internal processes made possible by digitalization. This directly affects the timely processing of loan applications, turnaround times, and underwriting quality improvement. Now, borrowers can register their objections through a variety of challenging methods. Field teams can provide better customer support because they have internet access to data such as application statuses and grievances. Faster access to pertinent data also enables MFIN to do more effective monitoring and spot problems with client safety.

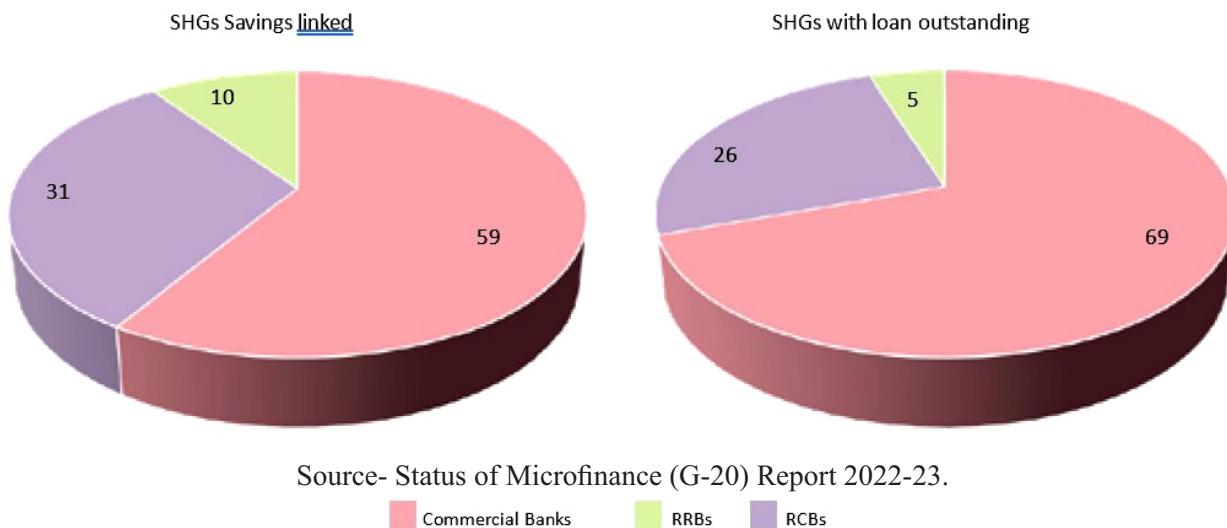
The percentage of credit-linked SHGs by state as of March 31, 2023

If the credit connection to the Southern region was removed, the credit gap across all of India increased to 60% from 48.1%. The credit gap was lowest in the South (22%), while it was highest across all of India (48.1%).



Source- Status of Microfinance (G-20) Report 2022-23.

- SHG-BLP status (percentage share) as of March 31, 2023



When comparing the percentage of banks that make up the total amount of outstanding loans and SHG deposits, commercial banks accounted for the majority (59% and 69%), with RRBs coming in second at 31% and 26%, respectively.

DEVELOPMENT AND GROWTH

Growth of portfolio: As of June 2023, the portfolio of the microfinance sector stood at an incredible ₹3,58,700 crore, indicating a 21% annual growth. This means that low-income people will have more access to financial services and that they will continue to expand.

Disbursements: The total amount disbursed in Q1 of FY 2023–24 increased by 30% year over year to ₹76,274 crore. With a 48% surge in disbursements, NBFC-MFIs were the leaders, followed by banks (16%) and SFBs (30%).

Clientele: In Q1 of FY 2023–2024, there were 14.08 crore loan accounts, up 11% year over year. With a 22% increase, NBFC-MFIs topped the group once more, demonstrating their important function in onboarding new customers.

PROSPECTS FOR THE FUTURE:

Microfinance in India seems to have a bright future. This industry is set up for growth and good effects with more regulation, creative products, and ongoing digitalization.

By putting an emphasis on client safety, product diversification, and financial inclusion, we can empower borrowers and create a more stable and accountable microfinance sector.

CRITICAL ISSUES

- **Financial Literacy:** One major issue is the low level of financial literacy among rural populations. It's possible that many people don't grasp financial principles, which makes it difficult for them to use microfinance resources wisely and make educated judgments.
- **Infrastructure and Connectivity:** Poor infrastructure and spotty connectivity might make it difficult to provide microfinance services in isolated rural locations. Unreliable means of communication and transportation could make it more difficult to get financial resources.

- **High interest rates:** Compared to regular banks, microfinance institutions (MFIs) frequently charge interest rates that are significantly higher, which makes it harder for borrowers to repay loans and negatively affects their financial well-being. There are also issues with opaque pricing policies and additional hidden costs.
- **Inadequate governance and regulation:** Despite improvements, there are still loopholes and discrepancies in the regulations. Instances of unjust lending terms, opaque methods, and forced recovery techniques demonstrate the need for stronger regulations and efficient grievance procedures.
- **Limited product diversification:** Low-income people frequently have other financial requirements, such as savings, insurance, and financial education, overlooked in favor of credit goods. Increasing the range of products offered can help promote resilience and financial inclusion.
- **Gender and regional disparities:** Not everyone profits equally from microfinance. Certain demographic groups and geographical areas have greater access to microcredit than others, leaving others underprivileged. It is imperative that this gap be closed for equitable growth.
- **Technological obstacles:** Digitalization can be very effective in increasing efficiency and outreach, but it can also be hampered by low levels of digital literacy and restricted access to digital infrastructure in rural areas.
- **Sustainability issues:** A move toward responsible lending practices, customer safety, and financial literacy promotion to empower borrowers are necessary for the industry's long-term survival.

SUGGESTIONS:

- Encourage MFIs to embrace responsible lending practices by urging them to implement measures including income verification, debt-to-income ratio evaluations, and open pricing systems.
- Reduce loan stacking by enacting laws that forbid taking out loans from several lenders at once and creating credit bureau networks that monitor debt levels of individual borrowers.
- Encourage the adoption of cutting-edge funding strategies and financial technologies to help MFIs and, eventually, consumers, reduce their borrowing costs.
- Create and test a variety of financial products: To address a wider range of financial needs, include credit facilities along with insurance, micro savings accounts, and financial literacy initiatives.
- Aim for marginalized areas and communities: To reach women, people living in rural areas, and other marginalized groups with limited access to microfinance services, implement focused outreach activities.
- Use technology to provide financial services that are inclusive: To effectively and conveniently provide financial services to remote places, make use of digital platforms and mobile technology.
- Close the digital gap by allocating funds for infrastructure development and digital literacy initiatives that will guarantee rural communities have inexpensive, easily accessible internet access.
- Encourage the responsible use of technology: Provide moral standards for the use of technology in microfinance, giving data security and privacy a priority and reducing the possibility of exclusion.
- Put the client's empowerment and protection first: Include financial literacy in the loan

distribution procedures and give borrowers continuous assistance so they can make wise financial decisions.

CONCLUSION:

The financial landscape for those with low incomes has been clearly changed by Indian microfinance, but there is still a long way to go before the underbanked are genuinely empowered. The four key problems that still need to be addressed right away are excessive debt, high interest rates, poor regulation, and little product diversification.

An approach with multiple facets is necessary going future. To protect borrowers and promote an equitable and inclusive financial environment, we must give top priority to responsible lending practices, strong regulatory frameworks, and clear pricing systems. The influence of microfinance can be increased by branching out into underserved areas, offering products other than lending, and using technology sensibly. Sustaining initiatives and realizing the full potential of the industry requires ongoing observation, assessment, and evidence-based modification. Microfinance has the potential to significantly contribute to reduction of poverty and inclusive economic growth in India by emphasizing financial inclusion, empowering borrowers, and addressing vulnerabilities.

REFERENCES:

1. Barry, N. (1995), "The Missing Links: Financial System that Works for the Majority," Women's World Banking, New York.
2. Barry, Nancy, Armacost, Nicola and Kawas Celina (1996) "Putting Poor People's Economics at the Center of Urban Strategies," Women's World Banking, New York
3. Chriseten, R. Peck Rhyne, Elisabeth and Vogel, Robert C (1994) "Maximizing the Outreach of Microenterprise Finance: The Emerging Lessons of Successful Programs," September IMCC, Arlington, Virginia.
4. Churchill, C.F. (1996)," An Introduction to Key Issues in Microfinance: Supervision and Regulation, Financing Sources, Expansion of Microfinance Institutions," Microfinance Network, Washington, D.C. February.
5. Kim Kyung-Hwan (1995) "Access to Credit, Term of Housing Finance and Affordability of Housing," Housing Finance International, 9(4), June 22-27.
6. James C. Brau, Gary M. Woller (2004): "Microfinance: A Comprehensive Review of the Existing Literature", Journal of Entrepreneurial Finance and Business Ventures, 9(1) 1-26.
7. Kumar Manish, Bohra Narendra, Singh Johari Amar (2010): "Microfinance as an anti-poverty vaccine for rural India" International Review of Business and Finance, 2(1); 29- 35.
8. McIntosh Craig, Bruce Wydick (2005): "Competition and microfinance", Journal of Development Economics, 78(2); 271-298.
9. Pitt Mark M., Shahidur R. Khandker (1998): "The Impact of Groupbased Credit Programs on Poor Households in Bangladesh: Does the Gender of the Participants Matter?", Journal of Political Economy, 106(5); 958-996.
10. Rajakutty S. (1997): "Development of Women and Children in Rural Areas: Are we on the right course?", Journal of Rural Development, 16(1); pp. 85-11.
11. Robert Cull, Asli Demiguc Kunt, Jonathan Morduch (2007): "Financial performance and outreach: A global analysis of leading microbanks", Economic Journal, 3; 107-133.

12. Adams, D. W., & Von Pischke, J. D. (1992). Microenterprise credit programs: *Déjà vu*. *World Development* 20(10): 1463–1470.
13. Barret, C. B. (2003). Rural poverty dynamics: Development policy implications. Paper presented at the 25th International Conference of Agricultural Economists, Durban, South Africa.
14. Bell, C. (1988). Credit markets and interlinked transactions. In H. Chenery and T. N. Srinivasan (Eds.), *Handbook of development economics* (Vol. I, pp. 763–772). Amsterdam: North-Holland.
15. Billah, P. (1984). Report on indigenous savings and credit arrangements in Lombok. Unpublished manuscript. Bouman, F. J. A. (1977). Indigenous savings and credit societies in the third world: A message. *Savings and Development*, 1(4), 181–218.
16. Moll, H. A. J. (1994). The performance of banks in rural financial markets. In F. J. A. Bouman and O. Hospes (Eds.), *Financial landscapes reconstructed: The fine art of mapping development* (pp. 71–84). Boulder: Westview Press.
17. Patten, R. H. & Rosengard, J. K. (1991). Progress with profits: The development of rural banking in Indonesia. San Fransisco: ICS Press.
18. Pitt, M. M., & Khandker, S. R. (1998). The impact of group-based credit programs on poor households in Bangladesh: Does the gender of participants matter? *The Journal of Political Economy*, 106(5), 958–996.
19. Rajan, R., & Zingales, L. (2003). Financial dependence and growth. University of Chicago, unpublished. Quoted in Khan and Senhadji (2003). Robinson, M. S. (2001). The microfinance revolution: Sustainable finance for the poor. Washington, DC: World Bank. Shaw, E. S. (1973). *Financial deepening in economic development*. New York: Oxford University Press.

Artificial Intelligence and its Impacts on the society

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Abstract

Artificial intelligence (AI) is considered as a new concept. It is associated with the concept that intelligence is supposed to be manifested by the computer systems. It was the sole property of humans previously. Without human help, the AI can take decision and can solve complex problems in different sectors of the society. It has brought in a vital societal change in the perspective of revelation of human intelligence. There was an implicit assumption that humans possess hierarchical superiority in exhibiting intelligence in comparison to other forms of life. This fundamental assumption has been questioned owing to the anticipated entry of such entities which, in the familiar thinking, are not alive but nonetheless is considered superior to humans intellectually and perhaps ultimately morally. The entry of this cutting age technology (AI) has caused some impacts in the society deriving huge advantages as well as throwing some entangled challenges those are apprehended to pose threat even to the human rights bringing in a thorough societal change in different ramifications.

Keywords: *Intelligence, Artificial, Bringing, Associated*

1. Introduction

The concept of AI is persisting as long back as 1950s. In those days, people used to have possessed high hopes towards success of AI in every sector of the society. In the context of problem solving without human help, AI is considered as an accurate tool. AI is usually considered as a computer-centric technology capable of easily solving various problems in the complex situations in a flawless, cost-effective and quick manner without slightest assistance of humans¹ which was previously deemed to be unique treasure of humans. Applications of AI are associated with analysis of information including personal information for learning something and for arriving at an accurate decision intelligently by its own. This ever-increasing utilization of AI in every sphere of the society in various sectors has brought in multifarious vital challenges towards facing a wide range of legal as well as ethical dilemmas. It has propelled the necessity for establishing a reasonable balance between possibility of rapid advancement in the society taking help of AI and protection of privacy of personal data endangering societal normative values. So far as India is concerned, the issue of privacy protection has gained a new momentum especially in view of the recent judgement of Supreme Court of India. However, in our society the effects of AI have not cast shadow till now in a huge magnitude but there exists many unsolvable questions in our radar though they are not arising currently with perceptible acuteness, but, it will be perhaps not cogent and will be too late to introspect if we do not think it now for the society and leave it to think once they pose to the society with acuteness. In this background this paper has taken an attempt to project the good effects of AI on the society, challenges faced by the society by the applications of AI along with prescribing some recommendations coupled with a comprehensive conclusion at the end.

1.1 AI and Society

The anticipated arrival of this AI technology has brought a short, medium and long-term changes in our society. Entry of AI in the society has brought in major implications for professionals who are used to deal with modern technologies, to the legal practitioners nurturing effects of influence of AI with its

regulatory implications, to the technocrats who are frequently taking help of this modern technology to arrive at a precise decision in a complex technological issue. AI is also posing vital implications to the general citizens by providing them enormous help in a cost-effective manner as well as posing some entangled challenges even jeopardizing their basic rights including privacy infringement. In this perspective, this paper has taken a calibrated, comprehensive and holistic attempt to analyze briefly how the arrival of this AI technology is effectively contributing to the societal changes by providing advantages as well as disadvantages to the humans. In doing so, this study would deal with for analyzing how, through introduction of different regulatory implications, the applications of AI in the society can be controlled so that it can hardly cause any harm to the society jeopardizing security and privacy of personal data of humans, abusing their human rights and also this paper would mention how the AI is deriving immense benefits to the society in different sectors like Agriculture, healthcare and soon.

2. AI for 'Social Good'

It is a fact that every technological innovation invites effective potential for advancement as well as for damages to the society. AI can analyze and can process data. This capability of AI is expected to help for all aviating several pressing problems of the world. In this way AI can do good to the society.

1.1 AI is helpful for healthcare industry

There has been immense progress for diagnosis and treatment of diseases by the help of AI. In rural areas there are problems of accessibilities of the doctors or health-care staff. As a result, people living in those remote areas feel insecure regarding treatment of their health hazard. AI has come to rescue this problem. AI can predict outbreaks of diseases well ahead so that the healthcare staff can have a scope to take preventing steps well ahead before the actual outbreaks take place. By the help of AI, instruments are there for image recognition. This is helping the diseased people who are visually impaired. There are other examples where AI can help the Healthcare industry.

1.2 AI is helpful for agriculture sector

By the help of AI, it is now being possible to obtain appropriate data concerning to issues of agronomic and weather information. This is helpful for the farmers to improve the production of crops. This process is called precision agriculture that helps to improve productivity of crops helpful to address the need of the growing population.

1.3 AI and Climate Change

By the help of AI, weather events can be predicted well ahead. It can also predict weather situation and occurrence of natural disasters. By the help of AI, it has become possible to identify the disease-spreading insects and animals.

1.4 AI is helpful to improve work efficiency

Governments of many countries are now using AI technology to improve the efficiency of their employees working in all levels. Governments of different countries are also taking help of AI to improve their financial allotment mechanisms and to help to optimize their budgets. There are other instances through which society is being benefited by the grace of AI.

2. AI and Challenges to the society

AI can analyze different collected information of various nature. This has brought in greatest concerns over data protection, cyber security as well as data privacy. In addition to these challenges, the issue of AI concerning to its borderless character and personhood issue are causing problem to the jurisprudence. So far as India is concerned, the status of AI in the legal environment is still greyish. That

is why Indian jurisprudence could not take appropriate steps to clear up vital debates in respect of legal applicability of AI algorithm.

The main legal challenges around AI are as follows:

1. How to safeguard the privacy of data from the clutch of AI?
2. How it will be possible to safeguard security, ethical and privacy norms from the applicability of AI?
3. Use of AI in various fields has posed a challenge regarding problem of employment curtailment.
4. Digitalization with the help of AI through application of Internet of Things (IoT) has made the situation ideal for cyber-attack.

4. Recommendations

In India, the mission has been set up in the name of 'Inter Ministerial National Artificial Intelligence Mission'. This mission would act as a principal agency to control and monitor all AI-related activities. This agency would confine its activities in the following issues.

1. To establish reliable coordination amongst various ministries to supervise AI applications.
2. To create a repository of all research works covering AI activities for improving studies on AI.
3. To establish 'Center of Excellence' to enhance facilities for research work covering AI and to formulate the testing mechanisms to weigh performances of AI.

Besides, it is required to

- a. Set up a digital data bank to facilitate collection of cross-industry data beneficial for start-ups.
- b. There should be a Bureau of Indian Standard for taking appropriate initiatives to formulate standards in terms of AI acceptable internationally.
- c. Set up a data ombudsman to settle AI-centric issues. This will be formed under commerce ministry, Government of India.

5. Conclusion

Throughout the world people are depending on use of AI and it is expected this trend will increase with passage of time. Development of AI for the societal benefits will be hampered if the concerns covering privacy and security protection for personal data are not properly addressed by formulating appropriate policy, laws and regulations. Those are required to be consistently implemented with good governance. Focus is to be given to see that in the name of protection of privacy, the authority should not be unreasonable and over strict, because in that case, development with the help of AI will be impeded causing an obstruction towards societal growth. The authority should be vigilant to stick to the ethical standard in structuring AI- program. In India, there is no AI-policy and absence of this might impede progress because the society wants to take the help of AI and at the same time expects to keep data privacy duly protected. This balance will be ensured by strict adherence to the policy of AI which should be, of course, consistent, reasonable and executable.

References:

1. Chatterjee S, Bhattacharya K. Adoption of artificial intelligence in higher education: a quantitative analysis using structural equation modelling", Education and Information Technologies, In Press, 2020. <https://doi.org/10.1007/s10639-020-10159-7>.
2. Gomory RE, Baumol WJ. Global Trade and Conflicting National Interests. MIT Press, Cambridge, MA, 2000.
3. Chatterjee S. "Organization learning and learning organization: A critical review - A Paradox", Asian Journal of Computer Science and Information Technology. 2011; (3):64-70. ISSN: 2249-5126.
4. Garner R. The political theory of animal rights. Manchester University Press, Manchester, 2005.

A Study on Emerging Green Finance in India

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Abstract

With the global development among the developing and the developed countries many changes occur may it be climate change, environment change, changes in technology and change in standard of living. Non-off them shows a concern on environment protection, climate changes and sustainable development may it be the government or the policy makers. In 2017, the global investment (in renewable and energy efficiency) declined by the rate of 3% and is said to decline in the coming future. Green financing acts to be the medium for increasing the financial flows (from Banking, Micro credit facilities, insurance and investment) from the public, private and not-for-profit sectors to the sustainable development priorities. United Nation has been working with different countries with the agenda to direct the financial flow to support the sustainable development goals by 2030.

The study deals with the meaning, concepts, importance, benefits and types of green financing. The study is based on the secondary data from different sources. It also tries to show the current status of the green finance in India and the schemes related to it.

Keywords: *Green Financing, Green Investment, Global Development, Renewable Energy.*

Introduction

For any country economy finance sector forms as the backbone, which has direct impact on the economic growth of the developed and the developing countries. So, with the increase in the financial sector and the economy it has a direct effect on the environment. And with the development and change in each and every sector of the economy the natural environment is exploited due to which there is a drastic change in the climate which has resulted in curtailing the future generation needs. This change has resulted in the adoption of new concept as Green Financing which acts as an investment in environmentally sustainable goods and services with an aim with healing and protecting the environment.

Green finance is said to be future oriented with an aim of reducing greenhouse gas emissions, control various types of pollution (may it be noise, water, land and air), waste management and overall biodiversity protection. India, being one of the fastest growing economies across the globe, has, of late, witnessed major transformations in its energy systems and structures with strategic policy thrust on promoting renewable energy(Sarangi, n.d.).

Green finance acts to be the provider of loans or investment that helps in promoting the environmental activities positively. It is said to be important as it encourages and supports the flow of financial instruments and other related services for the development and adaptation of various sustainable business models, investments, economic, trade and all the different social project and polices launched by government and the institutions.

Objectives

1. To study about Green Finance and its concepts.
2. To study the types, importance and benefits of green finance.
3. To study about the various programs and schemes running under green finance.
4. To analysis the current status of green finance in India.

Review of Literature

(Soundarajan & Vivek, 2016)

1. : Tried to discuss the recent trends and future opportunities and challenges related to green financing in the emerging India. The paper aimed to study the green finance and to validate the concept as feasible in the Indian industries for balancing the ecological depreciation due to the assimilation of carbon gases in atmosphere.
-(Assistant Professor, Jaipuria Institute of Management, Jaipur et al., 2019)
2. : The paper mainly tries to take a look at the various green financing initiatives taken under public and private sector organizations/banks in India for environment protection. The study shows the various challenges associated to green financing in India and also recommends various measures to tackle those challenges. The study is based on descriptive nature with the secondary data taken from different government reports and other reports of public and private organizations and banks in India.
-(Ansari, 2022)
3. : The paper has been divided in different phases. 1st phase compromises of importance of green finance, 2nd discusses the various measures taken up by the Government of India and the Indian economy in this direction and the 3rd phase talks about the various challenges for the Indian economy. The study concluded that India has a long way to go until it becomes a self sufficient and resilient green economy. He also concluded that a balanced and sound mix of investors, issuers and green projects is recommended in India.

(Dhoot & Awate, 2023)

4. : The paper deals with the recent trends and future prospects of development of green finance in India. The paper objective is to examine the recent trends and make people aware about it. The study concluded that in order to achieve the target od NDCs, there is a need of hour to increase the green finance flow. He marked that though there is a good contribution of private sector in green finance flows, it needs to be improved to achieve the targets.

(Charles & Philip, n.d.)

5. : In the paper the researcher tried to focus on the recent trends, opportunities, challenges and various investments under green finance in India. It also aimed to analyze the root of green finance and tried to know the target attained till date from the initiative adapted by the Indian government. In his paper he concluded that India has to focus more on to green finance and have to contribute more to infrastructure funding to attain the sustainable development goal.

(A_Study_on_Emerging_Green_Finance_in_Ind.Pdf, n.d.)

6. : The study tries to show the recent trends and future opportunities under green finance in emerging India. The paper carries valuable suggestions to meet the environmental crises pertaining in India.

(Rasoulinezhad & Taghizadeh-Hesary, 2022)

7. : The study uses the show the impact by regression on the population, affluence, and technology (STIRPAT) model, he also tried to examine the relationship between CO2 emissions in the environment, energy efficiency, Green Energy Index (GEI), and green finance in the top 10 economies under green finance. The study concluded with the result that green bonds is said to be one of the suitable methods for promoting green energy projects and reduce CO2 emission.

Methodology

A descriptive approach for study can be observed in the present paper. Secondary data collected from various websites, magazines, newspapers, E-Journal, E-Articles, research work by different scholar and etc....

Hypothesis

H_0 : There is a significant growth seen in green finance in India.

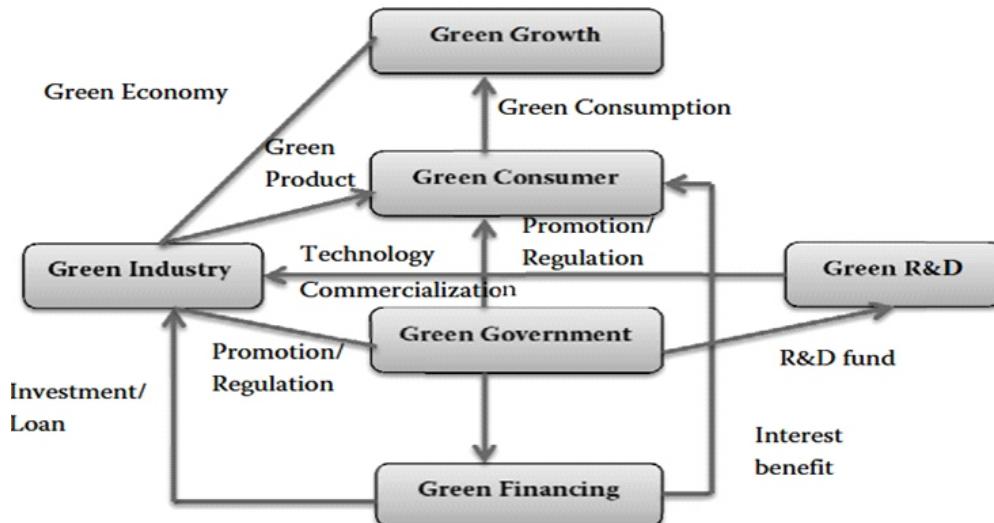
H_a : There is no significant growth seen in green finance in India.

Limitations

1. The study is confined within the geographical boundary of India and doesn't contain all the other elements of the universe.
2. Due to limited time the study has been conducted with limited resource; secondary data has been used in the study collected from different sources.

Green Finance (meaning and concepts)

Green Finance is termed as a loan or investment that promotes environmentally-positive activities, such as the purchase of ecologically-friendly goods and services or the construction of green infrastructure(Emeritus, 2023). Green Finance is a strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient economies, and in the context of the adaptation to the climate change(Soundarajan & Vivek, 2016) Green finance allows the financial sector to connect especially with the economy and the stated population by the help of financing its agents for maintaining the environmental growth objectives.



Source:(Soundarajan & Vivek, 2016)

In India green finance was introduced in 2007 when Reserve Bank of India highlighted the significance of climate change and global warming in the framework of sustainable development. United Nations looks upon green finance with the body United Nations Environment Program, with an aim of to provide services to the countries for reviewing their polices and regulatory environment for the financing system and developing sustainable finance roadmaps through its resource efficiency program. It will also advise central banks and regulators on how best to improve the regulatory framework of domestic financial markets to shape the way and support multi-country policy initiatives at the sub-regional, regional, and global levels(Green Finance - Meaning, Objectives & Climate Financing for UPSC, n.d.).

India with 2nd rank in the population index and with the population of nearly 1.4 billion, the emission of carbon in the economy has lead to direct impact on the global emission and thus, on the climate change.

During this year (2023) India witness the hottest February since 1901, which was noted with 29.54 degree Celsius. In 2021, India's greenhouse gas emissions (GHG) amounted to some 3.9 billion carbon dioxide (CO₂)-equivalent tonnes, making it '[the worlds third largest emitter](#)', behind China and the United States, although [GHG emissions per capita were only 2.8 CO₂-equivalent tonnes](#), compared to a world average of 6.9 and 17.5 in the United States(India Incorporates Green Bonds into Its Climate Finance Strategy, 2023).

The main focus areas of Green Financing:

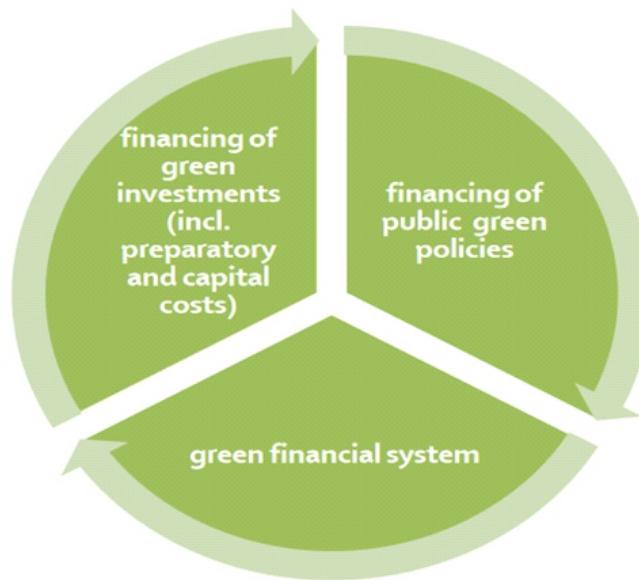
- it acts as a support for the public sector on creating enabling environment.
- its helps in promoting public-private partnerships on financing mechanisms such as green bonds.
- it helps in capacity building of various community green enterprises on micro credit.

Objectives of Green Financing:

The main aim of green financing is to promote green financing growth through the harmony between Environment and the economy of any country. Its some of the objectives are:

1. To promote and finance green industry and enterprise.
2. To achieve the goal of low-carbon economy.
3. To finance different renewable energy development projects.
4. To prevent, minimize and compensate the desecration be made to the environment and the climate.

Green Financing Compromises



Source: Compiled from different source.

Green financing Initiatives in India

There are numerous of initiatives taken in India but under the Paris agreement India targets to achieve 40% Electric generating capacity from non-fossil sources by 2030 and aim in reducing the greenhouse gas excretion intensity by 33 to 35% below 2005 level. India under INDC (India's Nationally Determined Contribution) is going to expand it forest reserve and tree cover to sink the carbon. Some of the initiatives are:

- India joined UNFCCC (United Nation Framework Convention on Climate Change) on 10th July 1992 and financing vehicle, Green Climate Fund was formed in 2010.
- India has helped the wealthy Nations to fulfil their commitment in achieving \$100 Billion Annually for the climate change under Paris Agreement.
- Perform Achieve and Trade (PAT) System: The [PAT scheme](#), implemented by the government, with a motive to reduce carbon emissions in 13 energy-intensive sectors.

- Indian government allowed 100% FDI (Foreign Direct Investment) under automatic method on Renewable Energy.
- Make in India and other Smart City Projects to scale up required financing for such increasing consumption and production.

Importance of Green Finance

Green finance plays a vital role in the economy as its supports and promotes the flow of financial instrument and other related services towards development and execution of the sustainable business development models (may it be trade, economy, investment and different social projects and policies). It acts as a financial support and an aid in for the environment friendly projects. It raises fund from different sources may it be domestic or international. Many schemes and programs are too launched by the government protection of the environment. Based on the financial crisis of 2006-2009, and the availing global warming the need for sustainable business practices has increased as a result Green Financing initiatives have been addressing the 2030 goal of sustainable development. It can be said that green financing represents the future of financial sector towards positive and sustainable externalities.

Challenges Related to Green Finance

Some of the challenges related to Green Financing are:

- Short Tenures and High Costs of Debt Financing: One of the major problems that had always existed is the high cost of debts. This, coupled with the short tenure of loans, makes investing in green projects a less lucrative option for the investors-(Ansari, 2022).
- Poor Organization of Long-term Financing: Long term financing is said to be imperative to meets the financial requirements of the green financing sector is poorly organized.
- Lack of Framework and Policies: One of the drawbacks of green finance is the lack of framework and polices. India ahs listed various polices and agenda revolving around the environment, sustainability, and renewable energy, but they aren't linked to each other.
- Limited Capital and limited awareness: looking upon medium and small sized business enterprises due to lack of capital and limited liquidity hinders their availability in the green financing sectors. The prevailing myopic time horizon of business strategies, which ignore the benefits of green industries that lie in the far future, is another fundamental hurdle to private investments(Soundarrajran & Vivek, 2016).
- Global Cooperation's: The Global Business Practices (GBP) has listed four major components to serve as guidelines for green financing bond users- process for project evaluation and selection, use of proceeds, management of proceeds, and reporting-(Ansari, 2022). In India SEBI, on the contrary is said to disclose in brief the manner of utilization of fund, which helps in making the investors doubt the creditability on green finance.
- Green Washing: It implies an act of making misleading claims or insufficient scrutiny can undermine the credibility of green investments and projects and then capitalizing on such claims and other such environmentally rich products. In India many corporations and various government agencies have been involved in green financing activities.

Types of Green Financing

1. **Green Bank:** This is types of financial institution operate similarly as the traditional banks, but employ for renewable energy and other environmentally friendly initiatives. This bank aims in promoting environmentally friendly practices and reducing carbon level footprints from the banking services.
 - 1.1. Green Loans:** It refers to the disbursing of loans used to support the environmental initiatives such as roof top solar loans, EV loans, SME loans, energy efficiency projects and many more.
 - 1.2. Green Saving Account:** The green saving accounts helps the banks to raise donations in terms of savings done by the account holders. It is said that the more the costumers save, the more the environment benefits in terms of finance for different environmental projects.
 - 1.3. Green Credit Card:** Green credit cards such as Aspirations' Zero card plant a tree every time a

customer makes a purchase'(Emeritus, 2023). It is a form of environmentally friendly reward or promoting paperless banking.

2. **Green Bond:** It is a type of debt or fixed income instrument especially earmarked for raising fund for climate and environmentally friendly projects. More specifically, green bonds finance projects aimed at energy efficiency, pollution prevention, sustainable agriculture, fishery and forestry, the protection of aquatic and terrestrial ecosystems, clean transportation, clean water, and sustainable water management(Green Bond, n.d.).
3. **Green Loans Schemes:** There are various schemes offered by the commercial banks and different financial institution, supporting the environmental projects. Some of the schemes are Green Home Bank Loan Schemes at low interest rate by State Bank of India (SBI), scheme of Vehicle Finance which aimed to reduce the interest rate by 50% by ICICI Bank, various schemes for purchase (of solar water heater, water pumps, home lighting) by Union Bank of India, and many more.

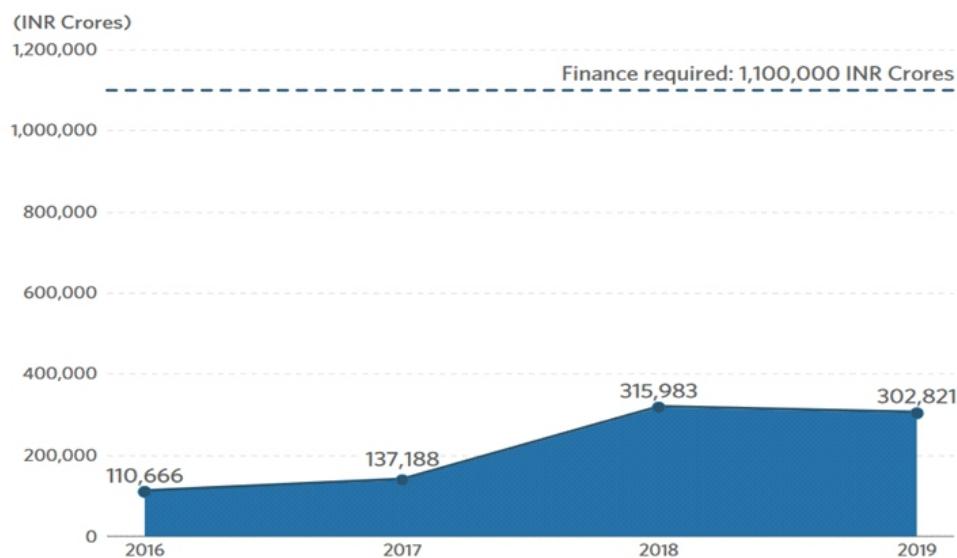
Recent trends of Green Finance in India (Current Status)

Green finance flows in India are falling far short of the country's current needs. In 2019/2020, tracked green finance was INR 309 thousand crores (~USD 44 billion) per annum, approximately a fourth of India's needs (Landscape-of-Green-Finance-in-India-2022-Full-Report.Pdf, n.d.-a). The "Landscape of Green Finance India" evaluates the flow of green finance to strength the economy sectors in term of clean transport, clean energy and Energy efficiency. According to (Landscape-of-Green-Finance-in-India-2022-Full-Report.Pdf, n.d.-b) it is supposed that to achieve India's Nationally Determined Contributions (NDCs) under the Paris Agreement (international treaty on climate change), the country requisite approx.. INR 162.5 lakh crores (USD 2.5 trillion) from 2015 to 2030, or roughly INR 11 lakh crores (USD 170 billion) per year.

As per the environment ministry in order to meet the marked changes in the environment sector, India is said require USD 2.5 trillion, out of which USD 280 Billion is looked over (from 2021 – 2026) for the foundation of green finance. By conservative estimates, the current tracked green finance in India represents less than 25% of the total requirement across sectors just to meet NDCs (Dhoot & Awate, 2023).

Green finance investments and the estimated finance required to meet current NDCs

According to the report it can be noted that green finance flows showed an incline of 150% from



Source: <https://www.climatepolicyinitiative.org>

2017/18 to 2019/20. An overall incline in the public sector of 179% and private of 130 was observed. According to the “Landscape report of green finance” it is said that to fulfil the Panchamrit target, India need approx. USD 2.5 trillion till 2030 and USD 10.1 trillion to attain Net-Zero emissions by 2070. It is said that India needs a strong environment policy for enabling green finance to a great scale.

In India, residential and commercial buildings utilize more than 37 percent of the country's electrical energy, and certified green buildings save up to 20 percent to 30 percent on energy, and 30 percent to 50 percent on water(Dhoot & Awate, 2023).

With the above data it can be noted that there is seen an incline in the growth of the green finance for attaining the goal by 2030. According to this study H_0 (Null Hypothesis) which say that there is a significant growth seen in green finance in India is accept and H_a (Alternative Hypothesis) which noted that there is no significant growth under green finance in India has been rejected.

Green Finance Future

Environment sustainability which is known to be the key issue on worldwide level of has seen an incline in the scope for investment under green projects. The government and RBI (Reserve Bank of India) has introduced many guidelines and polices for the banks different industries for environment sustainability. RBI has advised the banks and the non-banks financial companies for accepting green deposits and granting green loans through various schemes. The purpose is to ensure funds are utilized for energy efficiency, clean transportation, climate change adaptation, sustainable water and waste management, green buildings, and terrestrial and aquatic biodiversity conservation (Green Finance Is Gaining Traction for Net Zero Transition in India, n.d.).

It is said that in March SEBI (Security Exchange Board of India) has introduced ESG Category for mutual fund, which are environmental, social, and governance funds invested in the companies that are compliant in ESG parameters and focus on environmental benefits. Government has also taken various action on green financing including tax break for low carbon technology, policy push for green financing instruments, etc. many financial institutions are also looking for the investment under green financing which would lead to the rise in demand for green bonds and green funds.

India is said to lower its carbon emission by 30% to 50% till 2030, and for this it requires an additional fund of 600 – 700 EUROS. International Finance Corporation has decided to invest \$75 million in green bond issued by Punjab National Bank. Under the Council on Climate Change various programs have also been launched for adaptation and mitigation of climate change, some of which are:

1. National Action Plan on Climate change
2. Jawahar Lal Nehru National Solar Mission
3. National Mission for Enhanced Energy Efficiency
4. National Mission on Strategic Knowledge for Climate Change
5. National Clean Energy fund
6. Green Housing/ habitat- Rain water harvesting, waste management, renewable/ solar energized, sanitation, eco-friendly material.
7. Biomass energy- Bio gas, Rice husk, Sugarcane bagasse /Molasses waste
8. Rural and eco-tourism
9. Biofertilizer/biopesticide, Azotobacter, Trichoderma, Tricogramma
10. Auto Fuel vision and Policy 2025

Conclusion

With the above study it can be noted that Green Finance plays a vital role environment sustainable development especially in the developing country like India. Every year the carbon emission can be seen increasing due to which an incline is noted in the global warming. Global warming is said to be creating various problems in the environment. This year in 2023 India noted the hottest month in February comparing to the previous year. Like the other country India is also in the race of times and is trying to achieve its sustainable development goals through different finances.

Green finance mainly focuses on reducing the carbon level and the greenhouse gas emission and for these various initiatives are also taken by the Indian government and RBI, in which some schemes are

mentioned above. Though there is involvement of various sectors in green finance flow, it needs to be improved to achieve the goal under sustainable development by 2030.

Reference:

1. Ansari, K. (2022). GREEN FINANCE IN INDIA: TREND AND CHALLENGES. 2(4).
2. Assistant Professor , Jaipuria Institute of Management, Jaipur, Jha*, B., Bakhshi, P., & Associate Professor Banking and Finance at Jaipuria Institute of Management Indore. (2019). Green Finance: Fostering Sustainable Development in India. International Journal of Recent Technology and Engineering (IJRTE), 8(4), 37983801. <https://doi.org/10.35940/ijrte.D8172.118419>
3. A_Study_on_Emerging_Green_Finance_in_Ind.pdf. (n.d.).
4. Charles, G., & Philip, B. (n.d.). GREEN FINANCE: RECENT DRIFTS, CONFRONTATION AND PROSPECT OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT IN INDIA.
5. Dhoot, P., & Awate, S. (2023). Vidhyayanaejournal.
6. Emeritus. (2023, January 9). What is Green Finance and What are its Benefits? Emeritus Online Courses. <https://emeritus.org/blog/finance-what-is-green-finance/>
7. Green Bond: Types, How to Buy, and FAQs. (n.d.). Investopedia. Retrieved December 26, 2023, from <https://www.investopedia.com/terms/g/green-bond.asp>
8. Green finance is gaining traction for net zero transition in India. (n.d.). Retrieved December 27, 2023, from [https://www.ey.com/en_in/climate-change-sustainability-services/green-finance-is-gaining-traction-for-netzero-transition-in-india](https://www.ey.com/en_in/climate-change-sustainability-services/green-finance-is-gaining-traction-for-net-zero-transition-in-india)
9. Green Finance-Meaning, Objectives & Climate Financing for UPSC. (n.d.). Testbook. Retrieved December 22, 2023, from <https://testbook.com/ias-preparation/green-finance>
10. India incorporates green bonds into its climate finance strategy. (2023, June 12). <https://blogs.worldbank.org/climatechange/india-incorporates-green-bonds-its-climate-finance-strategy>
11. Landscape-of-Green-Finance-in-India-2022-Full-Report.pdf. (n.d.-a). Retrieved December 22, 2023, from <https://www.climatepolicyinitiative.org/wp-content/uploads/2022/08/Landscape-of-Green-Finance-in-India-2022-Full-Report.pdf>
12. Landscape-of-Green-Finance-in-India-2022-Full-Report.pdf. (n.d.-b). Retrieved December 26, 2023, from <https://www.climatepolicyinitiative.org/wp-content/uploads/2022/08/Landscape-of-Green-Finance-in-India-2022-Full-Report.pdf>
13. Rasoulinezhad, E., & Taghizadeh-Hesary, F. (2022). Role of green finance in improving energy efficiency and renewable energy development. Energy Efficiency, 15(2), 14. <https://doi.org/10.1007/s12053-022-10021-4>
14. Sarangi, G. K. (n.d.). Green energy finance in India: Challenges and solutions.
15. Soundarajan, P., & Vivek, N. (2016). Green finance for sustainable green economic growth in India. Agricultural Economics (Zemědělská Ekonomika), 62(1), 3544. <https://doi.org/10.17221/174/2014-AGRICECON>

Nurturing Workplace Harmony: Exploring Employee Relationship Management for Organizational Success

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Abstract

In today's dynamic work landscape, fostering positive connections between employees and their organizations is pivotal for sustained success. This abstract delves into the realm of Employee Relationship Management (ERM), a strategic approach aimed at cultivating a harmonious work environment. Employing seven keywords—communication, trust, recognition, collaboration, well-being, feedback, and growth—this study emphasizes the simplicity and effectiveness of key elements in managing employee relationships.

Communication forms the bedrock of ERM, enabling transparent dialogue and facilitating the exchange of ideas. Establishing clear channels for open and transparent communication ensures that expectations are understood, grievances are addressed promptly, and a sense of unity is fostered among team members. Trust emerges as a linchpin, binding individuals and organizations in a mutual understanding. Building trust involves consistency, integrity, and a commitment to mutual growth. When trust is cultivated, employees are more likely to be engaged and dedicated to their roles. Recognition serves as a catalyst, acknowledging and appreciating employees' contributions to bolster morale and engagement. Collaboration emerges as a cornerstone, promoting teamwork and a collective spirit.

The well-being of employees is underscored, recognizing its direct impact on productivity and job satisfaction. Constructive feedback emerges as a constructive tool, fostering continuous improvement and skill development. Finally, the pursuit of growth is pivotal, providing avenues for professional development and personal advancement.

This abstract advocates for a holistic and people-centric approach, asserting that by prioritizing these seven keywords, organizations can effectively navigate the intricacies of ERM. Ultimately, a workplace culture rooted in communication, trust, recognition, collaboration, well-being, feedback, and growth not only enhances employee satisfaction but also fortifies the foundation for organizational prosperity in an ever-evolving professional landscape.

Keywords: *Communication, Trust, Recognition, Collaboration, Well-Being, Feedback, Growth.*

Introduction

The contemporary business landscape is marked by rapid changes, increasing competition, and a growing emphasis on the importance of organizational success. Workplace harmony, defined as the positive and collaborative relationships among employees, is recognized as a critical factor influencing organizational success. In today's dynamic work environments, where diversity and innovation are celebrated, nurturing workplace harmony is more essential than ever. Organizations are increasingly realizing that fostering positive employee relationships contributes not only to a healthier work environment but also to improved productivity, creativity, and overall success. The interconnected

nature of modern workplaces necessitates a comprehensive understanding of employee relationship management, encompassing communication, trust, recognition, collaboration, well-being, feedback, and growth.

Workplace Harmony

Workplace harmony is the state of having a positive and cooperative atmosphere at work. It involves employees working together smoothly, respecting each other, and creating a friendly environment. In a harmonious workplace, there's a sense of unity, collaboration, and minimal conflict. It's about fostering a positive culture where people feel comfortable, valued, and motivated to contribute their best to achieve common goals.

Factors influencing Workplace Harmony

Workplace harmony is influenced by a combination of factors that contribute to a positive and collaborative work environment. Here are several key factors that play a crucial role:

1. **Effective Leadership:** Leadership styles and practices significantly impact workplace harmony. Supportive, communicative, and inclusive leadership fosters trust, cooperation, and a sense of unity among team members.
2. **Communication Strategies:** Clear and open communication is essential for workplace harmony. Effective communication strategies, such as regular updates, active listening, and transparent information-sharing, promote understanding and prevent misunderstandings.
3. **Organizational Culture:** The overall culture of the organization sets the tone for workplace interactions. A positive and inclusive culture that values teamwork, diversity, and mutual respect contributes to a harmonious work environment.
4. **Employee Recognition and Appreciation:** Acknowledging and appreciating employees for their contributions fosters a positive atmosphere. Recognition programs, praise, and appreciation create a sense of value and motivation, contributing to workplace harmony.
5. **Conflict Resolution Mechanisms:** The ability to address and resolve conflicts constructively is crucial for maintaining harmony. Having effective conflict resolution mechanisms in place promotes a healthy work environment where issues are addressed promptly and collaboratively.
6. **Team Building and Collaboration:** Activities that encourage team building and collaboration contribute to a harmonious workplace. Team-building exercises, collaborative projects, and a focus on shared goals enhance interpersonal relationships and teamwork.
7. **Work-Life Balance:** Supporting a healthy work-life balance is essential for employee well-being and, consequently, workplace harmony. Organizations that prioritize work-life balance contribute to reduced stress and increased job satisfaction.
8. **Fair and Consistent Policies:** Fair and consistent organizational policies create a sense of fairness among employees. When policies are transparent, applied consistently, and promote equal treatment, it contributes to a positive work environment.
9. **Employee Involvement and Empowerment:** Involving employees in decision-making processes and empowering them to contribute to the organization's success enhances engagement and satisfaction. Employees who feel a sense of ownership are more likely to work harmoniously with their colleagues.
10. **Diversity and Inclusion:** Embracing diversity and fostering an inclusive workplace is essential for harmony. Organizations that value and celebrate diversity create an environment where employees feel accepted and respected, contributing to a harmonious workplace culture.
11. **Training and Development Opportunities:** Providing opportunities for employee growth and development demonstrates a commitment to their professional well-being. Employees who feel invested in are more likely to be engaged and work harmoniously with their peers.

12. Positive Physical Work Environment: The physical work environment, including factors like office layout, lighting, and amenities, can influence workplace harmony. A comfortable and positive physical space contributes to employee satisfaction and collaboration.

Understanding and addressing these factors collectively contribute to the creation of a harmonious workplace, where employees feel valued, motivated, and work together cohesively towards organizational success.

Importance of Workplace Harmony

In the contemporary business landscape, characterized by diversity, globalization, and rapid technological advancements, the significance of workplace harmony cannot be overstated. Workplace harmony refers to the state of positive and cooperative relationships among individuals within an organization, fostering a supportive and collaborative working environment. The importance of workplace harmony extends beyond the mere interaction among employees; it significantly impacts organizational culture, productivity, and overall success. Research indicates that organizations characterized by a harmonious work environment experience higher levels of employee satisfaction, engagement, and retention.

The multifaceted nature of workplace harmony encompasses various elements, including effective communication, mutual trust, employee recognition, collaborative efforts, employee well-being, constructive feedback, and avenues for personal and professional growth. As organizations navigate the complexities of a competitive market, those that prioritize and nurture workplace harmony gain a strategic advantage by cultivating a motivated, engaged, and cohesive workforce. A harmonious workplace is conducive to open communication, mutual trust, and a shared commitment to organizational goals, leading to increased efficiency and innovation.

Employee Relationship Management (ERM)

Employee Relationship Management is a strategic approach that organizations use to build and maintain positive relationships with their employees. It involves various practices and strategies aimed at understanding, supporting, and engaging employees throughout their journey within the company. Employee Relationship Management includes effective communication, recognizing and appreciating employee contributions, providing opportunities for growth, and addressing concerns to create a workplace where employees feel valued and connected. The goal is to nurture a healthy and mutually beneficial relationship between the organization and its employees, leading to increased job satisfaction, productivity, and overall success.

Significance of Employee Relationship Management for Organizational Success

Employee Relationship Management is crucial for organizational success because it boosts employee happiness and productivity, reduces turnover, shapes a positive workplace culture, improves communication, resolves conflicts, supports employee well-being, enhances customer satisfaction, encourages innovation, helps with adaptability to change, and ensures legal and ethical compliance. The significance of Employee Relationship Management for organizational success is profound, and it impacts various aspects of a company's performance.

Employee Relationship Management is essential for organizational success due to several key reasons:

- 1. Employee Engagement and Productivity:** Employee Relationship Management fosters a positive work environment and encourages employees to feel engaged and motivated. Engaged employees are more likely to be productive, innovative, and committed to their work.
- 2. Retention and Talent Management:** A strong Employee Relationship Management strategy

- contributes to employee satisfaction and reduces turnover rates. High employee retention is cost-effective and helps retain valuable institutional knowledge and skills.
3. **Organizational Culture:** Employee Relationship Management plays a pivotal role in shaping and reinforcing the organizational culture. A positive workplace culture contributes to employee satisfaction and attracts top talent.
 4. **Communication and Collaboration:** Effective Employee Relationship Management promotes open communication between management and employees. Good communication enhances collaboration, teamwork, and the overall efficiency of the organization.
 5. **Conflict Resolution:** Employee Relationship Management provides a framework for addressing and resolving conflicts in a constructive manner. Resolving conflicts promptly helps maintain a healthy work environment and prevents escalation.
 6. **Employee Well-being:** Organizations that prioritize Employee Relationship Management are more likely to invest in employee well-being programs. Supporting employee well-being contributes to improved health, job satisfaction, and overall work-life balance.
 7. **Customer Satisfaction:** Satisfied and engaged employees are more likely to provide excellent customer service. Positive employee-customer interactions contribute to customer satisfaction and loyalty.
 8. **Innovation and Creativity:** Employee Relationship Management fosters an environment where employees feel comfortable sharing ideas and taking risks. A culture that encourages innovation and creativity can give organizations a competitive edge.
 9. **Adaptability and Change Management:** Employee Relationship Management helps build a resilient workforce capable of adapting to change. Engaged employees are more likely to embrace change initiatives and contribute to the organization's adaptability.
 10. **Legal and Ethical Compliance:** A well-implemented Employee Relationship Management strategy ensures that organizations comply with labour laws and ethical standards. This reduces the risk of legal issues and reinforces the organization's reputation.

In summary, Employee Relationship Management is essential for creating a positive and productive workplace, attracting and retaining talent, fostering innovation, and ultimately contributing to the overall success and sustainability of an organization. It goes beyond traditional HR practices and emphasizes the importance of building strong, mutually beneficial relationships between employees and the organization.

Objectives of the study

1. To assess existing Employee Relationship Management strategies and practices within the organization.
2. To identify and analyse key factors influencing workplace harmony from the employee perspective.
3. To measure employee satisfaction and engagement, exploring their impact on organizational productivity.
4. To investigate communication dynamics and effectiveness, along with strategies for conflict resolution.
5. To offer practical recommendations to strengthen Employee Relationship Management, fostering workplace harmony and organizational success.

Scope of the study

1. The study will concentrate on a specific organization or a defined set of organizations where Employee Relationship Management (ERM) practices are implemented.
2. The study will cover a specific time frame, detailing the present state of Employee Relationship

- Management practices and their historical evolution within the chosen organization(s).
3. The study will focus on a particular geographic location or locations where the selected organization(s) operate.
 4. The research will consider employees at various levels and departments within the organization(s), encompassing a diverse range of roles and responsibilities.
 5. The study will explore key components of Employee Relationship Management, including communication strategies, conflict resolution mechanisms, talent management, and employee engagement initiatives.
 6. The primary focus will be on providing actionable recommendations to enhance existing Employee Relationship Management practices and contribute to fostering workplace harmony and organizational success.

Limitations of the study

1. The study's findings may only apply to the specific group studied and might not reflect broader situations.
2. Employee opinions about Employee Relationship Management (ERM) could be influenced by personal perspectives, impacting the study's objectivity.
3. Factors outside the organization, like economic conditions, may affect workplace dynamics, making it challenging to attribute changes solely to Employee Relationship Management practices.
4. The study might face challenges as organizational conditions evolve, potentially affecting the relevance of Employee Relationship Management findings over time.
5. Employee feedback might be biased, consciously or unconsciously, leading to a possible distortion in understanding Employee Relationship Management practices and workplace harmony.

Literature Review

- **Grawitch, Gottschalk & Munz (2006)** concluded in their research that satisfaction with healthy workplace practices, including “employee involvement” practices, played a significant role in predicting “employee outcomes” of “organizational commitment”, “emotional exhaustion”, “mental well-being”, and “turnover intentions”.
- **Walton (2009, p. 31)** Employee engagement can be defined as a behavioural, emotional and cognitive component that influences an employee's attitude, beliefs, and behaviours driven through the desire to lead towards the financial and non-financial success of business unit.
- **Robertson et al. (2010)** The concept of employee engagement is related to the psychological well-being of the employee.
- **Wright (2010)** Employee engagement results in employee satisfaction and motivation.
- **Schaufeli (2013)** stated Present academic literature has been less disposed to utilize the methodology of partitioning employee engagement to organizational engagement and job engagement regardless of the attractiveness of this conception.
- **Artody Wiseto et al. (2016)** To increase employee engagement, the company needed managers who have great attention to their subordinates.
- **Douglas, S. & Roberts, R. (2020)** Employee engagement is the technique that HR professionals can use to leverage the dedication and talents of older employees.
- **Tucker, E. (2020)** Employee engagement is the commitment of the employees towards the organizational goals and employers are using the employee experience as an engagement practice to foster employee engagement.

Key terms

1. **Communication:** The exchange of information, ideas, thoughts, or feelings between individuals or groups within an organization. Effective communication is essential for clarity, understanding, and fostering a positive workplace environment.
2. **Trust:** The belief or confidence in the reliability, integrity, and honesty of individuals, teams, or the organization itself. Trust is fundamental for building strong relationships and a cohesive work culture.
3. **Recognition:** Acknowledgment and appreciation of employees' efforts, achievements, or contributions. Recognition is a crucial element in motivating and reinforcing positive behaviours within the workplace.
4. **Collaboration:** Working together towards a common goal, often involving shared responsibilities, ideas, and resources. Collaboration promotes synergy, innovation, and the achievement of collective objectives.
5. **Well-Being:** The state of being physically, mentally, and emotionally healthy. Workplace well-being initiatives aim to support employees in maintaining a balanced and fulfilling life, contributing to overall job satisfaction and productivity.
6. **Feedback:** Information provided to individuals or teams regarding their performance, behaviour, or work. Constructive feedback is essential for personal and professional development, facilitating continuous improvement.
7. **Growth:** The process of development, advancement, or improvement, often in terms of skills, knowledge, or career progression. Organizations that prioritize growth create opportunities for employees to expand their capabilities and reach their full potential.

Hypotheses:

Hypothesis 1:

Null Hypothesis (H^0): There is no significant relationship between “Employee Relationship Management” and “Workplace Harmony”.

Alternative Hypothesis (H^1): There is a significant relationship between “Employee Relationship Management” and “Workplace Harmony”.

Research Design

The qualitative approach in research is a methodology focused on uncovering the depth and richness of human experiences, behaviours, and social phenomena. Unlike quantitative research, which relies on numerical data and statistical analysis, qualitative research emphasizes the collection and interpretation of non-numerical data, such as interviews, observations, and textual materials. Qualitative studies are characterized by their flexible and exploratory nature, often taking place in naturalistic settings to capture the context and nuances of the subject under investigation. Researchers actively engage with the data, seeking to understand the meanings and perspectives of participants. Thematic analysis is a common qualitative method, allowing researchers to identify patterns and themes within the data. Qualitative research is particularly well-suited for exploring complex social issues, providing an in-depth understanding of the topic, and offering valuable insights into the subjective experiences of individuals.

In qualitative research, the emphasis on context, subjective interpretation, and emergent design allows for a holistic exploration of the research question. Researchers use purposeful sampling to select participants based on their relevance to the study, aiming to capture diverse perspectives. Findings are typically presented in narrative and descriptive formats, offering detailed accounts supported by direct quotes and examples. This approach is widely utilized across disciplines like sociology, anthropology, psychology, and education, contributing to a nuanced understanding of human behaviour and societal phenomena.

Data Collection

Primary data has been collected and a structured questionnaire was used to collect information from a random selection of employees and managers with minimum one year of working experience, in order to assess their perception of various factors influencing workplace harmony and organizational success and discuss how communication, trust, recognition, collaboration, well-being, feedback, and growth impact workplace harmony.

Survey Instrument

The structured survey questionnaire was customized from standardized and valid questions used in previous research studies, to examine the influence of workplace harmony on organizational success. It initially comprised of 2 essential parts-

- **Part-1:** Demographic Information (Gender, Year of birth, marital status, no. of dependents, tenure in current organization, overall experience, education, function/dept, role)
- **Part- 2:** Objective type, closed –ended questions based on 5-point Likert scale to assess perception of employees on the study variables (“5-point Likert Scale”: “Strongly Disagree- 1”; “Disagree-2”; “Neutral-3”; “Agree-4”; “Strongly Agree-5”)

Reliability testing of the finalised questionnaire was undertaken. The questionnaire had an introductory note to describe the objectives and relevance of the study, and assured complete anonymity of individual responses. The questionnaire was circulated online through email, by reaching out to the professional connections.

Data Analysis and Interpretations

• Demographic Analysis

Out of total 150 respondents of CCL, Ranchi, 94 (62.67%) were males and 56 (37.33%) were females. On the age front, respondents were in the age group: 21-30 years = 45 (30%), 31-40 years = 67 (44.67%), 41-50 years=27 (18%) and 51-60 years=11 (3%) respectively. In terms of marital status, 82 (54.67%) respondents were married while 68 (45.33%) were unmarried. In terms of tenure in their current organization, respondents were in the category of 1-2 years= 45 (30%), followed by 2-5 years=84 (56%) and 6-10 years=21(14%). From the perspective of educational backgrounds, 27 (18%) of the respondents were postgraduates, 109 (72.67%) were graduates and 14 (9.33%) had other qualifications.

Figure 1.1: Gender Distribution of Respondents

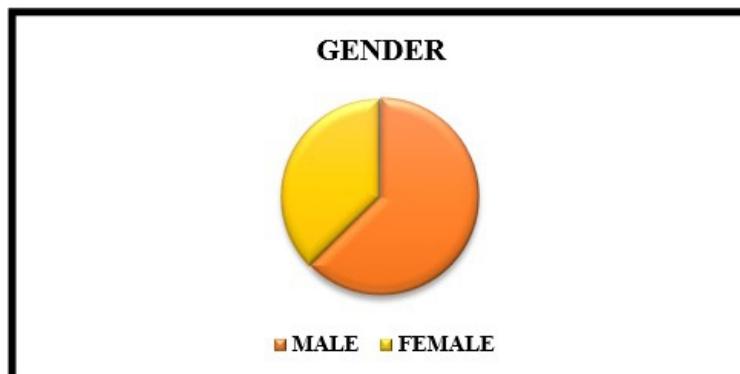


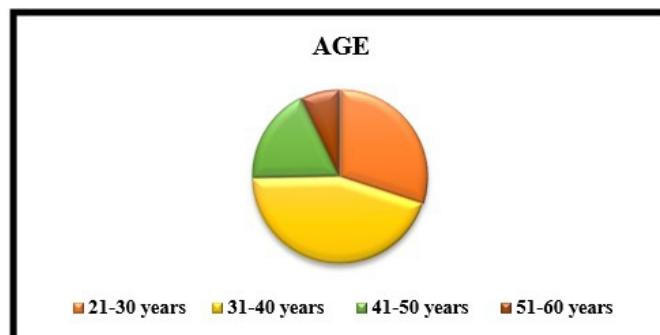
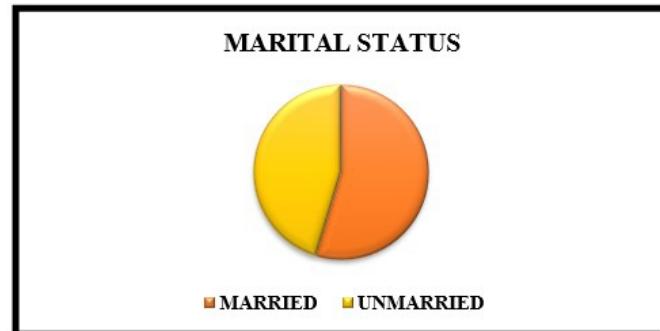
Figure 1.2: Age Distribution of Respondents**Figure 1.3: Distribution of Respondents on Marital Status****Figure 1.4: Distribution of Respondents on current organizational tenure****Figure 1.5: Distribution of Respondents on Educational Qualifications**

Table – 1.1

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree	Mean
1. COMMUNICATION:						
1.1 The organization effectively communicates information about its goals and objectives.	10	20	11	38	71	3.933333
1.2 Communication within my team is clear and transparent.	3	8	19	77	43	3.993333
1.3 I feel comfortable expressing my opinions and ideas in team meetings.	16	25	19	50	40	3.486667
2. TRUST:						
2.1 I trust my colleagues to fulfill their responsibilities.	14	37	16	60	23	3.273333
2.2 There is a sense of mutual trust within my team.	7	18	13	85	27	3.713333
2.3 I trust the leadership's decisions and actions.	11	21	15	77	26	3.573333
3. RECOGNITION:						
3.1 I feel appreciated for my contributions to the organization.	19	12	17	74	28	3.533333
3.2 Recognition and acknowledgment are given in a timely manner.	21	32	10	53	34	3.313333
3.3 The organization has effective mechanisms for employee recognition.	17	33	19	59	22	3.24
4. COLLABORATION:						
4.1 Team members collaborate effectively to achieve common goals.	20	39	21	57	13	3.026667
4.2 Collaboration is encouraged and valued within the organization.	14	17	28	66	25	3.473333
4.3 The organization provides tools and resources to facilitate collaboration.	6	16	23	71	34	3.74
5. WELL-BEING:						
5.1 The organization prioritizes the well-being of its employees.	14	9	21	85	21	3.6

5.2 Well-being resources and programs are accessible and known to employees.	8	15	19	75	33	3.733333
5.3 I feel supported in maintaining a healthy work-life balance.	11	13	23	65	38	3.706667
6. FEEDBACK:						
6.1 I receive regular and constructive feedback on my performance.	18	25	13	65	29	3.413333
6.2 Feedback is provided in a manner that helps me improve.	5	17	18	84	26	3.726667
6.3 There is an open feedback culture within the organization.	16	27	7	79	21	3.413333
7. GROWTH:						
7.1 The organization provides sufficient opportunities for professional development.	10	15	25	69	31	3.64
7.2 I feel supported in my career growth within the organization.	19	17	15	59	40	3.56
7.3 The organization values and invests in employee training for growth.	11	13	22	85	19	3.586667

t-Test			
	t	df	p
Mean	70.959	20	< .001

Interpretation

The t-test was conducted and the calculated value was presented in the above table at a 5% significant level, it was observed that p-value < 0.05, the null hypothesis (there is no significant relationship between “Employee Relationship Management” and “Workplace Harmony”) is rejected. It means “there is a significant relationship between Employee Relationship Management and Workplace Harmony.

Recommendations

The acceptance of the hypothesis, affirming a significant relationship between Employee Relationship Management (ERM) and Workplace Harmony, marks a pivotal milestone. To translate this insight into actionable strategies, organizations are encouraged to strategically integrate Employee Relationship Management principles into their human resources practices. This involves aligning Employee Relationship Management strategies with broader organizational goals, prioritizing employee training in interpersonal skills, and implementing leadership development programs to foster a positive workplace culture.

Continuous monitoring and evaluation of Employee Relationship Management initiatives are paramount, providing insights into their impact on Workplace Harmony over time. Internal communication strategies should be enhanced to ensure transparency, and mechanisms for collecting regular employee feedback should be established. Recognizing the uniqueness of different teams, tailored Employee Relationship Management interventions can be designed to address specific needs, and collaboration with organizational development experts can offer additional perspectives on improving organizational dynamics.

Furthermore, documenting success stories related to Employee Relationship Management initiatives and integrating indicators of Workplace Harmony into performance metrics will reinforce the importance of Employee Relationship Management in the overall success of the organization. By embracing these recommendations, organizations can actively promote a positive workplace culture, enhance employee satisfaction, and contribute to sustained organizational success.

Conclusion:

In conclusion, fostering workplace harmony through effective Employee Relationship Management (ERM) is crucial for achieving organizational success. This exploration has highlighted the multifaceted nature of employee relationships and the impact they have on overall workplace dynamics. By investing in positive relationships between employees and creating a supportive work environment, organizations can enhance employee satisfaction, engagement, and productivity.

Employee Relationship Management involves various strategies, including communication, conflict resolution, and team building. Recognizing the individual needs and aspirations of employees contributes to a more inclusive and harmonious workplace. Moreover, a strong Employee Relationship Management framework helps in building trust, reducing turnover, and fostering a sense of belonging among employees. Organizations that prioritize workplace harmony through ERM initiatives are likely to experience improved teamwork, innovation, and overall performance. The positive ripple effect of harmonious employee relationships extends beyond the workplace, positively impacting organizational culture and external perceptions. As the business landscape evolves, organizations must adapt their strategies to meet the changing needs and expectations of their workforce. Continuous investment in Employee Relationship Management not only aligns with ethical and socially responsible business practices but also positions the organization for long-term success in a competitive environment.

In conclusion, a commitment to nurturing workplace harmony through effective Employee Relationship Management is an investment in the well-being of employees and the prosperity of the organization as a whole. As organizations strive for success, they should recognize that the strength of their workforce relationships is a powerful determinant of their ability to thrive and excel in a dynamic and ever-changing business world.

References:

- Alfes, K., Shantz, A. D., Truss, C., & Soane, E. C. (2013). The link between perceived human resource management practices, engagement and employee behaviour: a moderated mediation. *The International Journal of Human Resource Management*, 330-351.
- G. R. Slemp, M. L. Kern, and D. A. Vella-Brodrick (2015), “Workplace Well-Being: The Role of Job Crafting and Autonomy Support.” *Psychology Well-Being* a Springer Open Journal. 5(1). doi:10.1186/s13612-015-0034-y.
- Alagaraja, M., & Shuck, B. (2015). Exploring organizational alignment-employee engagement linkages and impact on individual performance: A conceptual model. *Human Resource Development Review*, 14, 17-37.

- S. Kimber, D. H. Gardner (2016), “Relationship Between Workplace Well-being, Job Demands, and Resources in a Sample of Veterinary Nurses in New Zealand.” *New Zealand Veterinary Journal*. 64(4), 224–229. doi:10.1080/00480169.2016.1164092.
- Zucker, R. (2017), “Help your team achieve work-life balance – even when you can't”, *Harvard Business Review*.
- Bakker, A. B., & Albrecht, S. (2018). Work engagement: Current trends. *Career Development International*, 23, 4-11.
- Yu, H.H. (2019), “Work-life balance: an exploratory analysis of family-friendly policies for reducing turnover intentions among women in U.S. Federal law enforcement”, *International Journal of Public Administration*, Vol. 42 No. 4, pp. 345-357, doi: 10.1080/01900692.2018.1463541.
- Akingbola, K., & van den Berg, H. A. (2019), Antecedents, consequences, and context of employee engagement in nonprofit organizations. *Review of Public Personnel Administration*, 39, 46–74

The Convergence of Blockchain and Edge Computing for Smart Contracts Management in IIoT

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Abstract

The Industrial Internet of Things (IIoT) is the association of smart sensors, actuators, and operational devices linked through the Internet for industrial applications. IIoT refers to the convergence of Information Technology and Operational Technology provides automation and optimization to industries with greater cohesive infrastructure. The key factors need to be prioritised for IIoT implementation to be successful are security, availability, and scalability.

However, when incorporating the IIoT into their operations, security is a crucial aspect of reliability. Some of the security challenges are mentioned as issues with IoT hardware, usage of strong passwords, conversion of data into code, consolidation of adequate data, several problems with networks, inadequate testing, device upgradation, software violation, and privacy issues in mobile, web, and cloud. In this security concern, in this paper smart contracts management system will be proposed with the convergence of blockchain and edge computing. Blockchain technology is essentially a distributed and secure ledger that records all the transactions into a hierarchically expanding chain of blocks. Edge computing brings the cloud capabilities closer to the computation tasks. This convergence methodology helps to overcome the existing issues.

Keywords: *Industrial Internet of Things, Smart Contracts Management, Blockchain, Edge Computing, Security.*

1. Introduction: Industrial Internet of Things (IIoT) is ecosystem comprising a set of interconnecting operational technology with communication and information technology components, which may be centralized or distributed and provides automation, de-centralized decision with the aim of improve safety, reliability, throughput, and transparency. With the recent development of analytical technology, communication technology and information technology, the IIoT is able to increase efficiency and productivity of industrial system. Interconnected sensors attached with operational devices collect and share data with computational devices through communication technology. Millions of smart devices are connected to IIoT network which generated huge amount of data to process, demand further analysis, and provides automation and intelligence for further processing [1].

In traditional centralised cloud computing ecosystem, all the data which is generated by sensors need to send to the centralised cloud server for storage and further analysis and the receiver receives the result after computation from the cloud. The network is overloaded as data size is increasing day by day, causes deterioration in performance and reliability in real time applications. Real time applications of IIoT such as smart vehicle, smart health care need more reliable network and quick computation for decision process and the traditional cloud computing based services where the computation is performed very far from data source, are not able to meet requirement of time sensitive applications[2]. This is a serious issue to adopt IIoT in Real time applications where response time is critical issue. In IIoT, most of the smart devices are resource constrain in memory and processing power[3]. Computations closure to source decrease the transmission time and network traffic and increase the life of power source and computation overload of sensors used in operational devices. A wide range of work has been published to overcome challenge of IIoT system by use of blockchain technology in IIoT applications [4,5]

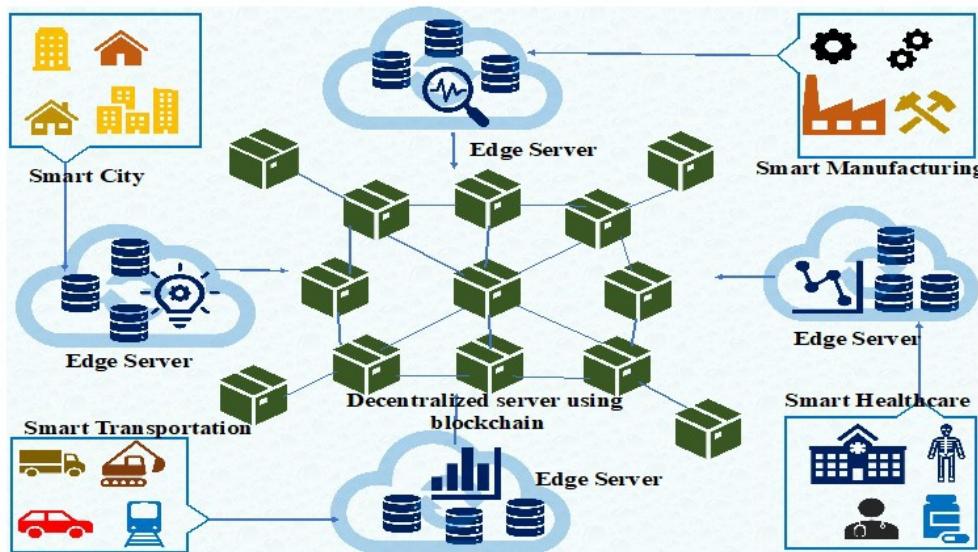


Fig. 1 : Blockchain enabled edge computing architecture for IIoT applications.

To address this issue, in this paper we present our perspective of convergence of edge computing and blockchain to resolve the issue of using centralised cloud computing system in time sensitive IIoT applications. Fig. 1 shows the architecture of blockchain enabled edge computing mechanism for industrial IoT applications such as smart healthcare system, smart transportation system, smart city, and smart manufacturing sector. Edge computing refers to storing and computing data nearer to the source of data generations. It helps to reduce power consumption, computation, transmission latency and network traffic and improve the response time and reliability, lifetime, and throughput Edge computing collaboration with blockchain reduces the dependencies on centralized cloud server.

Our contribution in this paper is listed below:

- We performed literature review on real time application of IIoT.
- We performed literature review on edge computing, blockchain technology used in IIoT applications.
- We explore blockchain, edge computing technology and their features that can help in implantation of real time IIoT applications.
- We explore the smart contract mechanism in blockchain network and its applications.
- We proposed a framework of combining edge computing and blockchain technology using smart contract mechanism to overcome the challenges of use of centralized cloud server in time sensitive IIoT application such as security, safety, transmission latency, trust management, reliability and life time of smart devices.

2. Literature Review

Zhang et al [6] proposed a framework of blockchain based cloud-edge computing system to provide trust management. It achieves device mutual trust through the use of BLS-based proof of replication (PoRep) as a consensus technique. After broadcasting to other nodes, the device data is kept on servers in order to produce proofs and arrive at consensuses. Verifiable delay functions (VDF) based on secret sharing are also used to enhance node consensus-building efficiency and stop servers from dynamically constructing data replicas in PoRep. Rana et al [7] presented a framework of the decentralized model and discussed its fundamental components, such as decentralized storage, smart contracts, and blockchain network. They discussed the data security, dependencies on centralized server and improved integrity through use of the proposed architecture. Next, they performed

comparison with traditional cloud computing technology. They discussed that decentralized paradigm provides digital evidence with enhanced security, ensuring its dependability, usefulness, and immutability. Yao et al [8] present the summary of various blockchain network and their applications. They survey on different categories of consensus mechanism of blockchain. They compare the strength and weaknesses of consensus mechanisms based on security, network reliability and performance of consensus methods. Chen et al [9] present a blockchain consensus mechanism Proof of Solutions (PoSo) to handle mathematical optimization issues. PoSo is optimize the Proof of Work (PoW) of blockchain replacing mathematical puzzle by optimization problem. They performed the security analysis and comparisons with other exiting optimization mechanism. Bodkhe et al [10] present resent consensus technique and explore their weaknesses and strength used in decentralized cyber physical system (CPS). Also, they present taxonomy of decentralized consensus method for different kind of CPS applications. Das et al [11] proposed a non-linear method for peer-to-peer communication in hybrid Ad-hoc network suitable for intelligent network. They used multi objective optimization, Intuitionistic fuzzy logic, game theory technique, and non-linear geometric programming. Sengupta et al [12] performed survey to categories the attacks according to the vulnerable devices. The mapping is performed between individual attack with generalized IIoT system with proposed countermeasure. They explore challenges of centralized computation and discussed the way which blockchain technology might be useful to overcome many challenges associated with IIoT security. Wang et al [13] explore the organization of blockchain network and resent consensus protocol on both perspective of distributed consensus system design and incentive design. They also present analysis of the self-organizing strategy implemented by individual node in the blockchain network from game theory perspective. Nguyen et al [14] explore the limitations in proof of work process in consensus mechanism in blockchain network such as power consumption, time delay and security breaches. They explore a consensus mechanism proof of stack and performed analysis on energy consumption, latency and security and their potential use in especially in internet of things domain. Ye et al [15] explore the security issue of IIoT and compare with IoT security challenges. First, they discussed common security challenges in IoT and IIoT. Next, they discussed industry specific security issue in IIoT system. Yu et al [16] presented data security challenges such as deletion, efficient search, timely usage, and efficient and secured storage. They proposed a framework of IIoT integration for efficient data processing, acquisition and transmission. Wang et al [17] presented a thorough and organized review of blockchain-enabled smart contracts. They discussed the workings and main platforms of blockchain-enabled smart contracts and suggested a smart contract research framework built on an innovative six-layer design. Next, they discussed current advancement, technical and legal challenges. Xiong et al [18] proposed an edge computing framework for mobile blockchain for enabling blockchain applications in future mobile Internet of Things systems. Next, they presented a method for managing resource usage in edge computing and shows that suggested approach is provided along with a prototype of blockchain systems. Boyes et al [19] discusses the definition of IIoT and how it relates to ideas like Industry 4.0 and cyber-physical systems. They proposed an IIoT framework that can be used to count and characterize IIoT devices in order to understand system architectures, security threats, and vulnerabilities.

3. Blockchain technology, Edge computing and Smart contract

Blockchain: Blockchain is a distributed and secure ledger that store every transaction in a chain of blocks that grows hierarchically. Except first block in the chain, which is often referred to as the genesis block since it lacks a parent block, every block in the chain is connected to every other block via the parent block's hash value [20,21,22]. Only after successfully finishing a competition driven by a consensus algorithm can new blocks be committed to a blockchain.

Table 1: Attributes of a node in the blockchain network

Node attribute	Explanation
Previous hash	The parent block's hash
Timestamp	A timestamp that logs the exact moment in seconds
Nonce	It increases with each hash computation, starting at 0
Merkle Root	It is the hierarchical sum of all the block's transaction hashes.
Transactions (Tx)	The transactions carried out in a specific time frame

The features of blockchain technology that has potential to resolve security privacy and scalability issue of time sensitive industrial IoT system.

- a) Decentralisation: A blockchain eliminates the need for centralised third-party authority by validating new blocks in a decentralised manner. Every network user, or node, is able to take part in this validation in theory. Through competition among all participating users, a consensus procedure is essentially completed in this trustfulness validation process
- b) Immutability: A blockchain stores the hash of each block that came before it, or its parent block. Any modification made to the parent block renders every other block that connected directly or indirectly to the block. Furthermore, the hash of all the hashes of every transaction in the block becomes the Merkle root. After a block has been properly committed onto a blockchain, any changes made to any of the transactions within the block will create a new Merkle root. Modification in the Merkle root identifyees whether a transaction has been updated or not.
- c) User anonymity : It cannot be obtained the user identity who conducted those transactions since blockchain addresses are permitted to be anonymous.
- d) Non-repudiation: Blockchain technology uses a digital signature mechanism for transactions. Before sending out a message, the transaction originator signs it with her private key and the recipient validates the message's authenticity by using the sender's public key. Therefore, the signed transaction initiated by that individual cannot be denied.
- e) Automation : Blockchain technology enables smart contracts, which is an executable computer programmes that can be executed automatically to satisfy predefine condition of the transaction. In the blockchain, every smart contract code's execution will be documented as an unchangeable transaction.

Edge computing: The term "edge computing" describes the enabling technologies that enable computation to be carried out at the network's edge, using downstream data for cloud services and upstream data for Internet of Things services [23]. Edge computing devices can be any type of sensors and chip, manufactured by different companies associated with essential computation and storage capabilities [24]. Edge computing optimizes IIoT system by bringing computation closure to data source and lower latency and bandwidth consumption for long distance communication between sensor node and cloud server. A wide range of applications can be developed using edge computing system in IIoT applications such as smart healthcare, smart transportation, smart city, and manufacturing. In edge computing framework edge devices is placed in between terminal devices and cloud computing. The edge computing architecture is a decentralized network topology that brings cloud services to the edge of the terminal devices. In general, the cloud computing layer, edge layer, and sensor layer comprise the framework of cloud-edge collaboration [25]. Fig. 2 shows the layered architecture of blockchain enabled edge computing system. The structure and responsibilities of every layer in the edge computing architecture are briefly described below.

- a) Sensor layer: All device which are connected to the edge network, such as sensors, actuators, smartphone, and other smart devices attached with industrial machinery comprise the sensor layer. The smart device serves as both a data supplier and a data consumer at the sensor layer. A huge amount of unprocessed data is gathered by millions of sensor devices and uploaded to the next layer for storage and computation.

- b) Edge layer: The central component of the three-tier architecture is the edge layer. It is made up of many dispersed edge nodes such as base stations, networks of access points, switches, routers, gateways that are situated between terminal devices and clouds at the network's edge. The edge layer compute analyzes and stores the data uploaded by terminal devices and send necessary data to the next layer also it enables the access of terminal devices downward. Edge layer establish a connection with the cloud, then upload the processed data there. Data transmission to the edge layer is better suited for time sensitive data analysis and real time processing, which is more fast, efficient and reliable than cloud computing because the edge layer is closer to the user.
- c) Cloud layer: The largest and most powerful data processing unit in the three-tier architecture of IIoT is cloud computing. The cloud computing layer is made up of several high-performance servers and storage units with strong processing and storage capacities. These units can be useful for tasks involving a lot of data analysis. The edge computing layer's reported data can be permanently stored by the cloud computing center, which can also perform computations that integrate all edge server's uploaded data as well as analyze that the edge computing layer is unable to handle.

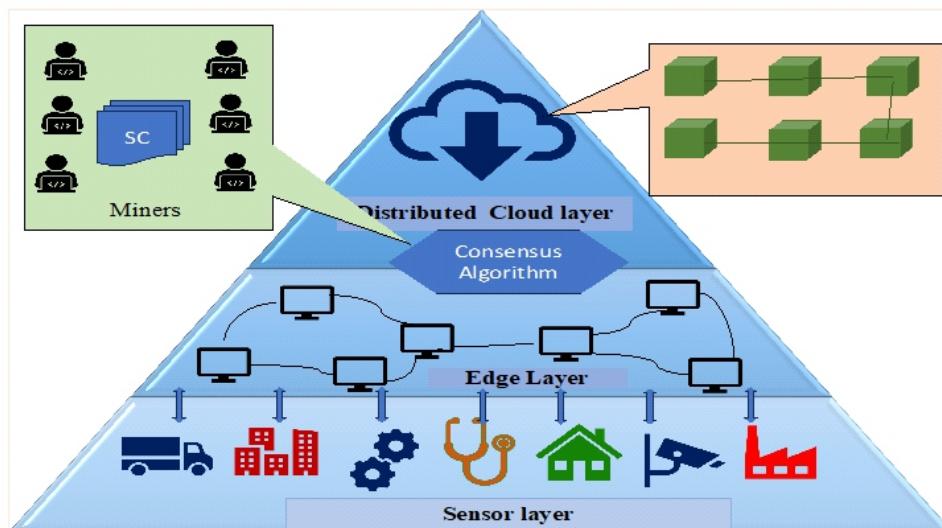


Fig. 2: Layered architecture of blockchain enabled decentralized IIoT network

Smart contract: A smart contract (SC) is a script that runs on a blockchain that allows two parties to make an agreement without the use of a reliable third party. In technical terms, an executable program with data is referred to as a smart contract. A smart contract can be programmed to run automatically when a set of preconditions are met and stored on the blockchain [26]. Smart contracts are stored in one of the blocks in blockchain network and executes automatically when specific condition is satisfied. Smart contracts eliminate the need for third party agents by automating the execution of contracts, allowing every participant of supply chain management of IIoT system to know the result on real time. According to Nick Szabo smart contracts are computer program to complete any multi party transaction processes that execute all contract conditions. By using smart contract in supply chain management in IIoT system, the transaction in supply chain can be secure, immutable, accountable, transparent, and verifiable without the need of any trusted third party system.

A smart contract is a type of software that runs on a specific virtual machine within a distributed ledger such as a blockchain and encapsulates business logic. These days, smart contract programming languages like Solidity and Serpent are more advanced and adaptable, enabling blockchain to facilitate a greater range of financial and interpersonal applications [27]. In industrial IoT system, to access control of a new device in the system, smart contract can be used in distributed blockchain network. In distribute blockchain network to ensure transparency, access control, secure access, and immutability smart contract mechanism can be used [28]. Smart contract parameters are predefined by developers according to applications. The smart contract execute itself when predefine condition met.

4. Convergence of edge computing and block chain

We proposed a decentralized blockchain enabled edge computing framework for IIoT applications for authentication, access control, trust management and safety of smart devices who participates in the IIoT decentralized network. Convergence of blockchain technology with edge computing ecosystem help to achieve decentralization mechanism and make time sensitive IIoT applications feasible. Fig. 3 shows the architecture of convergence of blockchain technology and edge computing mechanism.

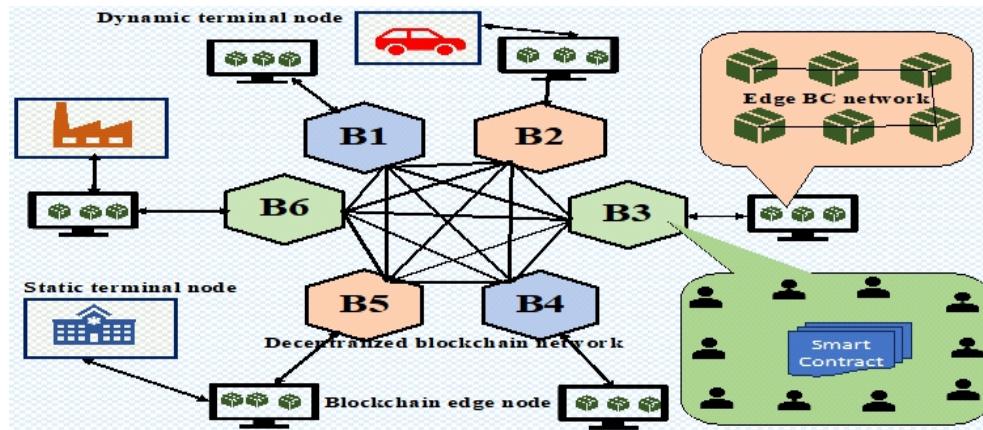


Fig. 3: Convergence of blockchain technology and edge computing using smart contract mechanism

A copy of blockchain network is available to each miner of blockchain network. The smart contract is present in one of the blocks of the blockchain network. When a terminal node wants to communicate with distributed blockchain network to share data. First of all, it needs to be authenticated and validated by the blockchain network. To complete the communication process, three entity participates terminal node, blockchain edge node and distributed blockchain network. Smart contract mechanism is used to achieve the authentication between terminal devices and blockchain edge node, access control, and trust management of different entity who participates in the communication process of blockchain enabled decentralized network.

Fig. 4 shows the flow chart diagram of registration and authentication process in blockchain enabled edge computing using smart contract mechanism. All the miner devices contain a copy of complete blockchain network. Working of smart contract of blockchain network for authentication process of smart terminal devices with blockchain edge node in the distributed blockchain enabled IIoT system are explained below.

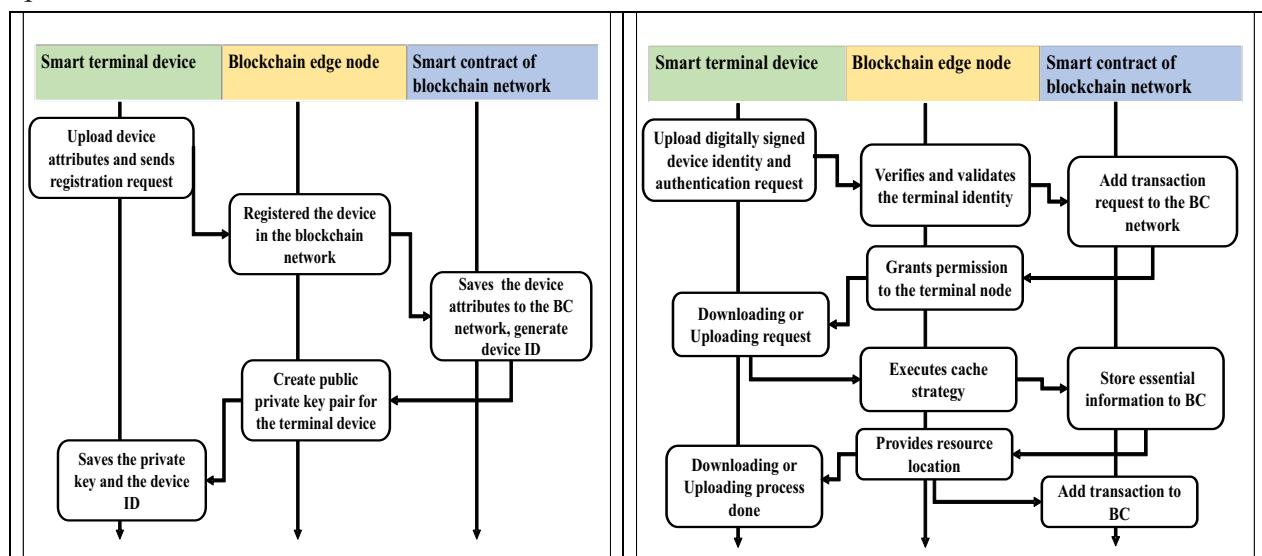


Fig. 4: Flow chart diagram of registration and authentication mechanism respectively between smart terminal device and blockchain edge node in the distributed blockchain network using smart contract.

Registration Process: When a new terminal device wants to participate in blockchain enabled edge computing system of Industrial IoT applications. It sends request to blockchain edge node for registration process. The registration process is listed below.

Step 1: IIoT terminal device D_i upload device attributes to the blockchain edge node E_i

Step 2: E_i registers it in the blockchain network BC.

Step 3: Smart contract (SC) executes and saves the terminal device attributes to the blockchain network and generates device ID and sends it to the blockchain edge node.

Step 4: The blockchain node transfers the device ID and public-private key pair with the respective terminal devices.

Step 5. The terminal device saves its permanent device ID and the public-private key pair.

Authentication and data transmission Process: When a registered terminal device wants to upload or download data from blockchain enabled edge computing system of Industrial IoT applications. It sends authentication request to blockchain edge node for authentication process. Authentication and data transmission process is listed below.

Step 1: The terminal device uploads its digitally signed device identity to the blockchain edge network.

Step 2: The blockchain edge device verifies and validates the terminal identity. On success, a smart contract executes to include the transaction into the blocks.

Step 3: The blockchain edge node allow for access to the terminal device.

Step 4. The terminal device start downloading or uploading process.

Step 5: The blockchain edge node executes its cache strategy for optimization.

Step 6: A smart contract executes to cache essential part of the transmitted data

Step 7: The blockchain network provides location of information stored in the blockchain network to the terminal devices.

In order to enable monitoring and controlling, the Industrial IoT uses a huge number of fixed and mobile terminals. Many sensors that gather information and transmit it to higher levels such as blockchain enabled edge layer are installed in smart terminal devices. Here terminal nodes are connected with blockchain enabled edge server and the edge server is connected with blockchain enabled decentralized server. Blockchain edge nodes are made up of nodes that resolve domain names, validate transactions, upload blocks to the blockchain network, and store contents that terminals need. As clients of the Blockchain network, these edge nodes are able to observe and analyze terminal activity by connecting authentication data in real time and provide edge authentication functionality. Decentralized services for the creation of smart contracts and the storage of IIoT system's generated data.

5. Conclusion

Recent advancements in information, computation, and communication technology have created opportunities for the development of industrial Internet of things applications, including intelligent supply chain management, smart manufacturing, smart cities, remote medical systems, and smart transportation. Automation helps the IIoT system succeed because it makes the system dependable, efficient, less prone to delays, secure, and dependable. We proposed a blockchain-enabled edge computing framework for time sensitive IIoT applications with the goal to enable decentralized authentication and access management of sensor devices so they can be an integral part of the IIoT network and get beyond the restrictions of centralized cloud servers. The decentralized cloud server uses smart contract technology to verify the authenticity of transactions involving sensor nodes that are integrated with edge servers. The system's throughput, security, latency reduction, and access management are all strengthened by the suggested framework.

References:

- [1] Yu, W., Liang, F., He, X., Hatcher, W. G., Lu, C., Lin, J., & Yang, X. (2017). A survey on the edge computing for the Internet of Things. *IEEE access*, 6, 6900-6919.

- [2] Das, S. K., & Kumar, V. (2023). IoT Security Enhancement System: A Review Based on Fusion of Edge Computing and Blockchain. *Constraint Decision-Making Systems in Engineering*, 204-218.
- [3] Das, S. K. (2021). Smart design and its applications: Challenges and techniques. *Nature-Inspired Computing for Smart Application Design*, 1-6.
- [4] Khan, A. A., Laghari, A. A., Shaikh, Z. A., Dacko-Pikiewicz, Z., & Kot, S. (2022). Internet of Things (IoT) security with blockchain technology: A state-of-the-art review. *IEEE Access*.
- [5] Bhat, S. A., Sofi, I. B., & Chi, C. Y. (2020). Edge computing and its convergence with blockchain in 5G and beyond: Security, challenges, and opportunities. *IEEE Access*, 8, 205340-205373.
- [6] Zhang, F., Wang, H., Zhou, L., Xu, D., & Liu, L. (2023). A blockchain-based security and trust mechanism for AI-enabled IIoT systems. *Future Generation Computer Systems*, 146, 78-85.
- [7] Rana, S. K., Rana, A. K., Rana, S. K., Sharma, V., Lilhore, U. K., Khalaf, O. I., & Galletta, A. (2023). Decentralized model to protect digital evidence via smart contracts using layer 2 polygon blockchain. *IEEE Access*.
- [8] Yao, W., Deek, F. P., Murimi, R., & Wang, G. (2023). SoK: A Taxonomy for Critical Analysis of Consensus Mechanisms in Consortium Blockchain. *IEEE Access*.
- [9] Chen, S., Mi, H., Ping, J., Yan, Z., Shen, Z., Liu, X., ... & Kang, C. (2022). A blockchain consensus mechanism that uses Proof of Solution to optimize energy dispatch and trading. *Nature Energy*, 7(6), 495-502.
- [10] Bodkhe, U., Mehta, D., Tanwar, S., Bhattacharya, P., Singh, P. K., & Hong, W. C. (2020). A survey on decentralized consensus mechanisms for cyber physical systems. *IEEE Access*, 8, 54371-54401.
- [11] Das, S. K., Dey, N., Crespo, R. G., & Herrera-Viedma, E. (2023). A non-linear multi-objective technique for hybrid peer-to-peer communication. *Information Sciences*, 629, 413-439.
- [12] Sengupta, J., Ruj, S., & Bit, S. D. (2020). A comprehensive survey on attacks, security issues and blockchain solutions for IoT and IIoT. *Journal of Network and Computer Applications*, 149, 102481.
- [13] Wang, W., Hoang, D. T., Hu, P., Xiong, Z., Niyato, D., Wang, P., ... & Kim, D. I. (2019). A survey on consensus mechanisms and mining strategy management in blockchain networks. *Ieee Access*, 7, 22328-22370.
- [14] Nguyen, C. T., Hoang, D. T., Nguyen, D. N., Niyato, D., Nguyen, H. T., & Dutkiewicz, E. (2019). Proof-of-stake consensus mechanisms for future blockchain networks: fundamentals, applications and opportunities. *IEEE access*, 7, 85727-85745.
- [15] Yu, X., & Guo, H. (2019, August). A survey on IIoT security. In *2019 IEEE VTS Asia Pacific Wireless Communications Symposium (APWCS)* (pp. 1-5). IEEE.
- [16] Yu, Y., Chen, R., Li, H., Li, Y., & Tian, A. (2019). Toward data security in edge intelligent IIoT. *IEEE Network*, 33(5), 20-26.
- [17] Wang, S., Ouyang, L., Yuan, Y., Ni, X., Han, X., & Wang, F. Y. (2019). Blockchain-enabled smart contracts: architecture, applications, and future trends. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 49(11), 2266-2277.
- [18] Xiong, Z., Zhang, Y., Niyato, D., Wang, P., & Han, Z. (2018). When mobile blockchain meets edge computing. *IEEE Communications Magazine*, 56(8), 33-39.
- [19] Boyes, H., Hallaq, B., Cunningham, J., & Watson, T. (2018). The industrial internet of things (IIoT): An analysis framework. *Computers in industry*, 101, 1-12.
- [20] Wu, Y., Dai, H. N., & Wang, H. (2020). Convergence of blockchain and edge computing for secure and scalable IIoT critical infrastructures in industry 4.0. *IEEE Internet of Things Journal*, 8(4), 2300-2317.
- [21] Reyna, A., Martín, C., Chen, J., Soler, E., & Díaz, M. (2018). On blockchain and its integration with IoT. Challenges and opportunities. *Future generation computer systems*, 88, 173-190.
- [22] Mohammad, A. S., Brohi, M. N., & Khan, I. A. (2021). Integration of IoT and Blockchain.
- [23] Shi, W., Cao, J., Zhang, Q., Li, Y., & Xu, L. (2016). Edge computing: Vision and challenges. *IEEE internet of things journal*, 3(5), 637-646.

- [24] Pan, J., & McElhannon, J. (2017). Future edge cloud and edge computing for internet of things applications. *IEEE Internet of Things Journal*, 5(1), 439-449.
- [25] Cao, K., Liu, Y., Meng, G., & Sun, Q. (2020). An overview on edge computing research. *IEEE access*, 8, 85714-85728.
- [26] Zou, W., Lo, D., Kochhar, P. S., Le, X. B. D., Xia, X., Feng, Y., ... & Xu, B. (2019). Smart contract development: Challenges and opportunities. *IEEE Transactions on Software Engineering*, 47(10), 2084-2106.
- [27] Wang, S., Yuan, Y., Wang, X., Li, J., Qin, R., & Wang, F. Y. (2018, June). An overview of smart contract: architecture, applications, and future trends. In *2018 IEEE Intelligent Vehicles Symposium (IV)* (pp. 108-113). IEEE.
- [28] Khan, S. N., Loukil, F., Ghedira-Guegan, C., Benkhelifa, E., & Bani-Hani, A. (2021). Blockchain smart contracts: Applications, challenges, and future trends. *Peer-to-peer Networking and Applications*, 14, 2901-2925.

Report on Growth of Self-help Groups

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Abstract

SHGs (self help group) are informal groups of people who come together to address their common problems . SHGs plays a vital role in poverty alleviation. NABARD (National Bank of Agricultural and Rural Development) defines SHGs as a group of homogeneous group of rural poor voluntarily formed to save whatever amount they can conveniently save out of their earnings and mutually agree to contribute and emergent credit needs. In India 70% population are from rural sector, so ultimately the government has to focus on the development of rural sectors . Self Help Group is the result of collaborative effort of the government and non-government organisations. Self help groups were also an effective tool for rural development. SHGs helped a lot of women to participate in the activities or work performed to become independent. According to the economical survey of 2022- 2023, the Union finance minister to Parliament January 31, mentioned that the women led self help groups (SHGs) disbursing billions of rupees every year. Last September, Prime Minister Narendra Modi, while addressing a mega gathering of SHG members in Madhya Pradesh, said, "Self Help Groups' turn into 'Nation Help Groups". He also stated and promised that every rural households in the country would have one member in the local SHG.

Keywords: *SelfHelp Groups, NGOs, Poverty Alleviation, Rural Development, Women Empowerment, NABARD*

Introduction

Every country wants a balanced economic development and for this there are some pre- conditions, one of them is development of the underdeveloped areas of the said country (i.e., development of the villages). The shortlisted basic requirements of development are savings, investment, and expanding market for industrial products. The myth that has to be broken in our society that men alone can never lead to complete economic development, there has to be the participation of women of our country. The topic of engaging women into any such activities, is just looked as a problem, they are always been the subject, they were never be the companion of men. So, for the active participation and to co-opt them in the group, the idea of self help group has been adopted. In 1991-92 NABARD started promoting SHGs on large scale. Reserve Bank of india taken a big step, it allowed SHGs to open savings accounts in banks. Providing bank facility was a major boost to the movement. SHG is the collaborative effort of government and non- government organisations. Government has also approved the provision of interest subvention for women self help groups so that they can also avail loan facilities to the extent of 3 lakhs with the interest rate of 7% per annum. The government is giving the full efforts to spread the concept of selfhelp groups inclusive of growth.

Objectives of Study

This research paper humbly attempts:

- To flash a light on the benefits of governmental and non-governmental efforts for selfhelp groups.
- To trace the growth of bank accounts also outstanding advances made by the commercial banks to selfhelp groups.
- To find out the progress of rural development through selfhelp groups.

Methodology

The study is accomplished to provide a clear guidance for empirical research. This research is

exploratory and done to find the facts and figures of growth of self help groups with proper interpretation. For this I have used the method of secondary data collection. The sources of secondary data were newspapers, magazines, government reports and websites from google, and some pdfs from google scholar.

The concept of self-help groups:

Self-help groups are small and autonomous where non-political leaders lives in neighbourhood, and they come together for self, social or economical development. So basically, a self help group is a group of 10-20 persons for

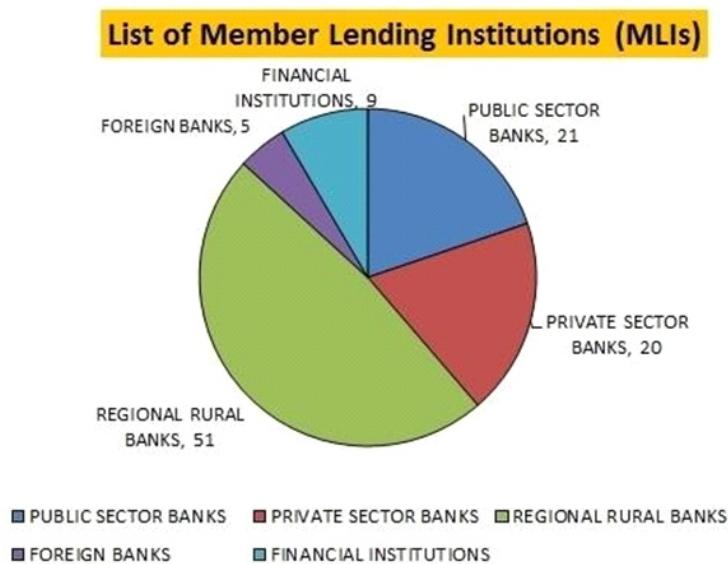
- Inculcate savings nature on a regular basis
- Contributing for a common corpus
- Facilities of collateral free loans on terms decided by the groups
- Decision making on the basis of everybody's opinion
- Resolving conflicts among groups
- To fulfill emergency needs
- To eradicate poverty

A proper definition has been given by Kartz and bender (1976) – Self-help groups are voluntary, small group structures for mutual aid and the accomplishment of a special purpose. They are usually formed by peers who have come together for mutual assistance in satisfying a common need, overcoming a common handicap or life-disrupting problem, and bringing about desired social and/or personal change. The initiators and members of groups believes that their needs can not be fulfilled by or through the existing institutions. Whereas self-help groups emphasizes face-to-face social interactions. They provide material support and emotional support to the members in need. Self-help group is the concept used by the government, non-government organization and other institutions in worldwide. Self-help group gained pace significance, especially after 1976 when prof. Muhammed Yunus of Bangladesh established Grameen bank, his main objective was to help the poor people to escape from poverty by providing them loans at concessional terms and conditions also provide them financial education and knowledge so that they could help themselves. Self-help groups are informally organized to associate groups to help people in need. There are several benefits of self-help groups and the benefits includes mobilization of funds and credit facilities. The approach of self-help groups helps to generate capital by the habit of small savings and also help them assess formal credit facility. The groups made help the poor to overcome the problem of collateral security and also to get out of the clutches of moneylenders. The genesis of self-help group started with the linkage project of self-help groups and banks which is launched by the National bank for agricultural and rural development (NABARD) in 1992 and it is blossomed into the world's largest microfinance project.

FINDINGS

To eradicate poverty from the society we need to take a significant step like to reduce unemployment and need to develop self-employment opportunities. For this self-help groups provided various economic activities. The below table show the number people access the microfinance from the banking system:

Year	No. of poor households having gained access to Microfinance facilities (in crore)
2003-04	-
2004-05	2.43
2005-06	3.30
2006-07	4.10
2007-08	5.80
2008-09	7.01
Source: Annual Report, NABARD (2003-04 to 2008-09)	



Government financial institutions of the country play a vital role in assessing micro finance program. They have joined hands and generated informal delivery channels to give the necessary momentum to micro finance sector. During the current year the self-help groups has attended an impressive expansion at the grass root level. The backward classes are subject to poverty, illiteracy, malnutrition, poor health and sanitation. And this happens because insufficient knowledge like lack of birth control, lack of scope for development. The condition and the graph of development of rural areas clearly indicates that government financial sectors are not doing well and not efficient in their work. Thus, our government has emerged new way by linking self-help groups and the banks and this program has been the leading micro finance program in the country, since its pilot project in 1972 with the ultimate goal of providing some benefits:

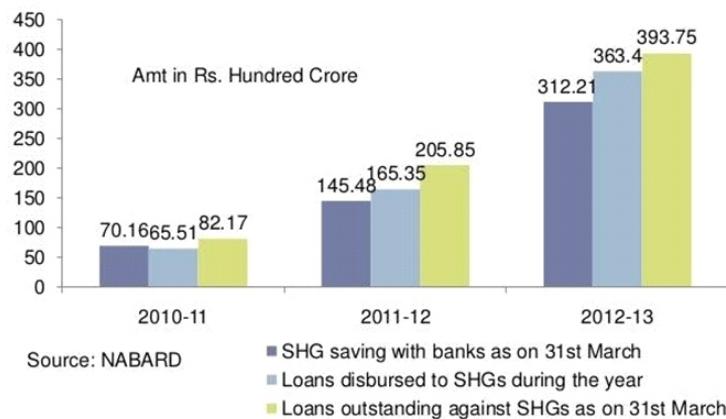
- Small loans
- Saving accounts
- Fund transfer and Insurance
- Business training
- Income generation
- Establishment of FLCCs/FLCs by Lead Banks
- Support to co-operative banks and RRBs for setting up of FLCs
- Collaboration with UNDP Propensity to employment

Self-help groups and Banks linkage

The self-help groups and Banks linkage program was launched by NABARD (National Bank for Agricultural and rural development) in 1992, to provide financial accessibility to rural people who have had no sustainable sustainability to formal banking system. The benefits that self-help groups provide are:

- Accessibility of financial facility through bank linkage program to poor people in rural areas especially women.
- Making a regular habit of savings and helping in assessment creation.
- By providing financial help, it increases the risk bearing capacity of the members.
- Cash flow management and increasing the productivity of their assets.
- Improving their standard of living.
- Make this platform a problem solving source and build mutual trust and confidence.
- Habit of saving protects them vicious cycle of poverty.
- Empowerment of women.
- Health and education strategies

Progress of SHG-Bank Linkage Model



Roadmap to Financial Inclusion and Inclusive Growth

Rangarajan's committee defined "Financial Inclusion as the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost".

Nationalizing banking facilities in 1969, and the growth of branches in rural sector was not satisfactory. Following steps can be taken for the purpose of financial inclusion:

- Opening bank branches
- Provide banking technological assistance
- Short-term Banking education
- Mobile and Internet banking at affordable cost.
- Kisan credit card for fund
- Micro-insurance

CONCLUSIONS

In this study an attempt has been made to interpret and analyze the impact of self-help groups in providing credit support to women of rural areas to help them uplift their economic status. And not only women, the development process has to be undertaken by including both men and women. As we know that 70% of the population of India live in the village area. The standard of living of these people and economical conditions are not like the people living in the urban areas, and this is because of lack of financial inclusion. Increasing saving account, credits, kisan credit cards reflects overall economic as well as social development, which leads to increasing SHGs day to day and their linkage with finance also increasing. NABARD has taken various steps and programs to eradicate poverty but still awareness about financial stability could not spread across all the state of the country. South-india has taken a major step of shg-bank linkage programs near about 70% but rest of the part is underdeveloped. So, Govt. Should required more emphasized on the spreading of SHGS as an important tool of rural development in the coming decades.

IMPLICATIONS

Role in women empowerment Self-help group played a significant role for empowering women of rural areas and poverty alleviation programs in several ways for everyone. SHGs offers various employment opportunities for women to make them financially independent and provide them various source of independent income. Women has also been the subject matter of development of country and for this SHGs inculcates the habit of savings among its members and access the capital to invest in ventures and expand their economic activities. Through participation in SHGs, women gain confidence, assertiveness, and leadership skills, which help them challenge gender stereotypes. Self-help groups facilitate access to financial services through bank linkage programs. SHGs provides and allows easier credit access which reduces dependence of women on traditional moneylenders, and non-institutional sources. Beyond agricultural source of income, women can now have their own personalized businesses such as tailoring, grocery shops, and repair services, diversifying their income

sources and improving their economic prospects.

Government actions

Our prime minister 'shri Narendra modi' said: BHOPAL: Prime Minister Narendra Modi on Wednesday said he wishes to turn 2 crore femaleas associated with self-help groups (SHGs) into 'lakhpatti' women in the country. During an engaging virtual interaction with beneficiaries of various government programmes in Dewas district of Madhya Pradesh as part of the ongoing 'Viksit Bharat Sankalp Yatra', Modi sought the help of a woman in his endeavour. In a significant move aimed at empowering women across the different states of the country. The union cabinet led by prime minister Narendra modi, approved that in the next four years the 15000 drones will be distributed among the women of self-help groups.

RECOMMENDATIONS

- The respondents need to give more dynamic trainings and financial education to the members for more involvement and development.
- Haryana is the place which is a major concern of SHGs that needs more care to be taken, and therefore it needs more and more NGOs to be involved.
- Training programs need to be conducted more frequently to enhance the skills Of the members so that there can be improvement in scale and quantity of production.
- The programs conducted by SHGs will make women an independent entrepreneur, this going to be proved very beneficial for the rural sector.
- Also, to know the concerns, problems and conflicts of the members the SHGs need to schedule meetings in the proper time interval.
- Making the group members fully aware about the government schemes, programs, subsidies, and rights regarding their SHGs.
- Providing loans to the needy at the concessional rate also detailing them about all the terms and conditions.
- Members must be taught to maintain the books of transactions that happens within and outside the groups.

LIMITATIONS

There are some constraints faced by the members working in the self-help groups of Punjab. No doubt SHGs has changed the life women tremendously but it requires more efforts on the part of government, non-government, and the banking sectors to promote SHGs in the state. There was limited income generating opportunity. Lack of transparency in keeping records and irregularity in holding meetings was reported by 6.67 members ofthe group and some reported lack of improper division of work and some reported lack of funds while some faced that taking loans became a tedious procedure and irregularity in the payment by loaners.

It has been seen that there is lack of proper banking infrastructure and branches of banks. The poor people of rural areas faced problem not just in the selection process but also in their bank transaction. Because of this documentation became expensive and time consuming. The problems were compounded by their illiteracy, unfamiliarity with the procedure and unhelpful attitude of the bank staff. All this leads to long procedure of loan sanction.

Too much strict rules and policies of loan returning and penalties of delay payments deter the poor to opt the micro finance facilities.

The major limitation of self-help groups dependent on the group participation. The working of self-help group depends on the active participation the group members.

REFERENCES

1. https://economictimes.indiatimes.com/news/politics-and-nation/its-my-dream-to-turn-2-cr-females-associated-with-shgs-into-lakhpatti-women-in-country-pm-modi/articleshow/106325325.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
2. <https://www.statista.com/statistics/1326130/india-loan-outstanding-share-for-self-help-groups-by-bank-type/>
3. https://www.rbi.org.in/Scripts/bs_viewcontent.aspx?Id=2029
4. <https://pib.gov.in/newsite/PrintRelease.aspx?relid=191635>

Identified Factors and Effects of Service Excellence on Customer Satisfaction and Loyalty—A Study Related to Hotel Industry

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Abstract

The business rivalry among hotels being intense to perform better and retain customers by offering excellent service as a perk has become more important to organizations than just having standard guestrooms. Travelers rank personal service as the most essential factor when choosing a hotel to stay in, and for owners and managers who are in competition with hundreds of others, ensuring guest pleasure is their top responsibility. Within the hotel sector, employees range from front desk clerks, receptionists, service personnel and housekeeping staffs to upper management personnel. When it comes to a customer's decision to stay again, promote the hotel, or show their allegiance to a certain hotel, front desk employees are thought to be a supporting element.

The degree to which a service meets the expectations of the customer determines how satisfied the client is. For this reason, determining the elements that contribute to service satisfaction in the hotel sector requires an understanding of how customer expectations are created. As varying customers have varying levels of product or service expertise and preferences, they also have varying expectations. It may be inferred from this that a client or customer may project or believe that the service will function as expected. Customers will be happy if the service performance matches or beyond their expectations. This study examined the expectations and levels of customer perception of these services, identifying variables of service quality by concentrating solely on front office workers.

The findings of this quantitative evaluation of service quality may give light on how customer evaluates satisfaction, service quality and become loyal.

Key words: *Service Quality, Customer Satisfaction, Customer Expectations and Customer Impression.*

Introduction

India's hotel business has been expanding rapidly and is predicted to do so in the future due to the country's enormous population, the preference of the majority of Indians for domestic travel, and the rise in foreign visitors. The Indian hotel industry is growing stronger and taking shape at the same time. In order to stay in business, the majority of hotels use a variety of strategies to draw guests (Padlee et al., 2019). As a result, their rivalry has gotten more intense in recent years due to the hotel industry's ongoing development.

Hotels, as representatives of the service sector, must find a way to stand out from the competitors by offering cutting-edge services. The best approach for hotels to get a competitive edge is through providing exceptional service, which is highly valued by guests for its unique relevance and adaptability. At the same time, the hotel can only build a positive reputation with guests and generate revenue if it offers effective service quality (J. D. Barsky & Labagh, 1992). Therefore, delivering high-quality service and achieving client happiness is the most crucial and difficult task facing the modern service business. (Hung and others, 2003). In addition, service quality is becoming a crucial weapon in the hotel industry's fight to differentiate itself from the competitors. However, customer satisfaction surveys

have received increased attention across a number of industries, particularly the service sector, where they are now regarded as a critical tool for problem-solving and raising the standard of customer care.

Given the intense competition in which businesses (hotels) operate today, understanding the relationship between service quality and customer satisfaction is crucial. Businesses need to know how much their customers' satisfaction can guarantee their own. Since it is now known that keeping a client is less expensive than acquiring a new one, this research issue is more important. Consequently, a number of studies (e.g., Gunarathne, 2014; Sharma and Srivastava, 2018; Ahsan, Mowla and Islam, 2019; Padlee, Thaw, and Atikah Zulkiffl, 2019) emphasised the relationship between service quality and customer satisfaction in the hotel industry, reporting positive and significant relationships between these two concepts.

Currently, guests staying at hotels in Kolkata appear to have high expectations and demand first-rate service. Since there is more competition among hotels, offering excellent service as a perk has become more important to them than just having a lovely room. Travellers rank personal service as the most important factor when choosing a hotel to stay in, and owners and managers prioritise guest happiness above everything else in a competitive market with hundreds of other hotels (Kandampully, J. & Suhartanto, D. 2000). Within the hotel industry, employees range from front desk clerks, receptionists, and housekeepers to upper management personnel. When customers are choosing whether to stay again, suggest the hotel, or show their devotion to a specific hotel, front desk employees are thought to be a supporting component in their decision (Kandampully & Suhartanto, 2000).

Thus, the aim of this study was to identify the variables and consequences of service excellence on customer satisfaction and loyalty in the Indian hotel industry.

Statement of the problem

Numerous academics have looked into the qualities that travelers look for in a hotel that are crucial to their enjoyment of their stay, with an emphasis on customer satisfaction in the hotel sector. The most crucial characteristics that a customer looks for are staff attitudes, the hotel's location, the comfort of the room, the price, the amenities, the reception, the parking service, and the food and beverage offerings. Some of the construct including transportation, location, appearance, pricing, and mode of payment, influence customer satisfaction. These factors include hospitality, lodging, food and beverage quality, extra hotel services, leisure and entertainment, security and safety, and innovation and value-added services.

Objectives of the study

- To understand the importance & impact of Service Quality and Customer Satisfaction in the hotel industry.
- To identify the various factors which effect the service quality on customer satisfaction & loyalty in the hotel industry
- To established the identified factors and influence of different service quality dimensions on satisfaction level in Hotels Industry.

Scope of the Study

Although the current research is limited to a state's mid-market section, its findings are applicable to the mid-market segment worldwide. The current investigation was carried out in a few chosen hotels located in the West Bengal & Jharkhand region.

The study will also help the hotel's management create high-quality services and profitable business plans that will increase client happiness and, eventually, consumer loyalty.

Literature Overview

The original SERVQUAL instrument comprised 22 items and was based on the conception of service quality by Parasuraman et al. (1988). Five dimensions were created from the data on the 22 attributes: tangibles, certainty, responsiveness, empathy, and consistency. This tool has been developed to assess

the quality of service in a range of settings, including travel and tourism (Fick & Ritchie 1991), hotels (Saleh & Rylan 1991), hospitals (Babakus & Glynn 1992), telephone companies, two insurance firms, and two banks (Parasuraman et al. 1991). In this study, the researcher uses SERVQUAL approach as an instrument to explore customers' expectations and perceptions levels of service quality towards the front office staff at the hotel.

Customers' Satisfaction

According to Oliver (1980), satisfaction is the attitude or assessment that results from the consumer contrasting their subjective assessments of the performance they actually received with their pre-purchase expectations of what they would obtain from the goods. Kotler (2000, p. 36) described satisfaction as an individual's emotions of happiness or disillusionment stemming from evaluating a product's perceived performance (or result) against their expectations. Furthermore, Yi (1990) asserted that the cumulative result of perception, assessment, and psychological responses to the experience of consuming a good or service is customer satisfaction.

Services Quality

Services Quality established that providing exceptional service can effectively counteract customers' expectations. It is described as the degree to which a customer's perceptions and expectations diverge with respect to a variety of important service quality factors that may influence their future behavior. The development of SERVQUAL, a paradigm for assessing service quality, was finally guided by the five characteristics of service quality: tangibility, reliability, responsiveness, assurance, and empathy.

Customers' Expectation

Customers' expectations are shaped by a multitude of uncontrollable factors, according to Davidow and Uttal (1989). These factors include the customers' psychological state at the time-of-service delivery, their past experiences with other companies and their advertising, their background and values, and the images of the purchased product. According to Zeithaml et al. (1990), the foundation of customer service expectations is made up of a variety of intricate factors, such as the customers' own pre-purchase beliefs and the opinions of others. Miller added that varying degrees of client pleasure were correlated with their expectations. It could be predicated on prior product experiences, insights from marketing, and word-of-mouth recommendations. It is possible to draw the conclusion from the variety of definitions of expectation that it is influenced by uncontrollable elements such as prior experience, advertising, customers' perceptions at the moment of purchase, background, attitude, and the image of the product.

Additionally, pre-purchase beliefs, word-of-mouth communications, individual demands, customer experiences, and other personal attitudes all have an impact on customers' expectations. Customers' expectations vary depending on their level of product or service understanding.

Methodology

The researchers used to primary and secondary data for the investigation. The main data source for this study is a series of structured questionnaires that were distributed along randomly selected borders. Official publications, records, text books, magazines, journals, and published materials are the sources of secondary information. For this study, a total of 150 respondents were taken into consideration for the analyzing the data.

Analysis and findings

Only ninety-nine clients returned the duly completed form. The study ran from May and June 2023. The profile includes information about gender, age, nationality, occupation, reason for travel, and length of stay at the hotel. The results indicated that there were 57% more female customers than male customers

(43%). Between the ages of 25 and 35 made up the largest age group (43%). Of the respondents, 54% were workers and the majority (44%) were delegates. Their travels were primarily for vacation (69%), business (20%), honeymoon (8%), and conferences or seminars (3%). Just 3% of respondents had stayed at the hotel four times, compared to 36% who had only visited twice. Eighty percent of clients said they would return, and ninety-five percent said they were pleased with the services they received. Tangibility, dependability, certainty, responsiveness, and empathy are the components of high-quality services. Each statement on the expectations and perceptions of the 99 respondents regarding the level of service provided by the May Fair Hotel's front desk staff was requested to be rated. The following were the analytical results for each dimension's service quality.

Table -1 Customers' satisfaction concerning tangibility

Tangibility Dimension	Customers' Expectation			Customers' Perception		
	Mean	SD	Level	Mean	SD	Level
Employees should dress professionally.	3.85	.68	High	4.43	.53	High
cleanliness of the clothing	3.97	.68	High	4.53	.56	High
Grin-filled customer service	3.92	.82	High	4.45	.56	High
Attractive appearance (smart, refined)	3.97	.78	High	4.40	.64	High
Overall Mean score	3.92	.52	High	4.45	.41	High

Table 1 demonstrates the high degree of total expectation satisfaction with regard to tangibility (3.92). Both staff appearance and uniform cleanliness scored highly, at 3.97. Customers are more confident in hotel services when front desk staff members are well-groomed and wear polished uniforms. Additionally, the tangibility factor as perceived by customers was placed highest (4.45). Wong et al. (1999), who investigated SERVQUAL aspects in the west Bengal hotel sector, corroborate the findings. They discovered a correlation between the tangible behavior and look of employees and the quality of their services. The tangibility component proved to be the most reliable indicator of overall service quality.

Reliability

The ability of hotel front desk employees to deliver services with accuracy and dependability is referred to as the reliability dimension (Dabholkar et al., 1996). The performance of dependable services must live up to customer expectations. Every time, services must be provided on schedule, consistently, and error-free.

Table -2 Customer satisfaction concerning reliability

Tangibility Dimension	Customers' Expectation			Customers' Perception		
	Mean	SD	Level	Mean	SD	Level
fulfils service commitments	3.85	.65	High	4.28	.52	High
provide precise information	3.88	.69	High	4.33	.53	High
Execute the service appropriately.	3.87	.85	High	4.35	.57	High
Indicate the precise time that the service will be rendered.	4.02	.76	High	4.35	.64	High
Overall Mean score	3.90	.56	High	4.40	.47	High

Table 2 shows that there is a high level of overall satisfaction with regard to the reliability factor (3.90).

A regular visitor to the hotel left remarks that corroborate this rating: "Every time customers stay at this hotel; the room is ready on time upon check-in and they get the late check-out until 2 p.m." The reliability factor had the greatest overall level of satisfaction (4.40), with "The staffs provide service as promised" obtaining the highest score (4.28). This can be the result of the front desk employees keeping their word and giving accurate service the first time. Customers are therefore pleased with the dependability of the service.

Responsiveness

According to Zeithaml et al. (1988), the responsiveness component includes a readiness to assist clients and deliver services promptly. The ability and willingness of hotel front desk employees to assist guests in receiving timely service and meeting their expectations is crucial.

Table -3 Customer satisfaction concerning Responsiveness

Tangibility Dimension	Customers' Expectation			Customers' Perception		
	Mean	SD	Level	Mean	SD	Level
The employees fulfil requests promptly.	4.22	.651	High	4.38	.54	High
The employees provide timely assistance.	3.86	.697	High	4.13	.52	High
The employees are eager to assist.	3.65	.837	High	4.37	.65	High
Overall Mean score	3.91	.550	High	4.29	.52	High

Table 3 demonstrates that there was a high degree of overall expectation about the responsiveness component (3.91). With a rating of 4.22, "The staff responds to your request quickly" garnered the greatest anticipation. The likelihood of clients being satisfied with the hotel staff is greater when they receive prompt service. A first-time guest at the hotel attests to this, saying, "The front desk staff is willing to help me when the customer is looking for the hotel directions." He gets the impression that everyone on staff is genuinely committed to serving him. This demonstrates that the client got quality assistance when needed. Customer satisfaction was directly correlated with the ability to satisfy consumers' requests.

Assurance

The term "assurance" refers to the expertise and demeanor of staff members as well as their capacity to instill confidence and trust, encompassing competence, demeanor, credibility, and security (Parasuraman et al.,1991).

Table 4 Customer satisfactions concerning assurance

Tangibility Dimension	Customers' Expectation			Customers' Perception		
	Mean	SD	Level	Mean	SD	Level
The staff have product Knowledge of the hotel	4.25	.70	High	4.64	.52	High
The employees has the abilities needed to provide services.	3.95	.75	High	4.35	.53	High
The staffs speak with you by appropriate forms	3.95	.85	High	4.35	.57	High
The staff are trustworthy	4.27	.85	High	4.36	.54	High
Overall Mean score	4.10	.55	High	4.40	.47	High

Table 4 demonstrates that trustworthiness was ranked as the most significant factor (4.17), with an overall high degree of expectation towards the assurance dimension (4.10). When staying at a hotel, most patrons anticipate feeling comfortable and secure from the front desk staff. Furthermore, the

accountant should manage visitor funds or costs in a trustworthy and accountable manner.

Empathy

According to Parasuraman et al. (1991), the empathy component is the ability to provide consumers with individualized, caring attention that includes understanding their needs, being approachable and easy to reach, and having successful communication.

Table 5 Customer satisfaction concerning empathy

Tangibility Dimension	Customers' Expectation			Customers' Perception		
	Mean	SD	Level	Mean	SD	Level
You can speak with the employees in English.	4.27	.72	High	4.24	.524	High
The staff members can converse well with one another.	3.45	.68	High	4.33	.693	High
The employees give you their full attention.	3.90	.84	High	4.35	.573	High
The employees are reliable.	4.05	.87	High	4.48	.54	High
The employees are aware of your unique needs.	3.87	.78	High	4.48	.67	
Overall Mean score	3.90	.65	High	4.30	.57	High

Table 5 demonstrated that there was a high degree of overall expectation with regard to the assurance component (3.90). The expectation that was deemed most significant (.68) was effective communication. The front desk employees are the hotel's spokespersons, so communication is crucial. Effective communication is essential for hotel employment to be successful (Paige, 1977). In addition to handling reservations, the front office acts as a cashier and information hub. They have to get feedback and forward guest information to the culinary and housekeeping departments. Customer satisfaction is largely influenced by divisions in the hotel communicating effectively with one another.

Table 6 SERVQUAL gap of customers' expectation and perception towards the service quality of front office staff at the hotel

Table 6 SERVQUAL gap of customers' expectation and perception

Attributes	Customers' Expectations	Customers' Perception	SERVQUAL Gap
Tangibility	3.92	4.45	0.53
Reliability	3.90	4.40	0.27
Responsiveness	3.91	4.29	0.25
Assurance	4.10	4.40	0.32
Empathy	3.90	4.30	0.26
Overall mean score	3.76	4.36	.32

The discrepancy between customers' expectations and perceptions is shown in Table 6. According to the study, perceptions across the board for all dimensions were greater than expectations. The positive gap suggests that clients are content with the offerings.

The most significant dimension with the largest positive gap (0.53) was "tangibility." The study found

that outward indicators of client satisfaction, such as front desk employees' appearance, demeanour, and uniforms, are significant. In a similar vein, Ramchurrun (2008) proposed that because services are intangible, consumers placed value on the tangibility component. Customers therefore give the staff's appearance and neatness a lot of weight.

Conclusion

The demand from customers for high-quality service has increased in the last few decades, which has led to a significant growth in service businesses. In order to maintain its competitiveness, the hotel must examine what guests anticipate from and think of the level of service provided by its front desk employees. Five service quality factors were used in the SERVQUAL instrument, which Parasuraman (1985) developed, to design the questionnaire for this study. One hundred visitors who stayed at the May Fair Hotel west Bengal in Kolkata between May and June 2023 were given a questionnaire including data. The purpose of the questionnaire was to find out how clients felt about the level of service the front desk employees provided.

The findings showed that while the tangibility dimension satisfied the highest level of perception, the assurance dimension produced the highest level of expectation.

The discrepancy between consumers' expectations and perceptions of the caliber of front desk services was the main subject of this study.

The results showed a positive SERVQUAL gap, with the mean perception score being higher than the expectation score overall on all dimensions. The results of this study demonstrated that the majority of participants considered tangibility to be the most crucial element in determining satisfaction. In addition, they thought the service went above and above what they expected. The results of this investigation were not consistent with those of Juwaheer and Ross's 2003 study on the quality of service in hotels in Mauritius. They discovered that a hotel might attain high levels of satisfaction and service quality by concentrating on assurance and reliability. Based on the information provided above, it can be said that front desk employees are the lifeblood of any hotel and that they are crucial to staying informed about events occurring across the property.

In summary, the findings indicated a good discrepancy between consumers' expectations and perceptions of front desk employees' service quality. The degree of customer perception exceeded their expectations. It is clear that the majority of patrons were pleased with the level of service provided by the Hotel May Fair's front desk employees in West Bengal in Kolkata. These things can be taken into consideration for improvement.

- Empathy was shown to be the weakest dimension of satisfaction. Therefore, hotel management should arrange special courses to improve effective communication.
- It was discovered that the most significant aspect of enjoyment was tangibility. As a result, hotel management needs to keep the property's physical service quality intact.
- To advance front desk employees' careers and enhance their primary work, human resource management should set up an internal training programme.

This study's shortcoming is that the sample size, period, and scope were all quite small, hence the results cannot be regarded as 100% accurate. The results of a single organization with such a small sample size cannot be regarded as authentic. Hence, more research on the subject is crucial. Initially, the study might be expanded to include other five-star hotels in major cities.

More research on consumers' perceptions of the calibre of other service industries, like dining establishments, travel agencies, and airlines, would be beneficial.

References:

- Churchill, G.A. & Suprenant, C. (1992) An Investigation into the Determinant of Customer Satisfaction. *Journal of Marketing Research*, Vol.19, pp.491-504.
- Dabholkar, P.A., Thorpe, D.I. & Rentz, J.O. (1996). A measure of service quality for retail stores: scale development and validation. *Journal of the Academy of Marketing Science*, pp. 3-16.
- Davidow, W. H. & Uttal, B. (1989). Service Companies: Focus or Falter. *Harvard Business*

Review, July-August: 77-85.

- Kandampully, J. & Suhartanto, D. (2000). Customer loyalty in the hotel industry: The role of customer satisfaction and image. *International Journal of Contemporary Hospitality Management*, 12(6), 346-351.
- Kotler, P. (2003). *Marketing Management*. (11th ed.) NJ: Prentice Hall, Inc
- McKinney, V., Yoon, K. & Zahedi, F.M. (2002). The Measurement of Web-Customer Satisfaction: An expectation and Disconfirmation Approach. *Information System Research*, Vol.13, No.3, September, pp. 296-315.
- Min, H.K., & Min, H.S. (1997). Benchmarking the quality of hotel services: Managerial perspectives. *International Journal of Quality & Reliability Management*, 14(6), 582-597.
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, Vol. XVII, November.
- Parasuraman. A., Zeithaml, V.A. & Berry, L.L. (1985 & 1988). A conceptual model of service quality and its implication. *Journal of Marketing*, Vol.49, Fall, pp. 41-50.
- Padlee, S. F., Thaw, C. Y., & Atikah Zulkiffl, S. N. (2019). The relationship between service quality, customer satisfaction and behavioural intentions in the hospitality industry. *Tourism and Hospitality Management*, 25(1), 121–139.
- Reisig Michael D., Meghan Stroshine Chandek (2001). The effects of expectancy disconfirmation on outcome satisfaction in police- citizen encounters. *An International Journal of Police Strategies & Management* 24(1): 88-99
- Watt. Paul. (2007). Customer service work and emotional labour in the hospitality industry. UK: University of London [11].
- Wipoosattaya, W. (2001). Tourist's perceptions of hotel frontline employees' questionable job-related behavior. Bangkok: Thesis (MBA) — Assumption University.
- Yi, Y. (1990). A critical review of consumer satisfaction. *Review of Marketing* 1990, American Marketing Association, Chicago, IL.
- Yu, Alvin Hung-Chih. (2001). Service quality in Tourism : A case study of the 2001 study tour of Taiwan. *Leisure Studies*, The Pennsylvania State University: USA.
- Zeithaml V.A., Parasuraman A., & Berry L.L. (1990). Delivering quality service: Balancing customer perceptions and expectations.

Millets for Resilient Agriculture: A Pathway to Nutritional Security and Sustainability in Jharkhand's Food System

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Abstract

Jharkhand ranks second highest in the Multidimensional Poverty Index 2021, reflecting the state's profound struggle with extreme poverty. This dire circumstance has amplified dependence on the Public Distribution System (PDS) for essential food grains. Although PDS provisions of wheat and rice alleviate hunger partially, they fall short in addressing pressing nutritional challenges. The National Family Health Survey NFHS-5 reveals alarming rates of anemia among pregnant women (56.8%) and children under five (67.5%) in Jharkhand, underscoring the urgency for comprehensive intervention. In response to these challenges, millets emerge as a sustainable alternative. Endowed with resilience, low water requirements, and exceptional nutritional content, millets offer a holistic solution to hidden hunger and health-related issues. Moreover, their cultivation aligns with the state's agricultural landscape, dominated by rain-fed and small/marginal holdings. This paper analyzes secondary data sources such as NFHS-5 and APEDA reports and existing literature to provide insights into Jharkhand's current malnutrition scenario, compares millets' nutritional profiles with other PDS food grains, and evaluates millet types' area, production, and yield across districts of Jharkhand. The findings emphasize the imperative of reintegrating millets into local diets for a more sustainable and resilient food system. Highlighting millets' potential to enhance food and nutrition security, promote resource sustainability, and foster economic empowerment, the study aligns with the United Nations' declaration of 2023 as the International Year of Millets. It advocates for policy interventions to reverse the declining trend in millet consumption, leveraging the state's favorable climate, promoting crop diversification, and integrating millets into the PDS. These proposed strategies aim to address the dual crisis of vulnerability in agriculture and nutritional insecurity, paving the way for a more sustainable future in Jharkhand.

Keywords: *Dual Crisis , Malnutrition, Millets , NFHS-5, Nutrition Security , PDS and Sustainability*

Introduction:

In Jharkhand, uncultivated foods and edible weeds have traditionally served as a vital and cost-effective source of nutrition for the majority of the population. However, the increasing popularity of commercialized foods and crops is diminishing the demand for these locally available resources. Compounding this issue is the alarming prevalence of anemia, with 56.8 percent of pregnant women and 67.5 percent of children under five years affected, as reported by the National Family Health Survey (NFHS-5) in 2019-21.

To address this dual crisis of biodiversity loss and nutritional insecurity, leveraging the traditional wisdom of local communities and promoting indigenous crops, especially millets, is crucial. Jharkhand's favorable agro-climatic conditions make it ideal for millet cultivation, offering an opportunity to enhance food security and reduce greenhouse gas emissions associated with agriculture. Millets, often referred to as "nutri-cereals" or "superfoods," stand out due to their exceptional nutritional content, resilience to climate variations, minimal resource demands, and remarkable contribution to sustainable agriculture. (IIMR, 2017) Their significance in promoting sustainable consumption and enhancing food and nutrition security cannot be overstated. Notably, in 2021, the worldwide millet production reached 30.1 million tonnes, with India alone contributing a substantial 44 percent to the total output. In response to the detrimental effects of COVID-19 on global food security, India acknowledged the value of millets and actively promoted their use. Consequently, the Indian

government put forth a proposal to designate 2023 as the International Year of Millets (IYM2023) to address this concern. Recognizing the importance of millets in providing health and nutritional benefits, the Food and Agriculture Organization and the United Nations endorsed the designation, aiming to increase awareness about the significance of millets during the International Year of Millets in 2023.

Given the prevalence of iron deficiency anaemia among children in Jharkhand, leveraging the high iron content (3.9mg per 100 gm) of locally abundant finger millets presents an effective strategy to combat this health issue. Furthermore, millets, including varieties like Sama, Kodo, and unpolished rice, offer a healthier and eco-friendly alternative to polished and fortified rice, addressing specific dietary needs with their low glycemic index and gluten-free nature. (Greenpeace India, 2023)

The incorporation of these locally grown foods not only addresses health concerns but also fosters a more sustainable and community-centric approach. Utilizing millets in daily meals promotes a more environmentally conscious and nutritious diet. This shift not only benefits the health of children but also supports local farmers, stimulates the regional economy, and strengthens community ties. Emphasizing the consumption of locally sourced produce aligns with cultural traditions and culinary practices deeply embedded in Jharkhand's heritage. By integrating millets and other locally grown foods, this dietary shift becomes a celebration of cultural identity, fostering a sense of pride and connection among children and communities in Jharkhand. Including millets and other locally grown foods in mid-day meals can significantly contribute to the nutritional security of school-going children. Moreover, adopting millets and indigenous crops contributes to lower agriculture-based emissions and enhances resilience in the face of climate change, offering a sustainable and holistic approach to nutrition and agricultural practices in Jharkhand. With this background, the paper proposes to achieve the following objectives.

Objectives:

- [1] To study the status of malnutrition in Jharkhand.
- [2] To compare millets' nutritional profile with other PDS food grains.
- [3] To study millet types, area, production and yield in Jharkhand.
- [4] To study the role of millets in agricultural sustainability in Jharkhand.
- [5] To offer suggestions for millet promotion in the state.

Methodology:

This study relies on secondary data sources. The data is predominantly sourced from government reports, such as the National Family Health Survey (NFHS-5) for health indicators and the Agricultural and Processed Food Products Export Development Authority (APEDA) for information on millet production area and yield in Jharkhand. The entire analytical process has been conducted using MS-Excel.

Findings:

The findings have been categorized as per the objectives under four heads namely, Jharkhand's Current Malnutrition Status , the nutritional profile of millets vis-a-vis other food grains and millet type, area, production and yield in Jharkhand, millets for agricultural sustainability in Jharkhand.

1. Jharkhand's Current Malnutrition Status:

Jharkhand grapples with persistently high rates of malnutrition among children and widespread anaemia in adults, surpassing levels observed in neighboring states such as Odisha and Chhattisgarh. (Table 1)

Table 1: Nutritional Status of Children and Women (%) in Jharkhand and some selected states during the period 2019-21

State/India	Children under 5 years who are			Children aged 6 -59 months who are anaemic	Women (15-49 years) who are anaemic	Women whose Body Mass Index (BMI) is below normal
	Underweight	Wasted	Stunted			
Jharkhand	39.4	22.4	39.6	67.5	65.3	26.2
Uttar Pradesh	32.1	17.3	39.7	66.4	50.4	19.0
Madhya Pradesh	33.0	19.0	35.7	72.7	54.7	23.0
Odisha	29.7	18.1	31.0	47.2	64.3	20.8
Chattisgarh	31.3	18.9	34.6	67.2	60.8	23.1
Rajasthan	27.6	16.8	31.8	71.5	54.4	19.6
Assam	32.8	21.7	35.3	68.4	65.9	17.6
Bihar	41.0	22.9	42.9	69.4	63.5	25.6
India	32.1	19.3	35.5	67.1	57.0	18.7

*Source: NFHS-5 (2019-21)***Table 2: Nutritional Status of Children under Five Years in Jharkhand and India for the period 2019-21**

REGION		STUNTED (height for age) (%)	WASTED (weight-for-height) (%)	UNDERWEIGHT (weight for age) (%)
Jharkhand	Urban	26.8	23.0	30.0
	Rural	42.3	22.3	41.4
	Total	39.6	22.4	39.4
All-India	Urban	30.1	18.5	27.3
	Rural	37.3	19.5	33.8
	Total	35.5	19.3	32.1

Source: NFHS-5 (2019-21)

The prevalence of chronic malnutrition among children under the age of five in Jharkhand is particularly alarming, with nearly 40 percent experiencing stunting, approximately 39 percent being underweight, and 22 percent suffering from wasting, according to data from 2019-21 (NFHS-5). These figures significantly exceed the national averages. (Table 2)

Anaemia poses a significant challenge for both children and women in Jharkhand. Among children aged 6-59 months, the prevalence was notably high, reaching 69 percent in 2015-16 (NFHS-4) and slightly decreasing to 67.5 percent in 2019-21 (NFHS-5). (Table 3)

Table 3: Incidence of Anaemia among Women (15-49 years) in Jharkhand and India for the period 2019-21

REGION		All women aged 15-49 years who are anaemic (%)	Non-pregnant women aged 15 - 49 years who are anaemic (<12.0 g/dl) (%)	Pregnant women aged 15 -49 years who are anaemic (<11.0 g/dl) (%)
Jharkhand	Urban	61.1	61.6	45.5
	Rural	66.7	67.0	59.2
	Total	65.3	65.7	56.8
All-India	Urban	53.8	54.1	45.7
	Rural	58.5	58.7	54.3
	Total	57.0	57.2	52.2

Source: NFHS-5 (2019-21)

Women in the reproductive age group (15-49 years) in Jharkhand also grapple with widespread anaemia, with 65.3 percent affected as of 2019-21. Although the incidence of anaemia is comparatively lower (56.8 percent) among pregnant women in the same age group, the issue remains a significant concern. Moreover, the urban areas exhibit a slightly lower incidence of anaemia compared to rural areas; however, the rates remain alarmingly high. (NFHS-5)

1. Millets: A Pathway to Nutritional Security

Millet grains stand out as a powerhouse of nutrition, comprising of dietary components essential for a balanced diet. These grains are abundant in dietary fiber, carbohydrates, proteins, as well as a spectrum of vital vitamins and minerals, including iron, magnesium, phosphorus, zinc.

Among millet varieties, foxtail millets lead with an impressive protein content of 12.3g per 100g. Finger millets, indigenous to the region, are noteworthy for their substantial calcium content, boasting 344mg per 100g. Pearl millets, on the other hand, take the lead in iron content, providing a remarkable 16.9mg per 100g. (Table 4)

Table 4: Nutritional Composition of Millets in comparison with other cereals (per 100g)

Grains	Energy (kcal)	Protein (g)	Carbohydrate (g)	Fat (g)	Dietary Fiber(g)	Calcium (mg)	Iron (mg)
Sorghum	334	10.4	67.6	1.9	10.2	27	5.4
Pearl Millet	363	11.6	61.7	5	11.4	27	16.9
Finger Millet	320	7.3	66.8	1.3	11.1	344	3.9
Little Millet	329	8.7	65.5	5.3	6.3	17	9.3
Foxtail Millet	473	12.3	60.9	4.0	8.0	31	2.8
Kodo Millet	309	8.3	65.9	3.6	9	27	0.5
Other Cereals							
Maize	334	11.5	64.7	3.6	12.2	8.9	2.7
Wheat	321	11.8	64.7	1.5	11.2	39	5.3
Rice	353	6.8	74.8	0.5	4.4	10	0.7

Source: Indian Food Composition Tables and nutritive value of Indian foods

Sorghum ranks second in carbohydrate content among cereals, following rice, with a substantial 67.6g per 100g. Millets also contain lecithin, a compound known for fortifying the nervous system. Furthermore, these grains serve as an excellent reservoir of dietary fiber, contributing to favorable outcomes such as promoting regular bowel movements and effectively lowering both blood cholesterol and sugar levels, thereby enhancing overall health. (Dupdal et al.,2020) In terms of dietary fiber, pearl millets secure the second position after maize, offering a notable 11.4g per 100g. This diverse nutritional profile highlights the unique strengths of each millet variety and their potential contributions to a well-balanced diet.

Millets: a promising solution for Anaemia

In cereal-dominated diets, the absorption of iron is hindered by the presence of phytate in cereal grains, which tightly binds to dietary iron, impeding its absorption. Millets emerge as a valuable solution to enhance dietary iron density, providing a holistic nutritional profile beyond a singular nutrient. (Kurpad and Reddy, 2022)

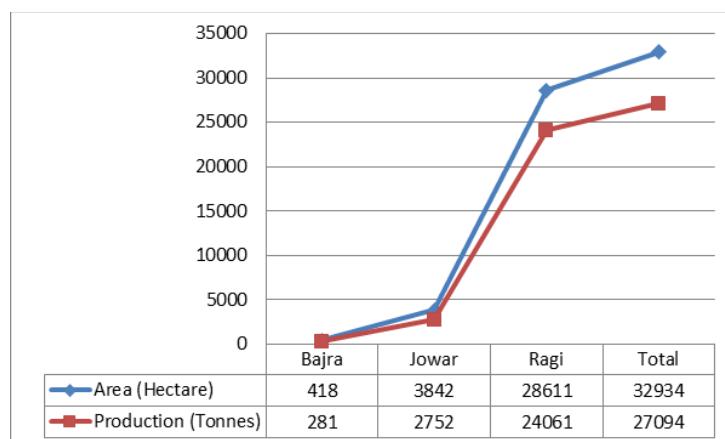
By substituting just 100 grams of daily cereal intake, such as rice, with finger millet (ragi), there's a remarkable 50% increase in daily iron intake and an impressive 350% surge in calcium intake. Given the widespread occurrence of iron deficiency anaemia among children in Jharkhand, the indigenous finger millets, with their notable iron content of 3.9 mg per 100 grams, present a promising solution to combat this health issue. The locally available finger millets can play a crucial role in addressing iron deficiency in the region.

Moreover, millets possess a low glycemic index and are gluten-free, rendering them well-suited for children with specific dietary requirements. (Dayakar Rao et al., 2017) These attributes not only contribute to the nutritional value of millets but also make them an ideal dietary choice for addressing the unique needs of children, particularly in regions like Jharkhand where iron deficiency is a prevalent concern.

1. Potential for Millet Cultivation in Jharkhand

Agriculture is the primary economic activity of 80 per cent rural population of Jharkhand. The state's agricultural landscape is marked by its reliance on nature, limited investments, low productivity, predominant cultivation of paddy through mono-cropping, insufficient irrigation infrastructure, and the prevalence of small and marginal land holdings. The vulnerability of agriculture to rainfall fluctuations is evident, with 92% of the total cultivated area lacking irrigation facilities. Despite the state's abundant mineral and forest resources, 80% of its populace resides in villages, relying predominantly on agriculture and allied activities for their sustenance. (APEDA, 2022)

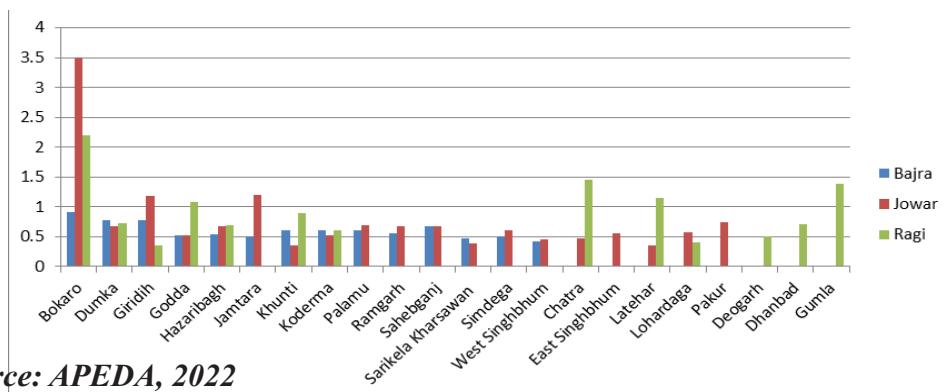
Figure 1: Area and Production of Millets cultivated during Kharif season in 2019-20



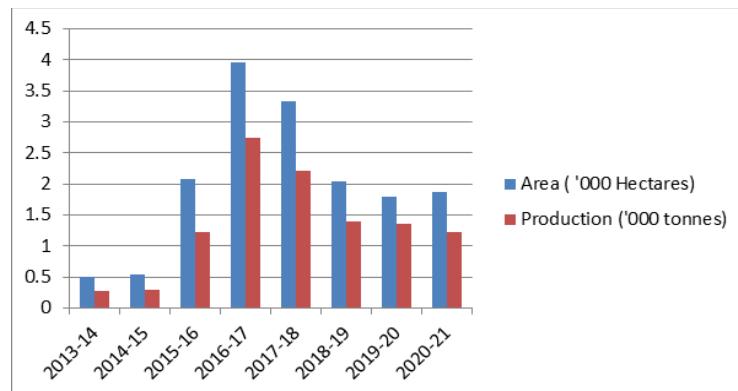
Source: APEDA, 2022

During the Kharif season of 2019-20 in Jharkhand, Ragi (finger millet) exhibited a growth with a yield of 0.84 tonnes per hectare, Jowar (Sorghum) recorded a yield of 0.72 tonnes per hectare, and Bajra (Pearl Millet) demonstrated a yield of 0.67 tonnes per hectare. (Figure 1)

Figure 2: Yield of Millets across different districts of Jharkhand during the Kharif Season in 2019-20

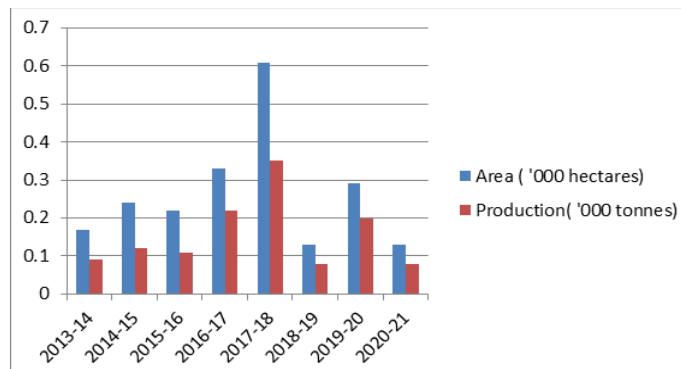


Source: APEDA, 2022

Figure 3: Area and Production of Bajra (Pearl Millet) in Jharkhand from 2013-14 to 2020-21

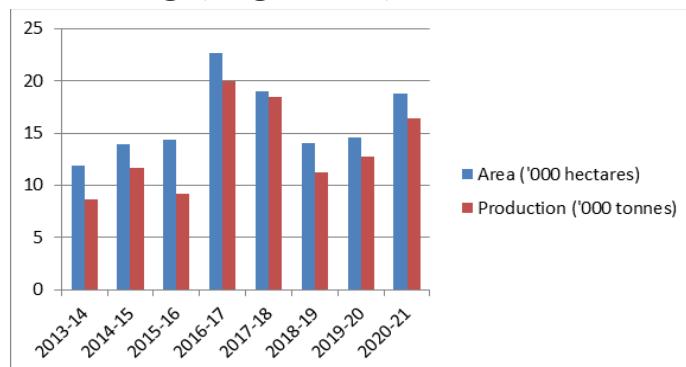
Source: Press Release 2023, Ministry of Consumer Affairs, Food and Public Distribution

The area dedicated to Bajra cultivation has fluctuated, ranging from 0.5 thousand hectares in 2013-14 to 3.95 thousand hectares in 2016-17. Bajra production has varied, with the highest production of 2.74 million tonnes in 2016-17 and the lowest at 1.23 million tonnes in both 2015-16 and 2020-21. There is a general trend of increased production from 2013-14 to 2016-17, followed by a decline in subsequent years. (Figure 3)

Figure 4: Area and Production of Jowar (Sorghum) in Jharkhand from 2013-14 to 2020-21

Source: Press Release 2023, Ministry of Consumer Affairs, Food and Public Distribution

The area under Jowar cultivation has experienced fluctuations, ranging from 0.13 '000 hectares in 2018-19 to 0.61 '000 hectares in 2017-18. Jowar production has varied, with the highest production of 0.35 '000 tonnes in 2017-18 and the lowest at 0.08 '000 tonnes in multiple years (2018-19 and 2020-21). There is a general trend of increased production and area from 2013-14 to 2017-18, followed by a decline in subsequent years.

Fig 5: Area and Production of Ragi (Finger Millet) in Jharkhand from 2013-14 to 2020-21

Source: Press Release 2023, Ministry of Consumer Affairs, Food and Public Distribution

The area under Ragi cultivation has shown an increasing trend, ranging from 11.87 '000 hectares in 2013-14 to 22.69 '000 hectares in 2016-17. Ragi production has also exhibited a general upward trend, with the highest production of 20.03 '000 tonnes in 2016-17. Subsequently, both area and production experienced fluctuations, with the lowest area at 13.91 '000 hectares in 2014-15 and the lowest production at 9.24 '000 tonnes in 2015-16.

Figure 6: Yield of Bajra, Jowar and Ragi in Jharkhand from 2013-14 to 2020-21



Source: Press Release 2023, Ministry of Consumer Affairs, Food and Public Distribution

The fiscal year, 2022-23, anticipate a production volume of 9,790 tonnes. This data underscores the state's efforts to promote and sustain the cultivation of Ragi as part of its agricultural strategy. The yield of Bajra has varied over the years, with the highest yield in 2019-20 (0.75) and the lowest in 2014-15 (0.537). The overall trend shows fluctuations, with an increasing trend from 2013-14 to 2019-20, followed by a decrease in 2020-21. Jowar yields have also shown variability, with the highest yield in 2019-20 (0.689) and the lowest in 2014-15 (0.5). There is a fluctuating pattern over the years, and the yields have not followed a consistent upward or downward trend. Ragi yields exhibit variations, with the highest yield in 2016-17 (0.883) and the lowest in 2015-16 (0.645). Similar to Bajra and Jowar, the overall trend for Ragi shows fluctuations without a clear upward or downward trajectory.

Ragi, or Finger Millet, cultivation in the state is currently cultivated in a scattered way. Recognizing the nutritional benefits of millets, the State Government has incorporated them into its Livelihood Policy, administered by the Department of Panchayat. Millets, particularly Ragi, are being gradually integrated into mid-day meals for school children and healthcare facilities due to their nutraceutical properties.

Data from the Ministry of Commerce and Industry's Agricultural and Processed Food Products Export Development Authority reveals the evolving production landscape. In the fiscal year 2020-21, Jharkhand yielded 16,400 tonnes of Finger Millets, a figure that saw a modest increase to 16,700 tonnes in 2021-22.

1. Millets for Agricultural Sustainability in Jharkhand

The state's agricultural landscape is marked by its reliance on nature, limited investments, low productivity, predominant cultivation of paddy through mono-cropping, insufficient irrigation infrastructure, and the prevalence of small and marginal land holdings. The vulnerability of agriculture to rainfall fluctuations is evident, with 92% of the total cultivated area lacking irrigation facilities. Rainfall in Jharkhand ranges between 1000mm to 1500 mm. Jharkhand is characterized by humid subtropical, dry winter climate with an average annual temperature of 26.78°C (80.2°F) which is 0.81%

higher than India's averages. (SAMETI Jharkhand, 2022) The successful sprouting and germination of millet seeds necessitate a warm, temperate climate to maintain a cozy soil temperature, as these seeds are vulnerable to damage from cold weather and frosts. The optimal temperature range for sustainable millet growth is between 20 and 30 degrees Celsius. Millets, known for their short growing season, thrive in areas where other crops may struggle. Millets are known for their resilience to adverse environmental conditions, including drought, high temperatures, and low soil fertility, making them a sustainable choice for agricultural systems in Jharkhand.

Climate Resilience

Millets are climate-resilient crops, requiring minimal water and exhibiting tolerance to heat and drought, making them well-suited for cultivation in arid and semi-arid regions. Millet cultivation enhances agroecosystem resilience, conserving soil fertility, reducing water consumption, and mitigating the environmental impact of agriculture.

Biodiversity Conservation and Reduced Environmental Impact

The cultivation of diverse millet varieties contributes to the conservation of agricultural biodiversity, preserving traditional knowledge and genetic resources. Millet farming techniques offer a reduced dependence on synthetic fertilizers and pesticides, promoting environmentally friendly agricultural practices.

Water-Efficient Crops

Millets are inherently water-efficient crops, requiring minimal irrigation and demonstrating resilience to water scarcity, contributing to sustainable water management in agricultural systems. One notable example is Sorghum, which can thrive in drought conditions due to its exceptional water holding capacity. The waxy coatings on its stems and leaves contribute to efficient water utilization, making it resilient in arid environments.

Most millets exhibit adaptability to limited moisture conditions, showcasing efficient water utilization abilities. In India, approximately eight types of millets are cultivated under rain-fed conditions, requiring minimal or no irrigation. For instance, Jowar is a rain-fed crop with an annual rainfall ranging from 30 to 100cm, making it well-suited for areas with limited irrigation needs.

Minor millets typically thrive with less than 35cm of rainfall, while certain major millets require a minimum of 40cm of rainfall for a successful harvest. This highlights the diverse moisture requirements among millet varieties, making them adaptable to varying climatic conditions.

Soil Health Conservation through Crop Rotation and Diversification

The cultivation of millets promotes soil health and conservation, reducing soil erosion, enhancing organic matter content, and fostering long-term agricultural sustainability. Integrating millets into crop rotation and diversification strategies improves soil health, pest management, and overall farm productivity, contributing to sustainable agricultural systems.

Suitable for Smallholder Farming Systems

Millets are well-suited for smallholder farming systems, offering low-input requirements, minimal resource demands, and economic opportunities for resource-constrained farmers.

Community Resilience and Empowerment of Women Farmers

The cultivation of millets fosters community resilience, supporting food sovereignty, local food production, and the preservation of traditional agricultural practices. Women play a significant role in millet cultivation, contributing to household food security, income generation, and the conservation of agricultural knowledge.

Market Access and Value Chains

Enhancing market access for millets creates economic opportunities for smallholder farmers, strengthening local economies and contributing to rural development. Developing millet-based value-added products, such as flour, snacks, and ready-to-eat meals, adds value to the crop, diversifies income

sources, and expands market potential. Millet value chains contribute to supply chain resilience, offering sustainable and nutritious food options, especially in regions prone to food insecurity and climate-related shocks.

2. Recommendations for Millet Promotion:

Mandatory Inclusion in Mid-Day Meals and PDS:

Develop and enforce guidelines mandating the inclusion of millets and local foods in mid-day meals and public distribution systems accompanied by incentives to encourage widespread adoption. (Prakash, 2018)

Indigenous Varieties under MSP:

Initiate the procurement of indigenous millet varieties, unpolished rice, and pulses under the Minimum Support Price (MSP) program. This strategic step aims to incentivize farmers to expand their cultivation of millets.

Enabling Ecosystem for Farmers:

Establish a supportive ecosystem for farmers, offering access to credit, technical assistance, and market linkages to promote increased production of millets and local foods.

Panchayat-Level Support:

Provide pre- and post-harvest support at the Panchayat level, encompassing the availability of quality seeds for indigenous millet varieties, pulses, and rice. Additionally, the establishment of millet processing units is essential.

Rejuvenation of Local Knowledge Systems:

Undertake efforts to rejuvenate local knowledge systems related to millet production and post-production handling. With a focus on the lost skills over the past 60 to 70 years, this initiative aims to empower farmers with technical expertise.

Women-Led FPOs:

Recognize the significant role played by women in millet production and processing by creating and supporting Women-led Farmer-Producer Organisations (FPOs). This ensures that their contributions are duly appreciated and remunerated.

Infrastructure Development:

Strengthen the supply chain and storage facilities for millets and locally grown foods through strategic infrastructural investments. Collaborations between government agencies, NGOs, and the private sector can enhance logistics and distribution efficiency.

Culinary Interventions:

Introduce millets and local ingredients into mid-day meals by leveraging culinary creativity. Rejuvenate traditional recipes while encouraging collaboration between indigenous food experts, chefs, and nutritionists to develop nutritious and appealing recipes for children.

Conclusion:

The stark reality of extreme poverty and nutritional challenges faced by Jharkhand, as evidenced by its high ranking in the Multidimensional Poverty Index 2021 and alarming rates of anemia among vulnerable populations, necessitates urgent and comprehensive interventions. This paper has highlighted the potential of millets as a sustainable alternative to alleviate hidden hunger and address health-related issues. The exceptional resilience, low water requirements, and robust nutritional content of millets position them as a holistic solution for the state's unique agricultural landscape, predominantly characterized by rain-fed and small/marginal holdings.

The findings underscore the imperative of reintegrating millets into local diets, not only to enhance food and nutrition security but also to promote resource sustainability and foster economic empowerment. Aligning with the United Nations' declaration of 2023 as the International Year of Millets, this study advocates for policy interventions aimed at reversing the declining trend in millet consumption.

Leveraging the state's favorable climate, promoting crop diversification, and strategically integrating millets into the Public Distribution System are proposed strategies that address both the vulnerability in agriculture and the issue of nutritional insecurity.

In essence, the recommended interventions pave the way for a more sustainable future in Jharkhand. By recognizing the multifaceted benefits of millets, ranging from improved health outcomes to economic empowerment, policymakers can contribute to building a resilient and inclusive food system. The comprehensive approach advocated in this study seeks to address the dual crisis faced by the state, fostering hope for a healthier, more prosperous, and sustainable Jharkhand.

Limitations

The study primarily focuses on nutritional aspects, comparing millets with other PDS food grains and evaluating millet cultivation across districts. However, it may not comprehensively address other factors influencing malnutrition, such as socio-economic factors, healthcare access, and cultural practices. Despite this, the paper serves as a valuable starting point for understanding the potential role of millets in addressing nutritional challenges in Jharkhand, providing a foundation for future research and policy discussions.

References:

- Dayakar Rao, B., Bhaskarachary, K., Arlene Christina, G. D., Sudha Devi, G., Vilas, A. Tonapi. (2017). Nutritional and Health benefits of Millets. ICAR_Indian Institute of Millets Research (IIMR), Rajendranagar, Hyderabad, PP 112. ISBN: 81-89335-68-5.
- Department of Agriculture, Animal Husbandry & Cooperative, Government of Jharkhand
<http://sameti.org/>
- Dupdal Ravi., Patil S.L., Naik B.S., Ramesha M. N., Prabhavati M., and Ravi K. N. (2020). Millets: A Solution to Food and Nutritional Security in India. Biotica Research Today 2(9): 901-904.
- Greenpeace India. (2023) A Game Changer for Nutritional Security and Climate Resilience in Jharkhand. Greenpeace India. Retrieved from <https://www.greenpeace.org/india/en/publication/15779/a-game-changer-for-nutritional-security-and-climate-resilience-in-jharkhand/>
- ICAR_Indian Institute of Millets Research (IIMR). (2017). Nutritional and Health Benefits of Millets (2nd ed.). Rajendranagar, Hyderabad: ICAR_Indian Institute of Millets Research. ISBN: 81-89335-68-5.
- Kurpad, A., & Reddy, R. (2022, April 16). A better millet for potential iron deficiency: Improving natural iron absorption from iron-rich grains is a better strategy than chemical iron fortification of cereals. The Hindu. <https://www.thehindu.com/sci-tech/health/a-better-millet-for-potential-iron-deficiency/article65268879.ece>
- Ministry of Commerce and Industry GOI (2022), Agriculture and Processed Food Products Export Development Authority
https://apeda.gov.in/milletportal/files/Jharkhand_Millet_Value_Added_Products_Catalogue.pdf
- Ministry of Consumer Affairs, Food and Public Distribution (2023), PIB Press Release 2023
<https://pib.gov.in/PressReleasePage.aspx?PRID=1907194>
- Ministry of Health and Family Welfare (2021), National Family Health Survey-5(2019-2021)
https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf
- Prakash, V. (2018). Status of Ragi, Mahua and Maize in Jharkhand for PDS. International Journal of Advanced Education and Research, 3(4), 34-41. <https://www.alleducationjournal.com/volume3/issue4>

The Impact of Electronic Human Resource Management on Organizational Performance: A Review of Literature

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Abstract

The rapid integration of technology into human resource management practices has given rise to Electronic Human Resource Management (E-HRM), revolutionizing the way organizations manage their workforce. This research paper investigates the impact of E-HRM on organizational performance, exploring the multifaceted dimensions of its implementation. A comprehensive literature review establishes the historical context of E-HRM and identifies key components, benefits, and challenges associated with its adoption. The study delves into the strategic considerations for successful E-HRM implementation, addressing organizational, technological, and human factors.

Through empirical evidence, the research identifies tangible benefits accrued from E-HRM, including heightened efficiency, cost savings, and improved decision-making. However, the paper also sheds light on the challenges organizations face, such as resistance to change, security concerns, and integration issues. Findings suggest a positive association between E-HRM adoption and enhanced organizational effectiveness. The study also considers future trends, anticipating the integration of artificial intelligence and machine learning in E-HRM, and explores the implications of remote work on HR practices.

This research contributes to the evolving discourse on E-HRM by offering insights into its transformative effects on organizational performance. Organizations are encouraged to embrace E-HRM strategically, considering its potential to optimize HR processes and contribute to overall organizational success.

Keywords: HRM, Electronic Human Resource Management (E-HRM), Components of E-HRM, Future Trends, Organizational performance.

1. Introduction

In an era characterized by rapid technological advancements, organizations are increasingly recognizing the transformative potential of Electronic Human Resource Management (E-HRM) in reshaping traditional human resource practices. E-HRM represents a paradigm shift, leveraging information technology to streamline and enhance various facets of HR functions. E-HRM is viewed as a solution as automation expands the scope of production and complicates human resource management. Ahmed (Ahmed, 2019) conducted a study that looks at the state of E-HRM practices in the manufacturing sector today and how they affect organisational performance.. These days, businesses believe that enhancing their efficiency and boosting profitability need investment in information and communication technology (ICT). Information technology (IT) has been incorporated into the daily operations of several firms in an effort to boost productivity.(Elsawy & Elbadawi, 2021).

The purpose of this research is to systematically explore and analyze the impact of E-HRM on organizational performance. E-HRM encompasses a range of digital solutions and platforms designed to facilitate and automate human resource processes, including recruitment, training, and performance management, compensation, and employee relations. Understanding the implications of E-HRM adoption is imperative as organizations seek innovative approaches to address the evolving needs of the modern workforce.

1.1 Theoretical concepts and framework

According to one definition, E-HRM covers all possible combinations of mechanisms and contents between HRM and information technologies, aiming at creating value for targeted employees and management within and across organisations.(Bondarouk & Ruél, 2009). Three main categories of activities fall under the purview of HRM: transactional, or day-to-day tasks like maintaining records; traditional, or hiring, selecting, compensating, managing performance, and providing training; and transformational, or value-adding, tasks like managing talent. Thus, the use of electronic applications to carry out routine, conventional, and transformative HRM tasks can be referred to as e-HRM. (Emma Parry, 2010)

1.2 Operational e-HRM

Beyond administrative duties, e-HRM solutions can enhance productivity and reduce expenses in standard operations including payroll, e-access control, attendance monitoring, and worker record administration.'(De Alwis et al., 2022)

1.3 Relational e-HRM

The goal of relational e-HRM is to use web-based technology to improve communication between HR professionals and their clients, who include managers, employees, and job seekers. By emphasizing communication, relationship management initiatives are strengthened and customer service is enhanced.—(Strohmeier, 2013)

1.4 Transformational e-HRM system

E-HRM systems are analytical tools that enhance HR-related decisions, enabling HRM to contribute strategically and become a strategic partner. They improve organizational performance and allow HR professionals to allocate more time to strategic actions. The success of e-HRM depends on people, confidence in technology skills, trust, and change management. User involvement and contribution are crucial for a successful experience. However, there is limited systematic evidence connecting e-HRM to strategic outcomes, particularly in corporate issues. Most studies focus on system adoption and end-user satisfaction, with limited systematic evidence connecting e-HRM to strategic outcomes. Despite this, e-HRM has a positive impact on HR planning, transforming HRM from administrative employees to strategic partners and supporting long-term organizational strategy progress.(Alomari, 2023)

1.5 Literature Review

The evolution of technology has significantly boosted E-HRM, with the introduction of HRIS and intranets in the corporate world. These tools reduce manual labor and improve organizational development. E-HRM practices encourage design, creativity, and innovation in guidelines, principles, and policies. It boosts employee performance by allowing employees to use self-service methods like ESS and MSS methodologies. These out-of-the-box techniques improve employees' qualitative and technical aspects, leading to quality control. This paper explores the internet application habits in different public and private sector industries in Orissa, finding that E-HRM practices vary in some extent.(Patel & Dhal, 2017) Another study examines the impact of e-HRM on organizational performance and talent management in Jordanian industrial firms. Results show that e-HRM significantly contributes to achieving strategic objectives, making it a critical antecedent. The findings urge firms to improve e-HRM practices and explore its effects on competitive advantage, human

resource development, and strategic alignment.(Oyoro, 2023). Similarly another paper proposes a model to improve employee and organizational performance in developing economies. Data was collected from 35 organizations using electronic human resource systems. The study found that e-HRM use positively impacts employee and organizational performance, with employee performance mediation enhancing overall gains. The study suggests that e-HRM use, complemented by human resource best practices, can enhance organizational performance.(Nyathi & Kekwaletswe, 2022) .E-HRM is increasingly used in large companies and institutions, playing a significant role in the globalization paradigm. This paper proposes an implicit model to identify the nature, objectives, policies, strategies, applications, and E-HRM system outputs, highlighting its importance in the era of globalization. The paper aims to address resistance to implementing E-HRM by identifying challenges, opportunities, and suggestions for its implementation and development.(Nivlouei, 2014)

1.6 Objectives

- I. To examine the key components and features of E-HRM.
- II. To evaluate the results of the implementation of E-HRM in the companies
- III. To Investigate the effects of E-HRM on Organizational Performance
- IV. To anticipate and discuss future trends in E-HRM and their potential implications for organizational practices.

1.7 Significance of the study

The studying the impact of Electronic Human Resource Management (E-HRM) on organizational performance is crucial for strategic decision-making, enhancing efficiency and productivity, identifying cost savings, gaining a competitive advantage, influencing employee satisfaction and retention, adapting to technological trends, developing effective change management strategies, contributing to academic literature, enriching organizational learning and development, ensuring legal compliance, promoting employee empowerment and engagement, and forecasting future HR trends. E-HRM can be used to align HR strategies with technology adoption, improve efficiency and productivity, and help organizations stay competitive in the ever-evolving business landscape. It also aids in understanding the influence of E-HRM on employee empowerment and engagement, fostering a positive workplace culture. Thus, understanding E-HRM's impact on organizational performance is vital for organizations seeking strategic advantage, academics contributing to HRM literature, and policymakers creating ethical HR practices in the digital age.

2. Components of E-HRM

2.1 E-employee profile - The E-Employee Profile web application offers a comprehensive database solution for HR management and team building, providing contact information, skills, organization charts, and pictures. It includes certifications, honors, memberships, education, past work experience, assignment rules, availability, exception hours, and more, making decisions cost-effective and efficient.

2.2 E-Recruitment- Organizations initially used computers as a recruiting tool, advertising jobs on bulletin boards. Today, the internet is the primary means for employers and candidates to search for candidates. E-HRM (online recruitment) involves posting vacancies on corporate websites or recruitment vendors' websites, allowing applicants to send electronic resumes. However, resume overload, low reputation, and ineffectiveness of websites and databases pose risks, especially for senior executive positions.

2.3 E-Selection- Employers are increasingly recruiting employees through online job search engines

and using strong IT to conduct online tests, reducing costs and ensuring proper recruitment.

2.4 E-Learning- E-Learning is a learning program utilizing electronic devices, applications, and processes for knowledge creation, management, and transfer, including web-based, computer-based, virtual classroom, and digital collaboration, delivering content via various channels.

2.5 E-Training- Online learning is increasingly seen as an efficient way to distribute training, reducing costs and providing tailored solutions for remote or disadvantaged locations. However, it can also create barriers like lack of hardware and learner isolation.

2.6 E-Performance Management system- A web-based appraisal system uses the internet to evaluate employee skills, knowledge, and performance, reducing costs. E-HRM provides managers with information on performance appraisals, criteria, and examples. Email is the preferred communication medium in corporate environments, reducing paperwork, administration costs, and response time.

2.7 E-Compensation- Compensation planning is crucial for companies to allocate salary increases fairly while adhering to budget guidelines. E Compensation Management, utilizing intranet and internet, reduces money spent on this process.

2.8 HRIS- HRIS is a web-based HR service system that offers 24/7 access, reducing paperwork and promoting environmental sustainability. It helps companies define their workforce and review employee data, saving time and money by eliminating unnecessary paperwork.

—(Swaroop, 2012),(Zafar & Shaukat, 2010)

3. e-HRM practices in IT sector

The advent of web-based applications and technologies has significantly transformed human resource management, making HR a portal rather than a person. This study explores innovative e-HRM practices in IT organizations, including e-recruitment, e-training, e-learning, e-selection, e-performance management, and e-compensation. Data was collected from IT organizations like TCS, Infosys, HCL, Tech Mahindra, and Wipro.

3.1 e-HRM practices in Service Sector

Electronic Human Resource Management (E-HRM) is increasingly being adopted by financial institutions to gain a competitive advantage. However, there is a lack of empirical studies on this phenomenon in Sri Lanka. This study aims to investigate the impact of E-HRM practices on organizational performance, focusing on the mediation role of organizational agility. Data was collected from 40 financial institutions in Sri Lanka, and the results showed that E-HRM practices significantly positively impact organizational performance, with organizational agility mediating the relationship. (ADS Thathsara, 2021). The study examines the impact of e-HRM practices on organizational performance in the Nigerian banking sector. It uses Social Systems Theory and a survey research design. The results show a significant relationship between e-recruitment and staff performance in selected banks. E-recruitment systems enhance service delivery, improve service quality, and enhance HR management effectiveness. Fair and just worker remuneration is also evident. A percentage increase in e-compensation leads to increased productivity and efficiency. The study recommends electronic interviews for commercial banks to improve selection efficiency and reduce time, errors, and human labor.(Oyoro, 2023)

3.2. e-HRM practices in manufacturing Sector

Human resources are crucial for a company's success, contributing significantly to its performance. Organizations need to manage resources like money, power, and raw materials to achieve their goals. Effective management of these resources is essential for achieving profit and market expansion. Human resource practices have evolved, including recruitment, training, performance management, and compensation management. As technology advances, e-HRM practices are being replaced by clerical HR practices in manufacturing industries. A study involving 496 manufacturing companies in

Tamil Nadu found that e-HRM practices are highly effective, offering advantages like reduced time consumption and increased accuracy.(Gokul K & Indranjith P, 2022)

3.3 e-HRM and organizational performance

Organizational performance is evaluated through various indicators, including employee engagement, customer satisfaction, productivity, performance quality, earnings maintenance, profit processing, and business development.(Hussain et al., 2023) Non-financial factors like job satisfaction and employee engagement are crucial for long-term commitment outcomes. High levels of engagement motivate employees to dedicate themselves to the organization, leading to competitive advantages. E-HRM has been closely correlated with improvements in operational performance, as it streamlines administrative processes, enhances operational efficiency, and reduces administrative burdens. E-HRM systems facilitate improved communication and information sharing, leading to a more effective workforce. Studies have shown a positive relationship between E-HRM and organizational performance, with technology, organizational, people, and social factors being critical success factors. The effective implementation of E-HRM can lead to improved organizational performance, cost reduction benefits, increased HR productivity, and strategic roles for HR experts, driving overall success and competitiveness.(Alomari, 2023)

This study explores the impact of electronic HRM (E-HRM) on organizational performance in Pakistan's textile industry. A quantitative study found a clear connection between E-HRM and the sector's performance. IT training significantly improved organizational effectiveness and acts as a mediator between E-HRM and performance. The study highlights the potential of IT training for effective implementation of e-HRM procedures and its effects on organizational performance. (Muhammad Naeem Shahid, 2023). Another paper presents a conceptual framework for understanding the impact of E-HRM on organizational performance and the potential role of technological opportunism in enhancing this relationship. It suggests that while there is limited research on this topic, it calls for urgent empirical attention and suggests that investment in digitizing HRM functions can improve performance.(Alkashami & Ahmed, 2022)

4 Research Methodology

Several sources provided the secondary data that was used in this investigation. The information was gathered from ten years' worth of publications on E-HRM and organisational performance. With the use of the following keywords, data was collected from books, journals, research papers, and other print media: E human resource management, and organizational performance. The purpose of a literature review is to give a strong foundation of information on the subject and to aid in the organisation of studies. Among the HR processes that are addressed are hiring, performance management and appraisal, training and development, remuneration. , organizational performance, and future trends in e-hrm.

5 Future Trends in E-HRM

The future of HR will be primarily outsourcing, reducing organizational resistance to new changes and increasing customer satisfaction. To make E-HRM successful, researchers and practitioners have developed methods such as reengineering HR processes, training and education, and managing change. Managing change within an organization can be a full-time job, requiring management of people, expectations, and resistance to change confusion. Top managers must approve and support responsible parties during the implementation stage to ensure progress. An executive sponsor should coordinate and integrate all aspects of the project between the development team and top management.–(Soltani & Mirzanejad, 2012). A paper explores various Green HR practices worldwide, its simplified meaning, future direction of GHRM functions, and potential HR initiatives for green organizations, contributing to the growing awareness of environmental management(Ahmad, 2015) Artificial intelligence (AI) is a computer science discipline that solves cognitive problems related to

human aptitude. It combines machine education and deep learning to perform tasks like problem-solving and language comprehension. AI is increasingly used in human resource departments for efficient performance, promoting successful hiring and employee management. Adopting AI can save production costs, enhance talent value, and improve team strategy efficiency. This research paper explores the future of AI in HR (Zahra Almaghaslah, 2023) Organizations are increasingly focusing on strategic alignment in human resource management, with machine learning and AI-based solutions playing a growing role. This study discusses key HR functions where AI-based solutions can improve process quality, focusing on employee engagement, organizational culture management, and appraisal systems. The use of decision tree and logistic regression models can enhance the effectiveness of these solutions, ultimately benefiting strategic human resource practices.(Rudra Kumar & Gunjan, 2022)

6 Challenges for Implementing the E-HRM

Experts highlight five challenges and opportunities for implementing E-HRM: improving knowledge minimums and skills, increasing diversity in reports, focusing on strategic human resource management planning, distributing duties among practitioners, and integrating human resource management software components. Challenges include cost of investment, managers' resistance, users' resistance due to unconventional user interfaces, lack of planning, and resistance due to lack of documentation and education. 62% of challenges are related to resistance, emphasizing the importance of resistance management in implementing E-HRM in an organization.(Nivlouei, 2014).

7. Proposed Model

This paper has analyzed the literature on E HRM and organizational performance and proposed the following model:

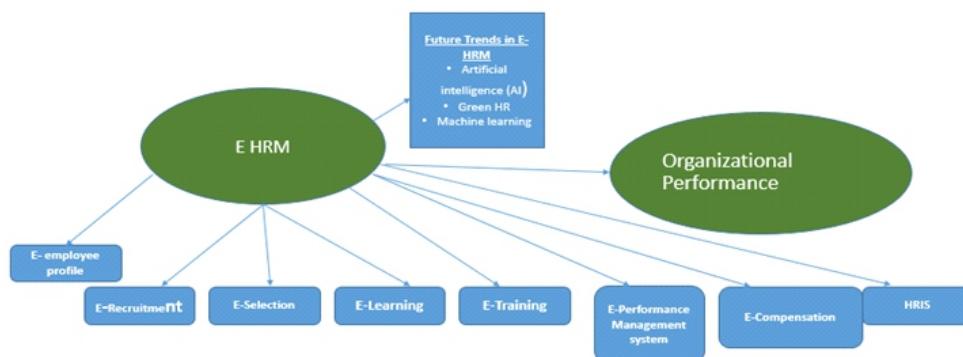


Figure 1: Proposed Model of the research

8. Conclusion

The study explores the impact of Electronic Human Resource Management (E-HRM) on organizational performance, revealing its dynamic landscape. It highlights the benefits of E-HRM, such as efficiency, cost savings, and employee satisfaction. However, it also highlights challenges such as resistance from employees and HR professionals. It also highlights the need for anticipating future trends in E-HRM, such as the integration of artificial intelligence and machine learning. The study recommends investing in leadership development, change management strategies, continuous learning, and balancing technology with human touch to ensure successful adoption and adaptability. The research points toward exciting future directions, including the evolution of E-HRM in response to emerging technologies. Continuous research and collaboration between academia and industry are essential for staying at the forefront of HR innovation.

In conclusion, the impact of E-HRM on organizational performance is a multifaceted and ongoing

exploration. Organizations that navigate this intersection strategically, embracing change while prioritizing their workforce, are poised to thrive in the digital era. As technology continues to evolve, understanding and harnessing the potential of E-HRM will remain a cornerstone of organizational success.

Reference:

- ADS Thathsara, S. J. (2021). Investigating the influence of e-hrm practices on organizational performance: The mediating role of organizational agility (with special reference to financial institution). International Journal of Engineering and Management Research , First page : (1) Last page :(8).
- Ahmad, S. (2015). Green Human Resource Management: Policies and practices. Cogent Business & Management, 2(1), 1030817. <https://doi.org/10.1080/23311975.2015.1030817>
- Ahmed, M. T. (2019). E-HRM Practices and its impact on Organizational Performance: A study on the Manufacturing industry in Bangladesh. European Journal of Business and Management, ISSN 2222-1905 (Paper).
- Alkashami, M., & Ahmed, U. (2022). E-HRM, Organizational Performance And Technological Opportunism: A Way Forward. Webology (ISSN: 1735-188X), 19(3). [https://www.webology.org/data-cms/articles/20220713110255amwebology%2019%20\(3\)%20-%20158%20%20pdf.pdf](https://www.webology.org/data-cms/articles/20220713110255amwebology%2019%20(3)%20-%20158%20%20pdf.pdf)
- Alomari, A. (2023). Exploring the impact of e-HRM on organizational performance: A mediated model. International Journal of Data and Network Science, 7(4), 1913–1920. <https://growingscience.com/beta/ijds/6365-exploring-the-impact-of-e-hrm-on-organizational-performance-a-mediated-model.html>
- Bondarouk, T. V., & Ruël, H. J. M. (2009). Electronic Human Resource Management: Challenges in the digital era. The International Journal of Human Resource Management, 20(3), 505–514. <https://doi.org/10.1080/09585190802707235>
- De Alwis, A. C., Andrić, B., & Šostar, M. (2022). The Influence of E-HRM on Modernizing the Role of HRM Context. Economies, 10(8), Article 8. <https://doi.org/10.3390/economies10080181>
- Emma Parry, S. T. (2010). Desired goals and actual outcomes of e-HRM. Human Resource Management Journal . Wiley Online Library
- Elsawy, M., & Elbadawi, M. (2021). Assessing the Impact of E-HRM on Organisational Performance: An Empirical Study. Indian Journal of Economics and Business, 20, 1491–1504. <https://doi.org/10.2139/ssrn.3967550>
- Gokul K & Indranjith P. (2022). A Study on Evaluation of Effectiveness of e-HRM Practices in the Manufacturing Industry. International Journal of Engineering Technology and Management Sciences, 6(5), 532–538. <https://doi.org/10.46647/ijetms.2022.v06i05.083>
- Hussain, S., Alsmairat, M., Al-Maaitah, N., & Almrayah, S. (Emma Parry, 2010)). Assessing quality performance through seven total quality management practices. Uncertain Supply Chain Management, 11(1), 41–52. <https://growingscience.com/beta/uscm/5822-assessing-quality-performance-through-seven-total-quality-management-practices.html>
- Muhammad Naeem Shahid, A. M. (2023). Technology Reshaping the Future of Industry” The Impact of Electronics HRM on Organization Performance with Mediating Role of IT Training, An Extension of Institutional System Theory. Pakistan Journal of Humanities and Social Sciences. Pakistan:

International Research Alliance for Sustainable Development - iRASD.

Nivlouei, F. B. (2014). Electronic Human Resource Management System: The Main Element in Capacitating Globalization Paradigm. 5(2).

Nyathi, M., & Kekwaletswe, R. (2022). Realizing employee and organizational performance gains through electronic human resource management use in developing countries. African Journal of Economic and Management Studies, 14(1), 121–134. <https://doi.org/10.1108/AJEMS-11-2021-0489>

Oyoru, R. A. (2023). Effect of E-HRM Practices on Organizational Performance: A Study of the Banking Industry in Nigeria. Journal of Public Administration, Policy and Governance Research, 1(1), Article 1. <https://jpapgr.com/index.php/research/article/view/11>

Patel, M., & Dhal, S. (2017). A Study on E-HRM Practices in different Public and Private Sector Industries. Communications on Applied Electronics, 7(10), 28–34. <https://doi.org/10.5120/cae2017652726>

Rudra Kumar, M., & Gunjan, V. K. (2022). Machine Learning Based Solutions for Human Resource Systems Management. In A. Kumar & S. Mozar (Eds.), ICCCE 2021 (pp. 1239–1249). Springer Nature. https://doi.org/10.1007/978-981-16-7985-8_129

Soltani, M., & Mirzanejad, R. (2012). Electronic human resource management and required infrastructures. Seventh Conference on Human Resources Development, Tehran, 1–20.

Strohmeier, S. (2013). Employee relationship management—Realizing competitive advantage through information technology? Human Resource Management Review, 23(1), 93–104. <https://doi.org/10.1016/j.hrmr.2012.06.009>

Swaroop, K. R. (2012). E-HRM and how IT well Reduce the cost in organization. Journal of Marketing & Management Review, 1(4), 133–139. <https://scholar.google.com/scholar?cluster=8391738871379692995&hl=en&oi=scholarr>

Zafar, J., & Shaukat, M. (2010). An Analysis of E-Human Resource Management Practices: A Case Study of State Bank of Pakistan. European Journal of Social Sciences, 15, 18–26.

SOHRAI - Cluster Scoping Exercise

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Abstract

The Sohrai painting dates to rock art from pre-historic periods found in Hazaribagh sites dated back to Meso and Chalcolithic period 10,000-4,000 BC. Sohrai-refers to the harvest festival celebrated across to the act of corralling animals within fenced shelter -initial history of domestication of animals and beginning of agriculture among the indigenous communities in the region. It was prevalent mostly in caves, but shifted to houses with mud walls is a traditional and ritualistic mural art being practised by local tribal women based on nature themes -forest, people and animals during local harvest and marriage seasons using local, naturally available soils of different shades of clay and charcoal around Hazaribagh district of Jharkhand. The Khobar paintings are primarily done to the decoration of the marriage chambers and Sohrai is the harvest painting on the mud houses, repairing it after the rains and offering a thanksgiving to the forces of Nature. This Sohrai art form can be monochromatic or colourful. The people coat the wall with a layer of white mud, and while the layer is still wet, they draw with their fingertips on it. Their designs range from flowers and fruits to various other nature-inspired designs. The cow dung that was earlier used to cake the walls of the house is used to add colour. The dark outline is visible due to the previously applied contrasting white mud coat. Sohrai artists are spontaneous in their drawing. The region has about 11 communities including, Oraon, Munda, Santhal, Prajapati and Khurmi. Shri Bulu Imam worked since 1990 with women artists from villages around Hazaribagh and formed - Tribal Women Artists Collective (TWAC). Under this banner, Shri Bulu Imam exhibited in many International exhibitions which created new opportunities and introduced the art in an interconnected narrative of living heritage. The Sohrai painting has been awarded the Geographical indicator in 2020 and Sohrai Kala Mahila Vikas Sahyog Samiti Limited is the registered user for the GI.

Keywords: *Sohrai Painting, Meso and Chalcolithic Period, Harvest Festival, Traditional and ritualistic Mural Art, Nature-inspired Design.*

Introduction

SOHRAI PAINTING

Sohrai and Khovar, the traditional art forms from the Indian State of Jharkhand, are ritualistic art form practised by women. Everything about this Sohrai art, right from inspiration to execution, is a tribute to nature. This Sohrai art form can be monochromatic or colourful .These colourful paintings are done totally by using natural pigments mixed in mud — Kali matti, Charak matti, Dudhi matti, Lal matti (Geru), and Pila matti. Artists use datoon (teeth cleaning twig) or cloth swabs daubed in different earth colours to paint on the walls, but now they are also using paint brush. Women artists paint animals, birds, lotuses, elephants, tigers and sacred motifs, giving travellers a colourful surprise hidden within the forest and rural landscape. This tribal art legacy is carried on and taught from generation to generation by women artists.

The Sohrai painting dates to rock art from pre-historic periods found in Hazaribagh sites dated back to Meso and Chalcolithic period 10,000-4,000 BC.

Sohrai-refers to the harvest festival celebrated across to the act of corralling animals within fenced shelter -initial history of domestication of animals and beginning of agriculture among the indigenous communities in the region.

It was prevalent mostly in caves, but shifted to houses with mud walls is a traditional and ritualistic

mural art being practised by local tribal women based on nature themes -forest, people and animals during local harvest and marriage seasons using local, naturally available soils of different shades of clay and charcoal around Hazaribagh district of Jharkhand.

The **Khobar** paintings are primarily done to the decoration of the marriage chambers and Sohrai is the harvest painting on the mud houses, repairing it after the rains and offering a thanksgiving to the forces of Nature.

This Sohrai art form can be monochromatic or colourful. The people coat the wall with a layer of white mud, and while the layer is still wet, they draw with their fingertips on it. Their designs range from flowers and fruits to various other nature-inspired designs. The cow dung that was earlier used to cake the walls of the house is used to add colour. The dark outline is visible due to the previously applied contrasting white mud coat. Sohrai artists are spontaneous in their drawing. The region has about 11 communities including, Oraon, Munda, Santhal, Prajapati and Khurmi.

Shri Bulu Imam worked since 1990 with women artists from villages around Hazaribagh and formed - Tribal Women Artists Collective (TWAC). Under this banner, Shri Bulu Imam exhibited in many International exhibitions which created new opportunities and introduced the art in an interconnected narrative of living heritage. In recent years, the walls of important public places in Jharkhand, such as the Birsa Munda Airport in Ranchi, and the Hazaribagh and Tatanagar Railway Stations, among others, have been decorated with **Sohrai-Khovar** paintings.

The TWAC has organised over 50 international exhibitions to promote the art of Sohrai. He also runs a museum and art gallery Sanskriti Centre in Hazaribagh showcasing the chalcolithic rock paintings as well as the artwork of the tribals. The Gandhi Foundation awarded Mr. Imam the International Peace Award in recognition of his humanitarian efforts. For his contributions, he was conferred with Padma Shri in the 2019 by President Ram Nath Kovind.

Products produced in the cluster:

The cluster at present is creating traditional products representing the cultural heritage on different medium – from mud walls to canvas and hand-made paper. Few products in demand are mentioned below:

- ✓ Paintings on canvas and Hand-made paper -different sizes as per customer needs
- ✓ Paintings on T-shirts, dupattas, sarees etc
- ✓ Papier-mâché
- ✓ Cushion covers
- ✓ Coasters, trays, and pen stands in wood

Cluster Intervention :

In Jharkhand the Hazaribagh is one of the intensive districts where Sohrai tribal Art is scoped for cluster interventions are in the blocks – Barakagoan, Churchu, Padma, Daru, Tatijharia, Bishungarh



c. Previous interventions in the cluster

Tribal Workers Artists Collaborative, Virasat Trust and Jharcraft have promoted products by showcasing them in various exhibitions. But no concrete efforts toward capacity building training and design development has observed as for value addition.

2. Nature of Cluster

a) **Type of units:**

Presently approx. 350 household artisans are involved in making Sohrai/Khobar painting around in Hazaribagh .At present, they are all working as individual artisans and around 260 women are members

of Sohrai Kala Mahila Vikas Sahyog Samiti Limited and practising this art.

b) principal firms and support / auxiliary firms?

The women are primarily involved in agricultural work and practice this art form for personal use and have not commercialized this. However, this art is practised by most tribal communities in the region and has a potential to increase the intervention in 13 villages around Hazaribagh district enrolling more than 500 household members.

c)Turnover of the cluster :

The existing turnover of the cluster is approximately around Rs.50,000/- to Rs 1,50,000/ per annum.

d) Average, maximum, and minimum wage in the cluster:

d)Employed sceneria : As per the work demand most of the artisans are paid daily wages rather than monthly or annual.the minimum wages paid is Rs.300 and maximum wages : Rs.1500 as per the skill and efforts putting on preparing the sohrai articulated products.

The cluster has around 350 artisans practicing the art form and are at different skill levels. Around 50 artisans have very high skill and at least 10 artisans have participated in National and International exhibitions.

e)Volume of production in the cluster:

Presently the cluster is still unorganized and hence the exact volume of production cannot be quantified but the women have been selling individual paintings through exhibitions like SARAS state faire and other state fairs which organized across the state as per the guideline of Ministry of rural Development where these artisans participates in 4-6 exhibitions aum sale where huge demands of the Sohrai art.

<i>Full time (artisans)<10</i>	<i>Working 6 -8 hours/day for 8 or more months</i>
<i>Part time (artisans)>300</i>	<i>Working 3 -4 hours a day on demand basis</i>

Other development partners also purchased this Sohrai art directly from the artisans or other middle players like NGOs/CBOs etc. who earn more handsome set of price rather that they pay the lesser worth of the artisans efforts. The details are as belo where the artisans are worked in the following manner with timeline:

The details mentioned that the Full time Artisans are less than 10 in number where as the part time artisans are more than 300 who are working with this traditional art as per the order received.

Cluster intervention operational time observed in 12-months

- The interventions is operational all through the year and is not dependent on any season, but as the production is women specific they are unable to attend to production needs during harvest season as they attend to agricultural work -in January -February and May – July hence will be a lean season for production. The Artisans are commissioned based on orders received and work on the daily-wage basis most of the time, but due to lack of regular market they are unable to work regularly throughout the year.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

The Cluster has scope to be organised as any community institutions

- Producer group(PG)
- Producer company(PC)
- Cooperative (Co)

Presently, no efforts have been made to include women artists into the formal PG, but has a great potential for engaging them for enhancing the livelihood options through art. As this skill is inherent in them since birth, this can be converted into an income -generation program. Percentage of income in the household's income basket comes from cluster

The women are engaged in agricultural work and practice the painting as and when orders are received and on an average 30-40 % is the income share generated in the household through practising this art form.

Insight of Cluster Interventions in other state of India:

Most indigenous communities have a very distinct style of painting practised by them, which originated

DETAILS OF SIMILAR CLUSTERS IN INDIA			
Sl no	Skill	State	Cluster
1	Folk/Tribal painting	Madhya Pradesh	Gond Tribal Painting
2		Maharastra	Warli Tribal Painting
3		Gujarat	Pithora Painting
4		West Bengal	Patua, Kalighat painting
5		Odisha	Saura and Pattachitra Painting

from their ancestors. This artwork has its origin from the prehistoric caves found in the region and are living heritage practitioners. Every region in India has its own style and patterns of painting which reflects the cultural expression of the community. These artistic traditions are passed on through generations.

3.Market:

- a) Market linkages in the cluster
(for raw material, other inputs, selling finished goods)

Raw Material- Raw material used in painting is obtained naturally from the soil in the region, which is organic and natural colour, which add to the rustic nature of the painting. The art form uses four distinct colours- natural earth ochre colour -**red oxide and yellow oxide, kaolin clay for white colour, and black manganese clay for black colour.**

For value addition of paintings, the materials are obtained from local markets for packaging and frames they prefer to buy the material from Kolkata as per their demand and order received.

Sales & Marketing- Majority of the production being done in clusters is meant to be sold across the various parts of the district. They were sold in the Saras melas organized in different states and they were able to directly interact with individual customers and institutions as per their need. Some of the groups have also been commissioned for public art-work projects in the district, state and national level. Reputed artists like Smt. Putli Ganju and others have also travelled overseas to countries like Australia and Europe to showcase their work.

The clusters source the raw materials locally through and specific framing materials are still being bought from Kolkata based on the customer profile/orders. The details are below

DETAILS	Sohrai/Khovar	SOURCES
Raw Material	Natural organic colours Handmade paper, Handloom yardages, Stoles, Dupattas, Wood etc	From Hazaribagh Locally available or from Ranchi
Other Inputs	Value addition like framing, etc	This is being done locally.
Selling finished goods	Major market segments – Exhibition and Fairs -Institutional Buyers - Regular Buyer -Designers /Corporate houses Online – e-commerce	Participated in National and State level exhibitions across India and abroad . INTACH exhibitions Jharcraft and JSPLS. B2 C and customers visiting Hazaribagh pre -historic sites. Many Public sector companies in the region have commissioned them for wall-art programs in Ranchi airport, Hazaribagh railway station. Jharcraft, Pipal Tree, Maati ghar, shopclues etc
Quality	Sold through	Product examples
Bulk	JSLPS, JHARCRAFT, other government departments	Paintings, File Folders, T shirts, Pen stands, Coaster set, trays etc.
Medium	Fairs	Painted Sari, Suit, Bedsheets, Stoles, Dupatta, small paintings with raw finish items etc.
High	Designers	Painting on Canvas, Coasters, paper mâché bowls and figurines, cushion covers etc.

The product portfolio of the Clusters categorized based on the market segment is given below:

b) Cluster presently supply in terms of trade:

Presently the artists are working at an individual level or through a SHG but not in an organized manner. The members have been approached by different buyers from other cities, but they are not confident about the sustainability of the same. The main facilitator for these artworks gets the paintings done on job work basis and pay them lumpsum amount, which are then being sold to Art galleries in Metro cities and other countries like Australia and Europe.

c) Scope for future market for the cluster

(for raw material, other inputs, selling finished goods)

The potential for growth is immense as the Sohrai Art form and has a great demand in overseas market. The Indian Art market is worth Rs.1000- 1200 crores with paintings comprising 99% of the art market. Folk and Tribal art has a small presence and has seen increasing trends in the recent past.

- Indian Folk and Tribal art have enthused International buyers, as it represents a living heritage and with the growth of Art fairs in India the cultural exchange will augment the market.
- The recent mushrooming of art galleries in India has increased the demand for original Folk and Tribal art and big corporates have started investing. The Kiran Nadar Museum of Art has supported many folk and tribal painters and held exclusive exhibitions benefitting the artisans directly.
- Presently the market is controlled by middlemen who coordinate with Art galleries in India and abroad and buy these paintings at extremely low cost or get a collection made by paying them wages of Rs.500/- per day.

- Targeted sales strategy and market positioning will enable the artists to get due recognition and price for the paintings.
- In addition, focus should be on creating Art villages in Hazaribagh which can be owned and run by the indigenous communities.
- Introduction of Art residencies by conducting art tours which can be experiential of their environment, customs, practices and interaction with elders ,story -telling ,artists and youth coming together to share their experiences and talk about their culture and living heritage.
- Brand creation by leveraging the sites with rock art paintings will help get tourists to visit the places. Regular B2B and B2C markets needs to be explored.

Cluster can become supply chain partners for other clusters / industry where the use of natural colours is the biggest advantage and by having a proper handholding support the cluster can also act as a supply chain partner for other cluster to supply natural organic paints as well.

scope for developing new and unique products: The art form has not experimented in developing new and unique products and the cluster is still painting on canvas with no new product development. A pilot was constituted to explore this art form for architectural use through the ***Asian Heritage Foundation***(AHF) project Jiyo. This has resulted in new market exploration for this product.

As it is an art were it can spread a quick message with in the community through its painting there are immense opportunity to develop, innovate new and unique designs for the products it can always act to capture the current market. Also targeted introduction to the art market should be explored in India.

Technical Support

Rural State Employment Training Institute(RSETI),the programmatic approach of can provide technical support and training to entrepreneurs. JSLPS can provide access to financial linkage, branding, advertisement and in promotional activities.

Support institution:

1. Virasat Trust: Shri Bulu Imam set up this trust which is a living repository of Sohrai and Khovar paintings

2 Asian Heritage Foundation, Delhi: The Foundation implemented The World Bank funded Jiyo project in the state in 2018-2019 to support community-based organizations for capacity /Institution building, Skill and Design development, Setting-up Common facility centers and establishing Market linkages. Product development for architectural use was experimented and prototyped.

3) Scope for collaboration with TRIFED should be explored as Tribes India is mandated to support tribal artisans with marketing and they have around 40 stores across the country. Efforts to get an allotment of spaces for Common Facility Centre can be explored with state government, which can be developed into an Art center where visitors can come and experience the process of making. This center can also be used to have Art residencies which can become an active space for exchange of creativity between different practitioners and collaborations.

5.Social and Environmental Challenges

The posture of continuous painting by sitting on the floor results in backache and effect on lower backbone. A better ergonomically designed working table with adequate source of light (lamp) would increase productivity. As the color used to paint Sohrai art are natural, efforts to continue this tradition should be maintained and not dilute the same using synthetic colors.

Most of the work is home based and is done by women only. The women work during the day so there is no gender related challenge.

State infrastructural challenges pertaining to water, electricity, transportation, etc. in the cluster.Most

of the work is done as home-based work where there is no scope for infrastructure challenges, instead of the artisans working at their individual place, if a dedicated place is provided for them it can create a sohrai painting hub and they get their own identification which would help them to capture the market easily.

Risks :customer, market, raw-material, taxation, availability of finance etc.

1. Design development for producing contemporary products using tradition skills and material will ensure that authenticity is maintained but giving it new dimension.
2. The state has started branding the Sohrai art and has started using them in public art works etc ,but these paintings are known in international markets due to the efforts of Shri Bulu Imam and his family who have constantly interacted with buyers and art buyers from different countries. It would be beneficial if these efforts are also taken up by the state government which will help in preserving the cultural heritage of the region.
3. No focused efforts to market these paintings in local, state, national markets.
4. No assured financial stability.
5. Unable to penetrate into the market

Raw material: The basic raw material used for painting is locally available and can be an USP as these are organic materials used which is in great demand. As the areas are under mining operations the cluster might face problems for artisans to extract the soil. The base material used for painting i.e. Canvas and handmade paper are locally available.

Market(authenticity): There is a threat that non- tribal have started copying the artwork and duplicating designs and using screen prints and labelling them as hand painted Sohrai. These products are cheaper and hence there is a risk to the authentic products the artisans are making. Obtaining necessary certifications like Craft Mark, Fair Trade and use of GI tag will help position the products in the market.

Market (business planning): No precedence of the artists coming together and working as a collective presently ,hence efforts towards capacity building needs to be undertaken ,business planning is a big risk in terms of scaling up production and diversification and intense handholding of the groups is important for few years. Also tapping into the Art market which is worth 1000-1200 crores with paintings comprising 99% (Mostly contemporary art), but folk and tribal art have a small presence and is growing as some art galleries and museums have started promoting Tribal art .

The Indian Folk-art market has created enthusiasm amongst international buyers and the growth of Art fairs in India has helped cultural exchange with a help to augment the globalized market. Emergence of Art galleries in India for the last few years has seen a growth especially with genuine art lovers promoting folk and tribal art. Kiran Nadar Museum of Art has support many emerging tribal artists to show case at her specially curated art exhibitions. Best artists work from clusters can be shortlisted and showcased at Art museums to get due credit and market. Initiative's such as the India Pavilion at the Venice Biennale, India Art Fair, Dubai Art Fair, Kochi-Muziris Biennale and new emerging private initiatives have created a wonderful ecosystem, invigorating and reshaping the art scene in India.

Webliography:

- <https://aseemamag.com/sohrai-painting-ancient-tribal-art-of-jharkhand-gaining-popularity/>
- <https://en.wikipedia.org/wiki/Sohra>
- <https://www.thehindu.com › Entertainment › Art>
- <https://www.videovolunteers.org/painting-a-new-story-sohrai-art-in-jharkhand/>
- <https://indroyc.com/2015/11/11/sohrai-a-festival-of-santhal-tribe/>
- www.handicraftglobal.com/khovar-sohrai-marriage-harvest-art/
- <https://inlanding.wordpress.com/2014/11/13/about-journey-cans-khovar-and-sohrai-art/>
- <https://www.deccanherald.com › Sunday Herald › Sunday Herald Art & Culture>
- <https://www.shuru-art.com/blogs/news/sohrai-the-traditional-harvest-art-of-jharkhand>
- <https://jharkhandculture.com/hi/node/27>
- <https://navbharattimes.indiatimes.com/good-news/jharkhand-hazaribagh-sohrai-art-folk-art-economically-independent-old-tradition/articleshow/97885425.cms>
- <https://maatighar.com/sohrai-paintings-of-jharkhand/>
- https://en.wikipedia.org/wiki/Sohrai_and_Khovar_painting
- <https://en.gaonconnection.com/sohrai-art-tribal-adivasi-women-wall-painting-jharkhand-rural-india-art-culture/>
- <https://www.caleidoscope.in/art-culture/sohrai-painting-jharkhand>

Investigating the Online Customer Buying Behavior Regarding Fashion Apparel Using the Theory of Planned Behavior

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Abstract

Purpose: This study explores how personalized social media ads affect attitudes towards popular apparel websites.

Design/methodology/approach: The aim of the study was to investigate the factors that influence the purchase intention and buying behavior of online consumers. Specifically, the research focused on the elements of TPB, the shopping experience, and online trust. The study was conducted among 350 online shoppers from the State of Bihar, India, who were proficient in using social media and making purchases online. The research also took into account the effect of age as a moderator. The collected data was analyzed using regression analysis and Haye's Process model to determine the relationship between these factors and online buying behavior

Findings: Based on the study, it was observed that a customer's likelihood to purchase items while shopping online is largely impacted by their perception of the website brand. The research emphasizes the significance of a positive attitude toward shopping websites, trust in online purchasing, and overall shopping experience in increasing purchase intention. Additionally, the study indicates that age plays a significant role in the final buying behavior

Practical implications: The primary contribution of this study to the existing literature is in its emphasis on the impact of elements of TPB with personalized ads, online trust, online shopping experience, and age post-pandemic on consumers' inclination to engage in online shopping. This research highlights that a deeper understanding of customers' adoption of online platforms for apparel shopping post-pandemic might lead to more comprehensive insights into their behavioral patterns.

Originality/value: This paper pioneers in empirically testing the conceptual framework and establishing how personalized ads, attitudes, subjective norms, perceived control behavior, shopping experience, and online trust build the purchase intention and ultimate buying behavior for a specific geographical region.

Keywords: TPB, Purchase Intention, Shopping Experience, Website Brands, Social Media Advertising and Moderation.

1. Introduction

The epidemic expedited the acceptance and implementation of e-commerce and significantly transformed India's retail sector. Conventional brick-and-mortar retail enterprises adopted digital innovation to remain pertinent. The enduring influence of the epidemic was evident in the expansion of e-commerce. Statista reports that the annual number of online shoppers in India was around 185 million in 2021 and is expected to rise to 425 million by 2027 (India: Annual Online Shoppers 2027, 2023).

Novice online consumers who initiated their buying activities in 2021 persisted in making purchases after implementing the lockdown. Companies instilled trust and marketed premium items.

Globalization has provided online shoppers with a worldwide marketplace to make purchases. Consumers are additionally impacted by global fashion trends, increasing the factors affecting their purchasing decisions. The worldwide e-commerce business has consistently seen fashion, accessories, and footwear as the primary drivers of order volume. These segments significantly declined during the Pandemic because consumers were confined to their homes.

Indian fashion, accessories, and footwear industries are experiencing a substantial surge in order volume growth, with a growth rate of 59.7% and 67.8% in the fiscal year 2022-23 (Wazir et al., 2022), as life returns to its usual state. The internet, facilitated by technology, has enhanced the ease with which customers connect with individuals globally and access information from many sources. Consequently, the virtual sphere has emerged as the fashion industry's predominant realm. As a result, fashion stores have been obligated to transition from conventional marketing methods to increasingly prevalent digital platforms, including blogs, social networking, social media advertising, and virtual reality.

Various theories, including the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), and The Technology Acceptance Model (TAM), have been employed to forecast customers' online behavior. The present study utilizes the Theory of Planned Behaviour (Ajzen, 1991) to explain how the intention to purchase affects the online shopping behavior of Indian consumers after the COVID-19 pandemic. As stated by (Ajzen, 1991), the Theory of Planned Behaviour (TPB) is relevant in various circumstances. Therefore, we employ TPB to forecast consumer intention and purchasing behavior.

The study conducted by (Theodorou et al., 2023) aimed to apply the Theory of Planned Behaviour (TPB) to analyze the influence of COVID-19 on the online buying habits of Greek consumers, both during and after the pandemic. Building upon this line of inquiry, the study aims to comprehensively comprehend and forecast consumers' inclination to engage in online purchasing. The present study utilizes personalized social media advertisements, including critical elements of the planned behavior theory (Rehman et al., 2019; Sinha & Kim, 2012; Ajzen, 1991)—specifically, attitudes towards online purchasing, subjective norm, perceived behavioral control, and consumers' online buying experience. As per the study conducted by (Nayak et al., 2022), the latter component is a potentially influential element that affects buying intention, particularly after the pandemic. The dependent variables in this study are the intention to make online purchases and actual buying behavior. This study expands the existing body of research on the Theory of Planned Behaviour (TPB) by demonstrating the importance of the "online trust" element in post-pandemic online buying for suppliers and consumers. Moreover, the findings of this study can be advantageous for sales teams and executives since it offers a structured model for understanding client internet purchasing patterns after the pandemic.

2. Theoretical Framework and Hypotheses

2.1. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a conceptual framework that aims explicitly to comprehend the factors influencing behavior and deliberate actions (Vermeir & Verbeke, 2008). It offers valuable information about the elements that impact client behavior. The TPB is grounded in the Theory of Reasoned Action (TRA), which places intention as the pivotal element. Attitudes, subjective norms, and perceived behavioral control influence this phenomenon (Ajzen, 2015). Attitude pertains to an individual's subjective evaluation of behavior, whereas societal influences shape subjective norms. Perceived behavioral control refers to an individual's perception of how easy or difficult it is to engage in a particular behavior. There is a direct relationship between the components of purpose and the probability of an individual participating in a specific behavior.

2.2.Theoretical Perspectives on Online Shopping Several studies (Lee, 2009b; Vijayasarathy, 2004; Yousafzai et al., 2010; Sanne & Wiese, 2018) have demonstrated that the theory of reasoned action (TRA), the theory of planned behavior (TPB), and the technology acceptance model (TAM) are the most appropriate frameworks for forecasting online shopping behavior. All three theories strongly prioritize the concept of intention, which an individual's attitudes and beliefs can influence.

The Theory of Reasoned Action (TRA) is a socio-psychological concept that highlights the importance of intention, which is shaped by attitudes toward behavior and subjective norms. The elements are influenced by behavioral and normative perspectives, respectively. In order to forecast intentions regarding online purchasing, scholars have combined TRA with additional frameworks (Amaro & Duarte, 2015).

The Technology Acceptance Model (TAM) is based on the Theory of Reasoned Action (TRA), and TAM has mainly been used in the field of information technology (Y. Lee et al., 2003; W. et al., 2012). The model consists of two components - the attitudes toward adopting new technology are impacted by the perceived usefulness and perceived ease of use, which affects intention (S. Ha & Stoel, 2009). (Theodorou et al., 2023) specifically asserts that the intention to adopt technology is a dependable predictor of its subsequent use. Perceived usefulness in online shopping refers to an individual's belief in the Internet's ability to improve their effectiveness in e-commerce (Sentosa & Mat, 2012). TAM, along with other factors such as the cultural environment, perceived dangers, legal domain, and trust, has been employed in research to understand the factors that influence customers' intent to purchase online (Akhlaq & Ahmed, 2011; Y. et al. et al., 2016). Researchers have combined the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB) to examine the factors influencing individuals' intention to make online purchases and shopping behavior.

According to a study conducted by (Hansen et al., 2004), the Theory of Planned Behavior (TPB) is better than the Theory of Reasoned Action (TRA) at predicting online consumer behavior. This conclusion was supported by additional studies conducted by (Limayem et al. 2000; Chaturvedi et al., 2016; N.T. Ha, 2020). Therefore, it seems that TPB and TRA are more effective in predicting the behavior of online consumers. TPB is more suitable for explaining consumers' online behavior, as stated by (Hamit Turan, 2012; Theodorou et al., 2023). TAM, on the other hand, is better at predicting the adoption of new online technologies. (Yousafzai et al., 2010) found that subjectivenorm and perceived behavioral control, which are not components of TAM, are the best predictors of the intention to buy online. Based on these findings, TPB is considered the most appropriate approach for predicting the intention to make online purchases.

2.3. Age as an Indicator

Studies have demonstrated that socioeconomic circumstances substantially impact the technological behavior of persons (Hernández et al., 2011; Venkatesh, 2000). Given the recent increase in technology adoption, it is logical to infer that the significance of these elements has also increased. Psychological aspects contribute to increased web usage among younger individuals, making them more susceptible to the effects of social media advertising (Maldifassi & Canessa, 2009). This study examines the impact of age on consumers' online behavior and its correlation with purchasing behavior and intention.

2.4.Online Purchase Intention & Buying Behaviour

Purchase intention is essential in predicting future buying patterns (Putra et al., 2017). Scholars define online purchase behavior and intention in numerous ways (Gao et al., 2020; Nguyen & Ha, 2021; Vo et al., 2023). Buying intention, defined as the conscious choice of online customers to engage in monetary transactions for goods or services through internet-based platforms or virtual retail outlets, determines online purchase behavior.

In online and e-commerce studies, online purchase intention has been widely recognized as a critical outcome measure and a surrogate for purchasing behavior (Poddar et al., 2009; Venkatesh et al., 2022). Several theoretical frameworks have been used in previous research projects studying the issue of online purchasing intention.

Nguyen & Ha (2021) conducted research grounded on the expectation-confirmation model (ECM). Their findings confirm that the intention to make mobile purchases is influenced by users' perceptions of trust, perceived usefulness, satisfaction, and the process of adapting to the online platform. The consumer's desire to purchase is crucial in understanding and influencing consumer behavior. The practicality of this phenomenon is contingent upon the antecedents that exert influence, and its measurement is challenging across diverse contexts (Alalwan, 2018; Nayak et al., 2022; Rai & Yadav, 2022a). The measurement of the customer's purchase intention is commonly employed as a predictor of their actual buying behavior. Hence, the following hypotheses are proposed.

H₁: Purchase intention has a positive relation with buying behavior.

H_{1a}: Age moderates the relationship between online purchase intention and buying behavior.

2.5. Personalized Social Media Ads

Personalizing social media advertisements is a trendy approach for enhancing online sales (Aguirre et al., 2016). Aydin (2018) states that personalization marketing takes advantage of the unique context provided by social media. The ease of accessing user personal information on social media platforms enables marketers and vendors to create and distribute highly tailored content and feeds (K. Li & Shen, 2023). E-commerce platforms have employed customized communication to influence customers into making transactions. Multiple scholars (Dodox & Wu, 2019; Rai & Yadav, 2022b) have found that enterprises that utilized social media platforms to personalize their products or services and stimulate purchasing had a boost in income. Hence, it is imperative to allocate greater scholarly focus to personalized ads on social media. Facebook has enabled advertisers to target particular demographic groups with their advertisements selectively. These folks are selected based on demographic data and shared interests. Social media platforms have streamlined and lowered the expense of cost-effectively connecting with specific customer groups, presenting them as a viable substitute for conventional marketing approaches. Social media advertisers employ various strategies to communicate compelling marketing messages that efficiently encourage purchases. Hence it is proposed that:

H₂: Personalized social media ads positively related to attitude towards advertised website

2.6. Attitude

Behavioral beliefs substantially influence an individual's attitude toward a specific behavior. It is crucial to recognize that "it" refers to the attitude or inclination toward behavior rather than inanimate objects, humans, or other entities (Akar & Topçu, 2011). Moreover, emotions have been correlated (Lien & Cao, 2014), and other studies have shown their impact on intention (Pavlou & Fygenson, 2006; Jafarkarimi et al., 2016). In this study, attitude is defined as a thorough assessment of the feasibility of participating in a future transaction with a specific online store (Peña-García et al., 2020a). There is a direct relationship between attitude and intention to engage in a given behavior, where a more positive attitude is linked to a stronger intention to conduct in that way. Therefore, the subsequent assumptions have been formulated:

H₃: Attitude towards advertised websites is positively related to purchase intention.

2.7. Subjective Norms

Subjective norm pertains to an individual's sense of the societal pressure or influence to partake in a specific behavior. Subjective norm, a key determinant of intention, is shaped by normative ideas. These beliefs relate to individuals' perceptions of how influential individuals, such as friends or

family, support or discourage various behaviors (E. Kim et al., 2013; Jeganathan, 2014). Social entities, such as family, friends, coworkers, and mass media, have been recognized as significant determinants of consumer behavior (Sandve & Øgaard, 2014; M & Subramanian, 2016). The viewpoints of our social network regarding online shopping can influence our online buying behavior, as we may feel obliged to adhere to their expectations (Pavlou & Fygenson, 2006). The study conducted (Bhatti & Akram, 2020) demonstrates that individuals are primarily influenced by their peers, mainly when they have limited prior experience with a specific purchasing approach for a product. Therefore, the subsequent hypothesis is posited:

H₄: Subjective norm has a positive relation to purchase intention.

2.8. PCB

The Theory of Planned Behaviour (TPB) is especially applicable when individuals have little autonomy over their activities (Ajzen, 2015). The concept under consideration relates to an individual's subjective evaluation of their ability to regulate specific behaviors. This assessment is often assessed by considering the perceived ease or difficulty associated with certain behaviors. Perceived behavioral control in an online setting pertains to the consumer's sense of their capacity to regulate a potential purchase (Sandve & Øgaard, 2014). The variable represents an individual's influence or power over online transactions. Customers' intents to participate in online purchasing activities are influenced by their perceived behavioral control, especially in a dynamic e-commerce environment (E. Kim et al., 2013; Peña-García et al., 2020b). Research has shown a positive association between perceived behavioral control, the inclination to participate in online buying, and the actual behavior of purchasing online (N. T. Ha, 2020). Therefore, it is possible to derive the following hypothesis.

H₅: Perceived control behavior has a positive relation to purchase intention.

2.9. Online Trust

Trust is essential in various business situations, including e-commerce. Online trust is particularly significant in establishing exchange relationships facilitated through internet-based infrastructure (Li et al., 2007). Consumers face challenges and potential risks while engaging in online transactions from unknown virtual stores. Trust is a critical factor in shaping the relationship between purchase intention and buying behavior and has been the subject of ongoing research in recent years.

Online trust is established over time when online consumers gain familiarity and transact through online platforms (Gefen et al., 2003; Aguirre et al., 2015; Y. Chen et al., 2015). E-commerce platforms provide a secure environment that guarantees transactions are carried out with low risk. Studies worldwide have repeatedly examined the causal relationship between online trust and purchase intention. As to the findings (Groß, 2016), the study demonstrated that trust substantially increased consumers' inclination to continue purchasing on mobile devices while reducing their views of the risks connected with online shopping. Online trust is a significant component in determining whether people continue using mobile shopping in the e-commerce ecosystem. This has been highlighted by several studies (Groß, 2016; Nguyen & Ha, 2021; Vo et al., 2023). The proposed hypothesis is as follows:

H₆: Online trust has a positive relation to purchase intention.

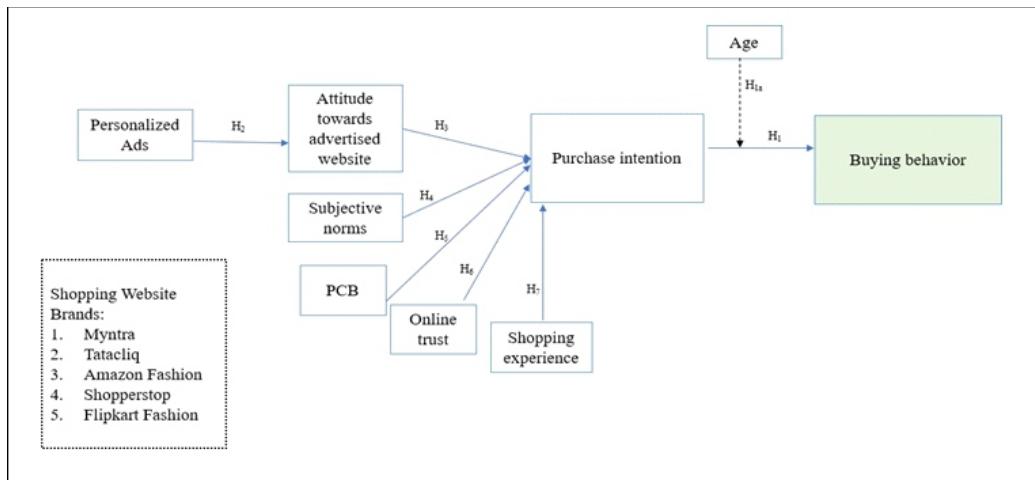
2.10. Shopping Experience

Prior studies have shown that an online business's virtual environment substantially influences shoppers' views, satisfaction, and inclination to engage or avoid the retailer's website. Based on the research conducted by (J. Kim & Forsythe, 2008; Nayak et al., 2022), a positive environment can lead to consumer happiness and increased arousal, promoting a positive attitude towards the shopping

website. An alternative study showed a direct relationship between the caliber of a website and the likelihood of shoppers intending to return to the site (H. Li et al., 2013). The probability of consumers staying engaged with a website depends on an exciting and visually appealing digital environment. Consequently, it is recommended that.

H₇: Online shopping experience positively related to purchase intention.

Figure1- Model of research



Source: Self-developed

1. Methodology

1.1. Data Collection

The research utilized a survey approach to collect primary data. Participants were asked to respond to a structured questionnaire. The study was conducted online to gather information on customers' intention to shop online in the Regional Unit of Patna, State of Bihar, India. To maintain ethical standards, potential participants were given clear explanations that their participation was voluntary and anonymous.

1.2. Sample and Procedure

A conceptual model has been examined through an experimental design. The study was conducted in the Patna region, with families as the population unit. An online survey using Google Forms was conducted between May and June 2023 to collect data from male and female respondents aged between 20-60 from six sub-divisional regions of Patna (Patna City, Barh, Patna Sadar Masauni, Danapur, and Paliganj). Students and staff members of Patliputra University, Patna, were selected as the sample frame. The study collected a total of 350 responses using snowball sampling. The sample size was determined by multiplying the number of items on the rating scale by a factor of 10, as suggested by (Hair, 2019). Additionally, a filter question was presented at the start of the survey to determine whether respondents were frequent online shoppers. Table 1 lists the demographic information. The study used Microsoft Excel 2016 and IBM SPSS 22 for statistical analysis.

1.3. Measures

This investigation employed dimension scales that the literature had already approved. Respondents were asked about their intention to purchase online based on the TPB research model. The measurements of buying behavior and personalized ads were adopted and modified from (Dodoo & Wu, 2019), attitudes towards advertised websites (Tan et al., 2013b), online purchase intention, subjective norms (Pavlou & Fygenson, 2006), perceived control behavior (Peña-García et al., 2020b), shopping experience (J. Kim & Forsythe, 2008), and online trust (Gefen et al., 2003). The five-point Likert scale was constructed from strongly disagree (1) to agree (5) to score all 22 items strongly. Five popular Indian apparel web stores (Myntra, Tatacliq, ShoppersStop, Amazon, and Flipkart Fashion) were selected to evaluate customers' attitudes toward advertised websites and shopping experiences. (Appendix).

2. Research Results

2.1. Reliability and Validity

A coefficient alpha over 0.70 signifies a high internal consistency among the construct components. The α coefficients for the constructs varied between 0.850 and 0.900, with a total scale reliability of 0.850. Thus, it can be inferred that all the constructs included in this study were reliable and trustworthy (Sekaran & Bougie, 2013). Moreover, the KMO value was calculated to be 0.801, and the statistically significant outcomes of Bartlett's test for sphericity ($p<0.05$) confirmed the appropriateness of factor analysis. The Shapiro-Wilk test was utilized to assess data distribution among both genders to examine its suitability. The hypothesis test was utilized. The male scores followed a normal distribution, with a p-value of .210. Conversely, the distribution of scores for females was not expected, as shown by a p-value of 0.021 below the significance threshold. In order to assess if the data satisfies the multicollinearity assumption, the VIF (Variance Inflation Factor) and tolerance statistics were examined using Collinearity Statistics. Multicollinearity was not seen in the variables included in the analysis. The tolerance values for each variable were as follows: (PA, Tolerance = .91, VIF = 1.96, ATAW, Tolerance = .85, VIF = 1.09, SN, Tolerance = .93, VIF = 1.08, PCB, Tolerance = .52, VIF = 2.33, SE, Tolerance = .82, VIF = 2.12, OT, Tolerance = .74, VIF = 1.85).

Table 1: Descriptive Data

Sample Characteristics		N=350	
Variables	Category	Frequency	Percentage%
Gender	Male	219	62%
	Female	131	38%
Age	20-25	50	14%
	25-30	85	24%
	30-35	48	14%
	35-40	40	11%
	40-45	62	18%
	45-50	25	7%
	50-55	20	6%
	55-60	20	6%
Min. Education	Post Graduate	156	45%
	Graduate	109	31%
	Under Graduate	85	24%
Marital Status	Un-married	135	39%
	Married	192	55%
	Separated	5	1%
	Widower	18	5%
Annual Family Income	Up to 5 Lakhs	157	45%
	5-10 Lakhs	100	29%
	10-15 Lakhs	65	19%
	More than 15 Lakhs	28	8%

Source: Self-compiled

1. Result Analysis

5.1. Correlations

The correlation analysis was conducted using the Pearson correlation test to examine the associations between the variables, as shown in Table 2.

Table 2: Correlation Analysis

Correlation		PI	PA	ATAW	SN	PCB	OSE	OT	BB
PI	Pearson Correlation	1							
PA		0.628*	1						
ATAW		0.780*	0.830**	1					
SN		0.704*	0.321*	0.226**	1				
PCB		0.621*	0.401*	0.354*	0.204*	1			
OSE		0.183**	0.564*	0.608*	0.401*	0.344*	1		
OT		0.651*	0.428*	0.645	0.355*	0.311*	0.512*	1	
BB		0.714*	0.412*	0.254**	0.341*	0.259**	0.144**	0.314*	1

** Significant at the 0.01 level (2-tailed) Correlation.

*Significant at the 0.05 level (2-tailed)

Correlation. Source: Self-compiled using

IBM SPSS version 22.0

5.2. Regression Analysis

A regression analysis was performed (Table 3) to examine the relationship between various independent variables, including personalized social media ads, attitude towards advertised websites, subjective norms, perceived behavioral control, online trust, and shopping experience, with age as a moderator. The dependent variable in this study was purchase intention. The R^2 coefficient has been calculated to be 0.683, indicating that approximately 68% of the variability in the intention to engage in online buying can be attributed to the independent variables. The p-value of the F-statistic in the ANOVA analysis is less than 0.05, indicating that the model is statistically significant.

The B coefficients of the variables, namely personalized ads, attitude towards advertised websites,

subjective norms, perceived behavioral control, online trust, and purchase intention, demonstrate statistical significance at the $p<0.05$ level. The results indicate that personalized ads ($t=3.15$, $p<0.05$), attitude towards advertised websites ($t=6.90$, $p<0.05$), subjective norms ($t=1.84$, $p<0.05$), perceived behavioral control ($t=3.19$, $p<0.05$) and online trust ($t=7.82$, $p<0.05$) exert a statistically significant influence on the intention to engage in online purchases post Pandemic. The results also indicated a significant association between purchase intention ($t=2.54$, $p<0.05$) and buying behavior. Therefore, it can be concluded that H1, H2, H3, H4, H5, and H6 are supported. In contrast, the variable online shopping experience ($t = 0.89$, $p = 0.251$) does not significantly impact the intention to engage in online purchases.

Table 3: The statistical results of regression analysis

Statistical results of PI BB (H1)			
Variables	Unstandardized Beta Coefficients	t-value	Sig. p-value
PI	0.741	2.649	0.002
Note: DV: BB, R=74.3%;R ² =55.3%, Adj R ² -55.1%; p= 0.000($p<0.05$); β for Constant=3.427			
Statistical results of PA ATAW(H 2)			
Variables	Unstandardized Beta Coefficients	t-value	Sig. p-value
PA	0.588	3.156	0.001
Note: DV: ATAW, R=78%;R ² =60.8%, Adj R ² -60.7%; p=0.000($p<0.05$); β for Constant=2.620			
Statistical results of ATAW, SN, PCB, OT, OSE PI (H3 H4, H5, H6, H7)			
Variables	Unstandardized Beta Coefficients	t-value	Sig. p-value
ATSWB	0.986	6.889	0.007
SN	0.038	1.841	0.038
PCB	0.586	3.183	0.008
OT	0.684	7.772	0.021
OSE	0.299	0.778	0.251
Note: DV: PI, R=83%;R ² =68.5%, Adj R ² -68.3%; p=0.000($p<0.05$); β for Constant=4.708			

Source: Self-compiled using IBM SPSS version 22.0

5.2. Moderation Analysis

Following the evaluation of the research model, a statistical technique called moderation analysis (Kristaung & Riorini, 2019) is utilized to determine if the values of a third variable can influence the strength or direction of the relationship between the dependent and independent variables being studied. Consequently, the subsequent action involved estimating it by partitioning the entire sample according to the potential value range of age. The study employed Haye's process method technique to conduct moderation analysis. Hayes and Preacher (Preacher & Hayes, 2008) developed a total of seventy-four distinct models, each of which efficiently fulfills the requirements of nearly all research models. This study used IBM SPSS version 4.2 of the process model 1 to conduct moderation analysis. The results of the moderation analysis, with age as the variable, are presented in Table 4.

The B coefficients exhibited statistical significance with a p-value of less than 0.05. The moderator variable, age, exhibits a statistically significant effect with a t-value of 3.15 and a p-value less than 0.05. It is evident that as individuals get older, their intention to make a purchase becomes stronger. Therefore, the age variable significantly impacts the connection between purchase intention and actual buying behavior, providing support for hypothesis H1a.

Table 4: Moderation Model Summary (H1a) PI Age BB

Model Summary (H1)						
	R	R²	F	df1	df2	p
	0.7602	0.5579	156.538	3	343	0.000
Model Path Confidence						
	B	Std. Error	t	p	LLCI	ULCI
Constant	0.524	0.118	5.601	0.020	0.2100	0.4950
ZPI	0.7518	0.166	1.516	0.000	0.6796	0.8485
ZAge	0.651	0.034	3.15	0.007	0.1878	0.4765
Interaction ZPI * Zage						
	R2- change	F	df1	df2	p	
ZPI*ZAge	0.128	10.402	.	0.343	0.014	

Source: Self-complied using IBM SPSS version 22.0 PROCESS_v4.2_beta

Table 5 presents the overall hypotheses and results of this research. Hypotheses summary

Hypotheses	Path	Remarks
H1	Purchase intention buying behavior	Supported
H2	Personalized Ads Attitude toward advertised websites	Supported
H3	Attitude towards advertised websites purchase intention	Supported
H4	Subjective norms purchase intention	Supported
H5	Perceived control behavior Purchase intention	Supported
H6	Online trust purchase intention	Supported
H7	Online shopping experience intention	Dropped
H1a	Purchase intention Age buying behavior	Supported

1. Discussion

Preliminary results of the survey revealed that around 80% of individuals living in the Patna Regional region engaged in online buying activities amidst the COVID-19 pandemic. Amidst the Pandemic, individuals acknowledged that their involvement in internet buying surged by a factor of eight, accompanied by a monthly expenditure ranging from ₹500-1000. The most frequently bought products from the five well-known e-commerce platforms (Myntra, Shoppers Stop, Tatacliq, Amazon, and Flipkart) included clothing, accessories, shoes, and consumer electronics. The primary payment options employed were digital wallets and cash on delivery.

Moreover, the results suggested that personalized advertisements on social media platforms benefited individuals' opinions about the advertised websites. Attitudes of individuals toward advertising websites, subjective standards, perceived behavioral control, and online trust positively influenced their intent to make a purchase. The results of this study confirm the previous investigations carried out by (Poddar et al., 2009 E. Kim et al., 2013 Alalwan, 2018; Dodoo & Wu, 2019; Peña-García et al., 2020a; Nayak et al., 2022). These studies have shown that the attitudes of residents in the Patna area towards online e-shopping have positively influenced their inclination to participate in online purchasing after the COVID-19 pandemic. Age has a beneficial impact on the correlation between online purchasing and the desire to participate in online purchasing. The study conducted by (Joines et al., 2003) has shown the impact of this phenomenon on younger persons, which is in contrast to the findings of another study by (Kwon & Noh, 2010), where no noticeable effect on intent was detected. The influence of subjective norms, which includes the impact of family, friends, and coworkers, plays a crucial role in consumer behavior after the epidemic. Hence, Internet retailers' extensive and favorable utilization significantly promotes online shopping among individuals. Simultaneously,

businesses must redirect their attention from younger demographics to older consumer age groups. This transition is necessary due to the increasing number of individuals turning to online platforms due to their hectic schedules, the convenience, affordability, and the wide range of available product choices. This trend contradicts the findings of (Theodorou et al., 2023).

Therefore, in order for consumers to place orders effortlessly, an online store website should feature streamlined payment processes and user-friendly platforms from a business perspective. Lastly, consumers who believe in online purchasing are more likely to engage in online transactions. However, consumers with greater trust in an online purchasing platform are more likely to utilize it. It is worth mentioning that contemporary consumers exhibit a fundamental understanding of online purchasing platforms and seem to have considered many factors beyond trust.

2. Managerial Implication and Conclusion

This study aimed to analyze the factors influencing people's propensity to participate in online purchasing. The main contribution of this study to the current body of research is in its focus on the influence of components of the Theory of Planned Behaviour (TPB), namely personalized ads, online trust, online shopping experience, and age post-pandemic, on consumers' propensity to participate in online shopping. This study emphasizes that gaining a more profound comprehension of customers' utilization of online platforms for purchasing clothing during the pandemic could potentially yield more thorough insights into their behavioral tendencies. The results affirm the idea that personalized advertisements, attitudes towards the promoted website, subjective standards, and perceived behavioral control are essential factors that can predict both intention and behavior within the framework of the theory of planned behavior.

The research findings can provide company recommendations to enhance customers' propensity for online shopping. Companies should actively seek out individuals with a positive disposition towards social media platforms and online purchasing websites. The citizens of Patna district have shown a strong preference for online shopping, particularly in the aftermath of the epidemic, demonstrating their recognition of the Internet's use for their shopping needs. The surge in positive sentiments towards internet shopping is correlated with a subsequent increase in intentions to participate in it. The trust-related concerns have been successfully addressed by increased transparency and empowerment of consumers.

The individuals' willingness to engage in online shopping, perceived behavioral control, and the influence imposed by their family, friends, and coworkers to avoid physical stores and choose online shopping platforms were influenced by their attitudes about online shopping. Furthermore, the age component has been shown to influence online purchasing intention, with older persons demonstrating a higher propensity to purchase online. Residents of the Patna district exhibit a great inclination towards online shopping for their future purchases. These factors can be ascribed to their perceived behavioral control, attitude, association with social media, subjective norms, and online trust.

Limitations and Future Research

The study's findings may not be generalizable due to intrinsic constraints. An inherent drawback of the research lies in the sample size, thereby impeding the generalizability of the findings. Furthermore, the evaluation of purchasing behavior examined the apparel sector's disposition towards social media advertisements on websites and their endorsement of the TPB framework. Nevertheless, it failed to consider the various significant factors associated with the purchasing behavior of clothes, which could potentially influence the intention to buy. It is highly recommended to increase the sample size, incorporate a broader range of participants, and utilize the structural equation modeling approach in order to improve the model fit and boost the generalizability of the findings. The findings suggest that the e-commerce sector faces a significant challenge in the shape of online product returns, particularly affecting designer goods. The rate of return for fashion products purchased online is nearly double that of garments bought through traditional methods, resulting in higher inventory-carrying expenses for e-commerce enterprises.

The phenomenon of shoppers not abandoning the process of trying on clothes before making a purchase presents a hurdle, underscoring the significance for online sellers to adopt interactive interface technology (IIT) to tackle this problem. Expanding the utilization of personalized virtual try-on (PVTO) technology on online shopping platforms for more significant product categories would enable clients to enhance the benefits they derive from the website. Several online firms have implemented Interactive Image Technology (IIT) in their platforms, such as Myntra's "Style Studio," Amazon's "Virtual Trail for Shoes," and Nayka's "ModiFace." This technology can potentially enhance consumers' inclination to purchase and mitigate the associated risks of post-purchase refunds. Furthermore, the inquiry could be carried out to analyze the influence of various elements, such as the reputation of the e-commerce platform, methods for delivering purchases once they have been made, tactics for managing consumer inquiries, and rules regarding returns. These constructions must be assessed among websites offering Virtual Try-On (VTO) solutions for garments, cosmetics, and accessories.

References:

1. Aguirre, E., Mahr, D., Grewal, D., de Ruyter, K., & Wetzels, M. (2015). Unraveling the Personalization Paradox: The Effect of Information Collection and Trust-Building Strategies on Online Advertisement Effectiveness. *Journal of Retailing*, 91(1), 34–49. <https://doi.org/10.1016/j.jretai.2014.09.005>
2. Aguirre, E., Roggeveen, A. L., Grewal, D., & Wetzels, M. (2016). The personalization-privacy paradox: Implications for new media. *Journal of Consumer Marketing*, 33(2), 98–110. <https://doi.org/10.1108/JCM-06-2015-1458>
3. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
4. Ajzen, I. (2015). Consumer attitudes and behavior: The theory of planned behavior applied to food consumption decisions. *Italian Review of Agricultural Economics*, 70(2), Article 2. <https://doi.org/10.13128/REA-18003>

5. Akar, E., & Topçu, B. (2011). An Examination of the Factors Influencing Consumers' Attitudes Toward Social Media Marketing. *Journal of Internet Commerce*, 10(1), 35–67. <https://doi.org/10.1080/15332861.2011.558456>
6. Akhlaq, A., & Ahmed, E. (2011). *Intention Towards Online Shopping: A Pakistan Based Study*. <https://aisel.aisnet.org/ukais2011/1/>
7. Alalwan, A. A. (2018). Investigating the impact of social media advertising features on customer purchase intention. *International Journal of Information Management*, 42, 65–77. <https://doi.org/10.1016/j.ijinfomgt.2018.06.001>
8. Alam, M. S.-A., Wang, D., & Rafique, K. (2018). Analyzing the Impact of Social Network Sites and Social Applications on Buying Attitude in Developing Nations: Consumers' Engagement Using Flourishing Digital Platforms. *International Journal of Enterprise Information Systems*, 14(4), 108–123. <https://doi.org/10.4018/IJEIS.2018100108>
9. Amaro, S., & Duarte, P. (2015). An integrative model of consumers' intentions to purchase travel online. *Tourism Management*, 46, 64–79. <https://doi.org/10.1016/j.tourman.2014.06.006>
10. Aydin, G. (2018). Role of Personalization in Shaping Attitudes Towards Social Media Ads: *International Journal of E-Business Research*, 14(3), 5 – 7 . <https://doi.org/10.4018/IJEBR.2018070104>
11. Chaturvedi, Dr. S., Gupta, Dr. S., & Singh Hada, D. (2016). Perceived Risk, Trust and Information Seeking Behavior as Antecedents of Online Apparel Buying Behavior in India: An Exploratory Study in Context of Rajasthan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3204971>
12. Chen, Y., Yan, X., Fan, W., & Gordon, M. (2015). The joint moderating role of trust propensity and gender on consumers' online shopping behavior. *Computers in Human Behavior*, 43, 272–283. <https://doi.org/10.1016/j.chb.2014.10.020>
13. Dodoo, N. A., & Wu, L. (2019). Exploring the anteceding impact of personalised social media advertising on online impulse buying tendency. *International Journal of Internet Marketing and Advertising*, 13(1), 73–95. <https://doi.org/10.1504/IJIMA.2019.097905>
14. Foucault, B. E., & Scheufele, D. A. (2002). Web vs campus store? Why students buy textbooks online. *Journal of Consumer Marketing*, 19(5), 4 – 4 . <https://doi.org/10.1108/07363760210437632>
15. Gao, X., Shi, X., Guo, H., & Liu, Y. (2020). To buy or not buy food online: The impact of the COVID-19 epidemic on the adoption of e-commerce in China. *PLOS ONE*, 15(8), e0237900. <https://doi.org/10.1371/journal.pone.0237900>
16. Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), 51–90. <https://doi.org/10.2307/30036519>
17. Groß, M. (2016). Impediments to mobile shopping continued usage intention: A trust-risk-relationship. *Journal of Retailing and Consumer Services*, 33, 109–119. <https://doi.org/10.1016/j.jretconser.2016.08.013>
18. Ha, N. T. (2020). The impact of perceived risk on consumers' online shopping intention: An integration of TAM and TPB. *Management Science Letters*, 2029–2036. <https://doi.org/10.5267/j.msl.2020.2.009>
19. Ha, S., & Stoel, L. (2009). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research*, 62(5), 565–571. <https://doi.org/10.1016/j.jbusres.2008.06.016>
20. Hair, J. F. (2019). *Multivariate data analysis* (Eighth edition). Cengage.
21. Hamit Turan, A. (2012). Internet Shopping Behavior of Turkish Customers: Comparison of Two

- Competing Models. *Journal of Theoretical and Applied Electronic Commerce Research*, 7(1), 77–93. <https://doi.org/10.4067/S0718-18762012000100007>
22. Hansen, T., Møller Jensen, J., & Stubbe Solgaard, H. (2004). Predicting online grocery buying intention: A comparison of the theory of reasoned action and the theory of planned behavior. *International Journal of Information Management*, 24(6), 539–550. <https://doi.org/10.1016/j.ijinfomgt.2004.08.004>
23. Hernández, B., Jiménez, J., & José Martín, M. (2011). Age, gender and income: Do they really moderate online shopping behaviour? *Online Information Review*, 35(1), 113–133. <https://doi.org/10.1108/1468452111113614>
24. Hong, I. B., & Cha, H. S. (2013). The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, 33(6), 927–939. <https://doi.org/10.1016/j.ijinfomgt.2013.08.007>
25. India: Annual online shoppers 2027. (2023, April). Statista. <https://www.statista.com/statistics/1191958/india-number-of-annual-online-shoppers/>
26. Jafarkarimi, H., Saadatdoost, R., Sim, A. T. H., & Hee, J. M. (2016). Behavioral intention in social networking sites ethical dilemmas: An extended model based on Theory of Planned Behavior. *Computers in Human Behavior*, 62, 545–561. <https://doi.org/10.1016/j.chb.2016.04.024>
27. Jeganathan, K. (2014). *A Study on Impact of subjective norms on entrepreneurial intention among the business students in Bangalore*. 16, 48–50.
28. Joines, J. L., Scherer, C. W., & Scheufele, D. A. (2003). Exploring motivations for consumer Web use and their implications for e-commerce. *Journal of Consumer Marketing*, 20(2), 90–108. <https://doi.org/10.1108/07363760310464578>
29. Kim, E., Ham, S., Yang, I. S., & Choi, J. G. (2013). The roles of attitude, subjective norm, and perceived behavioral control in the formation of consumers' behavioral intentions to read menu labels in the restaurant industry. *International Journal of Hospitality Management*, 35, 203–213. <https://doi.org/10.1016/j.ijhm.2013.06.008>
30. Kim, J., & Forsythe, S. (2008). Adoption of Virtual Try-on technology for online apparel shopping. *Journal of Interactive Marketing*, 22(2), 45–59. <https://doi.org/10.1002/dir.20113>
31. Kristaung, R., & Riorini, S. V. (2019). Mediation-moderation modeling in marketing research literature review and classification. *International Journal of Innovation, Creativity and Change*, 7(8), 17–47.
32. Kudeshia, C., & Kumar, A. (2017). Social eWOM: Does it affect the brand attitude and purchase intention of brands? *Management Research Review*, 40(3), 310–330. <https://doi.org/10.1108/MRR-07-2015-0161>
33. Kwon, wi-S., & Noh, M. (2010). (2) (PDF) *The influence of prior experience and age on mature consumers' perceptions and intentions of internet apparel shopping*. ResearchGate. https://www.researchgate.net/publication/240260710_The_influence_of_prior_experience_and_age_on_mature_consumers'_perceptions_and_intentions_of_internet_apparel_shopping
34. Lee, M.-C. (2009a). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130–141. <https://doi.org/10.1016/j.elerap.2008.11.006>
35. Lee, M.-C. (2009b). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130–141. <https://doi.org/10.1016/j.elerap.2008.11.006>
36. Lee, Y., Kozar, K. A., & Larsen, K. R. T. (2003). The Technology Acceptance Model: Past, Present,

- and Future. *Communications of the Association for Information Systems*, 12(1). <https://doi.org/10.17705/1CAIS.01250>
37. Li, H., Daugherty, T., & Biocca, F. (2013). Impact of 3-D Advertising on Product Knowledge, Brand Attitude, and Purchase Intention: The Mediating Role of Presence. *Journal of Advertising*, Vol 31, No 3. <https://www.tandfonline.com/doi/abs/10.1080/00913367.2002.10673675>
38. Li, K., & Shen, F. (2023). Irritating or Enjoyable? Exploring the Effects of Soft-Text Native Advertising and Social Media Engagement Metrics. *Journal of Promotion Management*, 0(0), 1–23. <https://doi.org/10.1080/10496491.2023.2168325>
39. Li, R., Kim, J., & Park, J. (2007). The effects of internet shoppers' trust on their purchasing intention in China. *JISTEM - Journal of Information Systems and Technology Management*, 4, 269–286. <https://doi.org/10.1590/S1807-17752007000300001>
40. Lien, C. H., & Cao, Y. (2014). Examining WeChat users' motivations, trust, attitudes, and positive word-of-mouth: Evidence from China. *Computers in Human Behavior*, 41, 104–111. <https://doi.org/10.1016/j.chb.2014.08.013>
41. Lim, W. M., & Ting, D. H. (2012). E-shopping: An Analysis of the Technology Acceptance Model. *Modern Applied Science*, 6(4), Article 4. <https://doi.org/10.5539/mas.v6n4p49>
42. Lim, Y. J., Osman, A., Salahuddin, S. N., Romle, A. R., & Abdullah, S. (2016). Factors Influencing Online Shopping Behavior: The Mediating Role of Purchase Intention. *Procedia Economics and Finance*, 35, 401–410. [https://doi.org/10.1016/S2212-5671\(16\)00050-2](https://doi.org/10.1016/S2212-5671(16)00050-2)
43. Limayem, M., Khalifa, M., & Frini, A. (2000). What makes consumers buy from Internet? A longitudinal study of online shopping. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, 30(4), 421–432. <https://doi.org/10.1109/3468.852436>
44. M, V., & Subramanian, S. (2016). Self-Efficacy, Attitude and Subjective Norms as Predictors' of Youth's Intention to Enlist in Defence Services. *Journal of the Indian Academy of Applied Psychology*, 42, 193. <https://doi.org/10.1037/t59415-000>
45. Maldifassi, J. O., & Canessa, E. C. (2009). Information technology in Chile: How perceptions and use are related to age, gender, and social class. *Technology in Society*, 31(3), 273–286. <https://doi.org/10.1016/j.techsoc.2009.03.006>
46. Nayak, S., Suhan, M., Nayak, R., Spulbar, C., Birau, R., & Gull, S. M. (2022). Antecedents to purchase intention in virtual market space in India: An empirical investigation. *Cogent Business & Management*, 9(1), 2003502. <https://doi.org/10.1080/23311975.2021.2003502>
47. Nguyen, G.-D., & Ha, M.-T. (2021). The role of user adaptation and trust in understanding continuance intention towards mobile shopping: An extended expectation-confirmation model. *Cogent Business & Management*, 8 (1), 1980248. <https://doi.org/10.1080/23311975.2021.1980248>
48. Pavlou & Fygenson. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), 115. <https://doi.org/10.2307/25148720>
49. Peña-García, N., Gil-Saura, I., Rodríguez-Orejuela, A., & Siqueira-Junior, J. R. (2020a). Purchase intention and purchase behavior online: A cross-cultural approach. *Heliyon*, 6(6), e04284. <https://doi.org/10.1016/j.heliyon.2020.e04284>
50. Peña-García, N., Gil-Saura, I., Rodríguez-Orejuela, A., & Siqueira-Junior, J. R. (2020b). Purchase intention and purchase behavior online: A cross-cultural approach. *Heliyon*, 6(6), e04284. <https://doi.org/10.1016/j.heliyon.2020.e04284>
51. Poddar, A., Donthu, N., & Wei, Y. (2009). Web site customer orientations, Web site quality, and purchase intentions: The role of Web site personality. *Journal of Business Research*, 62(4), 441–

450. <https://doi.org/10.1016/j.jbusres.2008.01.036>
52. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
53. Putra, M. I., Ratnasari, R. T., & Prasetyo, A. (2017). Religiosity effect analysis of consumer behavior and consumer intention on online shopping: east java community case study. 8.
54. Rai, J., & Yadav, R. (2022a). The Cross-Regional Approach of Female Online Purchase Intention and Behaviour via Social Media: A Review and Conceptual Framework. *The Empirical Economics Letters*, Vol 20 (September), 51.
55. Rai, J., & Yadav, R. K. (2022b). Factors affecting the working women's online impulsive buying behaviour in Gorakhpur District of Eastern Uttar Pradesh. *Journal of Positive School Psychology*, 6(6), 191–205.
56. Rehman, S. U., Bhatti, A., Mohamed, R., & Ayoub, H. (2019). The moderating role of trust and commitment between consumer purchase intention and online shopping behavior in the context of Pakistan. *Journal of Global Entrepreneurship Research*, 9(1), 43. <https://doi.org/10.1186/s40497-019-0166-2>
57. Sandve, A., & Øgaard, T. (2014). Exploring the interaction between perceived ethical obligation and subjective norms, and their influence on CSR-related choices. *Tourism Management*, 42, 177–180. <https://doi.org/10.1016/j.tourman.2013.11.013>
58. Sanne, P. N. C., & Wiese, M. (2018). The theory of planned behaviour and user engagement applied to Facebook advertising. *SA Journal of Information Management*, 20(1). <https://doi.org/10.4102/sajim.v20i1.915>
59. Sekaran, U., & Bougie, R. (2013). *Research methods for business: A skill-building approach* (6th ed). Wiley.
60. Sentosa, I., & Mat, N. K. N. (2012). *Examining a Theory of Planned Behavior (TpB) and Technology Acceptance Model (TAM) in Internet purchasing using Structural Equation Modeling*.
61. Sinha, J., & Kim, J. (2012). Factors affecting Indian consumers' online buying behavior. *Innovative Marketing*, 8(2).
62. Song, Z., Wanberg, C., Niu, X., & Xie, Y. (2006). Action-state orientation and the theory of planned behavior: A study of job search in China. *Journal of Vocational Behavior*, 68(3), 490–503. <https://doi.org/10.1016/j.jvb.2005.11.001>
63. Tan, W. J., Kwek, C. L., & Li, Z. (2013a). The Antecedents of Effectiveness Interactive Advertising in the Social Media. *International Business Research*, 6(3), p88. <https://doi.org/10.5539/ibr.v6n3p88>
64. Tan, W. J., Kwek, C. L., & Li, Z. (2013b). The Antecedents of Effectiveness Interactive Advertising in the Social Media. *International Business Research*, 6(3), p88. <https://doi.org/10.5539/ibr.v6n3p88>
65. Theodorou, A., Hatzithomas, L., Fotiadis, T., Diamantidis, A., & Gasteratos, A. (2023). The Impact of the COVID-19 Pandemic on Online Consumer Behavior: Applying the Theory of Planned Behavior. *Sustainability*, 15(3), 2545. <https://doi.org/10.3390/su15032545>
66. Venkatesh, V. (2000). Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information Systems Research*, 11(4), 342–365. <https://doi.org/10.1287/isre.11.4.342.11872>
67. Venkatesh, V., Speier-Pero, C., & Schuetz, S. (2022). Why do people shop online? A comprehensive framework of consumers' online shopping intentions and behaviors. *Information Technology & People*, 35(5), 1590–1620. <https://doi.org/10.1108/ITP-12-2020-0867>

68. Vermeir, I., & Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behaviour and the role of confidence and values. *Ecological Economics*, 64(3), 542–553. <https://doi.org/10.1016/j.ecolecon.2007.03.007>
69. Vijayasarathy, L. R. (2004). Predicting consumer intentions to use online shopping: The case for an augmented technology acceptance model. *Information & Management*, 41(6), 747–762. <https://doi.org/10.1016/j.im.2003.08.011>
70. Vo, V. B., Nguyen, G. D., Dao, T. H. T., & Nguyen, C. T. H. (2023). The dual role of online trust: A study of Generation Z through online purchase intentions in Vietnam. *J. for International Business and Entrepreneurship Development*, 1 5 (1) , 1 . <https://doi.org/10.1504/JIBED.2023.10056252>
71. Wazir Advisors, & Unicommerce. (2022). *India Retail and E-Commerce Trends Report 2022*. ET Retail. <https://retail.economicstimes.indiatimes.com/www.ETBrandEquity.com>.
72. (2022). *Facebook and Instagram's largest Indian advertisers: Saturday Solologues - ET Brand Equity*. ETBrandEquity.Com.<https://brandequity.economicstimes.indiatimes.com/news/advertising/facebook-and-instagrams-largest-indian-advertisers-saturday-solologues/93224568>
73. Yousafzai, S. Y., Foxal, G. R., & Pallister, J. G. (2010). Explaining Internet Banking Behavior: Theory of Reasoned Action, Theory of Planned Behavior, or Technology Acceptance Model? *Journal of Applied Social Psychology*. <https://onlinelibrary.wiley.com/doi/10.1111/j.1559-1816.2010.00615.x>

Enhancing Early Childhood Education through Sustainable Innovation and Design Learning

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Abstract

This research article explores the integration of sustainable design principles into early childhood education to enhance innovative learning. Recognizing the critical role of early education in shaping attitudes and behaviors towards sustainability, this study investigates innovative approaches that leverage design principles to create engaging and effective learning environments. Drawing on interdisciplinary perspectives from education, environmental psychology, and design studies, the research examines the potential benefits and challenges of implementing sustainable design in early childhood education settings. Through a review of relevant literature and case studies, the article identifies promising strategies for integrating sustainability concepts into curriculum development, classroom design, and pedagogical practices. Furthermore, it discusses the potential impact of such approaches on young learners' environmental awareness, attitudes, and behaviors. By shedding light on the intersection of education, sustainability, and design, this research aims to contribute to the ongoing discourse on fostering infotainment literacy and stewardship from an early age.

Keywords: Education, Environmental Learning, Sustainable Development, Social Science, Innovation

Introduction:

Early childhood education plays a pivotal role in shaping children's attitudes, values, and behaviors towards the environment. With growing concerns about environmental degradation and the urgent need for sustainability education, there is a growing interest in exploring innovative approaches to integrate environmental learning into early schooling. Sustainable design principles offer a promising framework for creating immersive and experiential learning environments that foster environmental awareness and stewardship from a young age. This research investigates the potential of sustainable design to enhance early childhood education and contribute to the development of environmentally conscious citizens. The effort is an outcome of a collaborative partnership between Community of Researchers in Design and Technology Education (CoRDaTE) and Tata Steel Long Products that aimed at exploring the quality of learning engagement attained through The students, teachers, parents, and other key stakeholders from varied interventions of Corporate Social Responsibility. The attempt aims to use conceptual actions involving an interplay of Education, Sustainability and Design to understand how these participants use their knowledge and experiences to think, reflect and engage with diverse STEM education activities. The partnership between the two fructified from a mutual interest of resulting social innovation engaging with the concerns related to education, sustainability, and design practices. It was decided that it may be worthy to connect and understand the feelings, experiences, and perspectives of innovation from the teachers and learners - the primary stakeholders in formal

educational settings. Community of Researchers in Design and Technology Education is a collaborative network of faculty, alumni, professionals, and parents interested in seeking the value of engaging in designing and making to enrich learning and impact society. The group involves in network building, capacity development, taking design thinking into field practice, and working with teachers and students at the school level. The community also contributes to activities related to curriculum development, pedagogical action, and issues relating to assessment. Through its various activities with students and teachers, the community aims to deepen its engagement in pragmatic, reflexive ways. Tata Steel Long Products manufactures high alloy steel, primarily for the auto sector and wire rope industry. In fitting recognition of its overall excellence in stakeholder management practised over the years, TSLP has been the recipient of several National and State awards; commendations on quality, safety, productivity, sustainability, environment, energy management, and other dimensions of corporate social responsibility. The company recently received a national CSR award from the Ministry of Corporate Affairs for one of its Community Development Projects, The Economic Times Human Capital Awards for Social Excellence, and The Tata Affirmative Action Programme Assessment.

Education is the primary CSR intervention, TSLP partners with institutes and organizations of repute like NIT, TISS, XISS, XLRI, XIMB, CYSD, KISS and the like. This research article is a part of a larger research study which aims to understand the role and perceived impact of the CSR interventions in the rural districts of Saraikela and Keonjhar representing the States of Jharkhand and Odisha, respectively. The workshop mode of assignation with the participants represents an empirical component of the project which expands further on the desk review phase involving critical analysis of the various interventions of CSRs in relation to education at the early schooling level in India, in general, and more specifically these districts. While specific CSR interventions may have been evaluated for their worth through select internal or external evaluations of commissioned projects, the workshops being conducted serve as a comprehensive and formative means to invoke and understand the nature of reflective engagement with ideas acquired through formal schooling and supported through specific innovative CSR interventions in education like the PLCs. This article converged on the theme, “Education, Sustainability and Design” as this subject serves dual purpose. On the one hand, it enabled to probe critical & innovative ideas among participants acquired through formal school learning. On the other hand, the various activities in the workshop allowed us to see how they brought their understanding to use in stimulating contexts of everyday problem-solving by way of tiny innovation.

Literature Review:

The literature review examines the intersection of early childhood education, sustainability, and design. It explores theoretical frameworks, empirical studies, and best practices related to sustainability education in early childhood settings. Key topics include the role of nature-based learning, the impact of environmental design on learning outcomes, and the effectiveness of interdisciplinary approaches in promoting environmental literacy. Drawing on insights from education, environmental psychology, and design studies, the review identifies gaps in current research and sets the stage for exploring innovative approaches to enhance environmental learning through sustainable design.

Early childhood education plays a crucial role in shaping children's attitudes, values, and behaviors towards the environment. With increasing recognition of the urgent need for sustainability education, there is growing interest in exploring innovative approaches to integrate environmental learning into early schooling. Sustainable design principles offer a promising framework for creating immersive and experiential learning environments that foster environmental awareness and stewardship from a young age. This literature review examines key theoretical frameworks, empirical

studies, and best practices related to sustainability education in early childhood settings, focusing on the intersection of education, sustainability, and design.

Nature-Based Learning and Environmental Education:

Nature-based learning has emerged as a cornerstone of environmental education in early childhood settings. Research by Chawla (2015) highlights the positive impact of direct experiences with nature on children's cognitive, emotional, and social development. Nature-based learning environments provide opportunities for hands-on exploration, sensory experiences, and meaningful interactions with the natural world, fostering a sense of connection and responsibility towards the environment (Kellert, 2005). Additionally, studies by Sobel (2008) and Louv (2005) underscore the importance of nature play and outdoor experiences in promoting environmental literacy and fostering a sense of environmental custodian among young children.

Environmental Design and Learning Outcomes:

Environmental design plays a critical role in shaping learning outcomes and experiences in early childhood education settings. Research by Tanner and Kohler (2017) emphasizes the impact of physical learning environments on children's behavior, engagement, and academic achievement. Well-designed classrooms and outdoor spaces that integrate natural elements, such as daylight, greenery, and natural materials, have been shown to enhance creativity, concentration, and socio-emotional development (Heschong Mahone Group, 1999; Weinstein et al., 2016). Furthermore, studies by Klatte et al. (2013) and Nair and Fielding (2005) demonstrate the benefits of biophilic design principles, such as views of nature, indoor plants, and natural ventilation, in improving cognitive performance and well-being in educational settings.

Interdisciplinary Approaches to Sustainability Education:

Interdisciplinary approaches that integrate education, sustainability, and design have gained traction in promoting environmental learning in early childhood education. Research by Davis and Sumara (2006) advocates for a holistic approach to sustainability education that connects ecological, social, and ethical dimensions of sustainability. Design thinking methodologies, such as empathy-based inquiry, prototyping, and iteration, offer innovative ways to engage young learners in addressing real-world environmental challenges (Dorst, 2011). Moreover, studies by Krasny and Tidball (2009) highlight the role of community-based learning and participatory design processes in fostering environmental stewardship and civic engagement among children.

Study Objectives

The idea of conducting the workshop on such a social origination pertaining to Education, Sustainability, and Education has culminated after a series of sessions among the members of the CoRDaTE group who comprehended innovation in the field of CSR and how it is touching the lives of its beneficiaries. The group assumed the similar such experience may be the case with the three pillars of educative process i.e., learners, educators, and parents. To understand the fact on the ground, gauge the reality and validate the various thoughts which were cropping up in minds of the members, devised this workshop where the lived-in experience of these stakeholders can be captured.

The workshop was conducted with a dual long-term objective coupled with few short-term goals as follows:

- 1) An explorative understanding of critical innovating learning ideas among the several participants;
- 2) Encouraging the stakeholders to exercise the innovative ideas acquired to use in stimulating contexts

of everyday problem-solving. The dual goal is realised through a tripartite orientation involving participants from different levels (early school/ foundational level, preparatory and middle school and secondary school levels), as prescribed by the National Education Policy (NEP) 2020. Such an orientation allowed us to understand and appreciate how participants across different levels respond to the activities directed towards achieving the two-fold goal of the study.

Research Methodology:

This research employs a mixed-methods approach, combining qualitative and quantitative data collection methods. Qualitative methods include semi-structured interviews with educators, designers, and environmental experts to gain insights into current practices and perspectives on sustainable design in early childhood education. Quantitative methods involve surveys and observational studies to assess the impact of sustainable design interventions on young learners' environmental awareness, attitudes, and behaviors. Case studies of exemplary early childhood education programs that integrate sustainable design principles are also analyzed to identify promising strategies and best practices. This study majorly focused on workshop based learning outcome. The workshop-based research-cum-learning engagement represents following approaches to educational research and social innovation.

Exploratory Approach-

The intent of exploration manifests in the range of stakeholders being engaged with and the perspectives that are gathered from them. These include surveying learners, educators, parents & volunteers.

Mixed Methods-

- Participant Observation
- Surveys
- Focused Group Discussion

Although, the potential role of caste, class, and gender as important intervening factors in play, we would like to not pre-commit to these as variables of focus or interest to the workshop. The workshop's title concurs with the specific thematic focus on Education, Sustainability and Design. The audience for the workshop includes students, teachers and volunteer participants (from CSR) who actively engage with school learning opportunities.

Results and Discussion:

The findings highlight the potential of sustainable design to enhance environmental learning in early childhood education. Interviews with educators reveal a growing interest in incorporating sustainability concepts into curriculum development and classroom design. Designers emphasize the importance of creating nature-inspired learning environments that promote exploration, creativity, and connection with the natural world. Observational studies suggest that children exposed to sustainable design interventions demonstrate greater environmental awareness, curiosity, and pro-environmental behaviors. Case studies showcase innovative approaches, such as ecofriendly materials, green building design, and outdoor learning spaces, that enhance sustainability education in early childhood settings.

Simulation Procedure:

Given this broader audience and an engagement with different levels of schooling, this workshop involved several parallel engagements. The schedule of events below capture the diverse range of activities, target audience and engagement.

<i>S. No.</i>	<i>Nature of engagement</i>	<i>Target audience</i>
1	Probe studies as response to instruments on ... (a) Ideas about sustainability (b) Ideas about nature of science	Students, Teachers and Volunteers
2	Drawing-based activities on capturing perceptions about ... (a) Sciences (b) Social Sciences (c) Human body systems	Students, Teachers and Volunteers
3	Design and technology education (D&TE) module inviting participants to engage in problem-solving (a) Drawing task (b) Draw-and-make task (c) Make-and-draw task	Level 1: Foundations Story-based tasks Level 2: Preparatory & Middle Experience-based tasks Level 3: Secondary Abstract tasks
4	D&TE module for teachers to teach (a) Light Fantastic (b) Any 1 D&TE task	Teachers
5	Task-based interviews for students (a) Nature of science (b) D&TE	Students
6	Task-based interviews for teachers (a) Nature of science (b) D&TE	Teachers
7	Organising a Public Exhibition	All participants

Based on the broad framework, the workshop flow and design were set as follows:

- **Day & Duration:** A total of 2 sessions spread over a period of 2 days.
- **Time:** Each session for 4 hrs
- **Delivery mode:** Blended mode (Virtual or Online through Zoom + Offline sessions)
- **Place for offline sessions:** Training Centre, TSLP, Gamharia, (Municipality of Adityapur Industrial Area), Saraikela- Kharsawan district, Jharkhand.
- **Audience:** Two groups of students: -
 - Group A - Students from grades III to VII (3, 4, 5, 6, and 7)
 - Group B - Students from VIII to XII (classes 8, 9, 10, 11, and 12)
- **Number of participants:** Approx. 40 (20 students, 10 teachers and 10 parents)
- **Tool- Questionnaire (Survey)**

- **Activities**- Poster making, clicking pictures of posters, and describing them virtually or presentation, reflecting on different scenarios (specified at the bottom).
- Material required- Chart paper, colors, pencil, eraser, scale, scissor, smart phones, or laptops with internet connectivity.
- Link- ✓ Pre-workshop survey for participants

✓ Post- workshop feedback survey (Google form or Survey monkey)

Scenarios Discussed- Some scenarios were put in the questionnaire only in open ended format so that participants can provide their responses. Along with this, few other questions were framed around the objectives and these scenarios (Used Likert scale, their opinions, others).

Six different scenarios into the following categories were given to the participants along with Que cards to the volunteers/ mentors of each group.

1. **Technology**- Issues pertaining to low bandwidth, Mobile Handset, Internet Connectivity, compatibility with technology among teachers and students/ parents.
2. **Learning**- Pace of learning, co- curricular activities, school environment, construction of knowledge, parents education, change in assessment pattern, difficulty in subjects or concepts, peer learning, discussion with friends , lack of physical libraries, YouTube and google as new form libraries or resources, labs, playground.
3. **Economic aspects**-financial status of parents, space in house (Physical), purchasing power for gadgets, recharges (extra burden on pocket), low salary or unemployment due to pandemic, drop out and transfer from private school to govt. school, home schooling.
4. **Social aspects**- Gender bias, depending upon age and academic performance of a child, different culture, and caste in the same area.

5. Positive impacts/ Optimistic scenarios- self learner through technology, learners start to explore on their own.

6. Health- Psychological concerns, emotional health and wellbeing, increase in eye stress workshop was conducted as per plan at the training center of TSLP, Gamharia.

The facilitators stay connected from the beginning till end of the workshop remotely. On the ground, the workshop was anchored with 52 audiences in total including 10 company volunteers.

The half a day workshop was divided into two following parts:

- 1) Ice-breaking session with the participants;
- 2) Introduction by Anchor;
- 3) Poster making based on theme;
- 4) The activity sheet was provided to each participant to reflect at home about their ideas which they tried to showcase on the posters;
- 5) The link of the questionnaire along with the hard copy was provided to each participant
- 6) Informed the participants about the Closure for day 1 and the poster exhibition in day-2

The second day workshop was on the same venue with same target audiences. The flow of the workshop was as follows:

- 1) Poster exhibition on wall of the training venue for participants one after the other.
- 2) Providing the Activity sheet for rating based on the criteria by the respondents.
- 3) Role plays on chosen scenarios out of total six. Two scenarios were given to each separate groups along with the Cue cards to the assigned volunteer for each scenario.
- 4) Token of appreciation given to the top five participants in poster making.
- 5) Sharing of experience by participants covering all the stakeholders about the two days' workshop.

Findings

Given this context, the CoRDaTE group and TSLP had a deep dive into what has been the experiences, achievements, losses, and education through these primary learning centres. These learning centres aim to bridge the learning gap in underprivileged areas and function as remedial classes for students in primary grades. As most students attend government schools where academic progress has been limited particularly in socially and economically disadvantaged areas, these additional classes minister as a catalyst, providing free-of-cost support. With an explicit weight on utilizing various inquisitive pedagogical tools to elicit the requisite fascination in students, a task that proves rather arduous within alternative academic environments, PLCs are better placed as they tend to make learning fun and engaging. While the core emphasis is on foundational numeracy and the English language, other subjects such as general science and social sciences, are also given due weightage. This new educative process gives the details about the intermediations including heart-warming experiences, stories, and practices from students, teachers, parents, showcasing their unique reflections and contribution to early schooling. In some cases, future is also shared that will enable us to take the intervention to the next level. These findings are encompassing six different aspects and provides a good peep on their outcomes and impacts. Most of these initiatives and practices are in line with the objectives of the CoRDaTE team and research agenda and therefore, it becomes imperative that the subject is addressed squarely. The PLCs playing the role of Fostering Academic Progress which refers to the basics of reading, numeracy, and transferable abilities, that serve as the foundation for lifelong learning.

The attainment of this foundational literacy and learning for all Indian students is prioritized as an “urgent national priority” under New Education Policy 2020. Separate focus on the foundational stage and the preparatory stage are specified by the educators of PLCs namely on play-based or activity-based learning strategies and for the cognitive development of the students, language and maths competencies respectively. These teachers concentrate on how they can bridge the gaps between different pupils without affecting the teaching quality. The PLCs have grown as hub of teaching not just basic skills but also critical social and emotional skills through techniques that are agreeable to children by making available various teaching-learning aids and interactive resources.

Empowerment of educators at regular intervals by specialised institutes of repute, subject matter educationists, domain experts of maths and science have paved the way for better learning outcomes of PLC students. Usage of a variety of teaching learning materials have enriched the learning experience in PLCs and addressed the potential gaps in the curriculum. Similarly, the learners are also empowered with improving the overall learning environment by introducing digital classes, establishing mini - science labs, projectors, geometric box, white boards, multi-colour markers, provisioning of school uniforms, tiffin boxes, bags, and other environment-friendly teaching materials. The different practices on the field by the early learners in the form of storytelling, activity-based role plays, FGDs among the educators, selected parents and guardians has empowered all to explore new and innovative educative models of teaching and learning. Conceptual clarity thru Rango metrics, Gannet Mala, Fraction kits etc. enabled students to eliminate the gaps and challenges faced in higher studies arising from weak foundations. Such interactive and engaging pedagogy than what is practiced at primary government schools in villages through TLMs (Teaching Learning Materials), extracurriculars like games, art and craft, and yoga; and digital/visual learning through projectors proved to be more acceptable and adaptable to the learners irrespective of grades. These have enhanced children's reflexes, art and craft sessions to foster creativity, dance and music for overall wellness. Consistent use of projectors allowed learners to engage in digital learning experiences such as reciting poems, exploring stories, and understanding topics like the solar system in understandable language. Two-Third of the PLC educators have demonstrated a commendable approach by going deep into the individual level of understanding

of each student, thus promoting conceptual clarity. PLCs consistently carry out informal assessments at various intervals to monitor student progress which have improved the overall performance of each individual centre.

Diverse kinds of data have been gathered in the course of the workshop and the study provided insights into the effectiveness of these interventions in the context of early schooling. These would include response sheets, researcher notes, logs and dairies, audio -visual recordings, photographs, etc.

Limitations and Delimitations

In discussing the limitations, an attempt is also made to rationalize the scope and practical restraints that will be considered in the design and conduct of the study. This study will focus on CSR interventions exclusive to the education sector, especially involving early schooling education. While we are aware that the educational discourse across different schooling levels would be valuable, the study for practical considerations of reach and focus, would like to concentrate on the beginning years of formal schooling. The study includes only industries but chooses to exclude several small-scale or allied industries and firms which indirectly associate with the private companies. We presume that it would be rather difficult to capture sporadic efforts and evolving thinking of CSR's role in educational discourse among disparate, small- scale entities. Hence, we chose to follow educational interventions of large, private companies which we assume would have some coherence and display character of progression. In addition to this, the non-existence of designated CSR wings or departments in some companies poses a further limitation to accessing CSR interventions. In other cases, the company reports are highly classified and gaining access to the information raises ethical considerations.

References:

1. India State of Forest Survey, 2017
2. FICCI, 2017-18
3. Census, 2011
4. Ministry of Tribal Affairs, Annual Report (2017-18),
<https://tribal.nic.in/writereaddata/AnnualReport/AR2017-18.pdf>
5. Taylor & Francis (2017-18), India Review Vol 17, No 3
<https://www.tandfonline.com/toc/find20/current>
6. Dharmabratra, M. (2013). Mining and human development in developing countries: a comparative analysis of mining and non-mining districts in India. Journal of Social Sciences – Sri Lanka
7. India Human Development Report, 2017
8. Thakur, Upasna (2018). Top 10 Poorest States in India. <http://thousandguru.com/top-10-poorest-States-in-india/> (July 26, 2018).
9. Cockburn, John. 2001. "Child Labour Versus Education: Poverty Constraints or Income Opportunities?" Working paper (2000): 33. CSR, Governance Framework and Expenditure Pattern in Indian Context: Are we Heading in the Right Direction Post Companies Act 2013?
<https://www.teriin.org/research-paper/csr-governance-framework-and-expenditure-patternindian-context-are-we-heading-right>
10. Chandiramani, Sunil. 2012. "Right to Education: the Role of the Private Sector." (March).
11. Rahman Belal, A. (2001), "A study of corporate social Reporting (CSR) in Developing countries
12. John W Creswell, Research Design: Qualitative, Quantitative and Mixed Methods Approaches
13. Kumar Krishna, 2009 "What is Worth Teaching?"
14. Ritesh Khunyakari, 2022 "Learning Without Burden"
15. Chawla, L. (2015). Benefits of nature contact for children. Journal of Planning Literature, 30(4), 433-452.

16. Davis, B., & Sumara, D. (2006). Complexity and education: Inquiries into learning, teaching, and research. Routledge.
17. Dorst, K. (2011). The core of 'design thinking' and its application. *Design Studies*, 32(6), 521-532.
18. Heschong Mahone Group. (1999). Daylighting in schools: An investigation into the relationship between daylighting and human performance. Heschong Mahone Group.
19. Kellert, S. R. (2005). Building for life: Designing and understanding the human-nature connection. Island Press.
20. Klatte, M., Bergström, K., & Lachmann, T. (2013). Does noise affect learning? A short review on noise effects on cognitive performance in children. *Frontiers in Psychology*, 4, 578.
21. Krasny, M. E., & Tidball, K. G. (2009). Community gardens as contexts for science, stewardship, and civic action learning. *Cities and the Environment*, 2(1), 8.
22. Louv, R. (2005). Last child in the woods: Saving our children from nature-deficit disorder. Algonquin Books.
23. Nair, P., & Fielding, R. (2005). The third teacher: 79 ways you can use design to transform teaching & learning. Abrams.
24. Sobel, D. (2008). Childhood and nature: Design principles for educators. Stenhouse Publishers.
25. Tanner, C. K., & Kohler, M. (2017). The effects of classroom design on academic engagement: A review of the literature. *Educational Sciences*, 7(4), 81.
26. Weinstein, C. S., Tomlinson-Clarke, S., & Curran, M. (2016). Culturally responsive classroom management: Awareness into action. Teachers College Press.



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