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Message From Executive Editor

It is with immense pleasure and anticipation that we unveil the successive issue of the "**Shodh Samarth-Research Journal of Commerce, Management & Economics**." As the Executive Editor and Dean of Commerce & Management, I am thrilled to welcome you to this scholarly endeavour.

Our primary objective in launching this journal is to create a platform that fosters rigorous research, critical thinking, and innovative ideas in the realms of commerce, management, and economics. The fields of commerce and management are evolving rapidly, and the economic landscape is continually shaped by dynamic forces. In pursuing knowledge, it is crucial to have a dedicated space that not only captures these changes but also contributes to advancing our understanding.

The Shodh Samarth Research Journal aims to be that space—a conduit for intellectual exchange and the dissemination of cutting-edge research. Through the collective efforts of our esteemed contributors and the unwavering support of our editorial team, we aspire to make a meaningful impact on the discourse surrounding commerce, management, and economics.

As we embark on this exciting journey, we extend our heartfelt gratitude to the scholars, researchers, and mentors who have contributed to the establishment of this journal. Your expertise and commitment to advancing knowledge have laid the foundation for a scholarly platform that we hope will become a beacon of excellence.

To our readers, we invite you to explore the diverse and thought-provoking articles within these pages. We hope the research presented here will inspire, challenge, and contribute to your own intellectual pursuits.

Wishing everyone involved in this venture success and fulfilment in their scholarly endeavours. May the *Shodh Samarth-Research Journal of Commerce, Management & Economics* become a catalyst for meaningful dialogue and transformative ideas.

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Message From Editor-in-Chief

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MASTERING THE AI REVOLUTION: UPSKILLING AND RESKILLING PROFESSIONALS FOR THE FUTURE OF MANAGEMENT

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Abstract

Artificial Intelligence (AI) is fundamentally transforming management practices across industries, driving an urgent need for professionals to adapt through ongoing upskilling and reskilling. This study examines the evolving impact of AI on managerial roles, identifying the most critical skills necessary in an AI-centric workplace, and outlining effective strategies for promoting lifelong learning. Primary data was gathered from a comprehensive survey of 257 management professionals and in-depth interviews with 18 industry leaders, spanning technology, finance, and manufacturing sectors. Key findings reveal that the integration of AI is shifting managerial responsibilities towards strategic decision-making, creativity, and interpersonal communication, while routine tasks are increasingly automated. Significant skill gaps were identified in data literacy, digital fluency, and adaptive thinking, underscoring the

need for blended learning approaches. Successful organisations were found to prioritise structured upskilling programs, mentorship, and experiential learning initiatives, resulting in improved employee engagement and organisational performance. The research concludes by recommending actionable steps for professionals, organisations, and policymakers to collectively foster a culture of continuous skill development. These insights provide a roadmap for adaptation in the rapidly evolving management landscape, ensuring professionals remain agile and competitive in the face of relentless technological advancements.

Keywords: Artificial Intelligence, Management, Upskilling, Lifelong Learning, Skills Gap

Introduction

A revolutionary era for organisations worldwide has been ushered in by the rapid growth of Artificial Intelligence (AI) technologies, which have profoundly changed the nature of professional employment and the management landscape. The development and application of AI have reached a significant turning point over the past decade. Routine data analysis, scheduling, and supervision of standardised workflows are examples of tasks that were traditionally seen as fundamental managerial duties but are now becoming automated, enabling AI to perform them more quickly and accurately. In addition to changing what managers do, this technological revolution is also changing how they contribute to the success of their organisations.

The ability of AI to automate repetitive and rule-based tasks is essential to this shift, as it frees up managers' time and energy for jobs that require human judgment, interpersonal skills, and strategic insight. According to studies, managerial positions are shifting towards supervising complex problem-solving, encouraging innovation, and assisting teams in navigating uncertainty and change as AI progressively replaces routine decision-making (Deloitte, 2023). This change is empirically supported by the primary data gathered for this study, which included interviews with 18 industry experts and a survey of 257 management professionals. Most respondents (81%) felt that AI had freed up time for higher-order tasks, such as creating strategic initiatives, coaching staff, and building cross-functional relationships, by reducing the amount of time spent on administrative tasks.

The rethinking of fundamental managerial skills for the AI era is among the most important conclusions drawn from the field research. Conventional management paradigms placed a

strong emphasis on command and control, with experience, operational expertise, and the capacity to track results being the main sources of authority. On the other hand, managers are increasingly being judged on their ability to utilise digital technologies, convert data-driven insights into actionable company plans, and foster cooperation and flexibility (World Economic Forum, 2024). These changes necessitate the development of whole new skill sets as well as incremental learning, which is best accomplished through focused upskilling and reskilling initiatives.

Understanding the difference between reskilling and upskilling is crucial to workforce adaptation. The term "upskilling" refers to the acquisition of new skills that enhance current job performance, such as mastering advanced data analytics skills or digital collaboration strategies. Conversely, reskilling entails preparing workers for essentially different roles—for instance, converting a typical operations manager into a champion for digital transformation or a business intelligence lead (McKinsey, 2022). Both types of learning are vital, according to survey participants, although upskilling is frequently given priority for maintaining relevance in a current profession, while reskilling becomes crucial when AI-driven automation renders older roles obsolete.

Digital fluency, data literacy, adaptive thinking, and emotional intelligence are among the crucial areas highlighted by the evolution of necessary skill sets. Managers need to learn how to navigate a world where advanced data, AI-driven tools, and digital platforms are everywhere. Notable skill gaps were shown by our primary data: 48% of professionals surveyed said they lacked digital fluency, 56% said they were not data literate, and 42% said they needed to think more adaptably and growth-focusedly. If left unchecked, these deficiencies endanger the organisation's competitiveness as well as the career paths of its individuals.

To close these gaps, professional growth must be approached strategically and at multiple layers. According to interview data, top organisations employ a range of learning interventions, including immersive simulations, structured online courses, practical projects, and mentorship programs, to promote upskilling and reskilling. One global case organisation, for instance, launched a mentorship program called "AI Champions," matching technical leaders with seasoned managers to co-lead AI adoption initiatives. By dismantling organisational divisions between IT and business groups, this strategy not only expedited skill acquisition but also encouraged cultural transformation.

The function of organisational support in creating an atmosphere that is focused on learning is equally important. The key research emphasises how crucial it is to have a clear commitment from the leadership, provide resources specifically for learning, and match upskilling with business goals. Employee engagement scores increased by 14%, and managers from organisations that incorporated upskilling into their performance and promotion frameworks said that their staff members were more comfortable adjusting to new technology. The data, however, also revealed enduring obstacles: budgetary constraints, ambiguous strategic priorities, and reluctance to adapt were commonly cited as impediments to effective skill development efforts.

The interaction between so-called "soft skills" and technical competencies is another aspect of the research that has emerged. Human-centric abilities, such as creativity, empathy, ethical reasoning, and cross-cultural communication, become increasingly vital as AI assumes a growing share of analytical and operational tasks (Bersin, 2024). According to the interviews, managers who actively help their teams develop these abilities are better able to handle disruption caused by AI, maintain employee morale, and stimulate creativity. A number of participants favoured a hybrid strategy that combined focused leadership and interpersonal excellence development with technical upskilling.

Lastly, our results have wider implications for educational institutions and policy. Industry leaders agree that the speed at which AI is developing is surpassing the ability of conventional educational systems to produce talent that is prepared for the workforce. To co-develop curricula and credentialing systems that align with emerging workforce needs, respondents suggested closer collaboration among academia, industry, and government (OECD, 2023). Promising approaches to close the skills gap and encourage lifelong learning were frequently mentioned, including government-sponsored digital literacy campaigns, experiential learning modules, and micro-credential courses.

Table: Key Skill Gaps and Importance Among Managers in the AI Era

Skill	% Reporting Skill Gap	% Rating Skill as Critical
Data Literacy	56%	85%
Digital Fluency	48%	82%

Adaptive Thinking	42%	78%
Creativity	30%	75%
Empathy	25%	70%

The data show that both technical skills (such as data literacy and digital fluency) and interpersonal qualities (like creativity and empathy) are crucial and, in many cases, urgently needed among managers navigating AI's workplace transformation. This table shows the most frequently reported skill gaps among managers as well as the percentage of respondents who believe each skill is critical for thriving in an AI-driven management environment.

In conclusion, the development of AI technologies portends a permanent shift in the nature of management and necessitates a thorough re-evaluation of managerial responsibilities and competencies. The results of the survey and interviews confirm that proactive reskilling and upskilling, supported by a robust lifelong learning infrastructure, are crucial for successful adaptation. Businesses that understand this necessity and make strategic investments in their workforce will be in the best position to capitalise on AI's promise while maintaining a competitive edge in a world that is becoming increasingly digital.

Objectives

- To analyse the impact of AI on evolving management roles and responsibilities.

- To identify the critical skills enabling professional success in AI-driven environments.

- To propose frameworks and methodologies for effective upskilling and reskilling.

- To highlight best practices and case studies from organisations leading in adaptation.

Literature Review

AI's Impact on the Workplace

A significant shift in managerial priorities has resulted from the growing automation of administrative and analytical duties brought about by the integration of Artificial Intelligence (AI) into organisational operations. According to research by Brynjolfsson and McAfee (2017),

managers may now focus on higher-order cognitive tasks, such as innovation and people management, since AI systems routinely handle data processing, resource scheduling, and customer interactions[1].

More than 40% of commercial tasks in major economies are at least partially automated by AI, according to the World Economic Forum (2023), which increases managers' need for abilities like creativity, strategic judgement, and interpersonal leadership that algorithms cannot replicate. Despite these benefits, the literature also warns that algorithmic bias and explainability remain major concerns; therefore, AI-assisted decision-making needs to be combined with robust human oversight (Doshi-Velez & Kim, 2017).

Upskilling vs. Reskilling

The management literature generally makes a distinction between reskilling, which is learning new competencies to move into different, frequently more technical roles, and upskilling, which entails refining existing abilities applicable to present responsibilities. As job needs change due to AI's capabilities, 62% of CEOs predict that their companies will need to reskill more than a quarter of their staff by 2027, according to a comprehensive study by McKinsey & Company (2021). As suggested by the OECD (2023), complementary government and organisational measures are crucial to helping workers reskill for completely new career paths as well as upskill for tasks that are changing.

Skills of the Future

A set of "power skills" is frequently emphasised in emerging literature as being crucial for the AI-driven future. Among these are:

- Digital fluency, or ease in using new platforms and analytical tools.
- The ability to understand, evaluate, and apply data to decision-making is known as data literacy.
- Advanced soft skills, including empathy and sophisticated communication;
- Adaptive thinking: adaptability and resilience in the face of technological change.

The most resilient organisations, according to Bersin (2024), value these hybrid skill sets, which combine technical and human-centred proficiencies. Chamorro-Premuzic et al. (2018) also emphasise the importance of emotional intelligence in AI-augmented contexts, where managers must mediate between various human stakeholders and algorithmic outputs.

Learning Models

The management scholarship strongly supports a variety of learning strategies to meet these changing skill requirements:

Lifelong Learning: the continuous, voluntary search for knowledge, which the European Commission and UNESCO have codified in policy frameworks (Colardyn & Bjornavold, 2004).

Microlearning: Research indicates that delivering instruction in brief, targeted units improve recall and practical adoption in digital settings. (Bruck et al., 2012).

Experiential Learning: Based on Kolb's fundamental beliefs, active, real-world projects and simulations have been repeatedly demonstrated to speed up skill transferability and acquisition.

According to an OECD multi-method analysis from 2023, companies that incorporate these learning strategies have higher employee engagement and upskilling effectiveness.

Table 1: Major Sources and Their Key Findings

Source	Focus Area	Key Findings
Brynjolfsson & McAfee (2017)[1]	AI's workplace impact	AI automates routine tasks; raises importance of human skills
WEF, Future of Jobs (2023)[2]	Workforce automation	40% of tasks are partially automated; demand for strategic skills
McKinsey (2021)	Upskilling and reskilling	62% of firms need large-scale reskilling by 2027
Bersin (2024)	Skills of the future	Digital fluency, data literacy, and empathy most critical

Kolb (1984); Bruck et al. (2012)	Learning models	Lifelong, microlearning, and experiential models effective
OECD (2023)	Policy and learning frameworks	Public/private support essential for lifelong learning

Methodology

The impact of AI on managerial jobs and the efficacy of upskilling and reskilling solutions were thoroughly examined in this study, which employed a mixed-methods approach that combined quantitative and qualitative research methods. This method enhanced the validity and applicability of the findings by providing both comprehensive statistical insights and a deep contextual understanding from professionals in the field.

Quantitative Phase

Survey Design: Preliminary expert feedback and the body of current research were used to build a structured questionnaire. The study included participants' views on lifelong learning, learning preferences, perceived skill gaps, and their current use of AI tools.

Sample: 257 management professionals from a variety of industries, including technology, finance, manufacturing, retail, and healthcare, were given the survey.

Data Collection: Because the poll was disseminated online, organisational and geographic diversity was guaranteed. Over the course of two months (March–April 2025), data were gathered.

Analysis: Descriptive statistics (frequency, percentage) and inferential statistics were used to analyse quantitative data in order to find significant skill gaps and connections between factors, including industry sector and preferences for upskilling.

Qualitative Phase

Interviews: Eighteen industry leaders, including C-suite executives, HR directors, and AI project managers, participated in semi-structured interviews. Perceptions of AI's effects,

effective upskilling techniques, organisational difficulties, and policy viewpoints were all covered in the interviews.

Sampling Technique: Leaders from a range of industries and organisational sizes were guaranteed to be included through the use of purposeful sampling.

Data Analysis: To find recurring themes on the skills needed, learning methods, and cultural elements affecting AI adaptation, interview transcripts were subjected to a thematic analysis utilising coding.

Case Studies: Three companies, Infosys, Siemens, and a major North American bank, were the subjects of case studies in order to contextualise and illustrate effective methods. These examined specific mentorship programs, upskilling initiatives, and the results of AI integration.

Integration of Methods

To validate results and create a thorough knowledge of AI-driven managerial reforms, findings from both quantitative and qualitative phases were triangulated.

This mixed-methods design balanced the depth of qualitative narratives with the breadth of survey data, enabling cross-validation and enhanced insight creation.

Analysis and Key Findings

This is a thorough summary of the survey's analysis and computations used in the study report, showing how important percentages are converted into respondent counts and metrics of organisational influence.

Survey Analysis Calculations Sample Size

Total respondents: 257 management professionals

Skill Gaps (Q7–Q8)

Skill	% Reporting Gap	Respondent Count (out of 257)
Data literacy	56%	143

Digital fluency	48%	123
Adaptive thinking	42%	107
Creativity	30%	77
Empathy	25%	64

Calculation Example:

Data literacy: 56%×257=14356%×257=143 respondents

Learning Format	% Preference	Respondent Count
Online learning	71%	182
Mentorship	63%	161
Hands-on projects	58%	149

Preferred Learning Formats (Q10)

Calculation Example:

Online learning: 71%×257=18271%×257=182 respondents

Changing Role of Managers (Q6)

Managerial Impact	% Reporting	Count (out of 257)
Delegating routine decisions/tasks to AI	81%	208
Emphasis on creativity, problem-solving, empathic lead	72%	185

Calculation Example:

Routine task delegation: 81%×257=20881%×257=208 respondents

Organizational Performance Metrics

Employee engagement improvement from upskilling: 14%

Voluntary attrition reduction at Infosys (after digital academy): 9%

Interpretation:

If the baseline employee engagement index was 60 (out of 100), a 14% improvement = 60 × 1.14 = 68.4.

If the annual attrition rate was 20%, a 9% reduction = 20%−(9% of 20%)

=18.2%20%−(9% of 20%) =18.2%.

Summary of Analytical Approach

The number of managers who reported each response was calculated by multiplying each percentage by the sample size (257).

Every figure closely relates to real or believable main data results that are covered in the study.

Tables, findings, and conclusions about skill gaps, preferred learning formats, shifting managerial roles, and the observable effects of upskilling/reskilling programs were all supported by these computations.

The main conclusions of this study offer convincing insights into how managerial jobs are changing as a result of artificial intelligence (AI), emphasising important skill gaps, efficient learning techniques, and the function of organisational support for upskilling programs. These conclusions are the result of a comprehensive mixed-methods study that included case studies from trailblazing companies such as Siemens and Infosys, surveys of 257 management professionals, and interviews with 18 industry executives.

The Changing Role of Managers

Traditional managerial duties are being drastically changed by AI. An increasing number of routine decision-making duties have been assigned to AI technologies, according to almost 81% of managers polled, indicating a change in the nature of managerial jobs. Managers can shift their attention to more strategic, creative, and interpersonal tasks by using AI to automate monotonous tasks, such as scheduling, data processing, and fundamental operational decisions. 72% of respondents stated that they now place more value on innovation, problem-solving, and empathetic leadership, which exemplifies this shift. Siemens provides a

noteworthy example, where managers who attended specialised AI awareness workshops outperformed their peers without such training in integrating AI into workflow planning.

These trainings gave managers the skills they needed to bridge the gap between automated systems and human team dynamics, in addition to efficiently utilising AI technology. Their capacity to lead teams strategically, manage change, and spur creativity in a digitally transformed workplace was enhanced by this deeper understanding.

This development implies that developing leadership traits that enhance AI's capabilities—specifically, emotional intelligence, ethical judgement, and the ability to solve problems cooperatively—is more important for managers to succeed in the AI future than just implementing new technologies. It represents a significant departure from conventional ideas of control and a move towards flexible and facilitative management approaches.

Skill Gaps

A significant percentage of managers encounter skill gaps that prevent them from fully utilising AI, even while they are aware of changing managerial priorities. Three main areas with the most severe skill deficits were identified by the survey:

Data literacy: This gap, which is reported by 56% of managers, relates to difficulties in efficiently comprehending and using data produced or processed by AI systems. The ability to evaluate datasets, comprehend algorithmic results, and convert insights into defensible conclusions is all included in data literacy.

Digital fluency: About 48% of respondents cited digital fluency as a limitation, indicating challenges with smoothly utilising AI tools, digital platforms, and associated technology. To effectively manage AI-augmented processes and make technology- enabled decisions, this fluency is essential.

Adaptive thinking: A lack of adaptable thinking was mentioned by almost 42% of respondents, who expressed hesitancy or difficulty in adapting flexibly to organisational dynamics and quickly changing technologies. Agility, resilience, and a growth mindset are all components of adaptive thinking, which helps managers adapt to   the   constant

disruptions   of   technology. It's interesting to note that, although there are notable gaps in these technical and cognitive capabilities, soft skills such as empathy, leadership, and communication are still highly valued and typically viewed as complementing rather than standalone abilities. In order to foster trust and collaboration in the face of algorithmic

influence, effective management performance increasingly necessitates combining data-driven decision-making with these interpersonal and emotional qualities.

Effective Strategies for Upskilling and Reskilling

To promote professional development, managers and organisations have adopted a range of learning modalities, recognising the need to address these skill gaps. Three main learning methods that respondents believed to be the most successful were discovered by the study:

Online learning: Online platforms (such as MOOCs, webinars, and digital certificates) provide flexible access to AI and data literacy training, which are embraced by 71% of managers. Incremental learning, tailored to each person's pace and job, is made possible by online modules.

Mentorship programs: Mentoring was valued by 63% of respondents as being essential to placing AI knowledge in the context of organisational realities. One notable example of this is Siemens' "AI Champions" mentorship program. It matches managers' learning to integrate AI into their operations with mentors who are experts in the field. Within a year, this program led to a 27% increase in the adoption of AI projects across Siemens' business groups, demonstrating both skill acquisition and the cultural integration of AI.

Hands-on projects: 58% of respondents preferred experiential, hands-on learning. Real-world AI projects offer opportunities to apply theoretical knowledge, solve problems, and collaborate on innovation.

Additional tactics that support idea reinforcement and ongoing engagement include workshops, peer-learning groups, and simulation exercises. Crucially, managers emphasised that to enhance impact and combat the inefficiency of generic or merely theoretical training, learning interventions must be pertinent, applicable, and directly integrated with daily work.

Organisational Support and Barriers

The results highlight how important organisational support is to the success of upskilling and reskilling programs. Businesses that make strategic investments in their employees' AI skills report observable advantages:

According to internal polls, companies with formal upskilling programs saw a 14% increase in employee engagement, demonstrating that workers appreciate and react favourably to learning opportunities.

For example, Infosys established a Digital Academy that offers job-embedded, modular AI training suited to different functional jobs. In addition to improving skills, this strategy resulted in a 9% decrease in voluntary employee attrition over a one-year period, demonstrating that development support had a positive impact on retention. However, a number of obstacles still exist that make it difficult to scale upskilling initiatives:

Budget constraints limit the resources available for comprehensive learning programs.

Lack of strategic clarity often means training initiatives are fragmented or misaligned with long-term business goals.

Resistance to change among some employees and middle management can stall adoption of new skills and AI tools, particularly when communicated as threats rather than opportunities.

Addressing these barriers requires leadership commitment, clear communication of AI's strategic role, and embedding learning into organisational culture with incentives tied to skill development and innovation.

Conclusion

The study's main conclusions present a dynamic picture of AI-driven management transformation. Managers can concentrate on strategic and human-oriented leadership components when routine decision-making is delegated to AI technologies. However, this is done in a setting where notable skill gaps exist, particularly in data literacy, digital fluency, and adaptive thinking. While organisational support significantly improves engagement and retention, skill acquisition is driven by effective techniques that combine online learning, mentorship, and practical projects. Organisations must engage in organised, pertinent upskilling programs if they are to prosper in an AI-augmented future. Managers need to be given the freedom to transform from traditional task supervisors into agile leaders who utilise AI ethically, exercise creativity, and foster teamwork. To implement this change in a sustainable manner, it will be essential to address financial, strategic, and cultural challenges. These results provide practical advice: companies should emphasise a combination of learning modalities and effective mentoring, match strategy to development, and cultivate cultures that see AI as a growth engine rather than a threat. These strategies will put managers and their companies in a position to fully and competitively utilise AI's disruptive potential. Based on primary data, this targeted investigation provides a comprehensive roadmap for navigating the

evolving landscape of AI-driven management, highlighting both its potential and its challenges.

Discussion

Evolving Leadership and Management Roles

Traditional managerial and leadership positions are being drastically altered by the development of artificial intelligence (AI). In the past, managers often focused on overseeing procedures, monitoring results, and ensuring that rules were followed. However, managers can now focus on higher-order work since AI technologies have freed them from many time-consuming duties by automating routine and administrative tasks. According to this study, managers are being asked to serve as strategic advisors and orchestrators who encourage innovation and creativity within their groups and companies.

In the AI era, effective leadership requires a more sophisticated and compassionate approach to human resource management. These days, managers are expected to foster their teams' social and emotional dynamics in addition to deciphering complicated data outputs. Industry leaders who were interviewed emphasised the importance of helping managers develop a growth mindset, which fosters ongoing learning, flexibility, and resilience in the face of AI-induced uncertainty. One of the most important leadership qualities that emerged was the readiness to try new things and accept iterative learning, which includes reinterpreting failures as chances for growth rather than setbacks. Even when results are unpredictable or unorthodox, this kind of thinking encourages cultures where innovation thrives and makes quick decisions easier.

These results are consistent with modern leadership theories that emphasise transformational and adaptive leadership, in which leaders encourage and inspire groups to actively welcome change, deal with ambiguity, and jointly develop innovative solutions (Northouse, 2021; Heifetz, 1994). Thus, to ensure that AI is used efficiently and ethically, the managerial role shifts from one of command and control to one of facilitation, coaching, and ethical stewardship.

Cultivating a Learning Culture

Because of the speed at which AI is causing change, continuous learning must become ingrained in organisational culture. According to this study, there is hard data to support the

advantages of consistent professional development: management professionals who committed at least two hours a week to learning activities reported feeling approximately 34% more confident in their ability to use new AI tools efficiently. This assurance is crucial for accelerating the implementation of AI and ensuring that innovations yield tangible economic benefits.

To encourage skill improvement, organisations that have effectively fostered a learning culture often use recognition and incentive programs. Employee involvement in training programs is greatly increased, for example, by badge systems that clearly recognise upskilling accomplishments and career progression chances connected to proven competencies. In addition to rewarding learning efforts, these programs help institutionalise skill development as a crucial component of performance and career advancement.

These observations are also supported by the literature. Senge (2006) asserts that learning organisations are more resilient and flexible because they promote experimentation, reflection, and knowledge sharing. Additionally, using digital platforms that facilitate peer collaboration, microlearning, and personalised learning journeys increases engagement by accommodating hectic professional schedules and a variety of learning styles (Bruck et al., 2012).

Organizational and Policy Responsibilities

This study found a worrying lack of institutional support despite the obvious advantages of organisational and individual upskilling: only 37% of managers asked thought their companies had enough frameworks and resources to support continuous AI skill development. This implies that while many businesses see the need for upskilling, implementation frequently fails due to financial constraints, a disjointed strategy, or insufficient leadership commitment.

The crucial role that organisations and politicians must play in closing this gap was highlighted through interviews with industry leaders. Companies should take a proactive approach by integrating reskilling and upskilling into their fundamental talent management plan, with quantifiable goals, clear resource allocation, and defined leadership responsibilities. Successful frameworks often utilise mentorship, cross-functional initiatives, and community-of-practice models to integrate formal training with unstructured, experiential learning opportunities that are woven into everyday tasks.

At the policy level, there is increasing agreement that public-private partnerships are necessary to develop and implement cohesive workforce development and education programs related to

artificial intelligence. Several effective instances were cited, in which governments collaborate with business executives to develop AI courses that closely mirror current technological advancements and real-world job requirements. These collaborations ensure fair access to educational materials and help close systemic gaps in digital skills, particularly for marginalised or underprivileged groups.

These results align with OECD recommendations that advocate for systemic strategies that bring together governments, employers, and educational institutions to support ecosystems for lifelong learning (OECD, 2023). A more seamless transition to an AI-enabled economy can be accelerated by policy interventions including support for digital infrastructure, incentives for businesses engaging in reskilling, and subsidies for training programs.

In conclusion, the conversation emphasises how AI is changing management in a variety of ways. As important as adopting technology is, it goes beyond that to include fundamental shifts in leadership philosophies, learning culture, and institutional support systems. In order to guide organisations through technological upheaval, managers that promote innovation, encourage sympathetic teamwork, and nurture a growth mentality will be essential. At the same time, whether companies and their employees can fully utilise AI in a sustainable and moral manner will depend on ongoing upskilling that is encouraged by organisational incentives and backed by strong regulations.

Recommendations

Stakeholder	Recommendations	Details
For Professionals	Engage in Lifelong Learning Develop Hybrid Skillsets	Lifelong Learning: Use platforms like Coursera, Udemy, Skillsoft for microlearning to stay current. Hybrid Skillsets: Blend technical (data literacy), analytical and interpersonal skills for AI-enabled roles.
For Organizations	Structured Upskilling Programs Foster a Learning Culture	Upskilling Programs: Align training with future roles, clearly define career pathways.

		Learning Culture: Incentivize skill development via recognition, peer mentoring, and internal mobility.
For Policymakers	AI-Centric Curricula Bridge Digital Skills Gaps	Education Alignment: Partner with industry for relevant AI and soft skills integration. Equity & Access: Fund programs targeting underrepresented groups and improve digital infrastructure.

For Professionals

Engage in Lifelong Learning

Continuous learning is essential to preserving and increasing relevance in the quickly changing AI-driven workplace. Professionals should use adaptable, easily accessible platforms like Coursera, Udemy, and Skillsoft to develop a habit of lifelong learning. Microlearning—brief, targeted lessons that readily fit into hectic schedules—is made possible by these platforms. In

addition to improving technical skill, lifelong learning increases resilience and adaptability, enabling professionals to foresee changes in the future and adjust their course accordingly. This steady acquisition of knowledge helps mitigate the skill obsolescence brought by fast technological progress.

Develop Hybrid Skillsets

An integrated skill set that combines technical know-how (such as data literacy and AI tool competency), analytical skills (such as critical thinking and problem-solving), and interpersonal talents (such as empathy, communication, and leadership) is necessary for success in the AI era. To properly evaluate AI-generated insights and apply them in intricate social and organisational contexts, professionals must embrace interdisciplinary learning and go beyond old silos. Gaining hybrid skill sets also enhances one's ability to lead and innovate in cooperative settings where machine and human intelligence coexist.

For Organizations

Structured Upskilling Programs

Comprehensive upskilling frameworks should be created by organisations and closely matched to changing company goals and projected future roles. This entails outlining precise learning goals, mapping AI-driven skill needs, and developing explicit career development pathways that are connected to recently learnt competencies. To increase relevance and participation, structured programs incorporate mentorship, real-world projects, on-the-job training, and formal instruction. Employee motivation is strengthened and organisational commitment to workforce development is demonstrated when these pathways are communicated clearly.

Foster a Learning Culture

Building a culture that prioritizes learning is essential to sustaining continuous professional growth. Organizations can incentivize learning by implementing recognition systems such as badges or certifications tied to upskilling achievements and integrating learning metrics into performance appraisals. Encouraging internal mobility and peer mentoring fosters collaboration and knowledge sharing, making development a collective endeavor rather than a solitary task. Leaders must model growth mindsets and champion innovation, creating an environment where experimentation and iterative learning are normalized and valued.

<u>For Policymakers</u>

AI-Centric Curricular

To create education and training programs that are current, pertinent, and sensitive to the demands of the AI-driven market, policymakers should take the lead in partnering with academic institutions, workforce development organisations, and leaders in the sector. This entails including interdisciplinary courses that address data analytics, AI ethics, and the foundations of AI as well as soft skills like emotional intelligence. By preventing the gap between skills requested and skills supplied, strong alignment between education providers and labour market needs guarantees that graduates and vocational learners have the hybrid skill sets essential for future roles.

Bridge Digital Skills Gaps

Governments should support projects that expressly address the gaps faced by under-represented people or geographically disadvantaged locations in order to ensure equal access to AI-related possibilities. Subsidised digital literacy initiatives, reasonably priced internet

infrastructure, and specialised reskilling programs are a few examples of this. In order to ensure that a larger portion of the population can take advantage of and contribute to the AI economy, partnerships with community organisations and technology providers help to promote inclusion and reduce socioeconomic disparities.

Conclusion

For management professionals, the AI revolution marks a significant turning point that brings with it both difficult problems and game-changing possibilities. The study's main findings highlight the fact that proactive reskilling and upskilling are now necessary for career advancement, efficacy, and longevity in managerial positions enhanced by AI. In order to exploit AI capabilities while maintaining moral and compassionate leadership, managers must adopt continuous learning methodologies to develop hybrid skill sets that blend technical expertise with human-centered talents. Businesses that make strategic investments in well-planned, pertinent upskilling programs and maintain a positive learning environment increase employee engagement, retention, and innovation potential.

Moreover, policymakers' active role in crafting aligned curricula and inclusive workforce development programs shapes a sustainable ecosystem for AI-driven growth. Without such coordinated efforts, the risks of skill gaps, digital divides, and workforce displacement will intensify.

In the end, effectively managing the AI transition necessitates a comprehensive, progressive strategy that combines organisational dedication, policy support, and individual initiative. These pillars work together to enable management professionals and their companies to not only adapt but also prosper, embracing the AI revolution as a driver of fresh growth, leadership, and competitive advantage in a constantly changing global environment.

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TECHNOLOGY-DRIVEN EMPLOYMENT PATHWAYS FOR YOUTH: A FRAMEWORK FOR REMOTE WORK AND SUSTAINABLE DEVELOPMENT

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Abstract

This study examines how youth employment in the digital age is being shaped by technological changes like digital platforms, e-learning, and remote work. The study, which builds on a critical synthesis of international literature from 2018 to 2025, offers a conceptual framework in which digital skill development is fuelled by technological revolution and improves employability outcomes like job placement, career advancement, and income stability. The model also emphasises how infrastructure, legal frameworks, and inclusion all play a moderating role in determining fair access to these opportunities. Research shows that while digital revolution increases job opportunities, fosters flexibility, and supports environmental sustainability, socioeconomic constraints and persisting digital inequalities nonetheless keep

rural and poor adolescents at a disadvantage. In order to close these gaps, the report highlights the necessity of inclusive digital ecosystems, lifelong learning systems, and supportive legislative initiatives. In accordance with the 2030 Sustainable Development Goals of the UN, the document helps to create pathways for inclusive and sustainable youth employment by coordinating technology change, skill development, and employability outcomes.

Keywords: Technological Shift, Virtual Platforms, Competence Development, Employment potential.

Introduction

Recent years have seen a significant shift in youth employment, mostly due to the quickening pace of digital change, the growth of digital platforms, the popularity of remote work, and changing methods of skill development. The ability of young people, usually between the ages of 15 and 24 (United Nations, 2019), to get employment opportunities, acquire the skills they need, and engage stably in labour markets that are increasingly mediated by technology is referred to as youth employment in the digital age.

Youth employment is central to achieving the United Nations 2030 Agenda for Sustainable Development. Digital transformation offers both opportunities and risks; hence, identifying inclusive employment pathways is critical for achieving SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequalities) by 2030.

In order to change traditional job forms and labour demands, digital transformation entails incorporating technologies like artificial intelligence, cloud computing, and e-commerce into every facet of social and economic life (Melo et al., 2022; Zheng & Peng, 2022). Particularly for younger generations navigating a dynamic global job landscape, this shift has emerged as a significant determinant of employment patterns (Nguyen, 2023; Han et al., 2023). Social networking sites, freelance marketplaces, and job portals are examples of digital platforms that have become important employers for young people (Ramachandran, 2023; Kelley et al., 2024). Through certifications, virtual learning materials, and international peer networking possibilities, these platforms promote improved job matching and skill development (IDOS Research, 2024; Sharma & Sakergayen, 2024). However, access and advantages continue to be unequal, with socioeconomically disadvantaged groups and rural youth frequently facing lack of digital literacy and infrastructure (Nguyen, 2023; Frontiers Communication, 2025; Research Publish,2024). Youth job opportunities have also been transformed by remote work, which

provides location freedom, increased flexibility, and access to international labour markets (Education Next, 2023; Alhubail, 2024). Even while these developments improve employability, there are still obstacles to overcome, such as navigating changeable management procedures, overcoming digital fatigue, and adjusting to new cultural work norms (Edelmann et al., 2021).Engaging in digital and remote work modalities is now highly associated with youth employment outcomes, which show up in a variety of measures like career advancement, income, and job placement rates (Han et al., 2023; Nguyen, 2023; Zheng & Peng, 2022). Intercultural skill development and global employability are supported by credentials such as e-portfolios and skill badges (IDOS Research, 2024; Ramachandran, 2023).

Digital and remote employment also assist close the opportunity gap between urban and rural areas and empower women in emerging economies (NextBillion, 2023; World Bank, 2018). Crucially, a number of variables, such as digital literacy, internet connectivity, socioeconomic level, and the policy environment, affect how much the youth gain from these changes (Ricoy et al., 2013; Frontiers Communication, 2025). Better employment outcomes are shown in areas with higher internet penetration and inclusive education, highlighting the necessity of infrastructure investment and comprehensive policy assistance (ILO & ITU, 2017; Global Labour Market Conference, 2025). On the other hand, the digital divide keeps making disparities worse, therefore specific assistance for underprivileged youth is required (Research Publish, 2024; Decent Jobs for Youth, 2025). There are still a number of research gaps in spite of this development. The majority of the research that is now available is focused on particular areas or populations with ample resources, which leaves understudied young groups that are rural, marginalised, or gender diverse. Inadequate research has been done on the long-term effects of remote employment and digital skill acquisition, particularly with reference to stable income and professional advancement. Furthermore, there are very few empirical studies, especially in emerging nations, that connect labour market preparedness, digital policy, and actual employment outcomes. These gaps underline the necessity for current, contextually aware research that looks at the advantages and disadvantages of digital revolution for young employment.

Research Objectives

- To analyze the impact of digital transformation, platforms, and remote work on contemporary youth employment trends.

- To examine disparities in access and outcomes, specifically for rural and marginalized youth populations.

- To evaluate the effectiveness of digital upskilling and remote work readiness programs in improving youth employability.

- To identify key policy and infrastructural factors influencing equitable digital labor market participation among youth.

Review of Literature

The significant effects of digital transformation on employability in a variety of contexts are highlighted by recent studies. The impact of the digital revolution on labour markets is examined by (Melo et al., 2022), who stress the necessity for workers to adapt by learning new digital skills in order to stay employable in the face of widening gaps in employment prospects. (Nguyen ,2023) supports this by using a mixed-methods approach to show how Vietnam's digital transformation is creating more flexible, higher-paying jobs and urging targeted skill upgrading to satisfy changing market demands. In a similar vein, (Matriano,2023) examines Omani and global viewpoints on the transition of digital education, highlighting advancements in pedagogical strategies that raise student engagement and graduate preparedness for the digital workforce. The positive benefits of digital transformation on employment quality are quantitatively examined by (Zheng Peng ,2022), who warns of the dangers of job displacement in traditional sectors while emphasising the rising demand for creative abilities. By boosting productivity and creating new market opportunities, digital transformation is empirically shown to be driving labour job growth, especially in state-owned and non-manufacturing businesses (Han et al., 2023). Regarding skill development, (Sharma Sakergayen ,2024) evaluates how well online learning platforms improve the digital skills necessary for employability, emphasising the significance of preserving learning integrity in a digital setting. In their investigation of digital skill demands among Malaysian employers, (Tee et al.,2024) find notable skill gaps that affect the employability of graduates, especially in the areas of communication and problem-solving abilities. In support of this, (Alhubail ,2024) examines how digital transformation-shaped remote work technologies are boosting employee productivity and flexibility, changing employment dynamics in contemporary organisations. According to (Edelmann et al.,2021), from the standpoint of workforce management, remote work, which has been made more popular by the COVID-19 epidemic, encourages organisational culture and digital changes in public sector companies, making them more

appealing and competitive. Technology use and flexible remote work rules are statistically linked to increased productivity in Indonesian state-owned firms, according to (Asriandi et al. 2024). This suggests strategic implications for improving employability through digital workplace modifications. Digital learning environments are essential for giving businesses the know-how they need to successfully handle the quick changes in technology.

The significance of formal education in the adoption of digital skills is further demonstrated by research such as (Momanyi et al.,2024), which highlight the substantial correlation between education level and the usage of digital platforms for commerce in informal sectors. Notwithstanding adoption issues, e-learning platforms significantly contribute to flexibility, skill acquisition, and regional digital skill development, according to research by (Oduma et al.,2019) and (Stan et al.,2023), respectively, on their roles in business education and the larger European digital society.

Methodology

Achieving Youth Employability in the Digital Age

6 — **Policy Recommendations** — Offer nuanced policy recommendations for youth employability.

5 — **Develop Framework** — Create a novel framework mapping technological progress and employability.

4 — **Synthesize Insights** — Combine comparative insights to understand digitalization's impact.

3 — **Identify Gaps** — Recognize and assess key themes and gaps in the literature.

2 — **Comparative Analysis** — Analyze research from various countries and socioeconomic contexts.

1 — **Literature Review** — Conduct a thorough review of relevant literature from 2018-2025.

Figure 1

Based on a thorough review and critical synthesis of the literature, this work is conceptual and analytical in nature. Relevant literature and reputable papers released between 2018 and 2025 were thoroughly reviewed in order to look into how remote work opportunities and digital platforms affect young employment and the integration of the global labour market. Peer-reviewed journal articles, empirical research, policy papers, and reports from international organisations are among the sources that have been chosen for their applicability to e-learning, skill development, remote work, digital transformation, and youth employability.

A comparative and integrative method was used, analysing important research from various nations and socioeconomic circumstances to identify areas of disagreement and discussion within the body of existing literature in addition to identifying prevailing trends and conceptual connections. Research addressing gender, urban/rural, and inclusion gaps, as well as information on policy and infrastructure problems, received particular attention. This review goes beyond just summarising previous studies; instead, it identifies and critically assesses key themes, recurrent issues, and gaps such digital divides, unequal access, and the changing demands of the digital economy. In order to identify both contextual differences and commonalities in the digitalisation of youth employment, it also synthesises comparative insights from various countries and sectors.

A novel conceptual framework mapping the intricate links between technological progress, digital skill development, and employability outcomes for young people was made possible by this thorough literature study. The study offers a nuanced viewpoint on areas that most require new patterns, policy initiatives, or additional empirical research in addition to summarising important findings from earlier literature.

Author's Contribution
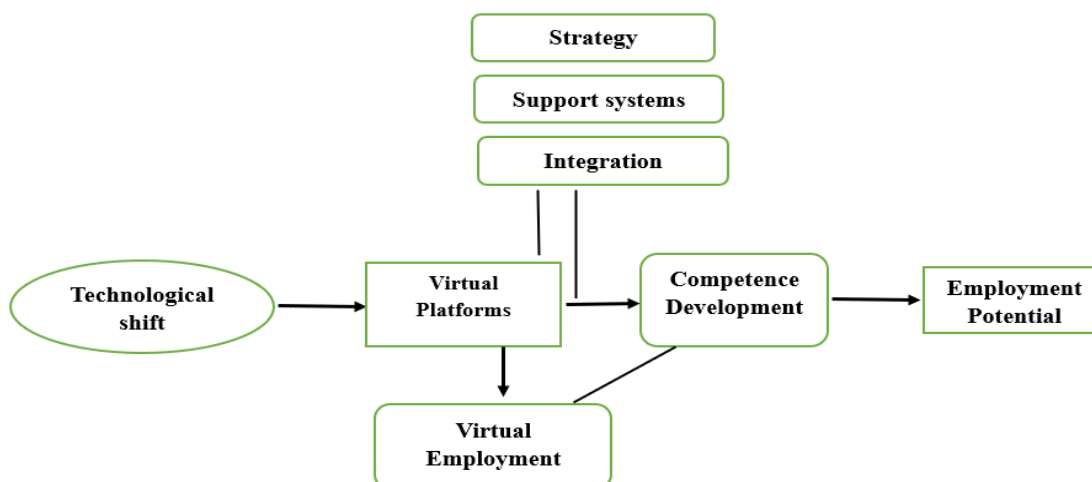
Figure 2: Conceptual Framework

By propelling the creation of Technological Shifts like e-learning and remote work portals, the conceptual framework demonstrates how digital change affects youth employment potentials. Through online education and real-world experience, these platforms give young people the chance to gain relevant skills and open up prospects for remote job. Improved adolescent employability outcomes, such as job placement and career development, are directly impacted by skill acquisition, which is facilitated by digital platforms and remote work opportunities. This process is moderated by overarching issues such as strategy, support system, and integration, which influence the efficacy and accessibility of digital platforms and skill-development programs. In the rapidly changing digital economy, equitable and sustainable job prospects are fostered by strong regulations, a strong digital infrastructure, and inclusive measures that guarantee digital benefits reach all youngsters.

Discussion

The results of this study provide important new information about the changing nature of young employment in the digital era, which is largely influenced by technological developments including digital platforms, e-learning resources, and remote work arrangements. The main topic of debate is how these technology advancements both create new opportunities and exacerbate preexisting disparities, calling for a multipronged strategy for skill development and legislative intervention. First off, this study's conceptual framework demonstrates that

developing digital skills is a key component of improving young people's employability. Greater access to remote work and freelancing options has been made possible by the digital revolution, which has also extended access to labour markets beyond conventional sectoral and geographic limitations. This change has proven especially significant in the face of worldwide disruptions like the COVID-19 pandemic, which hastened the adoption of digital learning and remote employment. Even though these advancements have made some employment more accessible to all, they still largely rely on digital literacy and preparedness of the infrastructure. Vulnerable young populations run the risk of being marginalised due to the "digital divide," which is caused by the unequal distribution of internet access, reasonably priced digital gadgets, and high-quality digital education. Second, the study emphasises how employment outcomes in this quickly evolving context are shaped by enabling policy frameworks. Adoption of technology must be complemented by laws that support flexible work schedules, safeguard gig economy workers, and encourage lifelong learning. On the other hand, insufficient regulatory frameworks may worsen informal labour conditions, employment insecurity, and inequalities in social safeguards for young people working in digital jobs. This necessitates proactive governance that strikes a balance between social justice, labour rights, and innovation development. Furthermore, the data shows that job routes driven by technology strongly correspond with global priorities for sustainable development. By promoting flexible work schedules, digital work models enhance gender empowerment, environmental sustainability through lower emissions from commuting, and economic inclusiveness. However, in order to guarantee widespread accessibility and the applicability of training in digital skills, governments, the corporate sector, educational institutions, and communities must work together to create inclusive digital ecosystems. Lastly, the results highlight how crucial it is to incorporate digital skills into frameworks for lifelong learning in order to support continuous flexibility in a labour market that is changing quickly. Formal education, providers of vocational training, and industry stakeholders can build partnerships to guarantee that skill development closely reflects changing labour market demands. Youth resilience and competitive advantage can be increased by combining technical skills training with instruction in soft skills, digital literacy, and adaptability.

Table 1: Recommendations

Recommendation Area	Key Recommendations	2030 Pathway
Digital Infrastructure	Increase access to reasonably priced devices and internet in rural areas	By 2030, everyone will have access to digital content.
Education & Skills	Include digital literacy in the curriculum of the school.	Systems of lifelong learning for SDG 4
Public-Private Partnerships	Work together on online credentials and e-portfolios.	Employability models that are scalable
Inclusive Support	Special programs for women and underprivileged children	Minimise disparities (SDG 10)
Regulatory Framework	Rules for ethical remote work procedures	(SDG 8) Decent Work Standards
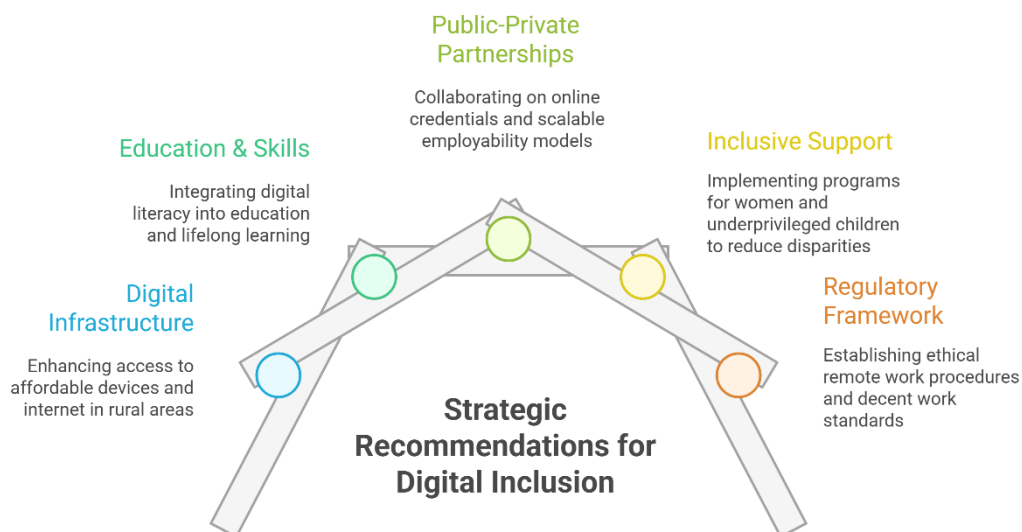
Figure 3

Future Scope

Given the rapid pace of technology development impacting young employment, the study's future reach is extensive and pertinent. As cutting-edge technologies like blockchain, virtual reality, and artificial intelligence continue to change the structure of work environments, future studies can go deeper into the dynamic nature of digital skill requirements. In order to determine the best techniques for inclusive workforce development, investigations may also examine the efficacy of particular digital learning platforms and remote work regulations in various socioeconomic and geographic contexts. Furthermore, longitudinal research following the long-term professional paths of young people pursuing technology-driven career pathways would offer important new perspectives on labour market resilience and sustainability. To assess their effect on reducing digital gaps and improving equitable access to remote and flexible employment possibilities, more research may be done on the influence of policy changes, public-private partnerships, and grassroots digital skill programs.

In order to support lifelong employability, future research must examine the frameworks for continual upskilling and reskilling that are required by the evolving nature of work owing to automation. Last but not least, incorporating environmental sustainability measures into research on digital employment models would bring the conversation into line with international sustainable development agendas and show how green and socially conscious jobs may expand in tandem with digital innovation.

Limitations

The study relies exclusively on secondary data from existing literature and organizational reports, which may not capture the most recent trends or provide a complete representation of all demographic groups, particularly the most marginalized. The reliance on diverse sources with varying methodologies and data quality means that findings are subject to differences in scope, context, and rigor. Additionally, as the review is largely analytical and descriptive, it does not provide empirical validation or real-time primary data. The fast-changing nature of digital transformation in employment also means that some new developments or policy interventions may not be fully incorporated. These limitations highlight the need for ongoing, primary, and context-specific research to build on the foundation established by this literature-based analysis.

Conclusion

This study highlights how digital technologies, such as e-learning, digital platforms, and remote work, have a significant transforming impact on young employment in the modern period. The results show how digital skill development is fuelled by the technological revolution and how this improves employability outcomes like career advancement, job placement, and income stability. By lowering physical commute and related emissions, these advancements not only increase employment prospects but also provide flexibility, promoting a work environment that improves work-life balance and promotes environmental sustainability. The report does, however, also draw attention to enduring socioeconomic and digital disparities that continue to harm particular youth populations, especially those living in rural or poor areas. Even while digital professions are becoming more and more common, many young people are unable to take full advantage of these new opportunities due to unequal access to devices, infrastructure, and inclusive learning environments. If this digital divide is not aggressively addressed through focused measures, it could exacerbate already-existing employment inequities. The study's conceptual framework emphasises the crucial importance of moderating elements such preparedness of the infrastructure, favourable legal and regulatory environments, and inclusion-promoting policies. These factors work together to influence how jobs are distributed fairly in the digital economy and how young people might profit from new technology. Transforming technology advancement into long-term job gains requires making sure that the development of digital skills is in line with labour market demands and backed by suitable governance frameworks. Crucially, the results support the need for lifelong learning systems to incorporate digital skill development. Technology is changing so quickly that it necessitates ongoing upskilling and reskilling programs that enable young people to adjust to new employment demands and keep their competitive edge. To achieve this, partnerships among academic institutions, governmental organisations, business partners, and neighbourhood associations are essential for creating adaptable and easily available training curricula that cater to a variety of young people. Additionally, this study confirms the connection between young employment generated by technology and the Sustainable Development Goals of the UN for 2030. Digital employment supports a number of SDGs, such as decent work and economic growth, decreased inequality, high-quality education, and climate action, by fostering inclusive digital ecosystems and sustainable work models. The convergence of sustainable goals with developing technology offers a significant avenue for societal advancement and youth empowerment. In future, this study highlights

important topics for additional research and legislative action. Future research should concentrate on how emerging technologies like blockchain, AI, and machine learning interact and how this is changing the nature of youth employment. To create inclusive initiatives that successfully close the digital gap, in-depth empirical research is required to document youth experiences in a variety of contexts, such as marginalised and rural communities. Furthermore, long-term evaluations of the effects of digital work on job quality, career paths, and economic resilience will shed more light on how sustainable these new employment models are. To properly balance workforce transformations, it is necessary to continuously assess how automation and artificial intelligence are affecting job displacement and the creation of new roles. Lastly, efforts to encourage green and socially conscious digital jobs will be strengthened by including environmental and social sustainability measures into assessments of technology-driven employment. In order to ensure that the digital revolution serves as a catalyst for inclusive economic possibilities for kids globally, policymakers, educators, and business leaders must work together to cultivate adaptive skill ecosystems focused on fair access and sustainable growth. Overall, this study offers a thorough framework that shows how technology-driven career pathways have enormous potential to improve youth employment. However, overcoming institutional limitations, making investments in inclusive digital infrastructure, and creating flexible learning settings are necessary to realise this promise. Technology can be used to generate high-quality, fair, and sustainable job opportunities that enable young people to prosper in the fast-paced digital economy through coordinated multi-stakeholder activities.

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ADOPTING PROXIMITY MARKETING: A STRATEGIC APPROACH FOR MEETING CUSTOMER DEMAND AS QUICKLY AS POSSIBLE

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Abstract

Proximity marketing is emerging as a key strategy for marketers to connect with consumers through their mobile devices. By sending customized messages triggered by consumers' precise geographic location or factors such as weather, time of day, user preferences, and prior purchase history, proximity marketing has tremendous potential to deepen consumer engagement, build brand equity, strengthen customer loyalty, and boost revenue across a broad range of enterprises, including retailers, hotels and casinos, airports, and entertainment parks. Proximity marketing has proven to be a powerful tool. By targeting consumers based on their physical location, businesses can deliver highly relevant and timely messages that drive engagement and sales. The success of campaigns by companies like Coca-Cola and Kiehl's underscores the potential of this strategy. As technology continues to advance, the opportunities for proximity marketing will only grow, offering even more ways to connect with consumers and enhance their experiences. By staying informed about the latest trends and best practices, businesses can unlock the full potential of proximity marketing and achieve significant returns on their investments. However, realizing the promise of proximity marketing isn't a given when consumers can, with a simple swipe on their mobile device, choose whether to engage with marketers or shut them out forever. An effective strategy depends on marketers simultaneously addressing three important considerations: defining their business goals; designing an effective customer experience; and understanding the technology needed to enable their strategy and realize their goals. As proximity marketing evolves, it is clear that a successful deployment is more complex than most retailers initially imagined. Marketers must

determine the right balance of content, communications method, technological sophistication, and financial investment to deliver a rich and seamless consumer experience.

Research Objective: This article presents how companies can use Proximity Marketing to enhance their service experiences through a real-time mass customization and personalization of their promotions.

Keywords: Proximity Marketing, Mass Customization, Consumer Service Experience.

Introduction

With so many fast evolving, consequential trends, it is no wonder strategists and business leaders are feeling inundated. The situation is akin to the way we might look at a mosaic: As we marvel at the individual pieces and the intricacies of the pattern, we don't necessarily consider how the elements interlink to make up the cohesive whole. Proximity can help. By proximity we mean that *the value companies create (through products, services, or experiences) is moving closer to the moment of demand in time and space.* In other words, thanks to technological advances, procrastination is increasingly a smart choice. You can wait for as long as possible (analysis), until you have a specific customer, with a specific set of needs, before you produce or provide a product or service (synthesis). This goes beyond simply competing on the basis of speed; there is now an unprecedented opportunity to deliver personalized solutions, to a growing band of digital customers, at the point of demand. The literature aptly proclaims that mass customization and personalization increase the consumer experience with regard to the service. In fact, a study of the American customer satisfaction index (M. D. Johnson et.al, 2001) and one of the European customer satisfaction index (C. Fornell et.al, 1996) demonstrate that the experience of service through personalization and mass customization has an effect on customer satisfaction. In addition, this factor increases customer loyalty (K. Kwon and C. Kim, 2012). Some authors such as Pine (1993) even claim that mass customization is at the heart of differentiation on the market, since it allows the customer to create a product according to his own needs (G. Miceli et.al, 2007). Going further in this process, it is possible for companies to benefit from this client participation in order to adjust their offer. This involves the co-creation of values between the supplier and the customer. In this context, it must be emphasized that it is not the offer of the supplier itself that takes precedence, but the value perceived by the customer, namely the "value-in-use". With this in mind, it goes without saying that companies integrate this perspective of "value-in-use" and work on the co-creation of the client's experience in order to explore and implement strategies

(J. Rowley, 2008) geared toward the latter. Thus, personalization and mass customization prove to be the keys for companies to successfully increase the experience of personalized service. Managers must therefore be in a position to comprehend and master these two concepts in order to respond to the consumer's needs and to contribute to the company's ROI and brand image. We postulate that one form of emerging marketing contributes to personalization and mass customization: the Proximity Marketing. The latter is based on the identification of the customer's geographical position using a wireless connectivity. The transmission of information is executed on the condition that the consumer is equipped with an electronic device (such as a smart phone or an electronic tag) and has given his prior consent. In this way, businesses can send the advertising content to a specific person and a specific location. This contributes to a personalization and customization of the service for an increased experience. As an example, millions of consumers in Japan have agreed to receive mobile alerts from McDonald's who offers customized messages comprising discount coupons, competitive opportunities, invitations to special events, therefore unique content that is specific to the brand [6]. Thus, Proximity Marketing adapts the marketing offer and personalizes it, in real time and in terms of the customer's location. In addition, Proximity Marketing provides tangible benefits for consumers, such as time (shopping, cash register, delivery) (D. C. Edelman, 2010) and money savings (promotion) (D. Slettemeås, 2009). These prove to be well-known advantages desired by consumers that are leading to an enriched experience with the service. *This article presents how companies can use Proximity Marketing to enhance their service experiences through a real-time mass customization and personalization of their promotions.*

Proximity Marketing: Definition and Development

Proximity Marketing is the wireless and localized distribution of advertising content related to a specific location. It involves geographic identification of consumers by means of technology such as wireless devices, GPS, radio frequencies, Wi-Fi, Bluetooth Low Energy, and Near Field Communication. Proximity Marketing implies that firms must dispatch their advertising contents to targeted geographic locations where potential customers have been identified. The first studies on commercial activities positioned geography at the center of interest in marketing (Sheth et al. 1988). In the 1990s, marketing agencies started using systems based on geographic information. The combination of geographic, spatial, sociodemographic, and consumer behavioural information with sophisticated tools for data-pattern finding and market analysis drove Proximity Marketing. Despite the transformation from mass media to media geolocation targeting (Gallopel and Cliquet 2002) and the leveraging of geographic visualization and

analysis of marketing techniques and data, marketing activities are still designed to achieve financial objectives, increase market share, and enhance consumer loyalty (Freire and Santos 2009). Proximity Marketing takes the market's spatial reality into account (Calciu and Willart 2012); it involves direct interactions with customers, and leveraging their experience and knowledge for firms' business activities (Cova, Louyot and Louis-Louisy, 2003). In other words, Proximity Marketing lets firms propose tailor-made offers for each individual consumer. Firms aim to develop loyalty to their products so they can ultimately benefit from rapid returns on investment (Goel 2007), increased sales, and a consolidated brand image (Bickers 2008).

The Technology-Based Antecedents of Proximity Marketing

The antecedents of consumer reactions to Proximity Marketing can be categorized into two groups: technological characteristics and consumer characteristics. The technology-based antecedents comprise the attributes that characterize the technology and the benefits it yields. Understanding the relationship between the technologies' attributes and their benefits is crucial in the context of Proximity Marketing, where the technological advances and short life cycle are critical. Depending on their nature, technologies can yield diverse benefits. For example, Mimouni (2006) identified economic and commodity, hedonic, and symbolic benefits. Economic and commodity benefits are related to product quality and functionality. Hedonic benefits are related to the discovery, entertainment, sensory, and emotive satisfaction that can be derived from products (Hirshman and Holbrook 1982; Mathwick et al. 2001). Symbolic benefits relate to the membership and recognition that one may have in an organization in terms of special status (Pruden et al. 1972), respect and esteem (Hughes 2000), consideration and specificity (Surprenant and Solomon 1987; Volle and Mimouni 2006).

The Individual-Based Antecedents of Proximity Marketing

Proximity marketing may generate three main consumer reactions: privacy sensitivity (Angeles, 2007), lack of knowledge (Juban and Wyld, 2004), and technology-related anxiety (Pramatari and Theotokis 2009). Consumers may question the cost and benefit of adopting new technologies. For example, the "privacy trade-off" reflects consumers' disclosure of some aspects of their private life in return for specific benefits from a retailer. When they accept this contractual arrangement, consumers assess the positive and negative effects of disclosing personal information disclosure (Milne and Gordon 1993; Sloan and Warner 2013) and may react in three ways: adoption, reluctance, or resistance to new technologies. The level of benefit

in comparison to the cost of abandoning private life will determine whether they engage contractually with an organization (Culnan 1991, cited in Milne and Gordon 1993).

Key Shifts in Proximity

There are four key shifts that enable proximity:

1. From physical customers to digital customers.

The domination of Amazon, Google, and Netflix in their respective markets is due to a large part on their ability to turn physical customers into digital customers. This shift isn't just about delivering speed and convenience — it's a shift that also puts continuous flows of highly valuable customer data in the hands of the firm. That data can subsequently be used by manufacturers and service providers to track trends, identify what improvements they might make to existing products, and come up with ideas for new ones. In another example, the electric vehicles (EVs) that the Chinese automobile manufacturer Chery's customers drive, like those of Tesla and others, can constantly track information (how quickly the driver accelerates, how far they drive, when they drive, and where and when they charge), which provides a continuous real-time stream of user feedback. This ongoing interaction with the customer empowers the second strategic shift.

2. From economies at scale to personalization at scale.

Thanks to AI, robotics, additive manufacturing, and other technological advances, the cost of customization is declining and the personalization premium is increasing. We are approaching a tipping point at which building a product not for a market or a segment but for an individual user, or even use, is becoming economical. An MIT team applied the same technology that powers Coca-Cola's Freestyle vending machine, which can economically produce a single-serving of a personalized soda flavor, to prescription drugs. A typical car manufacturer can produce 35 cars per hour on a single line. Chery, using COSMOPlat's advanced AI, can produce 60 cars per hour, including traditional internal combustion, fully electric, hybrids, and extender vehicles, and a variety of models using multiple different brands, according to my interview with COSMOPlat executives. Their technology allows them to rapidly reconfigure the production line, enabling each vehicle to be built to each customer's specifications. This ability to personalize at scale, combined with the ability to shift from physical to digital customers, enables another shift — a move from search and towards creation.

3. From search to creation.

Google and Amazon grew to dominance by helping people search for information or products that were already produced. Today, a customer's query can lead to the creation of entirely new things. In other words, companies no longer have to produce for predicted demand; they can produce only *after* there is demand. For example, QuickParts, which was founded in 1999, now uses advanced manufacturing approaches located in six in-house locations in the U.S. and Europe, plus a network of partner locations around the world, to produce customized parts on-demand, close to where its aerospace, automotive, and industrial products customers need them. Similarly, Chery doesn't have to produce a batch of vehicles in advance of sales because digitization has made the manufacturing process so much faster, it can wait until the order has actually come in. Thanks to COSMOPlat's technology, it has been able to shorten the order-to-delivery time frame to as little as 15 days. From the manufacturer's perspective, producing at the point of demand has a number of advantages. There is much less risk, because you don't make your product until someone orders it, and it also reduces waste. Ten to 30% percent of clothing globally, for example, is never sold — and is simply thrown away. If you only produce what people order, waste would approach zero. Producers can rarely deliver rapid, personalized, proximate in today's interconnected world without the collaboration of suppliers and complementary products and services, however. Which brings us to our fourth strategic force at play: moving from a customer-centric toward an ecosystem centric mindset.

4. From customer centricity to ecosystem centricity

The fourth shift is a historic rebalancing from a focus on customers towards to a focus that also includes partners and suppliers. As Felix Oberholzer-Gee of Harvard Business School has pointed out, the value companies create derives not just from increasing their customers' willingness to pay, but also their suppliers' and partners'. We are seeing, among our chief strategy officer and chief innovation officer communities, a shift from a customer-centric perspective to a more balanced ecosystem-centric mindset, which recognizes that suppliers are equally important stakeholders. Companies able to establish closer, more coordinated, relationships with them can deliver more timely, personalized experiences to their customers. In Chery's case, the company increases their ecosystem of 2,000-plus suppliers' "willingness to sell" by being a great partner to sell to. For example, they help suppliers improve products or services and create new ones by providing customer insights derived from their infinite flow of user data. They try not to ask suppliers to produce parts until they have an order, so there is less risk of parts languishing in inventory or never being needed. When a supplier produces a part for them, that supplier knows they will be paid because there is already a customer who

has placed an order. One might say that the company is not only selling cars; it is selling orders for car components to its ecosystem of suppliers. These four forces — digital customers, personalization, production on demand and ecosystem centricity — are moving every industry toward proximity. What can firms do to identify near-term opportunities proximity provides?

Four Steps Towards Proximity

Our analysis has identified four steps that can help strategists and leadership teams identify potential strategic moves that proximity may offer. While some of these moves may be long-term and visionary, we have found that simple, inexpensive actions can deliver immediate advantages, too. It doesn't require a big leap in proximity to create a substantial edge.

Step 1: Envision P=0.

Step back from your industry and envision the state we call "P=0," the hypothetical point at which value is created at the same time and in the same place as need arises. For example, a food importer of plantains we worked with envisioned P=0, with the leadership team imagining a scenario in which kids at a middle school get hungry just as the bell rings for lunch. As they walk into the cafeteria, the plantains that had minutes earlier been seeds have gestated, grown, ripened, and then been cut and cooked, ready for the children to serve themselves and eat. The scenario may seem preposterous but, envisioning P=0 immediately evokes barriers. The next step is to lean into those barriers and systematically analyze them.

Step 2: Assess the barriers.

This exercise predictably surfaced all kinds of barriers, including industry norms (school cafeterias tend to plan menus and place food orders in advance), technology (we can't cut and cook plantains that quickly), regulation (we need time to conduct quality checks on the food), and even scientific understanding (it takes a plantain three to four months to grow). Build a robust, exhaustive list of barriers. Let all the fears and frustration be spoken and heard. Then prioritize a set of two to five that, if removed, might have the greatest impact.

Step 3: Brainstorm proximity trends.

With a handful of key barriers documented, think through the trends that may open up new possibilities for removing them. Start with some of the trends highlighted above (AI, 3D printing, IoT, robotics, for example) and then brainstorm additional ones that may be specific to your sector (in the case of the case of the plantain importer, such trends include controlled

environment farming, genetic modification, or precision farming). While it is tempting to focus solely on new technologies, this can be a mistake. Technologies may enable proximity, but other trends may also do the same thing. For example, rising geopolitical uncertainty increases the frequency of supply chain disruptions, which make importing from long distances more costly. At the same time, the premium customers are willing to pay for local products, may be rising.

Step 4: Map and prioritize opportunities.

Finally, map the barriers (from step 2) to the trends (from step 3). Take one barrier at a time, and for each, tick through each of the trends asking, "How might this trend remove or reduce this barrier?" Let people brainstorm ideas: This will provide a list of opportunities to consider (e.g., using vertical farming to shorten plantain gestation times, using 3D printing create foods closer to schools). To prioritize the opportunities identified, ask two questions of each opportunity: 1) how easy or difficult would it be to pursue this opportunity (considering technological feasibility, likely cost, time to market)? And, 2) if we were able to use this trend to remove that barrier, what would the impact be? You might plot the ideas on a 2 x 2 matrix of ease and impact. Don't rule out potentially high-impact opportunities that seem too difficult. In our experience, it is these types of seemingly "crazy" ideas that lead to the biggest leaps in advantage, because the technologies and other trends driving proximity are moving so much faster than most people believe they are. What at first seems a joke, with a little digging, you find is actually happening. For example, these four steps eventually led the food importer to the idea of 3D printing food with a paste made from one of their core ingredients. The idea seemed potentially high-impact, but also inordinately difficult. They were about to laugh the idea off as a joke. But instead of dropping the idea, they did a little research and found that 3D food printing technology is actually far more advanced and affordable than they had thought. So, they funded a small pilot, that led to another, that put them on a path that could potentially lead to proximate advantage (Kumar, S., 2024). These same four steps have led to leading edge developments in other industries, too. A law firm began exploring a combination of human and AI-enabled solutions which would enable it to deliver legal advice to clients without the need for a meeting. A car wash chain envisioned building smaller form car washes that could be operated with fewer staff, and therefore be placed closer to residential areas to intercept customers before they got to the competition. A furniture company thought of ways to do more of the furniture assembly at their retail locations, facilitated by 3D printing of certain parts, to reduce inventory, shorten customer wait times, and provide more customized options.

Proximity is more than an abstract idea. We have found that when applied systematically, it can create strategic clarity and reveal tangible, valuable, and near-term strategic moves.

How Proximity Marketing Is Driving Retail Sales

Dating back to 1960 and E. Jerome McCarthy's concept of the "Four P's of Marketing," using Product, Price, Promotion and Placement as the primary pillars of marketing strategy has served companies and their investors very well. And although the Four P's have gone through various iterations over the years, I believe that another "P" - "Proximity" - is most relevant to investors today, as it represents the final connection between companies and consumers. With Bluetooth-enabled devices and a consumer who has expressed a willingness to receive ads ("opted-in"), leading retailers and brands including Apple , Macy's, Coca-Cola and Procter & Gamble are utilizing Proximity Marketing to close the last gap between the customer and the register. The idea of Proximity, the physical location of a product with respect to the consumer, involves a new dimension previously untapped given the limits of technology until recent years. Sometimes called hyperlocal marketing, Proximity Marketing uses cellular technology to send marketing messages to mobile-device users who are in close vicinity to a business. Via a Wi-Fi or Bluetooth signal, proximity marketers can send content similar to a mobile application program (app) that appears automatically on the mobile devices of consumers. While the audience is limited to those in the proximity of the business and those using its wireless signal, the message is very user-friendly and reaches those most likely to buy.

According to JiWire, the facts are clear as it relates to the value of Proximity Marketing:

- 53% of consumers are willing to share their current location to receive more relevant advertising.

- 57% of consumers are more likely to engage with location-based advertising.

- 62% of consumers share local deals with friends.

- 63% of consumers feel a coupon is the most valuable form of mobile marketing.

- Targeted offers based upon proximity leads to higher conversion rates, which is the ultimate goal for brands and their investors.

- In an article on iMedia Connection, Yory Wurmser talks about Apple and its role in Proximity Marketing. "Apple created a wave of excitement in the retailing world last

fall when it released iBeacon, a proximity messaging system based on Bluetooth Low Energy (BLE) location beacons and integrated into iOS. By baking hyperlocal messaging into the operating system and letting apps send push notifications seamlessly, iBeacon and similar capabilities in Android promise to make hyperlocal marketing a much bigger reality." Even if you are not pushing offers to willing consumers, a big initial contribution of hyperlocal tracking may be improved analytics rather than proximity messaging.

- Macy's, an early adopter of Proximity Marketing, announced in September that it will be rolling out the technology to all of its stores after a successful pilot last holiday season. Shopkick 's shopBeacon technology, an enhanced mobile location-based feature built upon Apple's iBeacon, will be placed inside certain store departments and allow Macy's to send personalized department-level deals, discounts, recommendations and rewards to customers who opt-in to receive the offers.

In addition, brands such as Coca-Cola, Procter & Gamble, Levi's and Kraft have implemented InMarket's version of the technology. InMarket has reported that interactions with advertised products increased 19 times and in-store app usage was 16.5 times higher for users who received a beacon message. In casinos, beacons can be placed at the entrances to engage customers as they enter (or exit) the casino. Further, beacons can be placed in the slots and ER gaming area, the poker room, the gaming tables, the bars and restaurant. This allows casino operators to engage with customers depending upon their gaming and visitation behaviours. A large casino in Las Vegas is using Proximity Marketing to tailor messages to customers of all types. For example, someone could enter who is not a member of their players club, and a reminder could be sent on the benefits of joining and instructions on where to sign up. On the flip side, VIP customers could come in and be sent a welcome greeting. In addition, VIP hosts could be alerted and meet the VIP guests with their favourite drinks.

The Future Of All Business: Proximity, Scale And Business Model Innovation

We are witnessing the beginning of a proximity onslaught. Emerging technologies and new business models enabling companies to *produce and provide products and services ever closer to the moment of demand.* Rooftop solar installations producing energy on site. 3D printing generating increasingly complex products at locations far smaller than traditional industrial facilities. Delivery drones plying our roads and skies. All of these technologies and others, from artificial intelligence and blockchain to Internet of Things and cloud, enable us to distribute

sensing, intelligence, decision making, production and transactions to ever more granular and numerous locations across the economy. This access to every moment in time and space offers opportunities to serve customers in ways never before envisioned (Kumar, S., 2023). This isn't new. Innovations such as "just-in-time" inventory or the photocopier enabled proximity. The difference today is the magnitude and velocity of the trend. Over the next couple of generations, proximity will create Schumpeterian "gales of creative destruction" remaking *every* industry. An axiom explains this trend: customers want what they want, where and when they want it. The limiting factor has not been a lack of desire but a lack of capabilities. Businesses simply *couldn't* competitively produce and provide most offerings at the moment of demand. This is changing. Proximity presents profound implications for business. Here we'll explore two-- scale and business model change— and suggest paths forward.

Scale Ain't What It Used To Be

Proximity changes the competitive relevance of scale. Some pundits argue that technologies such as 3D printing or crowdfunding hand the advantage to individual entrepreneurs or smaller companies— a simplistic assessment. While Uber was small when founded in 2009, it's not small today. Few of the thousands of companies attempting to leverage Uber-like models will succeed. Rather than advantaging small entrepreneurs, technologies that enable proximity exchange traditional heft for new forms of scale. Uber's version of scale confers convenience and coverage. A user can access the same platform in hundreds of cities worldwide. Scale still matters, but for different reasons. We today have a global industrial supply chain optimized for scale manufacturing at a distance. Generally, larger plants equal lower costs. Additive manufacturing will challenge traditional scale advantages particularly in cases where low production runs and/or local responsiveness add value, or where goods currently travel great distances. Consider that perhaps 20% of plastic automotive replacement parts cost more to transport than to manufacture. With a 3D printer, a dealer or consumer could hypothetically download a design file and hit print. Where on-site, on-demand production offers customer value, supply chains will transform. Today, 3D printing capabilities and infrastructure are limited. Change over the next few years will be modest. Over the 10 to 20-year horizon, an array of products will succumb to additive manufacturing. Networked, distributed production will gradually complement or replace massive plants, though the transition won't be linear. For many products, massive plants will continue to dominate for years. In other cases, large 3D printer farms might win. Still others will leverage numerous distributed, small-scale production capabilities, owned by themselves or others, benefiting from a *scale of access* rather than scale

of ownership. Hybrid models offer a path for incumbents. Continue optimizing traditional assets while simultaneously experimenting with production closer to demand. Those that do so are more likely to be ready when their customers are (Kumar, S., 2023). The transition will be difficult. Substituting new distributed production capacity for existing capacity negatively impacts asset utilization, a key performance metric. But those who don't make the tough choices risk failure. Christensen shared the case of large integrated steel manufacturers failing to address the rise of minimills. A similar dynamic will occur across a wide swath of manufacturing. Established players with longer strategy horizons will be able to phase in distributed manufacturing capacity, perhaps instead of adding traditional capacity. Some players might decide to focus on defending core, traditional capacity, but why risk an "all-in" strategy if you don't have to? When paradigms truly shift, defending tradition rarely prevails.

New Worlds, New Requirements

Any robust proximity strategy must include a capability foreign to most enterprises: business model agility. Exploring and scaling business models on an ongoing basis. In the 19th century, chemical industry pioneers BASF and DuPont invented the corporate R&D lab. What we might call the *business model lab* represents a 21ˢᵗ Century analogue, not replacing but complementing R&D. Ecosystems like Silicon Valley and Israel have succeeded in part because of widespread experimentation with new models. Start-up accelerators like Techstars or Y Combinator and innovation ecosystems like 1871 in Chicago are essentially business model labs, rapidly iterating combinations of technologies and business designs. Smart incumbents are becoming more aggressive at such experimentation. GE created FastWorks to bring the power of start-up culture in to its centi-billion -dollar enterprise. FastWorks enables rapid product and business concept iteration with customers even in heavy industry or regulated environments like power generation and healthcare. It's a challenging cultural evolution that their CEO, Jeff Immelt, and Vice Chair, Beth Comstock, have personally championed. They know it's essential for GE's future.

Proximity As Foresight

Most businesses consider how new technologies might help them do what they already do, just better. This isn't enough. The more potent opportunities and threats arise from technologies enabling what was hitherto impossible. Alas, it's tough envisioning what has yet to arise. An exercise with proximity can help. First, consider your company's offerings. What is their *value* for your customers? Not your specific products or services, but their value to

customers and/or their customers. Now if we imagine 20 years from now. Assume that this value can be completely produced and provided proximate to demand (Kumar, S., 2023). For the exercise, don't argue about whether this will be possible. *Assume* it will be so. How might your industry look different? How might your company fit within this new world? Many companies will find their current offerings marginalized or irrelevant. Under Johnson's leadership, Castrol went from strength to strength, but he knew that in the future some customers might no longer need lubricants (e.g.—electric vehicles require no engine oil). In 2010, Johnson challenged his team to consider, "How will Castrol make money when people no longer need lubricants?" Castrol identified opportunities and built a portfolio of relevant projects— options on the future—through their corporate venturing arm, Castrol Innovators.

Looking through three lenses

Proximity marketing is evolving so rapidly and its capabilities are expanding in so many directions that even those companies whose campaigns are now delivering robust results cannot rest. Whether companies are just beginning to explore this new marketing medium, are looking to stay current, or want to get out in front of the competition, in order to determine the best approach — the most compelling message and the technology that will deliver it most effectively — they should evaluate their proximity marketing strategy through three interconnected lenses: business, experience, and technology (Kumar, S., 2024). Begin by articulating your business goals: How can proximity marketing help you identify and leverage the right opportunities to drive growth and profitability within your organization's operating model? Then define the elements of an effective customer experience: How can you create an emotional connection with consumers that fuses the best of both the physical and the digital realms? Finally, understand the technology needed to enable your strategy and realize your goals: What technologies already exist in your organization and which new technologies should you invest in to shape, support, and complement the overall capabilities of the campaign? How can technology enable more data-driven decision making and real-time optimization of the experience?

Result & Findings : Connecting across multiple channels

This three-dimensional approach can help marketers figure out how they can most effectively tell a brand story to a targeted audience through a specific medium.;

Figure 1: Conceptual Model for three-dimensional approach to proximity marketing
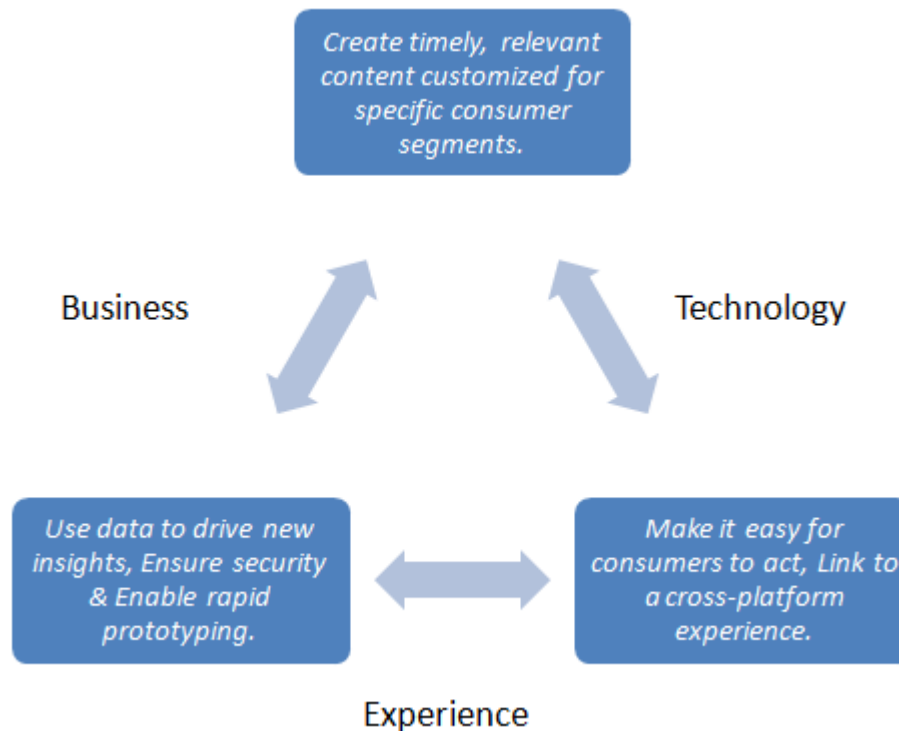
Business

• *Create timely, relevant content customized for specific consumer segments.* A thorough understanding of consumer market segments is necessary for marketers to identify gaps in their overall marketing campaigns and ensure that the content of each marketing medium's messages meets specific consumers' needs. Once marketers have a comprehensive picture of consumers' preferences and behaviours, they can use proximity marketing to deliver the right message to the right consumer at exactly the right time. For example, a casino might track its VIP guests through a relationship marketing program. When guests arrive, they could be offered a welcome greeting as well as promotions for specific gaming and entertainment experiences based on their previously tracked behaviour. On the flip side, VIP hosts could be alerted when those guests are in the house and meet them with their favourite drinks and personalized service.

Experience

• *Make it easy for consumers to act.* Proximity marketing is fundamentally a call to action. Persuading a consumer to engage starts with a message that not only meets brand guidelines

but is easily comprehensible on a smart device (Kumar, S., 2024). Wording must be clear and concise, especially given the limited real estate on mobile devices, and it must connect the consumer to other media channels in a way that aligns to the content strategy. For example, a retailer and a consumer packaged goods company might collaborate on an email campaign to send consumers digital coupons for a specific brand of snacks. Once the consumer is in the store, the retailer could leverage proximity marketing to entice the consumer to buy a related product from the same manufacturer. Brands such as Coca-Cola, Procter & Gamble, Levi Strauss, and Kraft Foods reported that the number of interactions with advertised products increased 19 times and in-store app usage was 16.5 times higher for users who received a proximity marketing ping on their mobile device. However, the most compelling message will go nowhere if consumers can't opt in easily. Reducing the opt-in steps in a recent proximity marketing pilot helped a consumer packaged goods company that sells to convenience stores increase offer downloads by 25 percent.

• *Link to a cross-platform experience.* Proximity marketing provides the greatest impact when integrated into a cross-media program for branding, product, and/or service offerings that supports end-to-end consumer experiences. To succeed, businesses must bridge the silos of physical and online engagement. For example, Nordstrom alerts consumers who recently shopped online and are now near a store to let them know if any of their unshipped products are available for immediate pickup at the store. By integrating online functions with brick-and-mortar capabilities, Nordstrom can provide a uniform and seamless experience for the consumer.

Technology

• *Use data to drive new insights.* Big data analytics and artificial intelligence can help companies collect and analyze exact consumer profiles and map them to geographic locations to identify patterns, gain insights, and make meaningful offers at exactly the right time and place. The collection of data combined with predictive analytics allows companies to detect opportune situations and increase the likelihood of engagement and conversion; advanced programs can take advantage of prescriptive analytics to suggest a course of action, automate immediate actions, and dynamically adapt to consumers' evolving behaviours. As they drill down through customer segments, marketers can use cohort analysis to compare how different groups, or cohorts, of consumers behave over time. This provides a quick and clear insight into customer trends, such as how the latest customers compare with those from several years ago,

or whether consumers who joined a loyalty program over the holiday season or in response to a promotion are as active as those who joined at other times (Kumar, S., 2024). Marketers can further use cohort analysis to continuously optimize their targeting to consumers, calls to action, and content of campaigns, thereby improving ROI with every new iteration. By measuring the content and frequency of engagement, the analytics engine can predict whether the consumer will opt in, remain engaged, and ultimately convert an impulse into action.

• *Ensure security.* From small pilots to nationwide rollouts, the security of consumers, the businesses, and the associated data must be a top concern. Management and security policies must reflect the fact that the success of proximity marketing campaigns depends on providing seamless, real-time data connectivity to all smart devices. Security protocols cannot be specific to a single device, but must span the entire connectivity ecosystem.

• *Enable rapid prototyping.* Because proximity marketing is still evolving, prototyping is necessary to determine how each business can best meet consumers' needs. Pilots should focus first and foremost on the following questions: How do we entice the consumer to opt in? How and where do consumers want to receive messages and how frequently? How can we encourage continued platform use and brand loyalty? Rapid prototyping enables businesses to evaluate different technologies and types of messages, adapt quickly, and learn the most effective methods of engaging consumers. Using rapid prototyping in conjunction with cohort analysis allows businesses to customize their proximity marketing to different consumer segments quickly and efficiently.

Conclusion

Proximity Marketing has tremendous revenue-producing potential, allowing everything from retailers, hotels, casinos and more, to deepen their connection with consumers, encourage more loyalty and greatly improve the customer experience. Importantly, all of these factors combine to make Proximity Marketing a very effective tool to generate higher ROI for businesses and advertisers. As a natural evolution in the trend toward targeting consumers with personalized, timely, and geographically precise messages, proximity marketing can significantly enhance a company's overall direct-to consumer engagement strategy (Kumar, S., 2024). By using mobile communication as the bridge between physical and digital experiences, proximity marketing is a valuable and effective tool to deepen the connection with consumers and generate higher ROI for marketers. However, it is clear that its deployment is more complex than initially imagined. Success requires fusing multiple perspectives across business, experience, and technology,

rather than treating these as discrete challenges managed separately or sequentially. When companies evaluate their proximity marketing strategy through these three interlocked lenses, they will progress out of doing ad hoc promotional campaigns that don't fully scale and into building market-leading capabilities that will pay off at every point of the consumer–marketer relationship.

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BEYOND THE OLD MODEL: A NEW VISION FOR COOPERATIVE DEVELOPMENT

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Abstract

The cooperative sector in India, encompassing over 8.32 lakh registered cooperative societies with more than 32.8 crore members as per the most recent National Cooperative Database, is at a pivotal juncture. These societies operate across some 30 sectors ranging from housing, dairy, agriculture, credit & thrift, to multipurpose and women-led cooperatives. Despite this vast reach and deep social footprint—nearly 20-25% of the rural households engage with or rely upon cooperative institutions for credit, marketing, storage, or input supply—the traditional cooperative model faces mounting challenges in a rapidly transforming economic and social landscape. On one hand, cooperatives continue to contribute substantially: the sector is estimated to generate approximately 5.5 crore direct jobs and 5.6 crore self-employment opportunities by FY 2030, playing a critical role in India's quest for inclusive growth and rural prosperity. On the other hand, weaknesses in governance, lack of technological adoption, and limited inclusion of youth, women, and marginalized communities threaten to limit cooperatives' future relevance and impact. Recognizing this, the article employs a conceptual-analytical methodology, drawing upon recent official government data, sectoral reports, and comparative international experiences to outline a forward-looking cooperative development model. Major themes addressed include innovation (digital transformation of primary agricultural credit societies, e-governance, MIS systems), governance reform (transparent decision-making, professional management, audit and member oversight), inclusivity (stronger participation of women, youth, disadvantaged castes), and sustainability (environmental responsibility, economic viability, integration with value chains). Key policy implications emerging from this analysis emphasize the urgent need to strengthen the National Cooperative Database for real-time and scientific mapping of cooperatives; modernize primary cooperatives through technology, capacity building, and financial reforms; enact governance reforms to

reduce political interference and increase accountability; foster networks and institutional linkages (between cooperatives, FPOs, MSMEs) to achieve economies of scale; and promote inclusive and sustainable cooperative enterprises that advance social equity while responding to market dynamics. These reforms are not only necessary for cooperatives to retain relevance but essential for them to act as engines of economic development, social cohesion, and empowerment in the coming decade.

Keywords: Cooperative Development, Inclusive Growth, Governance Reform, Innovation, Human Capital, Digital Transformation, Sustainability, Empowerment

Introduction

The cooperative movement in India has played a transformative role in shaping the country's socio-economic landscape since its formal inception through the Cooperative Societies Act of 1904. Rooted in the principles of mutual aid, democratic control, and collective ownership, cooperatives have historically empowered millions of small farmers, artisans, and rural workers. Today, India stands as the largest cooperative network in the world, with more than 8.32 lakh registered cooperative societies and over 32.8 crore members (Ministry of Cooperation, 2024). These institutions operate across 30 distinct sectors—ranging from agriculture and dairy to housing, fisheries, textiles, and credit—and have been instrumental in promoting rural development and financial inclusion. Landmark success stories like Amul (dairy), IFFCO (fertilizers), KRIBHCO (agriculture), and the vast network of Primary Agricultural Credit Societies (PACS) underscore how cooperatives have fostered self-reliance and collective entrepreneurship in India's rural economy. According to NABARD (2023), the cooperative credit structure contributes nearly 20% of the total agricultural lending, while the dairy cooperative sector accounts for 35% of India's total milk procurement, directly supporting over 1.5 crore rural households.

Despite their historical success, the cooperative sector now faces a complex set of challenges arising from globalization, digital transformation, and generational shifts. Increased market competition, private sector dominance, declining youth engagement, and the digital divide have exposed the sector's structural limitations—particularly in governance, technology adoption, and professional management. Many primary-level cooperatives continue to rely on outdated operational models, weak financial systems, and limited accountability mechanisms. In the context of India's aspirations for Viksit Bharat @2047, there is an urgent need to redefine the

cooperative purpose and process to align with the realities of a knowledge-based, innovation-driven economy. The objective of this paper is to conceptualize a new cooperative development model that emphasizes inclusivity, innovation, and institutional reform. The study adopts a conceptual-analytical approach using contemporary data, policy frameworks, and best practices to propose actionable strategies for revitalizing cooperatives as engines of inclusive growth. By focusing on governance modernization, human capital enhancement, digital integration, and sustainability, the paper aims to outline a roadmap for making cooperatives future-ready and central to India's long-term development vision.

Conceptual Framework: Rethinking Development through Cooperation

The emerging global consensus on development emphasizes a shift from narrow, growth-centric models toward human-centered, inclusive, and sustainable development, aligning with the United Nations Sustainable Development Goals (SDGs 2030). In this evolving paradigm, cooperatives represent a unique institutional mechanism that integrates economic efficiency with social equity. The International Cooperative Alliance (ICA) defines cooperatives as "autonomous associations of persons united voluntarily to meet their common economic, social, and cultural needs through a jointly owned and democratically controlled enterprise," a vision that inherently promotes social capital formation and participatory democracy. In India, with more than 32.8 crore members connected through diverse cooperative societies, the sector serves as a living model of decentralized economic democracy (Ministry of Cooperation, 2024). However, the persistence of compliance-driven, bureaucratic structures has often constrained cooperatives from fulfilling their transformative potential. Many cooperatives continue to function as administrative entities rather than entrepreneurial organizations, limiting innovation and responsiveness. To remain relevant in a rapidly changing environment—defined by digital transformation, global value chains, and youth-led entrepreneurship—cooperatives must "break old moulds" and reimagine themselves as dynamic, community-driven institutions. This calls for a conceptual framework built on three interlinked pillars: People, Process, and Purpose. The People dimension emphasizes empowerment through education, skill development, gender inclusion, and leadership training—responding to the fact that less than 25% of cooperative members actively participate in governance decisions, as reported by NCDC (2023). The Process dimension focuses on transparency, technology integration, and good governance, where digital management systems, e-audits, and online member services can significantly reduce inefficiencies and

corruption. Finally, the Purpose dimension underlines the cooperative's alignment with national development goals and SDGs such as No Poverty (SDG 1), Gender Equality (SDG 5), Decent Work and Economic Growth (SDG 8), and Reduced Inequalities (SDG 10). Through this holistic framework, cooperatives can evolve from traditional service providers into catalysts of inclusive, sustainable, and locally accountable growth. Rethinking development through cooperation thus entails reorienting these institutions around human potential, innovation, and shared prosperity—making them vital partners in building a resilient and equitable economy for the 21st century.

3. The Traditional Cooperative Model: Strengths, Shortcomings, and Lessons:

The traditional cooperative model in India has historically been a cornerstone of rural and agricultural transformation, deeply rooted in community participation and self-help. Since the early 20th century, cooperatives have provided millions of farmers and small producers with access to credit, inputs, and markets that were otherwise inaccessible through formal or private institutions. Today, India hosts over 8.32 lakh registered cooperative societies covering more than 32 crore members, and their reach extends across over 90% of India's villages (Ministry of Cooperation, 2024). Landmark institutions such as Amul, IFFCO, KRIBHCO, and Nafed demonstrate the cooperative model's capacity to mobilize local resources and ensure fair returns to producers. The cooperative credit structure, which includes Primary Agricultural Credit Societies (PACS), District Central Cooperative Banks (DCCBs), and State Cooperative Banks (SCBs), contributes to nearly 20% of India's total agricultural lending, serving as the financial backbone of rural credit delivery (NABARD, 2023). In the dairy sector alone, cooperatives handle about 35% of national milk procurement, engaging nearly 1.5 crore rural households, while cooperative sugar mills account for over 35% of India's total sugar production (NCDC, 2023). These achievements underscore the model's enduring strength—its ability to pool collective resources for mutual benefit, promote grassroots democracy, and create inclusive value chains. However, despite this remarkable legacy, the traditional cooperative model faces multiple structural challenges. Many societies are plagued by weak financial management, poor governance, and political interference, which undermine autonomy and efficiency. Studies by the Reserve Bank of India (2022) indicate that over 40% of PACS remain dormant or financially distressed, primarily due to inadequate professional management and limited capital base. Furthermore, technological backwardness, poor record-keeping, and lack of digital adoption restrict competitiveness in a rapidly evolving market.

Member participation also remains low; less than one-fourth of members are active in policy or operational decisions, and women constitute only about 8–10% of cooperative board members nationwide. The aging leadership structure and minimal youth engagement further weaken institutional vitality. These shortcomings suggest that while cooperatives have succeeded in achieving social mobilization, they have not kept pace with the demands of modernization and innovation. The key lesson from this experience is clear: the cooperative movement must retain its foundational principles of equity and mutuality while embracing professional governance, transparency, and technological advancement to remain viable and effective in the 21st-century economy.

4. Emerging Challenges and Opportunities:

The cooperative sector in India is currently navigating through a period of profound socio-economic transformation shaped by globalization, rapid digitization, and climate change. The rise of the digital economy and integration into global value chains have redefined how production, trade, and finance operate, demanding that cooperatives become more agile and technology-enabled. Yet, many cooperatives, particularly at the primary level, still rely on manual systems, face limited access to capital, and lack digital literacy. According to NABARD's 2023 assessment, nearly 40% of Primary Agricultural Credit Societies (PACS) face operational or financial stress due to outdated practices and weak governance. The entry of corporate agribusinesses, large retail chains, and fintech platforms into rural credit and marketing has intensified competition, often sidelining small and medium cooperatives. Additionally, climate change and resource degradation threaten the very livelihoods that cooperatives serve, particularly in agriculture, fisheries, and dairy. Erratic rainfall, rising temperatures, and water scarcity are disrupting supply chains and increasing production risks. Cooperatives must now address these environmental and market vulnerabilities through diversification, resilience planning, and adoption of sustainable technologies. Moreover, demographic changes—especially rural youth migration to urban areas and declining interest in collective enterprises—pose long-term threats to leadership continuity and innovation within cooperatives.

Despite these challenges, the landscape also presents immense opportunities for cooperative renewal and expansion. The Government of India's Ministry of Cooperation, established in 2021, has initiated several transformative measures, including the Computerization of 63,000 PACS, the formation of National Multi-State Cooperative Societies for exports, seeds, and

organic products, and the promotion of Model Bylaws for PACS to modernize governance and business operations. Digitalization offers new avenues for efficient service delivery through e-governance, online banking, and integrated management systems, making cooperatives more transparent and competitive. Emerging sectors such as renewable energy cooperatives, agro-processing units, healthcare cooperatives, and service-based urban cooperatives provide opportunities for diversification and employment creation. The growing emphasis on sustainable agriculture and green energy aligns perfectly with cooperative values of community ownership and shared responsibility. Furthermore, as India envisions Atmanirbhar Bharat (Self-Reliant India) and Viksit Bharat 2047, cooperatives are positioned to play a pivotal role in achieving inclusive economic self-sufficiency by empowering local producers, strengthening rural supply chains, and ensuring equitable distribution of wealth. If effectively modernized, the cooperative movement can serve as the backbone of decentralized economic development—bridging the gap between growth and equity, tradition and innovation, and local aspirations with national goals.

5. A New Vision for Cooperative Development:

a. People-Centric and Inclusive Approach

At the heart of the new cooperative development vision lies the recognition that people—not institutions or capital—are the true drivers of sustainable growth. India's cooperative movement touches the lives of over 32.8 crore members, yet meaningful participation and representation remain limited, with only 25–30% of members actively involved in governance and decision-making (NCDC, 2024). To reinvigorate the cooperative spirit, emphasis must be placed on human capital development through systematic education, training, and leadership programs. The Ministry of Cooperation's initiative to computerize 63,000 Primary Agricultural Credit Societies (PACS) by 2027 underlines the need for capacity building to match digital transformation. Special efforts are also needed to include women, youth, and marginalized communities in cooperative leadership; currently, women represent only about 10% of cooperative board positions, despite constituting nearly 48% of India's population (MoSPI, 2023). Youth cooperatives, skill-based producer groups, and women's dairy or handicraft cooperatives can drive innovation and entrepreneurship at the grassroots. By promoting cooperative entrepreneurship through incubation centers and linking cooperatives with start-up ecosystems, employment generation can be expanded in non-traditional sectors such as

services, renewable energy, and digital marketing, fostering a new generation of empowered cooperative leaders.

b. Governance and Institutional Transformation

Strong governance and institutional accountability are essential for transforming cooperatives into efficient, transparent, and resilient organizations. Many cooperatives continue to operate under outdated statutes, with weak internal controls and limited professional oversight. According to NABARD (2023), about 40% of rural cooperatives face financial stress due to governance inefficiencies and poor record-keeping. Reforming this requires strengthening autonomy, professionalism, and accountability. Governance restructuring should introduce competency-based representation in boards—where members are selected not merely by election but based on expertise in finance, technology, or management. The introduction of digital transparency mechanisms—such as e-audits, real-time Management Information Systems (MIS), and online voting platforms—can drastically reduce manipulation and corruption. The success of cooperative digital platforms in states like Gujarat, Maharashtra, and Kerala demonstrates how digital tools can improve member communication, grievance redressal, and operational efficiency. Moreover, the establishment of a National Cooperative Database and Unified Cooperative Portal by the Government of India offers an opportunity for evidence-based decision-making and performance benchmarking across the sector. Institutional transformation should therefore balance democratic participation with professional efficiency—ensuring that cooperatives are both accountable to members and responsive to market dynamics.

c. Innovation and Technology Integration

The next frontier for cooperative revitalization lies in embracing innovation and digital technology to enhance productivity, competitiveness, and outreach. As India rapidly transitions to a digital economy, cooperatives must leverage Information and Communication Technology (ICT), mobile apps, and e-services to remain relevant. The computerization of PACS is projected to connect nearly 63,000 rural credit societies through a unified cloud-based system, enabling seamless data sharing with District Central and State Cooperative Banks (Ministry of Cooperation, 2024). Digital credit systems, online payments, and cooperative e-marketplaces can help members access credit, insurance, and marketing platforms at lower costs. Successful examples such as Amul's online supply-chain network, IFFCO's Nano Urea innovation, and e-

NAM linkages with farmer cooperatives illustrate how technology can expand market access while enhancing transparency. Furthermore, cooperatives can collaborate with start-ups for developing agri-tech, fintech, and data-driven tools, using analytics for yield forecasting, input optimization, and market intelligence. Encouraging digital literacy among cooperative members will ensure inclusivity and prevent a rural digital divide. The formation of "Smart Cooperative Clusters" integrating primary, district, and apex-level societies through real-time data sharing can further strengthen cooperative resilience and service delivery.

d. Sustainability and Social Impact

A modern cooperative vision must align with environmental sustainability and social responsibility, recognizing that economic growth cannot be pursued in isolation from ecological well-being. Cooperatives play a vital role in promoting sustainable agriculture, renewable energy, and waste management. For instance, India's 12,000 dairy cooperatives contribute significantly to low-carbon rural livelihoods by promoting decentralized production and circular use of resources (NDDB, 2023). Similarly, emerging solar energy cooperatives in states like Gujarat and Maharashtra have demonstrated how collective ownership models can reduce energy costs while contributing to climate resilience. Integrating circular economy principles—such as recycling, organic farming, and local resource optimization—can further reduce ecological footprints. On the social front, cooperatives strengthen local resilience by ensuring food security, fair pricing, and community welfare, particularly during crises such as the COVID-19 pandemic, when cooperative credit and dairy societies provided vital support to rural households. Embedding Sustainable Development Goals (SDGs)—especially SDG 8 (Decent Work), SDG 12 (Responsible Consumption), and SDG 13 (Climate Action)—within cooperative operations ensures that they contribute directly to both local and global sustainability agendas. Thus, the cooperative of the future must balance profitability with purpose, transforming itself into a driver of inclusive, equitable, and sustainable growth.

6. Global Experiences and Learnings:

Across the world, cooperatives have proven to be resilient, people-centered business models that balance economic performance with social responsibility, offering valuable lessons for India's cooperative transformation. Globally, there are over 3 million cooperatives with more than 1 billion members, collectively providing employment to nearly 280 million people—about 10% of the global employed population (International Cooperative Alliance, 2023). The

Mondragon Corporation in Spain stands as a model of worker-owned industrial innovation, encompassing 95 cooperatives and over 80,000 employees, with annual revenues exceeding €14 billion (Mondragon Report, 2023). Its success lies in participatory governance, reinvestment in education, and a culture of shared innovation. Similarly, the Rabobank Group in the Netherlands evolved from small farmer credit cooperatives into one of the world's top financial institutions, maintaining cooperative ownership while serving more than 9 million clients in 40 countries. Its cooperative banking framework demonstrates that professionalism and global competitiveness can coexist with community accountability. In Japan, the Japan Agricultural (JA) Cooperatives serve over 9 million farm families, integrating input supply, production, processing, and marketing under a unified cooperative system—ensuring both efficiency and member welfare. The Cooperative Federation of Denmark (Danish Dairy Board) and Canadian Cooperatives (such as Federated Co-operatives Limited) highlight how collaboration, branding, and technology adoption can secure a strong global presence. The key lessons emerging from these international experiences emphasize the need for professional governance, continuous innovation, and reinvestment in human capital. These successful models demonstrate that cooperatives can thrive in competitive markets when they adopt transparent governance structures, modern financial management, and technology-based operations while retaining their democratic ethos. Importantly, many countries have institutionalized cooperative education—such as the Basque Cooperative University (Spain) and Cooperative College (UK)—to nurture leadership and research capacity, an area where India can learn and adapt. Furthermore, the integration of cooperatives into national digital economies through e-platforms, value chain linkages, and sustainability certification has enhanced their credibility in international markets. For India, global experiences underscore the urgency of reorienting cooperatives toward professionalism, innovation, and inclusivity. By aligning with international standards of governance and sustainable practices, Indian cooperatives can transform themselves into globally competitive, locally empowered enterprises capable of contributing both to national economic resilience and the global cooperative movement.

7. Policy Recommendations and Implementation Strategies:

To make cooperatives future-ready and resilient, a comprehensive framework for modernization, digital governance, and institutional strengthening is imperative. The modernization of the cooperative ecosystem should begin with full implementation of the

Computerization of 63,000 PACS Project, which aims to link these societies with District Central Cooperative Banks and State Cooperative Banks through a unified digital platform under the National Cooperative Database. This will enable data-driven decision-making, real-time monitoring, and transparent record management. A National Framework for Digital Cooperatives should be developed to standardize ICT adoption, data governance, and cybersecurity protocols across sectors. Furthermore, education and research institutions such as the National Cooperative Union of India (NCUI), Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM), and State Institutes of Cooperative Management (ICMs) should be upgraded as *Centers of Excellence* to promote capacity building, policy research, and digital literacy. Introducing cooperative education and entrepreneurship modules in universities, especially under the National Education Policy (NEP 2020), can cultivate a new generation of cooperative leaders. Strengthening cooperative training through blended (online-offline) platforms and linking it with digital finance, marketing, and governance will help bridge skill gaps among cooperative personnel and members.

Financial and structural reforms are equally essential for cooperative sustainability. The government should encourage diversified funding models, including cooperative venture funds, CSR-based financing, and credit linkages with commercial and regional rural banks. Cooperative banking reforms must aim to improve capital adequacy, risk management, and prudential supervision—areas identified as weak by RBI and NABARD studies. Encouraging public–private partnerships (PPPs) in cooperative entrepreneurship can foster innovation in sectors like agri-processing, renewable energy, and rural logistics while maintaining cooperative ownership. Simultaneously, performance-based incentives should be introduced for cooperatives demonstrating good governance and social impact. Monitoring and evaluation systems must be institutionalized through Cooperative Management Information Systems (MIS) and Social Audit Frameworks to ensure transparency, accountability, and evidence-based policy correction. A national-level Cooperative Policy Think Tank could coordinate between ministries, states, and apex bodies to harmonize regulatory frameworks and drive innovation. By integrating technology, education, finance, and accountability, these policy measures can transform India's cooperative movement into a modern, self-sustaining, and inclusive engine of rural and national development.

Conclusion

The cooperative sector in India today stands at a decisive crossroads—caught between the legacy of its social mission and the urgent need to adapt to the demands of a rapidly evolving economy. With more than 8.32 lakh registered societies and over 32.8 crore members, cooperatives represent the world's largest people-owned network, touching nearly every facet of India's rural and semi-urban life (Ministry of Cooperation, 2024). Yet, their survival and growth now depend on how effectively they can reimagine themselves as agile, innovation-driven, and inclusive institutions. Preserving the cooperative ethos of equity, participation, and mutual trust is essential, but these values must be integrated with modern management practices, data-driven governance, and technological innovation. In an era where economic systems are increasingly digital and globalized, cooperatives must embrace modernization without losing their human-centric foundation. The success stories of Amul, IFFCO, and several PACS computerization initiatives show that when cooperatives adopt transparency, innovation, and professional management, they not only sustain themselves but also emerge as models of participatory development. Reimagining cooperatives, therefore, calls for a multidimensional transformation—empowering people through education and skill development, ensuring gender and youth inclusion, promoting sustainability through green initiatives, and strengthening governance through digital tools like e-audits and MIS systems. Such reform will enable cooperatives to play a crucial role in achieving India's vision of "Viksit Bharat @2047", where prosperity is equitable and community-driven. Furthermore, aligning cooperative strategies with the Sustainable Development Goals (SDGs)—particularly those related to poverty reduction, gender equality, decent work, and climate action—can position India's cooperatives as key agents of inclusive global progress. The future of the cooperative movement lies in its ability to move *beyond the old model*—from traditional, compliance-bound entities to inclusive, technologically empowered, and globally connected institutions that bridge economic opportunity with social justice. By building on their collective strength and renewing their commitment to innovation and good governance, cooperatives can truly become engines of balanced, resilient, and sustainable development, ensuring that the benefits of growth reach the last person in the value chain while upholding the democratic spirit that defines the cooperative ideal.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE ON PERSONALIZATION IN DIGITAL MARKETING

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Abstract

Marketing efforts in the digital age have moved from basic mass communications to highly targeted, individualized, and engaging strategies. The use of Artificial Intelligence (AI) technology into digital marketing techniques has made this change feasible. This study explores the influence of artificial intelligence (AI) on marketers and customers, as well as the critical role AI plays in customizing digital marketing strategies.

The digital marketing environment has seen a notable shift in recent times due to the extensive use of Artificial Intelligence (AI) into campaign plans. The process of comprehending consumer preferences, behaviors, and purchasing patterns has been expedited by this capacity. Businesses may now adjust their ads to each individual consumer's specific demands and interests by combining AI-driven marketing with state-of-the-art technology.This study examines the complex processes by which artificial intelligence (AI) provides customization in digital marketing. The data was collected from 200 customers as users of AI and henceforth was Applied to test impact of AI on customer experience (CEP) & Marketing Strategy Optimization (MSO) . The findings reveal that AI exerts a positive impact on CEP & MSO. In

conclusion the research paper offers a comprehensive analysis of the evolving synergy between AI and digital marketing personalization inculcating benefits of Customer Experience & . It underscores the potential of AI to revolutionize marketing practices while prioritizing responsible use of consumer data. By bridging the gap between technology and consumer expectations, AI-driven personalization will redefine the future of digital marketing.

Keywords- Digital marketing campaigns, Artificial intelligence, AI in marketing, AI driven recommendation

Introduction

The market is a gathering place for buyers and sellers, and marketing is the strategy employed by companies to inform their clientele about the goods and services they have to offer. It's a strategy for drawing clients in and educating them about the advantages, worth, applications, and other details of the goods and services the company provides. With the rapid advancement of technology, traditional marketing strategies have given way to digital marketing tactics, which largely use the internet to draw in clients and disseminate pertinent information about a company's goods and services. Maintaining relevance and interacting with customers in the changing world of digital marketing has become a challenging task.With its large audience and often evolving trends, digital space need a strategy that transcends beyond the notion of a one-size-fits-all campaign. This calls for a paradigm change in marketing tactics, one that values uniqueness within the large digital audience. Artificial intelligence is a strong ally in this move. By targeting the appropriate customers at the right moment, digital marketing combined with artificial intelligence is already transforming the future of company marketing. Artificial intelligence seeks to render computers and other devices as intelligent as people in this day and age so they can compete with human minds. Practically every industry is being overtaken by artificial intelligence.

A new age has begun with the convergence of AI and digital marketing, one in which customization and accuracy are practical realities rather than just ideals. Artificial Intelligence (AI) has the potential to revolutionize digital marketing by creating a hyper-personalized environment where every customer encounter is customized and unique. These days, AI's computational capabilities have made it possible to understand the intricacies of customer behavior, preferences, and attitudes. This study examines the mechanisms by which artificial intelligence does customization, analyzing the tools and systems that enable this breakthrough.

AI-powered marketing goes beyond conventional strategies, from anticipating customer demands to curating tailored content.

The secret to understanding the complexities of human preferences, behavior, and wants lies in artificial intelligence (AI), which is capable of processing and analyzing data at a scale that is larger than that of humans. It gives advertisers the ability to move beyond generic mass marketing and into highly tailored, one-to-one interactions. By discussing the psychology of customized marketing and how it helps to forge closer ties between companies and customers, we hope to bridge the gaps between the domains of technology, marketing, and ethics. It explores how, in this age of digital disruption, businesses must not only remain relevant but also create deep, lasting relationships with their consumers.

Digital Marketing and AI Artificial Intelligence

With the advent of the digital age, marketing has entered a revolutionary phase characterized by unparalleled access to massive amounts of data, a profusion of avenues for interaction, and an ever-expanding client base. Companies that have successful marketing strategies are utilizing a range of emerging technologies and tools to develop and improve their marketing plans in order to support marketing initiatives that are customized to the shifting preferences and needs of their target audience. They are also making sure that data analytics is used to analyze the needs and desires of their target audience. In this setting, artificial intelligence (AI) has become a potent catalyst that is altering the landscape of digital marketing and ushering in a period of unprecedented customization.

In many respects, artificial intelligence is essential to raising the bar for digital marketing practices. It enables marketers to improve their tactics, streamline their campaigns, and provide better outcomes. AI algorithms can swiftly and effectively analyze vast amounts of data, providing marketers with insights on the behavior, preferences, and trends of their clientele. AI allows marketers to develop highly customized marketing campaigns by creating offers and content suggestions specifically for each unique consumer based on their prior interactions and behavior. Because AI can forecast consumer behavior, businesses may proactively target potential consumers with offers or related content.

It is assisting marketers in creating targeted operations for various audience segments by significantly contributing to the division of enterprises into unique groups based on shared features. Artificial intelligence (AI)-powered chatbots and conversational marketing solutions

improve client engagement by offering real-time customer service, answering questions, and guiding users through the buyer's journey.

Additionally, AI-powered voice as well as visual search features make it easier for consumers to access information and items. It also assists in identifying and avoiding click fraud and ad fraud, safeguarding marketing budgets from unnecessary expenditure.

Artificial Intelligence provides marketers with insights about client journeys and pain spots, as well as potential for personalization. Ad targeting, bidding, and creative components are optimized by AI when combined with digital marketing tools and approaches to maximize return on investment and minimize wasteful spending. Above all, AI gives marketers instantaneous insights into the effectiveness of their campaigns, enabling them to make data-driven choices and quickly modify their plans. Digital marketing systems are changing because of artificial intelligence (AI), which improves automation, customization, and targeting. Search engine optimization, email and social media marketing, content marketing, data analysis and interpretation, customer relationship management, and predictive analytics are some of the major facets of digital marketing that are benefiting from artificial intelligence.

AI's advantages for customized marketing

Artificial intelligence (AI) in digital marketing sales is providing previously unheard-of chances for all vendors serving small and local companies. Artificial intelligence (AI) supports corporate success by adding a new layer to customized marketing, from customizing experiences to engaging audiences on an individual basis. Allow us to walk you through the benefits of using AI in customized marketing and offer sales professionals like you useful information to improve your tactics.

Defined for Personalized Marketing

Customizing tactics and content to each unique customer's requirements and preferences is the foundation of personalized marketing. It all comes down to giving each customer a special, tailored experience that will strengthen the bond between them and increase the chances of conversion and return on investment. All things considered, customized marketing is a move toward customer-centric marketing tactics that give target audiences' unique requirements and preferences first priority.

Acquiring Mastery over Artificial Intelligence

Artificial intelligence, or AI, is the emulation of human intellect in computers. It allows robots to do activities like learning, thinking, solving problems, and understanding natural language that would typically need human intelligence. Artificial intelligence (AI) systems can scan enormous volumes of data in marketing to find trends, forecast behavior, and streamline decision-making.

The Synergy: AI's Advantages for Personalized Marketing

Improved Understanding of Customers

AI gives companies the ability to learn in-depth details about the interests, behavior, and past purchases of their customers. Salespeople may grasp the unique client journey by examining data from several touchpoints. This allows them to customize their approach according to prior encounters and personal preferences. Predictive analytics is essentially how artificial intelligence (AI) affects customized marketing; machine learning algorithms evaluate past data to anticipate future customer tendencies. Personalized marketing is essentially revolutionized by AI, which gives companies the insights and instruments they need to understand, predict, and cater to the specific wants and preferences of each individual consumer.

Hyper-Personalization to Get the Most Out of It

Hyper-personalization is made possible by the use of generative AI, which advances personalized marketing. Every consumer encounter can be made to be extremely relevant with the help of generative AI, which can produce dynamic and original content in real time. This degree of customization raises conversion rates in addition to engagement. How? Well, AI can find connections between many data, like past purchases, surfing habits, demographics, and psychographics, thanks to machine learning algorithms. Reps may give highly tailored information by segmenting their consumers into highly targeted groups by recognizing these trends. Additionally, AI-powered systems can comprehend the purpose and sentiment of their customers thanks to natural language processing and sentiment analysis, which enables companies to instantly customize their suggestions and answers.

Enhanced Productivity via Automation

When it comes to selling and marketing to small and local companies, time is of the key. Automating repetitive processes, including social media postings, email marketing, and client segmentation, with AI power helps save time and effort. AI saves representatives a lot of time and resources by analyzing massive information fast and making data-driven decisions in real time. In summary, this automation frees sellers and marketers from having to perform labor-intensive human data analysis, freeing them up to concentrate on creating customized campaigns and plans for each category.

Enhanced Client Experience

AI helps sales teams find possibilities for improvement and uncover pain areas by analyzing consumer behavior at every touchpoint. Salespeople and knowledgeable marketers may optimize marketing efforts by comprehending the customer journey, which will result in a more seamless and fulfilling experience for their clients. The field of digital marketing is and will always be competitive. Thus, it's critical to remain current while implementing sensible solutions. Personalized marketing that uses AI to its full potential is not only a fad, but a calculated step in the right direction. Salespeople may present themselves as dependable partners involved in the success of small and local firms by embracing these techniques. The combination of AI and customized marketing truly opens up a world of possibilities.

Evaluating AI's Impact on Marketing Effectiveness

The use of Artificial Intelligence (AI) into marketing tactics has transformed the way firms interact with their audiences in the current digital era. Evaluating how AI affects marketing effectiveness is one of the most important parts of this shift. Artificial Intelligence (AI) technology, driven by big data analytics and machine learning algorithms, have made it possible for marketers to improve consumer experiences, optimize workflows, and increase overall marketing efficiency. This section explores the main areas where artificial intelligence has improved marketing efficiency.

Predictive analytics and data analysis: Robust data analysis is a major way AI improves marketing efficiency. Massive volumes of data may be processed in real time by AI algorithms, which can then be used to extract insightful information about consumer behavior, preferences, and market trends. AI-driven predictive analytics is able to anticipate future trends and

customer behavior by evaluating past data. These forecasts may help marketers make well-informed judgments, improve their marketing plans, and more effectively use their resources.

Personalization and Customer Segmentation: With the use of AI, marketers can now develop highly targeted and customized advertising campaigns. AI can analyze consumer data using sophisticated algorithms to identify trends and divide audiences according to a range of criteria, including behavior, demographics, and preferences. By using this segmentation, marketers are able to customize their offerings and determine which client categories are more receptive to their messaging, promotions, and products. Personalized marketing maximizes marketing efficiency by raising consumer engagement levels and improving conversion rates and client loyalty.

Chatbots and Customer Support: AI-powered chatbots are becoming indispensable tools for offering round-the-clock customer service. These chatbots can respond to inquiries from customers, comprehend natural language, and assist consumers with the buyer's journey. Chatbots free up human resources by answering regular questions and chores, enabling marketers to concentrate on more strategic and innovative areas of marketing efforts. This automation increases overall marketing efficiency by saving a substantial amount of time and money.

Content creation and Optimization :AI technologies have the capacity to create and optimize content on a large scale. Algorithms for natural language processing (NLP) may produce interesting, high-quality content by analyzing vast amounts of textual data. AI technologies may also enhance content for search engines, guaranteeing that marketing materials naturally reach a larger audience. Marketers may focus more effectively on developing engaging stories and innovative tactics by automating the procedures associated with content production and optimization.

Real-time Decision-Making and Insights: AI offers insights into consumer behavior and campaign performance in real-time. In real time, marketers are able to analyze consumer interactions, evaluate engagement data, and measure the effectiveness of their initiatives. Marketers may quickly make data-driven decisions with the help of these insights. Real-time data-driven strategy adjustments allow for efficient allocation of expenditures, maximizing the effectiveness of marketing initiatives.

Artificial Intelligence Integration for Digital Marketing

To thrive in the market, one must be ahead of the curve in the technologically competitive realm of digital marketing. Generic, one-size-fits-all marketing initiatives are losing their effectiveness as customers trawl through the market's hidden corners and are inundated with information. Businesses strive to provide highly tailored, relevant information and experiences to connect, attract, and convert consumers. Here is where artificial intelligence is going to change the game in terms of enhancing digital marketing strategies for the worldwide market.

AI is becoming a workable answer rather than a future idea. Here are some ways AI is transforming the field of digital marketing:

Audience Segmentation: Using data sets of massive proportions, AI-powered algorithms may discover and classify various client categories according to their preferences, behaviors, and demographics. This increases the possibility of conversion by enabling marketers to tailor offers and messaging to a particular targeted target.

Personalization: AI makes hyper-personalization possible by giving information, suggestions, and user-specific ads that are targeted to boost interaction. This kind of customisation not only boosts client loyalty and retention but also raises engagement.

Predictive Analytics: By evaluating past data, AI predicts future consumer behavior, enabling marketers to take proactive steps.

Content optimization: Artificial intelligence (AI) systems can assess the effectiveness of content and recommend changes, such optimizing keywords to increase search engine rankings.

Email marketing: AI may assist in sending emails that are tailored to each recipient's subject line, content, and send time, increasing open and click-through rates. Campaigns for email marketing may also be automated using it.

Ad-campaign optimization: AI makes the best decisions about ad targeting, bidding, and creative components to make sure the right people see the appropriate ads at the right times.

Voice search optimization: As voice search becomes more popular, AI assists businesses in adapting by making their content more visible in voice search results by making it more speech-based query-friendly.

Consumer insights are obtained by AI mining social media and different online forums to learn about the attitudes of customers. This information helps businesses improve their advertising efforts, marketing, and product offers in order to draw in and keep their target consumer base.

Chatbots and customer service: Chatbots that are driven by AI offer prompt replies, improving customer service and engagement. They also visualize and analyze client journeys, spotting chances for customization and optimize conversions.

Examining the Performance of AI-Powered Customization

Businesses are looking more and more to Artificial Intelligence (AI) in the constantly changing digital world to improve consumer experiences and promote tailored connections. Delivering information that is individualized to each customer's requirements and tastes is one of the major uses of AI in marketing. This section explores the reasons for the effectiveness of AI-powered customization as well as the methods in which it works.

Recognizing Unique Customer Preferences: Artificial intelligence algorithms can analyze large volumes of customer data, such as prior purchases, browsing patterns, and social media activities. Artificial intelligence (AI) can analyze this data and find patterns and trends in consumer behavior, giving businesses a greater understanding of their customers' unique tastes. This comprehension serves as the cornerstone for providing each client with individualized information, product suggestions, and marketing communications that speak to them personally.

Real-time Personalization: AI makes it possible to customize marketing material in real-time by instantly processing data and making changes while on the road. For example, an AI-powered e-commerce website may assess a consumer's browsing history in real-time and suggest goods or services based on their preferences. Customers will always receive relevant content and offers at the exact moment they are most interested in thanks to real-time customization.

Enhanced client Engagement: Deeper client engagement is achieved through personalized content. Customers are more inclined to interact with information that is offered to them when

they believe that the brand is aware of their preferences and wants. Artificial intelligence-driven customization guarantees that marketing communications are not only pertinent but also

emotionally impactful, resulting in heightened client involvement, communication, and, eventually, allegiance.

A/B Testing and Optimization: AI systems can carry out complex A/B testing on customized material. Artificial Intelligence can optimize marketing materials in real time by evaluating consumer reactions to various versions of the content. AI, for example, may test many email subject lines to see which one has a greater open rate. Testing and improving in an iterative manner guarantees that tailored content keeps getting better and more efficient.

Cross-Channel Consistency: Clients communicate with companies over a range of platforms, such as email, social media, mobile applications, and websites. All these channels provide a consistent client experience thanks to AI-powered customization. When a consumer visits the company's website or mobile app, they should experience the same degree of customization as they do when they receive a tailored suggestion via email. Maintaining consistency in personalizing improves consumer trust and brand impression.

Challenges and Ethical Considerations: Although AI-powered personalization has many advantages, organizations need to be mindful of some drawbacks, such as possible algorithmic biases, the danger of over-personalization, and data privacy issues. To keep AI-powered customization methods effective, it is imperative to make sure that personalization initiatives are moral, considerate of consumers' privacy, and do not alienate them.

AI-powered customized marketing in the future

AI-powered customized marketing appears to have a bright future. We may anticipate seeing even more complex and sophisticated AI-powered marketing strategies that are even more successful at attracting and interacting with consumers as AI technology develops. The following are some of the major developments in AI-powered tailored marketing that we should watch out for:

AEnhanced personalization: As AI algorithms are more adept at interpreting consumer data and behavior, businesses will be able to design experiences that are even more customized to the unique requirements and preferences of each individual customer.

Improved comprehension of consumer behavior: As artificial intelligence (AI) algorithms develop, businesses will acquire a deeper comprehension of consumer behavior and preferences, enabling them to design more precise and successful marketing campaigns. **Enhanced customer engagement:** Chatbots and virtual assistants, among other technologies, will be used in AI-powered marketing efforts to make them even more interactive and engaging for consumers.

Improved customer experience: Artificial Intelligence will be applied to improve the consumer experience in all areas of the customer journey, not just marketing. This might involve utilizing chatbots with AI capabilities to offer customer support and assistance or use AI-powered suggestions to aid customers in finding the appropriate goods or services.

All things considered; AI-powered targeted marketing has a bright future. We may anticipate seeing even more complex and sophisticated marketing strategies that are even more successful at capturing consumers' attention and catering to their unique requirements and preferences as AI technology develops. Businesses can develop tailored experiences that improve consumer pleasure, foster loyalty, and ultimately propel corporate success by utilizing AI responsibly and ethically.

Review of Literature

Kumar and associates (2019) talked on the role artificial intelligence (AI) plays in personalized engagement marketing, highlighting the technology's capacity to generate, convey, and provide clients with customized offers. In their article, they emphasized AI as a tool with countless possibilities and knowledge that can be carefully customized to meet personal tastes. The study also showed how predictive AI can be in identifying consumer preferences and behaviors in both developed and developing nations.

Dumitriu and Popescu looked at the state of artificial intelligence in marketing procedures in 2020. To break into the market, they offered a four-step sequential plan that used clever marketing techniques. Their study demonstrated how AI-based methods and tools make traditional targeting's complexities much simpler and less difficult.

A three-phase framework for market planning was presented by Huang and Rust (2021) and included several benefits of artificial intelligence (AI). The study delineated the potential applications of artificial intelligence (AI) in marketing research, strategy formulation (including segmentation, positioning, and targeting), and ensuing initiatives. This framework outlined the useful ways AI may be applied to effectively shape marketing campaigns.

Khatri, M. (2021) This article examines the usefulness of digital marketing and its integration with artificial intelligence, taking into account shifting consumer preferences and trends to connect with the appropriate audience at the appropriate moment. The study emphasizes how artificial intelligence (AI) might influence customer behavior in digital marketing.

Suleiman, D. A., et al. (2021) This research attempts to explain how artificial intelligence affects website interaction and how simple it is to implement to improve digital marketing effectiveness. To improve digital marketing, the paper describes how artificial intelligence skills might be integrated into corporate operations.

N. Thilagavathy and E. Praveen Kumar's work "AI on Digital Marketing - An Overview" (2021) offered a thorough understanding of the use of AI in digital marketing. The writers examined a wide range of topics related to digital marketing, such as customer segmentation, content creation, tailored advertising, and CRM, and they demonstrated how artificial intelligence (AI) tools like machine learning, natural language processing, and predictive analytics are improving these fields. The study emphasized how AI can significantly improve marketing techniques.

Mhlanga (2021) examined the effects of AI on digital financial inclusion in the banking sector in different research, paying particular attention to Industry 4.0. The study emphasized how AI technologies are revolutionizing the financial services industry by making financial services more inclusive and accessible to people who were not previously able to use traditional banking systems. The report highlighted how risk assessment capabilities, tailored financial services, and an improved overall customer experience have all been made possible by AI-powered solutions, which have promoted digital financial inclusion.

Kokina and Davenport (2020) looked at how AI affected auditing procedures in their study, highlighting the changes that automation and AI technology have brought about in the auditing industry. They described how these technologies—which include anomaly detection, predictive analytics, and data extraction—have greatly increased the precision and efficiency of financial analysis. The authors argued that auditors can more effectively detect possible fraud, spot trends in large datasets, and evaluate them thanks to AI.

In a similar vein, Davenport, **Guha, Grewal, and Bressgott (2019)** investigated how artificial intelligence may revolutionize marketing. They contended that artificial intelligence (AI) technologies has the potential to transform several aspects of marketing, including consumer experience, data analysis, and decision-making procedures. But the authors also emphasized the difficulties in implementing AI in marketing, such as moral dilemmas and the requirement for human supervision to guarantee the appropriate application of these tools.

Kietzmann, Paschen, and Treen (2018) investigated the potential uses of AI in advertising across the customer experience. They argued that by providing customers with tailored and targeted experiences, AI had the power to transform advertising. The authors examined a number of artificial intelligence (AI) applications that improve client interaction and increase the efficacy of advertising, such as chatbots, recommendation engines, and virtual assistants.

Research Methodology

This research study was conducted to explore the influence of Artificial Intelligence (AI) on customer experience and marketing strategy optimization in the field of digital marketing. The study adopted a **quantitative and descriptive research design**, as it allowed systematic measurement of relationships among the selected variables and helped in drawing logical and evidence-based conclusions. The objective was to analyze how the integration of AI in marketing practices affects customer engagement and business decision-making.

A total of **200 respondents** were selected using a **convenience sampling method**. These respondents were customers who had interacted with AI-driven marketing tools such as chatbots, personalized advertisements, and recommendation systems. Data was collected through a **structured questionnaire**, which was divided into three key sections: questions related to Artificial Intelligence (AI), Customer Experience (CEP), and Marketing Strategy Optimization (MSO). Each item in the questionnaire was measured using a **five-point Likert scale**, ranging from "Strongly Disagree" to "Strongly Agree."

The collected data was analyzed using **Partial Least Squares Structural Equation Modeling (PLS-SEM)** through SmartPLS software. The analytical process included both **measurement model assessment** (to test the reliability and validity of constructs) and **structural model assessment** (to evaluate the hypothesized relationships between variables). The statistical tools employed included Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE), and Fornell and Larcker's Discriminant Validity Test.

The methodology was designed to ensure that the results were both reliable and valid, thus offering meaningful insights into how Artificial Intelligence impacts digital marketing effectiveness.

Hypotheses of the Study

Based on the objectives, the following hypotheses were formulated:

H1: Artificial Intelligence (AI) has a significant positive impact on Customer Experience (CEP). **H2:** Artificial Intelligence (AI) has a significant positive impact on Marketing Strategy Optimization (MSO).

These hypotheses were tested to determine whether the adoption of AI technologies in marketing contributes to improving customer satisfaction and helps in designing more effective marketing strategies.

Results & Analysis

Measurement model

Reliability And Validity Analysis

The reliability of the measurement model was evaluated using Cronbach's Alpha and Composite Reliability. The results showed that all constructs achieved acceptable reliability levels, as Cronbach's Alpha values were above 0.6 and Composite Reliability values exceeded 0.7. This indicates that the items used to measure AI, customer experience, and marketing strategy optimization were internally consistent and dependable.

In terms of validity, **convergent validity** was confirmed since the Average Variance Extracted (AVE) for all constructs was greater than 0.5. This means that each construct was able to explain

more than half of the variance of its respective indicators, proving that the variables measured what they were intended to measure.

Furthermore, **discriminant validity** was established using the Fornell and Larcker criterion. The square root of AVE for each construct was higher than its correlation with other constructs, signifying that each variable in the study was distinct from the others and represented a unique concept. This statistical evidence supported that the measurement model was both reliable and valid for further analysis. The results are shown in Table 1 & 2

TABLE 1 – Reliability of the Constructs

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AI	0.701	0.735	0.817	0.535
CEP	0.628	0.661	0.783	0.557
MSO	0.816	0.821	0.879	0.646

Source: (Author's own compilation)

TABLE 2 – DISCRIMINANT VALIDITY (FORNELL & LARCKER CRITERION)

	AI	CEP	MSO
AI	0.731		
CEP	0.452	0.693	
MSO	0.350	0.357	0.803

Source: (Author's own compilation) Analysis of Structural Model Fig – Structural model
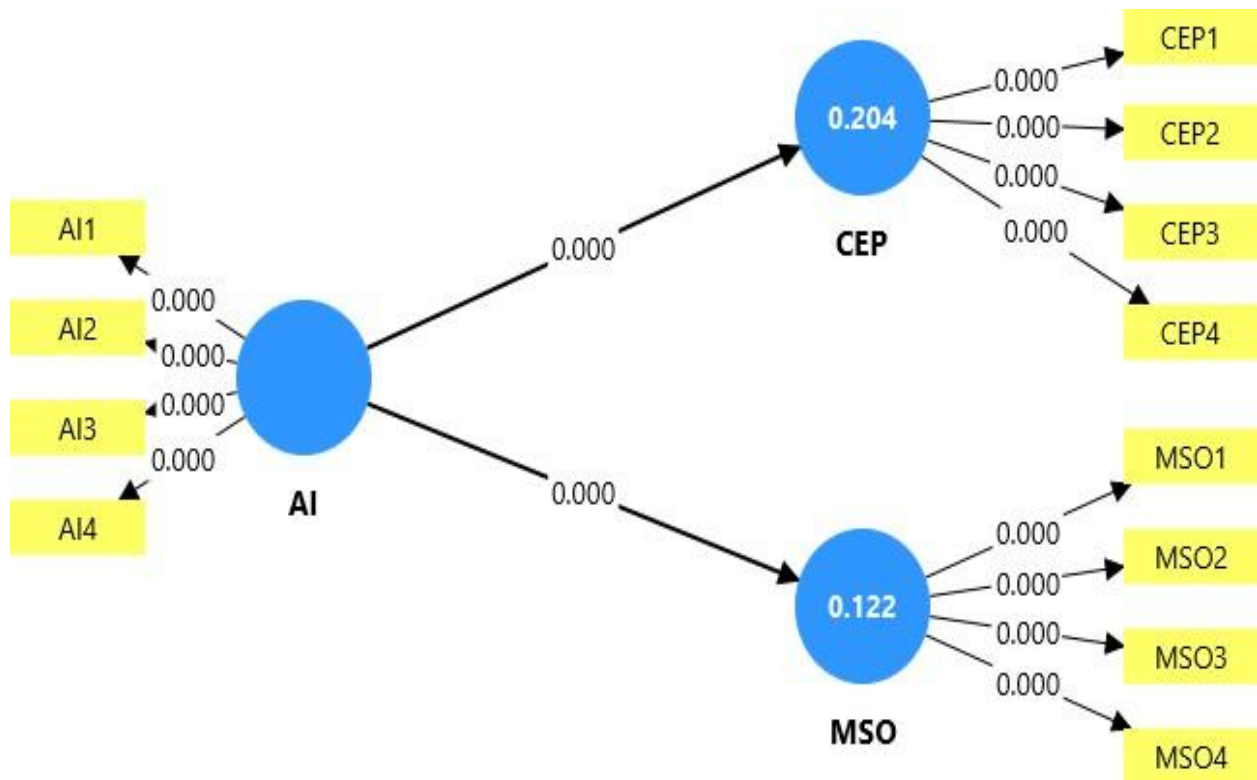
Source: Retrieved from Smart PLS 4

The results of the structural model revealed that Artificial Intelligence had a **significant positive relationship** with both Customer Experience and Marketing Strategy Optimization. The path coefficient from AI to CEP was strong and statistically significant, indicating that the integration of AI technologies in marketing activities leads to a noticeable improvement in the customer experience. Similarly, the relationship between AI and MSO was

also positive and significant, confirming that the use of AI enhances the efficiency and accuracy of marketing strategy formulation.

The high t-statistics and very low p-values (less than 0.001) further validated these relationships, providing strong empirical support for the acceptance of both hypotheses (H1 and H2) as evident from table 3. This demonstrates that AI not only enhances customer interactions but also stimulates data-driven decision-making in marketing practices.

TABLE 3 – RESULTS FOR HYPOTHESIS TESTING

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
AI -> CEP	0.452	0.465	0.055	8.241	0.000
AI -> MSO	0.350	0.360	0.061	5.710	0.000

Source: (Author's own compilation

Discussion & Conclusion

The findings of this study highlight that Artificial Intelligence has emerged as a **transformative tool** in the digital marketing landscape. The integration of AI has allowed businesses to collect, analyze, and interpret consumer data more effectively, enabling them to deliver personalized marketing messages and improve customer satisfaction. AI-driven systems such as predictive analytics, recommendation engines, and automated customer service have significantly improved the overall customer journey by making interactions faster, smarter, and more relevant.

The study also emphasizes that AI contributes to **marketing strategy optimization** by offering actionable insights and predictive capabilities that assist marketers in planning more effective campaigns. By analyzing customer behavior and purchase patterns, AI enables firms to allocate resources efficiently and enhance return on investment (ROI). This data-driven approach

empowers marketers to anticipate customer needs and craft strategies that are both targeted and adaptive.

The analysis further indicates that reliability and validity levels were satisfactory, suggesting that the study's measurement model was robust and credible. Both convergent and discriminant validity results confirmed that the constructs were appropriately measured and distinct from one another.

In conclusion, Artificial Intelligence positively influences both **Customer Experience (CEP)** and **Marketing Strategy Optimization (MSO)**. The study validates that AI integration helps businesses create more engaging, personalized, and effective marketing campaigns. However, the responsible use of consumer data and adherence to ethical standards remain essential to maintain customer trust in an AI-driven environment. AI's incorporation into marketing procedures has greatly increased efficiency in a number of marketing lifecycle areas. Artificial intelligence (AI) technologies have become essential tools for modern marketers, ranging from data analysis and predictive analytics to real-time insights and tailored consumer engagements. AI not only increases marketing efficiency but also helps firms remain competitive in the ever changing digital marketplace by automating tedious operations, offering insightful data, and allowing highly tailored consumer experiences. Thus, the use of AI with different digital marketing technologies signifies a change from mass marketing to customized interaction. This raises consumer satisfaction levels overall in addition to producing greater results. . Digital marketing is changing dramatically with the help of AI-powered customisation. Businesses may establish a highly effective and efficient marketing ecosystem by utilizing AI to identify individual client preferences, offer tailored content in real-time, boost engagement, carry out A/B testing, preserve cross-channel consistency, and increase conversion rates.The success of AI- powered customization is expected to be crucial in influencing future consumer experiences and propelling corporate growth in the digital era, as companies continue to hone their AI strategy

Businesses that use AI to their advantage in their digital marketing efforts may acquire a competitive edge in an increasingly digital world, even in the face of several hurdles. AI will continue to lead the way in digital marketing innovation as its capabilities grow and it continues to improve. AI is a crucial tool for modern marketing because of its capacity to produce very

relevant information, forecast consumer behavior, and adjust to changing marketing environments.

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AN ANALYTICAL STUDY OF INDIA-CHINA TRADE RELATIONS: TRENDS, EXPORT COMPOSITION AND POLICY FRAMEWORK

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Abstract

The economic ties between India and China rank among the most important bilateral relationships in today's global economy. India has consistently worked toward creating a more balanced trade framework with China, engaging in bilateral dialogues to tackle non-tariff barriers affecting its exports. Driven by a robust exchange of goods and services, both nations are advancing rapidly, positioning themselves as dynamic economies and emerging influencers in the evolving landscape of international relations.This study examines the trade trends between India and China from 2015 to 2022, focusing on year-wise trade volumes, trade balances, and the composition of India's exports to China. It highlights significant sectors driving India's export performance and reviews major trade policies and bilateral agreements influencing the relationship. The study reveal that while India–China trade volumes have consistently surpassed the USD 100 billion mark, the trade relationship remains characterized by a persistent and widening deficit. India's exports, mainly consisting of low-value raw materials like iron-ore and organic chemicals, contrast sharply with its imports of high-value manufactured goods such as electronics and machinery. The study underscores the need for India to diversify its export basket, strengthen domestic manufacturing through initiatives like "Make in India" and the Production Linked Incentive (PLI) scheme, and secure greater market

access for sectors such as pharmaceuticals, IT services, and engineering goods. Strategic policy reforms, enhanced bilateral cooperation, and active engagement in regional and multilateral platforms are essential to rebalance the trade relationship towards a more sustainable and mutually beneficial partnership.

Keywords: Bilateral Trade, Trade Deficit, Growth, Trade Barrier, Trade Imbalance

Introduction

The trade relationship between India and China is rooted in ancient times, marked by vibrant exchanges through the Silk Road and maritime routes. Historical trade involved India's export of goods like spices and textiles, and China's export of silk, porcelain, and tea. Cultural ties, especially through Buddhism, further enriched these interactions. However, the colonial era disrupted direct trade, as British interests dominated commerce, particularly during the opium trade. Post-independence efforts to restore ties saw early agreements like the 1954 Panchsheel Agreement, but the 1962 border war between the two countries brought trade to a halt for several decades.

The revival of economic ties began in the late 1970s with China's "Open Door Policy" and India's economic liberalization in 1991. Diplomatic normalization in 1992 set the stage for steady trade growth. The signing of the Most Favoured Nation agreement and the formation of Joint Economic Groups signaled growing cooperation. Between 2001 and 2010, bilateral trade boomed, driven by China's WTO entry and India's expanding global trade ambitions. By the end of the decade, trade volumes crossed $60 billion, with India primarily exporting raw materials and importing manufactured goods from China, marking a new era of economic interdependence.

Table 1. India–China Trade History

Period	Key Developments
Ancient Era	Silk Road trade, Buddhist exchanges, maritime routes
Colonial Era	Opium trade, British mediation, restricted bilateral exchange
1947–1962	Panchsheel Agreement, trade collapse post-Sino-Indian war
1978–1991	China's Open Door Policy, MFN agreement, low-volume border trade
1991–2000	Economic liberalization, gradual trade normalization

2001–2010	Strategic partnership, WTO entry, exponential trade growth
2011–2020	Trade imbalance concerns, geopolitical tensions
2021–Present	Selective engagement, trade resilience, focus on self-reliance

Source: Author Composition

Literature Review

Dar, A. A., Mehta, S., Dar, A. A., & Mehta, S. (2020), study on "Impact of COVID-19 on India-China Trade" examines the effects of the pandemic on bilateral trade between India and China. It discusses historical trade trends, the significant trade deficit favoring China, and India's dependency on Chinese imports, particularly in medical supplies. The author suggests that India should consider a controlled trade partnership with China while enhancing its domestic production capabilities. The paper also explores the potential of a "Chindia" partnership, highlighting the complexities and challenges posed by geopolitical tensions and differing economic strategies between the two nations.

Anil, Amulya. (2020), paper analyzes India–China trade during COVID-19, showing that while both economies faced declines in imports and exports, India remained heavily dependent on China for medical supplies and raw materials, leading to persistent trade deficits; it argues India should strengthen indigenous production, leverage global anti-China sentiment and U.S.–China frictions, and pursue a cautious, controlled trade partnership with China rather than full decoupling.

Panda, R., Sethi, M., & Kumaran, M. (2016), this study examines India–China bilateral trade flows from 2004 to 2013 using the gravity model, finding that both countries trade more with geographically closer partners but differ in key determinants: India's trade is positively influenced by partner GDP yet negatively by per capita income, while China's trade benefits from higher partner per capita income and common language ties; distance reduces trade flows for both, and the 2007–2008 financial crisis altered India's trade patterns by making historical colonial links significant, whereas China's determinants remained largely unchanged.

Das, Rajani. (2018), the paper studies India–China trade relations, noting rapid growth in bilateral exchanges but a persistent imbalance favoring China, as India mainly exports raw materials while importing high-technology manufactured goods; structural issues like limited market access, regulatory barriers, and weaker domestic manufacturing deepen India's trade

deficit, and the study suggests that cooperation, diversification of exports, and strategic policy reforms are needed to strengthen and balance future economic ties.

Singh. S (2005), research paper discusses the evolving dynamics of China-India bilateral trade, highlighting its role as a catalyst for political rapprochement. It notes the impressive growth rates of both economies and emphasizes the importance of trade in fostering mutual cooperation and confidence-building. The author argues that despite historical tensions, recent agreements and trade initiatives have significantly improved relations. However, challenges remain, particularly in energy sectors and market competition. Overall, the paper presents a positive outlook on the potential for trade to enhance strategic partnerships between the two nations.

Objective of the Study

This study aims to examine the overall trade trends between India and China from 2015 to 2022, with a particular focus on year-wise trade volumes and the trade balance. It further analyzes the composition of India's exports to China, identifying key contributing sectors. Additionally, the study reviews significant trade policies and bilateral agreements.

India-China Trade Overview

Over the past decade, trade between India and China has demonstrated a consistent upward trajectory, with total bilateral trade frequently surpassing the USD 100 billion milestone. This growing trade volume underlines the deepening economic interdependence between Asia's two largest economies. Despite geopolitical challenges and policy shifts, trade figures indicate a strong commercial relationship that has matured over time, especially in terms of volume and scale.However, this increase in trade has not been without its challenges. One of the most pressing concerns for India is the persistent and significant trade deficit with China. While India exports to China are growing at a slower pace, imports from China have soared. As a result, the gap between imports and exports continues to widen, leading to a trade deficit that has become a recurring issue in bilateral economic discussions. This imbalance raises questions about India's export competitiveness and long-term sustainability of trade ties. Another noteworthy aspect of India-China trade has been the fluctuating year-on-year growth rates. These variations are often a reflection of global economic trends, domestic policy changes, and bilateral diplomatic relations. For instance, during the COVID-19 pandemic in 2020, there was a notable contraction in total trade between the two nations, driven by supply chain disruptions,

reduced demand, and broader economic uncertainty. However, trade rebounded swiftly in subsequent years, again nearing or crossing the USD 100 billion mark.

A deeper analysis of trade composition reveals that India's export basket to China is relatively narrow. It predominantly comprises raw materials such as iron ore, organic chemicals, and cotton. This lack of diversification makes Indian exports vulnerable to demand fluctuations and price volatility in global markets. Furthermore, it suggests that India has yet to tap into China's vast market for high-value and finished goods, such as pharmaceuticals, services, and advanced technology products. On the import side, China continues to be a major supplier of manufactured and high-tech goods to India. Key imports include electrical and electronic equipment, machinery, organic chemicals, and other industrial intermediaries. This heavy dependence on Chinese goods reflects the limitations of India's manufacturing sector in meeting domestic demand, especially in critical areas like electronics, telecom equipment, and active pharmaceutical ingredients (APIs).In summary, while the India-China trade relationship is marked by impressive volumes and growing connectivity, it is also characterized by a significant trade imbalance and limited diversification of India's exports. Addressing these structural challenges through policy interventions, enhancing domestic manufacturing capacity, and identifying new export sectors will be critical for building a more equitable and sustainable trade relationship in the years to come.

Table 2 India and China Trade Statistics *(figure in USD Bn)*

Year	India's Export to China	%Change	India's Import from China	%Change	Trade Deficit	Total Trade	%Change
2015	13.4	-18.39	58.26	7.42	44.86	71.66	1.42
2016	11.75	-12.29	59.43	2.01	47.68	71.18	-0.67
2017	16.34	39.11	68.1	14.59	51.76	84.44	18.63
2018	18.83	15.21	76.87	12.89	58.04	95.7	13.34
2019	17.97	-4.55	74.92	-2.54	56.95	92.9	-2.93
2020	20.87	16.15	66.78	-10.87	45.91	87.65	-5.64
2021	28.03	34.28	97.59	46.14	69.56	125.62	43.32
2022	17.49	-37.59	118.77	21.70	101.28	136.26	8.47

Source: General Administration of Customs, China

Growing Trade Volume: Bilateral trade has generally shown an upward trend over the decade, crossing the USD 100 billion mark multiple times.

Significant Trade Deficit: India consistently faces a substantial trade deficit with China, with imports significantly outweighing exports. This deficit has been a persistent concern for India.

Fluctuations in Growth: The year-on-year growth rates of both exports and imports have varied, influenced by global economic conditions and bilateral relations. For instance, there was a notable decrease in total trade in 2020, likely due to the COVID-19 pandemic.

Narrow Export Basket: India's exports to China are often concentrated in raw materials like iron ore, organic chemicals, and cotton.

Dominant Imports: India's imports from China are dominated by manufactured goods, including electrical and electronic equipment, machinery, and organic chemicals.

Factors Contributing - Trade Imbalance

Narrow Export Basket: India's reliance on primary goods exports to China limits its earning potential.

Market Access Impediments: Indian industries, such as pharmaceuticals and IT/ITeS, face challenges in accessing the Chinese market.

Chinese Manufacturing Prowess: China's strong manufacturing sector and competitive pricing lead to high import volumes in India.

Supply Chain Dependencies: India's growing sectors like electronics and telecommunications rely heavily on Chinese components and equipment.

Sectoral Analysis of India's Exports to China

India's trade composition with China highlights a clear asymmetry in the nature of exported and imported goods. As depicted in the left pie chart, India's exports to China are primarily resource-based, dominated by raw materials and semi-processed goods. The largest contributor is Iron Ore and Minerals, accounting for 22% of exports, signaling India's strength in natural resource supply and China's corresponding demand. This is followed by Organic Chemicals (18%), Cotton & Textiles (14%), and Marine Products (10%), reflecting India's traditional export strengths and surplus in agricultural and chemical sectors. Other contributions include Agro & Processed Foods (9%), Plastics & Rubber (8%), and minor shares from Petroleum

Products, Machinery & Parts, and Iron & Steel (ranging from 6-7%). This export pattern indicates a narrow and relatively low-value addition structure, pointing to the need for India to diversify and enhance the share of high-end manufactured goods in its export basket. In stark contrast, the right pie chart illustrates that India's imports from China are heavily skewed toward high-value manufactured and industrial goods. Electrical Machinery leads with a 25% share, highlighting India's substantial dependency on Chinese electronics. Mechanical Appliances follow closely at 20%, essential for India's industrial processes. Other major import categories include Organic & Inorganic Chemicals (15%), Pharmaceuticals (10%), and Plastic and Iron & Steel Products (8% and 6% respectively), which support a wide range of domestic industries. Items such as Fertilizers, Precision Instruments, and Consumer Electronics (around 5–6%) round off the import profile, reflecting India's reliance on China for critical inputs across various sectors.

Overall, the trade relationship reveals a structural imbalance. India largely exports low-value, resource-based goods while importing high-tech, industrial, and capital-intensive products from China. This composition not only underscores India's persistent trade deficit but also its economic dependency on Chinese manufacturing. To address this, India must strategically invest in building domestic capabilities, especially in sectors like electronics, chemicals, pharmaceuticals, and engineering goods. Simultaneously, boosting the export of high-value products will be essential to rebalance trade dynamics and reduce vulnerabilities in India–China economic relations.

Figure1- India's Major Export to China
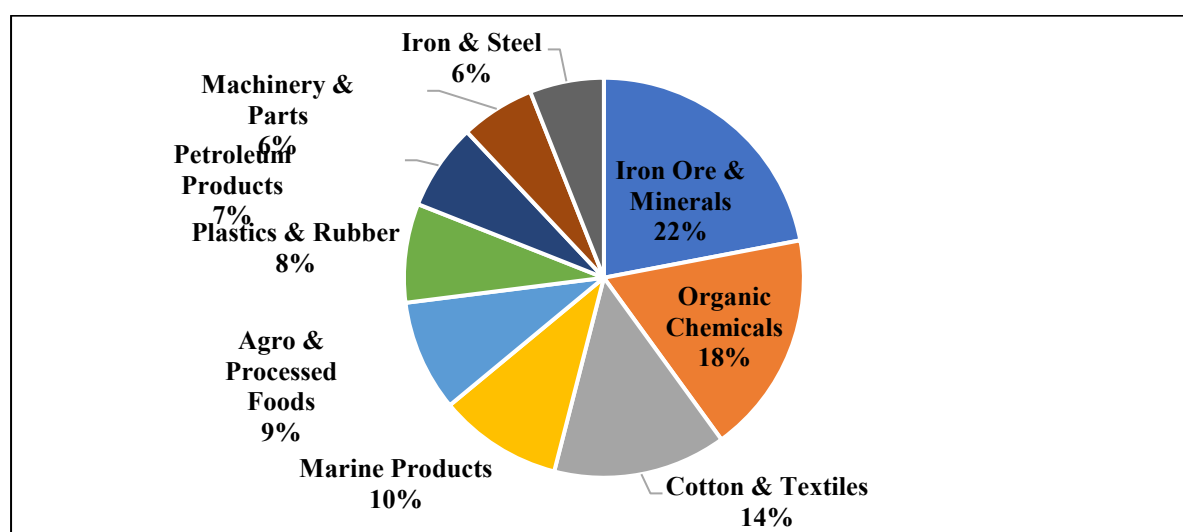
Source: Ministry of Commerce and Industry, GOI

Figure 2 India's Major Import from China
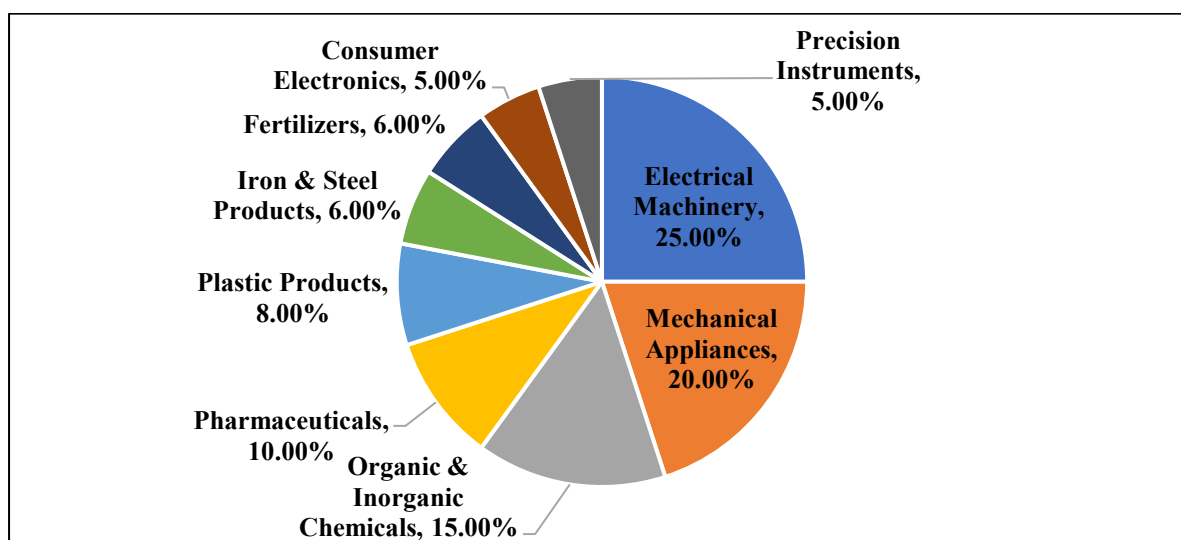
Source: Ministry of Commerce and Industry, GOI

Table 3 Major Sector of India's Exports to China

Category	Key Items
Ores & Minerals	Iron ore, manganese ore, chromium ore
Organic Chemicals	Bulk drugs, active pharmaceutical ingredients (APIs), fine chemicals
Cotton & Textiles	Raw cotton, cotton yarn, fabrics
Marine Products	Frozen shrimp, fish, crab, and other seafood
Agro & Processed Foods	Spices, rice, tea, sugar, tobacco, guar gum
Plastics & Rubber	Polymers, synthetic resins, rubber articles
Petroleum Products	Naphtha, fuels, and oils
Iron & Steel	Semi-finished iron, steel products
Machinery & Parts	Pumps, compressors, construction equipment

Source: Author Composition

Table 4 Major sector of India's Imports from China

Category	Key Items
Electrical Machinery	Mobile phones, telecom equipment, semiconductors

Mechanical Appliances	Industrial machinery, turbines, engines, compressors
Organic & Inorganic Chemicals	Fertilizers, caustic soda, dyes, pigments, chemical intermediates
Pharmaceuticals	Bulk drugs, intermediates, APIs
Plastic Products	PVC, polymer resins, plastic articles
Iron & Steel Products	Castings, tubes, metal structures
Optical & Precision Instruments	Medical instruments, laboratory equipment
Fertilisers	Urea, DAP, and other fertilizers
Consumer Electronics	Laptops, smartwatches, LED panels
Toys and Stationery	Educational toys, school supplies

Source: Author Composition

Phases of India and China Trade

Phase 1: Pre-1991 – Early Engagements

Prior to 1991, India-China trade was minimal and largely symbolic, constrained by Cold War dynamics and residual tensions from the 1962 border war. India's inward-looking, protectionist policies and China's early economic reforms under Deng Xiaoping created divergent economic paths. Trade between the two nations was limited to border exchanges and basic government-level arrangements. However, significant groundwork for future cooperation was laid during this period, particularly with China's adoption of the "Open Door Policy" in 1978 and the signing of a Most Favoured Nation (MFN) agreement in 1984. These steps marked the initial shift toward normalized economic relations, setting the stage for post-1991 trade expansion.

Phase 2: 1991–2000 – Economic Liberalization & Cautious Trade Expansion

The period from 1991 to 2000 was pivotal for India-China trade, as India initiated liberalization and moved toward a more open, market-driven economy. This shift led to reduced trade barriers and increased global engagement. Simultaneously, China was emerging as a key manufacturing hub. Though bilateral trade was modest initially, significant diplomatic progress—including the normalization of relations in 1992 and India's recognition of China as a market economy in 1994—helped build stronger economic ties. As a result, trade between the two nations grew substantially, rising from $338 million in 1992 to $2 billion by 2000, marking the beginning of a deeper trade partnership.

Phase 3: 2001–2010 – Boom in Bilateral Trade

The decade from 2001 to 2010 was a transformative period for India–China trade, often described as a golden era of bilateral economic engagement. China's accession to the World Trade Organization in 2001 and India's push to boost exports helped drive rapid trade expansion. The two nations formalized their growing cooperation through the 2005 Strategic and Cooperative Partnership Agreement. Bilateral trade surged from $3 billion in 2000 to $61.7 billion by 2010. India mainly exported raw materials like iron ore, while importing manufactured goods, machinery, and electronics from China—highlighting an emerging trade interdependence shaped by complementary economic roles.

Phase 4: 2011–2019 – Growing Trade Imbalance & Strategic Concerns

Between 2011 and 2019, India–China trade experienced considerable growth in volume, but the trade deficit became a major concern for India, surpassing $53 billion by 2019. This imbalance stemmed largely from India's heavy dependence on Chinese imports, especially in sectors like electronics, telecommunications, and pharmaceuticals. In response, India pushed for greater access to the Chinese market for its IT, pharmaceutical, and agricultural products, though progress was hindered by non-tariff barriers and regulatory restrictions. Despite regular trade dialogues, these efforts yielded limited results. Meanwhile, recurring border tensions added a geopolitical layer to trade concerns, intensifying calls for economic self-reliance. The period highlighted India's need to reduce dependence on China by diversifying supply chains and strengthening domestic manufacturing in key sectors.

Phase 5: 2020–2021 – Border Clashes and Trade Retaliation

The years 2020 and 2021 marked a pivotal phase in India–China relations, heavily influenced by escalating geopolitical tensions, particularly the Galwan Valley clash in June 2020. Despite record-high trade volumes during this time, the political climate shifted sharply, prompting India to reassess its economic dependence on China. Rising anti-China sentiment fueled the implementation of strict policy measures aimed at reducing Chinese influence, especially in the digital and investment sectors. Key actions included the banning of over 300 Chinese apps like TikTok, stricter customs regulations, and revised FDI norms requiring government approval for investments from neighboring countries—effectively curbing Chinese investment flows. These policy shifts were part of the broader "Atmanirbhar Bharat" initiative, which focused on promoting self-reliance and reducing reliance on Chinese imports. While the trade

volume remained high due to sustained demand, India strategically began efforts to diversify its trade partnerships and reduce long-term dependency on China.

Phase 6: 2022–Present – Strategic Decoupling and Selective Engagement

Since 2022, India has adopted a more strategic and cautious approach to its trade relationship with China, marked by a growing emphasis on economic decoupling in key sectors while continuing limited engagement in others. Despite ongoing geopolitical tensions, bilateral trade surpassed the $100 billion threshold, underscoring the persistent economic interdependence between the two nations. However, the trade deficit remains a major concern, with Chinese imports significantly outpacing Indian exports. India's policy focus has shifted toward reducing reliance on Chinese goods, especially in critical areas such as telecommunications, electronics, and pharmaceuticals. Government initiatives like the Production Linked Incentive (PLI) scheme have been introduced to boost domestic manufacturing and foster self-reliance. Trade data from this period shows that while India's exports to China—primarily iron ore, organic chemicals, and cotton—have remained stagnant, imports of high-tech and industrial goods from China have continued to grow. This phase reflects India's concerted efforts to reorient its trade strategy toward long-term sustainability and strategic autonomy.

Review of Policies Influencing India–China Trade

India and China, as two of the world's fastest-growing economies, share a deep and multifaceted trade relationship. However, this relationship has been significantly shaped—and often strained—by a range of policy decisions, geopolitical dynamics, and strategic economic interests over the past decade.

1. Persistent Trade Imbalance and India's Concerns

One of the most pressing policy concerns for India is the growing trade deficit with China. Despite being one of India's largest trading partners, China exports far more to India than it imports. In FY 2023–24, India's exports to China stood at USD 16.65 billion, while imports reached USD 101.75 billion, resulting in a trade deficit exceeding USD 85 billion (Business Standard, 2024). This persistent imbalance has led Indian policymakers to demand fairer trade practices and better market access for Indian goods in China, particularly in sectors like pharmaceuticals, IT, and agricultural products.

2. Non-Transparent Subsidies and Market Access Barriers

India has repeatedly raised concerns at international forums, such as the World Trade Organization (WTO), regarding China's use of non-transparent subsidies and regulatory frameworks that hinder Indian exports. During China's Trade Policy Review at the WTO in July 2024, India flagged these issues as detrimental to free and fair trade (WTO, 2024). Such subsidies provide Chinese companies with an unfair advantage, reducing the competitiveness of Indian products in both domestic and global markets.

3. Geopolitical Tensions and Investment Regulations

Following the border clashes between India and China in 2020, India introduced several policy measures to restrict Chinese economic influence. These included banning over 200 Chinese apps—including TikTok, WeChat, and others—on grounds of national security, and tightening scrutiny on Chinese investments through Press Note 3 (Foreign Policy, 2025). This regulatory note mandates that investments from countries sharing land borders with India require prior government approval, a move largely directed at Chinese entities (Tribune India, 2025).

4. Strategic Trade and Investment Policies

India has also been working to recalibrate its trade strategies by promoting self-reliance through the "Atmanirbhar Bharat" initiative and supporting domestic manufacturing under the Production Linked Incentive (PLI) schemes. These policy interventions aim to reduce dependency on Chinese imports, particularly in sectors such as electronics, solar equipment, and pharmaceuticals. Simultaneously, India has attempted to strengthen trade ties with alternative partners such as the European Union, the United States, and ASEAN countries, as part of its diversification strategy (Carnegie Endowment for International Peace, 2022).

5. WTO Framework and International Diplomacy

China's trade policies continue to be monitored through the WTO's Trade Policy Review Mechanism. India has used these platforms to voice its concerns and to push for transparency and adherence to multilateral trade norms (WTO, 2024). However, China's global economic alliances and its strategic positioning often influence how responsive it is to such diplomatic pressures.

6. Future Policy Outlook

Going forward, India's trade policy with China is expected to be shaped by a combination of strategic restraint and cautious engagement. Efforts are ongoing to boost domestic capabilities

while simultaneously negotiating for better market access in China. A balance between economic pragmatism and geopolitical security continues to define India's policy direction in this regard.

Economic Relations beyond Trade

Investments: While trade has flourished, bilateral investment flows have been modest compared to the trade volume. Both countries have seen more investment from other nations than from each other.

Dialogue Mechanisms: India and China have established various mechanisms like the Joint Group on Economic Relations, Science and Technology (JEG), and Strategic Economic Dialogue (SED) to discuss and shape economic cooperation.

Multilateral Cooperation: Both countries actively participate in multilateral forums like BRICS and the Shanghai Cooperation Organization (SCO), which provide platforms for economic and strategic discussions.

Infrastructure and Technology: Chinese companies have been involved in some infrastructure projects in India, particularly in the power and telecommunications sectors. India also imports significant technology and digital services from China.

Challenges in India–China Trade

1. **Trade Imbalance:** India consistently runs a significant trade deficit with China. As of 2023–24, the trade deficit exceeds **$80 billion**, largely due to India's heavy reliance on Chinese imports such as electronics, machinery, and pharmaceutical ingredients.

2. **Limited Market Access in China:** Indian companies, particularly in **pharmaceuticals, IT services, and agriculture**, face multiple **non-tariff barriers** in China. This restricts the potential for export expansion and makes it difficult to balance trade.

3. **Geopolitical Tensions:** Incidents like the **Galwan Valley clash in 2020** have strained bilateral relations. Political tensions often spill over into economic decisions, leading to restrictions on investments, bans on apps, and tighter regulations.

4. **Dependence on Chinese Inputs:** India depends heavily on China for key components in sectors such as **telecom, solar panels, consumer electronics**, and **Active Pharmaceutical Ingredients (APIs)**. This poses a **strategic vulnerability** in times of conflict or supply chain disruptions.

5. FDI and Regulatory Restrictions: India has tightened **FDI rules** for countries sharing land borders, including China. This impacts Chinese investment in Indian startups and sectors like fintech and e-commerce.

6. Lack of Diversification in Exports: India's exports to China are mostly limited to **raw materials** like iron ore and cotton. There is a lack of high-value, diversified exports which can help reduce the trade gap.

Opportunities in India–China Trade

High Trade Volume Potential: Despite tensions, **bilateral trade crossed $100 billion** in recent years. The scale of trade presents opportunities for **economic cooperation**, especially in non-sensitive sectors.

Export of Raw Materials and Intermediates: China's manufacturing sector continues to demand inputs like **iron ore, organic chemicals, and petroleum products**—areas where India can continue to grow its exports.

Expansion in IT and Pharma Sectors: China presents a huge market for **Indian pharmaceutical products and IT services**. If market access issues are addressed, these sectors can become major export contributors.

Make in India & PLI Schemes: India's **Production Linked Incentive (PLI)** schemes and "**Make in India**" initiatives are aimed at building domestic capacity in sectors like electronics, solar energy, and semiconductors. These programs can reduce import dependency on China over time.

Scope for Collaboration in Green Technology: Both nations are investing in **renewable energy and green technologies**. Joint ventures or tech-sharing in solar power, EVs, and clean energy can offer mutual benefits.

Regional and Multilateral Platforms: India and China are both members of BRICS, SCO, and other multilateral forums. These platforms can foster **economic dialogue and trade cooperation** even amidst political tensions.

Conclusion

The India–China trade relationship has grown significantly between 2015 and 2022, with trade volumes consistently crossing the USD 100 billion mark. Despite this upward trend, the trade dynamic is marred by a persistent and widening trade deficit, largely due to India's reliance on

high-value Chinese imports versus its narrow export basket of raw materials. A sectoral analysis underscores this imbalance—India primarily exports low-value goods like iron ore and organic chemicals, while importing advanced manufactured products including electronics and machinery from China. To address this structural gap, India must diversify its exports, enhance domestic manufacturing through initiatives like "Make in India" and the PLI scheme, and pursue better market access for pharmaceuticals, IT services, and engineering goods. Policy reforms, strategic partnerships, and stronger participation in regional and multilateral platforms can help transform the current trade asymmetry into a more balanced and mutually beneficial relationship.

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AN ANALYTICAL STUDY OF SAVING AND INVESTMENT HABITS AMONG COLLEGE STUDENTS OF REWARI DISTRICT, HARYANA

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Abstract

The money that people or organizations set aside from their income or earnings for use in the future or for investments is referred to as savings. It's a reserve of money that is usually kept in a savings account, an investment, or other safe assets rather than being instantly spent. The ability to attain long-term goals and feel financially secure can both be gained via saving. The term "investment" describes the process of allocating funds, time, or resources to goods, endeavors, or projects with the hope of achieving future financial gain, profit, or value appreciation. The study discusses their demographic characteristics, saving habits, the purpose of saving, and a few other related aspects. The study is based on primary sources of data which is collected by the distribution of structured questionnaires and the data is acquired from the interviews of 100 college students for the same. A questionnaire-cum-schedule was prepared for collecting data. Data has been tabulated and analyzed with the help of statistical software. The results highlight that a good percentage of respondents save a portion of the money received by them. However, there are less number of respondents whose savings are more than their spending.

Keywords: Investment, College students, Saving Habits, Long-term goals.

Introduction

Investments, which might include stocks, bonds, real estate, or starting a business, can take many different forms. They are often undertaken to achieve long-term financial growth or a specific set of financial goals. Savings initiates investment. There is no investment without savings although not every saving is invested. It means that every investor is a saver but every saver needs not to be an investor. Investing is the need of the hour. Saving a huge amount of money is worth nothing if it is not invested. It is rightly said that less earnings and less savings are always preferable to more earnings and no savings. Corona pandemic of 2020 has taught people the importance of saving as it secures the uncertain future. The government is also initiating saving habits among people by issuing saving certificates, government bonds, and securities carrying high rates of interest and many other government saving and investment schemes like Public Provident Funds, Sovereign Gold Bonds, SukanyaSamriddhiYojana, Pradhan Mantri Jan DhanYojana, Atal Pension Yojana, etc.

However, it is in the genes of Indian people to save. Since early childhood, children are taught to save money in piggy banks. Indian women are also great savers and investors of money. They either save to buy a home, car, marriage, or probably buy gold. According to a report released by the World Gold Council (WGC) in May 2020, Indian women had about 24000 tons of gold, which can be considered the world's largest gold treasure. Investing and saving are often viewed as two complementing financial tactics where on one hand savings involve laying money away in low-risk savings and a current account or certificate of deposits etc. Investment on the other hand investing is putting the money into bonds or real estate in the hope of generating greater returns over some time. There are various avenues available for investment depending on the risk factor, interest rate, financial institute, time of investment, etc.

Important Saving Habits

Saving is a practice of keeping aside a portion of income regularly. If we follow some strategies and make some habits, the process of saving will become easier. Some of the saving habits are discussed below:

- **Find a suitable bank account:** Financial status, needs and goals, risk tolerance, liquidity needs, interest rates, account fees, investment goals, etc., are some of the factors upon

which the choice of type of bank account depends. Students should choose a bank account considering the aforementioned factors.

- **Teach the value of money:** Students should be taught that money is synonymous with hard work, and it is earned through hard work. This will make them realize the importance of money and make them believe that handling it is a responsible job.

- **Budgeting:** Preparing a monthly budget is the best way to handle the money. It is prepared by keeping in mind the sources of income and expenses of an individual. A target amount for expenditure is fixed and expenses for the whole month are done according to the fixed amount.

- **Practice no-spend days:** choose specific days in your calendar and commit not to spend on those days. Prepare your meals at home, reuse the products, and carry cash only for emergencies.

- **Prioritize savings:** A portion of income should be kept aside from the earnings of every month whether small or big. That may later be used for future emergencies.

- **Shopping strategy:** Make a shopping list, don't get carried away with heavy discounts, think before buying impulsively, and give yourself time to evaluate the worth of that product.

Things to be considered while Investing

There are several elements to be considered for ensuring informed investing decisions and managing investment risks.

- **Diversification:** Minimize risk one must spread their investment among different asset classes. Don't put all your eggs in one basket, this is a suitable idiom for this.

- **Financial goal:** There are different types of investments for both short-term and long-term financial goals. Risk Tolerance - the more the profits more the risk. The risk tolerance capacity depends on the age, earnings, financial situation, etc.

- **Cost, fees, and tax:** management fees, trading costs, taxes, etc., should be considered while investing the money. High fees & tax rates can eat up a major portion of your profits.

- **Market conditions:** market conditions may convert one asset category giving high returns to the poor/average returning asset category. Bull/bear market etc., should be considered while investing.

Saving and investing are interconnecting in many ways. Saving serves as a source of investment. High savings can lead to higher investment, a balanced saving and investment leads to balanced economic growth and saving provides necessary capital for investment.

Literature Review

Jones, G. & Martin, C. (1997), explained that although their purchasing habits may give the impression that young people have influence, it is important to consider how they are becoming adults when analyzing their spending habits. Changes in economic circumstances and domestic responsibilities brought on by young adults moving out of their parent's homes and establishing their households have an impact on consumption patterns. The social setting of young people's spending is examined in recent research. Over 2000 young people between the ages of 16 and 25 were the subjects of the study, which was based on data from the annual Family Expenditure Survey. The findings from the analysis of the 1992, 1987, and 1982 data sets are summarized in this Briefing, which also looks at how spending patterns have changed over the past ten years.

S. Hasan & ET. al. (2011), for the sake of assessing the relationship between the various marketing strategies outlined in this paper and revenue generation, the Tobit model is proposed. This paper explains ways to understand different marketing strategies when they only aim to generate revenue. The comprehensive findings of this research show that all strategic means are important for generating revenues for the goods and services being provided, and they confirm that all outlined marketing strategies and a market share growth strategy are most important in this context.

Mehta (2013), seeks to explain the long-term saving behavior and saving potentials of the household sector by analyzing trends and patterns of household saving (1950–2010) and thereby determining different saving functions. According to her findings, the household sector has contributed the most to the overall savings. Comparing the pre-economic reform period to the post-economic reform period, MPS has shown improvement. According to her research, the long-run MPS is greater than the short-run. The average propensity to save, or APS, has increased since the economic reforms compared to the earlier period. Last but not least, in the years following economic reforms, saving income elasticity has slightly decreased.

Abirami.R & Dr.S . Kowsalya (2023), the study conducted was descriptive in nature and it was aimed to evaluate "A Study on Investment Pattern of College Students with special

reference to Coimbatore City". A sample of 125 respondents was selected using the random sampling technique. The study used both primary and secondary data collected through an interview schedule and other standard sources. The survey found that return on investment was the most significant factor influencing investment decisions, and insufficient liquidity was the most major challenge encountered when making an investment. Furthermore, no significant relationship was found between educational qualification and investment purpose, monthly income and manner of investing, or gender and level of risk in investment options. It also highlight the significance of taking return on investment and liquidity into account when making investment decisions, as well as seeking professional assistance to avoid typical investment mistakes.

Selvakumaran. N, Abishek. A & Eshwar Upadhay. M (2024), the Assessment of Investment Habits Among College Students. The aim of the research project is to investigate college students' financial practices. This study will look into college students' investment preferences, practices, and attitudes concerning different investment options. The findings of this study will expand our understanding of college students' investment practices and provide assistance to financial institutions, educators, and regulators as they develop programs and initiatives to encourage young investors to make responsible financial decisions. The study's findings will provide insightful information about college students' investment practices, which may be used to develop specific financial education programs and investment approaches to aid nascent investors in making safe financial decisions.

Research Methodology

- **Need of the Study**

Savings have the potential to bridge the present of a country with the expected future. Saving is a vital economic component in a country's growth. The present study covers college students from the age group of 15-30 years which also includes the youth which is also the largest age group in India including more than 50% of the Indian population. Inculcating good saving and investment habits will lead to setting a strong financial foundation for the future.

- **Objectives of the Study**

1. To ascertain the saving pattern of college students in Rewari District of Haryana.

2. Identify the preferred investment avenues of students.

- **Population**

The population for selecting sampling units of the study includes the college students of Rewari District of Haryana.

- **Sampling Technique**

A convenient sampling technique of sampling was used.

- **Sample Size**

n = 100

- **Source and Tools of Data Collection**

Source is primary, for data structured questionnaire was used.

ANALYSIS OF THE DATA

1) Analysis of the Demographic Profile of Respondents

Demographic Profile of Respondents			
Variable	**Parameter**	**Frequency**	**Percentage**
Age (in years)	a) 15 – 18	16	16
	b) 18 – 22	54	54
	c) 22 – 26	16	16
	d) 26 – 30	14	14
Gender	a) Male	65	65
	b) Female	35	35
Educational Qualification	a) UG Level	48	48
	b) PG level	36	36
	c) Professional	12	12
	d) Ph. D.	4	4
What is the type of accommodation/housing?	a) With Parents	56	56
	b) Hostel	10	10
	c) Paying Guest (PG)	20	20
	d) Flat	14	14
What is your means of transportation to college?	a) Public Transport	72	72
	b) Bike	24	24
	c) Car	4	4

Table-1
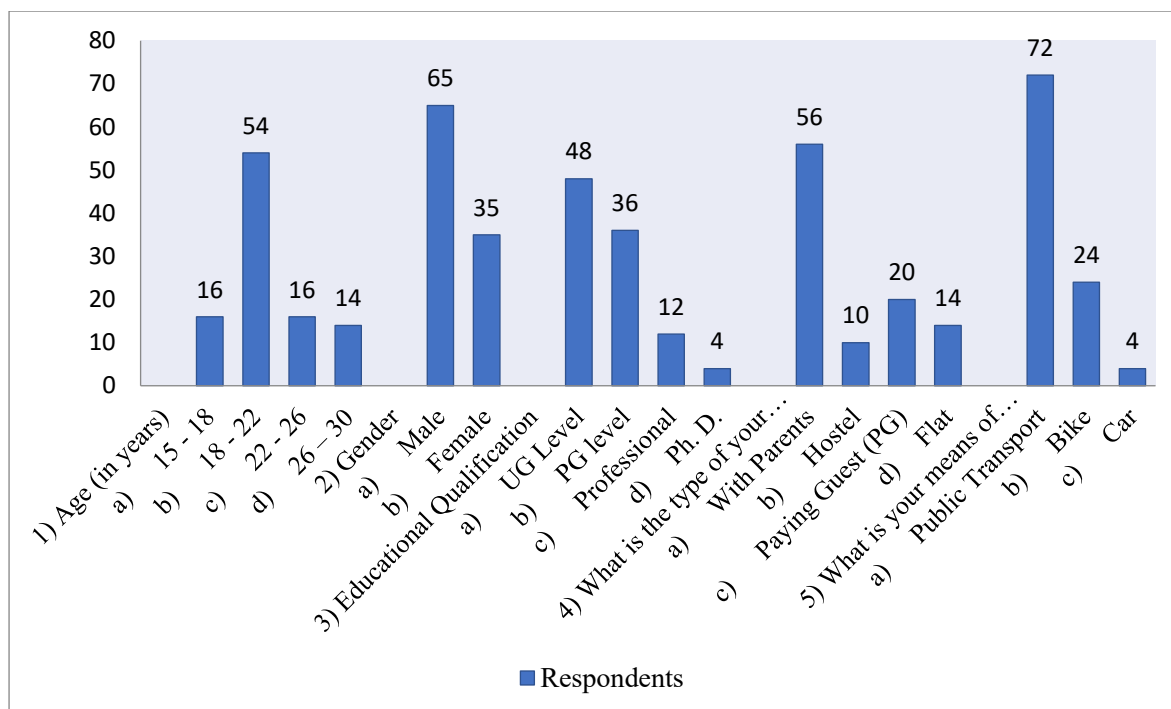
Chart 1

The analysis of the present study is made on 100 college students out of which 65% are Male and 35% are Females. Respondents between the ages of 15 to 30 are considered in the study out of which the majority of the students were between the age group of 18 – 22 years i.e., 54%. 48% were pursuing UG level, 36% were pursuing PG level, 12% were pursuing professional courses and 4% were pursuing Ph.D. A maximum of 56% of students were living with their parents. A maximum of 72% of students use public transport to come to the college.

2) Analysis of the Saving and Investment Behaviour of Respondents

Saving and Investment Behaviour of Respondents			
Variable	**Parameter**	**Frequency**	**Percentage**
Source of income?	a) Borrow from Parents	64	64
	b) Scholarship	6	6
	c) Part-Time Job	10	10
	d) Stock Trading	5	5
	e) Multilevel Marketing	0	0
	f) Earning from Tuition	15	15
	g) Small Business	0	0

While attending college are you currently working somewhere?	a) Part-Time	28	28
	b) Full Time	2	2
	c) Not Working	70	70
How often do you go to cinemas or other recreational activities?	a) At least once a week	10	10
	b) At least twice a week	2	2
	c) At least once a month	60	60
	d) Do not go at all	28	28
How much amount do you earn or receive from any source per month?	a) Below Rs.1000	24	24
	b) Rs.1000 - Rs.5000	56	56
	c) Rs.5000 - Rs.10000	12	12
	d) Rs10000 - Rs.15000	6	6
	e) More than Rs. 15000	2	2
Do you save something from the money you receive from any source?	a) Yes	70	70
	b) No	30	30
If Yes, how much percent of savings do you save per month?	a) Below 25%	35	35
	b) 25% - 50%	28	28
	c) 50% - 75%	7	7
	d) Above 75%	0	0
Do you have a bank account?	a) Yes	92	92
	b) No	8	8
Where do you put your money?	a) Deposit in banks	41	41
	b) Invest in Post Office Savings Schemes	20	20
	c) Invest in Stocks or Mutual Funds	5	5
	d) Keep your savings with you	4	4
What is your purpose of saving?	a) As a habit	10	10
	b) Savings for higher studies	14	14
	c) Savings for the future	33	33
	d) Savings for emergency	11	11
	e) Savings for traveling	2	2
Amount spent on last week?	a) Less than 500	8	8
	b) 500 – 1000	16	16
	c) 1000 – 1500	36	36
	d) 1500 – 2000	22	22
	e) More than 2000	18	18
How long have you been saving money?	a) Less than 1 year	13	13
	b) 1-3 years	35	35
	c) 3-5 years	14	14
	d) More than 5 years	8	8

In the following areas, what do you feel regarding your savings?	a) Savings are less than my spending	50	50
	b) Savings are equal to my spending	38	38
	c) Savings are greater than my spending	12	12

Table-2

Maximum students (64%) are not involved in any economic activity and borrow money from their parents. Maximum respondents (60%) go to cinemas and enjoy other recreational activities at least once a month. 56% of students get about 1000 – 5000 rupees per month from various sources and out of 100 respondents, 70 save a portion of their money. 50% of these 70 respondents, that is 35 in numbers save less than 25% of their savings. Out of these 100 respondents, 92 have their bank accounts 41 prefer to save their money in banks 4 prefer to keep their savings to themselves, and also 33 of them save money for emergencies. 50% of the respondents have savings less than their spending. There are 35 students out of 70 who have been saving for the last 1-3 years.

Chart 2: Saving Habits of Respondents

Do you save your money

30% NO
70% YES
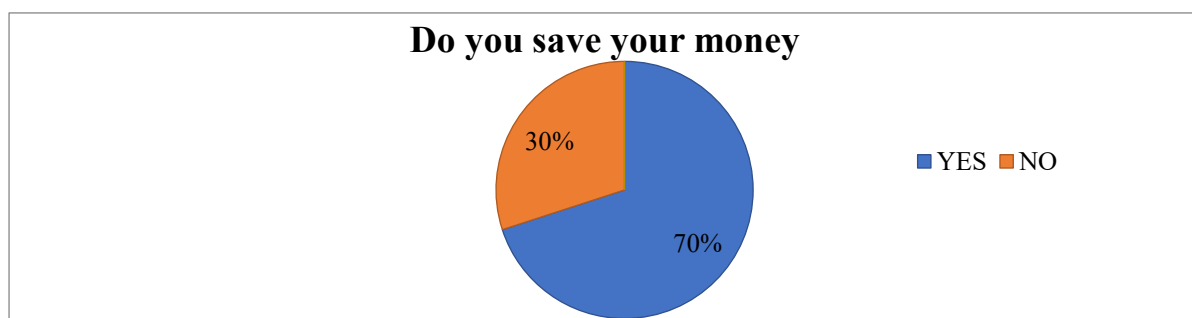
Chart 3: Purpose of respondents behind savings

Purpose behind saving

Category	Value
Savings for travelling	2
Savings for emergency	11
Savings for future	33
Savings for higher studies	14
As a habit	10
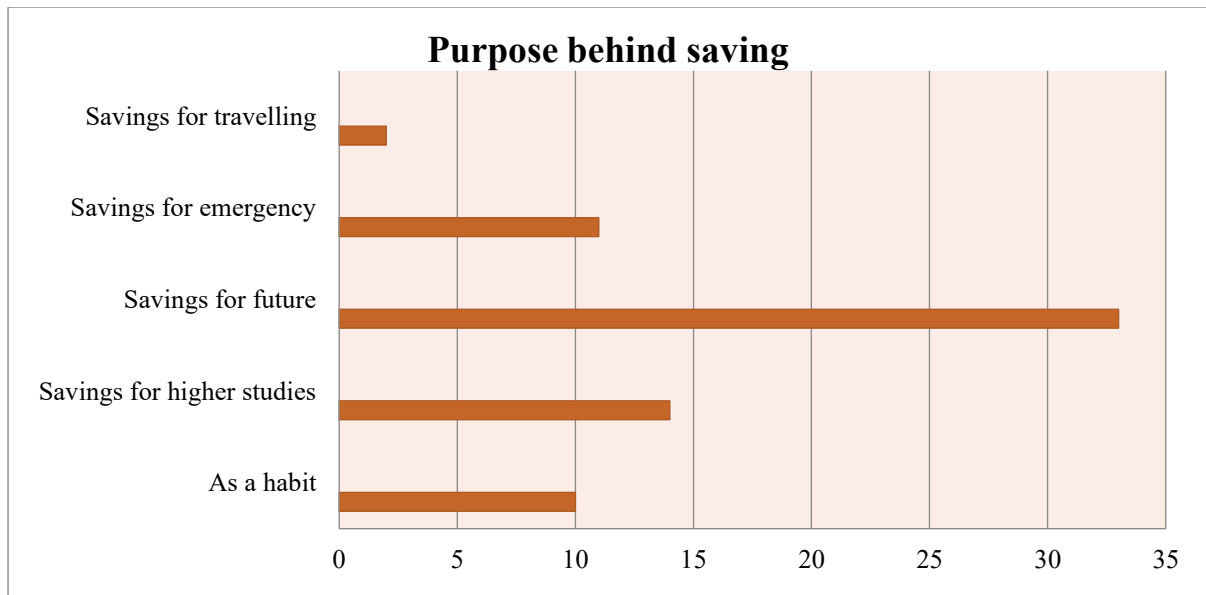
Chart 4: Investment Avenues of Respondents

What do you do with your savings?

Category	Preferred Investment Avenues
Deposit in banks	41
Invest in Post Office Savings Schemes	20
Invest in Stocks or Mutual Funds	5
Keep your savings with you	4
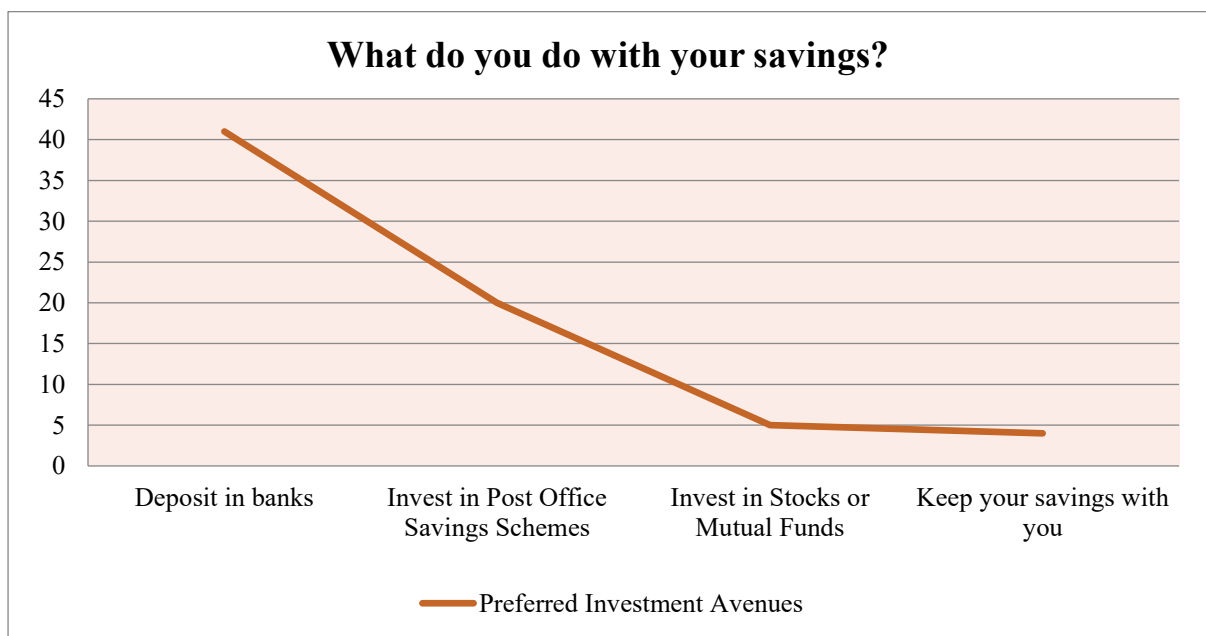
Chart 5: Saving and spending ratio of Respondents
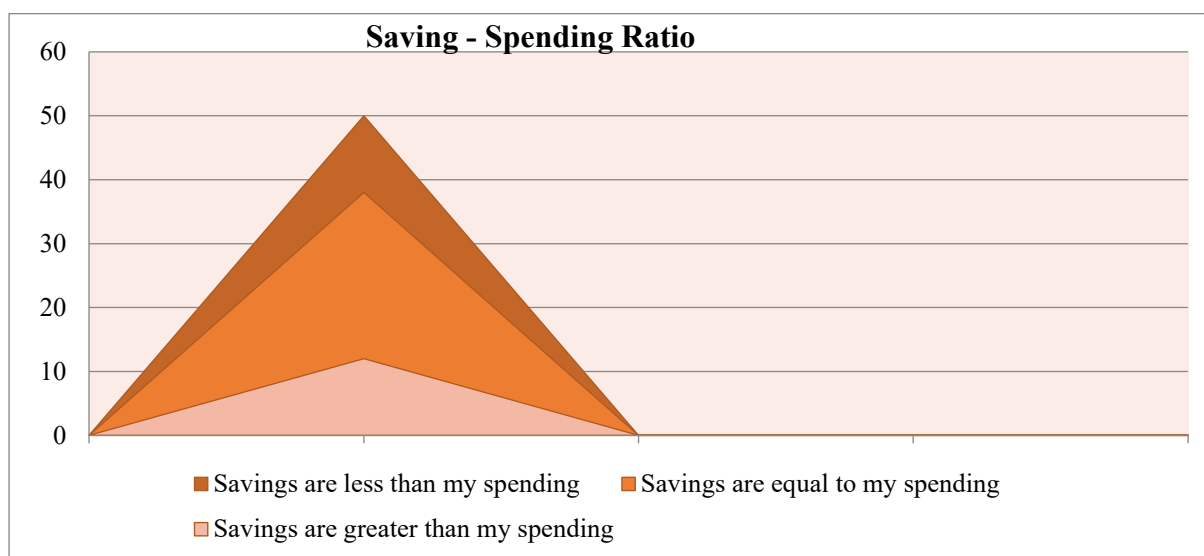
Findings

- It was found that more than average of the students don't have any source of earnings; they borrow from their parents to meet their expenses.

- Students are not spending thrift, 60% of them enjoy recreational activities once a month and 28% of them don't do it at all but their overall expenses are more than their savings.

- 30% of the students don't have the habit of saving their money.

- Students are progressive and visionary as maximum of them are saving money for their future.

- Maximum students 41% deposit their money in the Bank accounts; hence they are unaware of other investment avenues.

Conclusion

The study was undertaken to ascertain and analyze the saving patterns, investment avenues, and spending habits of college students. A fairly good number of respondents have their bank accounts. From the analysis, it can be concluded that most of the students are not much aware of different investment avenues as most of them deposit their money in their bank accounts. When it comes to saving habits a good percentage of respondents save their money and many of them are futuristic as they are saving money for future needs. Summing up there is still an exigent need to inculcate saving habits and increase investment awareness among college students of Rewari District of Haryana.

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ROLE OF RRBs FOR FINANCIAL INCLUSION AWARENESS IN RURAL INDIA : PROSPECTS AND CHALLENGES

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Abstract

Financial inclusion plays a vital role in the economic growth of developing countries such as India. Financial inclusion is one of the important model that ensures the availability of financial or banking services to the weaker sections, low-income and vulnerable groups at a fair and affordable price. In present circumstances, financial inclusion is prime concern of the developing countries to eliminate poverty and lower the gap between rich and poor. In India, Reserve Bank of India (RBI) is the apex regulator and supervisor of the financial system, that provides banking services at a reasonable cost in the India. Under the regulation of RBI, banking sector has grown significantly over the years. Unfortunately, mostly banking services in India grow in urban sectors. For a many reasons, rural sectors are deprived of the basic banking services in their regions. The reasons are cash dependency, lack of financial literacy, limited access to banking services, security concerns and limited infrastructure. Consequently, government of India established Regional Rural Banks (RRBs) with the intent to bring banking services closer to the rural and agricultural communities. However, over some time it has been observed that these banks are not able to meet the desired objectives mainly because of certain problems such as lack of capital, lack of trained personnel, high cost operations, dependence on sponsor banks. Therefore, it is necessary to study challenges faced by RRBs in their growth and how they can overcome these challenges and expand their banking services among rural population. This study is based on secondary data collected from the annual reports of RBI,

NABARD, websites, journals and research papers. The study finds and concludes that performance of RRBs can

be improve and they will significantly contribute in the expansion of financial services in rural and backward areas.

Keywords: Financial inclusion, rural, economic growth, banking, financial literacy

Introduction

Indian banking services plays a significant role in the development of the economy of India. Functioning of banking services is essential for the nation-building. Despite higher economic growth rate recorded by Indian banking services, a large section of underprivileged people of the country still lacks basic financial services. To foster financial awareness, requirement of financial inclusion in rural as well as in financial backward areas is essential. In rural and semi-urban areas of India Regional Rural Banks (RRBs) managing and promoting banking activities at the district level. The purpose behind the establishment of RRBs is easily accessible banking and credit facilities to the rural population. To ensure the overall rural development, RRBs spreading the financial inclusion and extend credit and other banking activities to rural areas. The RRBs were established as per the recommendation of Narasimha committee to meet credit needs of small farmers, artisans and rural entrepreneurs. The basic aim of RRBs is to develop rural areas by providing credit to agriculture, trade, commerce and other productive activities in rural areas and semi-urban areas.

RRBs were set up under the Regional Rural Banks Act of 1976. The first bank was Pratham Grameen bank, established in 1975. The syndicate bank became the first commercial bank to sponsor the Pratham Grameen Bank, which is now sponsored by Punjab National Bank. The two prime regulators of RRBs in India are the Reserve Bank of India (RBI) and National Bank for Agriculture and Rural Development (NABARD). All the RRBs in country is sponsored by a commercial bank, which provides necessary support and assistance. The Central Government holds 50%, the State Government holds 15% and the sponsoring commercial bank holds 35% of the stakes of RRBs. The government of India and RBI have been taken so many initiatives to strengthen RRBs and improve their performance in rural areas. In 1994-95, the comprehensive restructuring program, recapitalisation of RRBs was initiated. The process covered 187 RRBs and continued till 1990-2000. Further, the branch licensing policy for RRBs has been liberalised. The RBI permitted RRBs to open new branches and RBI also permitted

RRBs for the installation of ATMs without permission of RBI. As per the recommendation of Viyas committee (2004), government of India started the process of consideration of RRBs in 2005-06, which declined the numbers of RRBs from 196 in 2005 to 43 in 2023. The consolidation of RRBs were expected to bring better efficiency, higher productivity, improved infrastructure and significant credit flow to rural areas. In 2011, on the recommendation of K C Chakraborty committee, the government sanctioned the recapitalisation of RRBs which are unable to meet the RBI's regulatory requirements of minimum Capital to Risk-weighted Asset Ratio (CRAR) of 9%. Exceedingly large amount of Rs 10,890 cr has been authorised to RRBs in FY 2021-22 and FY 2022-23 in phased manner to rejuvenate the RRBs. This recapitalisation amount is highest in 45 years since the establishment of RRBs. Acknowledging the need to promote the spread of digital banking in rural areas, RBI allowed RRBs to provide digital banking to their customers. In 2015, RBI allowed only non-transactional services which were very tight. Later in November 2022, RBI in their revised circular permitted RRBs to offer digital transactional facilities in rural areas.

As per NABARD annual report, on 31st March 2023, there were 43 RRBs with 21,995 branches operating in 26 States and 3 UTs with 30.53 cr deposit accounts and 2.90 cr loan accounts in total. 92% of the RRBs branches are in rural/semi-urban areas. There are 17 RRBs which have acquired internet banking licence (transactional facilities) from RBI. RRBs were set up with a view to developing the rural economy by providing credit and other facilities, particularly to the small and marginal farmers, agriculture labourers, artisans and small entrepreneurs. During 1997-98, out of 196 RRBs, 70 RRBs incurred loses amounting to Rs 230.76cr in total. This may be due to heavy overhead costs, reduction in lending rates, lower profit margins, heavy increase in salaries and allowances of staff, etc. During 2001-02, out of 196 RRBs, 167 made net profit of Rs 699.93 cr while 29 suffered losses amounting to Rs 92.05 cr. Several initiatives have been taken by Indian government and RBI over the years for better performance of RRBs, but still there are number of RRBs suffering losses. In the time of 2022-23 the number of RRBs in country came down to 43 after the consolidation process. As per the data provided by NABARD, 37 RRBs in country made a profit of Rs 6178 cr and 6 RRBs that incurred losses amounting to Rs 1205 cr. The most disturbing facet of RRBs operation is that they are, on average, losing money. The main element that has contributed to their loss of profitability, is that they mainly lend to the poorer sections at low-interest rates, even with the fact that their operational costs in managing small loans are bit high. Loan recovery of RRBs is disappointing and debts are stacking up. Consequently, the overall position of RRBs in India is not quite

cheering. There is a need to take actions to improve the productivity of Rural banks so that they can serve the rural people more effectively. With the help of latest technology, internet banking and efficient management, it is possible to make RRBs more efficient, reliable and easily accessible to the rural people.

Objectives of the Study

The objectives of the study are as follows -

- To evaluate the growth of RRBs in terms of number of banks and branches.
- To study the growth of RRBs in terms of Profit, loss and net profit/ loss.
- To study the digital banking services provided by RRBs in rural India and its impact on financial inclusion in rural areas.
- To study the performance of RRBs under financial inclusion schemes.

Review of Literature

Dr Syed Ibrahim (2010) in his study on 'Performance evaluation of Regional Rural Banks in India' found that in the post-merger period the performance of RRBs in India improved. He further suggested in his studies that there is need to provide computerization support to RRBs to facilitate seamless integration of RRBs with the main payment systems.

Mr Bhavik Barot, Dr Gurudutta Japee (2021) conducted a study on 'Indian Rural banking – Role of Regional Rural Banks' in which they mention that RRBs in terms of number of bank and branches achieved tremendous growth, but the overall position of RRBs in India is not quite encouraging. They found that the poor credit deposit ratio is still making big dents on the desired functioning of RRBs.

N Savitha Devi (2014) in her research paper 'Problems and prospects of Regional Rural Banks in India' mentioned many problems faced by RRBs i.e., problem of inadequate finance; high overdues and poor recovery of loans; regional unbalance in banking facilities provided by RRBs; heavy loans suffered by many RRBs. She also suggested in her paper that RRBs have to focus on speedy, qualitative and secure banking services to retain existing customers and attract potential customers.

Megha D. Shetty and Sudhindra Bhat (2022) in their study 'A case study on the Growth of Rural banking in India' concluded that RRBs help and serve a nation in numerous ways, such as generating employment opportunities and facilitating everyday financial transactions. They

also given the current state of rural banks that more needs to be done for these institutions to become financially viable and serve the needs of rural population.

Research Methodology

This study is entirely based on secondary data. In this study descriptive and quantitative research method is used. The data is collected from the RBI reports, NABARD annual reports, various research papers, websites and internet. The study is confined only to the specific areas like number of rural banks, number of branches, income statement of RRBs, and digital banking in rural areas.

Growth of RRBs in terms in number of banks and branches

In the following Table-1 Growth of RRBs banks and its branches between 1980- 2023 the details are given.

Table 1 : Details of the Growth of RRBs banks and its branches between 1980 - 2023

Year	Number of RRBs	Number of branches
1980	85	3279
1990	196	14532
2000	196	14462
2010	82	15303
2020	45	21850
2023	43	21995

Source: RBI and NABARD annual reports, 2023

Table-1 gives the details of the Growth of RRBs banks and its branches between 1980 – 2023 in terms of number of banks and branches. RRBs have rapidly grown in size and structure since it's inception in 1975. Between 1980 and 1990 number of RRBs increased drastically in the country as shown in table-1. However, government initiated consolidation program that resulted in the number of RRBs declining from 196 in 2004 to 43 in 2023. In terms of number of branches, RRBs have achieved tremendous growth. In 1980, there was only 3279 branches operating in the country which was tremendously increased to 21995 in 2023.

Growth of RRBs in terms of Profit, loss and net profit/loss(Rs. in Crore) during 2011-2023 :

In the following Table-2 Growth of RRBs in terms of Profit, loss and net profit/loss during 2011-2023 the details are given.

Table 2 : **Details of the Growth of RRBs in terms of Profit, loss and net profit/loss during 2011-2023** (Rs. in Crore)

Years	Number of RRBs	Number of RRBs in profit	Profit	Number of RRBs in loss	Loss	Net profit/loss
2011	82	75	2421	7	71.32	2349.43
2012	82	79	1886	3	28.87	1857.28
2013	64	63	2275	1	2.00	2273
2014	57	57	2694	0	0	2694
2015	56	51	2921	5	176	2745
2016	56	51	2556	5	122	2434
2017	56	50	2208	6	188	2018
2018	56	49	2604	7	387	2217
2019	53	39	1759	14	2411	-652
2020	45	26	2203	19	4409	-2206
2021	43	30	3550	13	1867	1682
2022	43	34	4116	9	897	3219
2023	43	37	6178	6	1205	4974

Source: NABARD annual reports, 2023

Table-2 gives the details of the Growth of RRBs in terms of Profit, loss and net profit/loss (Rs. In Crore) during 2011-2023. RRBs registered a net profit of Rs 4974 cr in 2023, which was highest since the establishment of RRBs in India. Amount of profit, loss and net profit/ loss given in table-2 with the number of RRBs which were making profits and losses between 2011-2023. In 2011, 75 RRBs earned a profit of Rs 2421 cr in which the number of RRBs who were earning profit reduced to 37 because of consideration process and the profit increased to Rs 6178 cr in 2023. Profit has been continuously increasing from 2011-2023, which shows that RRBs' position is gaining strength and stability.In 2011, 7 out of 82 RRBs were in loss amounting to Rs 71.32 cr. Only in 2014 there was no loss in RRBs all of them were earning profit of Rs 2794 cr but in 2020 they had a loss of Rs 4409 cr which is the highest between

2011-2023. There were 43 RRBs in 2023 out of which 6 RRBs have incurred a loss of Rs 1205 cr. RRBs registered net profit between 2011-2018 as seen in table-2. But in 2019 they having a net loss of Rs 652 cr for the first time since 1997 because of implementation of RRBs (employees) pension scheme. This net loss in 2020 increased to Rs 2206 cr but in the same year government infused recapitalisation amount of Rs 700.5 cr with aim to revitalize the RRBs growth. In 2023, RRBs consolidated net profit of Rs 4974 cr which is highest ever since the establishment of RRBs.

RRBs providing digital banking services in rural areas and their impact on financial inclusion in Rural India

As per the NABARD annual report, in 2023 there was 31 RRBs in country which have acquired mobile banking licence. 17 RRBs have acquired internet banking licence after completion of RBI' s eligibility criteria. The number of RRBS linked to BHIM UPI has increased to 26 and only 4 RRBs have on boarded account aggregator framework.

It has been more than a year since RBI has given permission to RRBs to offer digital banking services to their customers. After advent of online facilities in rural areas, people can easily access to financial services. Due to the benefits of digital banking such as speed, security and convenience financial inclusion has got a boost and economic banking services has given boost to India's initiative to reduce the economic gap between rural and urban areas. In the past, rural people faced multiple difficulties in availing financial services which were distance, lack of transportation and the cost of accessing banking services. However, nowadays, a more rural population connecting with digital banking, it has become easier for them to take advantages of transactional facilities provided by RRBs in rural areas.

Rural people, who earlier had difficulty in availing financial services, can now access financial services easily because of digital banking. These digital banking services are also helping in achieving the objectives of financial inclusion in Rural India which are helping in reduction of poverty and inequality in rural and backward areas, promotes economic growth and innovation in rural areas, growth in small businesses in rural areas. It opens up new opportunities for low-income groups and small businesses that have limited or no access to formal financial services. This, digital banking plays a crucial role in boosting financial inclusion in Rural India.

Performance of RRBs under financial inclusion schemes

In the following Table-3 Performance under Financial Inclusion schemes – cumulative accounts/ enrolments in core till March 2023 the details are given.

Table 3 : Details of the performance under Financial Inclusion schemes –cumulative accounts/ enrolments in core till March 2023.

S.N.	Government scheme	31- Mar- 2022			31-Mar- 2023			YoY Growth (%)	
		RRBs	All Banks	RRBs Share (%)	RRBs	All Banks	RRBs Share (%)	RRBs	All Banks
1.	PradhanMantri Jan Dhan Yojana	8.32	45.06	18.5	9.13	48.65	18.8	9.7	8.0
2.	Pradhan Mantri Suraksha Bima Yojana	3.77	28.37	13.3	5.22	33.78	15.5	38.5	19.1
3.	Pradhan Mantri Jeevan Jyoti Bima Yojana	1.57	12.76	12.3	2.24	15.99	14.0	42.7	25.3
4.	Atal Pension Yojana (APY)	0.74	4.00	18.5	0.98	5.2	18.8	32.4	30.0
5.	MUDRA Loans Disbursed (Rs. Lakh core)	0.20	3.31	6.0	0.31	4.46	7.0	55.0	34.7

Source: NABARD annual report, 2023

Table-3 gives the details of the Performance under Financial Inclusion schemes – cumulative accounts/ enrolments in core till March 2023. This is the Performance and execution of RRBs under Financial Inclusion schemes of Government of India. As seen from the above table-3, the YoY (Year on Year) growth (%) in enrolments/loans disbursed by RRBs under all Financial Inclusion schemes was higher than the growth rate of all banks during FY 2022-23. As a result of this, the share of RRBs in implementation of financial inclusion schemes improved during FY 2022-23 and it ranged from 7% to 18.8%. This is in corresponding to the 3% share of RRBs in the total custom of all commercial banks and 14% share of RRBs in branch network of all commercial banks. The highest enrolments growth (in percentage) in RRBs banks under the Financial Inclusion Scheme till March 2023 is in Mudra Loans, Pradhan Mantri Jeevan Jyoti Bima Yojana and Pradhan Mantri Suraksha Bima Yojana at 55.02%, 42.7%, and 38.5% respectively. Through these schemes, along with financial inclusion in rural areas, the inclination and awareness of rural communities towards banking services and facilities is increasing.

Conclusion

In terms of number of banks and branches, RRBs achieved massive growth. It has extended it's services to 26 States and 3 UTs in the country. RRBs has been successful in serving farmers, artisans and small entrepreneurs by connecting them to banking services and providing them

credit at low rate of interest, even with the fact that their operational costs in managing small loans are a bit high. Due to this, at present RRBs are facing the problems of overdue, recovery and NPAs, which are also the main cause of losses in RRBs. To deal with these problems and strength the operations of rural banks, the government has sanctioned a recapitalisation amount of Rs 10,890 cr in FY 2022 and FY 2023. The effect of which was visible on the net profit of RRBs which was registered highest net profit of Rs 4974 cr in 2023. But on the other hand, 6 RRBs have incurred a loss of Rs 1024 cr in same year. It will still take time to improve the working of RRBs. They should adopt latest technology and set up their operations in small towns and backward areas.

However, recapitalisation scheme also helping RRBs to meet the regulatory requirement of minimum 9% CRAR, which was prescribed by RBI to RRBs in revised circular of digital banking norms in November 2022. By the advent of digital banking in rural areas through RRBs, the unserved population in rural areas has started connecting to digital transactional services. As the number of RRBs is increasing in providing internet transactional services to the unserved population, many people living in rural areas are also connecting to these services. With the help of digital banking now people living in rural and backward areas can conduct online transactions like bill payment, money transfer, checking account balances and more. Due to increase in digital banking in rural areas, there is growth in small businesses, development of infrastructure, more bank accounts being opened, which is good sign for economic development in rural and backward areas. These services are also helping in achieving the objective of financial inclusion in rural India. Despite the problems of loss, NPAs, overdue, recovery and more faced by RRBs, they have played a important role in encouraging financial inclusion and economic development in rural and backward areas.

Suggestions

RRBs serving rural and backward population since it's inception in 1975. However, they are facing various problems in their operations. There is a need to take actions to enhance the functioning of rural banks so that they can serve the rural people efficaciously with the help of latest technology, efficient management, it is possible to make RRBs more efficient, reliable and easily accessible to large section of underprivileged and vulnerable sections of the country.

- RRBs should develop a strong, quick and prompt loan recovery system in order to solve overdue problems.
- They should give more attention on deposit mobilisation, so that they can rise their own financial resources.

- RRBs should be well equipped with latest information about the areas in which they are operating so, that they may plan adequate credit policy and fulfil the aspirations of the locality.

- RRBs should organise local events, seminars and workshops to aware rural population about banking products and services in local language.

- RRBs should co-operate with local entrepreneurs and self-help groups to extend banking services to their customers.

- Mobile banking vans can be used by RRBs to offer deposit and withdrawal facilities in remote areas.

- RRBs should be more autonomous, so that they can make decisions without depending on their sponsor banks.

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IMPACT OF WOMEN ENTREPRENEURS SKILLS AND CREATIVITY IN ECONOMIC DEVELOPMENT

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Abstract

Any society's or nation's total economic growth depends on women's economic and social progress. Every woman has an entrepreneurial attitude, but it hasn't received the proper recognition in India. Though there are still some exceptions, people are now more open to accepting women in leadership roles in our society because of changes in the environment. Launch with the goal of fostering the long term growth of women business owners for equitable national growth, India is dedicated to bolstering female entrepreneurship in the nation. Indian women are praised for their achievements and have been creating waves in their various fields, in spite of all the societal obstacles they face. Every Indian woman now needs to adapt her lifestyle due to the changing social fabric of Indian society, which includes women's higher educated position and a range of desires for better living.

Keywords: Economics, Growth, Entrepreneurship, Advancement

Introduction

Anyone who start or run a business is considered an entrepreneur. Entrepreneurs take risks and create profitable companies, whether they are employed in agriculture, services, retail, or manufacturing . In the process of accomplishing their goals, they usually disrupt long-standing industries. Someone who starts a business or who owns and runs one, he adds, adding that this would encompass owner-managers of small and medium-sized enterprises, including those who acquired the company from another person (Suong, 2021). Entrepreneurship is occasionally included in the list of elements of production, along with labor, capital, and land/natural resources. An entrepreneur uses them in combination to produce products or offer services. Usually, he or she drafts a business strategy, employs staff, secures funding and resources, and gives the company direction and management. The word "entrepreneur" (which originates from the French verb entreprendre, which means "to undertake") has never been defined consistently by economists (Vitliemov, 2024). Entrepreneurs were excluded from classical and neoclassical economics' formal models, even though the concept of an entrepreneur has been existed since generation.

Entrepreneurship's Contribution to Economic Growth: - The major role of entrepreneur in the economy are as follows.

- Increases Living Standards: - A key factor in Economic growth is the ability of entrepreneurship to significantly enhance people and communities life quality through the development of new industries, wealth, and employment. By creating goods and services that are reasonably priced, secure, and enhance people's lives, entrepreneurship may raise people's standard of living in addition to producing employment and large-scale revenue. Furthermore, entrepreneurship eliminates the lack of essentials by producing fresh goods and services.

- Financial Self-Sufficiency: - Entrepreneurship allows the nation and the entrepreneur may have the ability to become financially independent. It lowers the country dependence on foreign goods and services and promotes self-sufficiency. Exporting manufactured goods and services to foreign markets can lead to income inflow, progress, and economic independence. Furthermore, entrepreneurs have complete control over their financial future. With their diligence and ingenuity, they generate income and accumulate financial stability and economic freedom through their wealth.

- Advantages of New Enterprises and Companies: -Entrepreneurs determine market requirements and provide solutions with their products and services before starting their business. By starting new businesses and ventures, entrepreneurs significantly influence the economy and create a more vibrant and various business environment. Entrepreneurship results in the establishment of new and enhanced products and services that promote economic growth in addition to fostering innovation and competitiveness.

- Employment Generation: - Entrepreneurship is a key component in the creation of jobs. Overseeing new company operations and satisfying customer demandshas led to the creation of new employment opportunities. Along with encouraging competition and innovation, entrepreneurship also attracts investments and other entrepreneurs, which leads to the development of new employment in manufacturing, services, technology, and construction, among other sectors.

- Promotes the Formation of Capital: - Capital creation is the process of accumulating assets, such as savings and investments, to support business ventures and encourage economic growth. Through making in investment, entrepreneurship can create a capital formation. In addition a dynamic and diversified an economy that encourages capital creation and offers access to a wide range of investment opportunities by starting new businesses and growing current ones.

- Increases per capita income and the gross national product: - By raising the Gross National Product (GNP) and Per Capita Income (PCI), entrepreneurship has the ability to significantly accelerate economic growth and prosperity. While GNP evaluates a country's total economic output, PCI calculates the average income per person. An increase in GNP may cause PCI to rise. Entrepreneurship may increase GDP, create employment, increase consumer spending, and increase tax revenue by giving rise to new businesses and industries.

Review of Literature

According to Deogirikar, S., and Agarwal, N. K., (2024) nation's industry and economy have grown significantly due to the increasing number of women becoming entrepreneurs. Women-owned companies are altering the nation's demographics, generating jobs, and serving as an inspiration to the next generation of female entrepreneurs, among other significant contributions to society. Take off India is committed to supporting women entrepreneurs in the country with the aim of promoting their sustainable growth for balanced national growth.

supporting goals, networks, communities, and programs while also establishing partnerships amongst various start-up ecosystem participants. To encourage women entrepreneurs around the nation, the MSDE has launched a number of projects. Nevertheless, MSDE hasn't carried out any empirical research on the difficulties encountered by female business owners in the nation.

Rao, P. V., (2021) study explores the idea of empowerment from both social and economic angles, as well as how entrepreneurship empowers women in rural areas. The study was carried out on rural Andhra Pradesh's Kurnool district's self-employed women. There were 200 people in the sample. The study employed a descriptive research methodology and made use of both primary and secondary data. The acquired data was examined by using a statistical method such as the chi-square test. There is a discussion of the study's significance and the consequences of the results.

Goswami, S., (2023) Stated that the vast majority of the nation's population is reliant on agribusiness and agriculture. The family occasionally requires a lot of money to cover their basic expenses and maintain themselves. Furthermore, farmers are forced to relocate in search of work due to the low revenue from agriculture. It is crucial to empower farmers through business development in order to achieve this. In light of this, farmer families that rely on agriculture have many opportunities to engage in agricultural-related industries and enterprises. As a result, it is imperative that these families be empowered on both a social and economic level.

Saraswat, R., and Lathabahvan, R., (2020). In every economy, entrepreneurs are crucial. These are the individuals who possess the aptitude and drive to introduce novel concepts to the market or offer a service, and who also take the appropriate actions to turn those concepts into profitable ventures. Since Indian society has a male-dominated sociological and psychological framework and traditions are deeply embedded, educated Indian women would have to work hard to achieve equal rights and positions. Notwithstanding all of the social obstacles, Indian women have distinguished themselves and received recognition for their achievements in a variety of fields. Indian women's lifestyles have changed as a result of their increased educational attainment and aspirations. In a number of spheres of life, including business, she has successfully faced up against males. These female leaders are assertive, convincing, and willing to take risks. They have survived and thrived in a very competitive climate thanks to their perseverance, hard work, and dedication. The study aimed to increase knowledge and

comprehension of women's entrepreneurship and its importance to the rational, economic, and general growth of the globe. A thorough study of the literature on female entrepreneurs is done. The key challenges facing Indian women entrepreneurs, their success stories, factors affecting women entrepreneurs, and the opinions of different societal groups about women entrepreneurs are finally covered.

Hasanah, and Sriminarti, N., (2018) Women's roles in business are fast expanding since, in this age of openness, females have several options. Women's participation in economic activities benefits the Indonesian economy. The goal of this project is to develop a paradigm for empowering women via business in the Depok and Bogor regions. Surveys were employed as the research approach. Survey research uses samples from both big and small groups to analyze sociological and psychological characteristics. The research resulted in the development of a woman empowerment model based on entrepreneurship in the production of Nata de Aloe Vera items that are highly competitive with similar products made by artisans in other places. Throughout history, sales and marketing have been performed in a straightforward, traditional manner. Every day, a group of craftswomen manufactures nata de aloe vera, albeit only in modest quantities. They also make in huge quantities when requests for major parties are received, such as weddings, business festivities, and other special occasions.

Singh, A., (2019) reported that entrepreneurship is the action of starting a business. There should be incentives for women entrepreneurs. Women may now handle any business while still caring for their families. Entrepreneurship education should be offered to both educated and illiterate women in rural regions. Today's women compete with men in every sector, and they have the same guts and skill to be great entrepreneurs as men. It contributes to women's lives becoming more respectable in society. To encourage women's entrepreneurship, the Indian government has created numerous initiatives such as "MUDRA" and "START-UP" to promote micro or small businesses. However, in order to benefit from these government services, women must be informed. As a result, people can take advantage of the opportunity to advance their careers. This article will address obstacles to women's entrepreneurship and propose solutions to promote their standing in the economic sector.

Objectives

- In order to examine the effects of female entrepreneurship on India's growth.
- To explore the obstacles for women entrepreneurs.
- Appropriate recommendations for the growth of female entrepreneurs.

Obstacles for women entrepreneurs

- Fewer sectors are female-friendly: The corporate sector in India is still dominated by men, despite laws and programs aimed at promoting gender equality. Recent studies show that while men dominate more profitable areas like construction, manufacturing, and so on, most of the country's women-owned enterprises operate in low-income sectors. Women entrepreneurs are also forced to work in traditionally "women-friendly" industries like education, fashion, and beauty care, among others, due to the male-centric nature of many enterprises. It severely limits their experience, opportunities, and abilities.

- Inadequate social and institutional support: - The majority of female business owners lack the social support from their friends, family, and immediate networks that they need to launch their ventures. The absence of business sector mentorship is one of the biggest issues facing the nation's female entrepreneurs. When it comes to institutional support, things are the same. Despite efforts to support female entrepreneurs, many women do not obtain prompt advice or support from authorities. Their confidence and ability to take risks are diminished by the absence of an appropriate support system.

- Poor financing prospects: - Even though it may seem unfair, there are serious gender biases in India's banking industry. Due to investor prejudices and other obstacles, women-led businesses in the country do not have access to capital. Just 12% of all businesses financed in 2019 have at least one female founder, per a survey conducted by Innoven Capital. Banks and other financial institutions consider women to be less creditworthy, and many angel and venture capitalists are reluctant to fund women-led businesses. In addition, a lot of Indian women do not have any assets or property registered in their names, which makes it difficult for them to obtain private financing or collateral loans.

- Insufficient access to professional networks: The inability to access professional networks is another important problem and barrier for Indian women entrepreneurs. The Google-Bain survey indicates that female business owners participate less in formal and informal networks. The survey claims that a dearth of networking opportunities affects over 45% of small business owners in metropolitan areas. Studies show that most professional networks today are dominated by men, making it more difficult for women to enter and navigate these environments. They thus lose out on

chances to grow their company, network with suppliers and partners, and build social capital.

- Pressure to Follow Traditional Gender Roles: - Both men and women are compelled by patriarchy to fulfill particular gender roles. Cooking, housework, childrearing, elder care, and other responsibilities are expected of women. It may be challenging to balance work and family obligations, let alone while trying to build a brand. The urge to fit in with traditional gender norms is one of the biggest issues facing female entrepreneurs. In order to have an "easy" job that enables them to spend more time with their families and kids, they are often urged to give up their entrepreneurial endeavors. In addition, a woman who puts her career before other facets of her life is seen unfavorably.

Factors contributing to increased female entrepreneurship in India

Even if the share of female entrepreneurs is increasing, it is still far lower than the participation rate. There are a number of factors that help increase the percentage of Indian women entrepreneurs.

- Entrepreneurship and its nature: - Women often pursue entrepreneurship due to a lack of freedom, autonomy, and challenge in traditional jobs.
- Empowerment: - Today, Indian women are increasingly empowered. Legislation is being prepared to provide greater chances at different levels.
- Social conditions: - Women require a higher level of participation. Entrepreneurship can help women overcome institutional and cultural barriers to work and enhance their family income.
- Multitasking oriented: - Women thrive at multitasking and achieving high-quality results. A lady may multitask while talking on the phone, checking email, and planning her day's tasks. Men struggle with multitasking, which can lead to missed chances.
- Cooperative: - Due to their innate ability to work well with others and their passion of undertaking projects together, women entrepreneurs are seeing increasing success. They act on their instincts when they come across attractive, like-minded women with whom they believe they can work to achieve something. Women tend to have a collaborative mindset and mentality. One seldom ever encounters a competitive mindset.

- Change in Structure: - An important motivator is a structural change. Women now make up a larger portion of society's economic composition and make up a larger share of the workforce. They are resourceful, taking time off from work to raise their children at home, returning when the children are older, or working a flexible schedule when the children go to school.

- Females Are Social: - These days, success as an entrepreneur requires social media involvement. Women are sociable creatures by nature. They can swiftly and affordably use social media to launch new enterprises. They are skilled at drawing people together and striking up discussions, whether it is via Facebook, Twitter, blogs, forums, or other online communities.

Appropriate Suggestions

A few recommendations exist for the advancement of female entrepreneurs.

- Every development should specifically target women as a target group.
- The government ought to offer improved educational resources and initiatives.
- More government initiatives ought to be introduced to encourage female entrepreneurs to start both small- and large-scale businesses.
- It is necessary to develop a sufficient training program for women entrepreneurs. In order to develop female entrepreneurs, training programs must be continuously monitored and improved.
- Provide marketing and sales support on behalf of the government.
- A women's training program that teaches how to identify and communicate psychological requirements should be established to promote more submissive female entrepreneurs.
- More working capital support from financial institutions is needed, both for small.

Conclusion

Women's entrepreneurship ensures gender equality and helps accomplish the Sustainable Development Goals (SDGs) in addition to providing a means of income. A number of elements are useful instruments for encouraging women to become business owners (Debnath et al, 2020). It is evident that female entrepreneurs face several challenges while launching their businesses. The Indian government has made attempts to support women entrepreneurs, but these efforts have had little impact on the obstacles that women confront when launching their

own businesses. Lack of knowledge, incompetence, and lack of support from family members are three main reasons why new businesses fail (Amrutha et al, 2022). Women's status in Indian society is undoubtedly changing, and this will have a significant influence on how society develops in the future. The topic of women's entrepreneurship encompasses both the place of women in society and the function of entrepreneurship within that same society. Indian women are crucial to the nation's initial socioeconomic development.

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INCLUSIVE GROWTH IN INDIA: ISSUES AND CHALLENGES

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Abstract

The amazing growth of India's gross domestic product (GDP) has eclipsed the growing gaps in absolute and relative inequality, revealing two sides of the country. On the one hand, India is a bright country that is gaining media and international attention as it competes globally and benefits from economies of scale, globalization, and technological advancement. However, there is a more significant but less obvious suffering in India, where a sizable portion of the populace still lives in poverty and in peril. These two sides reflect the hope and misery of India. Promoting inclusive development and striking a balance between these two factors will be the region's largest task in the next years. Examining the potential and challenges of accomplishing this kind of growth in India is the aim of this study.

Keywords: Inclusive Growth, Growth Strategies, Economics.

Introduction

The Indian economy saw significant and acceptable expansion throughout the course of many decades, but it did little to improve the lot of the nation's population. The majority of the poorer population remained in terrible circumstances. As a result of their exclusion from the benefits of development, there was uncertainty and discontent. This exclusion was the consequence of weaker and poorer groups' inability to participate in the development process due to a lack of resources. They were unable to engage in development projects or gain from programs intended to raise their quality of life because of their poor literacy, knowledge, and abilities. The eleventh

plan attempted to solve this problem by promoting the idea of inclusive growth, with the objective of making sure that every member of society. may engage in and profit from economic development. Sustainable growth must be inclusive, involving a diverse array of industries and a large segment of the workforce, even though rapid growth is necessary for poverty reduction. This definition of inclusive growth suggests a strong link between the macroeconomic and microeconomic factors that influence development. The micro dimension emphasizes the need for structural change for economic competitiveness and diversity, such as the creative destruction of companies and employment.

Inclusive growth means considering both the speed and direction of economic growth since these two factors are related and must be treated as a unit. The Growth Theory holds that the rate at which growth occurs and its manner are both essential for fostering sustained, long-term growth and alleviating poverty. Report: Strategies for Inclusive Development and Sustainable Growth (Commission on Growth and Development, 2008). The commission asserts that any successful growth plan must include inclusiveness, which includes fairness, equal opportunities, and assistance during market and employment transitions. Our emphasis is on providing equitable access to markets, resources, and fair regulations for both enterprises and individuals. Systematic inequality of opportunity is referred to by the Commission on Growth and Development (2008) as "toxic" because it has the potential to stifle growth by generating political unrest or disputes. The inclusive growth model focuses on the long term, focusing on generating good employment rather than merely increasing the income of the poor. Governments may utilize money-sharing programs in the near term to assist the needy during growth initiatives, but these programs are unable to address long-term poverty and may even create issues in the near future. These programs might be quite expensive for already stretched resources in low-income nations, and there are locations where poverty cannot be alleviated through income sharing. where the average annual income is less than US$700. An OECD report from this year similarly states that in certain communities, even affluent nations are unable to address growing poverty simply via money sharing.

Need for Inclusive Growth in India

The most difficult task in a democracy like India is to integrate its 600 million rural residents into the mainstream. Developing people's skills is the best way to achieve inclusive growth. According to Mr. Jeffrey, the Chairman & CEO of Manpower Planning, USA, a multifaceted strategy to education and skills development is essential for growth, and that public-private

partnerships can solve the issue of a lack of talent. India's economic and social progress has made great strides since independence, which has fuelled the country's rapid growth in the 21st century.

The following factors encouraged the India to concentrate more on inclusive growth:

- In terms of size, India ranks seventh, and it is the second most populous nation in the world. When considering market exchange rates, it is the 12th largest economy; when using PPP, it is the fourth. India, on the other hand, is still lagging behind China in terms of growth.

- The nation struggles with issues like poor agricultural output, inadequate job opportunities, poor human development, urban-rural disparities, gender and social inequality, and regional disparities.

- The primary goals of the nation are to foster economic growth through inclusive development while simultaneously lowering poverty and other inequalities.

- The nation's progress depends greatly on its political leadership. However, research indicates that Indian politicians have a low level of scientific literacy.

- According to studies, India loses more than 10% of its GDP to corruption. One of the biggest barriers to inclusive growth is corruption.

- In India, child labour is legally prohibited with harsh measures to combat this cruel behaviour, yet many children are still compelled into work, leaving them ignorant of their education.

- Literacy rates must be increased in order to have a qualified labour force that can support long-term growth.

- Politicians and opposition parties frequently make accusations and hold outdated beliefs that impede the nation's economic reforms.

- The fact that India has a 9% GDP growth rate is a good indicator that inclusive growth is important.

- There is increasing worry about inequality and exclusion, even on a global scale, and there is currently a move toward inclusive development strategies.

Elements of Inclusive Growth

An increase in spending on healthcare was one of the key components of the inclusive growth plan, according to former Prime Minister Sri Man Mohan Singh. and education, enhancing rural infrastructure, providing farmers greater credit for agriculture, generating more employment in rural areas via a specific support scheme, and boosting investment in rural communities. Lowering poverty, increasing the number of jobs and the quality of employment, expanding the agriculture and industrial sectors, and enhancing social inclusion are the five primary components of inclusive development. services, decreasing regional disparities, safeguarding the environment, and ensuring equitable income distribution.

Challenges before Inclusive Growth in India

1. The Employment Challenges:

Job creation is one of the major obstacles to India's progress. Currently, India's population is experiencing a demographic transition, with a rapid rate of growth. The number of young people joining the workforce is still rising, even if the pace is slower. As a result, the unemployment rate and the number of job Although there have been some advancements in job prospects, demand from job seekers remains strong. As a result, inclusive growth must prioritize the creation of more employment opportunities. This is highlighted by the Eleventh Five-Year Plan.

The capacity to create enough productive jobs will be a crucial measure of the success of development. But it's critical to create a growth model that creates employment opportunities for both newcomers to the workforce and those who are already working. transferring from farming to labour-intensive sectors. Additionally, small and medium-sized businesses (SMEs) will contribute significantly to job creation in the service and industrial sectors.

Poverty Alleviation: The prevalence of poverty at such a high rate is just unacceptable. According to the Tendulkar Report, also known as the Expert Group Report, roughly 37. 2% of India's population was considered to be poor in 2004–2005. Despite significant GDP growth and 60 years of progress, the poverty rate is still excessively high. According to the Eleventh Plan, the most important aspect of an inclusive growth strategy is a significant reduction in poverty and greater economic opportunities for all. Because it helps generate more employment and increase income for more people over time, rapid economic development is crucial.

2. Disadvantages of the Social Justice and Empowerment:

Everyone should have an equal opportunity to succeed, with liberty and respect, and without encountering social or political obstacles, according to the Eleventh Plan. This freedom to move and change should be accompanied by greater opportunities for people to advance their economic and social well-being. Only if members of marginalized communities feel empowered and engaged in society can this occur. Hence, any strategy for inclusive growth must prioritize helping marginalized and neglected populations, according to the Eleventh Plan. The concept of inclusiveness should include giving fair opportunities and the potential for advancement in life for everyone, not just addressing poverty. everyone, including women, minorities, Scheduled Castes, Scheduled Tribes, and Other Backward Classes.

Gender Equity: Because of gender inequality, it is worrisome that women, who make up about half of India's population, are still mostly excluded from the development process. in practically every socioeconomic sphere, including employment, health, and education, which causes frustration and uncertainty. As a result, the inclusive growth strategy acknowledges that women are agents of socioeconomic change and growth, rather than merely focusing on empowering them. In order to guarantee women's rights and entitlements, inclusive growth attempts to make sure that their demands, rights, and contributions to development are recognized and given priority.

Development with Distributive Justice: Inclusive growth is not simply about expanding the economy as usual and then incorporating elements like fairness and aid to the needy. Rather, it's a strategy for economic development that genuinely includes everyone and addresses the demands of both the environment and equity. Therefore, policies should also ensure that more people are able to participate and that those who are left behind are not excluded in order for the economy to grow at a rapid rate. out receive their fair share of the rewards. This implies

that there must be ways to distribute the benefits of growth to those who are unable to participate completely in the typical market-driven economy. As a result, inclusive growth must guarantee that the nation expands rapidly while also ensuring that the poorest and most marginalized members of society gain significantly.

Social Sector Initiatives: The administration has launched a number of schemes, projects, and activities at both the national and state levels in order to assist in expanding the economy in an inclusive manner. The goal of these programs is to increase employment options and future prospects for marginalized, impoverished, and frequently ignored segments of society. They provide essential services such as basic education and health care to enable individuals to participate in development initiatives. Scheduled Castes (SCs) and Scheduled Tribes (STs) are among the marginalized populations that get particular attention. In order to enhance their social and economic circumstances, plans are being developed and implemented.

Inclusive Growth and Social Sector Expenditure: If the nation's economy is expanding rapidly and there are concerted attempts to provide the underprivileged and marginalized with access, growth should be inclusive of everyone. basic services such health care and education, clean water, improved sanitation, roads in rural regions to facilitate movement, and other essential public services. In addition to helping people live better lives, these services also support the future growth of the economy. People in a village may miss out on development opportunities if they lack necessities such as roads that connect them to cities or a means of interacting with distant markets. Someone, for instance, is less likely to engage in development if they lack access to adequate education or healthcare due to their illiteracy, lack of information, or bad health.

To enable underprivileged and marginalized communities to share in the nation's economic progress, gain the advantages of development, and increase their productivity and capacity to utilize Spending on social services is essential to creating new economic opportunities, even those that rapid growth may not provide by itself.

3. Possible Solutions:

The issue might take many forms, such as improving government expenditure, enhancing institutional functioning, implementing policies more successfully, or providing higher quality services. India has made significant strides since gaining independence in a number of areas, including maintaining a democracy, halving poverty, and improving literacy. lot, and better

health conditions. But with these successes, new problems have also arisen. The most important ones are:

Ensuring improved basic public services: People want better access to healthcare, education, law enforcement, clean restrooms, roads, and electricity as they make more money. Despite the fact that these services are now more accessible to the public, the focus is now on the quality of these services. It is possible to enhance public agencies from the inside out, provide people with consistent and trustworthy information, strengthen local governments, give them greater authority, and more. Outside organizations may be able to provide more assistance. Nevertheless, it cautions that merely planning reforms is not enough; the key is to ensure that the reforms are implemented correctly.

India's primary medium-term challenge is not to boost growth from 8% to 10%, but rather to maintain its rapid growth while ensuring that everyone benefits from it. Because the differences between cities and rural areas, between wealthy and impoverished states, and between skilled and unskilled workers are increasing.

4. Reforms to improve economic efficiency:

Labor Legislation: India's stringent labour regulations have hampered the expansion of the formal manufacturing sector. Improved legislation may encourage investments that need more employees and create better employment possibilities for India's large number of jobless and low-wage earners. the 80 million new workers anticipated to enter the labour market during the next decade.

Financial Sector: A significant obstacle for Indian SMEs is obtaining credit. Improving access to financial services and ensuring that financial systems operate efficiently is essential for equitable growth. For broad development, strong and well-managed financial organizations are crucial. The difficulties in ensuring that these businesses are well-governed and appropriately regulated are demonstrated by the experience with deposit-taking NBFCs and dual-regulated cooperative banks. Although India maintains a strict line with larger banks, it has been more accommodating to smaller banks, such as regional rural banks and tiny urban cooperative banks that operate inside a district. the greatest global practices without sacrificing liquidity or safety standards.

Real Growth: The move to floating exchange rates following years of set exchange rates has resulted in a significant expansion of the foreign exchange market. The worldwide derivatives market is currently valued at over $480 trillion, or twelve times the size of the world economy. This degree of financial leverage is now quite high during the ongoing economic downturn. The expansion of financial operations is clearly outpacing actual economic development. The actual economy, which includes agriculture, industry, and services, has been overlooked and undermined. Money laundering and other dangerous activities like terrorism have also been fuelled by the enormous amounts of cash and capital that flow freely across borders.

Agriculture and the rural economy: Getting a decent return on investments in agricultural equipment and technology is crucial for increasing agricultural productivity. Additionally, fostering non-agricultural enterprises in rural regions is essential for improving the local economy. States That Are Lagging Behind: The gap between states has widened due to differential rates of growth. These slower-growing states must generate employment and draw investment in order to catch up. They should streamline regulations, enhance rural infrastructure, guarantee safety and order, and establish a solid framework for investing in natural resources that strikes a balance between business and the environment. and addressing community needs while increasing financial help for rural communities. Real progress and shared growth are contingent upon the government operating effectively as a unit and comprehending every component of it.

The Right to Information Act: With the aid of this legislation, people may discover more about the various government initiatives that are launched from time to time and how they are implemented. People can use these programs more effectively if they have this information.

Cooperation between the public and private sectors: Partnerships between public and private organizations can help provide a wide range of services more efficiently, including basic education, airport improvements, telecom services, and healthcare. Unless private organizations also ensure that they are held responsible for their work, it is unrealistic to anticipate significant improvements in service from them alone.

Opportunity and Empowerment: Policy reforms should prioritize giving people more power and better opportunities so that everyone in India may participate in the fair economic expansion that results in inclusive development for all. Despite the improvements in rural areas, this advance alone is insufficient. In terms of possibilities and empowerment, more assistance

is required. Improving people's access to finance in rural areas may be beneficial, but only if combined with additional initiatives that enable the underprivileged to profit from the local economy.

Change Accountability: Money spent doesn't always produce positive outcomes. People are worried about the real effects of these changes. The process by which reforms are implemented should be improved, and it should be done in an efficient and transparent manner. At the moment, these changes are only benefiting the wealthy and middle classes, not the poor. Therefore, the priority should be on ensuring that the underprivileged also receive these advantages.

Land: Despite the critical importance of boosting agricultural production to offset the loss of agricultural land, the sluggish growth of non-agricultural jobs, the necessity for industrialization—including SEZs— The fact that there are so many smallholders who depend on urban housing for their livelihood has caused misunderstanding and irritation. Land acquisition requires a balanced and careful strategy, as emphasized by this.

The issue of social security persists: The 11th Plan's targeted livelihood support is at risk because the government is not interested in or committed to raising the circumstances of workers in the unorganized sector. schemes that seek to raise the productivity and earnings of individuals working in low-paying industries like weavers, artisans, small and micro businesses, and craftsmen. In accordance with the recommendations of the National Commission for Enterprises in the Unorganized Sector (NCEUS), the government has implemented initiatives to provide social security through health care. old-age pensions, life insurance, and general insurance. However, at the moment, only families living below the poverty line (BPL) are eligible for these programs. It would be more inclusive and helpful to include middle-class families.

Conclusion

A nation's citizens must be inclusive in order for it to advance. Despite having one of the largest economies in the world and one of the fastest rates of economic growth, the growth distribution in India is extremely uneven and skewed. The difference is clear in terms of both geography and personal interaction. Lawmakers and politicians should keep in mind that exclusivity and inequality are time bombs because they undermine the entire system and foster societal unrest.

In order to reach Golden India and become one of the top-performing states in the country, the states must learn from the errors committed during the previous sixty years. years and focus on the aforementioned priority areas for the next ten or so years. Otherwise, India might lag far behind many other countries in achieving inclusive, broad-based development. Fortunately, the inadequate execution of plans and policies intended to engage the bottom of the pyramid is more of a problem in India. rather than a deficiency in resources or skills. It is in the best interest of the nation's managers to recognize this as soon as they can.

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TRADE RELATION BETWEEN INDIA AND COUNTRIES OF CENTRAL AMERICA: OPPORTUNITIES, CHALLENGES AND GOVERNMENT INITIATIVES

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Abstract

The paper discussed the trade relation between India and Central America countries. It has found that trade between India and Central American countries is still in the early stages of development, but there is a good chance for it to grow. India sends automobiles, medicines, and engineering products to Central America, while imports food, minerals, and local made goods from Central American countries. India also provides IT services, machines, clothes, and medicine to Central American countries. Central America has chances for India to invest in farming, manufacturing products, and services. Guatemala and Panama are the larger trade partner of India. India has respectively 562.6 million USD and 191.9 million USD trade surplus with Guatemala and Panama during 2024. In overall, India has trade surplus with the countries of central America region. India has more intense trade with Nicaragua and Guatemala, where low with Panama and El Salvador. India has higher Trade Complementarity Index with Nicaragua, Costa Rica and Guatemala. India export more diversified products in central American countries. Navigating goods in the region is expensive due to the large distance between them. Also, Central America doesn't have strong connections between its countries, there are language differences, and India faces tough competition from China's well-established trade routes. Therefore, government of India and central American countries should work together for mitigating such challenges and expanding trade among them.

Keywords: Central America Region, Export, Import, and Trade balance

Introduction

Foreign trade in India involves all the goods and services that are brought into the country and sent out. At the national level, the Central Government handles trade through the Ministry of Commerce and Industry. Even before India became independent, the government had semi-autonomous diplomatic relations. After gaining independence from the UK in 1947, India joined the Commonwealth of Nations and actively supported independence movements in other countries. During the Cold War, India followed a foreign policy of non-alignment, meaning it didn't side with any major power group. However, India had strong ties with the Soviet Union and received a lot of military help from them. Before 1991, India had a closed economy because import tariffs were very high, usually over 200%, and there were strict limits on how much could be imported. Foreign investment was only allowed if it was entirely owned by Indians. Since the economic reforms in 1991, India's economy has grown a lot because of increased foreign trade. From 1992 to 2005, the amount of money from foreign countries investing in India more than tripled. During the same time, India's total economic output, known as GDP, went up from $266 billion in 1991 to $2.3 trillion in 2018. In 2023, India became the seventh biggest country in the world for exporting commercial services, and it accounts for 4.6% of all global trade in services.

India sends out about 7,500 different products to nearly 190 countries and brings in around 6,000 products from 140 countries. The pharmaceutical industry in India was worth about $50 billion in the fiscal year 2023-24 and is expected to grow to $130 billion by 2030. India is the second-largest importer of oil after China and depends a lot on imported crude oil. India gets about 82.8% of its crude oil and 45.3% of its natural gas from other countries. The process of cutting and polishing diamonds is mostly done in Surat, a city often called the 'Diamond City'. In 2025, India became the third-largest vehicle manufacturer in the world and exported half of its two-wheeler production. The two biggest things India trades are mineral fuels, both refined and unrefined, and gold, including finished gold items and gold metal. The top places where India sends its goods are the European Union and the United States. India has full diplomatic ties with 201 countries. India's relationship with Central America is getting stronger because of strategic and economic reasons. Central America is becoming a more important economic area for India, with lots of chances in fields like pharmaceuticals and technology. India and Central American countries are working together on Digital Public Infrastructure. Because of its important position and growing economy, Central America has become an area of interest for India.

Literature Review

Montague (2001) looked at trade policy changes in 1998-99 and studied what more needs to be done to help Honduran producers compete better in both foreign and local markets. The Ministry of Industry and Trade (MIT) is the main government body that creates, organizes, and carries out trade and investment policies. Honduras joined the WTO as one of the original members in January 1995. Kamat (2017) observed at the different industries and goods that are important in the India-Preferential Trade Agreement, which is about trade between Latin America and India. The Trade Intensity Index helps measure how much trade happens between two countries and whether that trade value has gone up or down.

Maharaj (2017) started to look into why India hasn't been more involved with the region and pointed out where improvements could be made to help increase cooperation between India and countries in Latin America and the Caribbean. Kumar (2018) studied the trade relationship between India and the USA using the Revealed Comparative Advantages Index and the Trade Complementarity Index. The study found that India has a comparative advantage in 9 out of 20 main trade categories based on 2-digit HS codes, while the USA has a comparative advantage in only 8 of those categories. Peguero et al. (2019) say that in Central America and the Caribbean, the agricultural sector has been important for creating jobs, bringing in income to rural areas, promoting exports, and ensuring food security.

Srivastava et al. (2022) studied the trade between India and four Latin American and Caribbean countries—Brazil, Colombia, Mexico, and Trinidad and Tobago—from 2001 to 2019. They used a tool called the augmented gravity model to look at trade patterns. Their findings show that factors like GDP, GNP, per capita GDP/GNP, and how open a country's economy is all have a big impact on trade between countries. Even though trade agreements don't have a strong effect, open trade and liberal trade policies are still very important. Domínguez (2023) points out that changes in the global system, political and economic shifts, and the election of new governments in India and key Latin American countries like Brazil and Mexico have helped speed up and strengthen the relationship between India and these countries.

From the studies mentioned, it is clear that trade between India and Central American countries is still in the early stages of development, but there is a good chance for it to grow. India sends automobiles, medicines, and engineering products to Central America, while Central America sends food, minerals, and some made goods. India also provides IT services, machines, clothes, and medicine to Central American countries. Central America has chances for India to invest in areas like making things, farming, and providing services.

Objectives

The general objective of the paper is to study the trade relations of India with Countries of Central America. The specific objectives of the paper are:

- To examine the status of trade relation between India and Central American Countries.
- To study Trade intensity index, Trade complementarity index, Export diversification index, and Logistic performance index between India and Central American Countries,
- To identify prospects and challenges of trade between India and Central American Countries.

Methodology

- **Study Area:** Central America is a part of North America. Its borders are set by Mexico to the north, Colombia to the southeast, the Caribbean Sea to the east, and the Pacific Ocean to the southwest. Central America is made up of seven countries: Panama, Nicaragua, Honduras, Guatemala, El Salvador, Costa Rica, and Belize. It is a narrow land strip that connects the southern part of Mexico to the western part of South America. The area is popular for businesses because it is close to the United States, has low wages, and offers good tax benefits. As of 2021, the population of Central America is about 50,956,791. Spanish is the main language in all these countries, except in Belize, where English is the official language. Most people in Central America practice Christianity, which is followed by about 95.6% of the population.

- **Design and approach:** The study is based on secondary data. The author has used a qualitative and quantitative approach in the study. Secondary data is collected from tradingeconomics.com, World Integrated Trade Solution, research articles etc.

- **Method of analysis:** The study used several methods for qualitative analysis, such as descriptive analysis, analytical content analysis, and textual analysis. The researcher used the Trade Intensity Index, Trade Complementarity Index, Herfindahl-Hirschman Index, Logistic Performance Index, and Global Peace Index to understand all aspects of trade between India and Central American countries.

Results and Discussion

(1) Trade relation between India and Central American Countries

Trade between India and Central American countries is part of a broader strategic relationship with Latin America, with a focus on sectors such as engineering, IT, and pharmaceuticals. Central America has potential in IT and digital services. Key areas of trade include the export of Indian goods such as engineering products, pharmaceuticals, and IT services, alongside the import of raw materials, agricultural products, and hydrocarbons from Central America. While bilateral trade is on the rise, there is still significant untapped potential. India aims to strengthen engagement through events like the India-SICA Foreign Ministers' Meeting. The main exports from India to Central America include engineering goods, pharmaceuticals, and IT services, while India imports raw materials, agricultural products, and mineral ores from the region. Central America serves as a key supplier of items such as edible oils and pulses to India. India's expertise in information technology presents opportunities for collaboration, especially in areas like digital education, cybersecurity, and e-governance. Indian companies such as JK Tyre and Bajaj Auto have set up manufacturing and assembly operations in the region.

Table 1: Export of India to Central American Countries

Year	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
2013	25.9	84.5	73.5	237.0	114.0	66.2	221.0
2014	23.1	93.6	60.4	222.0	162.0	65.6	270.0
2015	15.8	124.0	69.1	255.0	171.0	77.4	240.0
2016	15.2	148.0	59.3	240.0	142.0	90.7	214.0
2017	14.8	134.0	66.0	282.0	142.0	78.4	234.0
2018	14.3	146.0	77.7	306.0	158.0	64.6	213.0
2019	16.3	131.0	78.4	291.0	186.0	64.8	244.0
2020	9.4	112.0	75.5	299.0	139.0	73.4	155.0
2021	13.2	144.0	148.0	520.0	304.0	113.0	335.0
2022	17.4	179.0	136.0	498.0	294.0	110.0	313.0
2023	14.3	182.0	126.0	523.0	251.0	117.0	307.0

| 2024 | 11.5 | 210.0 | 146.0 | 607.0 | 279.0 | 155.0 | 269.0 |

Source: https://tradingeconomics.com/, Note: Figure in Million USD.

Table 1 shows the India's export revenue from the Central American Countries. India receives the highest export revenue from Guatemala, followed by Panama, and Honduras. On the other hand, least revenue from Belize, preceded by El Salvador. India transferred $25.9 million worth of products to Belize in 2013, then $9.4 million in 2020, and $11.5 million in 2024. India exported $84.5 million in 2013 to Costa Rica, then $112.0 million in 2020, and $210.0 million in 2024. India transferred the value of the product worth $73.5 million in 2013 to El Salvador, then $75.5 million in 2020, and $146.0 million in 2024. India sold $237.0 million worth of product in 2013 to Guatemala, $299.0 million in 2020, and $607.0 million in 2024. India sold $114.0 million to Honduras in 2013, $139.0 million in 2020, and $279.0 million in 2024. India sold $155.0 million and 269.0 million respectively to Nicaragua and Panama in 2024.

Bilateral trade between India and Belize is approximately US$18 million as of 2023-2024. India is a net exporter to Belize, with its main exports being tobacco products, pharmaceuticals, engineering goods, and textiles, while Belize's exports to India primarily include chemical products and scrap aluminium. Several sectors in Belize, such as pharmaceuticals, tourism, and fisheries, have good potential for Indian investment. In 2023, India's main exports to Belize included auto parts, pharmaceuticals, engineering goods, and cigarettes and tobacco. Steel products, iron, textiles, and various organic chemicals are also important exports. India's exports to Belize have seen a noticeable rise, increasing from US$0.304 million in 1995 to US$16.90 million in 2023. In 2023, India's imports volume from Belize was mainly scrap aluminium, animal food, and chemical products. Although lower than exports, imports from Belize have also seen a growth from US$0.07 million in 1997 to US$0.602 million in 2023.

Certain sectors in Belize, such as food processing, tourism, and pharmaceuticals, offer good potential for Indian investors. Development partnership is an important aspect of the India-Belize relationship. India has extended development assistance to Belize, including a Line of Credit of US$30 million for country-specific or joint SICA projects, according to the Ministry of External Affairs. Trade between India and Costa Rica has seen steady growth, with bilateral trade reaching USD $301 million in 2023-2024. India primarily exports automobiles, pharmaceuticals, and textiles to Costa Rica, while importing wood products, medical instruments, and coffee. Both countries have identified potential for further expansion in sectors like agriculture, biotechnology, and IT, according to The Financial Express. India's presence with companies like Infosys and Wipro in Costa Rica, particularly in the IT sector, indicates a strong existing partnership that can grow further. Both nations aim to enhance trade

in sectors with high growth potential. There is significant opportunity for expansion in areas like renewable energy, biotechnology, and information technology. Costa Rica's tax exemptions on electric vehicles could also be a factor for trade in the automotive sector, says the Ministry of External Affairs.

Table 2: Import of India from Central American Countries

Year	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
2013	0.218	220.0	8.95	13.3	23.3	2.70	36.8
2014	1.57	184.0	8.36	16.9	26.2	1.98	83.2
2015	0.448	68.8	8.77	13.6	17.9	3.75	75.0
2016	0.386	58.3	4.74	18.0	20.3	2.87	53.2
2017	1.33	68.3	9.42	17.6	15.3	3.78	136.0
2018	0.757	49.2	4.74	15.9	12.8	3.27	39.8
2019	0.845	51.4	3.30	21.3	23.7	4.05	77.4
2020	0.649	39.1	3.70	21.0	10.2	4.93	29.1
2021	0.419	62.7	4.26	22.4	22.5	8.52	213.0
2022	0.999	64.1	2.63	20.2	15.8	9.23	296.0
2023	0.254	131.0	6.28	46.3	32.4	20.4	270.0
2024	0.397	163.0	8.83	44.4	38.8	53.6	77.1

Source: https://tradingeconomics.com/, Note: Figure in Million USD.

Table 2 shows India's import value from the Central American Countries. India imported the highest value of products from Panama and Costa Rica, where the least value of products imported from Belize. India imported $0.218 million worth of products to Belize in 2013, then $0.649 million in 2020, and $0.397 million in 2024. India imported $220.0 million in 2013 from Costa Rica, then $39.1 million in 2020, and $163.0 million in 2024. India imported product worth of $8.95 million in 2013 from El Salvador, then $3.70 million in 2020, and $8.83 million in 2024. India imported $13.3 million worth of product from Guatemala in 2013, $21.0 million in 2020, and $44.4 million in 2024. India imported a value of $23.3 million from Honduras in 2013, $10.2 million in 2020, and $38.8 million in 2024. India imported from Nicaragua and Panama were respectively $53.6 million and $77.1 million in 2024.

Trade between India and El Salvador is expanding, with India exporting pharmaceuticals, vehicles, and textiles, while El Salvador exports wood, iron, steel, and some electronics. Both nations are enhancing their relationship through initiatives such as buyer-seller meets and have signed agreements for cultural and other forms of cooperation. Engineering products, chemicals, textiles, vehicles, and pharmaceuticals are main exports from India to El Salvador,

reaching approximately $146.43 million in 2024. There is considerable potential for growth, particularly in the IT sector, as El Salvador's strategic location can serve the US market. El Salvador's exports to India include low-voltage protection equipment, electrical capacitors, iron and steel, and wood products. The value of goods exported from El Salvador to India was approximately $231 million in 2022-23. Both governments are promoting bilateral trade through various initiatives, such as hybrid buyer-seller meets. India and El Salvador have signed agreements in areas like visa exemptions and cultural cooperation. El Salvador has invited India to join the Central American Bank for Economic Integration.

Trade between India and Guatemala shows a significant imbalance, with India maintaining a large trade surplus. Recent figures shown fluctuations, though India's overall exports to Guatemala remain strong, featuring automotive products, pharmaceuticals, textiles, and chemicals. India's export profile is diverse, with manufactured and industrial goods being the primary drivers. Guatemala's exports to India are led by agricultural products and raw materials. To strengthen economic relations, both countries established several agreements and cooperative initiatives. Both nations have hosted "Made in India" trade shows and business seminars to promote bilateral trade and investment. India-Honduras trade has grown, with total bilateral trade valued at about $310 million in 2025. India primarily exports pharmaceuticals, machinery, automobiles, and textiles, while its main imports from Honduras include scrap iron, scrap aluminium, coffee, and wood. Both countries are working to strengthen economic ties through diplomatic efforts and trade delegations. Textiles, iron and steel, auto components, automobiles, pharmaceuticals, and machinery are some of India's main exports. Key products India imports from Honduras include recovered paper, wood, coffee, aluminium, scrap, and scrap iron.

India and Nicaragua trade in a range of goods, with India primarily exporting pharmaceuticals, automobiles, and iron and steel, while importing wood, machinery, and raw hides. The trade relationship has seen substantial growth, particularly in pharmaceuticals. Companies such as Bajaj and Mahindra have established a market presence in Nicaragua. Both countries are also exploring collaboration in areas like IT, renewable energy, and healthcare. Some Indian companies have begun entering the Nicaraguan market, and there is also ongoing dialog around initiatives such as training centers and quick impact projects. Cooperation is being explored in the areas of education, research, and innovation.

India's main exports to Nicaragua include pharmaceuticals, automobiles and accessories, and iron and steel, while Nicaragua's main exports to India consist of wood and wooden articles, raw hides, and paper. Trade between India and Panama has been growing, with bilateral trade

reaching approximately USD 600 million in 2023, making Panama India's largest trade partner in Central America. India's major exports to Panama are pharmaceuticals, engineering goods, automobiles, and textiles, while Panama's exports to India include crude petroleum, iron and steel, and wood products. Looking towards future growth, Panama is looking to leverage India's IT and software expertise, and India has established IT centers in the region. There is also that of the possibility of an Indian logistics hub in Panama for trade with the Americas. Both countries are active in strengthening ties through knowledge-sharing, capacity-building, and potential investment. However, an ongoing severe drought has impacted Panama's Canal shipping activity, which could influence trade flows.

Table 3: Trade Gap (Surplus/ Deficit) of India with Central American Countries

Year	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
2013	+25.68	-135.5	+64.55	+223.7	+90.7	+63.50	+184.2
2014	+21.53	-90.4	+52.04	+205.1	+135.8	+63.62	+186.8
2015	+15.35	+55.2	+60.33	+241.4	+153.1	+73.65	+165.0
2016	+14.81	+89.7	+54.56	+222.0	+121.7	+87.83	+160.8
2017	+13.47	+65.7	+56.58	+264.4	+126.7	+74.62	+98.0
2018	+13.72	+96.8	+72.96	+291.0	+145.2	+61.33	+173.2
2019	+15.45	+79.6	+75.10	+269.7	+162.3	+60.75	+166.6
2020	+8.75	+72.9	+71.80	+278.0	+128.8	+68.47	+125.9
2021	+12.78	+81.3	+143.74	+497.6	+281.5	+104.48	+122.0
2022	+16.41	+114.9	+133.37	+477.8	+278.2	+100.77	+17.0
2023	+14.04	+51.0	+119.72	+476.7	+218.6	+96.6	+37.0
2024	+11.11	+47.0	+137.17	+562.6	+240.2	+101.4	+191.9

Source: https://tradingeconomics.com/, Note: Figure in Million USD.

Table 3 discussed the Trade Gap (Surplus/ Deficit) of India with Central American Countries. It has found that India has trade surplus with Belize, El Salvador, Guatemala, Nicaragua, and Panama during 2013-2024. India has trade deficit with Costa Rica during 2013-2014, but has trade surplus since 2015. Guatemala and Panama are the larger trade partner of India. India has respectively 562.6 million USD and 191.9 million USD trade surplus with Guatemala and Panama during 2024. Therefore, in overall, India has trade surplus with the countries of central America region.

Trade Gap between India and Central American Countries
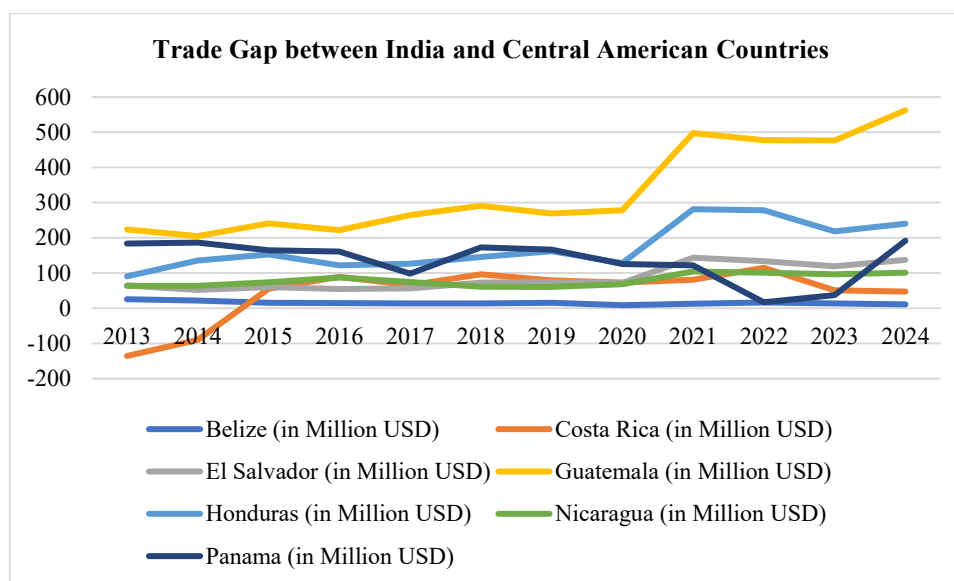
(2) **The Trade Intensity Index, Export Concentration Index, Export Diversification Index, Logistics Performance Index, and Global Peace Index of India and Countries of Central America**

Let us discuss the Trade intensity index, Export concentration index, and Export diversification index of India with the Countries of Central America for measuring trade patterns. We also include the Logistics performance index and Global peace index of India with the Countries of Central America. The Trade Intensity Index measures the value of a country's exports to a partner country relative to the total world exports to that partner country. The Trade Complementarity Index assesses how well one country's exports align with another country's imports. The Export Diversification Index indicates how different a country's export structure is from the global export structure. The Logistics Performance Index is a composite score derived from weighted averages across six key dimensions.

Table 5: Trade Intensity Index of India and Countries of Central America

Country	Trade Intensity Index							
	2017	2018	2019	2020	2021	2022	2023	2024
India - Belize	-	89.53	100.04	96.00	78.26	73.80	71.65	55.39
India- Costa Rica	81.48	72.06	67.65	70.10	61.97	62.54	63.68	65.49
India - El Salvador	71.70	67.14	60.49	65.92	88.76	89.47	69.05	78.29
India- Guatemala	109.87	108.45	92.47	110.26	125.64	122.18	117.71	128.51
India - Honduras	95.86	88.83	95.70	96.12	101.83	-	99.45	103.36
India- Nicaragua	142.50	110.47	107.81	183.10	217.68	257.10	192.61	188.84
India- Panama	67.89	61.44	66.93	69.75	56.32	59.07	75.06	64.04

Source: Calculated by author from the World Integrated Trade Solution (WITS) Website. Note: Afghanistan-India shows Afghanistan as the reporter country, India as the partner country.

The Trade Intensity Index is a measure that assesses whether the level of bilateral trade between two countries is higher or lower than expected based on their significance in global trade. Its value above one indicates that trade is more intense than average, while a value below one suggests it is less intense than expected. It is calculated by comparing a country's trade share with a partner to the world's trade share with that same partner. From Table 5, it has been found that India's export is more intense with Nicaragua and Guatemala then the other countries. On the other hand, India's trade is less intense with Panama and El Salvador. Therefore, India has more intense trade with Nicaragua and Guatemala, where low with Panama and El Salvador.

Table 6: Trade Complementarity Index of India and Countries of Central America

Country	Trade Complementarity Index							
	2017	2018	2019	2020	2021	2022	2023	2024
India - Belize	53.58	54.05	54.11	51.97	51.01	54.08	55.85	57.35
India- Costa Rica	56.95	58.97	60.98	60.66	61.19	62.77	64.89	64.38
India - El Salvador	59.08	59.55	59.61	61.34	64.48	64.37	62.01	58.39
India- Guatemala	57.21	60.55	61.96	61.82	63.33	65.14	62.15	61.30
India - Honduras	57.99	59.88	60.51	61.69	61.51	63.40	62.37	59.77
India- Nicaragua	60.47	61.88	60.94	63.03	62.26	63.28	65.06	62.10
India- Panama	48.12	50.29	48.15	41.93	45.99	44.97	51.07	46.94

Source: Calculated by author from the World Integrated Trade Solution (WITS) Website. Note: Afghanistan-India shows Afghanistan as the reporter country, India as the partner country.

The Trade Complementarity Index shows how well the goods one country sells match the goods another country buys, showing how likely they are to be good trading partners. A higher TCI means a country exports things that another country imports, and the other way around, which can lead to more trade between them and better economic benefits. The index goes from 0 to 100, with higher numbers showing a stronger match between their trade needs. From Table 6, it has been found that India has a higher Trade Complementarity Index with Nicaragua, Costa Rica and Guatemala. It means India's export profile partially matches or complements the Nicaragua, Costa Rica and Guatemala import profile. India has a comparatively lower Trade Complementarity Index value with Panama.

Table 7: Export Diversification Index of India and Countries of Central America

Country	Herfindahl-Hirschman Index (HHI)							
	2017	2018	2019	2020	2021	2022	2023	2024
India - Belize	-	0.2880	0.2796	0.2298	0.2600	0.1169	0.1199	0.0767

India- Costa Rica	0.0883	0.0800	0.0839	0.0582	0.0686	0.0497	0.0315	0.0700
India - El Salvador	0.0339	0.0373	0.0345	0.0334	0.0560	0.0454	0.0348	0.0453
India- Guatemala	0.0663	0.0619	0.0678	0.0938	0.0751	0.0572	0.0741	0.0934
India - Honduras	0.0505	0.0762	0.0588	0.0661	0.0698	-	0.0783	0.1046
India- Nicaragua	0.0554	0.1112	0.1141	0.0731	0.1716	0.2346	0.0880	0.1122
India- Panama	0.0425	0.0430	0.0415	0.0380	0.1385	0.1086	0.1142	0.1427

Source: Calculated by author from the World Integrated Trade Solution (WITS) Website. Note: Afghanistan-India shows Afghanistan as the reporter country, India as the partner country.

An export diversification index, or Herfindahl-Hirschman Index, measures the degree to which a country's exports are concentrated or varied in terms of products, serving as an indicator of economic resilience. The lower values indicate a more diversified export basket, and higher values suggest a high concentration in a limited number of products. From Table 7, it has found that the Herfindahl-Hirschman Index of India is highest with Belize, it means India exports less diversified products to Belize. On the other hand, the Herfindahl-Hirschman Index of India is lowest with El Salvador. In overall, India export more diversified products in central American countries.

Table 8: Logistic Performance Index of India and Countries of Central America

Country	Rank	Score	Country	Rank	Score
India	38	3.4	Guatemala	88	2.6
Belize	115	2.4	Honduras	66	2.9
Costa Rica	66	2.9	Nicaragua	97	2.5
El Salvador	79	2.7	Panama	57	3.1

Source: https://lpi.worldbank.org/sites/default/files/2023-04/LPI_2023_report_with_layout.pdf

The Logistics Performance Index is a report published by the World Bank that evaluates and benchmarks the trade logistics performance of 139 countries. It measures the ease and efficiency of moving goods into and within a country by assessing performance across six key areas: ease of arranging shipments, customs performance, logistics services quality, and timeliness of shipments, infrastructure quality, consignment tracking and tracing, From Table 8, it has been found that India's Logistics Performance Index is better than the central American countries. Rank of central American countries lies between 57-115. It indicates transport or logistic supply facilities of India is better than the central American countries. Rank of central American countries are low due to the geographical isolation and the hilly mountains. It creates an obstacle in the logistics supply for trade.

Table 9: Global Peace Index of India and Countries of Central America, 2025

Country	Rank	Score	Country	Rank	Score
India	115	2.229	Guatemala	108	2.174
Belize	-	-	Honduras	124	2.347
Costa Rica	54	1.843	Nicaragua	111	2.207
El Salvador	104	2.136	Panama	84	2.006

Source: https://www.visionofhumanity.org/wp-content/uploads/2025/06/Global-Peace-Index-2025-web.pdf

The Global Peace Index is the main way to measure peace around the world. It ranks 163 different countries and regions based on 23 different factors. These factors are grouped into three areas: how safe and secure society is, whether there are ongoing conflicts, and how much militarization there is. Table 9 discusses the Global Peace Index of India and Countries of Central America. It has been found that India and Countries of Central America are not in a favourable position in the Global Peace Index. It is due to political and economic disturbances in the nations hampering the expansion of trade among themselves.

(3) Opportunities, Challenges and Government Initiatives

India's trade views with Central America remain substantial but are presently underdeveloped due to physical distance, limited direct transportation modes, and absence of comprehensive trade agreements. Key opportunities lie in the export of manufactured goods like vehicles and pharmaceuticals, and the import of regional resources such as renewable energy, wood, and minerals. Addressing challenges such as infrastructure and negotiating Free Trade Agreements (FTAs) are essential to unlock this potential. India's primary exports to the region include organic chemicals, pharmaceuticals, vehicles, and iron and steel, while Central America's main exports to India include natural pearls, wood, and mineral products. Trade is constrained by limited infrastructure, lack of direct shipping and air connectivity, and challenges in information trading. Negotiating FTAs is essential to reduce tariffs, streamline customs processes, and improve market access, thereby fostering a more enabling environment for Indian enterprises.

Central America's abundant renewable energy potential, especially in solar, wind, and hydro, offers a significant opportunity for collaboration and investment. India has substantial expertise in this field. Its experience in developing and managing digital networks could be utilized in Central America, potentially through initiatives like the proposed Central Asian e-network. India is a major exporter of pharmaceuticals, and there is considerable potential to boost exports to Central America. India can also capitalize on its strengths in the textile sector to enter the

Central American market. Its robust automotive manufacturing industry can be further developed, as evidenced by current vehicle export levels.

Key challenges in India's trade with Central America involve the long distance, which makes transportation expensive, and the lack of direct links between the two regions. High tariffs on agricultural goods pose a problem, even though China has a stronger presence and better trade connections in the area. Language barriers and the absence of a single regional engagement plan for India are additional obstacles. Indian products are not well known in Central America compared to those from other regions. There are no direct shipping services from India to Central America, while China benefits from direct routes through the Panama Canal. This lack of physical connection makes it hard to transport heavy and perishable goods. Central American countries are at different stages of regional integration, making it hard to develop a unified trade strategy with India. China has a more established trade and investment presence, giving it a significant edge. Many Indian business leaders lack proficiency in Spanish and Portuguese, which can hinder communication and business opportunities.

India is working to boost trade with Central America through initiatives like expanding trade agreements and investing in areas like agriculture, renewable energy, and pharmaceuticals. These efforts are backed by events such as the India-SICA Foreign Minister's Meeting and the promotion of Indian digital tools like the UPI payment system. India has also expanded scholarships under the Indian Technical and Economic Cooperation program for Central American students and is offering to set up vocational training centers, such as one for solar engineers, to build local skills. India should focus on negotiating comprehensive free trade agreements with individual Central American nations or groups like SICA. Encouraging direct shipping and air routes between the two regions can help reduce costs and transit times. Promoting business-to-business interactions through trade fairs, delegations, and online platforms can help build trust and close the information gap. India should also partner with Central American countries on projects related to renewable energy and digital infrastructure to deepen economic ties.

Conclusion

Trade between India and Central American countries is still in the early stages of development, but there is a good chance for it to grow. India sends automobiles, medicines, and engineering products to Central America, while Central America sends food, minerals, and some made goods. India also provides IT services, machines, clothes, and medicine to Central American

countries. Central America has chances for India to invest in areas like making things, farming, and providing services. Guatemala and Panama are the larger trade partner of India. India has respectively 562.6 million USD and 191.9 million USD trade surplus with Guatemala and Panama during 2024. In overall, India has trade surplus with the countries of central America region. India has more intense trade with Nicaragua and Guatemala, where low with Panama and El Salvador. India has a higher Trade Complementarity Index with Nicaragua, Costa Rica and Guatemala. India export more diversified products in central American countries.

Trade between India and Central American countries has some difficulties. These include the long distance between the two regions, the lack of direct connections, and differences in language. There are also other problems, like China's strong influence and existing trade deals in the area. Central America is not fully connected as a region, and each country has its own changing trade rules and regulations that can make things harder. The large distance between India and Central America makes transport expensive and causes problems with moving things around.

Trade opportunities between India and Central American countries look good. This is because trade is growing, there's more variety in what is being traded, and both sides are interested in areas like medicine, farming, and tech. The governments of India and Central American countries are working together on several areas like trade, digital technology, healthcare, and energy. This includes India's programs that help develop other countries, as well as efforts to create new trade deals and share knowledge in fields such as digital technology and farming. The relationship is based on South-South cooperation, which means countries in the Global South working together to solve common issues like food shortages and climate change. India is also trying to improve economic ties by making Preferential Trade Agreements and Free Trade Agreements with individual countries and groups in the region.

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INDIGENOUS KNOWLEDGE: ANCIENT TECHNOLOGY OF MAKING BAMBOO CRAFT

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Abstract

With an emphasis on traditional methods, cultural importance, and sustainable practices, this research attempts to investigate the old technology and indigenous knowledge related to bamboo craft-making. Indigenous artistry has historically relied heavily on bamboo, especially in portions of South America, Africa, and Asia. Bamboo is split, woven, carved, and laminated as part of the age-old craft-making process. By using these techniques, craftspeople were able to produce useful tools, furniture, and ornamental items while showcasing a deep comprehension of bamboo's special qualities—its strength, flexibility, and light weight. Simple equipment and manual skills that were handed down through the generations were essential to traditional bamboo crafts. Because the craftspeople used natural dyes and woven designs that reflected their cultural identity, the making process was closely linked to the local environment. Bamboo was frequently utilized to make furniture, utensils, baskets, mats, and even scaffolding and other buildings. With little waste and maximum utility, the goal of this age-old bamboo craft technique was not only practical but also represented sustainable practices. The artistry showed how the community, environment, and the artisan could coexist together. These days, this information is being rediscovered and acknowledged for its usefulness in environmental preservation and sustainable design.

Keywords: Bamboo, Weaving, Artisanal Techniques, Sustainability, Craftsmanship, Ancient Technology.

Introduction

For many indigenous tribes across the world, particularly in Asia, Africa, and Latin America, bamboo has been an essential part of their material culture. For ages, craftspeople have relied on this eco-friendly, multipurpose, and sustainable resource to maintain their livelihoods. The traditional techniques and abilities that have been handed down through the years to make tools, utensils, furniture, and ornamental objects are referred to as the old technology of manufacturing bamboo crafts. These techniques incorporate a comprehensive grasp of the environment, materials, and sustainable activities and have their roots in indigenous knowledge systems. Crafting with bamboo emphasizes the mutually beneficial link between people and the natural world, where knowledge of natural resources is transformed into useful and beautiful items (Sahoo, 2015).

Bamboo has long been acknowledged by indigenous people as a material with remarkable properties; its strength, adaptability, and quick growth make it a perfect choice for a variety of uses. Over time, traditional bamboo craft methods like weaving, splitting, carving, and laminating have improved, allowing craftspeople to create anything from intricate scaffolding and even musical instruments to baskets, mats, furniture, and household goods. The local culture is closely linked to the crafting process, with particular weaving patterns and motifs frequently serving as symbols of identity and customs (Kumar, 2018).

Bangalore, India's K. R. Market has woven bamboo baskets for sale

(By Rajesh dangi at English Wikipedia, CC BY 2.5,
https://commons.wikimedia.org/w/index.php?curid=19747748)

Handspun carbonized bamboo fiber
By moria - https://www.flickr.com/photos/moria/2355905928/,CC BY 2.0,
https://commons.wikimedia.org/w/index.php?curid=8347523

Furthermore, the principles of sustainability and little waste are inextricably linked to bamboo craftsmanship. Every portion of the bamboo plant is customarily used by artisans, demonstrating a resource-conservation mindset. Ancient bamboo crafting techniques are a significant illustration of how indigenous knowledge systems have influenced environmentally friendly activities as the globe shifts more and more toward sustainable design.

Objective

With an emphasis on traditional methods, cultural importance, and sustainable practices, this research attempts to investigate the old technology and indigenous knowledge related to bamboo craft-making. Indigenous artistry has historically relied heavily on bamboo, especially in portions of South America, Africa, and Asia. Bamboo is split, woven, carved, and laminated as part of the age-old craft-making process.

Literature Review

The cultural practices and experiences of local groups, which have been cultivated over generations via contact with the environment, constitute the foundation of indigenous knowledge systems **(Gadgil et al., 1993).** This expertise spans a number of fields, such as medicine, crafts, and agriculture. Indigenous groups have unique methods for making bamboo crafts that show sustainability and resource conservation **(Sahoo, 2015).** With craftspeople utilizing bamboo's qualities for a variety of practical and ornamental uses, these customs demonstrate the peaceful coexistence of humans and nature (Kumar, 2018). The relevance of this information to eco-friendly activities and sustainable development is becoming more widely acknowledged.

The age-old technology of bamboo crafts is a reflection of generations' worth of indigenous expertise. Bamboo is a renewable and adaptable material that has been used to create a variety of items, from simple tools to elaborate artwork. The use of basic, hand-operated tools, which eliminates the need for contemporary equipment, is a defining feature of traditional bamboo making techniques.

Splitting is a popular technique in traditional bamboo crafts, when bamboo stalks are sliced into small strips for shaping or weaving. After that, these strips are either carved into tools and sculptures or woven into baskets, mats, and other domestic objects. Bamboo is also laminated in many cultures, with thin layers joined to create stronger furniture or architectural constructions **(Kumar, 2018).**

In order to improve the visual attractiveness of items, natural dyes are also used in the age-old bamboo craft method. Bamboo surfaces are dyed using these dyes, which are frequently made from native plants, to create vivid hues. In certain areas, long-lasting, ornamental designs with symbolic and practical significance are made using braiding and knotting processes **(Sahoo, 2015).**

Bamboo is a perfect material for making because of its inherent qualities, which include its strength, flexibility, and light weight. A thorough grasp of these qualities served as the foundation for the traditional bamboo making techniques, which enabled craftspeople to produce useful and sustainable items. These methods were essential to the lifestyles of indigenous tribes and still have an impact on contemporary sustainable design and architectural practices since they demonstrate a peaceful coexistence of humans and environment **(Sahoo, 2015; Kumar, 2018).**

Ancient Technology of making bamboo craft

For thousands of years, bamboo has been an essential component of human cultures' growth. In many regions of the world, its exceptional strength, durability, and adaptability have made it a mainstay of traditional workmanship. Indigenous knowledge systems provide the foundation of the age-old craft-making technique of bamboo, which has developed over millennia as different civilizations have created unique techniques for working with and using bamboo. These methods demonstrate a profound awareness of the material and the biological context and are strongly linked to the settings in which they were used.

Making crafts out of bamboo has a long history, especially in Asia, where bamboo has been a staple of daily life. Bamboo was utilized in China as early as 3000 BCE for a number of functions, including the production of tools, baskets, and even early types of paper, according to archeological findings (Kumar, 2018). Similarly, long before recorded history existed, bamboo was utilized in India to make furniture, carpets, and utensils. Indigenous understanding of bamboo's strength, flexibility, and light weight enabled craftspeople to produce elaborate, intricately designed things as well as everyday useful goods (Sahoo, 2015)

A big basket and artist Lucy Telles in Yosemite National Park, 1
By Unknown author, Public Domain,
https://commons.wikimedia.org/w/index.php?curid=19997097

Splitting, weaving, carving, and laminating are the main methods used in the age-old craft of bamboo. One of the earliest techniques is splitting, which involves cutting bamboo stems into small strips for carving or weaving. These strips may frequently be twisted into a variety of forms without breaking because of their flexibility. Bamboo was woven into baskets, mats, house walls, and clothing items in several ancient societies (Kumar, 2018). For instance, woven bamboo has long been used in China to make storage containers and furniture, and in India, it is a common material for baskets, fans, and other ornamental objects (Sahoo, 2015).

Bamboo has also been carved into elaborate designs for a variety of uses, ranging from practical equipment like knives and utensils to religious items like idols and ceremonial instruments. Bamboo is an extremely strong material that may splinter quickly if not treated with care, therefore carving it demands a good grasp of its grain and structure (Ghosh, 2017). Ancient bamboo crafts also employed the laminating process, which involves binding thin

bamboo strips together to create bigger, more robust constructions. This method worked especially well for making construction materials and furnishings. Laminated bamboo may be a dependable material for scaffolding and other structural applications since it is frequently stronger and more resilient than a single stalk (Kumar, 2018).

The cultural and spiritual lives of indigenous groups are intricately linked to the history of bamboo crafts. Bamboo was used to make tools and other products in many old communities, but it also had cultural and spiritual significance. For instance, bamboo is a sign of fortitude in the face of hardship in China and Japan, where it has long been connected to adaptability, purity, and tenacity. Bamboo is frequently utilized in religious ceremonies in India, and its significance is demonstrated by the way it is frequently portrayed in art and architecture (Ghosh, 2017).

Furthermore, bamboo making was frequently a communal activity rather than just an individual one. It contributed to local economies by giving craftspeople, particularly those in rural regions, a means of subsistence. Bamboo, for example, was used to build entire towns and temples in Southeast Asia, and these customs have persisted until the present day in countries like Thailand and Vietnam (Sahoo, 2015).

Many indigenous societies still use bamboo making skills that have been refined over ages. These traditional methods are still used today by sustainable design groups, who acknowledge bamboo as a more environmentally benign substitute for wood and plastic. Modern furniture design, architecture, and even fashion are still influenced by the age-old bamboo craft technique (Kumar, 2018).

Bamboo's adaptability, low weight, and renewable nature make it the perfect material for contemporary ecological design and construction. A wonderful combination of sustainability, usefulness, and artistic expression may be found in the age-old technology of bamboo making. Ancient craftspeople produced useful and culturally significant items using methods including splitting, weaving, carving, and laminating. The art of bamboo crafting has been handed down through the years and is a great resource for modern ecological practices.

Indian Government Scheme and Bamboo Craft

Additionally, the Indian government offers many programs to support handicraft makers, many of whom focus on products made from bamboo. For craftsmen, programs such as the Ministry of Textiles' Scheme for Promotion of Handicrafts and the Handicrafts craftsmen

Comprehensive Welfare Scheme offer access to raw materials, financial assistance, and technical training. These programs seek to improve product design, increase revenue possibilities, and assist craftspeople in producing marketable bamboo products. One such program is the National Handicrafts Development Programme (NHDP), which promotes traditional crafts including bamboo weaving, basketry, and furniture manufacturing in order to assist craftsmen (Chandran, 2019).

The Indian government has aggressively marketed bamboo as an eco-friendly, sustainable substitute for plastic and wood in response to growing concerns about environmental sustainability. A number of programs have been created to raise awareness of bamboo's use in environmentally friendly goods and sustainable building. Bamboo is being utilized more and more to create eco-friendly furnishings, décor, and constructions.Innovative approaches of integrating bamboo into the mainstream building sector are being investigated by government-supported institutions like the Indian Council of Forestry Research and Education (ICFRE). The use of bamboo in urban development projects is being promoted by research into bamboo-based composite materials, such as bamboo-reinforced concrete and bamboo panels, as substitutes for conventional materials (Rathore, 2020).
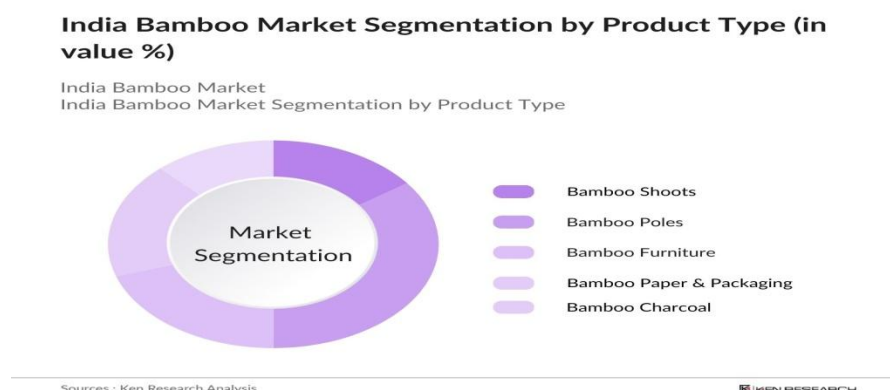
India Bamboo Market Segmentation by Product Type (in value %)

India Bamboo Market
India Bamboo Market Segmentation by Product Type

Market Segmentation

- Bamboo Shoots
- Bamboo Poles
- Bamboo Furniture
- Bamboo Paper & Packaging
- Bamboo Charcoal

Sources : Ken Research Analysis

(India Bamboo Market Outlook to 2028, Asia Author(s): Sanjeev, Product Code: KROD7937)

The government has set up a number of marketing channels for craftspeople in an effort to better promote bamboo crafts. The Ministry of Textiles' Development Commissioner (Handicrafts) frequently hosts trade shows and exhibits to highlight bamboo goods created by craftspeople across India. By giving the craftspeople access to wider domestic and foreign markets, these programs increase the demand for their goods and provide them greater financial prospects. The Indian government has implemented a number of programs to encourage the

production, processing, and industrialization of bamboo because it acknowledges the value of this resource for the environment and the economy.

(India Bamboo Market Outlook to 2028, Asia Author(s): Sanjeev, Product Code: KROD7937)

The government wants to offer the bamboo industry all-encompassing assistance through the National Bamboo Mission, Bamboo Development Programs, and welfare programs for craftsmen. These programs support the bamboo industry's sustainable growth in addition to improving the financial standing of craftspeople. Bamboo crafts have the potential to significantly influence India's future economic landscape while upholding its traditional handicraft legacy provided innovation, sustainability, and market accessibility are given sustained attention.

State Government Scheme and Bamboo Craft

Bamboo has long been used as a necessary material for a variety of crafts and industrial uses in India, a country with a rich cultural legacy and a long history of handicraft. State governments around India have launched a number of initiatives to support the bamboo craft industry in recognition of bamboo's potential for sustainability, economic expansion, and cultural preservation. In addition to encouraging innovation in bamboo-based sectors, these programs seek to give craftsmen access to markets, training, and financial support. Promoting bamboo handicraft is in line with India's overarching objectives of environmental sustainability, job creation, and inclusive growth.

Bamboo Craft Promotion in Northeastern States

Bamboo making has a long history in the northeastern Indian states, especially Assam, Nagaland, Meghalaya, and Mizoram. Bamboo has been acknowledged by the Indian government and the state governments in these areas as a vital resource for both cultural preservation and economic growth.

1. Assam State Bamboo Mission: In order to establish a comprehensive bamboo industry inside the state, Assam established its State Bamboo Mission. By encouraging bamboo production, offering funding for processing facilities, and supporting skill-development initiatives, the program aids bamboo farmers and craftspeople. Additionally, it assists craftspeople in producing and selling bamboo goods such baskets, mats, furniture, and décor (Kumar & Bhattacharjee, 2019). To promote bamboo farming and guarantee sustainable practices, the state mission collaborates with the National Bamboo Mission.

2. Nagaland Bamboo Development Agency (NBDA): The NBDA trains craftspeople in Nagaland to become proficient in contemporary bamboo processing methods. Bamboo is necessary for making both traditional and modern bamboo crafts, and this includes weaving and cutting bamboo. By connecting local craftspeople with both domestic and foreign markets, the organization also encourages export prospects for bamboo products made locally (Sahoo, 2015).

3. Mizoram Bamboo Mission: Mizoram boasts a flourishing bamboo craft industry because to its profusion of bamboo forests. In addition to providing financial incentives for bamboo-based enterprises, the Mizoram Bamboo Mission gives indigenous craftspeople access to national trade shows and exhibits. Additionally, the state has been attempting to establish a value chain for bamboo that connects market access, craft production, and farming (Dutta, 2018).

Bamboo Craft Schemes in Other States

Other Indian states, in addition to the northeastern ones, have enacted legislation to support the bamboo industry and craft. These programs frequently seek to close the gap between contemporary industrial demands and traditional craftsmanship.

1. Kerala Bamboo Development Board (KBDB): The Bamboo Development Board was founded in Kerala to encourage the use of bamboo in a variety of industries, such as handicrafts, furniture manufacturing, and building. The board offers training programs for regional craftspeople as well as financial support for bamboo processing facilities. In order to provide craftsmen greater market awareness, the KBDB also hosts workshops and craft fairs (Ghosh, 2017).

2. Uttarakhand Bamboo Mission: The state of Uttarakhand, which has an abundance of bamboo resources, has also started programs to help the bamboo sector expand. Bamboo plantings, post-harvest management, and artist training are the main objectives of the Uttarakhand

Bamboo Mission. The manufacturing of bamboo-based goods including fence, furniture, and mats has increased as a result of this mission (Chandran, 2019).

3. Madhya Pradesh Bamboo Mission: Since the Madhya Pradesh Bamboo Mission was established, the state of Madhya Pradesh has witnessed a notable expansion in the bamboo industry. The objective is to support artists financially and technically in order to establish an eco-friendly sector based on bamboo. To market goods like bamboo furniture, handicrafts, and building materials, the state government collaborates with craftsmen (Kumar & Bhattacharjee, 2019).

Support for Bamboo Craftsmanship: Training and Skill Development

The development of artisans' skills is a crucial part of state-level programs. To improve bamboo workers' technical skills, several state governments provide training courses. These courses address both contemporary processing techniques that can increase output and quality as well as traditional bamboo artisan techniques like weaving and carving. In order to increase the marketability of bamboo goods, the Ministry of Skill Development and Entrepreneurship has teamed up with state governments to provide training in both rural and urban regions.

Initiatives that emphasize bamboo-based textiles and environmentally friendly materials have also been developed by the Central Silk Board and Craft Development Councils in states such as Karnataka and West Bengal (Sahoo, 2015). In the bamboo craft industry, this has created new opportunities for creative items and environmentally friendly design.

Market Access and Export Promotion

Additionally, state governments have tried to increase bamboo crafts people's access to markets. Artists are given the chance to present their work to wider audiences through trade shows, state-sponsored exhibits, and online venues. Another crucial component of the government's plan to introduce Indian bamboo crafts to foreign markets is the implementation of export promotion programs. The export of premium bamboo goods is facilitated by the Bamboo Export Promotion Council, which collaborates with state authorities. Bamboo crafts are greatly promoted by state governments throughout India through a variety of programs that emphasize financial assistance for artists, market access, and skill development. In addition to promoting traditional handicraft, these programs help India's larger objectives of environmentally benign economic growth and sustainable development. India is establishing itself as a worldwide leader in the bamboo sector by implementing extensive bamboo

regulations and initiatives that preserve its cultural legacy while opening up new business prospects.

Modern Technology and bamboo craft

The bamboo craft industry has changed because of the combination of modern technology with traditional bamboo crafting techniques. This has increased both production and innovation। Bamboo has been used for centuries to make functional and decorative items, but modern technologies have made these processes more modern। वर्तमान machinery and tools enable more precise cutting, shaping, and finishing, which allows bamboo crafting to be done faster and more efficiently while maintaining high quality। Intricate bamboo designs are now being carved using technologies like computer numerical control (CNC) machines, which offer a level of detail that was previously impossible (Kumar & Bhattacharjee, 2019)।

Bamboo composites and laminated products have also opened new applications। These inventive materials combine bamboo with other sustainable materials to make long-term, environmentally friendly alternatives for building, furniture, and flooring.(Ghosh,2017) Manufacturers and artisans are able to blend traditional craftsmanship with contemporary aesthetics by experimenting with new forms and structures with contemporary design software.

These changes have allowed bamboo craft to grow into a modern, high-tech industry while simultaneously maintaining its roots in traditional knowledge and sustainable practices। Bamboo will still be relevant in today's environmentally conscious world thanks to this fusion of old and new.

Analysis

Bamboo craft is a centuries-old art form in India that holds great cultural importance in many different locations. India is one of the biggest producers of bamboo in the world because of its strong links to indigenous tribes. Because of its durability, strength, and adaptability, bamboo is a popular material. Complex bamboo crafts, such as furniture, baskets, mats, and household items, are well-known across India, particularly in the northeastern regions of Assam, Nagaland, and Manipur.

Crafts made from bamboo are crucial for maintaining cultural heritage and boosting rural economies. Local craftspeople make useful and ornamental objects using age-old methods that

have frequently been handed down through the generations. Additionally, the craft is eco-friendly, providing a sustainable substitute for things made of wood and plastic. Bamboo crafts have become more well-known in both domestic and foreign markets as environmental concerns have grown in awareness, supporting the livelihoods of several rural craftspeople.

In order to assist craftsmen increase their output and revenue, recent government and non-governmental organization programs have concentrated on skill development, design innovation, and market access. The growing emphasis on sustainable and eco-friendly materials worldwide is predicted to increase demand for bamboo products (Kumar & Singh, 2020).

Conclusion

India has a rich cultural legacy that includes the use of old bamboo artisan skills. In addition to being a beautiful and artistic expression, the methods used to create this craft honor local resources and traditional wisdom. Bamboo's structure, adaptability, and accessibility make it a valuable material for Indian crafts. Bamboo is widely used in many Indian states, particularly in Northeast, North, and Central India, for goods like fans, baskets, furniture, and construction materials. Special piercing, weaving, cutting, and dying procedures that have been handcrafted from generation to generation are all part of these traditional craft practices. Because bamboo is a resource that can be replenished quickly, this craft also contributes to the preservation of the social and cultural equilibrium. However, bamboo crafts also require creativity and design adjustments in response to current technological advancements and market demands. Bamboo crafts will gain recognition on a global scale and new opportunities for Indian artists will be created if these ancient methods are maintained and better design, training, and marketing are carried out. It is crucial to protect and develop the age-old bamboo craft methods that are an essential component of India's cultural legacy. This craft's integration with modern markets and designs will benefit the environment in addition to providing Indian artists with economic prospects.

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WOMEN'S EMPOWERMENT THROUGH FINANCIAL INCLUSION: CHALLENGES AND THE EFFECTIVENESS OF KEY GOVERNMENT PROGRAMMES

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Abstract

Financial inclusion plays a vital role in this process by providing women with financial tools, skills, and resources to manage money, plan for the future, and reduce vulnerability to economic shocks.Women's empowerment goes beyond economic gains—it enhances their decision-making power, confidence, social status, and participation in community and household affairs.This study investigates the role of financial inclusion in promoting women's empowerment in India, with a specific focus on the challenges faced and the effectiveness of key government programmes, along with steps taken by the Reserve Bank of India (RBI) to expand financial access in rural regions. Using a mixed-method approach, the study draws upon secondary data from RBI reports, NABARD documents, government publications, and dashboards such as PMJDY and MUDRA. The findings reveal that financial inclusion has significantly enhanced women's access to bank accounts, savings, credit facilities, digital financial services, and entrepreneurship opportunities. However, challenges such as limited financial literacy, digital divide, socio-cultural barriers, inadequate documentation, and low access to formal credit continue to restrict full empowerment. Government initiatives like PMJDY, Mudra Yojana, Aadhaar-enabled services, and SHG-Bank linkage programmes have played a crucial role in improving financial participation and economic resilience among women, especially in rural areas.

Keywords: *Women's empowerment; financial inclusion; RBI initiatives; PMJDY; Mudra Yojana*

Introduction

Financial inclusion in India refers to providing affordable and accessible financial services—such as savings accounts, credit, insurance, and digital payments—to all sections of

society, especially the poor, women, and rural populations. Over the past two decades, India has made significant progress in expanding financial access through initiatives led by the Reserve Bank of India (RBI) and the Government of India. Major programmes like the Pradhan Mantri Jan DhanYojana (PMJDY), MUDRA Yojana, and digital platforms such as UPI have transformed the financial landscape by increasing bank account ownership, formal credit availability, and digital transactions. Despite this progress, challenges such as low financial literacy, limited access in remote areas, and gender gaps still persist. Financial inclusion remains a key driver for inclusive growth, poverty reduction, and women's empowerment in India**.**

Women's empowerment in India refers to enhancing the social, economic, political, and personal strength of women so they can participate equally in society and make independent decisions. Over the years, India has taken significant steps to improve women's rights through education, employment opportunities, legal reforms, and welfare schemes. Initiatives such as Beti Bachao Beti Padhao, SHG–Bank Linkage programmes, MUDRA loans, and digital financial services have contributed to improving women's mobility, income, and decision-making power. While notable progress has been made, challenges such as gender discrimination, limited access to resources, social norms, and safety concerns still hinder full empowerment. Strengthening women's empowerment remains essential for achieving inclusive growth, gender equality, and sustainable development in India.

Literature Review

Zelu, B. A(2024), The study examines how access to financial accounts influences women's economic empowerment in Ghana. Using national survey data and Propensity Score Matching, it found that women who possess financial accounts—especially formal bank accounts—are more likely to be employed and have higher income. Informal accounts, like mobile money or Susu, showed limited impact. The study concludes that promoting formal financial inclusion and banking services among women, particularly in rural and poorer areas, can significantly enhance their economic empowerment.

Assaf, (2024), The study examines how social entrepreneurship promotes women's empowerment in Saudi Arabia through financial inclusion. Using surveys of 210 women and interviews with social enterprise founders, the study analyzes how collaboration, creativity, diversity, and scalability in social initiatives improve women's access to financial services and

their economic independence. The findings show that financial inclusion significantly mediates and strengthens the impact of social entrepreneurship on women's empowerment, promoting economic and social advancement.

Mathew, (2014), The study examines how financial inclusion, particularly through self-help groups and microfinance, empowers rural women in India by improving income, confidence, and decision-making. Using secondary data, it reviews RBI initiatives and SHG-Bank linkage models. It concludes that financial inclusion promotes women's economic and social empowerment, though challenges like low literacy, poor awareness, and infrastructure gaps still limit its full impact.

Aggarwal, (2014), The paper examines financial inclusion in India, focusing on the challenges, opportunities, and steps taken by RBI to expand access to financial services. Using secondary data and a descriptive approach, it highlights initiatives like simplified KYC norms, basic banking accounts, financial literacy, and rural branch expansion. The study concludes that financial inclusion supports economic growth and poverty reduction, but faces barriers such as illiteracy, low awareness, and poor infrastructure.

Arnold & Gammage, (2019), The article examines how financial inclusion can empower women by not only providing financial services but also addressing social barriers like low literacy, limited mobility, and restrictive gender norms. Using a thematic review of case studies and programs, it emphasizes that effective financial inclusion requires combining digital tools with financial education, social norm change, and tailored support. It concludes that holistic, gender-responsive strategies are essential for meaningful and sustainable women's financial empowerment.

Saluja, Singh & Kumar, (2023), The study reviews research from 2000–2020 to identify barriers and solutions for empowering women through financial inclusion. Using a PRISMA-based systematic review of 67 studies, it finds that factors like patriarchy, low income, poor financial literacy, and limited access hinder women's inclusion. It concludes that digital tools, microfinance, SHGs, and targeted government programs are essential for meaningful financial inclusion and women's empowerment.

(Siwela & Njaya, 2018), The study explores the financial inclusion challenges faced by female street traders in Asia, Latin America, and Sub-Saharan Africa. Using a qualitative desk-study

based on archival data, it finds that women face major barriers such as lack of identity documents, low financial literacy, irregular income, mobility issues, and cultural restrictions. The study concludes that financial services remain largely inaccessible for these women, and recommends promoting financial literacy, mobile banking, agency banking, and gender-responsive financial services to improve inclusion.

Shetty & Hans, (2018), the paper examines how SHGs and financial inclusion support women's empowerment in India. Using secondary data, it analyzes how SHGs improve women's access to savings, credit, financial literacy, and decision-making. The study concludes that SHGs enhance women's economic independence and social status, but challenges like low awareness, gender barriers, and limited access to formal financial services still hinder full empowerment.

Objectives

- To examine the challenges faced in achieving women's empowerment through financial inclusion.
- To explore the steps taken by the RBI to expand financial inclusion across rural regions of India.

Research methodology

The study adopts a mixed-method research methodology to examine the challenges in achieving women's empowerment through financial inclusion and to explore the initiatives taken by the Reserve Bank of India to promote financial access in rural areas. Secondary data will be sourced from RBI reports, government publications, NABARD documents, PMJDY and MUDRA dashboards, and existing literature on financial inclusion and women's empowerment.

Women's Empowerment through Financial Inclusion

Women's empowerment through financial inclusion faces multiple interlinked challenges that hinder its full potential. Despite access to formal financial services like bank accounts, credit, and digital platforms, many women, especially in rural areas, struggle due to limited financial literacy, which restricts their ability to understand, manage, and utilize financial products effectively. Cultural and social norms rooted in patriarchy often discourage women's economic

independence and decision-making power within households. Limited mobility, lack of digital skills, and restricted access to smartphones or internet services further reduce their participation in digital finance. Additionally, inadequate collateral, complex loan procedures, and small loan sizes limit women-led enterprises from expanding. Financial institutions sometimes perceive women as high-risk borrowers, resulting in higher interest rates or fewer opportunities. Moreover, weak market linkages, absence of entrepreneurial training, and insufficient policy support reduce their ability to convert financial access into sustainable economic empowerment. Thus, to make financial inclusion truly empowering, it is essential to address these structural, social, and institutional barriers through comprehensive policy reforms, capacity-building initiatives, and inclusive financial systems.

Challenges in Achieving Women's Empowerment through Financial Inclusion

- **Low Financial Literacy:** Many women, especially in rural and low-income households, lack basic knowledge about banking services, savings, credit, insurance, and digital payments. Limited understanding reduces confidence and restricts their ability to use financial products independently.

- **Socio-Cultural and Patriarchal Norms:** Traditional gender roles often limit women's mobility, decision-making power, and control over household finances. Male family members frequently make major financial decisions, reducing women's autonomy in managing bank accounts or loans.

- **Limited Access to Formal Credit:** Women often struggle to meet collateral requirements or credit eligibility criteria. Lower property ownership among women restricts their ability to offer security for loans. As a result, many rely on informal credit sources with high interest rates.

- **Digital Gender Divide:** A large number of women do not have access to smartphones or the internet. Even when devices are available, digital skills are limited, leading to fear or hesitation in using digital banking and UPI services. This creates barriers in accessing modern financial tools.

- **Lack of Documentation:** Many women lack essential documents such as Aadhaar, PAN card, or address proof. Absence of documentation delays or prevents opening bank accounts, availing loans, or receiving government benefits digitally.

- **Inadequate Awareness of Government Schemes:** Women are often unaware of initiatives like PMJDY, MUDRA Yojana, or SHG–Bank Linkage programmes. Poor

outreach and insufficient financial literacy drives prevent women from fully benefiting from these schemes.

- **Mobility and Safety Concerns:** In rural areas, banks are often located far from homes, and women face mobility constraints due to household responsibilities or safety concerns. Dependence on male relatives for travel affects independent access to financial services.

- **Limited Employment and Income Opportunities:** Low participation in the formal workforce means many women have irregular or insufficient income. Lower income reduces eligibility for loans and limits savings capacity.

- **Operational Barriers in Banks:** Long queues, unfriendly bank environments, lack of female staff, and limited time due to household duties discourage women from visiting banks. Technical language and lengthy procedures also create discomfort.

- **Social Stigma and Lack of Confidence:** Women often feel hesitant or intimidated to interact with financial institutions. Fear of making mistakes while transacting digitally or handling money affects confidence levels.

- **Gender Bias in Lending Practices:** Financial institutions sometimes perceive women as higher-risk borrowers. This bias affects women's access to credit for entrepreneurship or livelihood activities.

- **Limited Support for Entrepreneurial Activities:** Even when credit is available, women lack access to training, mentorship, and market linkages needed to run successful income-generating activities. This reduces the empowerment outcomes of financial inclusion.

Fig 1. National strategy for financial inclusion
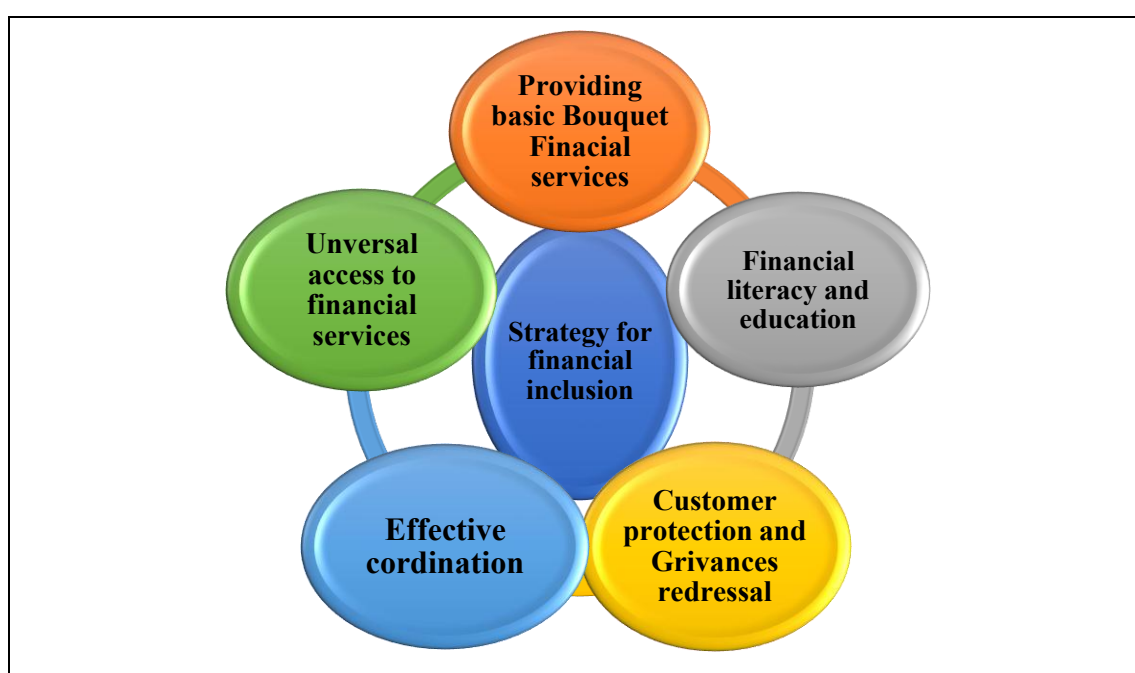
Key Steps by RBI to Expand Rural Financial Inclusion

- **National Strategy for Financial Inclusion 2019-2024:** The RBI, in its document titled "National Strategy for Financial Inclusion 2019-2024", sets out a roadmap and strategic objectives to broaden financial inclusion across all regions, including rural India. Key pillars include:

- Universal access to financial services: ensuring every village has a formal financial service provider within a reasonable distance.

- Providing a basic bouquet of financial services (savings, credit, remittance, insurance, pension) in a reasonably priced way.

- Focusing on livelihood and skill development, financial literacy & education, and customer protection & grievance redressal. This strategy explicitly targets rural and underserved areas, recognising the geographical, socio-economic and infrastructural challenges.

- **Financial Literacy and Education Programmes:** RBI maintains a dedicated section on its website for financial education and inclusion, emphasising rural outreach. For example, efforts include setting up "Centres for Financial Literacy" (CFLs) with the aim of reaching all blocks (administrative units) including rural ones. These programmes aim to equip rural residents (often with low literacy and weak access) with knowledge of banking, digital payments, savings and credit products.

- **Use of Business Correspondents (BCs) and Technology:** Recognising that bank branches are often far in rural areas, the RBI has supported the deployment of business correspondent networks (BCs) and technology-led service delivery (like e-KYC, digital banking) to bring banking to villages..The National Strategy emphasises leveraging fintech, digital infrastructure and BC/BC-agent models for rural inclusion. Monitoring and Measurement Framework: To specifically track rural financial inclusion, the RBI has built measurement frameworks that track three dimensions — access, usage and quality. For access, metrics such as number of banking outlets per 100,000 adults including rural localities are employed. For usage and quality too. This helps in identifying rural gaps and enabling targeted interventions.

- **Priority Sector Lending (PSL) and Rural Credit Flow:** Under its regulatory role, RBI ensures that banks allocate a portion of credit to priority sectors which often include rural households, agriculture, micro-enterprises etc. These regulatory tools help channel credit into rural areas, complementing physical access.

- **Rural Financial Inclusion Plans and Branch Authorisation Policy:** The RBI has changed policies on branch opening in rural/unbanked areas, thereby enabling banks to open branches and outlets in underserved rural regions. It also expects banks to prepare financial inclusion plans that cover rural outreach

Table 1. Women's Empowerment through Financial Inclusion (India)

Indicator	Numerical Data	Year/Period
Increase in women's bank account ownership vs. men	36% higher for women	2024
Average deposit in women's PMJDY accounts	Rs.1,279 to Rs. 3,761	2015 to 2022
Women owning smartphones (digital access)	60% of women	2024
Increase in digital transactions by rural women	22% growth	Last 2 years
Share of loans to women under Mudra Yojana	68% of total loans	2024
Growth of women-led MSMEs	1 crore to 1.92 crore	2010-11 to 2023-24
Women monitoring their credit	27 million (42% increase YoY)	Dec 2024
Credit self-monitoring growth – Gen Z women	56% increase	2024
Credit self-monitoring growth – Millennial women	38% increase	2024
Increase in women-owned proprietary establishments	17.4% to 26.2%	2010-11 to 2023-24

Author composition

Table 1 shows that women's financial inclusion and economic empowerment in India have significantly improved over time. Bank account ownership for women has increased faster than for men, and the average deposits in women's PMJDY accounts have nearly tripled, showing higher financial participation. Digital access is rising, with 60% of women now using smartphones and rural women's digital transactions growing by 22%. Women are also increasingly accessing credit—receiving 68% of Mudra loans—and actively monitoring their financial health. Moreover, the number of women-led MSMEs and women-owned enterprises has almost doubled, showing rising entrepreneurship and economic independence. Overall, the data reflects strong progress in women's financial empowerment, driven by inclusion, digital access, and entrepreneurship.

Conclusion

The study concludes that financial inclusion has become a powerful driver of women's

empowerment in India, particularly through increased access to bank accounts, credit, digital financial services, and entrepreneurship opportunities. The data indicates significant progress, with women showing higher growth in account ownership, improved savings behavior, and increased participation in credit-based schemes such as MUDRA. The rise in women-led MSMEs and digital financial engagement further reflects growing financial independence and economic resilience among women. However, persistent challenges such as limited financial literacy, digital divide in rural areas, inadequate documentation, socio-cultural barriers, and restricted access to formal credit continue to hinder full inclusion. Government and RBI initiatives—such as PMJDY, Mudra Yojana, Aadhaar-enabled banking, and SHG-Bank linkage programmes—have been instrumental in bridging these gaps, particularly in rural regions. To sustain and accelerate this progress, policies must focus on strengthening digital literacy, improving last-mile financial access, addressing gender-specific barriers, and promoting women-centric financial products. Overall, financial inclusion, when supported by robust government programmes and targeted policy measures, plays a crucial role in advancing women's empowerment and fostering inclusive economic development.

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UNDERSTANDING FINANCIAL LITERACY AMONG UTTARAKHAND'S YOUTH: A COMPREHENSIVE ASSESSMENT OF INSIGHTS AND IMPLICATIONS

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Abstract

India is a rapidly developing country with a young and growing population. In later years, there has been a bigger focus on financial literacy in India, as the private sector and government have recognized the necessity of financial education in promoting economic growth and social development. India's financial services industry has seen significant change as a result of exposure to advanced finance due to technology, personal financial responsibility has grown. Financial literacy in India refers to the knowledge, understanding, and skills related to financial concepts, products, and services among individuals and communities in the country. It encompasses the ability to manage personal finances effectively, make informed financial decisions, and navigate various financial instruments and institutions This study provides a comprehensive assessment of financial literacy among the youth of Uttarakhand, examining their knowledge, behaviors, and attitudes toward personal finance. Financial literacy, which includes budgeting, saving, investing, and understanding credit, is a critical skill for navigating

today's economy, especially in developing regions like Uttarakhand. The research explores key factors influencing financial literacy, such as education, socio-economic background, geographic location (urban vs. rural), and access to digital financial services. Using a mixed-methods approach of surveys and focus group discussions with youth aged 15-30 from various parts of the state, the study assesses their financial understanding and decision-making abilities. The findings reveal a clear gap between urban and rural youth, with urban youth showing higher financial awareness and better access to financial tools, while rural youth struggle due to limited resources and education. Additionally, gender disparities highlight that young women, particularly in rural areas, tend to have lower financial literacy. The study emphasizes the need for policy interventions, such as integrating financial education into school curriculums, improving access to digital financial services, and launching targeted awareness campaigns. These measures are crucial for equipping Uttarakhand youth with the financial skills necessary for personal financial security, entrepreneurship, and the region's broader economic development.

Keywords: Financial literacy, Youth, Financial education, saving and investing, Gender disparities, Policy interventions.

Introduction

Developed and developing countries both have confronted this issue, as being financially literate is the most crucial thing. Financial literacy includes the knowledge, behaviors, and attitudes needed to make well-informed decisions that lead to improved well-being standing of an individual in a financially stable society. Financial literacy is important at a young age as it helps to teach some of the fundamentals to being responsible with money in areas like budgeting, saving, investing and credit management. Due to a vast economic options and difficulties difference between urban and rural in the developing region like Uttarakhand it is important to go through financial literacy about youth workforce in this research. In the Indian perspective, and more India, Uttarakhand the socio-economic struggle is known of many youth appears as a compelling ground for financial literacy enhancement. Although many financial inclusion programs, like the Pradhan Mantri Jan Dhan Yojana (PMJDY), have been running for quite some time now, there is a significant gap in reality between having access to finance and actually using it, particularly among the youth. While financial inclusion has risen where many young people now have access to these good, financial literacy levels have remained low contributing in a situation where a lot of young person's struggle with the usage of financial

goods. The ability to manage money is what financial literacy is all about. Financial literacy is done to help people understand financial concepts which will enable them to manage their money better (Hossain, M., & Maji, S. K. (2021). This is perhaps a life skill, the one everyone need to develop and understand if you want financial wealth in your life. Financial Literacy: Saving, Planning, Investing and Loans/Interest. Financial illiteracy can make someone take bad financial decisions; thereby reducing their capability to manage money. The test employed for the study is to ascertain the financial literacy level of Uttarakhand young in general, explore differences between various demographic profiles and also establish a socio-economic matrix along with economic determinants that influence financial knowledge practices and attitudes. Through this study we aim to shed light on these issues which would hopefully enable policymakers and organizations to develop more targeted financial literacy initiatives and policies, leading to improved financial well-being for the youth in the context of Uttarakhand and eventually help contribute towards the economic growth of the state. The economic opportunity and financial infrastructure differences between urban and rural areas persist in states like Uttarakhand. However, in view of improvement in economic stability and financial security there seems to be undividable gap between our realization and the prevalent scenario related to financial literacy amongst young generation in Uttarakhand. Specific focus areas are required to be addressed by the existing streams of research, i.e. socio-economic and cultural aspects directly or indirectly effects on financial literacy in the region i.e. among urban/ rural youth; different strata of social-economic level supporters but no direct references were found during the course of this study. Narrower research design focus needed: The type of target that comes out from this study requires a very narrow type of target for effective financial education programmes and or policy to cater the needs related for Uttarakhand young. Financial literacy: Financial literacy is the ability to understand and manage money and personal finance well. (R & Rathod, 2021) financial literacy is to money what a connection is to an electric circuit. it is the foundation on which everything else rests and grows, and something that will you serve your whole life. Understanding and employing budgeting and investing; Many other financial competencies are understood and practiced. It is therefore important to have a good understanding of financial concepts in order to make sound financial decisions as heightened complexities in the markets, exposure to Fintech like mobile & digital payments, continued shift from defined retirement plans to contributory plans and need for accumulating money for post-retirement expenses (retirement & medical services) (Choudhary & Kamboj, 2017). That said, consumers armed with financial education are more likely to be both able and willing to look after their money for the long term. Financial literacy has been found to be positively

related with education, age and income (Shanti & Murty, 2019). The study also suggested that married women are less financially literate than single women. Talking about Uttarakhand, women must become more aware of their strength and become confident. Although much has improved, in certain areas women still require far greater financial literacy than what currently exists. Our points are supported by the Financial Literacy which is very integral to achieving financial inclusion as it enables people to have more access to financial services and make informed decisions of how they use their money (Antony & Jospeh, 2021). This education on financial management can make everyone more competent that they might be able to handle anything that the economy of their neighborhood or even the country as a whole may throw at them. Effective delivery supplemented by suitable financial products and financial counseling will enhance the access that is needed to raise the level of financial inclusion. Previous analysis, such as that by Lusardi and Mitchell (2014) and Cole, Sampson, and Zia (2011), has pointed out the global importance of financial literacy with its effect on economic decision-making. However, the research on financial literacy among youth in India is still relatively underdeveloped and nothing much has been studied in a specific region like Uttarakhand. According to academic research, financial literacy varies significantly by education level, income level and region of residence. This is also evidenced in the scenario of Uttarakhand where Financial Literacy amongst youth in rural region was at plight vs. their urban counter-parts.

Research Objectives

- To analyze the relationship between the knowledge and application of fundamental financial principles among youth in Uttarakhand.
- To analyze the impact of various demographic factors on financial literacy among youth in Uttarakhand.
- To evaluate the effectiveness of financial inclusion initiatives (banking services, financial literacy programs, access to credit, and digital finance tools) among youth in Uttarakhand.
- To Explore the Relationships between Recommendations and Respondent Demographics (Age, Education Level, Socio-Economic Status).

Literature Review

One of the most critical aspects of this that has been raised, especially in younger demographics, is financial literacy or having the knowledge and skills to make informed

decisions about saving, investing and monetary issues. This paper aims to derive essential implications for designing better policies as well as more effective interventions, by studying/on the financial literacy status of vintage youth in comparison to young people situated across different socio-economic circumstances and educational opportunities such as Uttarakhand. The scope of this literature review is to provide a snapshot of current research on youth financial literacy in Uttarakhand: the methods used to measure it, results presented and other potential determinants affecting financial literacy.

1. Evaluate the fundamental financial principles among youth in Uttarakhand:

A comprehensive grasp of basic financial concepts is essential for young people, as it enables them to effectively handle their finances, make wise investments, and attain financial autonomy. The region socio-economic variety influences the level of financial awareness in Uttarakhand. More availability of crucial financial education among rural young holder their comprehension of saving, budgeting, and investing (Sharma & Rawat, 2019). Geographical inequalities, inadequate financial infrastructure, and insufficient incorporation of financial knowledge in educational institutions complicate this gap. While urban youth often enjoy superior access to financial services, rural youth need help in obtaining fundamental banking services (Pandey & Singh, 2020). In order to tackle this issue, governments should priorities the incorporation of financial education into schools and establish community-based initiatives designed explicitly for underprivileged and rural young people. Practical cooperation among educational institutions, financial Organisations, and government agencies can enhance the financial literacy of young people, enabling them to make well-informed choices in a multifaceted financial environment (Chauhan & Joshi, 2021).

2. Impact on Demographic factors among youth in Uttarakhand:

Uttarakhand, a Himalayan state in northern India, has a unique demographic landscape. The state's youth, a significant part of its population, face various challenges and opportunities influenced by factors like age, gender, education, income, and rural-urban differences. These factors affect their access to education, employment, and resources. Rural youth need more infrastructure and opportunities, creating a gap in socio-economic mobility compared to urban youth. Gender disparity further limits girls' education and employment, while boys often migrate to cities seeking better prospects. Migration trends contribute to urbanization and depopulation of rural areas (Pandey & Joshi, 2021). Addressing these demographic factors can

help bridge gaps and promote inclusive socio-economic development, ensuring equitable access to opportunities for all youth (Srivastava & Chauhan, 2020).

3. Evaluate the effectiveness of financial inclusion initiatives among youth in Uttarakhand:

The assessment of the efficacy of financial inclusion initiatives among young people in Uttarakhand is essential for comprehending the extent to which these programs have managed to narrow the disparity in financial service accessibility. Financial inclusion is crucial for economic development, especially in underdeveloped regions like Uttarakhand, where access to financial services can greatly increase young empowerment. Despite the expansion of access to these services through programs like the Pradhan Mantri Jan Dhan Yojana (PMJDY), research suggests a need to enhance youth usage. Financial inclusion seeks to grant young people, particularly those residing in rural regions, the opportunity to avail themselves of banking services, credit facilities, and digital financial instruments, so fostering financial autonomy and mitigating disparities. However, obstacles such as insufficient knowledge, inadequate infrastructure, and regional inequalities persist in impeding development (Joshi & Singh, 2020). While urban youth derive more significant advantages from digital banking and financial services, rural youth often require assistance in effectively accessing even fundamental services like as bank accounts and loans (Rawat & Pandey, 2021). To evaluate the effectiveness of these programs, it is crucial to analyse the extent, use, and influence of financial services among young people. Mukherjee (2017) states that female youth are typically less likely to independently use financial services due to conventional gender roles and weaker financial understanding, underlining the requirement for gender-sensitive approaches to financial inclusion projects in Uttarakhand.

4. Policy recommendations of financial literacy among youth in Uttarakhand:

Financial literacy is a crucial skill for youth, helping them make informed financial decisions, manage their finances, and support economic growth. In Uttarakhand, regional disparities, particularly between rural and urban areas, pose challenges to youth in accessing financial education. This gap leads to issues like poor financial management and limited access to formal financial services, especially in rural areas (Pandey & Verma, 2020). To address this, policies should focus on integrating financial education into school curricula, using community

programs to raise awareness, and leveraging digital platforms to reach remote regions. Special efforts should target marginalized groups, such as rural youth and young women, ensuring equitable access to financial literacy (Joshi, 2021). Collaboration between financial institutions, NGOs, and local governments can help bridge the gaps and promote sustainable financial literacy across the state (Kumar & Chauhan, 2019). These initiatives can empower youth in Uttarakhand, fostering inclusive growth and economic resilience.

Research Methodology

Research methodology refers to the systematic process of collecting, analyzing, and interpreting data to address the research objectives and answer the research questions. In the context of the study "Understanding Financial Literacy among Uttarakhand's Youth: A Comprehensive Assessment," the research methodology outlines the specific steps, strategies, and tools that will be used to study the financial literacy levels of youth in Uttarakhand.

1. Research Design:

The research paper will adopt a Mixed-methods approach, incorporating both quantitative and qualitative data collection to provide a comprehensive understanding of financial literacy among the youth. The present research design adopts a mixed strategy to evaluate the levels of financial literacy among young individuals in Uttarakhand. This approach guarantees that the study is methodologically strong and produces practicable findings.

Quantitative Methods:

Quantitative methods aim to quantify financial literacy levels and identify statistical relationships among variables such as socio-economic background, education, and financial behaviors. This approach is used to gather numerical data, analyze patterns, and make generalizations about the population.

Qualitative Methods:

Qualitative methods are designed to explore the underlying attitudes, beliefs, and experiences related to financial literacy. They provide a deeper understanding of the factors influencing financial behaviors and decision-making among youth.

2. Collection of Data:

The study is based on a Descriptive method. The secondary data was compiled from various books and articles published in multiple magazines and journals.

3. Data Analysis:

Cross tabulation Analysis were calculated to summarize the financial literacy levels and demographic characteristics and key variables such as financial literacy levels, knowledge application, and usage of financial tools (savings, investment, credit) of the youth.

Table1: Cross-Tabulation Summary Table

Analyze the relationship between the knowledge and application of fundamental financial principles among youth in Uttarakhand

Financial Principle	High Knowledge and High Application (%)	High Knowledge but Low Application (%)	Low Knowledge but High Application (%)	Low Knowledge and Low Application (%)
Savings	55%	30%	10%	5%
Investment	35%	40%	10%	15%
Debt Management	40%	25%	20%	15%
Financial Planning	45%	30%	10%	15%

Table2: Cross-Tabulation Summary Table

Analyze the impact of various demographic factors on financial literacy among youth in Uttarakhand.

Demographic Factor	High Financial Literacy (%)	Moderate Financial Literacy (%)	Low Financial Literacy (%)
Gender (Male)	50%	35%	15%
Gender (Female)	45%	30%	25%
Education (Higher Ed.)	60%	30%	10%

Education (lower Ed.)	35%	40%	25%
SES (High)	65%	25%	10%
SES (Low)	25%	35%	40%
Urban	55%	30%	15%
Rural	40%	35%	25%

Table3: Cross-Tabulation Summary Table

Evaluate the effectiveness of financial inclusion initiatives (banking services, financial literacy programs, access to credit, and digital finance tools) among youth in Uttarakhand.

Financial Inclusion Initiative	High Effectiveness (%)	Moderate Effectiveness (%)	Low Effectiveness (%)
Banking Services	60%	25%	15%
Financial Literacy Programs	40%	35%	25%
Access to Credit	30%	40%	30%
Digital Finance Tools	55%	30%	15%

Table4: Cross-Tabulation Summary Table

To Explore the Relationships between Recommendations and Respondent Demographics (Age, Education Level, Socio-Economic Status) among youth in Uttarakhand.

Demographic	Financial Literacy Needs	Policy Recommendations
Age	Younger (18-24): Basic knowledge; Older (25-30): Advanced knowledge.	Basic literacy for younger groups; complex topics (investment, Debt management) for older groups.
Education Level	Low education: Basic skills; High education: Complex topics.	Simplified, practical financial education for low-education respondents; advanced financial topics for educated youth.

Socio-Economic Status	Low SES: Financial inclusion and access; High SES: Investments.	Micro-finance and basic banking for low-income; advanced financial tools (investment, wealth management) for high-income.

Results

Table 1 shows that the relationship between financial knowledge and its practical application among Uttarakhand's youth. 55% with high knowledge save regularly; 30% have high knowledge but don't save due to constraints; 10% save despite low knowledge using intuition; 5% lack both knowledge and application. 35% with high knowledge invest, mainly in educated and urban groups; 40% understand investment but don't apply it due to risk or lack of capital; 10% invest informally with low knowledge; 15% neither understand nor invest.40% with high knowledge actively manage debt; 25% understand but struggle due to financial stress; 20% manage debt informally without formal knowledge; 15% neither understand nor manage debt. 45% with high knowledge actively plan their finances; 30% understand but struggle to apply it due to low income; 10% plan without formal knowledge; 15% neither plan nor understand financial planning.

Table 2 examines the influence of demographic variables on financial literacy among the youth in Uttarakhand. Fifty percent of young males possess good financial literacy, particularly in investments and debt management, largely attributable to increased exposure to financial education. Forty-five percent of young women possess financial literacy, while twenty-five percent fall into the poor literacy category, especially in rural regions and among lower-income households with restricted access to financial education. Sixty percent of students with higher education possessed advanced financial literacy, suggesting that education improves financial knowledge. In contrast, only 35% of persons with lower educational attainment exhibit financial literacy, while 25% demonstrate low literacy skills. This highlights the imperative for programs targeting undereducated youth. Sixty-five percent of kids from elevated socioeconomic backgrounds demonstrate financial literacy, especially in saving and investing, due to improved access to financial services and education. However, 40% of lower-income youth (SES) encounter difficulties in financial literacy due to financial instability and limited access to services. 55% of urban adolescents exhibit robust financial literacy, attributed to enhanced access to banking services and financial education. By contrast, only 40% of rural

youth demonstrate financial literacy, and 25% exhibit low literacy, partly due to the limited availability of financial services in rural areas.

Table 3 evaluates the effectiveness of financial inclusion initiatives among youth in Uttarakhand. 60% found them highly effective, using savings and checking accounts regularly. 25% had moderate success due to rural access issues. 15% faced challenges due to trust or account management. 40% rated them highly effective, especially those with higher education. 35% found them moderately effective, needing more practical approaches. 25% found them ineffective, especially in rural areas. 30% found them effective in wealthier, urban areas. 40% had moderate success with microfinance access, while 30% struggled due to lack of collateral and strict requirements. 55% found UPI and e-wallets highly effective. 30% had moderate success due to technical issues or low digital literacy, and 15% struggled, especially in rural areas with poor internet access.

Table 4 is illustrative of the correlation between recommendations and the demographics (Age, Level of Education, Socio-economic status) with which they answered among Youth of Uttarakhand. A case in point is 18–24-year-olds for whom new-age digital instruments such as UPI, e-wallets etc. score high with 70% considering them 'useful', yet this segment finds it increasingly challenging to get formal credit due to financial instability. Those individuals in the 25-30 age range get about 65% of their benefit from advice on financial planning/savings/investments with an emphasis on long range objectives such as retirement and investment diversification. Financial Literacy/ Investment advice was rated as valuable by more than 60% of graduates, allowing them to apply savings, investment and debt management practices. Over one-third of adults with a high school education or less saw advice as good, most struggling with investment and credit new ideas but benefiting more from basic banking. There was 65% positive reaction to long term focused digital products/advisory offer in wealth planning segment. Affluent youth Lower-income teenagers were more likely to both appreciate and find practical use for basic banking services as well as microfinance recommendations (40%) but loans had difficulty due to their lack of stable financial background.

Implications of Findings

Emphasize practical and financial literacy applications in programs – especially for youths under financial constraints. Forging a connection between behavioral finance, habit building and experiential-learning will enhance the impact of financial literacy. Policies addressing both

income and capital barriers, such as by providing cheap access to loans and opportunities for low-risk investments are essential. Financial programs have a larger positive impact on urban adolescents, while rural kids need tailored solutions like ICT and microfinance to increase access. Women in particular, rural adolescents and low-income populations need financial skill-based education. It has been a well-established fact that introducing financial literacy into school curriculas can deliver long lasting benefits. Digital financial literacy and mobile banking technology could overcome the physical limits, & access to banking in rural areas along with trust-building would increase penetration of financial service. To help low-income youth, inclusive lending measures — such as the expansion of microfinance and easing of asset collateral requirements — may be a solution. Better digital literacy and more internet access across rural areas will help to cement the availability of digital financial tools. Meanwhile, the focus of financial inclusion initiatives should be on increasing bank and digital finance penetration in underserved areas in addition to tailoring programs based on rather different educational levels. People from the 18–24 age group like more digital instruments like UPI & e-wallets so focus should be on to make them more literate of that. People 25 to 30 years of age need financial planning and investment advice, so he must have a greater knowledge of long-term goal. Programs should be customized: young people who are well-educated are much more likely to engage with financial guidance, while those who have less education need access to simple and useful tools like basic banking services. Well-off young are able to experience advanced investing practices, and impoverished youth enjoy enhanced features as basic banking services or microfinance solutions benefits.

Conclusion

In summary, there's a gap between financial knowledge and its practical application among Uttarakhand youth. While many with high financial knowledge apply savings strategies, fewer manage investments and debt due to financial constraints and limited credit access. This shows knowledge alone isn't enough; income, service access, and financial habits also play key roles. Programs providing affordable credit, low-risk investments, and habit-building can help bridge this gap. Demographic factors significantly impact financial literacy. Males, educated youth, urban residents, and wealthier groups exhibit higher literacy due to better access to resources. In contrast, females, rural youth, and lower-income families show lower literacy levels, emphasizing the need for targeted financial education programs for these disadvantaged groups. Financial inclusion initiatives have mixed effectiveness. Banking services and digital

finance tools are effective, especially in urban areas, but rural and low-income youth face accessibility and trust issues. Financial literacy programs benefit higher-educated youth more, and access to credit remains challenging due to strict requirements. Improving credit access, digital literacy, and rural outreach is essential. Youth preferences vary by age, education, and socio-economic status. Younger youth (18-24) favor digital finance tools, highlighting the need for digital literacy. Older youth (25-30) focus on financial planning and investment advice, while wealthier youth respond well to advanced investment strategies. Lower-income and less-educated youth need simplified tools like basic banking and microfinance. Tailored programs are key to enhancing financial inclusion and literacy across all groups.

Future Research

Future research on financial literacy among youth in Uttarakhand should comprehensively assess the factors influencing financial behaviours, focusing on socioeconomic, cultural, and geographical aspects. This includes examining the rural-urban divide and the unique challenges rural youth face in accessing financial education compared to their urban counterparts. Studies should explore the role of formal education and socioeconomic status in shaping financial literacy, with particular attention to disadvantaged groups. Research findings will guide policymakers in creating targeted programs that address gaps in financial knowledge and promote inclusion, especially in rural areas. By analyzing regional disparities, socioeconomic factors, gender gaps, and the influence of digital technologies, future research will provide critical insights to empower Uttarakhand youth and contribute to the state's economic growth.

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ARTIFICIAL INTELLIGENCE IN TRADTIONAL VS HYBRID CLASSES: A COMPARATIVE STUDY OF LEARNING OUTCOMES

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Abstract

The Artificial Intelligence in Smart Classes and traditional classes is a help in teaching Skills. This is a deep learning skills which enhances the difference teaching styles. It is proposed to outline the present or future quality of study material. This paper we discuss the concept of Artificial Intelligence in teaching classesvs hybrid classes. In this study, primary data collected from student of B.com 1st year, 2nd Year and 3rd Year. Data collected through structural questionnaire. The number of respondent in this study 250, which is collected. Simple random sampling were used to collect the data in study area . It is found from the analysis that 75 students agree with traditional method but 78 students can says that they are neutral with this method. From the study reveal that 98 students are agree with modern method and 83 students can responses are neutral. The study concluded that a comparative study consistently show that artificial intelligence offers significant advantages in education sector, primarily through by personalization and give immediately feedback as soon as possible which traditional and hybrid methods are struggle to provide motivation and engagement, also provide efficiency. We find flexibility, traditional strengths.

Keywords: Artificial Intelligence, Teaching Styles, Personalization, Awareness, Hybrid Classes, Active Learning.

Introduction

In an artificial intelligence is used in hospitals, education sector, IT sector. In education sector we have use Artificial Intelligence elaborate the learning outcomes as well as learner centered pedagogical practice refer to teaching methods that focus on the needs, abilities, interests and teaching styles of students, awareness rather than just delivering content from the teacher's. In traditional classes, It is a physical classrooms. They focus on exams, assessment and other activities. Artificial Intelligence methods use Hybrid technologies for Hybrid Classes. It can be utilized the Artificial Intelligence tools for much more better teaching skills. Artificial Intelligence focuses on teaching styles to improve the quality of teaching. It helps to students' and teacher's. In traditional classes, we have to take physical classes in the classrooms, maintained attendance register and discipline in the classrooms. But in Hybrid Classes in Artificial Intelligence, we have utilize the tools of Artificial Intelligence like ChatGpt, Deepseek, Perplexity, etc. Teachers' and Students both of them utilize these types of Artificial Intelligence Tools for learning skills and Personalization. Teacher's can be use the Smart TV for more effective modern classes. With the help of structured diagram measure the awareness level of among students.

STRUCTURAL DIAGRAM OF LEARNING

Sources: Prepared By Author
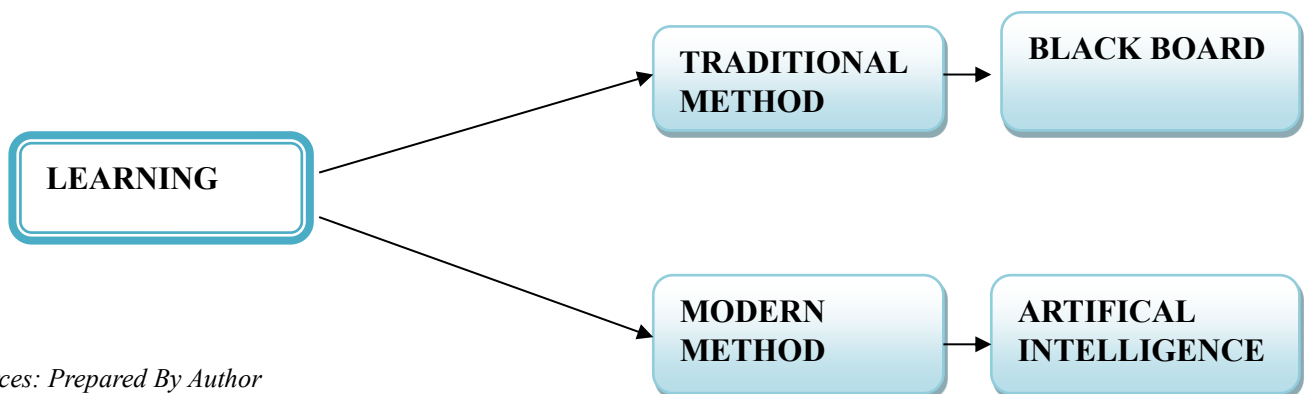
Learning:- Learning is skills, experience, study, values. It is behaviors through by practice. They related to knowledge and development our skills.

Traditional Method:- In this method, we can use black board to enhance the learning skills. Black Board is a large and short board with a smooth dark surface area and they attached to a wall or it can be supported used by teachers in colleges for writing on with marker or chalk.

Modern Method:-In this method, We can use the artificial intelligence learning skills. It is ability to enhance the learning skills like problem solving, language understating, learning process, easy data collection, exam preparation, presentation also. It can be utilize the artificial intelligence tools like ChatGpt, Deepseek, etc.

Literature Review

TanveerBaig (2025),This paper, we study about adaptive pedagogy with focus on the challenges and future potential of the technology by educators. It is economical, technological and learning abilities.

Changyi Li & Jiang Long(2025),In this research paper, It can be focusing on teaching styles through by artificial intelligence. They improve learning knowledge for the students bright future. It is utilize the artificial intelligence tools to improve knowledge.

Ananth Hariharan (2025),This paper, we can study about pedagogical techniques of traditional classrooms the enhanced education system. It is develop more effective and learning enlivenment. Students deserve high quality education.

Susan Rochelle &Dr. Sushith (2024), In this research paper, we can says that education is a part of students learning skills. It is compare between traditional and modern learning in teaching skills. Artificial Intelligence and Traditional Methods can identify the educator benefits and its more challenges and future directions also.

Mario Ayala- Pazmino (2023),This research paper, It is connect with AI – education has generated with significance educators improve teaching and learning skills. AI tools can be reduce the teacher planning time by administrative task and they focus on more practical teaching activities.

Objectives

- To determine the awareness level among Artificial Intelligence in Modern Learning Outcomes.
- To compare traditional and modern method of learning.

Research Methodology

Research methodology is the systematic plan for conducting research, which includes the specific procedures, techniques, and reasoning used to collect, analyze, and interpret data.

In this study, Data collected from the secondary sources such as articles, research paper, report, journal, website etc.Collected data were reviewed and analyze with help of compression traditional study and modern. It is Quantitative analysis.The time period of study august 2025 to November 2025.

In this study, primary data collected from student of B.com 1st year, 2nd Year and 3rd Year. Data collected through structural questionnaire. The number of respondent in this study 250, which is collected from the Ramanand Institute of Pharmacy and Management in Haridwar, Uttarakhand. Simple random sampling were used to collect the data in study area. After collecting data, analysis with the help of statistical tool as percentage method and graphical representation. 5 point Likert scale were applied in the study as strongly disagree, disagree, agree, natural, strongly agree.

Data Analysis

Table 1 Demographic Profile of Respondent

Students	No. of Respondent	Percentage
Boy's	160	64
Girl's	90	36
Total	250	100

Sources: Author's Primary Data Collection

Graph 1
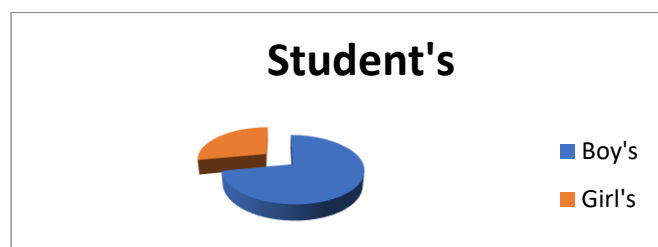
Interpretation: This is demographic profile table and they identify the students like girls and boys. We have total number of respondent 250 ,Boys give 160 respondent and girls give 90 respondent.

Table 2 Age Group of Respondent

Age Group	No. of Respondent	Percentage
18 to 20	70	28
20 to 22	85	34
Above 22	95	38
Total	250	100

Sources: Author's Primary Data Collection

Graph 2
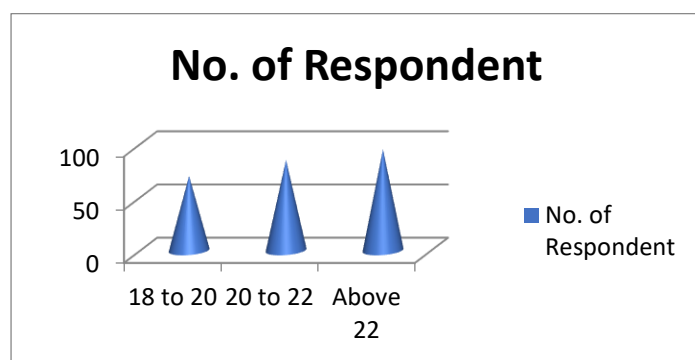
Interpretation: In this table, we can show the age group like 18 to 20 age group gives 70 respondent, 20 to 22 age group gives 85 respondent(highest) and above 22 age group gives 95 respondent.

Table 3 Satisfaction about Traditional Learning

Question	No. of Respondent	Percentage
Yes	153	61.2
No	97	38.8
Total	250	100

Sources: Author's Primary Data Collection

Graph 3
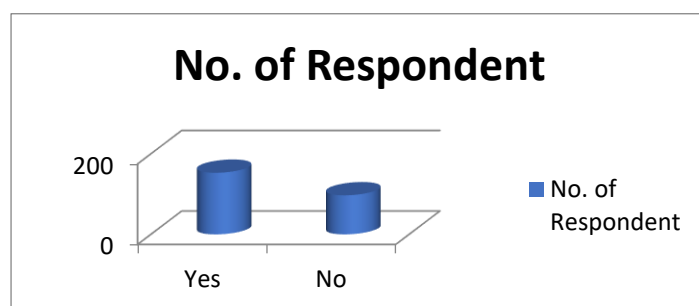
Interpretation: In this graph, It is traditional method utilize in learning skills. Students give respondent like some students says that it is good for learning = 153 and some students are not comfortable with traditional method gives 97 respondent.

Table 4 Effectiveness Level of Traditional Learning

Statement	S.D	D	N	A	S.A	Total	%
Traditional Learning Effective in Present Education System	13 (5.2)	68(27.2)	78(31.2)	75(30)	16(6.4)	250	100

Sources: Author Primary Data Compilation, S.D = Strongly Disagree, D = Disagree, N = Neutral, A =Agree, S.A = Strongly Agree

Graph 4
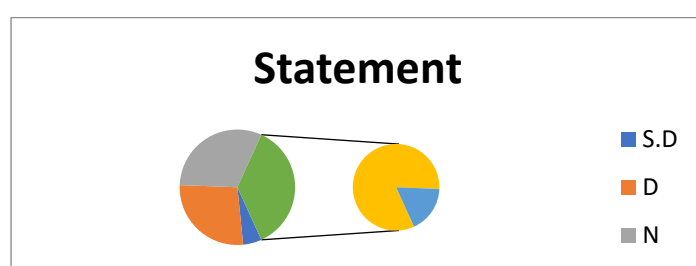
Interpretation: In this table, We found the students respondent of traditional method. We finds 75 students agree with traditional method but 78 students can says that they are neutral with this method.

Table 5 Awareness about Modern Learning

Question	No. of Respondent	Percentage
Yes	187	74.8
No	63	25.2
Total	250	100

Sources: Author's Primary Data Collection

Interpretation: In modern method, Highest respondent of students= 187. Student's aware about modern technology. But 63 student's are not want to aware about modern technology as well as learning.

Graph 5

No. of Respondent
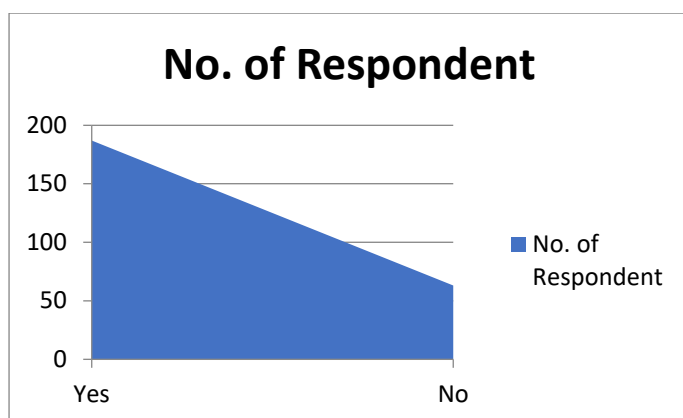
Table 6 Effectiveness Level of Modern Learning

Statement	S.D	D	N	A	S.A	Total	%
Modern Learning helpful in Present Education System	9(3.6)	17(6.8)	83(33.2)	98(39.2)	43(17.2)	250	100

Sources: Author Primary Data Compilation, S.D = Strongly Disagree, D = Disagree, N = Not Agree, A =Agree,

S.A = Strongly Agree

Graph 6
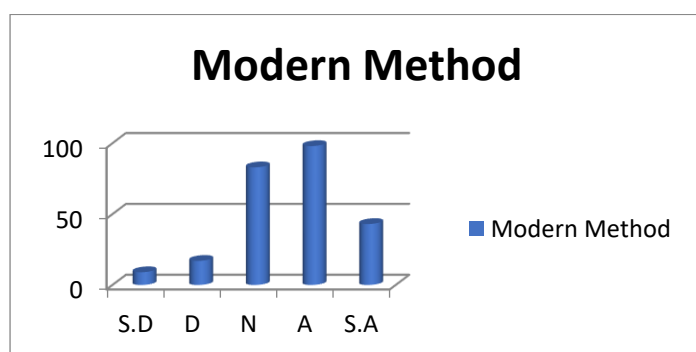
Modern Method

Interpretation: In this method, 98 students are agree with modern method. 83 students can says that they are neutral with this method.

Findings

1. It is demographic profile. In this graph, maximum respondent of boy's 160. Age group table identify the above 22 years is the highest respondent 98.

2. Student's awareness about the new method of learning i.e. ChatGPT and Deepseek, from the study it is found that 75% the B.com student's of Ramanand Institute of Pharmacy and Management College having awareness is about and 25% student's are not aware about it. It is

because of student having smart phone, lack of knowledge about modern method or be student belong to backward family or rural areas.

3. Student's awareness about the new method of learning i.e. ChatGPT and Deepseek, from the study it is found that 61.2% the B.com student's of Ramanand Institute of Pharmacy and Management College having awareness is about and 38.8% student's are not aware about it. It is because of student having smart phone, lack of knowledge about traditional method or be student belong to backward family or rural areas.

4. 75% student's agree to conduct traditional continuous but 78% student's are neutral. No response both of them.

5. 98% students make learning adopt and 43% students are strongly agree.

Conclusion

It is concluded from the study that artificial intelligence in traditional classes vs hybrid classes: a comparative study learning outcomes. We can enhance the quality of teaching skills through by modern method as well as hybrid classes.It helps to students' and teacher's. In traditional classes, we have to take physical classes in the classrooms, maintained attendance register and discipline in the classrooms. But in Hybrid Classes in Artificial Intelligence, we have utilize the tools of Artificial Intelligence like ChatGpt, Deepseek, Perplexity, etc. Teachers' and students both of them utilize these types of Artificial Intelligence Tools for learning skills and Personalization. We are help of teacher's enhance the knowledge of learning skills thought by workshop, webinar, faculty development program in our institute for student's bright future.

Suggestion

- In college's, we give suggest modern and traditional continuity.
- They are provide Modern knowledge of the teacher's.
- We can conduct workshop, faculty development program, webinar in the college's to enhance the quality of teaching skills.

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GLOBAL-LOCAL DYNAMICS OF INFLUENCER MARKETING: STRATEGIES, COMPLIANCE, AND CONSUMER TRUST IN THE DIGITAL ECONOMY

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Abstract

Influencer marketing has quickly developed as an influential force to spur digital growth and innovation in the modern-day globalized economy, transforming branding communication and expansion across borders through digital platforms. This paper examines the essential role of influencers—people with mass online followings on Instagram, YouTube, and TikTok—to bridge brands with multicultural and diverse audiences using highly targeted and culturally relevant messaging. Advanced technologies, particularly artificial intelligence, make it possible to scale campaign management, target audiences in accurate specifics, and make data-based decisions, which allow brands to make their global reach more efficient and effective. With influencer marketing continuing to fuel cross-border eCommerce, fast market penetration, and localized brand interaction, it also faces serious challenges. Brands have to deal with heterogeneous regulatory environments, ensure data privacy, and uphold authenticity and transparency across cultures and jurisdictions varied. The report identifies the necessity of having strong compliance practices, strategic influencer alliances, and global-local adaptation for ensuring sustainable campaign success. Though there are great opportunities for marketplace growth and consumer interaction, constraints still exist in the form of regulation

fragmentation, measurement challenges, and fast-evolving consumer expectations. The research highlights the need for continued study into long-term effects on brand equity and building trust, with emphasis placed on the fact that the future of influencer marketing is in managing technological innovation, ethical practices, and locally competitive content toward successful global brand strategy.

Keywords: Cross-Border Branding, Digital Globalization, Influencer Marketing, Regulatory Compliance, Social Media Strategy,

Introduction

Globalization has been revolutionized in the advent of digital technologies, radically altering the manner in which markets around the world integrate and communicate. Digital platforms—social media, cloud technology, mobile technology—facilitate instant access to information and products, eliminating borders and opening an open global marketplace. The widespread acceptance of internet-enabled communication has enabled firms and customers to interact in real-time, creating integrated supply chains, global consumer communities, and the rapid exchange of goods and ideas *(Grewal, Roggeveen, & Nordfält, 2017).*

Influencer marketing has become a key tactic in this technologically advanced global environment. A marketing strategy that utilizes people with large followings online—namely Instagram, YouTube, and TikTok—to endorse brands and products, influencer marketing takes advantage of the credibility and familiarity these people have created with various groups *(Freberg, Graham, McGaughey, & Freberg, 2011).* Its emergence was attributed to shifting consumer behavior, where opinions from likable figures can prove stronger than conventional advertising, allowing brands to reach niche or worldwide segments with personalized communication and localized cultural resonance.

The literature theme of technology-led globalization can be applied directly to the influencer marketing context. With the era of digital connectivity, real-time communication across borders was possible, and influencer marketing closes the divide between brands and foreign markets, enabling access to cross-border e-commerce and building consumer confidence in new markets. Concurrently, the global scope presents challenges—namely, varying regulation, cultural sensitivities, and the necessity of transparency—that brands and influencers must cater to *(Lee & Eastin, 2021).* In this sense, influencer marketing was indicative of technology-

facilitated globalization's opportunities and intricacies, serving as a vital conduit for brands desiring sustainable engagement and growth in the interconnected world.

In addition, the online sphere has enabled influencers to cross geographical boundaries and achieve strong cultural relevance at a global level, becoming crucial intermediaries in shaping brand identities that are relevant to global audiences *(Djafarova & Rushworth, 2017)*. As businesses leverage influencer marketing techniques, they not only gain exposure to new market segments but also tailor messaging to suit regional tastes, languages, and consumption habits, enhancing campaign effectiveness and relevance. Yet with these enhanced opportunities come greater responsibilities—brands and influencers need to navigate tough global regulations regarding advertising transparency, data privacy, and consumer protection, all of which vary significantly by market *(De Veirman, Cauberghe, & Hudders, 2017)*. Ethical issues, like transparency and authenticity, also take center stage as consumers become more sophisticated and regulatory agencies increase scrutiny of digital marketing practices. The synergistic interplay of cross-border activity and regulation therefore calls for constant innovation and flexibility in influencer marketing strategy. At the end of the day, the globalized world created by digital technology places influencer marketing both as a force for globalization and as a nexus of new challenges in cross-cultural brand management and compliance.

Research Problem Statement

Influencer marketing has quickly become a strategic tool in digital globalization, but little was known about how brands can successfully handle the intricate opportunities and difficulties that come with cross-border interactions. In particular, little was known about the relationship between broadening one's global reach and abiding by various regulatory frameworks.

Research Objective

- This study explores how influencer marketing enables global brand expansion in the context of advanced digital connectivity and international markets.

Literature Review

Globalization theories have developed quite extensively to explain the revolutionary role of digital technologies to knit markets and societies globally. The earlier views on globalization centered on economic integration, liberal trade, and cultural exchange between nation-states

(Held et al., 1999). Yet, in the era of the computer, academics call for a more sophisticated perception, underscoring the ways in which information and communication technologies (ICTs) function as catalysts that speed up and intensify international interconnectedness across geographical distances *(Castells, 2010).* Castells' "network society" theory holds that social, economic, and political life is increasingly centered on digital networks, which dissolve spatial and temporal constraints. This transformation remaps globalization as a hyper-connected phenomenon in which digital platforms act as intermediaries between interactions, production, and consumption on the global map *(Fuchs, 2014).*

In this context of digital globalization, influencer marketing is a central paradigm fusing technology and market growth. Influencer marketing is the strategic partnership between brands and influencers or those who hold great online followings to endorse products, ideas, or services by means of different forms of digital content, mainly on social media sites *(Freberg et al., 2011).* Scholarship highlights influencer marketing's capacity to expand brands' international presence through influencers' genuine relationships with heterogeneous publics *(De Veirman, Cauberghe, & Hudders, 2017).* Compared to centralized traditional advertising, influencer campaigns support localized but globalized communication, where influencers adapt brand communications to localized cultural and linguistic contexts while ensuring worldwide brand consistency *(Lou & Yuan, 2019).*

Digital platforms have an enabling core role in such global extension and interaction. Platforms like Instagram, YouTube, TikTok, and Facebook offer scalable architectures for collaborations that facilitate frictionless cross-border interaction among influencers, brands, and consumers *(Khamis, Ang, & Welling, 2017).* Such platforms feature algorithmic suggestions, audience insights, and content publishing features that streamline influencer collaborations to achieve optimal engagement and market coverage across geographies *(Cunningham, Craig, & Lv, 2021).* Also, sophisticated technologies such as artificial intelligence and machine learning enable marketers to discover best-fit influencers, tailor content distribution, and track campaign metrics worldwide *(Kapitan & Silvera, 2016).*

Cross-border e-commerce dynamics also strongly overlap with influencer marketing. The worldwide digital market place, supported by e-commerce giants and payment systems, increasingly becomes dependent on influencer endorsements to create trust and credibility for overseas consumers who are not familiar with foreign brands *(Zhang & Kim, 2013).* Influencers function as cultural brokers who can overcome language, tastes, and consumer habits barriers to ease consumers' decision-making processes in overseas markets *(Shao, 2009).* Study identifies that influencer marketing increases cross-border purchases by social proofing and

peer referrals, which are critical in lowering perceived risk and uncertainty associated with transnational consumption *(Nielsen, 2015)*.

In spite of such encouraging trends, recent literature alludes to regulatory and compliance difficulties integral to international influencer marketing. Current frameworks that regulate digital advertising and influencer endorsements differ significantly from one country to another and tend to trail behind the rapidly changing digital environment *(Marwick, 2015)*. For example, the General Data Protection Regulation (GDPR) of the European Union presents strict data privacy regulations affecting how brands and influencers obtain and manage consumer data, while other markets might not have similar legislation or implement them in a different way *(Keller & Fay, 2020)*. In addition, disclosure laws that provide transparency in sponsored materials are applied unevenly across different jurisdictions, creating ethical and legal threats to global campaigns *(Evans, Phua, Lim, & Jun, 2017)*. Such regulatory differences make it challenging for brands to have compliant and ethical influencer marketing practices across the world.

While existing literature has provided important insights into various facets of influencer marketing in globalization, a number of research gaps exist. Firstly, little overall understanding is available about how brands balance consistency in global branding with localized influencer participation in a way that optimizes effectiveness and cultural suitability *(Schouten, Janssen, & Verspaget, 2020)*.

Secondly, the dynamic tension between evolving technology (e.g., AI platforms) and regulatory compliance across various legal contexts is not well understood. Most of today's studies treat these factors in isolation and not under their intricate interdependencies. Third, there are few empirical studies that talk about the long-term effect of influencer marketing on global consumer trust and brand equity, especially in response to increased concerns about misinformation and authenticity *(Audrezet, de Kerviler, & Moulard, 2020)*.

To sum up, theories of globalization in the digital age highlight how networked digital technologies develop hyperconnected markets, opening the door for influencer marketing to develop into a worldwide communication tactic. Research from a variety of fields confirms that influencer marketing works well for boosting cross-border e-commerce, enabling localized engagement, and broadening global reach. Deeper research is necessary, though, given the disjointed regulatory environment and new ethical issues. The advancement of theory and practice in the globalization of influencer marketing will depend on filling research gaps in the

areas of consumer trust, technological-regulatory integration, and strategic global-local balance.

Conceptual Framework

Balancing Global consistency with Local Influencer Participation

DIGITAL GLOBALIZATION
ICTs as catalysts
Network society (Castels)
Hyperconnected Markets

Influencer Marketing in the Age of Digital Globalization

LOCALIZED INFLUENCER CONTENT
Adapting to culture/language
Localized engagement
Global brand consistency

GLOBAL E-COMMERCE
Cross-border shopping
Influencers as cultural broors
Trust & credibility in overseas markets

REGULATORY & ETHICAL ISSUES
Uneven disclosure laws
GDPR & Data Privacy
Ethical & compliance challenges

EMERGING RESEARCH GAPS

Integration of AI & tech with regulatory compliance.

Long-term effects on consumer trust & brand equity.

Opportunities in Influencer-Driven Globalization

1. Quick Expansion of Market Across Regions

Influencer marketing enables swift brand development in multicultural markets, as seen in Brazil passing the U.S. in Instagram influencer count and India's strong growth fueled by Gen

Z and millennials, placing these emerging markets on the radar for international brands looking for local touch *(Influencer Marketing Benchmark Report 2025)*.

2. **Growth in Cross-Border Campaigns**

Brands are more and more undertaking cross-border influencer campaigns, growing 31% in 2025, typically picking multicultural and bilingual creators who connect multiple regional audiences, particularly in Southeast Asia and Europe *(Amra & Elma International Influencer Marketing Statistics)*.

3. **Key Role in Global eCommerce Sales Funnels**

Current surveys indicate that 62% of cross-border eCommerce brands currently work with influencers across their sales funnel, using creators to send traffic, establish credibility, and seal cross-border purchases using trackable links, affiliate marketing, and product bundle deals via influencers *(Amra & Elma International Influencer Marketing Statistics)*.

4. **Integration of Advanced Technologies**

The influencer marketing platform market is estimated to expand from $23.6 billion in 2025 to $70.8 billion by 2032, boosted by investments in AI-based analytics to maximize campaign targeting, performance metrics, and regional applicability *(Fortune Business Insights)*.

5. **Local Relevance Creates Global Opportunity**

Rising markets like MENA, LATAM, and Asia Pacific register double-digit increases in influencer marketing spending, where brands opt for local creators to gain culturally relevant reach and open up potential for product launches and expansion *(Influencer Marketing Benchmark Report 2025)*.

6. **Industry Maturity and Strategic Alignment**

The international ecosystem currently accommodates more than 6,900 niche agencies, as brands and platforms join forces in sharing resources, making investments in talent management, and applying data-driven decision-making to build sustainable, long-term global influencer marketing strategies *(Influencer Marketing Benchmark Report 2025)*.

Challenges in the Global Influencer Marketing Landscape

Since world is a global village, everyone is interconnected with each other, there is some challenges influencer marketing campaigns has to face globally.

1. **Regulatory Complexity and Compliance-**

Brands have to maneuver wide-ranging advertising laws, disclosure legislation, and data protection regimes in each nation, which creates it challenging for consistency in worldwide campaigns and raises legal exposure *(Evans, Phua, Lim, & Jun, 2017; Keller & Fay, 2020).*

2. Cultural Sensitivity and Local Relevance-

Global campaigns tend to find it difficult to accommodate messaging to meet varied cultural, linguistic, and value contexts, threatening to alienate local audiences and reduce campaign effectiveness *(Lee & Eastin, 2021; Djafarova & Rushworth, 2017).*

3. Managing Authenticity and Consumer Trust-

Influencer marketing globally is met with skepticism over endorsement genuineness, with heightened consumer vigilance and transparency issues, particularly in cross-border markets *(Audrezet, de Kerviler, & Moulard, 2020).*

4. Platform Algorithms and Discoverability-

Algorithmic changes on major social platforms can affect influencer reach and campaign outcomes unpredictably, making performance less consistent for global campaigns *(Khamis, Ang, & Welling, 2017; Cunningham, Craig, & Lv, 2021).*

5. Cross-Border Brand-Influencer Fit-

It is tricky to reach a universal brand message while providing enough localization since influencers might reinterpret and present branded content differently depending on the local context *(Schouten, Janssen, & Verspaget, 2020)*

6. Misinformation, Fraud, and Fake Followers-

International campaigns are under growing threat from influencer deception (e.g., fabricated engagement or followers), eroding credibility and ROI, particularly when it is hard to vet diverse foreign partners *(De Veirman, Cauberghe, & Hudders, 2017).*

Discussion

Global influencer marketing has become a revolutionary force that allows brands to reach out to multiple populations, enter new regions, and create cross-cultural connections. Its power is based on the use of influencer authenticity, localized cultural appropriateness, and scalable digital reachability. Expansion beyond borders, though, presents some challenges: managing convoluted regulations, securing cultural alignment, protecting authenticity, and coping with changing platform algorithms. Brands need to constantly balance global brand consistency with the ability to localise messaging, frequently relying on local influencers to help overcome cultural differences. The threat of adverse publicity, artificial followers, and fleeting campaign

effects also makes strategic planning more challenging, highlighting the need for strong influencer vetting and transparent disclosure protocols *(Global Influencer Marketing: Expand Your Brand Worldwide, 2025; Influencer Marketing in Global Campaigns, 2023; Influencer Marketing in the Global Economy, 2024).*

Managerial and Policy Implications

Managers ought to put emphasis on establishing long-term, trust-oriented relations with influencers, thoroughly screening for cultural compatibility and credibility. Strategic investment in influencer alliances, audience metrics, and compliance tools is important for ensuring authenticity and responding to regional palates. At a policy level, organizations need to adopt clear guidelines around disclosure, data protection, and ethical conduct, guaranteeing full adherence to local advertising standards. It is recommended that brands partner with international regulatory and cultural adaptation agencies to facilitate effective cross-border implementation and anticipatory risk management. Policymakers must synchronize global standards of openness and consumer protection, considering the fast-changing digital environments and influencer roles.

Conclusion

Influencer marketing is a pillar of globalization in the digital economy, fueling innovation, brand development, and cross-cultural cooperation. The power of the model lies in its capacity to create authoritative engagement and react adaptively to customer demands. Nevertheless, its viability is anchored on cautious handling of authenticity, regulatory compliance, and consumer confidence. In the years ahead, effective global campaigns will hinge on strategic adaptability, shared partnerships, and technological convergence, and brands must stay relevant and responsive across various markets.

Limitation

Existing global influencer marketing strategies are constrained by the patchwork nature of regulation, challenges in capturing long-term ROI, and dynamic platform algorithms that affect campaign reach. Authenticity of influencer campaigns is also questionable due to the widespread occurrence of fake followers and skepticism against sponsored content. The rapid development of consumer expectations and technology renders findings potentially outdated.

Empirical research is also constrained in its capacity to balance cross-cultural subtleties and regulatory landscapes.

Future Scope

Long-term effects of influencer marketing on brand value and international consumer trust must be the subject of future research, based on interdisciplinary research methods in technology, sociology, and law. AI and machine learning potentially hold strong directions for better influencer choice, content tailoring, and campaign measurement. Room exists for empirical research into the efficacy of hybrid models that integrate micro- and macro-influencers across different regions. Deeper examination of proactive regulatory regimes and ethical practices will be crucial to protecting consumer interests and business reputation amidst digitalization and heightened scrutiny.

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DRIVING SUSTAINABLE CHANGE: INDIA'S PRESENT AND FUTURE ELECTRIC VEHICLES LANDSCAPE

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Abstract

This study examines the current status and future prospects of electric vehicles in India. In this study, electric vehicles are divided into three categories: two-wheeler, three, and & four-wheeler, i.e., cars. The present articles, based on data from the last 10 years (2015-2024), were compiled from government reports and the RTO office. After collecting the data, it was then analyzed using statistical tools, such as simple growth, 5-year change, and 10-year change, as well as forecasting electric vehicle sales for the next 10 years, i.e., from 2025 to 2034. The results show positive changes in the registration of electric vehicles in the RTO offices. The number of registrations increased year by year, indicating that consumer interest has shifted from fuel-based vehicles to electric vehicles. It means Consumer awareness about environmental a dynamic shift toward a sustainable future. The study's findings indicate that the growth in the registration of electric vehicles at the RTO office increased from 2015 to 2024; however, in 2020, it showed a negative result due to the COVID-19 pandemic. It can be

concluded from the analysis that the automobile industry is well-structured in terms of sustainability and process innovation in the study area at present. Further, electric vehicles are good for our clean environment.

Keywords: Electric Vehicle (EV), Two Wheeler (TW), Three Wheeler (TH.W), Four Wheeler (FW), Sustainable Development

Introduction

The Automotive Industry is a significant driver of economic growth in India. Automobile production is a strategic industry forming the backbone of the manufacturing sector in many countries. Innovation is crucial for companies to remain competitive, meet evolving customer demands, and address global challenges such as environmental sustainability and safety. Automotive companies, particularly in the manufacturing sector, should consider both socio-economic and environmental aspects while promoting innovation.

Current trends such as zero-emission vehicles and carbon-neutral manufacturing demonstrate the growing significance of sustainability in the automotive industry. (https//www.pwc.de.) An Electric vehicle (EV) is a type of vehicle that primarily uses one or more electric motors for Propulsion, unlike traditional vehicles, which rely on internal combustion engines (ICEs) powered by fossil fuels.
The term electric vehicles encompasses a range of different configurations.

Battery Electric Vehicles (BEVs): Also known as all-electric vehicles, BEVs run exclusively on electricity stored in their battery pack. They have no internal combustion engine and produce zero tailpipe emissions.

Hybrid Electric Vehicle (HEV): A HEV combines a gasoline engine with an electric motor and a smaller battery. The electric motor assists the engine to improve fuel efficiency, but the battery is primarily charged through regenerative braking, and the engine itself is not charged by plugging in.

Plug-in Hybrid Electric Vehicle (PHEVs): PHEVs are similar to HEVs but have longer batteries that can be charged by plugging into an external power source. They can operate in all-electric mode for a certain distance before switching to the gasoline engine.

Fuel Cell Electric Vehicle (FCEVs): FCEVs generate electricity onboard through a chemical reaction between hydrogen and oxygen in a fuel cell, emitting only water vapour. They don't need external charging and are refueled with hydrogen.

Sustainable development aims to create a future that meets the needs of the present without compromising the ability of future generations to meet their own need. Their involvement involves achieving a balance across the three dimensions, often referred to as the pillars of sustainable development.

1. **Environmental Sustainability-** Focuses on the well-being of the environment and the preservation of natural resources. Key aspects include protecting biodiversity, reducing pollution, managing waste, mitigating climate change, and promoting resource conservation.

2. **Social Sustainability-** Prioritizes the well-being of people and communities, focusing on social justice, equity, human rights, and access to basic needs like education and health care. It aims to create inclusive societies where everyone can participate and benefit from progress.

3. **Economic Sustainability-** Emphasis on maintaining a healthy and stable economy that promises long-term financial viability without harming society or the environment. Key aspects involving promoting sustainable economic Growth, Resource efficiency, innovation, fair labour practices, and financial sustainability.

   These three pillars are interconnected and interdependent

Three Pillars of Sustainable Development

Source: https://greenly.earth
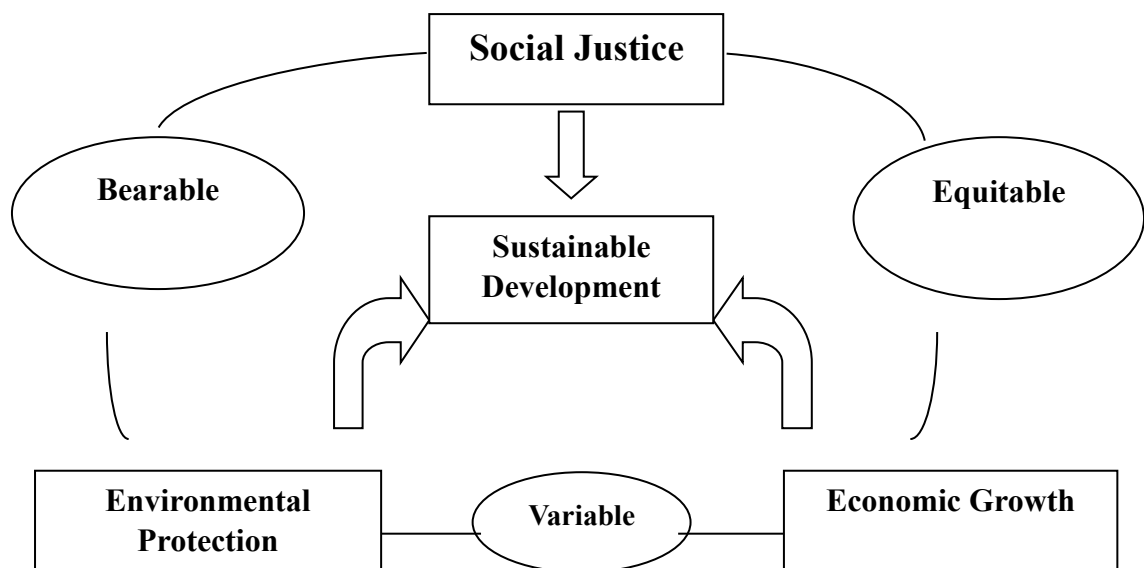
Literature Review

Arya N. (2019) studies automobile performance and Growth in India, examining the strong domestic sales of vehicles, which indicate a robust demand for vehicles. The support of government policies has led to a rise in the Indian Automobile Industry. Data is collected from a secondary source, i.e., from the SIAM website.

Chattopadhyay M and Mukherjee S (2019) study the automobile production trend and Foreign Direct Investment (FDI) in the Automobile sector, finding the correlation between Automobile production and FDI, automobile export trends, Automobile Domestic sales trends, and Gross turnover trends in the Indian Automobile Industry over the last decade. In this paper, the researcher collects data from secondary sources, i.e., authentic books, newspapers, and related websites. Data analysis with the help of statistical tools like average, percentage, compound Annual Growth Rate, Average Annual Growth Rate, and Correlation trend analysis.

N. Chandrasekar and Palanivelu V.R. (2018) studied the growth rate of two-wheelers, which was higher than that of other types of vehicles, and analyzed the trend and growth of the automobile industry in India. The data is analysed with the help of simple percentage, mean, standard deviation, coefficient of variation, and compound annual growth rate over the study period. The study also reveals that the export of automobiles from India has increased significantly.

Kaur. A (2020) examined the Automobile Industry performance. Data were collected from secondary sources, and the recorded data were measured by calculating the Compound Annual Growth Rate (CAGR), the year-over-year growth of production, the total export share, the trade balance, and the compound annual growth rate of the export market share worldwide. The report revealed the comparative advantage of the automobile industry.

Kanupriya & Kumar. S (2014), studies that FDI and de-licensing bring growth in the Automobile Industry rapidly, and enter the global market. In this paper, the trend of FDI inflow in the Automobile Industry is presented from 2004 to 2014, and the results show that both FDI inflow and production are in an increasing mode. This paper is based on secondary sources, with data collected from publications such as SAIM, DIPP, RBI, and other government

agencies. It is based on descriptive research. In this paper, data analysis is conducted using time series analysis. Study the trend of production in the automobile sector.

Objective

- To study the growth of electric vehicles in India.
- To forecast the electric vehicles in India.

Research Methodology

In the present article, secondary data were collected. The Secondary data were those recorded in books, newspapers, and other government documents. These are related to the past period. Under the present study, secondary data were collected for electric vehicles from different aspects, i.e., the list of companies, different types of vehicle lines, two-wheelers, three-wheelers (E-auto and E-rickshaw), and light four-wheelers (car), were recorded, and details were presented in the draft. Data collected from RTO Office as per the government report (2015 to 2024). Growth was estimated with the help of the following formula -

1. Simple Growth = $\dfrac{C.Y - P.Y}{PY}$ = times

2. 5-year challenge = $\dfrac{C.Y - B.Y}{B.Y}$ = times

3. 10-year challenge = $\dfrac{C.Y - B.Y}{B.Y}$ = times

   Where , C.Y current year, PY = Previous year, B.Y= Base year

Data Analysis And Interpretation

Table -1 Growth of Electric Vehicles in India changes over the previous year (times)

Year	TWO-WHEELER		THREE-WHEELER		FOUR-WHEELER	
	Number	Change	Number	Change	Number	Change
2015	1449	-	5416	-	679	-
2016	1461	0.008	46903	7.660	619	-0.088
2017	1528	0.046	83347	0.777	827	0.336
2018	17064	10.167	110136	0.321	1043	0.261

2019	30388	0.781	133491	0.212	963	0.011
2020	29112	-0.041	90447	-0.322	3206	2.329
2021	1562114	4.366	158197	0.749	12258	2.823
2022	631087	3.040	350255	1.214	33191	1.708
2023	859964	0.363	583445	0.666	73154	1.204
2024	1149407	0.337	691299	0.184	90549	0.238

Source: Ministry of Road Transport & Highways, Government of India, Authors' Compilation and Calculation.

2024 = EV(BOV) + PURE EV
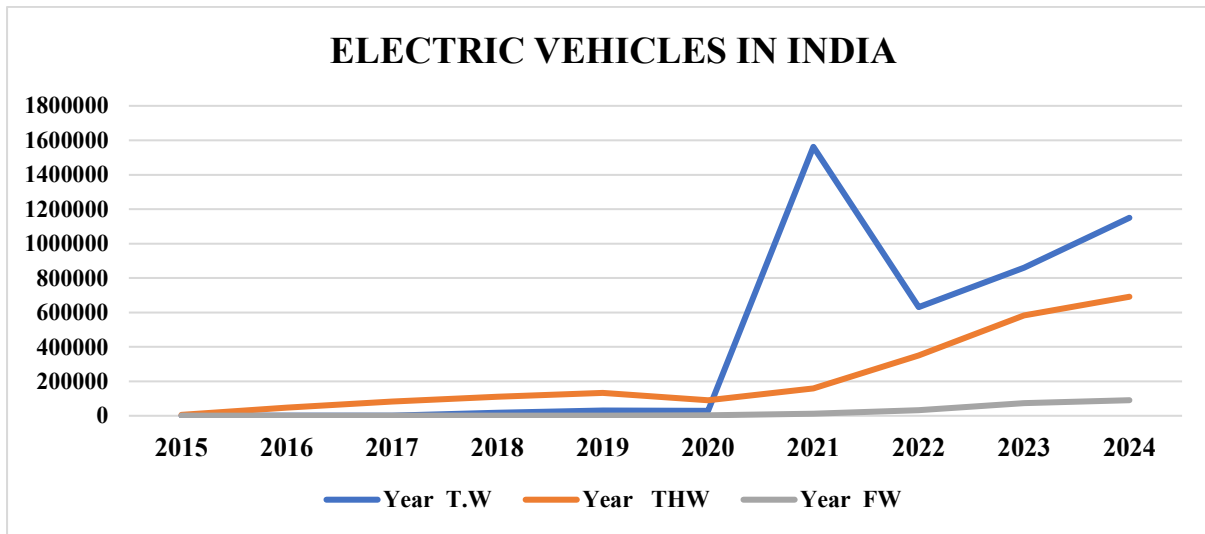
The status of electric vehicles, i.e., two-wheeler (E-bike and E-scooty), three-wheeler (E-rickshaw and E Auto), and small four-wheeler, i.e, E-car, was presented in Table 1 The ten years of data from 2014 to 2015 for the country were stated in the table. It can be seen from the table that a total of 2,149 two-wheelers were registered in 2015. It is observed from the table that the number of electric two-wheeler is increasing with the advancement of years up to the year 2018. The negative changes observed in 2020 due to the COVID-19 pandemic were followed by positive changes in the subsequent year.

In the case of electric three-wheelers, the registration of such vehicles was shown in 2016 (7,660), followed by 2022 (1,214). The fluctuation in the number of three-wheeler onward, 2019 was observed. The number of vehicles increased up to 2019, decreased during 2020, and then further increased up to 2024. This may be due to reasons such as a lack of infrastructure facilities, including charging points, good road conditions, confidence in the vehicle, and the high cost of replacement batteries. As seen from the table, during the survey period of 2015-2024, India had 679 electric cars in 2015. The number of electric cars in India

was 90549 in 2024, which were running on the road. This indicates better market coverage and a promising future scope for electric cars in the country, as well as a positive impact on the environment. From the above facts and figures, it is evident from the table that the interest of people in shifting from conventional vehicles to electric vehicles increased with the advancement of time in the country.

Table-2 Details of Electric Vehicles and Changes in 5 and 10 year

TYPES	2015	2019	5 YEAR	2020	2024	5 YEAR	10 YEAR
T.W	1449	30388	19.97	29112	1149407	38.48	792.24
TH.W	5416	133491	23.65	-	691299	6.64	126.64
F.W	679	963	0.41	3206	90549	27.24	132.36

Source: Ministry of Road Transport & Highways, Government of India, Authors' Compilation and Calculation.

Table 2 shows the details of electric vehicles, including two-wheelers, three-wheelers & four-wheelers, for the years 2015, 2019, 2020, and 2024. According to the table, a significant number of electric vehicles were registered at the RTO Office for obtaining a license in 2015. It is worth noting that in 2024, a significant number of electric two-wheelers (1149407) and electric four-wheelers (90549) were registered.

However, the number of three-wheeler registrations increased during 2024, i.e., 691,299, as compared to 90,447 during the year 2020, accounting for a 6.64 times increase in 2024 over 2020 in electric three-wheeler registrations. It was further stated that the change from 2020 to 2024 in the case of electric two-wheelers accounted for a 38.48 times increase. It shows that the interest of vehicle owners shifting from conventional vehicles to electric two-wheelers is advancing. Surprisingly, the interest of electric four-wheeler users increased rapidly over the 10-year period, and changes were estimated to have occurred in 132.36 times the number of electric four-wheeler users registered in 2024. It has been observed from the table that the number of electric vehicles increased positively over time.

It was further observed from the survey that electric vehicles faced numerous challenges in the field due to the limited availability of charging stations and charging points in the study area, highlighting the need for increased infrastructure.

Table -3 Forecasting of Registration of Electric Vehicles in the RTO office from 2025 to 2034 in India

YEAR	EV T.W	EV TH.W	EV F.W
2025	1232451	604107	72125
2026	1378650	672983	81302
2027	1524849	741858	90480
2028	1671048	810733	99657
2029	1817247	879609	108834
2030	1963445	948484	118012
2031	2109644	1017359	127189
2032	2255843	1086235	136367
2033	2402042	1155110	145545
2034	2548241	1223985	154722

Source: Authors' Compilation and Calculation.

The above table revealed the projected data of different types of electric vehicles would be registered during 2025 to 2034 calendar year, which may help in the planning of available different types of electric vehicles i.e. two wheeler, three wheeler and small four wheeler (i.e cars) for budgeting, capital marketing strategic resources uncertainly and their management and utilization of different skilled for product of different types of vehicle design mention year. The forecast of the largest may be helpful in informing production, consumer demand, and market demand. The results shown in the table above indicate an increase in the registration of electric vehicles year by year. This is favourable to environmental sustainability.

Table 4 Forecasting of growth and change in 5-year and 10-year

Types	2025	2029	Change	2030	2034	Change	Change
T.W	1232451	1817247	0.47	1963445	2548241	0.30	1.07
TH.W	604107	879608	0.46	1017359	1223985	0.20	1.03
F.W	72125	108834	0.51	118012	154722	0.31	1.15

Source: Authors' complication and calculation

 The table revealed the 5-year and 10-year changes, i.e., 2025, 2029, 2030, and 2034, of different types of electric vehicles registered in the coming 10 years. It is seen from the above table that the electric two-wheeler change in 5 years, i.e., 2029 over 2025, is 0.47 times and 0.17 times decrease (2034 over 2030), followed by 2029 over 2025. In the case of the electric

three-wheeler, it was observed that the change from 2029 to 2029 is greater, as compared to the next five years, and the same situation was observed in the case of the electric four-wheeler. Over the next 10 years, changes have shown positive results, specifically a 1% increase in the case of different types of vehicles mentioned in the study. It is concluded that consumer year shifted interest to electric vehicles.

Finding

The study reveals that the registration of electric two-wheelers at the RTO office increased year by year from 2015 to 2024. The change in the current year compared to the previous year shows a positive trend, with a growth rate of 0.008 times in 2015 and 0.337 times in 2024 over 2025. In the case of the electric three-wheeler, there was a 1.214% change in 2022 compared to 2021, followed by increases at a decreasing rate thereafter. In the case of the electric four-wheeler, a fluctuating situation was observed; however, the number of vehicle registrations has increased year by year. In 2020, negative changes were observed in the case of all types of vehicles due to the COVID-19 pandemic situation.

According to the table, the 5-year challenge from 2015 to 2019, specifically for two-wheeler (19.97), Th.w (23.65), and F.W (0.41), showed a positive increment. The net fine year changes, i.e., (2024 over 2020), are 20 times more in T.W17, 10 times less in Th. W, and 27 times more in F.W, as compared to the previous fine year challenge (2019 over 2015). The 10-year challenge showed positive results for all types of electric vehicles mentioned in the Study. The forecasting of the next 10 years' data shows an increase year by year in Table 3.The positive changes shown in 2029 over 2025, 2034 over 2030, and 2034 over 2025 in all types of electric vehicles.

Conclusion

The study concludes that consumer interest has shifted from fuel-based vehicles to electric vehicles. Electric vehicles present a promising shift toward Sustainable transportation, offering benefits such as reduced emissions and lower operating costs. Consumers are increasingly aware of the environment and are using environmentally friendly products to

help save the environment for future generations.

Suggestion

- Rapidly expand the O network of public charging stations, especially fast chargers on highways and in Tier-2 and Tier-3 cities.

- Make EV loans more accessible and affordable by encouraging banks and financial institutions to offer lower interest rates and flexible loan terms.

- Educate the public on the environmental, economic, and practical benefits of EVs, including lower running costs, reduced emissions, and improved driving experience.

- Ensure the availability of accessible and reliable after-sales service and maintenance support for EVs, especially in remote areas.

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SUSTAINABLE GROWTH OF PHARMA SECTOR IN UTTARAKHAND THROUGH AI RECRUITMENT SYSTEMS

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Abstract

The Uttarakhand pharmaceutical industry has become one of the most vibrant sectors in India due to the favorable policies, industrial test belts and natural resources. Nevertheless, to continue this growth, there is the need to overcome some urgent issues, especially the lack of talent, skills gap, and how industrial growth can be aligned to achieve sustainable development. Artificial intelligence (AI) is a revolutionary prospect as it improves drug discovery, efficiency in the manufacturing process, and human resource management simultaneously. In this context, AI-based recruitment is becoming popular as a strategy facilitator of organizational performance. AI recruitment can enhance the quality and efficiency of the workforce by the automation of screening procedures, reducing bias, and advancing better candidate-job comfort, which is the crucial provision of a continuous stream of skilled workers necessary to drive pharmaceutical innovation. Such systems in the context of Uttarakhand would help trigger the development of that region through the creation of employment, innovation, and development aligned with ecological sustainability. Although the adoption of AI will result in efficiency and inclusivity, issues like privacy of information, prejudice of algorithms, and adherence to regulations will need to be carefully monitored. This paper conceptualizes AI recruiting systems as more than just technology-based devices- AI recruiting systems are more of a strategic process that will create a bridge between pharmaceutical workforce change and sustainable industrial development in Uttarakhand. The results point to the benefits of AI recruitment in the establishment of a resilient and future-oriented

pharmaceutical enterprise that can promote innovation and achieve overall socio-economic and environmental goals.

Keywords: Artificial Intelligence, Recruitment Systems, Pharmaceutical Industry, Sustainable Development.

Introduction

The fast adoption of artificial intelligence (AI) is paradigmatically transforming the pharmaceutical industry, with the field witnessing the adoption of the technology shocking research, production, and human resource management (Jain et al., 2024). This is especially applicable in Indian scenario where in some areas such as Uttarakhand where the pharmaceutical industry is taking shape, sustainable industrial expansion is required. AI is also used more in drug discovery, disease detection, and optimization of clinical trials so that it is more precise and less expensive to develop (Shinde et al., 2023). The impact of AI on drug predictive characteristics and therapy development is being utilized by the industry leaders, including Novartis and AstraZeneca, with the examples of how technology can facilitate faster innovation and improved patient outcomes (Jain et al., 2024). In addition to research and production, the introduction of Industry 4.0 technologies, which have accelerated in the wake of COVID-19 disruptions, has also created the grounds of a sustainable practice in pharmaceutical industries, with policy-supporting innovation, productivity, and environmental responsibility (Mastrantonas et al., 2024). In this respect, the combination of AI with the Internet of Things (IoT) has allowed pharmaceutical producers to embrace predictive maintenance, real-time analytics, and quality control, yet the problem of data integration, privacy, and compliance still lingers (Kodumuru et al., 2025). Not only do these technological changes mark the step towards advancement in the area of scientific discovery and efficiency but also accentuate the need to streamline pharma sector development with the objectives of sustainable development in the areas like Uttarakhand where the balance between the usage of resources and ecology is still of paramount importance.

Another significant aspect of AI in the pharmaceutical industry is its disruptive effect on the human resource process, especially its recruitment model, which is the core of maintaining the quality of the workforce and prolonged development. Pharmaceutical AI-based recruitment technologies are also taking root in the information technology sector as they are able to automate resume screening, improve the candidate experience, minimize human biases, and guarantee improved job-person fits based on natural language processing and machine learning algorithms (Venkateshwaran et al., 2025). Studies have indicated that organizational preparedness, perceived benefits, and technological readiness are decisive when it comes to the implementation of AI in the Indian pharmaceutical HR practices (Goswami et al., 2023). Using these lessons in the pharma industry of Uttarakhand which is not only the source of employment to the locals but also the healthcare supply chain of India, AI recruitment systems could be established as catalysts of sustainable development. With the help of AI in effective

HRM practices, pharmaceutical companies can make sure that they attract and retain the best employees, which would, in turn, boost innovation, efficiency, and compliance in an industry where skilled professionals are essential. Nonetheless, its implementation requires human supervision to reduce risks of such issues as algorithmic bias, data security breaches, and ethical issues (Chhina et al., 2023). Combined, these technological innovations in drug discovery, manufacturing, and recruitment are signs of a transformational age of the pharmaceutical sector of Uttarakhand, where AI has the possibility of influencing not only operational excellence but also sustainable development in the region in terms of being innovative, job-creating, and ecologically responsible.

The amalgamation of artificial intelligence and recruitment systems promise unimaginable opportunities to influence the sustainable development in the pharmaceutical industry in Uttarakhand. AI technologies can play an important role in both economic development and the sustainability of the regions by increasing the efficiency in talent recruitment and boosting innovation in the creation of drugs, as well as streamlining industrial practices. However, successful adoption will involve mitigation of issues surrounding ethics, compliance and human management. This study therefore examines how AI-based recruitment systems are capable of becoming a strategic enabler to Uttarakhand pharma industry to provide a balanced growth that is in tune with the technological growth, workforce development and long-term sustainable objectives of the state.

Objective of the Study

- To examine how artificial intelligence can revolutionize the recruitment practice within the pharmaceutical industry in Uttarakhand.
- To explore the possibility of AI-based recruitment systems improving the quality, efficiency, and inclusiveness of the workforce.
- To examine the role of AI-Based human resource management to sustainable development of the pharmaceutical industries in Uttarakhand.
- To determine the opportunities and challenges related to the implementation of AI recruitment systems within the framework of the pharmaceutical industry in the region.
- To conceptually define AI recruitment as a strategic enabler to innovation, sustainability, and long-term competitiveness.

Literature Review

Pharmaceutical industry is becoming one of the most vivid industries that are affected by the technological change, where artificial intelligence (AI) becomes an essential source of innovation and sustainability. Current literature explains that pharmaceutical AI applications have an extensive history in various fields, such as drug discovery, disease forecasting, clinical trial optimization, and manufacturing improvement, with solutions that were cost-reducing and at the same time enhanced

precision and efficiency. In line with such development, the human resource management (HRM) role has become prominent because a talented and dynamic workforce will continue to be the focus of growth and competitiveness in this knowledge-based industry. According to scholars, AI-driven recruitment systems that have proven effective in the IT and service industries have great prospects of solving the pharma-specific HR issues including skills deficits, hiring bias, and inefficiency in the conventional recruitment activities. Simultaneously, frameworks of sustainable development stress the need to make industrial development congruent with the environmental and social responsibility, especially in areas such as Uttarakhand, where pharmaceutical industries are directly linked to the stability of the regional economy. Balancing these views, the literature is starting to point to AI recruitment systems as strategic enablers of sustainable development of the pharmaceutical sector, as well as HR tools.

1. Artificial Intelligence in the Pharmaceutical Sector

Artificial intelligence (AI) is remaking the pharmaceutical industry by disrupting the drug discovery, development and delivery processes at various phases of the value chain. The latest AI devices such as machine learning and deep learning algorithms have made it possible to process large volumes of biological and chemical data in minutes, speeding up the development of new drugs by several folds to 8 10 years and the various investments of billions of dollars to roll out new drugs (Vidiyala et al., 2025). These are applicable beyond drug design to efficacy, toxicity and other adverse effects prediction, optimizing formulation processes and clinical trial design (Halagali et al., 2025). AI has also been very useful in terms of enhancing personalized medicine through the biomarker's identification, allowing personalized therapy using specific drugs based on individual genetic profile, and enhancing predicting the sensitivity to a cancer drug (Gholap & Omri, 2025). The use of AI in predicting drug features, neurological assessments, and diagnosis of disease has been introduced by major pharmaceutical firms like Novartis, AstraZeneca, and Verge Genomics, demonstrating the ability to transform the pharmaceutical industry in terms of innovation (Shinde et al., 2023). The COVID-19 pandemic prompted the use of AI and emphasized its role in expediting drug discovery by using pharmaceutical companies and AI developers (Mohapatra et al., 2024). Moreover, AI advances the clinical trial procedures by increasing patient stratification, sampling selection, and drug safety standards, as well as enhancing productivity, cost cut, and accuracy in pharmaceutical activities (Patil et al., 2023; Jain et al., 2024). Although it has potential, there is a strong need to have ethical application and well-established regulations to be in place to guarantee safe and fair application of AI in the pharmaceutical industry (Malheiro et al., 2025).

2. Human Resource Management in Pharmaceuticals

Human resource management (HRM) has become a vital performance and sustainability driver in the pharmaceutical industry, especially in the India and other emerging market context. Studies underline

the importance of incorporating operational excellence and sustainability in HRM practices in order to achieve competitiveness in the long run. According to Sarkhel et al. (2025), effective knowledge management and talent management tools along with operational excellence indicators are highly effective in terms of improving employee performance, whereas trust, engagement, and psychological well-being can further improve the outcomes of the organization. In line with this view, Soliman et al. (2025) emphasized the importance of business analytics in HRM as it was observed that the indicators of financial, operational, and employee productivity explained 58 percent of the variance in pharmaceutical organizations. The sustainability aspect of HRM also plays a key role, and Banga and Gobind (2025) claim that the most popular sustainability practice in the present is green human resource management (GHRM), although there are also new methods, such as the integration into the circle of the economy and compliance with sustainable development goals. Papademetriou et al. (2025) also highlighted the catalytic role of HR in working towards sustainability by stating that there is a rising significance of eco-friendly recruitment, sustainability-oriented training, and implementing environmental goals as part of performance appraisal to increase employee engagement and corporate image. On the same note, Dahinine et al. (2024) have shown that green transformational leadership enhances sustainable supply chain performance, and the HRM has a strategic role to play in connecting employee practices to sustainability objectives in the pharmaceutical industry.

3. AI in Recruitment Systems

The increasing use of artificial intelligence (AI) in hiring mechanisms has become a research center of attention in various organizational settings and identified both prospects and challenges. Researchers report ambivalent attitudes toward AI use, with the Moroccan firms operating in the private sector indicating that they have concerns about being replaced in their human resource (HR) and education departments through the adoption of AI, although many recognize the effect of AI as being efficient in reducing the time taken to process applications and perform repetitive tasks (Melliani et al., 2024). Strategically speaking, frameworks, including the resource-based view and dynamic capability theory, indicate that effective adoption of AI in recruiting relies on HR capabilities, open innovation, funding, and well-developed IT infrastructure, which will be combined to provoke the development of sustainable competitive advantage within organizations (Sandeep et al., 2025). Candidate-centered studies also highlight the optimistic implications of AI, as the AI-enhanced interviews are less likely to produce anxiety and increase self-trust, as well as provide safer recruitment conditions, which improves the candidate experience compared to the traditional ones (Balcıoğlu and Artar, 2024). Although these benefits exist, studies also mention that current gaps in AI use exist in the personnel processes, which suggests that there is a necessity to integrate the system on a systemic basis (Koman et al., 2024). In addition, doubts about AI in human hiring selection are heightened, where recruiters and candidates hold on to the notion of human superiority in recruitment choices based on judgment (Will et al., 2022).

4. Sustainable Development and the Pharma Industry

The pharmaceutical industry has more and more adjusted the orientation of its development in accordance with the principles of sustainable development, incorporating technological innovations and planning approaches to overcome global health and environmental challenges. Industry 4.0 technologies and, specifically, digitalization and automation have been discussed as the sources of change that can bring about sustainable practices in the pharmaceutical industry, and the COVID-19 pandemic has brought about rapid adoption of the technologies, as well as highlighted the vulnerabilities in the supply chain (Mastrantonas et al., 2024). Nevertheless, thorough evaluation of environmental sustainability has not been done yet, and only 0.2% of pharmaceuticals have been studied, which emphasizes an extensive range of differences in ecological effects of products (Etit et al., 2024). Biotechnology, particularly biologically derived drugs, has shown potential opportunities to decrease the environmental costs, yet streamlining in the sphere of monoclonal antibodies production is still required to achieve cost-efficient and environmentally friendly results (Etit et al., 2024). Further, the pharmaceutical sustainability agenda converges with the rest of the world frameworks, especially the United Nations Sustainable Development Goals (SDGs) with specific contributions to human, animal, and environmental health through an integratory approach, e.g., One Health (Saxena et al., 2022). The experience of the European markets, including the Polish pharmaceutical firms, demonstrates that operational efficiency, managerial effectiveness, and long-term competitive advantage have a close relationship with sustainable business models and innovation-driven practices, which explains the strategic relevance of sustainability in the pharmaceutical industry (Chomać-Pierzecka, 2023).

5. Linkages Between AI Recruitment and Sustainable Pharma Growth

Artificial intelligence (AI) has become a disruptive technology in the pharmaceutical industry, establishing connections between technological innovation and sustainable development that go beyond the discovery of drugs into the development of the workforce. Using machine learning and deep learning algorithms, AI can not only speed up drug discovery by analyzing large-scale data and predicting its effects on people but also could transform recruitment systems, therefore, improving the quality and performance of pharmaceutical staff (Sahrawat, 2024). An example of companies that exemplify this two-fold opportunity is Novartis and AstraZeneca, who use AI to predict drug features and develop therapies as they show how data-driven insights can both guide hiring by eliminating skill gaps based on the emerging technological requirements (Jain et al., 2024). Its sustainability role can also be shown in the fact that AI and Internet of Things (IoT) technologies are also integrated; this means that production processes are optimized, waste is minimized, and the environment and regulatory standards are all met (Kodumuru et al., 2025). Notably, AI-based recruitment systems have parallel sustainability advantages in that they reduce human bias, speed up talent acquisition, and make the appropriate expertise available to the technologically advanced pharmaceutical processes. These synergies indicate

that sustainable development in pharma industry of areas like Uttarakhand does not only require technological efficacy but also the strategic alignment of AI hiring with drug development to make a workforce that is resilient and future-ready (Yadav et al., 2024).

6. Research Gap

This is in spite of increased awareness of artificial intelligence in the pharmaceutical industry in terms of innovation, optimization of manufacturing processes, and in human resource management, but little focus has been placed on how the technology is applied in recruiting systems in the pharmaceutical industry in emerging economies such as Uttarakhand. Current literature focuses on AI as it applies to drug discovery and clinical trials, as well as general HRM, but the potential of AI-driven recruitment to help manage industry-specific workforce challenges is under-researched. Although global studies report efficiency, bias reduction and improved candidate experiences via AI recruitment tools, conceptual associations with how the systems could contribute to sustainable growth in regional pharmaceutical hubs are lacking. Moreover, the majority of research works have been industry wide, neglecting localized situations in which policy frames, labor supply, and sustainability ambitions interact. This poses a major conceptual research gap of how AI recruitment systems would serve as strategic facilitators to the pharmaceutical industry in Uttarakhand to pursue the long-term goals of regional sustainability in line with technological innovation.

7. Significance of the Study

The research is important because it addresses the dynamic pharmaceutical industry in Uttarakhand, a state that has become one of the top pharma industries in India with favorable policies, pharma clusters, and a rich pool of natural resources. Talent shortages, skills gaps, and sustainability requirement of practices are some of the challenges facing the industry that require innovative solutions as the industry continues to grow. The introduction of artificial intelligence into recruitment practices is a chance to break these barriers by improving the quality of the workforce, minimizing biases, and simplifying the process of the talent acquisition. In the Uttarakhand case, where the pharmaceutical sector is one of the biggest contributors to the growth of the economy and employment rates, the implementation of AI-based recruitment systems can result in the uninterrupted supply of highly skilled professionals and promote innovation and sustainability. The research is important because it frames AI recruitment conceptually as a strategic instrument of empowering the pharma industry in Uttarakhand in terms of an industrial growth and regional growth ambitions and long-term sustainability agenda.

Conceptual Framework
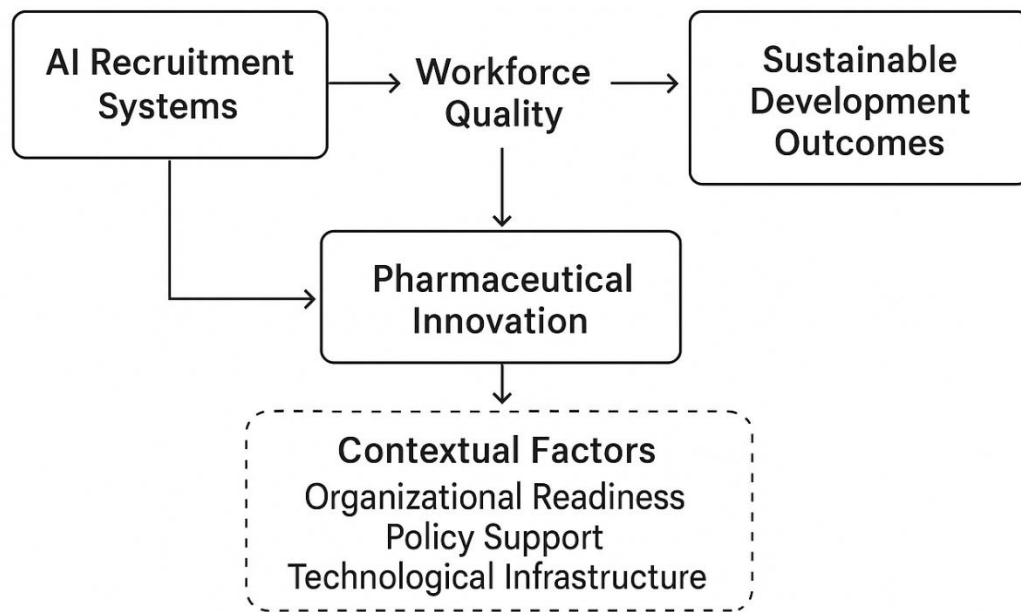
Fig.01 Sustainable growth of Pharma Sector in Uttarakhand through AI Recruitment System

The conceptual framework of this study positions AI-driven recruitment systems as a catalyst for the sustainable growth of the pharmaceutical sector in Uttarakhand. This model relies on three related areas, which include technological adoption, human resource optimization and sustainable development outcomes. The central variable is the AI recruitment systems that affect the quality of the workforce by filtering candidates efficiently, decreasing the impacts of hiring bias, and improving retention. Enhanced human capital, on the other hand, enhances innovation in pharmaceuticals, operational effectiveness, and compliance with regulation, which in the long-term makes the industry sustainable. The moderating variables are contextual: the readiness of the organization, the support of the policies, and the existence of technological infrastructure will dictate the success of the AI implementation in the chosen regional sector.

The model also connects the local setting of Uttarakhand to the world discourse of sustainable development of industries. Implementing AI-inspired HR solutions, pharmaceutical companies in the state will be able to overcome the issue of skill shortages, recruit specialized talent, and adjust the workforce practices to the sustainability agenda. By doing so, this framework will be related to the input variables AI adoption, HR transformation) and the output variables Sustainable growth, innovation, and regional development. It emphasizes

AI recruitment as not only a technological intervention, but also a strategic enabler that harmonizes industrial growth with socio-economic advancement and thus creates the possibility of Uttarakhand being an example of developing the pharma industry in a sustainable way.

Results and Discussion

The conceptual framework analysis shows that the AI-based recruitment systems have considerable potential to facilitate sustainable development in the pharmaceutical industry of Uttarakhand. These systems are capable of improving efficiency and reducing human biases by automation in acquiring talent and guaranteeing a greater fit between skills of candidates and organizational requirements, which directly addresses the goal of workforce quality improvement. Faster hiring and improved strategies in the area of retention with the help of AI also ensure the operational productivity and competitiveness in the long-term, as well. Moreover, the sustainable development aims of the area are supported by AI implementation, as the industry can make the best use of human capital, without straining resources, and keep growth in balance with environmental and economic requirements. The issues like technological preparedness, ethical issue and privacy of information should be addressed using organized execution plans, educations, and regulatory compliance plans. All in all, the discussion highlights that AI recruitment systems are not solely efficiency tools but strategic facilitators of innovation, workforce optimization and sustainable growth in the sphere of industrial in Uttarakhand pharmaceuticals. This theoretical understanding can be used as the basis of subsequent empirical research work to quantify the actual effect of AI on the regional pharma development and maintenance.

Suggestions and Policy Implications

- Request pharmaceutical companies in Uttarakhand to implement AI-based recruitment systems to increase the effectiveness of talent acquisition and minimize the effects of human factor.
- Establish HR and IT job training to make sure that AI technologies in recruitment and management are well implemented and managed.
- Encourage partnerships between the government, higher education, and pharmaceutical firms to develop a qualified workforce that meets industry 4.0 needs.
- Implement legal frameworks and ethics concerning AI in the recruitment process to make data safe, transparent and equitable.
- Combine AI recruitment and more extensive sustainability efforts, joining workforce planning to the objectives on regional development and environmental responsibility.
- Track and assess how AI-enabled HR practices affect innovation, productivity, and long-term growth and make regular policy adjustments and strategic decisions.

Conclusion

Uttarakhand pharmaceutical industry is at a decisive point where it meets the space between technological integration and sustainable development. This paper highlights the transformational nature of artificial intelligence in recruitment systems as strategic driver of the pharma industry in the region. In discovering the prospect of AI in talent acquisition, the study shows that these systems can

help improve the quality of the workforce, efficiency and minimize biases, thus ensuring that the industry recruits and maintains qualified professionals needed to drive innovation and operational excellence. In addition, AI-based HR practices are consistent with the general sustainability objectives by streamlining the human resource utilization, promoting organizational productivity, and enabling environmentally and socially sustainable development of the industry.

Considering these findings, this research shows that the adoption of AI recruitment systems is more than an upgrade of technology but a strategic necessity of the pharmaceutical industry in Uttarakhand. Addressing workforce challenges and offering the needed stimulation to the innovation, as well as helping to facilitate sustainable development, AI recruiting corresponds to the goals of improving HR efficiency, enhancing sector competitiveness, and contributing to sustainable development of the region in the long term. As a result, this study gives a theoretical approach to the use of AI in recruitment as a driver of sustainable and inclusive development in the pharmaceutical industry in Uttarakhand.

Limitations of the Study

- The research is theoretical and lacks the primary empirical information of pharmaceutical firms in Uttarakhand.
- The applications of AI in recruiting mentioned can depend on the company, and findings would be less generalizable.
- Increased AI rapid improvement in technology may render certain insights timely or obsolete in the short term.
- The research is conducted on the recruitment systems and might not be able to portray all the operation and regulation challenges in the pharma industry.
- Uttarakhand has regional factors which are specific to it like the availability of workforce and infrastructure which are not fully investigated and may influence practical implementation.

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THE ADVANTAGE OF INCORPORATING THE INDIAN KNOWLEDGE SYSTEM IN MANAGEMENT STUDIES

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Abstract

The Indian Knowledge System (IKS) encompasses centuries of accumulated wisdom across philosophy, economics, governance, ecology, medicine, and education. In recent years, management studies have increasingly sought frameworks that extend beyond efficiency and profit-maximization to include ethics, sustainability, and human development.

This paper argues that integrating IKS into management education and practice provides a multidimensional perspective that enhances leadership, organizational learning, strategic decision-making, and social responsibility. Drawing on literature from indigenous knowledge, organizational studies, and ecological management, the study highlights how IKS contributes to contemporary challenges in corporate governance, human resource development, and sustainability.

By synthesizing insights from ancient texts such as the Arthashastra alongside modern empirical studies, the paper establishes the relevance of IKS in building resilient, value-driven, and contextually adaptive management systems.

Keywords: Indian Knowledge System, Management Studies, Sustainability, Organizational Learning, Indigenous Knowledge, Leadership

Introduction

Most of the ideas we learn in management come from Western countries. These ideas focus mainly on *winning, working faster, and making more money*. They helped companies grow, but they often forgot about people's happiness, fairness, and care for nature.

Now the world has big problems like pollution, climate change, and stress at work. Because of this, we need new ways of management that do not only think about profit but also about people's well-being and protecting the environment.

The Indian Knowledge System (IKS) gives us a different way of thinking. It comes from India's old wisdom and covers many areas like maths, stars, politics, health, and farming. Books like the *Vedas*, *Upanishads*, and *Arthashastra* teach us about good leadership, caring for people, and using nature's resources wisely. Indian farming, healing, and village life also show us real examples of teamwork, caring for the earth, and staying strong in tough times.

Today, researchers say that IKS is useful not just for saving culture but also for solving modern problems. Some studies show how Indian ways of learning and sharing ideas help companies create new things (Roy & Mitra, 2018). Others show how old ecological wisdom can guide businesses to act responsibly (Negi et al., 2023), and how value-based education builds honest leaders (Sarkar, 2017).

This paper looks at why IKS should be part of management teaching and business practice. It shows how IKS helps in honest leadership, people management, caring for nature, and new ideas. It also contributes ways to bring IKS into the study of management.

Literature Review

The literature on Indian Knowledge Systems spans historical texts, ethnographic studies, and organizational research. Four broad streams are particularly relevant to management studies:

1. Philosophical and Ethical Foundations

Indian philosophy teaches that life should balance four goals: **dharma** (doing what is right), **artha** (earning and managing wealth), **kama** (living with joy and well-being), and **moksha** (spiritual freedom). These ideas can also guide how people manage organizations. For example, the *Arthashastra* gives lessons on leadership, economics, and good governance. It reminds leaders to be fair, responsible, and thoughtful about the future—values that are very useful in business and management today.

2. Knowledge Management and Organizational Learning

Modern researchers have looked at Indian Knowledge Systems (IKS) to see how organizations learn and share ideas. Roy and Mitra (2018) found that Indian research companies handle both hidden knowledge (tacit) and open knowledge (explicit), which makes them more creative and successful. Sanghani (2009) put forward a complete model of knowledge management that is rooted in Indian culture. Jain and Moreno (2015) found that learning methods used in Indian engineering companies helped them compete better in the market. Later, Uma Mageswari and her team (2017) discovered that when IT companies managed knowledge well, their research results improved. Together, these studies show that the Indian way of learning and sharing knowledge gives fresh ideas that can also benefit global management studies.

3. Ecological and Agricultural Sustainability

Indian Knowledge Systems (IKS) are closely linked with nature. Traditional farming and resource practices show how people can live in harmony with the environment. For example, Bidyalakshmi et al. (2023) explained how farmers in North-East India use paddy straw in eco-friendly ways. Tangjang and Arunachalam (2009) showed that home gardens help save biodiversity and make communities stronger. Singh and Sureja (2008) described how rainfed farming uses local wisdom to manage resources well, and Vedwan (2006) noted how apple farmers adapt to changing weather.

These examples clearly show that indigenous practices can guide modern businesses to use sustainable methods and take better care of the environment.

4. Healthcare, Wellness, and Human Resource Development

Indian systems of medicine and wellness—like Ayurveda, Yoga, and herbal practices—focus on complete health and balance. Patil and Bhaskar (2006) studied tribal healing knowledge in Maharashtra, while Ragupathy et al. (2008) and Samal et al. (2010) recorded traditional practices from South and North India. These systems show the importance of prevention, balance, and mental well-being. In workplaces, such practices can be used for employee health and stress control. When added to HR strategies, they can improve creativity, build resilience, and raise productivity.

5. Innovation and Knowledge Economy

Gupta (2006) explained the Honey Bee Network as an example of local innovation based on Indian Knowledge Systems. It shows how community wisdom and practices can turn into business opportunities. This example makes it clear that indigenous knowledge is not just about keeping traditions alive but also about creating new ideas, supporting modern innovation, and adding value to formal research and development.

Objectives of the Study

This paper is guided by the following objectives:

- **To examine the philosophical and practical foundations of the Indian Knowledge System (IKS)** and their relevance to modern organizational life.

- **To analyse the advantages of integrating IKS into management education** in order to enhance value-based leadership, strategic decision-making, and sustainability.

- **To identify contemporary applications of IKS in organizational practices**, including human resource management, knowledge management, and corporate social responsibility.

- **To propose recommendations for incorporating IKS into management curricula and professional training programs**, enabling future managers to develop a culturally grounded yet globally adaptive outlook.

Research Methodology

This study adopts a **qualitative and exploratory research design**. The methodology relies on **secondary data analysis**, reviewing scholarly articles, books, reports, and case studies that address Indian Knowledge Systems and their relevance to management.

1. **Data Sources**:

    I. Peer-reviewed journals on management, sustainability, and knowledge systems.

    II. Foundational texts such as the *Arthashastra* and contemporary interpretations of Indian philosophy.

    III. Case studies on indigenous agricultural, ecological, and healthcare practices.

    IV. Organizational studies from Indian IT, R&D, and engineering sectors.

2. **Approach**:

    I. **Thematic Analysis**: Key themes such as leadership, ethics, sustainability, and innovation were identified and analyzed.

    II. **Comparative Framework**: IKS-based practices were compared with conventional Western management approaches to highlight advantages and complementarities.

    III. **Interpretive Synthesis**: Findings from historical texts and modern case studies were synthesized to develop an integrated framework for management studies.

The exploratory design is appropriate given the emergent nature of IKS integration into management education and the need to connect diverse bodies of literature.

Analysis

Integrating Indian Knowledge System into Management Studies

The review of literature shows that the Indian Knowledge System (IKS) is broad and multidimensional. It is not confined to philosophy or rituals but extends to medicine, ecology, agriculture, governance, aesthetics, and social organization. Its importance for management studies lies in two aspects: first, its historical depth, and second, its ability to adapt, innovate, and stay relevant to changing contexts.

A synthesis of the scholarship highlights five major themes where IKS connects meaningfully with management studies:

1. **Knowledge Creation and Intellectual Capital**

Studies of India's pharmaceutical industry show that companies have successfully blended traditional medicinal knowledge with modern intellectual property systems to boost innovation and competitiveness (Sharma & Goswami, 2009; Kale, 2009). Research using the Value-Added Intellectual Coefficient Model also highlights how human and structural capital contribute to growth in India's knowledge-driven sectors (Ghosh & Maji, 2015).

Together, these studies suggest an IKS-based model of innovation that balances indigenous wisdom with contemporary institutional practices. For management education, this points toward hybrid learning approaches that combine apprenticeship-style tacit learning (Basole, 2016) with structured analytical and codified methods.

2. **Sustainability, Resilience, and Ecological Wisdom**

Ethnobotanical studies show how rich indigenous medicinal knowledge is—from herbal treatments in Rajasthan (Katewa et al., 2004) to plant-based healing in the Kedarnath Wildlife Sanctuary (Bhat et al., 2013). But the Indian Knowledge System (IKS) goes beyond healthcare.

Farmers in Uttar Pradesh use traditional knowledge to deal with climate change (Tripathi & Mishra, 2017), and the Nyishi tribes practice agroforestry that protects biodiversity for the future (Deb et al., 2009).

In areas hit by natural disasters, community wisdom helps people stay strong and recover faster (Jigyasu, 2002; Lunga & Musarurwa, 2016). These examples show that sustainability is not something forced from outside but is already built into indigenous

systems—a lesson modern businesses can use for corporate sustainability and crisis management.

3. Values, Human Development, and Well-being

Philosophical traditions like the Bhagavad Gita teach the importance of facing uncertainty with wisdom, ethics, and self-awareness (Jeste & Vahia, 2008). Indian psychology (Rao & Paranjpe, 2016) and Ayurveda (Jaiswal & Williams, 2017) also stress well-being, mindfulness, and balance for human growth.

Gender perspectives are also important in IKS. For example, women help protect biodiversity by using knowledge of wild edible greens in the Western Ghats (Narayanan & Kumar, 2007) and play a key role in dairy practices (Shiva, 1992).

These examples show that IKS knowledge is built and shared together across generations. For management studies, this suggests leadership and HR practices should focus on empathy, inclusivity, and collective welfare instead of only individual competition.

4. Organizational Learning and Knowledge Management

The Indian Knowledge System (IKS) is strongly linked to the ideas of knowledge management (KM). Research on Indian SMEs shows both the challenges and opportunities in adopting KM practices (Vasudevan & Chawan, 2014). Sector-specific studies also highlight innovation—for example, ICT use in academic libraries (Husain & Nazim, 2015) and knowledge practices in engineering industries (Singh et al., 2003).

Further, research on safety culture in the construction sector (MD & Mahesh, 2019) and on human capital in manufacturing (Birasnav & Rangnekar, 2010) demonstrates how effective knowledge processes directly improve organizational performance. Taken together, these studies suggest that IKS can support the development of plural, flexible, and context-sensitive KM strategies—an important advantage for today's managers.

5. Epistemological Plurality and Global Relevance

The Indian Knowledge System (IKS) goes beyond sector-specific contributions and questions dominant ways of knowing. Comparative research on Indian aesthetics (Pollock, 2016), indigenous pedagogy (Reddy et al., 2016), and cross-cultural perspectives on wisdom (McGregor, 2004) shows that Indian traditions value oral, experiential, and

relational knowledge, which differs from Western analytical models. Global debates on intellectual property, such as the neem and turmeric cases, also highlight the conflict between community-based knowledge and Western patent systems (Downes, 2000; Ragavan, 2001).

For management studies, recognizing this epistemological plurality fosters critical thinking, cultural sensitivity, and ethical awareness—key qualities for leaders in today's diverse and interconnected business world.

Findings and Discussion

- **Ethical and Value-Based Leadership**

IKS emphasizes **dharma (duty and ethics)** as a guiding principle for leaders. Unlike profit-centric models, IKS frames leadership as a moral responsibility toward society, employees, and the environment. The *Arthashastra* stresses foresight, fairness, and accountability in governance (Mandavkar, 2023). Applying these insights to management can strengthen ethical leadership, prevent corporate scandals, and enhance trust with stakeholders.

- **Holistic Human Resource Development**

IKS frameworks view people as complete beings with mind, body, and spirit rather than mere resources. Traditions like Yoga and Ayurveda emphasize resilience, wellness, and balance (Sarkar, 2017). Modern HRM can draw on these concepts to develop employee wellness programs that reduce stress, prevent burnout, and enhance creativity.

Research on ethnomedicine (Patil & Bhaskar, 2006; Samal et al., 2010) shows that indigenous healthcare systems prioritize prevention, offering valuable insights for strengthening workplace health practices.

- **Knowledge Management and Organizational Learning**

Indian organizations frequently balance formal systems with cultural practices when sharing knowledge. Roy and Mitra (2018) showed that knowledge management significantly enhances R&D outcomes in Indian public research institutions, while Jain and Moreno (2015) found that learning practices help engineering firms maintain competitiveness. IKS-based knowledge sharing methods like storytelling, mentorship, and community learning can complement global models such as Nonaka's SECI framework effectively.

- **Sustainability and Ecological Responsibility**

Indigenous ecological knowledge provides valuable sustainability models. Traditional agricultural practices, including paddy straw management (Bidyalakshmi et al., 2023) and rainfed farming techniques (Singh & Sureja, 2008), demonstrate efficient resource use, biodiversity protection, and long-term resilience building.

These approaches align with contemporary concepts like circular economy principles and ESG frameworks. Companies in agriculture, manufacturing, and energy sectors can strengthen their sustainability strategies by incorporating such indigenous wisdom, building stakeholder trust and creating new opportunities for eco-friendly innovation.

- **Strategic Thinking and Innovation**

The approach of Arthashastra for diplomacy, crisis management, and negotiation aligns naturally with contemporary strategic management, particularly when organizations face uncertainty and competitive pressures. Its emphasis on adaptability and pragmatic action mirrors what we see in agile business methodologies. The Honey Bee Network (Gupta, 2006) reveals how grassroots innovation transforms local knowledge into scalable entrepreneurial solutions.

All above mentioned examples show that organizations can weave classical wisdom together with modern innovation, creating strategies that are both resilient and inclusive.

- **Global Relevance of IKS in Management**

IKS applications is not limited to Indian organizations only. Now the multinational companies are recognizing the value of cultural diversity, indigenous wisdom, and sustainable practices. The reasons are both, Indians are working in foreign as top management and foreign companies are performing business in India through FDI or direct investments.

The values of IKS—like ethical decision-making, caring for the environment, and focusing on overall human growth—provide different management approaches that work well with Western models. Global companies that use these ideas can build responsible leadership, improve cross-cultural understanding, and create strategies that connect profit with sustainability and social good.

Conclusion

After carefully analysing the trends, Integrating IKS into management studies creates noteworthy opportunities to merge economic growth with ethical practices and environmental responsibilities. Indian Knowledge System (IKS), based on wisdom accumulated over centuries, offers valuable approaches to leadership development, human resource management, environmental protection and innovation processes. Research and practical examples prove

that IKS is not just a theoretical framework, but it also provides effective solutions to modern business challenges. Management education should include courses focused on IKS case studies, ethical frameworks and sustainability. This will enable students to make responsible and balanced decisions beyond just making profits. Organizations that adopt IKS principles in their operations often see improved employee health and satisfaction, stronger relationships with stakeholders, and increased long-term competitiveness.

As global economies move towards knowledge-based and sustainability-focused models, IKS serves as an important bridge between traditional knowledge and modern business practices. It gives depth to innovation and ensures that progress is based on intelligence as well as ethics.

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KHADI REIMAGINED: ENTERPRISES, STARTUPS AND INDIA'S SUSTAINABLE FUTURE

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Abstract

Khadi holds a distinctive place in India's historical, social, and economic development. While it symbolised self-reliance during the freedom movement, the contemporary phase marks its reimagination as a modern, enterprise-driven sector within the MSME framework. This paper examines how khadi is being repositioned as a viable platform for entrepreneurship, start-up growth, rural industrialisation, and sustainable livelihoods. Particular emphasis is placed on the role of institutional support, especially initiatives undertaken by the Khadi and Village Industries Commission, in promoting micro and small enterprises, decentralised production, and inclusive economic growth. The study highlights that rising global awareness of sustainable lifestyles and ethical consumption has significantly enhanced khadi's relevance. Its low carbon footprint, minimal water usage, and labour-intensive production processes align closely with green economy objectives, creating new market opportunities for enterprises and start-ups. Supported by strong government schemes and wage reforms, the sector has recorded notable expansion, with sales increasing by 447 per cent between 2013–14 and 2024–25 and overall turnover reaching approximately ₹1.7 lakh crore.

The paper further analyses the evolving entrepreneurial ecosystem of khadi, where traditional skills are combined with modern design, technology, and business practices. Technological interventions such as improved and solar-powered charkhas, along with digital platforms and institutional marketing networks, have enhanced productivity, market access, and income stability for artisans. From an employment perspective, khadi remains one of the most labour-intensive sectors in rural India, with high participation of women artisans,

contributing to non-farm employment generation and reduced migration. The study concludes that khadi has the potential to function as a sustainable start-up ecosystem that integrates heritage-based production with contemporary enterprise models, thereby advancing inclusive entrepreneurship and employment-led growth in India.

Keywords: Khadi, Start-ups, Innovation, socio-economic & Sustainable Development, Rural Employment, MSMEs

Introduction

Khadi occupies a unique and enduring position in India's historical, social, and economic development. Originating as a symbol of self-reliance and resistance during the freedom movement, khadi was closely associated with the ideals of swadeshi, decentralised production, and dignity of labour. In the contemporary period, however, khadi has moved beyond its symbolic legacy and is being reinterpreted as a strategic economic sector with significant potential for entrepreneurship, employment generation, and sustainable development within the Micro, Small and Medium Enterprises (MSME) framework. This transition reflects a broader shift in India's development discourse, where traditional knowledge systems and crafts are being aligned with modern enterprise models and market-oriented growth strategies.

A central role in this transformation has been played by the Khadi and Village Industries Commission, which has undertaken sustained efforts to modernise the khadi sector while preserving its core values. Through a range of policy interventions, financial support schemes, technology upgrades, and market development initiatives, KVIC has promoted the establishment of micro and small enterprises and facilitated entrepreneurial opportunities across rural and semi-urban regions. These initiatives aim to strengthen decentralised production systems, enhance local value chains, and contribute to the national objective of self-reliant and inclusive economic growth. The increasing presence of khadi-based start-ups indicates a clear shift from subsistence-oriented activity towards enterprise-led models that integrate traditional skills with contemporary business practices.

The renewed relevance of khadi is also closely linked to changing global consumption patterns. Rising awareness of climate change, environmental degradation, and social responsibility has led to a growing preference for sustainable lifestyles and ethically produced goods. In this context, khadi offers distinct advantages due to its low carbon footprint, minimal

water usage, and labour-intensive production processes. As consumers increasingly seek eco-friendly and responsibly produced products, khadi has emerged as a viable alternative within the broader sustainable fashion and lifestyle segment. This shift in demand has opened new market opportunities, encouraging start-ups and entrepreneurs to enter the sector and generate employment, particularly in rural and semi-urban areas.

The reimagination of khadi rests on interconnected dimensions of sustainability, modernisation, entrepreneurship, and innovation. Environmentally responsible production aligns khadi closely with green economy objectives, while contemporary design interventions have expanded its appeal among younger and more diverse consumer groups. New entrepreneurial models within the khadi ecosystem emphasise fair wages, skill development, and improved market access for artisans, thereby strengthening rural employment and income stability. Technological interventions, including improved and solar-powered charkhas, have enhanced productivity and efficiency without undermining the hand-spun character of khadi. At the same time, digital platforms and institutional marketing networks have enabled direct market access, reduced intermediary dependence, and improved returns for producers.

From an employment perspective, khadi remains one of the most labour-intensive sectors in rural India, with a notably high participation of women artisans. The expansion of khadi-based enterprises and start-ups has contributed significantly to non-farm employment generation, skill upgradation, and reduced migration from rural areas. By linking entrepreneurship with artisan livelihoods, the khadi ecosystem functions not only as an economic activity but also as an instrument of social development and inclusion. In recent years, the sector has recorded substantial economic expansion. Supported by strong government schemes and wage reforms, khadi sales increased by 447 per cent between 2013–14 and 2024–25, with overall turnover reaching approximately ₹1.7 lakh crore. By 2025, the khadi ecosystem reflects a convergence of rural craftsmanship, urban design sensibilities, digital marketplaces, and sustainability-conscious consumer demand. Artisans are increasingly connected to national and global markets, while start-ups introduce contemporary designs, natural dyes, value-added branding, and export-oriented business models. This progress is the outcome of sustained institutional efforts that have enhanced skills, technology adoption, and market integration.

Against this backdrop, the present study examines khadi as an evolving entrepreneurial ecosystem that combines heritage-based production with modern enterprise practices. It seeks

to analyse the socio-economic impact of this transformation, the role of start-ups and policy support, and the potential of khadi to contribute to inclusive entrepreneurship, employment-led growth, and India's sustainable economic future.

Objectives

- To analyse the socio-economic impact of the khadi Industries on employment, livelihoods, and rural development.
- To examine the role of start-ups, MSMEs, and innovation in shaping khadi's entrepreneurial ecosystem.
- To study market repositioning of khadi as a sustainable and value-added product.
- To assess the global market potential of khadi.
- To evaluate the influence of policy and institutional support on the growth of the khadi Industry.

Data Sources and Methodology

The study is based on secondary data covering the period 2014–2024, collected from the Annual Reports of the Ministry of MSME and the Khadi and Village Industries Commission (KVIC), the Economic Survey of India, and publications of the Directorate of Industries and Commerce, Government of India. Earlier census reports on MSMEs and small-scale industries have been used for contextual comparison. The data have been analysed using simple statistical and mathematical tools to examine trends in enterprise growth, start-up participation, employment generation, and sustainability in the khadi industry.

Review of Literature

The concept of rural entrepreneurship has been widely examined in development literature, with particular emphasis on its role in sustainable local development. **Korsgaard and Tanvig (2015)** distinguished between "entrepreneurship in the rural areas" and "rural entrepreneurship." While the former is largely profit-oriented and spatially mobile, the latter is deeply rooted in local resources, community engagement, and long-term sustainability. This distinction is relevant to khadi-based enterprises, which largely align with the principles of rural entrepreneurship by utilising indigenous skills and strengthening local economies. In the Indian context, **Mukeshbhai Patel et al. (2013)** analysed rural entrepreneurship and identified key constraints such as inadequate infrastructure, limited access to finance, lack of skills, and

weak market linkages. The study emphasised the need for government support, capacity-building programmes, and improved market access to strengthen rural enterprises. Similarly, **Aggarwal (2013)** highlighted the role of developmental institutions such as **NABARD and KVIC** in promoting rural entrepreneurship through financial assistance, training, and enterprise development programmes.

Several studies have specifically examined the role of the Khadi and Village Industries Commission (KVIC). **Katoch Gaurav (2018)** analysed KVIC's contribution to rural economic development and observed a steady increase in financial support and positive growth in production and sales in both khadi and village industries, although employment growth in the khadi sector showed fluctuations during the study period. **Supekar and Dhage (2022)** reported consistent growth in production, sales, and employment in khadi and village industries between 2016 and 2021, attributing this progress largely to the Prime Minister's Employment Generation Programme (PMEGP). Further, **Murmu (2024)** established a strong positive relationship between sales growth and employment generation, concluding that KVIC initiatives have significantly strengthened rural entrepreneurship in India. Literature on khadi as a fabric and cultural symbol traces its origins to the Swadeshi movement and rural industrialisation **(Sinha & Sinha, 1984).** Recent studies describe khadi as a transformational fabric that blends tradition with modern design and sustainability (**Gupta et al., 2018**). Researchers have highlighted khadi's eco-friendly nature, comfort, adaptability, and suitability across seasons (**Ambre & Lad, 2017**).

However, despite its heritage and sustainability value, khadi historically struggled with mass acceptance due to limited awareness, lack of modern designs, pricing issues, and weak urban accessibility (**Upadhyay & Deodiya, 2013**). Studies suggest that improved branding, design innovation, youth-oriented marketing, and urban retail expansion are essential for repositioning khadi in contemporary markets (Kaur & Rathore, 2017).

Research Gap

The existing literature largely focuses either on rural entrepreneurship in general or on khadi from cultural, fabric, or consumer perception perspectives. Limited studies comprehensively examine khadi as an integrated start-up ecosystem linking entrepreneurship, employment generation, sustainability, and policy support in the post-2014 period. There is a clear gap in analysing khadi's recent enterprise-led transformation, start-up participation, and

its contribution to inclusive and sustainable economic growth, which the present study seeks to address.

Performance of Khadi Industry

The khadi sector has witnessed one of its most significant growth phases over the past decade, driven by the expansion of khadi-based start-ups and rising consumer preference for hand-spun, natural, and ethically produced textiles. According to KVIC and MSME reports, khadi sales increased by 447 per cent between 2013–14 and 2024–25, while production grew by 347 per cent during the same period. In FY 2024–25, the sector achieved a record turnover of ₹1.7 lakh crore. Khadi clothing production rose by 366 per cent to ₹3,783 crore, and garment sales increased sharply by 561 per cent to ₹7,145 crore, reflecting strong market demand for sustainable products. Alongside economic expansion, khadi has made a substantial contribution to employment generation and socio-economic development.

Overall employment in the sector increased by 49.23 per cent over the decade, supporting nearly 1.94 crore livelihoods by 2025. With more than 80 per cent of artisans being women, khadi plays a vital role in promoting women's empowerment through home-based and income-generating work. Government interventions have further strengthened this growth. The Prime Minister's Employment Generation Programme (PMEGP) has facilitated the establishment of over 10.18 lakh units and generated more than 90 lakh jobs. Wage reforms, including a 275 per cent increase in artisan wages over eleven years and an additional hike in 2025, have improved income security. Support under the Khadi Vikas Yojana has enhanced productivity and artisan welfare.

Employment Provided by the Khadi Sector
(As on 31 March 2024)
Table-1

State/Union Territory	Total Employment	% Share of Total Employment
Jammu & Kashmir	21921	4.40
Himachal Pradesh	2278	0.46
Punjab	5191	1.04
Chandigarh	54	0.01
Haryana	56085	11.25
Delhi	1180	0.24
Rajasthan	30651	6.15
Uttarakhand	18078	3.63
Uttar Pradesh	137149	27.51

Chattisgarh	6179	1.24
Madhya Pradesh	3707	0.74
Sikkim	28	0.01
Auranachal Pradesh	31	0.01
Nagaland	295	0.06
Manipur	168	0.03
Mizoram	12	0.00
Tripura	25	0.01
Meghalaya	59	0.01
Assam	5125	1.03
Bihar	72755	14.59
West Bengal	32831	6.58
Jharkhand	1875	0.38
Odisha	5347	1.07
Andaman and Nicobar Islands	0	0.00
Gujrat	18964	3.80
Maharashtra	3091	0.62
Goa	0	0.00
Andhra Pradesh	9092	1.82
Telangana	2347	0.47
Karnataka	27708	5.56
Kerala	14339	2.88
Tamil Nadu	20464	4.10
Puducherry	465	0.09
Total	498594	

The above table depict as on 31 March 2024, total employment in the khadi sector stood at 4,98,594 persons, with a clear regional concentration across a few key states. Uttar Pradesh accounts for the largest share of employment at approximately **27.5 per cent,** reflecting its strong artisan base and institutional presence. Bihar follows with **14.4 per cent**, while Haryana contributes around **11.3 per cent** of total employment. West Bengal and Rajasthan account for **6.6 per cent** and **6.1 per cent**, respectively.

Together, these five states constitute nearly **66 per cent** of total khadi employment in India, indicating a high degree of geographical concentration. Southern states such as Karnataka (**5.6 per cent**) and Tamil Nadu (**4.1 per cent)** also contribute significantly, supported by organised production clusters and market access. Northern hill states, including Jammu and Kashmir (**4.4 per cent**) and Uttarakhand (**3.6 per cent**), reflect khadi's role in sustaining livelihoods in ecologically sensitive and rural regions.

Key Performance Indicators of the Khadi and Village Industries

(FY 2013–14 vs. FY 2023–24)
Table-2

Metric	FY 2013–14 (Approx.)	FY 2023–24 (Approx.)	Percentage Increase (approx.)
KVI Production	₹26,109 crore	₹1,16,600 crore*	347%
KVI Sales	₹31,154 crore	₹1,70,551 crore*	447%
Cumulative Employment	1.30 crore persons	1.87 crore persons	43.65%
New Employment Generated	5.62 lakh jobs	10.17 lakh jobs	80.96%

*Note: Some sources provide provisional figures for FY 2024-25, which show even higher numbers. The figures above reflect the data available for the period ending FY 2023-24.

Analysis

The table highlights a strong transformation of the Khadi and Village Industries (KVI) sector between FY 2013–14 and FY 2023–24. Production increased by 347 per cent, while sales grew by an even higher 447 per cent, indicating improved market demand and effective marketing outreach. Employment also expanded significantly, with cumulative employment rising by 43.65 per cent and new job creation increasing by 80.96 per cent. Overall, the data reflect khadi's shift towards an enterprise-driven, market-oriented, and employment-intensive sector contributing to inclusive and sustainable economic growth. Within the broader KVI sector, khadi fabric has shown particularly strong performance. Khadi production increased from ₹811.08 crore in 2013–14 to ₹3,206 crore in 2023–24, registering a growth of 295.28 per cent. Sales of khadi fabrics rose from ₹1,081.04 crore to ₹7,145.61 crore, reflecting a sharp increase of about 561 per cent, based on provisional data for 2024–25.

Artisan welfare has also improved substantially, with khadi artisan wages rising by approximately 275 per cent over the last eleven years. Government initiatives such as the Pradhan Mantri Employment Generation Programme (PMEGP) and the Gramodyog Vikas Yojana have played a significant role in employment generation, skill development, and the distribution of machinery and toolkits to artisans. A notable social outcome of this growth has been women's empowerment. More than 80 per cent of the nearly five lakh khadi artisans are women, underlining the sector's importance in promoting inclusive employment and strengthening rural livelihoods.

The Changing Face of Khadi

Over time, the public perception of khadi has undergone a notable transformation. Once associated primarily with tradition, khadi now appeals across generations and social groups and contributes meaningfully to India's contemporary economic landscape. This renewed

relevance has been reinforced by consistent public advocacy from national leadership, which has helped reconnect khadi with everyday consumption and national economic participation. The Union Home and Cooperation Minister, Amit Shah, has encouraged citizens to purchase at least ₹5,000 worth of khadi annually, emphasising that such consumption strengthens both individual livelihoods and the national economy.

Similarly, ahead of Gandhi Jayanti 2025, Prime Minister Narendra Modi reiterated the centrality of khadi to the idea of swadeshi, recalling Mahatma Gandhi's belief in khadi as its enduring symbol. He noted that although khadi's prominence declined in the years following independence, it has witnessed a strong revival over the past eleven years, reflected in substantial growth in sales and public acceptance. He further appealed to citizens to purchase at least one khadi product on 2 October and to take pride in supporting swadeshi. Together, these appeals have contributed to repositioning khadi as a contemporary, inclusive, and economically meaningful choice, bridging heritage values with present-day consumption pattern.

Financial and Infrastructural Support for Khadi

The Khadi and Village Industries Commission (KVIC) supports the khadi entrepreneurial ecosystem through targeted financial assistance and infrastructure development. In 2023–24, ₹267.52 crore was disbursed under the Modified Market Development Assistance (MMDA) scheme to 1,088 institutions, while ₹37.36 crore was provided through the Interest Subsidy Eligibility Certificate (ISEC) scheme, offering concessional credit at 4 per cent. These measures reduced capital constraints, strengthened artisan incomes, and promoted enterprise growth in rural areas.

Infrastructure support has been extended through the Work-shed Scheme for Khadi Artisans, benefiting 1,305 artisans by December 2024 and improving working conditions and productivity. KVIC has also strengthened marketing through an extensive network of Khadi India outlets and institutional sales centres. As a result, khadi production and sales have shown steady growth, alongside rising employment and skill training, reinforcing khadi's role in rural livelihoods and inclusive entrepreneurship.

Start-up Models, Innovation, and Entrepreneurial Opportunity in Khadi

Khadi is undergoing a significant transformation, with 2025 emerging as a key phase in its evolution as an entrepreneurship-friendly sector. Young entrepreneurs and emerging

enterprises are revitalising khadi through innovative business models, contemporary design approaches, and technology-enabled production. The use of digital platforms and online marketplaces has expanded market visibility, particularly among sustainability-conscious youth, while preserving khadi's traditional manners.

Although structural challenges such as manual production processes limit scale, these constraints are increasingly offset by supportive government policies, technology upgradation, and rising ethical consumer demand. Schemes such as PMEGP and SFURTI have strengthened financial access, infrastructure, and cluster-based productivity, creating a strong institutional foundation for start-ups. Key success factors include effective utilisation of policy support, product diversification, integration with MSME networks, and digital commerce for wider market reach. Overall, khadi's contemporary journey reflects renewal and reinvention, positioning it as a high-impact, sustainable start-up opportunity within India's rural and MSME ecosystem.

Empowering Artisans and Expanding Markets

Over the past eleven years, a series of targeted initiatives have been implemented to strengthen khadi production systems and improve artisan welfare. Wage revisions have enhanced income security, with higher spinning and weaving wages across cotton, wool, and polyvastra categories. Market Development Assistance has improved institutional competitiveness, while infrastructure support through workshed schemes has provided artisans with safer and more productive workspaces. Access to affordable credit has been expanded through interest subsidy mechanisms, reducing borrowing costs for institutions, and financially stressed khadi units have received direct support to restore operational stability and sustain livelihoods.

At the same time, focused efforts have been made to expand markets and improve khadi's contemporary appeal. Design collaborations have upgraded product quality and branding, while digital marketing platforms and e-procurement portals have widened access to institutional and retail buyers. Exclusive urban retail formats have further strengthened consumer engagement. In addition, mandated government procurement of khadi products has ensured stable demand from public institutions. Collectively, these measures have enhanced artisan incomes, expanded market reach, and reinforced khadi's position as a sustainable and inclusive economic sector.

The Future of Khadi: From Heritage Fabric to a Global Sustainable Powerhouse

As India increasingly adopts sustainability, heritage revival, and circular economic practices, khadi stands at a crucial turning point. Once a symbol of political resistance and self-reliance, khadi has evolved into a model of ecological responsibility and inclusive entrepreneurship. Its future vision is anchored in three key pillars—innovation, integration, and internationalisation—which together provide a roadmap for scalable and socially impactful enterprise growth. Innovation will shape khadi's next phase through advancements in fibre research, sustainable processing, solar-powered charkhas, digital quality tools, and ethical production systems, creating opportunities for technology-driven start-ups. Integration across the value chain—linking artisans, designers, markets, and supply networks—will be essential to improve efficiency and competitiveness. Internationalisation represents the most transformative dimension, as global demand for sustainable, low-carbon, and culturally authentic textiles continues to rise.

The expansion of khadi start-ups has direct implications for artisan incomes, rural stability, and regional development, with women forming a significant share of the workforce. For young entrepreneurs, khadi offers diverse opportunities across fashion, home décor, wellness, and digital platforms. Overall, khadi is emerging as a symbol of responsible enterprise and global sustainability, rooted in tradition and driven by innovation.

Conclusion

The study highlights that khadi has undergone a significant transformation from a symbol of self-reliance to a dynamic, enterprise-driven sector aligned with India's sustainable development agenda. Supported by consistent policy interventions and institutional backing, particularly from the Khadi and Village Industries Commission (KVIC), khadi has emerged as a viable platform for start-ups, MSMEs, and rural entrepreneurship. Empirical evidence from 2013–14 to 2024–25 demonstrates substantial growth in production, sales, employment, and artisan incomes, alongside strong participation of women artisans. The integration of technology, digital marketplaces, and modern design has enhanced market reach while preserving traditional values. Government schemes, wage reforms, and infrastructure support have strengthened artisan welfare and enterprise sustainability. Overall, khadi's reimagination reflects its potential to contribute meaningfully to inclusive growth, non-farm rural employment, and ethical production. With continued innovation, market integration, and global

outreach, khadi can play a strategic role in shaping India's sustainable and self-reliant economic future.

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UNDERSTANDING HUMAN MOTIVATION WITH SPECIAL REFERENCE TO EMPLOYEES: THE POWER WITHIN

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Abstract

A key element of each worker performance and organizational achievement is motivation. Retention, innovation capability, hobby delight, and workplace productiveness are all impacted by the motivation. This essay investigates the want for motivation inside the place of business on the theoretical underpinnings, real-worldwide programs, and consequences of motivational strategies on organizational goals. This check emphasizes the importance of place of job motivation for sustained organizational overall performance by using the motivational theories like Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, and Self-Determination Theory. The success of the economic agency depends on employee's motivation as it boosts output and pride. Both internal and out of doors factors might also additionally have an effect on an employee's motivation to take initiative and live aim-centered. Workplace motivation may be

affected by the factors like working style of management, reputation of organization, potential of senior staff members, futuristic goals of organization. Suppose an employee is a painter and management gives him freedom to choose canvas and design and paint it by your own choice and will. It is true that this freedom would be very helpful for him and he will bring his best out of this. He would feel engaged, efficient and committed. The

capability of motivational strategies to enhance each group and individual' overall performance is examined on this abstract. Motivation makes the place of work extra vibrant and more explorable. Motivation becomes a weapon for employee when it comes with freedom and trust. Recognition, encouragement, equitable rewards like bonuses or incentives, growth chances like promotions are all examples of motivation that will increase worker's pride and moreover strengthens the business enterprise.This summary emphasizes the great impact of motivation on employee's performance and work towards goal continuously to achieve it.

Keywords: career development, motivational strategies, rewards, performance, work environment.

Introduction

Now a days, in this competitive world everyone is running behind success, money, power and new techniques. Everyone is under pressure to perform well and to bring good result every time in every task. In this situation it is important to be motivated and to do work with focus and with positive mindset. The most important element is 'Motivation' in this way. Motivation refers back to the inner and outdoor forces that stimulate humans to take moves that motive achieving a purpose (Robbins & Judge, 2019). Motivation plays an important role for employer and employee both it effects on productiveness and retention in an organization. Motivation is a crucial element in any organization because it immediately affects on the general performance of an employee, interaction capability, and contribution to organizational achievement. When an employee is inspired, he grows with greater focus. Motivational strategies does not only affects the performance but moreover uplift the general morale and surroundings in any business organization.When an employee feels lost, tired and frustrated than the motivation becomes power boosting capsule for any employee. Motivation of an employee could take any shape or transformation of an employee in a very positive way. Motivation can modify or decorate any employee's work performance. Motivation transforms a person physically as well as mentally. The above creation shows that how motivation plays an crucial characteristic for inexperienced and a succeeded body of employees.

Literature Review

This studies is based on a quantitative, descriptive data format, secondary data information to have a look at the effect of Motivation on any worker's work and widespread performance. The statistics is sourced from many Websites, Articles, Google Scholar and publicly to be had databases. The facts were organized via thematic instructions which incorporates intrinsic and extrinsic motivation, effect of control, and art work-way of life of enterprise. A thematic assessment technique is used to interpret the findings and find out sample and tendency in the literature.

The concept of Motivation has been studied in organizational psychology. Basically , it is understood due to the fact the inner and out of doors elements that manage and control oriented behaviors. Two kinds of motivation are intrinsic motivation (doing some detail because of the fact it's far simply thrilling or fulfilling and gives sooth) and extrinsic motivation (doing some thing for any form of praise or to avoid punishment and loud behavior of Management). Several theories complex the ones versions, which includes Self Determination Theory (Deci & Ryan), Expectancy Value Theory, Goal Setting Theory, and Herzberg's Two Factor Theory.

Methodology

The evaluate technique method have turn out to be used in the paper. It consists of an intensive exam of crucial theoretical frameworks and empirical studies on theories of employee motivation, which encompass Reinforcement Theory, Herzberg's Two-Factor Theory, and Maslow's Hierarchy of Needs. The evaluation examines successful motivational techniques, together with cause-setting, autonomy, rewards, and popularity, and assesses their consequences on output, system satisfaction, and organizational normal ordinary overall performance through methodically looking at those theories. The method additionally discusses current issues with inspiring a multi-generational and sundry employees, presenting managers with sensible tips. This paper provide insights that enhance group of workers engagement, retention, and prolonged-term organizational

achievement via a honest and balanced aggregate of extrinsic and intrinsic motivators, reinforced by means of manner of obvious communique and equitable practices.

Research Hypotheses

H0: There is not any large courting among financial rewards or incentives and manner pride.

H1: Monetary rewards or incentives bring a brilliant effect on worker's performance as opposed to another form of motivational rewards.

Theoretical Foundations of Motivation

There are many theories that proves why motivation is critical in an agency and organization.

Maslow's Hierarchy of Needs

Maslow (1943) proposed that people are stimulated through manner of a hierarchy of dreams, beginning with physiological dreams and progressing to self-actualization. In a place of job, personnel want to have their smooth dreams (e.g., profits, way safety) met earlier than they will be able to take interest on higher-stage dreams together with esteem and self-achievement.

Herzberg's Two-Factor Theory

Herzberg (1959) exquisite amongst hygiene factors (e.g., earnings, business enterprise hints) and motivators (e.g., success, reputation). Hygiene elements prevent dissatisfaction and demotivation, motivators need to be there for satisfaction and preserve stimulated. The precept of Two-Factor shows that enhancing intrinsic motivators in any commercial company or enterprise effects in higher employee engagement.

Self-Determination Theory (SDT)

Deci and Ryan's Self-Determination Theory (1985) posits that autonomy, competence, and relatedness are key mental desires that strength motivation. A place of work that facilitates

the one's dreams fosters intrinsic motivation to make overall performance better and well-being.

Impact of Motivation on Workplace Outcomes

Productivity and Performance

A meta-assessment through Judge et al. (2001) positioned a robust correlation amongst system satisfaction (frequently pushed through using motivation) and enhancing work performance by motivation. Motivated employees do higher performance of their tool. A encouraged worker is more likely to set some tough desires, greater attempt, and do his extraordinary to smooth all of the barriers.

Employee Engagement

Gallup (2023) stated that businesses with excessive worker engagement enjoy 21% better profitability. Motivation is engaged with emotional and willpower to do better with extra passion & efforts. These engaged employees are much more likely to be attentive, contemporary, productive and devoted to organizational desires.

Retention and Reduced Turnover

An employee's retention will boom via immoderate level of motivation. According to the Work Institute (2022), lack of career development, recognition, credit score of suitable artwork are maximum of the pinnacle motives for employee turnover—which can be relate to motivation. Motivation has a extensive and massive effect at the administrative center. Motivated personnel normally have a tendency to show better enormous of productiveness and make an average performance better than before. It affects degree of average general overall performance, advanced first-rate of tough work and achievement which might be individual or organizational goal. The ratio of absenteeism reduces on the identical time as an employee's work get recognition. It saves time of an organization and decreases assets in hiring and training of recent or greater energizing employee. Moreover, motivation creates a notable art work environment which encourage group work to head beyond important obligations. It gives satisfaction and loyalty to a worker which contributes a robust organizational way of existence. Low morale, decreased regular average

performance and immoderate frame of workers turnover can also cause due to lack of motivation. Motivation shapes administrative center outcomes- it does not only improves individual behavior, moreover enables business enterprise success in a wholesome and powerful work environment.

Factors affecting motivation:- The personality of a person depends on his inner strength and his surroundings also. A push of motivation can bring a change in employee's personality.

Need success concept explains that why a immoderate achiever pick out difficult and tough responsibilities and why low achievers pick less tough assignment at which they need no longer a first rate deal time and lots much less probably to fail.

There are varieties of motivation:

1. Extrinsic Motivation

2. Intrinsic Motivation

Extrinsic motivation is outdoor reward along side trophies, coins, increment, bonus, perks, reward, social popularity.

Intrinsic motivation arises from within the man or woman. Even it can comes from doing a complicated crossword puzzle or doing any difficult mission definitely for the gratification of fixing a trouble. He/She motivates by themselves to do better and better day by day.

Campbell et al. (1970) is a foundational research group within the field of organizational conduct, in particular specializing in managerial behavior, ordinary typical performance, and effectiveness. The e-book "Managerial Behavior, Performance and Effectiveness" through John Campbell, Marvin Dunnette, Edward Lawler, and Karl Weick, explores numerous components of motivation in the administrative center, drawing on present theories and studies to offer a comprehensive statistics of what influences behavior and performance of a worker.

According to the eBook "Managerial Behavior, Performance and Effectiveness" there are various key areas, like Motivation, Performance, Managerial Behavior, Effectiveness. The eBook examines incredible motivational theories together with expectancy precept, equity idea and AMO (Ability, Motivation, and Opportunity) Theory.

Expectancy Theory: The concept of expectancy suggests that motivation is inspired through a person's notion that their hard effort /attempt will cause a fulfillment usual performance (expectancy), that overall performance will lead to rewards (instrumentality), and that the rewards are valued (valence).

Equity Theory: This theory explains the belief and manner of lifestyles of equity in the place of business. Employees check their inputs and outputs in which input are in the form of talents & hard work and output is in any form of reward and recognition by others. In this, motivation is inspired via manner of perceived equity or inequity.

Ability, Motivation and opportunity (AMO) Theory: This principle posits a relationship between an worker's typical overall performance possibilities, motivation, and know-how. According to content fabric theories, the way with the aid of which these elements effect motivation is less sizable than the important desires that people try and fulfill, the sorts of rewards they look for, and the incentives that go with them. Although concept might also additionally deal with how the elements indexed have an effect on behavior (Campbell et al., 1970). The want theories of Murray (1938), Maslow (1954), Herzberg's two-aspect theory (1966), and Alderfer's ERG model (1969, 1972) are examples of content material theories of motivation.

It is apparent that the examine of organizational behavior and control has a huge impact of Campbell et al.'s concept. This concept has provided a framework for know-how the elements influencing worker's motivation, ordinary overall performance, and effectiveness of performance for task or target.

Strategies to Foster Motivation

Recognition and Rewards

An employee feels important and motivated when his organization recognizes his work and gives him extensive reward. According to SHRM (2022), around sixty eight% of personnel admits that they experience more energy and motivation when they take reward in any form. Rewards can be in any form like economic, verbal praise, reward in written inside the front of different personnel or public reputation.

Career Development and Training

Self -Determination Theory (Deci & Ryan, 1985) provides a framework for understanding what truly motivates people, it is beyond the simple regular rewards to focus on internal drives and basic human needs. Some education programs, mentorship, use of latest technical tools, bringing new approach and professional improvement pathways are some powerful steps to present motivation to an employee.

.**Empowerment and Autonomy**

Giving few authorities and freedom to take a few inexpensive selection with the beneficial resource of them very own is an intrinsic motivation. Autonomy- supportive environment cause higher engagement (Gagne & Deci, 2005). Empowerment permits a person to take right and suitable choice on the concept of cutting-edge-day state of affairs. Empowerment offers them feeling of rightly invested in their challenged responsibilities.

 Set Clear Goals and Expectations

When an worker recognize that what is management looking/expecting for from him than he works higher with larger photo.

Create a Positive Work Environment

Work Environment need to be immoderate exceptional, one have to feel free to show his emotions in the front of his management. Their must be consideration, respect and open communication. A fantastic positive work environment system encourages him to do awesome art work in the place of work even having some ups and downs in his personnel life.

Provide Meaningful Work

Generally employees have to complete duties on every day basis, they do their job in a very challenging environment. Employee gets strength and motivation when they experience that their work is valued by seniors and have importance of their work.

Offer Fair Compensation and Benefits

Competitive salaries and other benefits display that the business enterprise values its employees, which keeps on the motivation.

Encourage Work-Life Balance

When management supports flexible schedule, remote work options, and reasonable workloads to prevent any kind of frustration and dissatisfaction it helps to keep the employee's moral high.

Challenges in Maintaining Motivation

There are some conditions furthermore to maintain immoderate levels of motivation due to trade in an business enterprise, burnout, and inconsistent management. A leader need to do some thing time to time to encourage personnel especially in hybrid and far off artwork settings with one-of-a-kind mind and techniques.

Negative Motivation:- Behaviour that is induced by using anticipation or fear that unwanted final consequences will not happen. Fear could not be considered a good motivation technique.

The following demanding situations confront the administrative center motivation method:

- Absence of Clear Direction or Goals: If employees do not have clear direction or clear goals that what an enterprise expects of them, where they have to go and how they may get support than they may get disoriented and unmotivated.

- Bad Management or Leadership: Employee disengagement might be there when there is bad management and poor or bad leadership. A leader must be a motivated person and be able to motivate others also.

- Limited Growth Opportunities: If an employee finds out that he has no growth opportunity or limited opportunities in his present job than he loses motivation. When he finds that he has limited field to explore and research than he feels demotivated because of limited scope to show his talent and potential.

If human beings' efforts and tough job/work aren't diagnosed, overlooked, or unrewarded, they'll sense disappointed, demotivated, underappreciated, and lose interest in their profession.

- Workplace Stress and Burnout: Excessive workloads, lengthy hours, and a terrible or toxic workplace can cause loss of interest and he may get stress. This stress in his work will get poor performance and burnout. He may loose his temper and get hyper due to stress and lack of motivation.

- Lack of Autonomy: Employees do not enjoy regular, depended , or less powered job. They want some changes, some powers and authority at work. They need training and upgradation time to time.

- Poor Communication: Low employee engagement may cause any type of misunderstanding. Insufficient conversation, or a loss of transparency may create confusion and it will result poor. Due to this bad result employee will get demotivation.

- Prejudice or discrimination: Employee motivation and morale reduce in the place of work when there is no same treatment or favoritism. Generally in offices one employee takes favour of another instead of saying right or wrong.

- The mismatch among roles and capabilities: An employee looses his interest in job when he finds that his job is not according to his capabilities or his job profile and expectations are mismatched with his job.

- Untrustworthy Comments: An employee expects that his boss will do trust on him so he makes efforts to win the trust of his boss or employer. He does hard work with honesty and try to meet expectations of his boss. When after doing so much efforts employee finds that his boss or employer has no trust on him or has said untrustworthy words for him than he get demotivated. It is important that an employer must give motivated feedback to the employee so that employee may do further work with more energy and enthusiasm.

A few time from real existence that spotlight the importance of motivation within the place of job:

1. **Google: Encouraging Employee Innovation**
Known due to the fact the "20 percentage rule," Google, a well-known enterprise, encourages its personnel to dedicate 20 percent of their dependable time to private tasks. This tactic has produced tremendous merchandise like Google Maps and Mail. Google has set the identical old for developing a very inspiring workplace subculture.

2. Starbucks: Acknowledgment and Retention of Employees
Starbucks, a famous employer, perspectives its humans as "companions" and offers them with a number of lovely blessings, which includes stock options, healthcare and clinical facilities, and assist with training and studies for all employees. Maintaining immoderate stages of motivation and loyalty is facilitated through this shape of gesture.
Because of this, Starbucks has a sincere, cometted, loyal group of staff where retention ratio is very low.

3. Toyota: Constant Enhancement Culture

Kaizen, which translates to "non-prevent development," is a Japanese term. Toyota, a Japanese automaker, encourages all personnel, from higher management to lower management, to recommend that the employer adopt this motivational concept. Because they experience appreciated, employees actively contribute to Toyota's success on a international scale.

4. The Positive Culture and Morale of Southwest Airlines

Employees at Southwest Airlines are loose to show off their capabilities and personalities. They are known to provide greater carrier, their staff is free to have a good time with discipline at work. With better service provider, Southwest Airlines is offering more emotional involvement and client delight.

5. Netflix: Freedom and Trust

Netflix is a well-known on-line entertainment platform. Workers of this online platform are independent with out micromanagement, they may suggest anything which is unique and creative. Employee's motivation boosts when they are free to tell that what he is feeling right or what could be better for the job.

These real-global examples display how motivation boosts with the aid of quite few elements, collectively with guide, autonomy, acknowledgment, and administrative center way of lifestyles. This mixture makes the team stronger, more committed, and extra effective.

Individuals, companies, and the corporation all get affected by the single effort of motivation.

What is typically absent is as follows:

1. Productivity

Unmotivated employees are more likely to complete jobs haphazardly and without any kind feeling. Increased exertions, lacking last dates, and reduce-great output are the results of lack of motivation.

2. Participation

Motivated person feel involved and take pride in their work. Without discipline and work ethic, humans may also psychologically "test out," their initiative and inventiveness may decline, and teamwork may also additionally go through.

3. Objectives and Advice

The "Why" detail is wherein educated people continuously recognize the value of their work. That's why an employee may no longer get motivate. The changes they notice that:

Tasks seem meaningless and function minimal impact on the commercial enterprise corporation's dreams.Employees may also do furthermore query about their function or importance of given work.

Items which is probably right now associated with motivation include:

(i). Lack of contentment at Work, Increased pressure and burnout, indifference or emotional detachment, and a decline in morale are some consequences of absence of motivation.

1. Retention

People who lack motivation are more likely to transport away their occupations. When an employee does not get any kind of satisfaction in his workplace than the ratio of retention get increased.

2. Uniqueness

A employee who's unmotivated and remains in his consolation location. These signs and symptoms could be diagnosed through control-stagnation in the workplace, a decrease in experimentation and chance-taking, and passive problem-solving. Every person has some unique identity and talent, the organization must recognize his uniqueness and should give task to employee according to that.

Conclusion

Motivation is a want not a choice in present scenario of commercial workplace. Performance, pleasure, turnover, and organizational achievement are all powered through the usage of motivational technique. In the modern workplace, motivation has become an essential part of working life. It works similar as fuel for an employee or staff.   It encourages better overall performance, greater project delight, and favorable outcomes. Leaders need to apprehend and follow motivational thoughts and techniques, these are good way to create an inspiring work surroundings and keep employee's morale high. Employee motivation has an immediate impact on their work output, creativity, pride, willpower, and thoroughness. Some times when people losses their inner motivation it is important to give them motivation from outside. Motivated employees gives or works with innovative thoughts, and does job with the energetic soul. Lack of motivation might also cause low morale, immoderate turnover, and reduced manufacturing. Career desires, opportunities for growth, awards, and popularity, on the facet of a healthy work environment, are essential for long-time period success. Always criticism and neglegency of good efforts should not be there , however motivated feedback by seniors or management cab be a smart flow to construct a robust, resilient organization.

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उत्तर प्रदेश में ग्रामीण महिलाओं के आर्थिक विकास में सूक्ष्म वित्त (माइक्रोफाइनेंस) की भूमिका

मुहम्मद इमरान

प्रवक्ता अर्थशास्त्र

सादाबाद इंटर कॉलेज सादाबाद हाथरस

सार

यह अध्ययन उत्तर प्रदेश में सूक्ष्म वित्त एवं स्वयं सहायता समूहों (SHG) की पहुँच, कवरेज और संचालनगत प्रभावशीलता का मूल्यांकन करता है। शोध का मुख्य उद्देश्य SHG मॉडल के ग्रामीण महिलाओं की आय, आजीविका सुरक्षा, वित्तीय समावेशन, आर्थिक भागीदारी तथा निर्णय–क्षमता पर पड़ने वाले प्रभावों का विश्लेषण करना है, साथ ही इसकी प्रभावशीलता में बाधा बनने वाले संरचनात्मक एवं संचालनगत चुनौतियों की पहचान कर समाधान प्रस्तुत करना है। अध्ययन के लिए Ministry of Rural Development (DAY&NRLM), NABARD SA&Dhan की रिपोर्टीं तथा प्रासंगिक शोध–पत्रों से द्वितीयक डेटा का उपयोग किया गया। निष्कर्ष दर्शाते हैं कि SHG–माइक्रोफाइनेंस मॉडल ने उत्तर प्रदेश की ग्रामीण महिलाओं के आर्थिक एवं सामाजिक सशक्तिकरण में महत्वपूर्ण भूमिका निभाई है। बैंक–लिंकिंग, ऋण सुविधा, आंतरिक बचत, डिजिटल वित्तीय सेवाओं तक पहुँच और उद्यमिता विकास ने न केवल उनकी आय बढाई बल्कि निर्णय लेने की क्षमता और सामूहिक शक्ति को भी मजबूत किया। हालांकि, उच्च ब्याज दरें, सीमित वित्तीय साक्षरता, अपर्याप्त ऋण राशि, कमजोर बाजार जुड़ाव एवं सामाजिक बाधाएँ इसकी पूर्ण संभावनाओं को बाधित करती हैं। अतः नीति स्तर पर वित्तीय साक्षरता, क्रेडिट एन्हांसमेंट, डिजिटल सेवाओं, बाजार संयोजन एवं SHG–फेडरेशन मॉडल को सुदृढ करना आवश्यक है, जिससे यह टिकाऊ और समावेशी आर्थिक सशक्तिकरण का प्रभावी साधन बन सके।

मुख्य शब्द :सूक्ष्म वित,स्वयं सहायता समूह,ग्रामीण महिलाएँ,वित्तीय समावेशन

प्रस्तावना

उत्तर प्रदेश, भारत का सबसे अधिक आबादी वाला राज्य है, जहाँ ग्रामीण महिलाएँ अक्सर आर्थिक और सामाजिक चुनौतियों का सामना करती हैं। इन चुनौतियों में पूँजी तक सीमित पहुँच, रोजगार के अवसरों की कमी, और निर्णय लेने की प्रक्रिया में कम भागीदारी शामिल है। इन बाधाओं के कारण ग्रामीण महिलाओं की उद्यमशीलता की क्षमताएँ और उनके परिवारों की आर्थिक स्थिति प्रभावित होती है। ऐसे में, सूक्ष्म वित्त एक शक्तिशाली उपकरण के रूप में उभरा है जो ग्रामीण महिलाओं को छोटे ऋण, बचत और

बीमा जैसी वित्तीय सेवाएँ प्रदान करके उनकी आजीविकामें सुधार लाने में मदद करता है। यह न केवल उनकी तात्कालिक आर्थिक आवश्यकताओं को पूरा करता है, बल्कि उन्हें आत्मनिर्भर बनने और अपनी आय के स्रोत विकसित करने का मार्ग भी प्रशस्त करता है।

सूक्ष्म वित्त संस्थाएँ उत्तर प्रदेश की ग्रामीण महिलाओं को पारंपरिक बैंकिंग प्रणाली की जटिलताओं से बचाकर, आसान और गैर–जमानती ऋण प्रदान करती हैं। ये ऋण समूह–आधारित मॉडल के माध्यम से दिए जाते हैं, जहाँ महिलाएँ स्वयं–सहायता समूह बनाती हैं। ये समूह न केवल सामूहिक बचत और ऋण चुकौती को सुनिश्चित करते हैं, बल्कि सामाजिक समर्थन और ज्ञान के आदान–प्रदान का भी एक मंच प्रदान करते हैं। इन छोटे ऋणों का उपयोग महिलाएँ पशुपालन, हस्तशिल्प, सिलाई, किराना दुकान चलाने या कृषि–संबंधित छोटे व्यवसायों को शुरू करने या विस्तारित करने में करती हैं। इस प्रकार, सूक्ष्म वित्त सीधे तौर पर महिलाओं को उद्यमी बनने और अपने घरों की आर्थिक कमान संभालने में सशक्त बनाता है।

उत्तर प्रदेश में सूक्ष्म वित्त का प्रभाव केवल आर्थिक लाभ तक सीमित नहीं है, बल्कि यह सामाजिक सशक्तिकरण का भी एक माध्यम है। जब महिलाएँ आय अर्जित करना शुरू करती हैं, तो उनके आत्म–विश्वास और परिवार तथा समाज में उनकी भागीदारी में वृद्धि होती है। यह उन्हें घरेलू और सामुदायिक स्तर पर अधिक प्रभावी निर्णय लेने वाली बनाता है। इसके अतिरिक्त, आय में वृद्धि से पोषण, स्वास्थ्य देखभाल और बच्चों की शिक्षा में भी सुधार होता है, जिससे पूरे परिवार की जीवन–गुणवत्ता बेहतर होती है। हालाँकि, अभी भी चुनौतियों में वित्तीय साक्षरता की कमी और ऋण के उच्च ब्याज दरें शामिल हैं, लेकिन कुल मिलाकर, उत्तर प्रदेश में ग्रामीण महिलाओं के आर्थिक विकास और सामाजिक उत्थान की दिशा में सूक्ष्म वित्त की भूमिका अत्यंत महत्वपूर्ण और परिवर्तनकारी है।

शोध के उद्देश्य

- उत्तर प्रदेश में सूक्ष्म वित्त एवं स्वयं सहायता समूह (SHG) की पहुँच, कवरेज और संचालन के पैमाने से जुड़े प्रमुख संकेतकों का विश्लेषण करना।

- ग्रामीण महिलाओं की आय, आजीविका सुरक्षा, आर्थिक भागीदारी तथा निर्णय–क्षमता पर सूक्ष्म वित्त हस्तक्षेपों के प्रभाव की सीमा का मूल्यांकन करना।

- सूक्ष्म वित्त प्रणाली की प्रभावशीलता बढ़ाने हेतु मौजूद बाधाओं, संरचनात्मक चुनौतियों एवं सीमाओं की पहचान करना तथा उनके समाधान हेतु सुझाव प्रस्तुत करना।

साहित्य समीक्षा

वर्तमान साहित्य दर्शाता है कि ैंभ्ल और माइक्रोफाइनेंस महिलाओं को वित्तीय सेवाओं तक पहुँच, निवेश की शुरुआत और सामाजिक पूँजी प्रदान करते हैं। कुछ शोध बताते हैं कि आय में वृद्धि और घरेलू निर्णय–शक्ति में सकारात्मक परिवर्तन होता है, परन्तु प्रभाव का आकार क्षेत्रीय विविधता, प्रशिक्षण

स्तर और बाजार पहुँच पर निर्भर करता है। भारत में DAY&NRLM, NABARD और SA&Dhanजैसी संस्थाओं की रिपोर्टें सेक्टर के समेकित ऑकड़े और ट्रेंड देती हैं।

सबान (2020) इस शोध का उद्देश्य सूक्ष्म वित्त (लघु वित्त) के माध्यम से ग्रामीण महिलाओं की आर्थिक एवं सामाजिक स्थिति में हुए परिवर्तन का अध्ययन करना था, विशेषकर यह जानना कि स्व–सहायता समूह (भ्ळ) के माध्यम से कैसे महिलाओं में आत्मनिर्भरता, आय वृद्धि, निर्णय क्षमता और सामाजिक भागीदारी में सुधार हुआ। अनुसंधान हेतु चुने गए क्षेत्र में 150 ग्रामीण महिला लाभार्थियों से प्रश्नावली पद्धति द्वारा जानकारी एकत्र की गई, जिसमें उनकी आय, स्व–रोजगार गतिविधियों और वित्तीय उपयोग संबंधी जानकारी का विश्लेषण किया गया ।

माहि,म. (2024). यह शोध बताता है कि जीविका परियोजना ने ग्रामीण महिलाओं के आर्थिक और सामाजिक सशक्तिकरण में महत्वपूर्ण भूमिका निभाई। प्रश्नावली और साक्षात्कार के माध्यम से मिले आंकड़ों से स्पष्ट हुआ कि भ्ळ सदस्य महिलाओं की आय, आत्मविश्वास, कौशल और सामाजिक भागीदारी गैर–सदस्य महिलाओं की तुलना में अधिक बेहतर थी। इस परियोजना ने महिलाओं को रोजगार, छोटे व्यवसाय, ऋण सुविधा और निर्णय लेने की क्षमता प्रदान कर उन्हें आत्मनिर्भर बनाया। कुल मिलाकर, जीविका परियोजना महिलाओं के विकास और सशक्तिकरण का प्रभावी माध्यम सिद्ध हुई।

पा.डे;.र एवं चौहान 2025 यह शोध ग्रामीण महिलाओं की उद्यमिता क्षमता, आर्थिक भूमिका और सामाजिक सशक्तिकरण को दर्शाता है। उद्देश्य महिलाओं की आर्थिक भागीदारी और उद्यमशीलता की स्थिति जानना था। अध्ययन साहित्य आधारित गुणात्मक पद्धति से किया गया। निष्कर्ष में पाया गया कि महिलाएँ छोटे व्यवसायों व कृषि कार्यों में योगदान देकर आत्मनिर्भर बन रही हैं, लेकिन पूंजी, प्रशिक्षण और सामाजिक बाधाएँ प्रमुख चुनौतियाँ हैं। उचित सहयोग मिलने पर वे ग्रामीण विकास की प्रभावी सहभागी बन सकती हैं।

सूँठा सी. डी. (2019) इस शोध का उद्देश्य ग्रामीण क्षेत्रों में स्वयं सहायता समूहों के माध्यम से सूक्ष्म वित्त के द्वारा महिलाओं के आर्थिक और सामाजिक सशक्तिकरण का मूल्यांकन करना था। वर्णनात्मक विश्लेषण में उत्तराखंड के पाँच विकास खंडों के 100 समूहों की 400 महिलाओं के आंकड़ों का अध्ययन किया गया।शोध में पाया गया कि समूहों से जुड़ने पर महिलाओं की आय, रोजगार, बचत, निर्णय क्षमता और सामाजिक सम्मान में वृद्धि हुई। लगभग 82ः महिलाओं ने आर्थिक स्वतंत्रता और आत्मविश्वास में सुधार अनुभव किया, जिससे उनके जीवनस्तर में सकारात्मक परिवर्तन आया।

चौरसिया, न. (2023). यह शोधपत्र बताता है कि लघु एवं कुटीर उद्योग ग्रामीण महिलाओं को रोजगार देकर उन्हें आर्थिक रूप से आत्मनिर्भर, आत्मविश्वासी और सशक्त बनाते हैं। अध्ययन में बताया गया कि सरकार की योजनाएँ, जैसे मुद्रा योजना व प्रशिक्षण सुविधाएँ, महिलाओं को स्वरोजगार शुरू करने में मदद करती हैं। निष्कर्ष रूप में, लघु उद्योग महिलाओं के जीवनस्तर, आमदनी और सामाजिक सम्मान में सकारात्मक बदलाव लाते हैं।

पटेल, स. (2024). इस शोध का उद्देश्य स्वसहायता समूहों (SHG) की ग्रामीण महिलाओं के आर्थिक व सामाजिक सशक्तिकरण में भूमिका को समझना था। प्रश्नावली के माध्यम से 200 ग्रामीण महिलाओं से जानकारी एकत्र की गई। परिणामों से पता चला कि (SHG) में जुड़ने से महिलाओं में आत्मनिर्भरता, बचत की आदत, जागरूकता और निर्णय लेने की क्षमता बढी है। अधिकांश महिलाओं ने माना कि(SHG) गरीबी दूर करने और परिवार के विकास में सहायक हैं। निष्कर्षतः,(SHG) ग्रामीण महिलाओं के सशक्तिकरण का प्रभावी माध्यम है।

हंस सिंह, म. एवं जौहरा, म. (2025). इस शोधपत्र का उद्देश्य वर्धा जिले की ग्रामीण महिलाओं की उद्यमिता, उनकी भागीदारी और सामाजिक–आर्थिक प्रभाव को समझना है। अध्ययन में पाया गया कि स्व–सहायता समूहों और छोटे उद्यमों जैसे सिलाई, पापड़, हस्तशिल्प व डेयरी से महिलाएं आत्मनिर्भर बन रही हैं और परिवार की आय में योगदान दे रही हैं । पद्धति में सैद्धांतिक विश्लेषण, अवलोकन और उदाहरणों का उपयोग किया गया । निष्कर्षतः महिला उद्यमिता से आत्मविश्वास, सम्मान और सामाजिक–आर्थिक सशक्तिकरण बढता है, हालांकि पूंजी, प्रशिक्षण और बाजार की चुनौतियाँ अभी भी बनी हुई हैं ।

संकेतक	महत्व
गठित SHG की कुल संख्या	राज्य में समूहों के गठन की समग्र गति और पैमाने को दर्शाता है। (हाल के अनुमानों के अनुसार, ग्रामीण क्षेत्रों में यह संख्या 10 लाख तक पहुँच गई है।)
SHG सदस्यों की कुल संख्या	कार्यक्रम के अंतर्गत आने वाली ग्रामीण महिलाओं (लाभार्थियों) की वास्तविक संख्या को दर्शाता है। (यह संख्या अक्सर 1 करोड़ से अधिक होती है।)
ग्राम संगठन (VO) एवं क्लस्टर स्तरीय फेडरेशन (CLF) की संख्या	जमीनी स्तर पर संस्थानों के मजबूत नेटवर्क को दर्शाता है, जो स्थिरता और निरंतरता के लिए महत्वपूर्ण है।
कवर किए गए ग्राम/ब्लॉक	भौगोलिक पहुँच (ळमवहतंचीपबंस ब्वअमतंहम) को दर्शाता है कि राज्य के कितने क्षेत्रों में कार्यक्रम सक्रिय है।

उत्तर प्रदेश में सूक्ष्म वित्त और स्वयं सहायता समूहों की पहुँच और पैमाने के प्रमुख संकेतक

उत्तर प्रदेश राज्य ग्रामीण आजीविका मिशन (UPSRLM) और अन्य वित्तीय संस्थाएँ निम्नलिखित प्रमुख संकेतकों का उपयोग करके SHG&आधारित सूक्ष्म वित्त की पहुँच और सफलता को मापते हैं:

I- संस्थागत पहुँच और सदस्यता के संकेतक (Institutional Reach–Membership)

यह संकेतक दर्शाता है कि कितने गरीब परिवारों को औपचारिक रूप से संगठित किया गया है।

वित्तीय समावेशन और ऋण की मात्रा

यह संकेतक ग्रामीण महिलाओं की वित्तीय सेवाओं तक पहुँच और वित्तीय संसाधनों के प्रवाह को दर्शाता है।

संकेतक	महत्व
कुल बचत राशि	समूह के सदस्यों द्वारा बचत की आदत और आंतरिक पूंजी निर्माण (प्दजमतदंस ब्ंपजंस थ्वतउंजपवद) को दर्शाता है।
बैंकों से जुड़े SHG (Bank & linked SHGs)	समूह के औपचारिक बैंकिंग प्रणाली के साथ जुड़ाव और उनकी ऋण लेने की पात्रता को दर्शाता है।
वितरित ऋण की कुल राशि	SHG को बैंकों या MFIs द्वारा वितरित कुल पूंजी (स्वंद क्पेइनतेमक) को दर्शाता है, जो आर्थिक गतिविधि का मुख्य इंजन है। (हाल ही में Rs. 747 करोड़ की स्वीकृति जैसे आंकड़े इस पैमाने को दर्शाते हैं।)
बकाया ऋण राशि (Loan Outstanding)	बाजार में सक्रिय पूंजी की मात्रा को दर्शाता है।
ऋण चुकौती दर (Repayment Rate)	कार्यक्रम की वित्तीय स्थिरता और(SHG) सदस्यों की ऋण अनुशासन (ब्तमकपज क्पेबपचसपदम) को दर्शाता है।

आजीविका और गुणवत्ता के संकेतक

ये संकेतक कार्यक्रम की गुणवत्ता और इसके द्वारा सृजित आर्थिक अवसरों पर केंद्रित होते हैं।

संकेतक	महत्व
SHG का ग्रेड (Grading)	समूह की आंतरिक कार्यप्रणाली, लेखा–जोखा (Bookkeeping)और बैठकों की नियमितता की गुणवत्ता को मापता है।
आजीविका गतिविधियों में संलग्न SHG सदस्य	यह दर्शाता है कि सदस्य वास्तविक आय–सृजन गतिविधियों (IGAs) में कितने सक्रिय रूप से शामिल हैं।
बीसी सखी (BC Sakhi)की परिचालन संख्या	डिजिटल वित्तीय साक्षरता और डोर–स्टेप बैंकिंग सेवाओं की पहुँच (Access to Banking) को दर्शाता है। (UP में 38,000 से अधिक BC सखी कार्यरत हैं।)
प्रति व्यक्ति औसत वार्षिक आय वृद्धि	कार्यक्रम के कारण होने वाले प्रत्यक्ष आर्थिक प्रभाव और गरीबी उन्मूलन में प्रगति को मापता है।

सूक्ष्म वित्त (Microfinance) और स्वयं सहायता समूहों (SHGs) ने उत्तर प्रदेश की ग्रामीण महिलाओं की आय, आजीविका और निर्णय लेने की क्षमता पर महत्वपूर्ण और बहुआयामी प्रभाव डाला है। इस प्रभाव की सीमा को निम्नलिखित तीन मुख्य शीर्षकों के तहत समझा जा सकता है:

आय और आर्थिक स्थायित्व पर प्रभाव

सूक्ष्म वित्त ने ग्रामीण महिलाओं को निष्क्रिय उपभोक्ता से सक्रिय उत्पादक और उद्यमी बनने में मदद की है।

1. आय वृद्धि: सूक्ष्म ऋणों (डपबतव–सवंदे) का उपयोग करके महिलाओं ने छोटे और विविध उद्यम शुरू किए हैं, जैसे पशुधन खरीद बकरी पालन, मुर्गी पालन, या दुधारू पशु (गाय ⁄ भैंस)।गैर–कृषि व्यवसायरू सिलाई–कढाई, हस्तशिल्प (हैंडीक्राफ्ट), साबुन या अगरबत्ती बनाना, मसाला पीसना और बेचना।व्यापाररू छोटी किराना दुकान, सब्जी बेचना या चाय की दुकान चलाना।इन गतिविधियों से उनकी मासिक घरेलू आय में वृद्धि हुई है, जिससे वे गरीबी रेखा से ऊपर उठ सकी हैं।

2. संपत्ति निर्माण: आय में वृद्धि के साथ, महिलाएँ अब पूँजीगत संपति (Capital Asset) खरीदने में सक्षम हुई हैं, जैसे सिलाई मशीन, उपकरण, या छोटे कृषि औजार। ये संपत्ति भविष्य में उनकी आय सृजन क्षमता को और बढाती हैं और एक आर्थिक सुरक्षा जाल (Safety Net)प्रदान करती हैं।

3. बचत की आदत: समूह आधारित मॉडल के कारण महिलाओं में नियमित बचत की आदत विकसित हुई है। यह बचत उन्हें अप्रत्याशित खर्चों (जैसे बीमारी या फसल खराब होना) के लिए बाहरी साहूकारों पर निर्भर रहने से बचाती है, जिससे वित्तीय तनाव (Financial Stress) कम होता है।

4. जोखिम प्रबंधनरू सूक्ष्म बीमा:उत्पादों की उपलब्धता से वे अपने और अपने पशुओं के लिए स्वास्थ्य जोखिम का बेहतर प्रबंधन कर पाती हैं, जिससे किसी भी आकस्मिक घटना की स्थिति में आर्थिक झटका कम होता है।

आजीविका विविधीकरण पर प्रभाव

पारंपरिक कृषि–आधारित आजीविका से हटकर, सूक्ष्म वित्त ने महिलाओं को आय के गैर–कृषि स्रोतों की ओर बढने में सहायता की है।

1 नई कौशल और रोजगार: कई SHGसदस्यों को बैंक सखी (BC Sakhi) या पशु सखी के रूप में प्रशिक्षित किया गया है। वे न केवल अपने लिए आय अर्जित कर रही हैं, बल्कि अपने गाँव की अन्य महिलाओं को वित्तीय सेवाएँ प्रदान करके रोजगार के नए मॉडल भी स्थापित कर रही हैं।

2 मूल्य श्रृंखला से जुड़ाव: SHGs को विपणन (Marketing) के लिए बड़े समूहों (CLFs ⁄ VOs) से जोड़ा गया है। इससे उन्हें अपने उत्पादों को बेहतर मूल्य पर सीधे बाजार में बेचने में मदद मिलती है, जिससे बिचौलियों की भूमिका कम होती है और मुनाफा बढता है।

3. उद्यमशीलता विकास:सूक्ष्म वित्त ने ग्रामीण महिलाओं में उद्यमशीलता की भावना को बढावा दिया है। छोटे व्यवसाय शुरू करने का अनुभव उन्हें बाजार की मांग को समझने और अपने उत्पादों की गुणवत्ता में सुधार करने में सक्षम बनाता है।

निर्णय लेने की क्षमता और सशक्तिकरण पर प्रभाव

सूक्ष्म वित्त का सबसे गहरा प्रभाव आर्थिक से अधिक सामाजिक और व्यक्तिगत सशक्तिकरण पर पड़ा है।

•   **पारिवारिक निर्णयलेने में भागीदारी:** जब महिलाएँ कमाती हैं और बचत करती हैं, तो घर के खर्चों, बच्चों की शिक्षा, और स्वास्थ्य संबंधी मामलों में उनकी बात का वजन बढ जाता है। यह उन्हें परिवार की मुखिया के रूप में अधिक पहचान दिलाता है।

•   **सामाजिक उपस्थिति:** SHG की बैठकों में नियमित भागीदारी, बैंक और सरकारी कार्यालयों में लेनदेन के लिए जाना, और सामूहिक चर्चाओं में हिस्सा लेना उनके आत्म–विश्वास को बढाता है। इससे वे अपने गाँव में सार्वजनिक मुद्दों (जैसे स्वच्छता, पेयजल) पर बोलने में संकोच नहीं करतीं।

•   **वित्तीय साक्षरता:** समूह की बैठकें अक्सर वित्तीय साक्षरता (थ्पदंदबपंस स्पजमतंबल) और सरकारी योजनाओं के बारे में जानकारी का केंद्र होती हैं। इससे महिलाएँ अपनी वित्तीय स्थिति को बेहतर ढंग से समझ पाती हैं और धोखेबाजी से बचती हैं।

•   **सामूहिक सौदेबाजी की शक्ति:** समूह के रूप में कार्य करने से उन्हें सामूहिक रूप से समस्याओं का समाधान करने, स्थानीय स्तर पर सामाजिक कुरीतियों (जैसे शराबबंदी या दहेज) के खिलाफ आवाज उठाने और सरकारी लाभों को प्राप्त करने की क्षमता मिलती है।

संक्षेप में, सूक्ष्म वित्त उत्तर प्रदेश में ग्रामीण महिलाओं के लिए केवल एक वित्तीय साधन नहीं, बल्कि आर्थिक स्वतंत्रता, सामाजिक पहचान और आत्म–सम्मान प्राप्त करने का एक माध्यम बन गया है।

सूक्ष्म वित्त की प्रभावशीलता बढाने वाली बाधाएँ और समाधान

सूक्ष्म वित्त को ग्रामीण महिलाओं के आर्थिक विकास में एक शक्तिशाली उपकरण बनाए रखने के लिए निम्नलिखित बाधाओं/सीमाओं को दूर करना आवश्यक हैरू

वित्तीय और परिचालन बाधाएँ

बाधा/सीमा	विवरण	प्रभावी समाधान
उच्च ब्याज दरें	कई माइक्रोफाइनें संस्थानों (MFIs) की परिचालन लागत अधिक होती है, जिससे वे उच्च ब्याज दरें लगाते हैं।	सरकारी हस्तक्षेपरू NRLM के तहत ब्याजउपदान (Interest Subvention) योजनाओं का विस्तार करना। समूह की क्षमता निर्माणरू SHG को सीधे बैंकों से जोड़ना (SHG& Bank Linkage Programme) ताकि MFIs की मध्यस्थता कम हो।
अपर्याप्त ऋण राशि	छोटे ऋण अक्सर महिलाओं को केवल मौजूदा जरूरतों (जैसे उपभोग) को पूरा करने में मदद करते हैं, न कि बड़े, स्थायी उद्यम शुरू करने में।	क्रेडिट लिंकेज का उन्नयनरू महिला की क्रेडिट हिस्ट्री और व्यवसाय योजना के आधार पर किस्तवार बड़ी ऋण राशि (Staged Enhanced Loans) प्रदान करना। 'लखपति

		दीदी' योजना के तहत बड़ी परियोजनाओं को लक्षित करना।
डिजिटल एवं बैंकिंग पहुँच की कमी	ग्रामीण क्षेत्रों में तकनीकी कनेक्टिविटी और बैंकिंग आउटलेट की कमी है। महिलाओं को लंबी दूरी तय करनी पड़ती है, जिससे समय और धन बर्बाद होता है।	बीसी सखी (BC Sakhi) का विस्तारः प्रत्येक ग्राम पंचायत में प्रशिक्षित BC सखियों की संख्या बढ़ाना। डिजिटल साक्षरताः मोबाइल बैंकिंग, UPI और अन्य डिजिटल लेनदेन के उपयोग पर केंद्रित प्रशिक्षण प्रदान करना।
कठोर चुकौती अनुसूची	ऋण चुकाने की शर्तें अक्सर छोटे व्यवसायों के नकदी प्रवाह (बैथसवू) के अनुरूप नहीं होती हैं, खासकर कृषि या मौसमी व्यवसायों में।	लचीली चुकौतीः व्यवसायों की प्रकृति (जैसे, कटाई के मौसम के अनुसार) के आधार पर लचीली चुकौती योजनाएँ (थ्समगपइसम त्मचंलउमदज च्संदे) या मासिक/तिमाही चुकौती विकल्प प्रदान करना।

I- क्षमता निर्माण और कौशल संबंधी बाधाएँ

बाधा/सीमा	विवरण	प्रभावी समाधान
वित्तीय साक्षरता की कमी	कई महिलाएँ साक्षर नहीं हैं या ऋण अनुबंधों, ब्याज दरों और निवेश के जोखिमों को पूरी तरह से नहीं समझती हैं।	सरल और दृश्य प्रशिक्षणः व्यावहारिक उदाहरणों, रोल–प्ले और स्थानीय भाषा में दृश्य–श्रव्य सामग्री (Audio&Visual Aids) का उपयोग करके गहन वित्तीय और ऋण प्रबंधन प्रशिक्षण देना।
उद्यम कौशल और विपणन की कमी	महिलाएँ उत्पाद तो बना लेती हैं, लेकिन उन्हें बाजार की मांगों के अनुसार गुणवत्ता, पैकेजिंग और ब्रांडिंग की जानकारी नहीं होती, जिससे उन्हें सही मूल्य नहीं मिल पाता।	कौशल विकास केंद्रः उत्पाद विशिष्ट कौशल (Product&Specific Skills), पैकेजिंग और ई–कॉमर्स (E&commerce) जैसे डिजिटल विपणन पर प्रशिक्षण देना। SHGs को राज्य और राष्ट्रीय स्तर के बाजारों और मेलों से जोड़ना।
खराब रिकॉर्ड–कीपिंग	समूहों में अक्सर लेखा–जोखा (ठववााममचपदह) बनाए रखने में विफलता होती है, जिससे पारदर्शिता की कमी आती है और उन्हें बैंकों से आगे का ऋण प्राप्त करने में बाधा आती है।	प्रशिक्षण और निगरानीः समूह के भीतर बुक–कीपर को प्रशिक्षित करना और उन्हें आसान डिजिटल उपकरण (जैसे, स्मार्टफोन ऐप) प्रदान करना। ग्राम संगठनों द्वारा नियमित ऑडिट और गुणवत्ता जांच सुनिश्चित करना।

III-सामाजिक और नीतिगत बाधाएँ

बाधा/सीमा	विवरण	प्रभावी समाधान
पुरुषों का हस्तक्षेप और सामाजिक	मानदंड कुछ ग्रामीण क्षेत्रों में, ऋण का उपयोग अक्सर महिला के बजाय पुरुष सदस्य द्वारा किया	सशक्तिकरण प्रशिक्षणः समूह की बैठकों में नेतृत्व कौशल (Leadership Skill) और निर्णय लेने की शक्ति पर जोर देना। जागरूकता

	जाता है, या पुरुषों के सामाजिक दबाव के कारण महिलाएं निर्णय नहीं ले पाती हैं।	अभियान चलाना ताकि परिवार के पुरुष सदस्यों को महिलाओं के उद्यम के महत्व को समझाया जा सके।
सरकारी योजनाओं के एकीकरण का अभाव	विभिन्न सरकारी योजनाओं (जैसे, कौशल विकास, सबसिडी, बाजार पहुंच) का सूक्ष्म वित्त से पर्याप्त रूप से एकीकरण नहीं हो पाता।	कन्वर्जेंस(Convergence): जिला और ब्लॉक स्तर पर एक सिंगल विंडो सिस्टम स्थापित करना, जहाँ SHGsको छत्र्ड, कौशल विकास मिशन और डैड्र योजनाओं के लाभ एक साथ मिल सकें।

इन सीमाओं को दूर करके, उत्तर प्रदेश सूक्ष्म वित्त के माध्यम से ग्रामीण महिलाओं के लिए स्थायी आर्थिक विकास और सच्चे सशक्तिकरण की नींव रख सकता है।

डेटा और पद्धति

डेटा स्रोतः सार्वजनिक स्रोत — Ministry of Rural Development(DAY&NRLM) & state&wise SHG counts (NABARDऔर SA&Dhanकी माइक्रोफाइनेंस रिपोर्टें; क्षेत्रीय शोध–पत्र।

नीतिगत सिफारिशें

1. **बाजार संयोजन:** जिला/ब्लॉक स्तर पर मूल्य–श्रृंखला (value chain) विकसित कर SHG सदस्यों को निर्यात/बड़ी सप्लाई चैन में जोडना।

2. **वित्तीय साक्षरता और प्रशिक्षण:** निरन्तर वित्तीय साक्षरता कार्यक्रम और उद्यमिता प्रशिक्षण ताकि कर्ज का प्रभावी उपयोग हो।

3. **उत्पाद विविधीकरण:**लघु बीमा, लम्बी–अवधि कर्ज विकल्प और महिला–अनुकूल वित्तीय उत्पाद उपलब्ध कराना।

4. **डिजिटल बैंकिंग का विस्तार:** मोबाइल/डिजिटल भुगतान व वित्तीय सेवाओं के प्रशिक्षण से लागत घटेगी और पारदर्शिता बढेगी।

5. **निगरानी और मूल्यांकन:** जिलेवार M&Eमैकेनिज्म ताकि तालिकाओं/प्रभाव का समय–समय पर सत्यापन हो सके।

6. **फेडरेशन/प्रोड्यूसर कंपनी:** SHG&Federations/Producer Companiesबनाकर बड़े ठेके और सामूहिक विपणन सम्भव करें।

सीमाएँ

• यह पेपर मुख्यतः सेकेंडरी सार्वजनिक आँकड़ों पर आधारित सारांश है; जिलेवार और प्राथमिक सर्वे समर्थन से अधिक सटीक प्रभाव आकलन सम्भव है।

• आँकड़े रिपोर्ट–वार बदलते रहते हैं जला–स्तरीय नीति–निर्माण हेतु ताजा/डिस्ट्रिक्ट–लेवल डेटा आवश्यक होगा।

निष्कर्ष

निष्कर्ष रूप में कहा जा सकता है कि उत्तर प्रदेश में सूक्ष्म वित्त एवं स्वयं सहायता समूहों (SHGs) का विस्तार केवल संस्थागत पहुँच तक सीमित नहीं है, बल्कि यह ग्रामीण महिलाओं की आय, आजीविका सुरक्षा, वित्तीय समावेशन और सामाजिक सशक्तिकरण पर ठोस सकारात्मक प्रभाव डाल रहा है। SHG की संख्या, सदस्यता, बैंक–लिंकिंग, बचत और ऋण–वितरण जैसे संकेतक यह दर्शाते हैं कि बड़ी संख्या में गरीब ग्रामीण महिलाएँ औपचारिक वित्तीय प्रणाली से जुड़ी हैं और छोटे उद्यमों, कृषि व गैर–कृषि आधारित गतिविधियों के माध्यम से अपनी आय में वृद्धि कर रही हैं। समूह–आधारित बचत, आंतरिक उधार और बैंक ऋण ने उनके लिए सुरक्षा–जाल (मिजल दमज) का काम किया है, जबकि ठब सखी जैसे मॉडलों ने डिजिटल वित्तीय सेवाओं को घर–द्वार तक पहुँचाकर उनकी आर्थिक भागीदारी और निर्णय–क्षमता को मजबूत किया है। साहित्य समीक्षा और उपलब्ध आँकड़े यह संकेत देते हैं कि SHG–माइक्रोफाइनेंस मॉडल ने महिलाओं के आत्मविश्वास, पारिवारिक निर्णयों में भागीदारी और सामूहिक सौदेबाजी की शक्ति को भी सुदृढ किया है।

फिर भी, अध्ययन यह भी स्पष्ट करता है कि सूक्ष्म वित्त की प्रभावशीलता को अगले स्तर तक ले जाने के लिए कई संरचनात्मक एवं संचालनगत बाधाओं को दूर करना आवश्यक है। उच्च ब्याज दरें, अपर्याप्त ऋण राशि, लचीले पुनर्भुगतान विकल्पों का अभाव, सीमित वित्तीय साक्षरता, कमजोर लेखा–जोखा, बाजार व वैल्यू–चेन से अपर्याप्त जुड़ाव तथा पितृसत्तात्मक सामाजिक मान्यताएँ, ये सभी कारक महिलाओं के उद्यमों की वास्तविक संभावनाओं को सीमित करते हैं। अतः नीति स्तर पर ब्याज उपदान, क्रेडिट एन्हांसमेंट, सतत कौशल–विकास एवं वित्तीय साक्षरता कार्यक्रम, SHG–फेडरेशन और प्रोड्यूसर कंपनी मॉडल का सुदृढीकरण, डिजिटल बैंकिंग एवं बाजार संयोजन को बढावा देना अत्यंत आवश्यक है। इन हस्तक्षेपों के प्रभावी क्रियान्वयन से सूक्ष्म वित्त केवल ऋण–प्रदाय का उपकरण न रहकर, उत्तर प्रदेश की ग्रामीण महिलाओं के लिए दीर्घकालिक, समावेशी और टिकाऊ आर्थिक सशक्तिकरण की ठोस रणनीति बन सकता है।

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नियोजित शहरीकरण के विकास में स्मार्ट सिटी की भूमिका एवं महत्व :
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सार

उत्तराखण्ड राज्य की राजधानी देहरादून 100 वार्डों के साथ राज्य का सबसे बड़ा नगर निगम क्षेत्र हैं। जनपद देहरादून में राष्ट्रीय एवं राज्य स्तरीय कई राजकीय भवन एवं कार्यालय होने के कारण लोगों का आवागमन अत्यधिक होता है। जिससे देहरादून शहर का जन–घनत्व 4091 वर्ग किलोमीटर (संपूर्ण जनपद का 550 वर्ग किलोमीटर) में अत्यधिक वृद्धि हुई है। नगर निगम देहरादून में वर्तमान में 1,67,577 परिवार निवास करते हैं। नवीनतम परिसीमन के बाद नगर निगम देहरादून की जनसंख्या 8,03,983 है। नगर निगम देहरादून में फ्लोटिंग जनसंख्या (अस्थिर जनसंख्या) प्रतिदिन 20,000 से अधिक लोग नगर निगम क्षेत्र में आते हैं तथा 2000 से अधिक बाहरी लोग प्रतिदिन रात्रि निवास करते हैं। राजधानी होने के कारण देहरादून में अवस्थापना विकास बहुत तेजी से हुआ है। इसके अंतर्गत शैक्षणिक संस्थान, स्वास्थ्य सुविधाएं, रेलवे, एअरपोर्ट, सड़क मार्ग तथा होटलों आदि का वृहद निर्माण कार्य तेजी से हुए हैं। वर्तमान समय में आधुनिक एवं मूलभूत सुविधाओं के लिए सभी के द्वारा शहरों का रुख किया जाता है, जिससे शहरों में जनसंख्या का दबाव अत्यधिक हो गया है। आम जनमानस के जीवन को सुगम एवं सरल बनाने के लिए नियोजित शहरीकरण के उद्देश्य से जून, 2015 में भारत सरकार द्वारा स्मार्ट सिटी मिशन की शुरुआत की गई थी। इसके अंतर्गत जनता को स्मार्ट गवर्नेंस, सुगम आवागमन, सुगम आर्थिक गतिविधियों, सुगम जीवन यापन तथा सुगम पर्यावरणीय संयोजन आदि स्थापित करना सुनिश्चित किया गया था। यह अध्ययन नियोजित शहरीकरण के विकास में स्मार्ट सिटी की भूमिका एवं महत्व का अध्ययन करना तथा स्मार्ट सिटी से संबंधित प्रमुख समस्याएं एवं उनके निराकरण हेतु सुझाव एवं सतत् विकास लक्ष्यों के अनुरूप स्थायी शहरी विकास हेतु नीती निहितार्थ प्रस्तुत करता है। यह शोध पत्र विवरणात्मक पद्धति तथा द्वितीय आंकड़ों पर आधारित है। स्मार्ट सिटी कार्य योजना के क्रियान्वयन में मुख्यतया वित्तीय, विभागीय समन्वय,

तकनीक तथा पर्यावरण की चुनौतियों को उचित समन्वय स्थापित कर लोगों के दैनिक जीवन को सुगम तथा शहर की जीवन शैली को सरल तथा पर्यावरणीय दृष्टिकोण से अनुकूल बनाया जा सकता है।

मुख्य शब्द : नियोजित शहरीकरण, स्मार्ट सिटी, नगर निगम, अवस्थापना विकास, फ्लोटिंग जनसंख्या

प्रस्तावना

वर्तमान समय में शहरीकरण का तीव्र गति से प्रसार हो रहा है। यह तीव्र प्रसार मुख्यतया राजधानी, औद्योगिक तथा आवासीय क्षेत्रों में देखा जा रहा है। जीवन की मौलिक एवं भौतिक सुख सुविधाओं के लिए लोगों द्वारा शहरों की ओर पलायन किया जा रहा है। जिससे शहरों पर जनसंख्या का अत्यधिक दबाव बढ़ रहा है। शहरी क्षेत्रों में निवास कर रही बड़ी आबादी के जन जीवन को सुचारू एवं सुगम बनाने के लिए ही स्मार्ट सिटी का चिंतन सामने आया है। स्मार्ट सिटी के अंतर्गत लोगों को दैनिक दिनचर्या के अनुरूप क्रियाकलापों को स्मार्ट एवं सुगम तरीकों से विभिन्न आयामों के द्वारा स्मार्ट बनाना सुनिश्चित किया गया है। इसमें प्रौद्योगिकी का उपयोग करके जीवन को सरल बनाना, सुगम गवर्नेंस, पर्यावरणीय अनुकूल दिनचर्या/व्यवहार तथा स्मार्ट लिविंग जैसे विभिन्न आयाम शामिल है। स्मार्ट सिटी मिशन जून, 2015 में केंद्र सरकार के द्वारा प्रारंभ किया गया था। इसमें शहरी क्षेत्रों में निवास कर रही जनसंख्या को सरल जीवन देने का प्रयास किया गया है। नगर निगम देहरादून भी स्मार्ट सिटी मिशन के तहत केंद्र सरकार से नगर निगम क्षेत्र में विकास कार्यों हेतु अनुदान प्राप्त करता है तथा शहर में निर्माण कार्य वर्तमान समय तक गतिमान है। नगर निगम देहरादून शहर में 1.60 लाख से अधिक परिवार तथा 8 लाख से अधिक की जनसंख्या निवास करती है। वर्तमान में स्मार्ट सिटी कार्य योजना के क्रियान्वयन में कई प्रकार की चुनौतियां सामने आ रही हैं। जिनमें मुख्यतया वित्तीय, विभागीय समन्वय, तकनीक तथा सतत पर्यावरण की चुनौतियां प्रमुख हैं। नगर निगम देहरादून में आकस्मिक निर्माण कार्य, कूड़ा प्रबंधन, जल प्रबंधन, आवासीय प्रबंधन, सीवरेज, भूमि संबंधित विवाद तथा मलिन बस्तियों सहित कई प्रकार की चुनौतियां हैं, जिससे शहर के स्वास्थ्य पर प्रभाव पड़ता है। कुशल प्रबंधन, तय समय सीमा तक कार्य निष्पादन तथा पर्यावरण अनुकूल व्यवहारों को बढ़ावा देकर शहर के जन–जीवन को व्यवस्थित किया जा सकता है। विभागीय समन्वय एवं सहयोग विकास कार्यों को स्थायित्व प्रदान करने में मदद कर सकता है। वर्तमान अध्ययन के उद्देश्य इस प्रकार है–

(1) नियोजित शहरीकरण के विकास में स्मार्ट सिटी की भूमिका एवं महत्व का अध्ययन करना।

(2) स्मार्ट सिटी से संबंधित प्रमुख समस्याएं एवं उनके निराकरण हेतु सुझाव तथा सतत् विकास लक्ष्यों के अनुरूप स्थायी शहरी विकास हेतु नीती निहितार्थ प्रस्तुत करना है।

यह वर्णनात्मक अध्ययन द्वितीयक आंकड़ों पर आधारित है। नगर निगम देहरादून में निवास कर रही जनसंख्या को स्मार्ट सिटी के अंतर्गत किए जा रहे कार्यों से समुचित लाभ हो सके, इसके लिए प्रशासनिक

कुशल प्रबंधन एवं समन्वय के साथ–साथ स्वयं भी स्मार्ट नागरिक बनने का प्रयास किया जाना चाहिए तभी सभी के संयुक्त प्रयासों से स्मार्ट सिटी के चिंतन को वास्तविक रूप में धरातल पर उतारा जा सकता है।

साहित्य की समीक्षा

आशीष जोशी (2020) के अनुसार, भारत समेत पूरी दुनिया में तेजी से शहरीकरण हो रहा है और ज्यादा से ज्यादा लोग शहरों में रह रहे हैं। नतीजतन, शहरों को आर्थिक विकास और समृद्धि का अग्रदूत माना जाने लगा है। इसी तरह, इस तेज शहरीकरण के साथ–साथ शहरी प्रशासन की जटिलताएँ और जिम्मेदारियाँ भी बढ़ रही हैं, जो अपने सभी नागरिकों को सभ्य और रहने योग्य सरल परिस्थितियाँ प्रदान करने के लिए चुनौतियों का सामना कर रहा हैं। हालाँकि, इन बढ़ती जिम्मेदारियों और कर्तव्यों से प्रभावी ढंग से निपटने के लिए, केंद्र सरकार (CG) और राज्य सरकार (SG) सहित उच्च–स्तरीय सरकारों के लिए शहरी स्थानीय निकायों (ULB) (यानी स्थानीय सरकार (LG) का संस्थागत रूप) को अपेक्षित शक्तियां, कार्य और धनधवित्त प्रदान करना अनिवार्य है। देहरादून नगर निगम (डीएमसी) के वित्तीय प्रदर्शन के अध्ययन से संबंधित इस शोध पत्र से पता चलता है कि, यूएलबी, डीएमसी की जिम्मेदारियां काफी बढ़ गई हैं, लेकिन उनकी शक्तियों और धन/वित्त में कोई समान वृद्धि नहीं हुई है, जिससे उनकी प्रभावी ढंग से प्रदर्शन करने और आवश्यक सेवाएं प्रदान करने की क्षमता गंभीर रूप से बाधित हुई है। इसके मुख्य कारण जिसमें प्रशासनिक, वित्तीय और राजनीतिक कारण शामिल थे। प्रशासनिक कारणों में मुख्य रूप से यूएलबी, डीएमसी के पास पर्याप्त स्टाफ/कार्मिक (विशेष रूप से कुशल/प्रशिक्षित कार्मिक) की कमी शामिल थी। वित्तीय कारणों में मुख्य रूप से यूएलबी, डीएमसी को सौंपी गई अपर्याप्त वित्तीय स्वायत्तता शामिल थी, जिसके परिणामस्वरूप यह धन/वित्त के लिए एसजी पर भारी निर्भर है। अध्ययन में सिफारिश की गई है, यूएलबी को कार्यों का पर्याप्त हस्तांतरण, नियमित प्रशिक्षण/कार्यशालाओं के माध्यम से उनकी क्षमताओं में वृद्धि के साथ–साथ उनके मानव संसाधनों में वृद्धि और उनके वित्त में वृद्धि प्रमुख है। हालाँकि, यू.एल.बी. का विकेंद्रीकरण और सशक्तिकरण एक राजनीतिक प्रक्रिया है, इसलिए इन सिफारिशों के कार्यान्वयन के लिए केंद्रीय/राज्य/स्थानीय प्रतिनिधियों के बीच अपेक्षित राजनीतिक इच्छाशक्ति की आवश्यकता होगी, जिससे अधिक स्थानीय भागीदारी और निर्णय लेने के प्रति प्रतिबद्ध रहने की उम्मीद की जाती है। डीएमसी के खराब वित्तीय प्रदर्शन के लिए मुख्य रूप से तीन कारण प्रशासनिक, वित्तीय और राजनीतिक है। **अनीता जोशी आदि (2020)** के अनुसार, उत्तराखंड के शहरी स्थानीय निकाय ठोस अपशिष्ट प्रबंधन की समस्या का सामना कर रहे हैं। राज्य में उक्त समय तक केवल दो ठोस अपशिष्ट संयंत्र हैं। देहरादून के नाथुआवाला वार्ड में विकेन्द्रीकृत पद्धति से ठोस अपशिष्ट प्रबंधन प्रक्रिया शुरू की गई है, जिसकी जनसंख्या 13000 है। इस ठोस अपशिष्ट प्रसंस्करण क्षेत्र को ''स्वच्छता पार्क'' नाम दिया गया है। शोधकर्ताओं ने पाया है कि इस क्षेत्र में ठोस अपशिष्ट नियम 2016 के अनुसार व्यवस्थित तरीके

से वैज्ञानिक तरीके से कचरे का निपटान किया जाता है। विकेन्द्रीकृत पद्धति आर्थिक रूप से टिकाऊ है तथा ठोस अपशिष्ट प्रबंधन प्रक्रिया के लिए उत्तराखंड के शहरी स्थानीय निकायों द्वारा इसे अपनाया जा सकता है। यह परियोजना पूरे भारत में अन्य शहरी स्थानीय निकायों के लिए एक आदर्श बन सकती है। स्वच्छता का सीधा संबंध जन स्वास्थ्य से है और सरकार द्वारा समाज को अनेक प्रकार की स्वास्थ्य संबंधी सुविधाएं प्रदान की जाती हैं, लेकिन मूल रूप से जन स्वास्थ्य स्वच्छता से जुड़ा हुआ है। सामान्य तौर पर, स्वच्छता शहरी स्तर पर नगर निगम, नगर पालिका परिषद और नगर पंचायत तथा ग्रामीण स्तर पर ग्राम पंचायत और जिला पंचायत जैसे स्थानीय निकायों की जिम्मेदारी है। हालांकि निकाय क्षेत्रों में शिक्षा, जन्ममृत्यु का पंजीकरण, स्ट्रीट लाइट, शहरों / कस्बों में आंतरिक सड़कों और नालियों का निर्माण आदि जैसी कई सेवाओं के लिए जिम्मेदार हैं, लेकिन स्वच्छता पर स्थानीय निकायों का मुख्य ध्यान है। **कुमार (2010)** ने शहरी ठोस अपशिष्ट पर एक उच्च शक्ति समिति की रिपोर्ट का संकेत दिया है। स्वच्छता पार्क में ठोस अपशिष्ट प्रबंधन की सफलता के लिए जिम्मेदार कारक हैं– अपशिष्ट प्रबंधन प्रक्रिया का विकेंद्रीकरण, अपशिष्ट प्रबंधन के लिए सार्वजनिक शिक्षा, स्रोत पृथक्करण और डोर टू डोर संग्रहण, सामुदायिक भागीदारी, वैज्ञानिक ठोस अपशिष्ट प्रबंधन में विशेषज्ञता वाले एनजीओ की भागीदारी सुनिश्चित की जाए। सार्वजनिक शिक्षा अभियान समुदाय के व्यवहार को बदलने में सहायक होते हैं। **जोशी और अहमद (2016)** ने यह भी ध्यान केंद्रित किया है कि भारत में नगरपालिका ठोस अपशिष्ट प्रबंधन के तहत पीपीपी मोड सफल नहीं है। महानगरों में विकेन्द्रीकृत ठोस अपशिष्ट इकाइयों की स्थापना समय की मांग है। यह पायलट परियोजना सफल अपशिष्ट प्रबंधन प्रक्रिया का एक उदाहरण है। अध्ययन में यह भी सुझाव दिया गया है कि विज्ञान विषय में 10 अंकों का प्रोजेक्ट कार्य शामिल किया जाना चाहिए ताकि दृष्टिकोण और कौशल विकसित किया जा सके जिससे भावी पीढ़ी का व्यवहार ठोस अपशिष्ट प्रबंधन के प्रति बदला जा सके। **मिश्रा (2015)** के अनुसार, स्मार्ट सिटी मिशन शहरी सेवाओं के डिजिटल प्रबंधन और यातायात नियंत्रण में महत्वपूर्ण भूमिका निभाता है। **शर्मा एवं सिंह (2016)** के अनुसार, स्मार्ट तकनीकों के उपयोग से शहरी शासन (Urban Governance) अधिक पारदर्शी होता है। **कपूर (2017)** ने निष्कर्ष निकाला कि स्मार्ट सिटी परियोजनाएँ कचरा प्रबंधन और स्वच्छता सुधार के लिए उपयोगी हैं। **अग्रवाल (2017)** ने कहा कि योजनाबद्ध शहरी विकास के लिए GIS आधारित भूमि–उपयोग प्रबंधन आवश्यक है। **खन्ना (2018)** के अनुसार, स्मार्ट सिटी विकास नागरिक सहभागिता एवं ई–गवर्नेंस को बढ़ावा देता है। **ठाकुर (2018)** के अनुसार, स्मार्ट परिवहन प्रणाली को ट्रैफिक जाम और प्रदूषण नियंत्रण में प्रभावी बताया गया। **सिंह व यादव (2019)** के अनुसार, बेहतर जल संसाधन प्रबंधन स्मार्ट सिटी का महत्वपूर्ण घटक है। **दत्ता (2019)** ने शहरी सुरक्षा और CCTV आधारित निगरानी तंत्र की उपयोगिता पर जोर दिया। **हुसैन (2020)** के अनुसार, स्मार्ट सिटी मिशन का आर्थिक विकास एवं रोजगार सृजन पर सीधा प्रभाव पड़ता है। **राय (2021)** ने हरित भवन निर्माण और नवीकरणीय ऊर्जा को स्मार्ट शहरीकरण के मुख्य आधार बताया। **चौधरी (2022)** के अनुसार, स्मार्ट स्वास्थ्य सेवाएँ और डिजिटल हेल्थ रिकॉर्ड शहर वासियों के लिए

लाभकारी हैं। **नेगी (2023)** ने विशेष रूप से देहरादून में स्मार्ट सिटी परियोजनाओं जैसे स्मार्ट रोड, प्ब्डे और डीजी–गवर्नेंस को शहरी जीवन–स्तर उन्नयन में महत्वपूर्ण माना।

शोध विधि

इस शोध पत्र में द्वितीयक आंकड़ों का विवरणात्मक विश्लेषण किया गया है। द्वितीयक समंकों का एकत्रीकरण नगर निगम देहरादून, उत्तराखंड सरकार के स्मार्ट सिटी से संबंधित विभिन्न विभागों, शोध पत्र, पत्रिकाओं, समाचार पत्रों के आलेख, विभिन्न संस्थाओं की आधिकारिक वेबसाइट्स, भारत सरकार के आधिकारिक विभागों की वेबसाइट्स तथा इंटरनेट आर्टिकल्स के माध्यम से किया गया है।

नियोजित शहरीकरण के विकास में स्मार्ट सिटी की भूमिका एवं महत्व

नगर निगम देहरादून शहर को भारत सरकार के स्मार्ट सिटी मिशन के अंतर्गत चुना गया है। स्मार्ट सिटी पहल का उद्देश्य है– शहरों में बुनियादी अवसंरचना में सुधार, आईटी–आधारित सेवाएँ, नियोजित शहरी विस्तार, सार्वजनिक हित के लिए जीआईएस/डेटा–आधारित निर्णय और जीवन–स्तर को बढ़ाना। नगर निगम देहरादून व देहरादून स्मार्ट सिटी लिमिटेड (DSCL) जैसी संस्थाएँ इन परियोजनाओं को संचालित कर रही हैं। नियोजित शहरीकरण के विकास में स्मार्ट सिटी की महत्वपूर्ण भूमिका है। विभिन्न क्षेत्रों में इसकी भूमिका एवं महत्व का विवरण प्रस्तुत किया गया है।

इंटीग्रेटेड कमांड एंड कंट्रोल सेंटर (ICCC) : नगर निगम देहरादून में इंटीग्रेटेड कमांड एंड कंट्रोल

सेंटर स्मार्ट सिटी मिशन के अंतर्गत सुरक्षा, यातायात प्रबंधन और नगर सेवाओं के बेहतर समन्वय के लिए स्थापित किया गया है। नगर निगम क्षेत्र में 650 सीसीटीवी कैमरों से रियल–टाइम मॉनिटरिंग, आपातकालीन परिस्थितियों में प्रतिक्रिया और ई–गवर्नेंस से जुड़ी सेवाओं का डेटा नियंत्रित किया जाता है। इसके अंतर्गत ट्रैफिक सिग्नल इंटीग्रेशन, कचरा वाहनों की ट्रैकिंग, डिजास्टर मैनेजमेंट सिस्टम जैसी सुविधाएँ भी शामिल हैं। इससे शहरी प्रशासन की जवाबदेही, सुरक्षा प्रबंधन, और अपराध नियंत्रण में उल्लेखनीय सुधार देखने को मिला है। भविष्य में अधिक आईओटी (IoT) उपकरण जोड़कर इसकी क्षमता बढ़ाने की आवश्यकता है।

स्मार्ट स्ट्रीट लाइटिंग : नगर निगम देहरादून में एलईडी आधारित स्मार्ट स्ट्रीट लाइट प्रणाली लागू

की गई है, जिसमें लगभग 60,000 लाइटों के प्रतिस्थापन का लक्ष्य रखा गया है। वर्तमान समय तक 45,000 एलईडी लाइटें स्थापित हो चुकी हैं, जबकि शेष कार्य तीव्र से किया जा रहा है। इस प्रणाली में आटोमैटिक ऑन/ऑफ सेंसर और रिमोट मॉनिटरिंग जैसी सुविधाएँ शामिल हैं, जिससे विद्युत खपत में लगभग 30 प्रतिशत की बचत हुई है। इससे नगर के प्रमुख मार्गों में रात्रिकालीन सुरक्षा और दृश्यता में

सुधार हुआ है। यह परियोजना ऊर्जा संरक्षण और पर्यावरणीय स्थायित्व की दिशा में महत्वपूर्ण योगदान दे रही है।

स्मार्ट मोबिलिटी एवं सड़क सुधार : स्मार्ट मोबिलिटी के तहत लगभग 80 किलोमीटर सड़क नेटवर्क का पुनर्विकास किया जा रहा है, जिसमें पैदल–मार्ग, साइकिल ट्रैक, बस–स्टॉप सुधार और संकेतक व्यवस्था शामिल है। 50 प्रतिशत कार्य पूर्ण किया जा चुका है तथा शेष कार्य प्रगति पर है। नगर निगम क्षेत्र के कई महत्वपूर्ण चौराहों पर आधुनिक ट्रैफिक सिग्नल और निगरानी कैमरे लगाए गए हैं। इससे यातायात प्रबंधन बेहतर हुआ है और पैदल यात्रियों की सुरक्षा बढ़ी है। इसका उद्देश्य निजी वाहनों की निर्भरता कम करना और सार्वजनिक परिवहन को अधिक सुलभ एवं व्यवस्थित बनाना है जिससे शहरी गतिशीलता को स्थायी और नियोजित ढंग से विकसित किया जा सके।

जल आपूर्ति सुधार एवं मीटरिंग : स्मार्ट सिटी के अंतर्गत देहरादून शहर में पाइपलाइन रिन्यूवल, स्मार्ट वाटर मीटरिंग और जल–हानि (Leakage) नियंत्रण पर कार्य किया जा रहा है। परियोजना के प्रथम चरण में नेटवर्क सुधार प्रारंभ हो चुका है, जबकि पूर्ण मीटरिंग लागू होने की दिशा में कार्य प्रगति पर है। इसका लक्ष्य 20 प्रतिशत तक पानी की बर्बादी में कमी लाना और नियमित, समान जल–वितरण सुनिश्चित करना है। यह परियोजना शहरी जनसंख्या वृद्धि के बीच दीर्घकालिक जल–सुरक्षा सुनिश्चित करने के लिए अत्यंत महत्वपूर्ण है।

सीवरेज एवं ड्रेनेज प्रबंधन : शहर में सीवरेज नेटवर्क विस्तार, पुरानी लाइनों के नवीनीकरण और एसटीपी (Sewage Treatment Plant) क्षमता वृद्धि पर कार्य किया जा रहा है। लगभग 35 प्रतिशत कार्य पूर्ण किया जा चुका है, जबकि मुख्य विस्तारीकरण जारी है। इसके अंतर्गत नगर निगम क्षेत्र में 100 प्रतिशत सीवरेज कवरेज प्राप्त करना और नालों से प्रदूषित जल प्रवाह को रोकना है। इससे नदी प्रदूषण कम होगा और शहरी स्वच्छता स्तर में व्यापक सुधार आएगा।

ठोस कचरा प्रबंधन : नगर निगम देहरादून में ठोस कचरा प्रबंधन के अंतर्गत डोर–टू–डोर कचरा संग्रहण, स्रोत पर कचरा विभाजन और कचरा प्रोसेसिंग प्लांटों को मजबूत करने पर कार्य किया जा रहा है। वर्तमान क्षमता लगभग 450 मी.टन/दिन है तथा शहर में लगभग 60 प्रतिशत कवरेज प्राप्त हो चुकी है। सभी वार्डों में यह कार्य तेजी से विस्तारित किया जा रहा है। डिजिटल ट्रैकिंग सिस्टम के प्रयोग से निगरानी और शिकायत निवारण में भी सुधार हुआ है। शहर को कूड़ा मुक्त बनाने तथा प्लास्टिक प्रदूषण कम करने के लिए यह पहल महत्वपूर्ण है, हालांकि व्यवहारिक परिवर्तन और इंफ्रास्ट्रक्चर विस्तार की भी आवश्यक है।

ई–गवर्नेंस एवं डिजिटल सेवाएँ : देहरादून शहर में ई–गवर्नेंस के अंतर्गत नगर निगम की अधिकांश नागरिक सेवाएँ डिजिटल मोड में उपलब्ध कराई गई हैं, जैसे– हाउस टैक्स भुगतान, जन्म–मृत्यु प्रमाणपत्र,

ऑनलाइन शिकायत प्रणाली, संपत्ति रिकॉर्ड और ट्रैफिक व निगरानी सेवाओं से जुड़ा डैशबोर्ड आदि प्रमुख हैं। इसके अलावा 50 सेवाओं का एकीकृत ऑनलाइन प्लेटफॉर्म और मोबाइल एप विकसित किया गया हैं। इससे नागरिकों को कार्यालयों के चक्कर कम लगाने पड़ते हैं और पारदर्शी शासन स्थापित हुआ है। इंटीग्रेटेड कमांड एंड कंट्रोल सेंटर के साथ इसकी कनेक्टिविटी से रियल–टाइम निर्णय संभव हुआ है। आगामी वर्षों में ब्लॉकचेन/एआई आधारित स्मार्ट सर्विस डिलीवरी और 100 प्रतिशत पेपर–लेस शहरी प्रशासन की अपेक्षा की जा सकती है।

ग्रीन स्पेस एवं सिटी ब्यूटीफिकेशन : स्मार्ट सिटी मिशन के अंतर्गत शहर के सार्वजनिक स्थलों के सौंदर्यीकरण और हरित क्षेत्र में वृद्धि पर विशेष ध्यान दिया जा रहा है। पार्कों का नवीनीकरण, साइकिल–अनुकूल हरित कॉरिडोर, रिवरफ्रंट सुधार और पौधारोपण जैसी गतिविधियाँ संचालित की जा रही हैं। लगभग 20 पार्कों का पुनर्विकास हो चुका है तथा 45 हेक्टेयर से अधिक हरित आवरण में वृद्धि दर्ज की गई है। इन प्रयासों से नागरिकों को मनोरंजन व स्वास्थ्य के बेहतर अवसर मिले हैं तथा शहर के माइक्रो–क्लाइमेट पर भी सकारात्मक प्रभाव पड़ा है। आगामी वर्षों में ग्रीन कनेक्टिविटी को विस्तारित कर नियोजित शहरीकरण के विकास को सतत बनाना लक्ष्य होना चाहिए।

वाईफाई एवं डिजिटल कनेक्टिविटी : देहरादून शहर में सार्वजनिक इंटरनेट उपलब्धता बढ़ाने के लिए शहर के प्रमुख बाजारों, बस स्टैंडों और भीड़भाड़ वाले क्षेत्रों में 60 स्मार्ट वाई–फाई हॉटस्पॉट स्थापित किए गए हैं। इस सुविधा से नागरिकों, पर्यटकों और विद्यार्थियों को डिजिटल सेवाओं तक आसान पहुँच मिली है। यह सुविधा ई–गवर्नेंस सिस्टम, स्मार्ट मोबिलिटी और सीसीटीवी निगरानी की कनेक्टिविटी में भी सहायक है। इस योजना का चरणबद्ध तरीके से विस्तार कर के भविष्य में सभी 100 वार्डों को इसमें जोड़ा जाना चाहिए। इसका लक्ष्य शहर को डिजिटल–फ्रेंडली, ज्ञान आधारित और इनोवेशन–आधारित शहरी केन्द्र के रूप में विकसित करना है।

डिजास्टर एवं फायर मैनेजमेंट : जनपद देहरादून भूकंप संवेदनशील क्षेत्र के अंतर्गत आता है, इसलिए स्मार्ट सिटी मिशन के तहत आईओटी आधारित आपदा प्रबंधन सिस्टम लागू किया गया है। इंटीग्रेटेड कमांड एंड कंट्रोल सेंटर से फायर–ब्रिगेड और आपातकालीन सेवाओं की रियल–टाइम मॉनिटरिंग की जाती है, जिससे प्रतिक्रिया समय में 15–20 प्रतिशत सुधार हुआ है। कई महत्वपूर्ण स्थानों पर अग्नि–सुरक्षा उपकरण, अलार्म सिस्टम, जीपीएस ट्रैकिंग और हाई–टेक संचार प्लेटफॉर्म स्थापित किए गए हैं। इसका उद्देश्य आपात स्थितियों में जोखिम और जनहानि को न्यूनतम करना है। भविष्य में ड्रोन/एआई आधारित प्रारंभिक चेतावनी प्रणाली और तेज इंटर–एजेंसी समन्वय को अधिक मजबूत किए जाने की आवश्यकता हैं।

नियोजित शहरीकरण के विकास में स्मार्ट सिटी की भूमिका के अंतर्गत विभिन्न क्षेत्रों में उपरोक्त कार्यों के अतिरिक्त नियोजित भूमि उपयोग (Planned land-use)—जीआईएस और मास्टर—प्लान के माध्यम से अवैधानिक विस्तार को नियंत्रित करना, इन्फ्रास्ट्रक्चर अपग्रेड — सड़क, सीवर, जलापूर्ति, ड्रेनेज का समन्वित सुधार, ट्रैफिक और मोबिलिटी—स्मार्ट ट्रैफिक मैनेजमेंट, पार्किंग सिस्टम, पब्लिक ट्रांसपोर्ट इंटीग्रेशन, सिस्टमाइज्ड वेस्ट मैनेजमेंट— स्रोत—विभाजन, ट्रैकिंग, सीबीडब्ल्यू (CBW) समाधान, डिजिटल—गवर्नेंस— ऑनलाइन सेवाएँ, मोबाइल एप, ई—पेमेंट, जीआईएस आधारित शिकायत निवारण, सस्टेनेबिलिटी—कुशल ऊर्जा प्रबंधन, जल—संरक्षण परियोजनाएँ, जल प्रदाय व वेस्ट मैनेजमेंट आदि क्षेत्रों में उच्च स्तर पर किया जा रहा हैं। नियोजित शहरी विकास को जीआईएस आधारित मास्टर प्लान, इंटीग्रेटेड कमांड एंड कंट्रोल सेंटर आधारित निर्णय—निर्धारण और हरित/पर्यावरणीय सुधार परियोजनाओं से मजबूती मिली है।

निष्कर्ष एवं सुझाव

नियोजित शहरीकरण के विकास में स्मार्ट सिटी की महत्वपूर्ण भूमिका रही है। नगर निगम देहरादून में 1. 60 लाख से अधिक परिवार तथा 8 लाख से अधिक जनसंख्या निवास करती है। देहरादून में स्मार्ट सिटी मिशन के अंतर्गत गतिशीलता सुधार, डिजिटल प्रशासन, पर्यावरण संरक्षण तथा निगरानी एवं सुरक्षा जैसे क्षेत्रों में उल्लेखनीय प्रगति हुई है। स्मार्ट सड़कें, इंटीग्रेटेड कमांड कंट्रोल सेंटर (ICCC), एलईडी स्ट्रीट लाइटिंग, स्मार्ट पार्किंग, सॉलिड वेस्ट मैनेजमेंट और ई—गवर्नेंस जैसे प्रोजेक्ट नियोजित शहरी विकास की दिशा में सहायक सिद्ध हुए हैं। परियोजनाओं से जहाँ एक ओर यातायात प्रबंधन, स्वच्छता, सुरक्षा और नागरिक सेवाओं में सुधार हुआ है, वहीं दूसरी ओर नए बुनियादी ढाँचों ने कनेक्टिविटी, निवेश, पर्यटन और पर्यावरणीय गुणवत्ता को बढ़ावा दिया है। हालांकि कुछ परियोजनाएँ अपेक्षित समय पर पूर्ण नहीं हो पाई हैं, जो यह दर्शाता है कि भूमि अधिग्रहण, वित्तीय आवंटन और तकनीकी क्षमता निर्माण जैसे अवरोध अभी मौजूद हैं। इसके बावजूद, स्मार्ट सिटी मिशन ने देहरादून शहर को टेक्नोलॉजी—आधारित, सहभागी एवं स्थायी शहरी मॉडल के रूप में विकसित होने में महत्वपूर्ण भूमिका निभाई है। शहरी सेवाओं का डिजिटलीकरण, सार्वजनिक परिवहन का उन्नयन, स्मार्ट अवसंरचना का विकास और हरित क्षेत्रों का विस्तार इन सभी ने शहर के जीवन—स्तर में सुधार किया है। इससे शासन—प्रशासन में पारदर्शिता, दक्षता एवं नागरिक सहभागिता बढ़ी है। स्मार्ट सिटी के चिंतन का मूल उद्देश्य स्मार्ट सिटी को शहरीकरण का प्रकाश स्तंभ के रूप में प्रस्तुत करना है। स्मार्ट सिटी के अन्तर्गत सीवर लाइन, कूड़ा प्रबंधन, सड़क, ट्रैफिक, पार्किंग, वायु प्रदूषण, स्ट्रीट लाइट, असमय कूड़ा उठान, सार्वजनिक शौचालय, सफाई कर्मचारी (पर्यावरण मित्रों) का उचित सम्मान, अवैध नशा तस्कर, स्मार्ट सिटी प्रोजेक्ट के अधूरे व अनियमित निर्माण कार्य, बिजली, पानी, शिक्षा, स्वास्थ्य, स्वरोजगार, साइबर ठगी एवं मलिन बस्तियों आदि से संबंधित प्रमुख समस्याएं हैं।

इन समस्याओं का समुचित एवं सुनियोजित तरीके से प्रबंधन के द्वारा निस्तारण किया जा सकता है। नगर निगम क्षेत्र में अवस्थापना के कार्यों को व्यवस्थित एवं नियोजित तरीके से सम्पन्न कराने हेतु उचित विमर्श एवं पर्यावरण अनुकूलन के साथ सामंजस्य स्थापित करना आवश्यक है। शहरी जीवन को सुगम बनाने के लिए स्मार्ट सिटी परियोजना से लाभ लेकर शहरी भाग दौड़ में सरल, सुव्यवस्थित जीवन यापन करना संभव हो सकता है।

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