



CUTTING-EDGE RESEARCH IN COMMERCE AND MANAGEMENT: A TECHNOLOGY PERSPECTIVE

Sustainability, Green Enterprises & Socioeconomic Perspectives



Dr. V. DHEENADHAYALAN

**CUTTING-EDGE RESEARCH IN COMMERCE AND
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Socioeconomic Perspectives**

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PREFACE

In an era defined by ecological urgency, digital disruption, and shifting social paradigms, the pursuit of sustainability in commerce and management is no longer optional—it is imperative. This edited volume, *Cutting-Edge Research in Commerce and Management: A Technology Perspective – Sustainability, Green Enterprises & Socioeconomic Perspectives*, brings together a compelling array of research that reflects the evolving priorities of businesses, institutions, and communities striving to balance profitability with purpose.

The chapters in this volume span a rich spectrum of inquiry—from green business models and circular economy frameworks to microfinance innovations and the rise of eco-conscious consumer behavior. Scholars explore how digital connectivity, predictive analytics, and emerging technologies like the metaverse are reshaping global trade, tourism, and retail ecosystems. At the same time, the volume delves into deeply human concerns: the empowerment of working women, the dynamics of work-life balance, and the cultural factors influencing organizational performance in education and enterprise.

Special attention is given to the Indian context, with empirical studies on consumer behavior at Reliance Trends, social media advertising in Chennai's organic skincare market, and the challenges of green entrepreneurship in beauty salons. These contributions offer both local relevance and global resonance—highlighting how sustainability intersects with socioeconomic realities, technological innovation, and ethical business practice.

This volume also foregrounds the role of governance, knowledge mapping, and digital infrastructure in enabling responsible growth. Whether examining the jewelry-buying behavior of women in Karnataka or the satisfaction levels of students using Meta AI in Marthandam, each study contributes to a nuanced understanding of how commerce and management can evolve toward inclusivity, resilience, and environmental stewardship.

We extend our sincere gratitude to the contributors whose research, insights, and commitment to sustainable scholarship have shaped this volume. Their work reflects the intellectual rigor and visionary thinking needed to navigate the complexities of the 21st-century business landscape.

It is our hope that this book serves as a resource and catalyst—for academics, policymakers, entrepreneurs, and students—who seek to reimagine commerce not just as a vehicle for economic gain, but as a force for social equity and ecological harmony.

Dr. V. Dheenadhayan
Editor
Tiruttani, India
September, 2025

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CHAPTER 1

GREEN BUSINESS MODELS & SUSTAINABILITY: BALANCING PROFITABILITY AND ECO-CONSCIOUSNESS

Dr. S. Bhuvaneshwari

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Abstract

Green business models address global challenges like climate change, pollution, and resource depletion by minimizing carbon emissions, promoting ecological stability, and fostering social responsibility. These models integrate economic success with environmental stewardship, focusing on sustainable practices, ethical sourcing, and open operations. They offer cost savings, enhanced brand loyalty, environmental regulations compliance, green financing opportunities, and reduced risk. Balancing profitability and eco-consciousness requires long-term decision-making and strategies like life cycle thinking.

Keywords: *Green business models, carbon emissions, ecological stability, and fostering social responsibility.*

Introduction to Green Business

In recent years, there has been a growing awareness regarding climate change, pollution, resource depletion, and social inequality. These worldwide challenges have compelled businesses to move beyond conventional profit-driven models and embrace more sustainable and responsible practices.

Eco-friendly enterprises have surfaced as a significant response to these challenges. They aim not only to minimize their carbon emissions and environmental effects but also to innovate in ways that promote long-term ecological stability and societal welfare. Whether through the use of renewable energy, the implementation of sustainable packaging, the support of local communities, or the development of circular products—eco-friendly enterprises are transforming the future of commerce.

In the contemporary landscape, enterprises are evaluated not solely based on their financial gains but also on the influence they exert—on the environment, on individuals, and on generations to come. As the climate emergency escalates and awareness regarding environmental issues grows, organizations face mounting pressure to implement sustainable practices. This is where eco-friendly business models become relevant—providing an intelligent and conscientious approach to harmonizing economic development with ecological stewardship.

Definition of Green Business

A green business, often referred to as a sustainable or eco-friendly enterprise, is one that functions in a manner that reduces environmental impact, conserves natural resources, and fosters social responsibility, all while remaining financially viable. These enterprises incorporate environmental and ethical factors into their everyday operations, supply chains, products, and services.

In short, green businesses strive to "achieve success through positive impact" – merging financial achievement with environmental stewardship and community advantage.

Green Business Model

A Green Business Model refers to a method of operating a business that integrates economic success with environmental stewardship. In contrast to conventional models that prioritize profits alone, green business models strive to:

- Minimize environmental impact
- Utilize resources effectively
- Generate long-term societal value
- Maintain profitability and competitiveness in the marketplace

These models are founded on the principle that benefiting the planet can simultaneously benefit business.

A green business model is one that incorporates sustainability into the fundamental aspects of how a company generates, delivers, and captures value. It transcends minor modifications or isolated eco-friendly initiatives; rather, it involves a comprehensive re-evaluation of the entire business structure to guarantee that growth does not compromise environmental integrity.

These models depend on strategies such as:

- Utilizing renewable resources
- Reducing waste through circular economy principles
- Implementing energy-efficient manufacturing processes
- Designing eco-friendly products
- Ensuring responsible sourcing and ethical labour practices

By concentrating on these strategies, companies can achieve long-term cost reductions (for instance, through energy savings and waste minimization), evade regulatory penalties, and cultivate customer loyalty – particularly from the increasing number of consumers who emphasize sustainability in their buying choices.

Crucially, sustainability also fosters innovation. When companies push themselves to identify greener operational methods, they frequently uncover new business prospects, product categories, or markets. For instance, transitioning to a product-as-a-service model not only diminishes waste but also establishes a recurring revenue stream. Similarly, opting for biodegradable packaging may incur higher initial costs but appeals to environmentally aware consumers, providing the company with a distinctive competitive advantage.

Furthermore, sustainable companies generally exhibit superior long-term performance. Investors are progressively favoring firms with robust ESG (Environmental, Social, and Governance) credentials, acknowledging that these organizations are more adept at navigating future risks and adapting to market fluctuations.

Key Characteristics of Eco-Friendly Business Models:

1. Environmentally Conscious Products or Services

Products are crafted to minimize environmental harm—reusable, recyclable, biodegradable, or energy-efficient.

2. Sustainable Manufacturing and Operations

Companies utilize renewable energy, minimize waste, conserve water, and reduce carbon emissions throughout production and distribution.

3. Circular Economy Model

Rather than adhering to the "take-make-waste" paradigm, green enterprises embrace a cycle of: reduce, reuse, repair, refurbish and recycle.

Example: A firm that collects and repurposes old electronics.

4. Sustainable Supply Chain

Materials are sourced ethically, and suppliers also engage in sustainable practices.

5. Open and Ethical Operations

Green businesses provide transparent communication regarding their environmental impact and adhere to ethical labour standards.

Advantages of Green Sustainable Business Models:

- Cost savings (e.g., through energy efficiency)
- Enhanced brand loyalty among environmentally aware consumers
- Adherence to environmental regulations
- Opportunities for green financing and investors
- Decreased risk amid climate-related challenges

The Connection between Sustainability and Business Expansion

There exists a prevalent misconception that sustainability leads to higher expenses and diminished profits. Nevertheless, numerous companies have demonstrated the contrary. By committing to clean energy, minimizing waste, and adopting sustainable sourcing practices, businesses can:

- Decrease operational expenses
- Mitigate risks (regulatory, environmental, reputational)
- Foster enhanced customer loyalty
- Draw in investors who prioritize sustainability

Indeed, sustainability is progressively recognized as a catalyst for innovation and a source of competitive edge in contemporary markets.

Balancing Profitability and Eco-Consciousness

Achieving an optimal equilibrium between generating profit and being environmentally conscious requires thoughtful, long-term decision-making. Several effective strategies include:

Life cycle thinking: Minimizing impact from the extraction of raw materials to the product's end-of-life.

Green product innovation: Creating products that are not only functional but also environmentally friendly.

Energy efficiency: Reducing energy consumption leads to savings in both costs and emissions.

Sustainable logistics: Enhancing transportation methods to lessen carbon footprints.

Transparent reporting: Communicating sustainability initiatives fosters consumer trust.

By integrating environmental objectives with business goals, organizations can generate shared value for both stakeholders and society.

The contemporary business environment requires more than mere financial success – it necessitates accountability, innovation, and an understanding of the extensive influence that companies exert on their surrounding world. Green business models have emerged as a robust framework through which organizations can function effectively while tackling urgent environmental and social issues.

These models prompt companies to reassess their strategies, invest in sustainable technologies, redesign products with ecological considerations, and implement ethical practices across their operations. Rather than adhering to a linear model of consumption and waste, businesses are now investigating regenerative and circular methods that prolong product life cycles and minimize waste.

The connection between ecological consciousness and business success is no longer perceived as contradictory. In fact, enterprises that operate with environmental insight frequently uncover new markets, lower long-term expenses, cultivate customer loyalty, and receive backing from stakeholders who value responsible decision-making. This transformation signifies a more resilient and flexible approach to navigating uncertain conditions.

In the end, the future of industry hinges on rethinking value – where success is gauged not only by profit margins but also by the beneficial impacts made on the planet and society. Green business models present a pragmatic and progressive approach to redefining advancement, ensuring that economic activities can persist without compromising the very systems that sustain life.

Conclusion

In an era where environmental conservation and ethical accountability are paramount, green business models have surfaced as a crucial avenue for progress. They demonstrate that it is not only feasible – but frequently advantageous – for organizations to harmonize financial achievement with ecological stewardship. By implementing sustainable methods, companies not only minimize their environmental impact but also improve operational efficiency, foster consumer confidence, and secure enduring growth.

The equilibrium between profitability and eco-consciousness has transformed from a challenge into a significant opportunity. It empowers businesses to innovate, act

responsibly, and make substantial contributions to a greener, more sustainable future. Organizations that adopt this equilibrium today are poised to become the frontrunners of tomorrow's economy, illustrating that purpose and profit can indeed flourish together.

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CHAPTER 2

PROBLEM AND PROSPECTS OF WORKING WOMEN IN THE BANKING SECTOR

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Abstract

Today banking sector growing faster. Banking industry plays a vital role in strengthen country's economy. The banking industry has been a powerful determinant of the empowerment of working women in access to equal opportunities in the workplace and defin ing their identity in the society. The banking industry depends largely on the human resources, women also being an important part of this. Women are naturally endowed with the capacity to relate to people and provide service with empathy and compassion. When women are provided with the same opportunities for career growth, skill acquisition and leadership as their male counterparts, it creates a sense of quality and confidence. This research focuses on identify the difficulties encounter by women employed in the banking, such as common gender discrimination, work-life balance issues and poor support systems for motherhood, flexible work practices and leadership development programs designed to empower women to achieve greater goal in the banking industry, women-friendly environment, etc.,

Keyword: *Banking sector; Working women; Work-life; Job satisfaction.*

Introduction

The banking landscape in our country comprises both public sector banks and private sector banks. The banking industry is now growing faster, which has resulted to increase in the working hours by women in order to sustain their lifestyle and satisfy their basic requirements. Women, being a seemingly vulnerable and oppressed group, are an important segment of Indian society. Women are part of the most undeserved segment of society because they sleep last and rise first, eat last and eat first, get educated last and resign first. They are the least considered for actual job opportunities and the first to lose jobs when there are economic restructuring. Women in society tend to hold a lower status and discrimination in many areas of life.

Among Indian people, women are thought of in two contrasting ways. On the one hand, they are glorifies a "Shakti", a representation of strength. On the other hand, sociologically, they are thought of as weaker, being limited to household duties. The truth, though, is remote from this dual thinking. Women, in today's society, suffer immensely compared to men. Women employed in the banking industry of India have tougher times than other women across the globe. Usually household chores are usually not shared by men in India.

It is the women who have to do household work, which includes cooking, cleaning, washing dishes, washing clothes, getting children ready for school, whereas usually men get ready to do some work outside home. So, women have to shoulder the prime responsibility of household management.

In spite of all these obstacles, women, irrespective of their social standing, have a key, active and influential role to play in economic activity as workers or producers of goods and services. Urbanization, higher education, increased consciousness regarding skills and abilities, and fulfilling employment have opened doors for women to speak out and make themselves heard. In India, now a days, rural women toiled in fields with their husband to bring home the bread, while middle class urban women now want financial independence and the realization of personal dreams and aspirations. Presently, married women increasingly desire to seek skilled jobs and contribute to the economy. This was feasible when women were stay at home housewives, but with the growing necessity for women to help out financially in their households, they are now asked to multitask both a full-time job and most domestic responsibilities, working even harder to tackle all their tasks.

Review of Literature

Sania Khan et al. (2022) explains Career-life balance of women working in the banking sectors of Larkana, Pakistan. Maintaining a balance between a private and occupational responsibilities may be difficult for anyone. This paper highlight the factors of Career-life integration that affect the personal life of working women, How personal life of working women are affected by work life balance in the banking sector and suggestion for this. The author choose both primary and secondary method to collect the data. The research found that there is positive impact of work life balance to working women. The study suggests that SMEs should foster a culture that values the balance between professional and personal life for working women, as this can enhance employee performance. It also recommends that the banking sector adopt various work-life balance strategies, emphasizing that improved balance contributes significantly to higher job satisfaction among employees.

Ramay et al. (2013) reveals that challenges encounter by the women employees in the banking industry of Pakistan. There is low rate of working women in Pakistan. Managing the personal life or family life is not easy for any working women, after this she faces a lot of problems in the offices also. Main objective of the study is explore the challenges faced by women employees in their offices in the banking industry. The data collected through primary and secondary data. And information collected in both private and public sector banks in Islamabad. This research has revealed that job complexity, family responsibilities, and gender stereotyping have a positive influence on the challenges faced by working women. It also found that women employees in the banking sector often face discrimination, harassment, and family-related issues. And the author provide suggestion like increase the women participation at executive positions, working mother should be given childcare facilities, secret surveys and meetings of female employees to regularly observe the issues that women are encountering their organizations and they should also attempt to solve their problems.

Arman Nisha Ansari (2024) this study explores the organizational environment and the professional identity of women in the Indian banking sector. The primary aim of the research is to examine the role and standing of employed women, assess their position within the banking industry, and provide recommendations to address the challenges faced by women employees in this sector. The data is collected through both primary and secondary data. The researcher collected 50 samples to collect the data through questionnaire. The research found that there is lot of challenges encounter by women workers in the banking sectors such as, not proper working hour, target pressure, sexual harassment in workplace, etc., and research suggest that should provide provision of hostel for working women, should provide family pension and voluntary retirement after twenty years of services, overtime work should avoid for working women, etc.,

Research Gap

Though much research has been carried out on the problem and opportunities of women worker in the banking domain, few studies address specifically the issues of women workers in private banking or public banking industry in other district rather than Shimoga district. Most of the literature focuses on general issues of working women. So this research is want to study the problems and prospects of working women in private and public banking sector in Shimoga district.

Objectives

1. To study the challenges and opportunities of female employees in private and public banking sector.
2. To examine the work-life balance experienced by women employees in both private and public sector banks.

Scope of the Study

This study explore the problems and prospects or women employees in private and public banking sector in Shivamogga district. It explains about the demographic background of women workers in private and public banking sector in Shivamogga district. It also explains about the work-life balance and job satisfaction level of working women in banking sectors.

Methodology

Methodology is a systematic approach to solving research problems. It describe the various steps usually taken by researcher when conducting research problems, as well as the rationale for these steps. The study is follows both primary and secondary date to collect the information. Primary data collected through structured questionnaire (Google Form), targeting women employees in both private and public bank in Shivamogga district. Secondary data have been collected from books, journals, newspapers, reports, government data, and relevant websites. The sample size is determined using the convenience sampling method. Data is analysed using percentage, mean and standard deviation to drive meaningful insights into problems of working women in Shivamogga district.

Results and Discussion

This section reports finding from data obtained through a survey of 50 respondents, presented in tables revealing frequencies, percentages, ranking and mean scores. The findings are based on an objective description of demographic traits, work life balance, job satisfaction of working women in the private and public banking sectors. The discussion translates the findings to explain the problems and prospects of working women, such as common gender discrimination, work life balance issues, poor support from their families and also inflexible working hours. Through analysis of these issues, the discussion draws out strengths, limitations and implications for working women in the private and public banking sector in the Shivamogga district.

Table No. 1: Demographical Profile of the Respondents

Demographic Factors	Variables	Responses	Percentage
Age	Below 25	10	20%
	25 - 35	16	32%
	35 - 45	20	40%
	45 - 55	4	8%
	Above 55	0	0%
	Total	50	100%
Education Level	Below SSLC	0	0%
	PUC/Diploma	0	0%
	Graduation	32	64%
	Post-Graduation	16	32%
	Others	2	10%
	Total	50	100%
Occupation	Manager	13	26%
	clerk	14	28%
	cashier	7	14%
	Loan officer	6	12%
	Customer service representative	2	4%
	Bank teller	1	2%
	Bank administrator	2	4%
	Relationship officer	2	4%
	Others	0	0%
	Total	3	6%
Annual Income (₹)	Up to 2 Lakhs	13	26%
	2 - 5 Lakhs	21	42%
	5 - 10 Lakhs	16	32%
	More than 10 Lakhs	0	0%
	Total	50	100%

Source: Survey Data

The survey of 50 respondents shows that most working women belong to the 35-45 age group (40%), indicating they are mid-career professionals. A majority (64%) have attained graduation-level education, reflecting a well-qualified workforce. Most respondents are employed as clerks (28%) and managers (26%), and the majority earn between ₹2-5 lakhs annually (42%). This highlights that the study primarily represents educated, middle-income women employees actively working in key roles within the banking sector.

Table No.2: Please rate the following aspect of problems faced by working women as you perceive them. On a scale of 1 (Strongly Disagree) to 5 (Strongly Agree);

SI. No	Problems faced by working women	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Standard Deviation
1	Gender bias or discrimination.	1	2	7	33	7	50	3.86	13.15
2	Limited career growth opportunities.	1	1	1	22	25	50	4.38	12.37
3	Lack of work-life balance.	0	1	1	8	40	50	4.74	17.07
4	High job stress.	1	0	9	40	7	57	3.91	16.44
5	Less pay	1	1	4	23	21	50	4.24	11.05
6	Work timings	0	0	4	15	31	50	4.54	13.25
7	Work pressure	0	0	1	10	39	50	4.76	16.75
8	Leave benefits	0	1	1	21	27	50	4.48	12.96
9	Misconduct	1	0	4	27	18	50	4.22	11.94

Source: Survey Data

The analysis highlights that work pressure (Mean = 4.76) and lack of work-life balance (Mean = 4.74) are the most significant challenges faced by working women in the banking sector. Work timings (Mean = 4.54) and leave benefits (Mean = 4.48) also received strong agreement, underscoring their importance. Limited career growth opportunities (Mean = 4.38) and less pay (Mean = 4.24) emerged as additional concerns. Although gender bias (Mean = 3.86) received relatively lower agreement, a majority of respondents still acknowledged it as an issue. Overall, the findings suggest that balancing professional and personal life, along with managing high work pressure, are the primary challenges faced by women in this sector.

Table No.3: What improvements do you believe should be made to enhance the prospects for women in the banking sector? On a scale of 1 (Strongly Disagree) to 5 (Strongly Agree);

SI. No	Prospects of working women	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Mean	Standard Deviation
1	Implementation of Gender Diversity Policies.	0	1	4	34	11	50	4.1	14.09
2	Flexible Work Arrangements and Work-Life Balance.	0	1	2	19	28	50	4.48	12.75

3	Access to Leadership Development and Training Programs.	0	1	2	20	27	50	4.46	12.59
4	Eliminating Gender Bias and Discrimination.	0	2	1	21	26	50	4.42	12.47
5	Encouraging Female Entrepreneurship and Innovation in Banking.	0	2	1	22	25	50	4.4	12.39
6	Supportive Mentorship and Networking Opportunities.	0	2	0	20	28	50	4.48	13.11

Source: Survey Data

The findings indicate that flexible work arrangements and supportive mentorship (Mean = 4.48 each) are the most valued prospects for working women in the banking sector. Leadership development programs (Mean = 4.46) and eliminating gender bias (Mean = 4.42) also received strong support. Although gender diversity policies (Mean = 4.10) garnered slightly lower agreement, the majority of respondents expressed positive views across all aspects. These results underscore the importance of sustained efforts toward women’s professional advancement and workplace equality.

Suggestions and Conclusion

The research recommends that banks enhance gender inclusion strategies and ensure their proper enforcement to foster equal opportunities for women. Offering adaptable work options, including adjustable working hours, and supportive leave, can help women balance work and personal life. Regular leadership development programs and mentorship opportunities should be introduced to encourage women’s career growth. Eliminating workplace bias through awareness programs and strict enforcement of anti-discrimination policies is equally important. Banks should also encourage female entrepreneurship and provide stress management support through counselling and balanced workload. Together, these measures will help build an inclusive and supportive work environment for women employees in the banking sector.

The study highlights that working women in public and private sector banks of Shivamogga face several challenges such as work pressure and limited leadership opportunities. However, the positive response toward initiatives shows a clear demand for improved gender inclusion practices. The majority of women employees emphasized the need for continued efforts to eliminate gender bias, promote career growth, and provide equal opportunities. With focused organizational support, proper implementation of

policies, and continued efforts toward gender equality, women can significantly enhance their professional contributions to the banking sector.

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CHAPTER 3

WORK LIFE BALANCE ON EMPOWERMENT OF WORKING MARRIED WOMEN

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Abstract

Modern life's complexities, competition, and stress contribute to anxiety and mental unrest. Achieving work-life balance is crucial for Indian married working women, fostering motivation, concentration, and professional engagement. This study examines the relationship between empowerment, work engagement, and life satisfaction in various work settings. It suggests that maintaining a balance between work and personal life can lead to empowerment and a sustainable framework for organizations and entities employing women.

Keywords: *Married, Working, Women, Empowerment, Work Life Balance, Work Engagement, Life Satisfaction, Work*

Introduction

In recent decades, the participation of women in the workforce has seen a significant rise across the globe. Among them, married women form a critical segment, as they often juggle the dual roles of being professionals and caregivers. This dual responsibility places unique demands on their time, energy, and emotional well-being. As a result, the concept of work-life balance has become increasingly relevant, especially in understanding the factors that contribute to the empowerment of working married women.

Work-life balance refers to the equilibrium between professional duties and personal responsibilities, allowing individuals to maintain both aspects of their lives without compromising either. For married women, this balance is particularly crucial, as societal expectations often place a larger share of household and childcare responsibilities on their shoulders. The ability to manage these expectations while also pursuing a fulfilling career can greatly influence a woman's sense of self-worth, independence, and agency—key elements of empowerment.

Empowerment, in this context, goes beyond economic independence. It encompasses personal development, decision-making power, and the freedom to shape one's life and future. When married women are able to effectively balance their work and personal lives, they are more likely to feel confident in their roles both at home and in the workplace. This balance not only enhances their productivity and job satisfaction but also contributes positively to their mental and physical health, leading to a more empowered and self-sufficient lifestyle.

However, achieving this balance is often challenging. Factors such as workplace policies, societal norms, family support, and access to childcare play a significant role in either facilitating or hindering a woman's ability to maintain this equilibrium. Therefore, examining the impact of work-life balance on the empowerment of working married women is essential in developing strategies and policies that support their well-being and growth. This exploration provides insights into how better balance can lead to a more inclusive, equitable, and empowered society.

Objectives

1. To examine the concept of work-life balance and its relevance in the context of working married women.
2. To analyze the challenges faced by married women in maintaining a balance between professional and personal responsibilities.
3. To explore the relationship between work-life balance and women's empowerment, particularly in terms of self-confidence, independence, and decision-making capacity.
4. To assess the role of family, organizational policies, and societal expectations in influencing the work-life balance of married working women.

Background of the Study

In the evolving landscape of the global workforce, the role of women has undergone a significant transformation. Today, women are not only contributing to the economy through professional engagement but are also expected to fulfill traditional responsibilities at home, especially after marriage. As more married women pursue careers to achieve financial independence, personal growth, and societal recognition, the challenge of managing professional commitments alongside domestic duties has intensified. This dual role has brought the issue of work-life balance to the forefront of discussions surrounding gender equality, employee well-being, and women's empowerment.

Work-life balance refers to the ability to allocate time and energy effectively between work and personal life. For married women, achieving this balance is more complex due to the intersection of societal norms, gender roles, and familial expectations. Often, married women are expected to prioritize family needs over career ambitions, which may lead to stress, burnout, and a sense of unfulfillment. On the other hand, women who manage to strike a healthy balance between work and home often experience increased self-esteem, financial autonomy, and greater influence in family and workplace decisions—key indicators of empowerment.

This study aims to explore how work-life balance influences the empowerment of married working women, highlighting the various factors that support or hinder this balance. Understanding this relationship is essential for creating environments—both at home and in the workplace—that foster equality, well-being, and sustainable empowerment for women in modern society.

Scope of the Study

This study focuses on exploring the impact of work-life balance on the empowerment of working married women. It aims to understand how the ability to effectively manage both professional responsibilities and domestic roles contributes to their personal, social, and economic empowerment. The research will cover:

Married women who are employed in various sectors (e.g., education, healthcare, corporate, government).

The key factors influencing work-life balance such as working hours, job flexibility, household responsibilities, childcare, organizational support, and spousal or family support.

Different dimensions of empowerment, including decision-making power, self-confidence, financial independence, and career growth.

The geographical scope may be limited to a specific region or city (as determined by the study's framework), but the findings could offer broader implications for women in similar socio-cultural settings.

The study will not extensively focus on unmarried women, full-time homemakers, or men, although references may be made for comparative insights.

Significance of the Study

This study holds significant relevance in the context of today's rapidly changing social and economic environment. With the increasing number of married women entering and remaining in the workforce, it becomes crucial to understand the dynamics between work-life balance and women's empowerment. The significance includes:

For women: Providing insight into how maintaining a balanced life can lead to greater personal and professional fulfillment, improved health, and enhanced self-worth.

For employers and policymakers: Highlighting the need for gender-sensitive workplace policies such as flexible work hours, parental leave, and childcare support to promote employee well-being and retention.

For society: Contributing to the broader goal of gender equality by recognizing and supporting the dual roles of women, thus encouraging a more inclusive and balanced societal structure.

For academic research: Adding to the growing body of literature on gender studies, work-life balance, and empowerment, and serving as a foundation for further studies in related areas.

Review of literature

1. Greenhaus & Beutell (1985)

They introduced the concept of work-family conflict, identifying it as a form of inter-role conflict where work and family pressures are mutually incompatible. Their work laid the foundation for understanding how poor work-life balance can hinder personal growth and well-being, especially among women.

2. Kalliath & Brough (2008)

Their study highlighted that work-life balance is a subjective experience, varying among individuals based on personal goals and social contexts. They emphasized that for married women, empowerment is strongly linked to how they define and manage balance.

3. Emslie & Hunt (2009)

This research explored gender and health in work-life balance, showing that working married women often experience higher stress levels due to unequal domestic workloads. Empowerment is impacted when women are unable to gain autonomy over their time and decisions.

4. Rajadhyaksha & Smita (2004)

In the Indian context, they found that social support, especially from spouses and extended family, plays a crucial role in helping women achieve work-life balance. Empowerment is stronger when women receive emotional and logistical support at home.

5. Lewis & Humbert (2010)

Their research examined how organizational culture affects women's roles. They concluded that lack of flexible policies and gender-sensitive practices in workplaces limits women's career progression and empowerment.

6. Poelmans et al. (2008)

They argued that work-life initiatives in organizations must be culturally sensitive, especially in collectivist societies where family expectations are high. For married women, empowerment depends on the alignment between cultural norms and organizational support.

Type of work environment employment considered for Indian working women

1. Corporate Sector (Private Companies, MNCs)

Nature of Work: Office-based, white-collar jobs in IT, finance, marketing, HR, etc.

Work Environment: Competitive, target-driven, with longer hours but often offers work-from-home options or flexible schedules.

Work-Life Balance: Mixed; while some companies offer supportive HR policies, the high-pressure nature can affect balance.

2. Government and Public Sector Jobs

Nature of Work: Administrative, clerical, teaching, healthcare, and civil services.

Work Environment: More stable, structured hours, job security, and benefits like maternity leave.

Work-Life Balance: Generally better due to fixed working hours and holidays. Encourages empowerment through security and benefits.

3. Education Sector

Nature of Work: School or college teaching, administration.

Work Environment: Regular hours, relatively low stress, often viewed as family-friendly.

Work-Life Balance: High, especially for mothers; helps in achieving a stable personal-professional balance.

4. Informal Sector

Nature of Work: Domestic help, tailoring, street vending, small-scale entrepreneurship.

Work Environment: Unregulated, often lacks legal protection or benefits.

Work-Life Balance: Challenging; long hours, low pay, and lack of support systems limit empowerment.

5. Healthcare Sector

Nature of Work: Doctors, nurses, lab technicians, etc.

Work Environment: Demanding with irregular shifts (especially in hospitals).

Work-Life Balance: Often poor due to long shifts, night duties, and emotional labor.

6. Self-Employment and Entrepreneurship

Nature of Work: Small businesses, freelancing, home-based enterprises.

Work Environment: Flexible and autonomous.

Work-Life Balance: Can be positive if support exists; empowerment is high due to independence and decision-making power.

The role of empowerment, marriage, work engagement, and life satisfaction in shaping work-life balance, particularly for working married women:

1. Empowerment

Empowerment – especially in terms of decision-making ability, financial independence, and self-confidence – plays a critical role in work-life balance. Empowered women are better equipped to negotiate flexible work conditions, seek support, delegate household tasks, and set boundaries between work and home life. It enables them to assert their needs, manage stress effectively, and create a fulfilling personal-professional life structure.

2. Marriage

Marriage introduces additional responsibilities such as caregiving, managing the household, and sometimes adhering to traditional gender roles. The quality of the marital relationship significantly affects work-life balance:

Supportive spouses contribute positively by sharing domestic duties and emotional support.

In contrast, traditional or non-supportive dynamics may lead to role overload, stress, and imbalance. Marriage can either be a source of stability or strain, depending on mutual understanding and cooperation.

3. Work Engagement

Work engagement refers to the emotional and psychological connection a woman has with her job. Highly engaged women often:

Experience greater job satisfaction, which can enhance their overall happiness and motivation.

However, excessive engagement without balance may lead to burnout, negatively impacting home life. When work engagement is matched with time management and flexibility, it contributes positively to work-life balance and overall well-being.

4. Life Satisfaction

Life satisfaction encompasses overall happiness with one's personal and professional life. A good balance between work and personal life enhances life satisfaction, and vice versa:

When women feel satisfied in their roles as professionals, spouses, and individuals, they are more likely to report balanced lives. High life satisfaction acts as a buffer against stress, increasing resilience and emotional stability.

Research Gap

While numerous studies have explored the themes of work-life balance and women's empowerment independently, there remains a significant gap in research that specifically focuses on the interconnection between work-life balance and the empowerment of married working women, particularly in the Indian socio-cultural context. Most existing literature tends to generalize the experiences of working women without differentiating between the unique challenges faced by married women, who often navigate the dual pressures of professional roles and traditional family expectations.

Furthermore, limited empirical data exists on variables such as spousal support, organizational flexibility, emotional well-being, and societal norms directly influence both work-life balance and empowerment outcomes. The interplay between marital dynamics, work engagement, and life satisfaction in shaping empowerment is also underexplored.

Another notable gap is the lack of sector-specific and class-specific analysis—how women in different work environments (corporate vs. informal sector) and socio-economic backgrounds experience and manage work-life balance differently, and how that affects their empowerment levels. Also, rural vs. urban perspectives are rarely compared in depth.

Addressing this gap is critical to developing targeted policies, workplace reforms, and family-level interventions that genuinely support the empowerment of married working women through improved work-life balance.

Observations

1. Dual Responsibilities Lead to Increased Pressure:

Married working women often carry the dual burden of managing professional duties and household responsibilities, which significantly affects their ability to maintain work-life balance.

2. Support Systems Play a Crucial Role:

Women with supportive spouses, families, or childcare options are observed to manage work-life balance more effectively, leading to greater personal empowerment and emotional stability.

3. Empowerment is Multi-Dimensional:

Empowerment is not limited to financial independence—it also includes self-esteem, decision-making power, and emotional autonomy. Women who achieve work-life balance tend to feel more empowered in multiple areas of life.

4. Workplace Flexibility Enhances Balance:

Organizations that offer flexible hours, remote work, maternity benefits, and understanding management tend to have more satisfied and empowered female employees, especially those who are married.

5. Cultural Norms Still Pose Challenges:

Traditional gender roles, especially in Indian households, often expect women to prioritize family over career, which creates internal and external conflict that impacts both empowerment and work-life balance.

6. Work Engagement Can Be Both Positive and Negative:

Highly engaged women may derive satisfaction and confidence from their careers, but if not managed well, this engagement can lead to burnout and poor work-life balance.

7. Life Satisfaction Reflects Overall Balance:

Women who report high levels of life satisfaction generally exhibit better coping mechanisms, stronger support systems, and greater empowerment—indicating a well-maintained work-life balance.

Limitations of the Study

This study is limited in scope due to its focus on a specific demographic—working married women—excluding unmarried women, men, and homemakers whose experiences may differ. The findings may also be influenced by cultural and regional factors, as the study may primarily reflect urban or semi-urban settings, limiting generalizability to rural areas. Additionally, self-reported data may be subject to personal bias or social desirability, affecting the accuracy of responses. Time constraints and sample size may also restrict the depth of analysis across various employment sectors and socio-economic backgrounds.

Conclusion

These four elements—empowerment, marriage, work engagement, and life satisfaction—are deeply interconnected. Together, they influence how effectively a married working woman can achieve and sustain a healthy work-life balance. Creating supportive

systems in workplaces and families is essential to strengthen these elements and promote holistic well-being.

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CHAPTER 4

A STUDY ON TRANSPORTATION FLEET AND CARGO MANAGEMENT AT PYROLOGICS SYSTECH INTERNATIONAL

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Abstract

Cargo management plays a critical role in the logistics and supply chain industry, ensuring the efficient handling, storage, and transportation of goods. This paper explores the key components and modern practices in cargo management, including inventory control, documentation, cargo tracking, and risk mitigation. Emphasis is placed on the integration of digital technologies such as RFID, GPS, and cargo management systems (CMS) to enhance visibility, security, and operational efficiency. The study also examines challenges such as regulatory compliance, cargo damage, and cost control, proposing strategic solutions for optimization. By analysing case studies and current industry trends, the paper aims to highlight how effective cargo management contributes to seamless global trade and improved customer satisfaction.

Keywords: *Cargo, transportation, cargo tracking, customer satisfaction.*

Introduction

In today's globalized economy, the demand for efficient, reliable, and cost-effective transportation has never been greater. Transportation fleet and cargo management are at the heart of modern logistics, playing a pivotal role in ensuring the smooth movement of goods across vast supply chains. Fleet management involves the administration of commercial vehicles such as trucks, ships, aircraft, and rail systems, with a focus on performance, maintenance, fuel efficiency, and regulatory compliance. Cargo management, on the other hand, encompasses the planning, handling, tracking, and delivery of goods to their intended destinations. Together, these systems are essential for minimizing delays, reducing operational costs, and improving overall service quality. As technology advances, the integration of GPS tracking, telematics, automated scheduling, and data analytics has revolutionized both fleet and cargo management, enabling real-time decision-making and greater transparency. This article explores the principles, challenges, and innovations in transportation fleet and cargo management, highlighting their strategic importance in the logistics and supply chain sectors.

Statement of the Problem

Many organizations struggle with inefficient fleet maintenance, leading to costly and untimely repairs, increased downtime, and ultimately higher operational costs for businesses that rely on their fleets for daily operations.

Additionally, high operational costs and fuel consumption remain major challenges, as companies often find it difficult to optimize fuel usage. Inefficiencies in route planning,

driver behavior, and fuel management contribute to higher fuel costs and reduced profitability. Another issue businesses face is the difficulty in managing compliance with government regulations. The complexity and constant evolution of regulations governing fleet operations create significant burdens, and failure to stay compliant can result in legal penalties, fines, and reputational damage. Furthermore, many businesses operate with fragmented systems that lack integration, leading to disconnected software platforms for managing fleet operations. This results in data silos, missed optimization opportunities, and a lack of real-time visibility into fleet performance.

Objectives of the Study

Primary Objective

To study the transportation fleet and cargo management in Pyrologics Systech International LLP

Secondary Objectives

To analyze the transportation related problems and to analyze the tools and equipment used to handle cargo

To analyze the measures of care taken on cargo and to analyze various other problems in transportation fleet

To analyze the cargo management process during transportation.

To provide suitable suggestions to improve the transportation fleet and cargo management in Pyrologics Systech International LLP.

Limitations of the Study

Geographical limitations could restrict the study's generalizability due to diverse regional factors.

Data availability and accuracy are potential issues, affecting the validity of findings.

Review of Literature

Barbosa et al. (2020)¹ - discussed the challenges faced in collaborative logistics and fleet management. They identified barriers such as the integration of emerging technologies, cost-sharing mechanisms among collaborating firms, and optimizing the use of mixed vehicle fleets. Their research suggests that future studies should focus on developing systems that allow multiple companies to share fleets and logistics resources to improve efficiency and reduce operational costs.

Shidong Liang, Minghui Ma and Shengxue He et al., (2019)² - in this research article "Multi objective Optimal Formulations for Bus Fleet Size of Public Transit under Headway-Based Holding Control" they give solutions for the bus transportation with the development of advanced technologies for data collection, real-time bus control strategies have been implemented to improve the daily operation of transit systems, especially headway-based holding control which is a proven strategy to reduce bus bunching and improve service reliability for highfrequency bus routes, with the concept of regulating headways between

successive buses. This hot topic has inspired the reconsideration of the traditional issue of fleet size optimization and the integrated bus holding control strategy.

Hongbo Du et al., (2018)³ - in their research "Impacts of Biodiesel Applied to the Transportation Fleets in the Greater Houston Area" they giving idea to decrease fossil fuel use and greenhouse gas emissions from fleet vehicles, more and more biodiesel is used in vehicles in the Houston metropolis. The GREET model was used for simulating the fuel cycle emissions of diesel vehicles using different biodiesel blends in Houston. The energy and water use and from vehicles fueled with the blends were investigated. The study shows that the reductions in GHG emissions are significant at the Well-to-Pump stage, and all the emissions, except GHGs and, reduce at the Pump-to-Wheel stage. The overall Well-to-Wheel analysis shows that biodiesel is beneficial for both passenger cars and heavy duty trucks. However, the benefits are more pronounced for passenger cars compared to heavy duty vehicles. When 50% of diesel passenger cars and HDDTs are switched to B20 in the Greater Houston area in 2025, the daily GHG emissions will be reduced by 2.0 and 712.1 CO₂-equivalent tonnes, respectively.

Zhao et al. (2018)⁴ - reviewed the integration of smart technologies in transportation fleet and cargo management. They emphasized the use of machine learning, artificial intelligence, and big data analytics to optimize fleet operations. Their study found that predictive maintenance, route optimization, and real-time traffic analysis were some of the major advancements improving fleet efficiency. The use of data-driven insights allows fleet managers to make proactive decisions, enhancing operational efficiency, reducing downtime, and improving overall fleet performance.

Research Methodology

Research Design

The research design indicates the type of research methodology under taken to collect the information for the study.

Type of Research

Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the situation as it exists at present.

Sampling Design

A Sample design is a definite plan for obtaining a sample from a given population. It is the procedure used in selecting items for the sample.

Sample Size

The company has around 300 employees who frequently travel to various ports and other locations for official purposes. A questionnaire was distributed among them, and only the filled-in responses were considered. After removing the incomplete ones, the final sample size was 120

Data Analysis and Interpretation

Inferential Analysis

Chi-Square Test Between Type of Shipment Handled and are the Safety Measures on Dangerous Goods are Taken

Aim

To find out whether there is association between the Type of shipment handled and are the safety measures on dangerous goods are taken.

Null Hypothesis

H0: There is **no significant** association between the Type of shipment handled and Are the safety measures on dangerous goods are taken.

Alternative Hypothesis

H1: There is **significant** association between the Type of shipment handled and Are the safety measures on dangerous goods are taken.

Table Showing Chi-Square Test Between Type of Shipment Handled and are the Safety Measures on Dangerous Goods are Taken

Chi - Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	18.188 ^a	4	.001
Likelihood Ratio	18.962	4	.001
Linear-by-Linear Association	10.645	1	.001
No of Valid Cases	120		
a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.92.			

Interpretation

The Chi-square tests (Pearson and Likelihood Ratio) show a significant association between the variables ($p = 0.001$). The Linear-by-Linear Association also indicates a significant linear trend ($p = 0.001$). However, 20% of cells have expected counts less than 5, which violates Chi-square assumptions. Thus, while the results are significant, caution is needed in interpretation.

Inference

The Chi-Square test results show a significant association between the Type of shipment handled and Are the safety measures on dangerous goods are taken, as indicated by a p-value of 0.001 ($p = 0.001 < 0.05$). This suggests the rejection of the null hypothesis, indicating that there is a relationship between the type of shipment and whether safety measures are taken for dangerous goods.

One-Way ANOVA Test Between Whether Signalman Employed During Loading of Cargo in Container and Type of Shipment Handled

Aim

To identify whether there is significant difference between the Type of shipment handled and Whether signalman employed during loading of cargo in container .

Null Hypothesis

There is no significant association difference between the Type of shipment handled and Whether signalman employed during loading of cargo in container.

Alternative Hypothesis

There is significant association difference between the Type of shipment handled and Whether signalman employed during loading of cargo in container.

Table Showing ANOVA Test Between Whether Signalman Employed During Loading of Cargo in Container and Type of Shipment Handle

ONE-WAY ANOVA					
Whether signalman employed during loading of cargo in container					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.304	1	1.304	5.522	.020
Within Groups	27.863	118	.236		
Total	29.167	119			

Interpretation

The One-Way ANOVA shows a significant difference in signalman employment during the loading of cargo in the container ($p = 0.020$). The F-value is 5.522, indicating between-group variation is significantly higher than within-group variation. Thus, the null hypothesis is rejected. There is a significant difference in signalman employment across the groups.

Inference

The One-Way ANOVA results show a significant difference in whether a signalman is employed during the loading of cargo in a container, depending on the type of shipment handled ($p = 0.020$). This suggests that the practice of employing a signalman during cargo loading varies significantly based on the type of shipment.

Findings

- The Chi-Square test results show a significant association between the Type of shipment handled and Are the safety measures on dangerous goods are taken, as indicated by a p-value of 0.001 ($p = 0.001 < 0.05$). This suggests the rejection of the null hypothesis, indicating that there is a relationship between the type of shipment and whether safety measures are taken for dangerous goods.

- The One-Way ANOVA results show a significant difference in whether a signalman is employed during the loading of cargo in a container, depending on the type of shipment handled ($p = 0.020$). This suggests that the practice of employing a signalman during cargo loading varies significantly based on the type of shipment.
- The Pearson Correlation of 0.295 indicates a moderate positive correlation between the type of shipment handled and the mode of shipment. This suggests that there is a tendency for certain shipment types to be associated with specific modes of shipment.
- We reject the null hypothesis $p < 0.001$. The significant impact of transportation damage on cargo arrival time suggests that reducing damage is crucial for ensuring timely delivery. Investing in better transport infrastructure and practices could lead to more predictable and reliable logistics.
- The Chi-square test results suggest a significant relationship between the categorical variables, leading to the rejection of the null hypothesis ($p < 0.001$). Nevertheless, due to the violation of the test's assumptions, the reliability of these results is questionable, and further analysis or careful consideration is warranted before drawing firm conclusions about the relationship between the variables.

Suggestions

- More import shipments can be taken because import can give more profit than export.
- Machinery parts can be taken for export/import which gives maximum profit than any other goods.
- The signalman should be employed at all the necessary places for safer movement of cargo.
- Effective lifting equipment should be used properly.
- The package of the cargo should be made appropriately.
- Single window checking and certifying may reduce the time in every checking stations for fleet transportation.
- Government must reduce the rate of insurance, road tax, quarterly tax and income tax for fleet transportation.
- In this field competition is high, so the organizations go for innovative idea and adopt new technology like e-booking.

Conclusion

Technological advancements have significantly optimized material and cargo management, with modern lifting equipment streamlining handling processes. This project focused on identifying inefficiencies within Pyrologics Systech International LLP's transportation fleet operations. While the majority of shipments proceed without complications, a subset requires meticulous attention to prevent errors. This necessitates stringent oversight of equipment utilization, signalman communication, container integrity,

and precise cargo weight and content verification. Accidental mistakes, though infrequent, highlight the need for consistent vigilance across all operational stages. To gain a comprehensive understanding of the company's transportation fleet and cargo management effectiveness, employee responses were collected and rigorously analyzed. The findings revealed that, despite generally smooth operations, specific areas required refinement. Consequently, the study provided Pyrologics Systech International LLP's management with actionable recommendations to enhance the overall efficacy of their transportation and cargo management systems, ensuring greater operational reliability and minimizing future discrepancies.

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CHAPTER 5

UNDERSTANDING CONSUMER BEHAVIOR AT RELIANCE TRENDS RETAIL STORES: AN EXPLORATION OF SHOPPING STAGES IN CHENNAI

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Abstract

Reliance Trends Retail Ltd is a leading retail company in India which provide a wide range of fashionable clothing and accessories for men, women, and children. The company has a strong presence in Chennai, with numerous outlets across the city. This study talks about consumer perception towards reliance trends on pre-purchase, purchasing experience during the in-store purchase and post-purchase. The structured questionnaire was prepared and circulated among reliance trends customers within Chennai city, received from 150 respondents' perception about the store in the above-said situation. The questionnaire was divided into four parts; the first part is about demographic factors, the second part is about consumer perception of Reliance Trends before purchase, the third part is about the experience of an in-store purchase, and the final part is about post-purchase behaviors. Data were analyzed using the statistical software SPSS 23. This paper concludes that the positive perception of the consumers made them visit the store personally. During the in-store purchase, customers are looking at the store by their perception; if it is positive, purchases are made; if negative, customers are looking for the parallel outlet which satisfies their perception and expectation. As concerned with post-purchase activities, consumers are satisfied with the product quality, but they are disappointed with the pattern, which is mostly worn by all the reliance trend consumers. Consumers who love uniqueness show a negative relationship with reliance trend retail outlets.

Keywords: Consumer Perception, Pre-purchase and post-purchase activities, Reliance trends retail outlets.

Introduction

Retail is the exact opposite of wholesaling. It is the sale of goods and services to consumers. A retailer purchases goods in bulk from the wholesalers and sells them in smaller quantities to customers for profit. Whatever the product or service it may be, the consumers will have certain expectations regarding the affordability, quality, quantity, feasibility, etc. A variety of strategic level decisions are usually made by most modern retailers, including those regarding the type of store, the target market, the best product assortment, customer service, supplementary services, and the store's total market positioning. Retailers create the retail mix, which consists of the following elements: product, price, place, promotion, personnel, and presentation, once the strategic retail plan is in place.

One such retail store is Reliance Trends Retail Ltd. It mainly concentrates on the clothing sector. Apart from it, it also sells products like accessories, shoes, etc. One of the biggest fashion retail chains in India is Trends. Trends has a diverse portfolio of own brands, national brands, and foreign brands that it uses to offer fashionable, high-quality products

in the women's, men's, kids', and fashion accessory categories. Trends has built a solid portfolio of original brands over the years that serve a variety of consumer tastes and preferences.

Every consumer has these three phases of behavior while deciding to purchase or while purchasing a product – pre-purchase, during purchase and post-purchase behaviors.

Review of Literature

Aparajita Thakur et al. (2020) designed the objective to examine how retailing approaches like merchandising, store design, sales promotion, and advertising impact customer happiness. Two hundred responses from customers who visited the two fashion retailers Reliance Trends and Westside were analyzed to determine the connection between retail marketing strategies, customer happiness, and brand preference. The study's conclusions show that the retail strategies used by the chosen fashion retail stores favorably impact customer satisfaction. However, the differences in the two chosen stores and 'stores' strategies were determined to be insignificant. The current research results provide important new information about the efficacy of retail marketing strategies and how they can help boost sales, keep customers happy, and draw in new ones. The authors suggested concentrating on the customer's point of view instead of concentrating on the increase in sales. Hence customers were satisfied with the product, and store performance will also provide the same results.

Venkata Rao, Kuchi srinivasa Krishna (2022) has explained that consumer purchasing experiences are influenced by their mood, which may affect all their decisions and how circumstances affect their present choices, especially in the retail sector. India is currently the fifth-largest retail location in the world. The study looks into how, concerning visual merchandising, atmosphere, behaviour, and mood affect a retail outlet's sales to understand which element has loaded more and which has had the greatest impact on sales. The variables we considered in the study are store display, window display, colour and lighting, behaviour, attitude, and purchase intention/sales. The author then made a small attempt to determine the relationship between atmospherics, attitude, and behaviour in the retail environment and concluded that consumers are preferred to purchase in-store because of the store ambience with colour and music. Particularly student customers are preferred to purchase because of affordability.

Somabhusana et al (2021) described in their research paper that, concerning Reliance Trends, have attempted to determine the effect of online marketing on the young of Bhubaneswar. A systematic questionnaire was used to gather data from 250 respondents who resided in and around Bhubaneswar. The research paper attempted to learn about many aspects of online marketing by including young people. The authors feel that online markets affect the consumer decision-making process, and the buyer plays a significant role as he/she pays the money. Concerning discounts, offers and other related things, online media can be considered an effective and useful tool.

Research Gaps

Many research papers were about comparing two retail outlets like comparison between max and trends, lifestyle and trends or between some other retail outlets. No research papers were found particularly about reliance trends. Hence researcher considered this as a gap and study about the consumer behavior towards reliance trends in three different stages that are pre-purchase, during-purchase and post-purchase.

Objectives of the Study:

- To study about perception of consumers about reliance trend on pre purchase mind set.
- To study about customer satisfaction on in-store purchase experience in reliance trends.
- To study about customer post purchase satisfaction.

Hypothesis

H0 - There is no relationship between demographic variables and the perception of mindset of reliance trends on pre purchase mind set.

H0- There is no relationship about positive perception in pre purchase mind and purchasing decision

H0- There is no relationship between purchasing experience and post purchase satisfaction.

Conceptual Framework

The conceptual framework of the research has been explained here with the flow chart of the consumer's behaviour from pre-purchase activities to post-purchase activities. Below the main three variables explained with its sub variable respectively clearly.

Pre-Purchase Behaviour

Before purchasing a product, every consumer will have a pre-purchase behaviour. The consumer can gather data about a product depending on his/her age, gender, education and product's price, risk and acceptance.

- Advertisement - Most consumers will be attracted to the store by seeing the advertisements shown on television, in newspapers, banners, posters, etc.
- By seeing outlets - Some consumers may learn about the store by seeing the outlets while passing by them.
- Review from friends and family - Generally, consumers will not directly proceed with the purchase. They will reach their friends and family for opinions and reviews.
- Perception about the product - Pre-purchase behaviour significantly includes a consumer's perception about the product that will be purchased. Consumers will have certain expectations towards the product and expect it to satisfy them. It may be in terms of price, quality, quantity, designs, etc.

In-store purchase behaviour:

While deciding to purchase a product, a consumer will try to buy the best available product. Once customers have decided which shop to visit, then proceed to start purchasing. Usually, one will check the availability of the following things while purchasing a product:

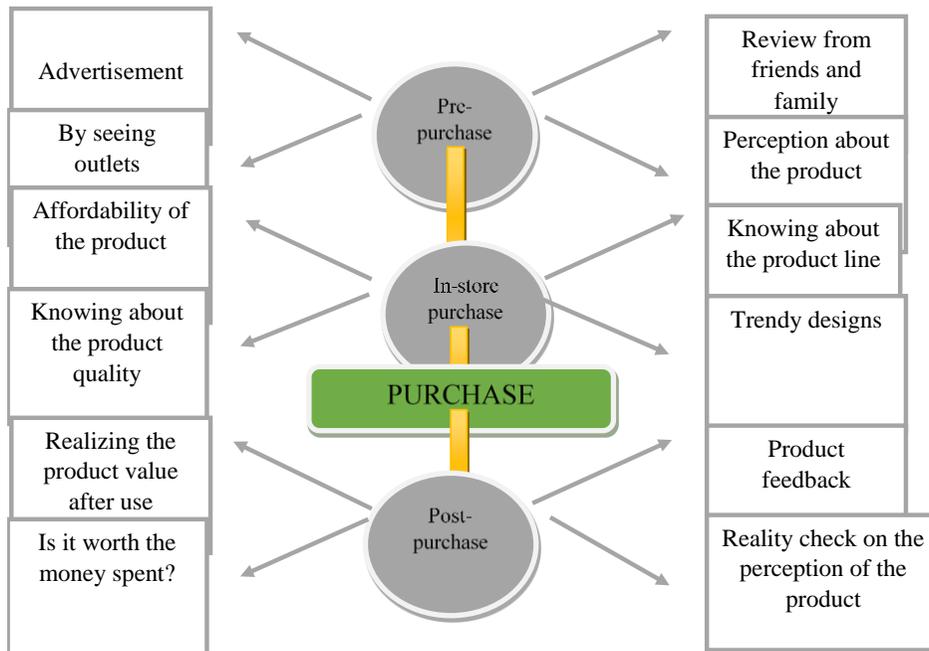
- Affordability of the product – Every single customer, whether rich or poor, will first check if the product's price is affordable. It gives them a sense of satisfaction to buy that particular product.
- Knowing about the product quality – Next comes the quality. If the price is affordable, people will automatically start looking into the quality of the product.
- Knowing about the product line – A product line is a group of products marketed by a single brand name or company. So consumers visit the store there, consumers will learn about the product line on reliance trends. Reliance trends is like an umbrella under which it sells many branded products, but in the consumer's mind, it will be assumed by reliance trends product.
- Trendy designs – When it comes to dresses, people look out for trendy and fashionable designs.

Post-Purchase Behaviour

Post-purchase behaviour is the way a person thinks, feels, and acts after they make a purchase. It also determines whether the consumer wants to repeat purchases in the same store.

- Realizing the product value after use – Only after use can the product's value be found out. It may be good as well as bad.
- Is it worth the money spent? – The quality of the product majorly decides its worth of the product. It can only be found after several uses.
- Product feedback – The product's feedback will affect the store's credibility in good and bad ways. The satisfaction of a consumer plays a major role here. It may be the same consumer repeating purchases or telling reviews to his/her friends and family.
- Reality check on the perception of the product – In this stage, it will be decided whether the perception of the consumer's pre-purchase notion is up to the mark or not.

Conceptual framework:



Source: Primary Data

Methodology

In this study, both data were used, secondary data were taken to analyse the past study about the relevant topic, and primary data were used to collect information regarding reliance trends among consumers via an online structured questionnaire with the help of Google Forms. While circulating, the g-form requested that only reliance trends customers should fill out the questionnaire. In the G-form's first question, "are you the reliance trends customer" if the respondents are reliance trends users, G-form allows them to proceed or else they will be forced to exit. The questionnaire was divided into four parts; part-I consists of Demographic variables, part-II consists of Pre-purchase activities. Part-III consists of In-store purchase experience, and part-IV consists of post-purchase activities.

Convenient sampling methods were used to collect the data. After reaching 150 respondents, the researcher stopped accepting the response from the respondents. Once the data collection process was over, the researcher coded all the data in an excel sheet and employed statistical tools in SPSS to analyze the data.

Data Analysis

The first step in the data analysis part is to test all the data's reliability and validity. From the below table it can be ascertain reliability assessment and validity assessment values of all the variables. In table-1 all the variables are more than the acceptable value that is 0.75. hence all the variables are accepted and retained for the main study. In table-2 all the variables are more than the table value so the results show as valid to proceed for the study.

Table 1- Reliability Assessment

S.No	Variable	Reliability
1	Pre-purchase Activities	0.82
2	In-Store Purchase experience	0.86
3	Post-Purchase Activities	0.88

Table 2 Validity Assessment

S.No	Variable	Table Value	Calculated value	Result
1	Pre-purchase Activities	0.159	0.324 to 0.685	Valid
2	In-Store Purchase experience	0.159	0.413 to 0.752	Valid
3	Post-Purchase Activities	0.159	0.384 to 0.872	Valid

Mean Pre-Purchase Activities

The following table-3 consist of the mean score of all the variable under the pre-purchase activities. In the pre-purchase mode, reviews from friends and family have the highest mean value, which is 2.55 and attracted through advertisement has the lowest mean value, which is 1.85. hence it is proven that the majority of the respondents perceived the product idea and store image from the reviews of friends and family. Therefore, the word-of-mouth marketing is working on reliance trends retail ltd.

Table 3- Mean Pre-Purchase

Pre-purchase Activities	Mean
Attracted through Advertisement	1.85
Review from friends and family	2.55
By seeing the outlets	1.96
Perception about the product and store	2.28
Mean Pre-Purchase Activities	2.16

Mean In-Store Purchase Experience

From the below table-4, it can ascertain the respondents' mean value for sub-variables in the in-store purchasing experience. The sub-variable checking for the affordability of the price has the highest mean value, which is 2.85. Therefore inevitably, the majority of the respondents are checking the price of the product. The least mean value in this category is for trendy designs.

Table 4- Mean In-Store Purchase Experience

In-Store Purchase Experience	Mean
Affordability of the product	2.85
Knowing about the product line	1.95
Knowing about the Product quality	2.55
Looking for trendy designs	1.88
Mean In-Store Purchase Experience	2.31

Mean Post-Purchase Activities

The mean values for the category of post-purchase activities are given in the below table-5. The highest mean value, 2.65, is for the sub-variable respondents who felt the money spent on clothing was worth it. This feeling is an essential factor for all the retail firms to make their customers sustain with them, here the reliance trends retail ltd has achieved. Respondents were given the lowest score for the follow-up services after sales, 1.88.

Table 5: Mean Post-Purchase Activities

Post-Purchase Activities	Mean
Realizing the product value after use	2.55
Worth for the spend	2.65
Reality check on the perception of the product	2.15
Follow back service after sales	1.88
Mean Post-Purchase Activities	2.30

Finding and Conclusion

69% of the respondents said that reliance trends are affordable for purchasing dresses. An equal percentage of the respondents said mass production of the same pattern all over India is highly satisfactory. As dresses having the same designs are available in all sizes, people are being able to buy in bulk for a group of friends/relatives. The remaining people felt the designs are common; they can spot the same pattern of dresses in their daily lives. the majority of the respondents perceived the product idea and store image from the reviews of friends and family. Therefore, the word-of-mouth marketing is working on reliance trends retail ltd. Inevitably all the respondents are checking the price as an essential step in the in-store purchase experience before making the buying decision. Respondents are highly satisfied with the money spent on dresses in reliance trends retail ltd when compared to the other stores.

To recapitulate the positive perception of the consumers made them visit the store personally. During the in-store purchase, customers are looking at the store by their perception; if it is positive, purchases are made; if negative, customers are looking for the parallel outlet which satisfies their perception and expectation. As concerned with post-purchase activities, consumers are satisfied with the product quality, but they are disappointed with the pattern, which is mostly worn by all the reliance trend consumers. Consumers who love uniqueness show a negative relationship with reliance trend retail outlets.

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CHAPTER 6

MARKETING STRATEGIES AND CHALLENGES IN TOURISM INDUSTRY: AN INDIAN PERSPECTIVES

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Abstract

The tourism industry in India has witnessed significant growth over the past decades, emerging as a vital contributor to the nation's GDP, employment generation, and cultural exchange. However, despite its potential, the sector faces multiple challenges, particularly in the realm of marketing. This paper explores the evolving marketing strategies employed within India's tourism sector, ranging from traditional advertising to digital and social media campaigns. It also examines government-led initiatives like Incredible India and Dekho Apna Desh, and their effectiveness in promoting domestic and international tourism. The study highlights critical challenges such as infrastructural limitations, regional disparities, seasonality, sustainability concerns, and the impact of global crises like the COVID-19 pandemic. By analysing both successful and underperforming campaigns, the paper offers insights into how India can leverage innovative marketing strategies to build a more resilient and inclusive tourism economy. The findings suggest that a synergistic approach combining technology, policy support, and stakeholder engagement is essential for overcoming existing barriers and achieving sustainable growth in Indian tourism.

Keywords: *Tourism Marketing, Indian Tourism Industry, Digital Marketing in Tourism, Marketing Strategies, Sustainable Tourism, Government Initiatives, Post-COVID Tourism Recovery*

Introduction – Tourism Industry

The tourism industry encompasses all activities related to the short-term travel of individuals to places away from their usual residence. It ranks among the largest industries worldwide, significantly contributing to the economies of many countries through tourist spending. This sector is broad and includes various components such as hotels, transportation, and several other related industries. According to the Travel & Tourism Worldwide report by Statista, the industry is expected to reach a value of \$927.30 billion by 2024. It is important to recognize that tourism involves travel motivated by leisure, business, and other reasons, but typically excludes stays longer than one year. For example, individuals such as expatriates or long-term international students are generally not classified as tourists under most standard definitions.

Tourism in India

Tourism is one of the largest service industries in India and plays a significant role in driving the country's growth and prosperity. It is a key component of the Make in India initiative, acting as a powerful economic driver that promotes job creation and rapid development.

India's diverse geography offers an array of attractions, from magnificent world heritage sites to specialized tourism segments like cruise tourism, adventure tourism, medical tourism, and eco-tourism.

India adopts a progressive stance by allowing 100% Foreign Direct Investment (FDI) in the tourism sector through the automatic route. This includes full FDI in tourism-related construction projects such as the development of premium hotels, resorts, and recreational facilities. For detailed information, the FDI Policy provides comprehensive guidelines and investment opportunities in this sector.

With its rich cultural heritage, diverse attractions, and immense growth potential, India's tourism industry presents limitless opportunities. We welcome investors and partners to join us on this remarkable journey, aligning their vision with the vast possibilities that India offers.

1. Industry Position

The Indian tourism sector is one of the fastest-growing economic segments in the country, playing a crucial role in employment generation and regional development while positively influencing related industries through a multiplier effect. By 2028, the tourism and hospitality industry in India is expected to generate revenues exceeding \$59 billion. Moreover, Foreign Tourist Arrivals (FTAs) are projected to reach 30.5 million by the same year.

The Government of India aims to achieve \$56 billion in foreign exchange earnings and create approximately 140 million jobs in tourism by 2030, focusing on inclusive growth with special emphasis on cruise tourism, ecotourism, and adventure tourism.

2. Tourism marketing

A tourism marketing strategy is a carefully designed plan that details how a travel-related business will connect with and engage its target market. It involves a wide range of actions, including gaining deep insights into the audience and leveraging cutting-edge technology. In the upcoming sections, we explore the most effective tourism marketing strategies that can transform the way you attract and keep customers.

The tourism industry is a dynamic and multifaceted sector that significantly contributes to global economies, cultures, and communities. As one of the largest industries in the world, tourism not only generates substantial revenue but also creates millions of jobs, fosters cultural exchange, and supports local economies.

3. Different Types of Tourism Marketing

Tourism marketing involves a range of strategies designed to appeal to various groups of travelers interested in a destination, activity, or experience. By recognizing and applying these diverse marketing approaches, businesses can effectively reach their target audience, stand out in a competitive market, and provide strong incentives for tourists to select their services over others.

- Location Marketing
- Activity Marketing
- Corporate Marketing

Marketing Mix Strategy for Tourism



Marketing Strategies for Tourism

Content Marketing strategy

- **Description:** Create valuable content that informs and inspires potential travelers.

Social Media Marketing strategy

- **Description:** Leverage platforms like Instagram, Facebook, and TikTok to reach a wider audience.

Influencer Collaborations strategy.

- **Description:** Partner with travel influencers to tap into their established audiences.

Email marketing strategy

- **Description:** Build and maintain a mailing list to communicate directly with potential visitors.

Search Engine Optimization (SEO)

- **Description:** Optimize your website to rank higher in search engine results.

Pay-Per-Click Advertising (PPC) strategy

Description: Use targeted ads to reach potential travelers searching for specific information.

Strategies for Maintaining Flexibility in a Changing Tourism Industry

Being adaptable and agile is essential for your business to thrive during periods of change. Here are some strategies to help you stay proactive and ready to respond:

1. **Expand Your Tour Options** As travel preferences evolve to reflect new and emerging trends, it's important that your tour packages evolve as well.
2. **Commit to Ongoing Growth** For small tour operators, fostering a culture of continuous learning is key to avoiding stagnation. Stay informed about the latest industry developments by attending conferences
3. **Invest in Staff Development** Encourage your team's growth and innovation by supporting their ongoing education. Provide chances for your employees to enhance their skills and leadership abilities.
4. **Segmentation - An Effective Strategy** Adopting a segmentation strategy enables you to design highly focused marketing campaigns that resonate more deeply with each group, leading to increased customer engagement and higher conversion rates.

Implementing a Segmentation Strategy

1. **Utilize eRFM and SCV Tools** Apply advanced segmentation methods like eRFM (engagement, recency, frequency, monetary) analysis and Single Customer View (SCV) data. These tools help you target more accurately and gain deeper insights into customer behavior.
2. **Develop Personalized Content and Offers** Create marketing materials and promotions tailored to the specific preferences, needs, and challenges of each segment. Customized messages are more likely to capture attention and drive conversions. Use the insights derived from eRFM and SCV data to guide your content strategy.
3. **Match Channels to Customer Segments** Choose the most effective communication channels for each group, whether that's email, SMS, or other platforms. Aligning your approach with customer preferences helps deliver a cohesive cross-channel marketing experience.
4. **Customer Service - The Key to Retention** The travel and hospitality sector has undergone significant changes recently. To stay competitive, travel companies must shift away from outdated approaches and adopt a customer-centric mindset both in culture and strategy.

Conclusion

Travel companies must familiarize themselves with the various marketing channels and techniques at their disposal to effectively showcase their products, services, and experiences. By leveraging innovative approaches, customized promotions, and insights driven by data, these businesses can differentiate themselves from competitors, attract new clients, and maintain loyalty among existing customers.

As the travel sector continually evolves, staying updated with the latest trends and technologies is essential for success in a fiercely competitive environment. With a well-crafted marketing plan, travel businesses can seize the opportunities presented by the current post-COVID travel surge and maximize their growth potential in the industry.

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CHAPTER 7

THE ROLE OF BIG DATA AND PREDICTIVE ANALYTICS IN SOCIALLY RESPONSIBLE INVESTMENT IN THE DIGITAL AGE

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Abstract

As investors put more and more emphasis on environmental, social, and governance (ESG) issues, Socially Responsible Investment (SRI) is becoming more popular in the changing world of finance. But traditional ways of measuring ESG and impact are frequently limited by data that is static, small, or subjective. Big Data and Predictive Analytics are two examples of transformational technologies that have come about in the digital age. They are changing how SRI choices are made and carried out. This chapter looks at the connection between digital innovation and ethical investing. It focusses on how these technologies make dynamic ESG scoring possible, reveal hidden patterns of corporate sustainability, and provide investors the power to make impact investment decisions based on data. The chapter shows how financial institutions, rating agencies, and asset managers are using real-time data and machine learning models to improve responsible investing strategies. It does this by looking at best practices from around the world, case studies, and new tools. The ideas shared here are meant to help researchers, practitioners, and policy-makers understand how the digital transition is changing the future of sustainable finance.

Keywords: *ESG, socially responsible investment, big data, predictive analytics, artificial intelligence, sustainable finance, fintech, ESG scoring, and impact investing*

Introduction

An evolving global consensus is reshaping finance, urging that investments serve not only economic returns but also ethical, environmental, and social goals. In this context, Socially Responsible Investment (SRI) has transitioned from a niche concept to a powerful influence on capital markets. SRI combines economic reasoning with moral responsibility, assessing investments based on their impact on people, the planet, and governance – not just profit (Friede, Busch, & Bassen, 2015).

At the heart of SRI is the integration of Environmental, Social, and Governance (ESG) criteria into investment strategies. These indicators—ranging from carbon emissions to board diversity—are gaining importance as global awareness grows around sustainable asset ownership (UN PRI, 2022).

Yet, traditional ESG evaluations often suffer from static, fragmented methods that rely on infrequent disclosures and third-party ratings, delaying the detection of critical sustainability risks (Kotsantonis, Pinney, & Serafeim, 2016).

The emergence of Big Data and Predictive Analytics offers a transformative shift. These tools enable real-time ESG intelligence by analysing diverse data sources—such as social media, satellite imagery, and IoT feeds—to detect emerging trends and risks with high precision (OECD, 2021; Zhu & Zhang, 2023).

This digital evolution allows investors to shift from retrospective assessments to proactive, data-driven strategies aligned with the UN Sustainable Development Goals (SDGs). Predictive models now support scenario planning, risk forecasting, and dynamic portfolio design.

In essence, integrating predictive analytics into SRI marks not just a technological upgrade but a philosophical shift—redefining finance to prioritise long-term value, systemic resilience, and inclusive prosperity through transparent, data-informed decision-making.

Theoretical and Conceptual Framework

This chapter adopts an integrated theoretical framework grounded in Stakeholder Theory, the Resource-Based View (RBV), and the Technology–Organization–Environment (TOE) Framework to explore the intersection between digital technologies and Socially Responsible Investment (SRI). Together, these perspectives offer a robust analytical lens to understand how organisations harness Big Data and Predictive Analytics to align their investment strategies with Environmental, Social, and Governance (ESG) imperatives.

Stakeholder Theory (Freeman, 1984) posits that corporations are accountable not only to shareholders but to a broad ecosystem of stakeholders, including employees, customers, communities, regulators, and the natural environment. This inclusive view aligns closely with the foundational values of SRI, which emphasise ethical responsibility and sustainable outcomes. In the digital era, predictive technologies allow investors to tap into real-time sentiment data from social media, civil society reports, and news analytics—enabling dynamic assessments of corporate stakeholder alignment.

The **Resource-Based View (RBV)** (Barney, 1991) contributes a strategic lens by asserting that firms derive competitive advantage from resources that are valuable, rare, inimitable, and non-substitutable (VRIN). In the SRI context, proprietary digital infrastructure—such as AI-driven ESG scoring engines, sustainability-focused decision support systems, and integrated analytics dashboards—can serve as intangible strategic assets. Organisations that develop or adopt such capabilities are better positioned to attract ESG-conscious capital, mitigate long-term risks, and deliver sustained value creation.

The **Technology–Organization–Environment (TOE) Framework** (Tornatzky & Fleischer, 1990) provides a systemic understanding of the adoption of innovations like Big Data and Predictive Analytics in ESG implementation. According to this framework, technological adoption is shaped by three interrelated contexts:

- **Technological Context:** The availability, maturity, and interoperability of digital tools such as AI, cloud computing, and blockchain.
- **Organisational Context:** Internal factors including leadership commitment, culture of innovation, and ESG governance structures.
- **Environmental Context:** External pressures such as investor activism, regulatory mandates (e.g., SEBI's BRSR in India), and competitive benchmarking.

This tripartite lens is especially useful in explaining disparities in ESG adoption across industries and geographies.

Digital SRI Transformation: A Conceptual Flow

The digital transformation of SRI can be understood as a three-stage cycle:

1. **Data Acquisition (Big Data Infrastructure):** High-volume, real-time data are sourced from both structured (e.g., CSR reports, financial filings) and unstructured channels (e.g., social media feeds, satellite imagery, NGO reports).
2. **Data Processing (AI & Predictive Analytics):** This data is processed **using Natural Language Processing (NLP) and Machine Learning (ML)** models to detect ESG trends, evaluate sustainability performance, and generate dynamic ESG scores.
3. **Investor Decision-Making:** Investors use these insights for portfolio screening, risk forecasting, asset allocation, and shareholder engagement, thereby transitioning from reactive to proactive ESG decision-making.

This conceptual model positions digital infrastructure not just as a support tool but as a strategic enabler – promoting transparency, agility, and foresight in responsible investing. It fosters a shift from lag-based compliance to anticipatory, data-driven engagement with sustainability risks.

By employing this integrated theoretical framework, the chapter advances academic discourse and provides actionable guidance to asset managers, regulators, and FinTech entrepreneurs seeking to craft ethical, evidence-based investment strategies in the digital age.

Using Big Data to Make Financial Decisions

Big Data is the huge amount of organised and unstructured data that comes from many different sources at a very fast rate. Big Data in the SRI context includes data from social media, satellite surveillance, regulatory filings, sustainability ratings, NGO reports, and even customer feedback (Baldini et al., 2021).

The 4Vs – Volume, Velocity, Variety, and Veracity – are the main ideas behind Big Data analytics. Together, they give a multi-dimensional view of what a company is doing, which lets stakeholders keep an eye on ESG-related changes as they happen. For example, sudden increases in bad press coverage or complaints from employees on digital forums could be early signs of governance issues.

Predictive Analytics and ESG Scoring

Predictive analytics is transforming sustainable finance, particularly in the evolution of intelligent, adaptive, and context-sensitive Environmental, Social, and Governance (ESG) scoring systems. At its core, predictive analytics harnesses historical data, real-time signals, and sophisticated computational models—**including AI, machine learning (ML), deep learning**, and advanced statistical techniques—to forecast future ESG performance with unprecedented precision (OECD, 2021; CFA Institute, 2022).

Traditional ESG scoring methods, rooted in static assessments of corporate disclosures, periodic sustainability reports, and third-party ratings, have laid the groundwork for integrating sustainability into mainstream finance. However, they often fail to capture the dynamism and complexity of modern sustainability risks. Predictive analytics addresses these limitations by analysing high-volume, high-velocity data from diverse sources—such as satellite imagery, blockchain-verified supply chains, social media feeds, IoT sensors, and whistleblower platforms (Chen & Yang, 2022; EY, 2021).

A pivotal application is Natural Language Processing (NLP), which enables the extraction of sentiment, consistency, and credibility from unstructured textual data. NLP-driven ESG engines detect greenwashing, monitor evolving controversies, and compare stated sustainability commitments with actual operational data (Sustainalytics, 2023).

Further innovations include Anomaly Detection and Behavioural Pattern Recognition, where ML algorithms identify unusual deviations—such as sharp declines in compliance ratings or unexpected executive exits—as early indicators of ESG deterioration or latent reputational risks (MSCI, 2023).

Deep learning models, such as convolutional and recurrent neural networks, are being developed to simulate nonlinear, time-series ESG trajectories, considering interdependent drivers like geopolitical shifts, regulatory changes, and market volatility. Generative AI is increasingly used for ESG scenario building, helping investors visualise counterfactual futures and develop proactive risk strategies (MIT Sloan Management Review, 2023).

Another major advancement is the emergence of hyper-personalised ESG scoring frameworks. Investors can configure AI-driven models that reflect their unique ethical values—be it climate action, social justice, or biodiversity conservation—making ESG scoring more context-specific and investor-aligned (UN PRI, 2022).

Strategically, predictive analytics elevates ESG scoring from a backward-looking compliance mechanism to a proactive, intelligence-driven decision support system. It acts as the “digital nervous system” of responsible investing—continuously learning, adapting, and responding to the fast-evolving sustainability landscape (Zhu & Zhang, 2023).

As interoperability, accessibility, and AI maturity advance, predictive tools will be pivotal in making global capital markets more transparent, accountable, and aligned with long-term sustainability goals. The future of ESG scoring is not just digital—it is dynamic, decentralised, and deeply intelligent.

Digital Transformation in Impact Investing

Digital transformation is redefining impact investing by integrating advanced technologies that deliver precise, scalable, and real-time insights into the social and environmental outcomes of investments. Unlike traditional investing, impact investing aims to achieve measurable societal benefits alongside financial returns. Historically, challenges such as fragmented data, inconsistent evaluation frameworks, and subjective reporting have hindered outcome verification. Today, digital innovations offer a more transparent, accountable, and responsive approach to measuring and managing impact (Jackson & Harji, 2013; OECD, 2019).

Key technologies driving this shift include Artificial Intelligence (AI), Big Data Analytics, Cloud Computing, Internet of Things (IoT), and Blockchain. These tools improve data acquisition, performance monitoring, and stakeholder engagement. For instance, satellite imagery and IoT sensors now track environmental conditions on green bond-financed land, while mobile platforms collect real-time social feedback on education and healthcare projects (World Bank, 2020; GIIN, 2022).

AI-powered smart screening enables the automated application of ESG filters to identify investments aligned with ethical mandates and Sustainable Development Goals (SDGs). This automation ensures consistency, reduces bias, and streamlines due diligence (UNDP, 2020).

Meanwhile, cloud-based ESG dashboards and APIs allow fund managers to monitor real-time performance and rebalance portfolios dynamically based on shifting ESG scores, enhancing portfolio responsiveness (McKinsey & Company, 2021).

For retail investors, robo-advisory platforms integrated with ESG filters personalise investment options according to ethical preferences, recommending portfolios that include green bonds or clean energy ETFs (PwC, 2021).

Blockchain and Distributed Ledger Technologies (DLTs) further increase transparency in capital deployment. Smart contracts can automate ESG compliance, and immutable records support reliable auditing—especially crucial in remote or emerging markets (WEF, 2020).

In addition, digital tools are revolutionising Impact Measurement and Management (IMM). AI identifies impact indicators most correlated with long-term outcomes, while predictive models forecast impact trajectories. This transition enables a shift from static reporting to proactive, data-driven impact strategies (GIIN, 2022).

In essence, digital transformation equips impact investors with tools that improve accuracy, inclusivity, and foresight. It advances the field from reactive compliance to anticipatory design, enabling evidence-backed, scalable, and mission-aligned investing.

Ultimately, digital transformation is not merely an upgrade—it redefines impact investing by turning capital into a vehicle for measurable, transformative change.

Conclusion and Future Directions

The convergence of digital innovation and Socially Responsible Investment (SRI) signifies a pivotal shift in the global financial architecture. Technologies such as Big Data and Predictive Analytics have transformed ESG evaluation from a backward-looking compliance mechanism into a proactive, real-time, and strategically embedded process. These innovations enable investors to assess sustainability risks with greater precision and to direct capital towards enterprises that align with both ethical values and societal impact.

This digital evolution reflects a broader transformation in financial paradigms – where accountability, transparency, and measurable impact are no longer optional ideals, but core investment imperatives. Scalable digital platforms now empower asset managers, institutional investors, and retail participants to execute evidence-based, sustainability-driven strategies at scale.

To fully realise this potential, three strategic imperatives must guide future research, policy, and practice:

1. **Democratisation of ESG Intelligence:** Equitable access to ESG data and analytical tools is essential to ensure inclusive participation. Without accessible and affordable ESG infrastructure, sustainable finance may remain concentrated among elite institutions, marginalising smaller players and emerging markets.
2. **Standardisation and Metric Convergence:** The current fragmentation of ESG frameworks across jurisdictions hampers credibility and invites greenwashing. Harmonising scoring systems and creating cross-comparable metrics are vital for fostering trust, transparency, and global capital alignment with the **UN Sustainable Development Goals (SDGs)**.
3. **Ethical Governance of AI in ESG:** As algorithmic decision-making becomes embedded in investment processes; ethical safeguards must be codified. This includes ensuring transparency, explainability, and regulatory accountability in AI-driven ESG models to prevent systemic bias and opacity.

For India and other emerging economies, this digital transformation presents a unique opportunity to leapfrog traditional financial constraints and build investment ecosystems that are resilient, transparent, and ethically grounded. With regulatory innovation (e.g., SEBI's BRSR mandate), rising investor consciousness, and rapid FinTech adoption, India is well-positioned to lead a digitally intelligent sustainable finance revolution.

In essence, the digital age offers more than just enhanced efficiency – it offers a strategic and moral reorientation of finance. Aligning capital with conscience – through predictive, responsible, and transparent mechanisms – will define the future of ethical financial leadership. This transformation is not simply about smarter tools, but about creating smarter finance, smarter outcomes, and a more sustainable global future.

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CHAPTER 8

A METHOD FOR KNOWLEDGE MAPPING THAT DECODES CORPORATE GOVERNANCE IN INDIA

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Abstract

This study analyzes Corporate Governance (CG) practices in India over the past 18 years, using data from the Scopus database. It identifies challenges like ineffective boards and conflicts between ownership and management, as well as regulatory developments like SEBI's Clause 49. The study provides insights into research gaps and the evolving landscape of CG in India.

Keywords: *Corporate Governance, Bibliometrics, Corporate performance, Bradford's law*

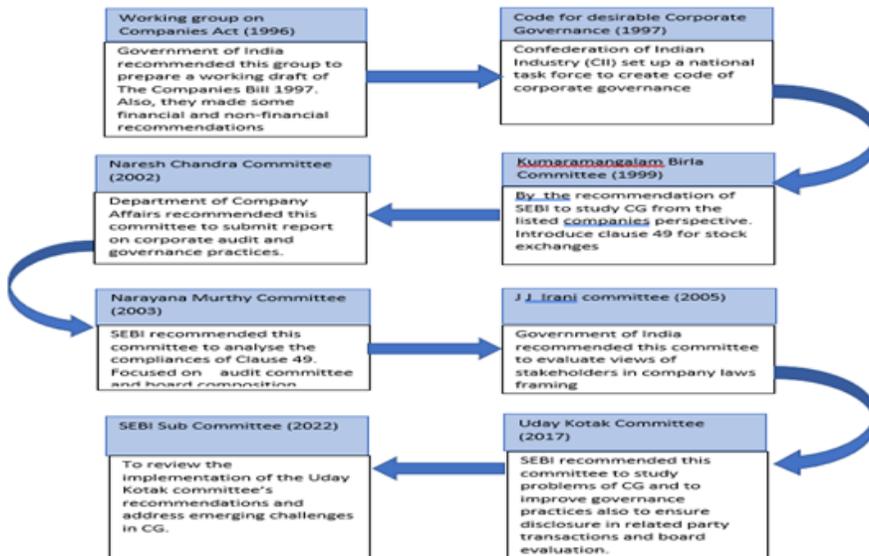
Introduction

Companies, as the third level of business organization, dominate the global industrial economy. According to Haney, a joint-stock company is “a voluntary association of individuals for profit, having a capital divided into transferable shares,” underscoring the need for sound governance. This highlights the importance of Corporate Governance (CG), which serves as a framework for managing relationships and responsibilities among shareholders, boards, managers, and officers. Traditionally, CG addresses the separation of ownership and control, with the OECD defining it as a mechanism to resolve issues arising from this division. However, the modern CG perspective has expanded to include stakeholders, aiming to enhance accountability, transparency, and stakeholder trust.

Effective CG contributes to competitive advantage, fraud prevention, shareholder protection, and legal compliance. It must be tailored to an organization's specific needs and risk structure. Globally, corporate failures have triggered stakeholder concerns, prompting the formation of several influential committees and regulations. Key initiatives include the Cadbury (1992), Greenbury (1995), Hampel (1998), and Turnbull (1999) Committees in the UK; the Combined Code (1998); the U.S. Sarbanes-Oxley Act (2002); the Blue Ribbon Committee (1998); and the Kings Committee reports from South Africa (1993–2016). The OECD principles and World Bank initiatives have also shaped global CG standards.

In India, the evolution of CG has been shaped by political-economic factors and shortcomings in earlier models (Reed, 2002). India has leaned toward the Anglo-American model of CG, influenced by global reforms and domestic scandals such as the 2G spectrum and Satyam scams, which exposed major governance lapses (Shashank & Kumar, 2015). In response, the country has implemented several reforms since the mid-1990s. The Confederation of Indian Industry (CII) issued the first voluntary CG code in 1998. Based on the Kumar Mangalam Birla Committee's recommendations, SEBI introduced Clause 49 of the listing agreement, mandating listed companies to provide a CG report in their annual disclosures. Further improvements followed from the Naresh Chandra Committee and the SEBI-Narayana Murthy Committee, which introduced stronger governance guidelines, enhancing transparency, disclosure norms, and board accountability. These developments mark a significant shift toward more robust and stakeholder-oriented corporate governance in India.

Figure 1 Corporate Governance development in Indian Context



Source: Author Constructed

The Asian financial crisis led the Confederation of Indian Industry (CII) to form a committee to recommend Corporate Governance (CG) best practices. The Kumar Mangalam Birla Committee (1999), accepted by SEBI in 2000, emphasized shareholder and investor interests. Subsequent reforms included the Naresh Chandra Committee (2002) on disclosures and auditing, and the SEBI-Narayana Murthy Committee (2003), which revised Clause 49 to strengthen audit committees, independent directors, and risk management. The Dr. J. J. Irani Committee (2005) recommended business-friendly reforms for the Companies Act. The Kotak Committee (2017), set up by SEBI, focused on enhancing CG through improved board practices and related-party transaction disclosures (Fernando, Muraleedharan, & Satheesh, 2018).

While developed nations have matured CG systems, India is still evolving its framework. This study aims to analyse Indian CG literature to identify key trends, gaps, and challenges. Using bibliometric data from the Scopus database, it addresses the limited scrutiny of existing research in this area.

Research Method

This study aims to provide an overview of research trends in Corporate Governance (CG) practices in India using a mixed-method approach. Both quantitative (bibliometric) and qualitative analyses of existing literature were conducted to meet the research objectives. Data were collected from the Scopus database using the keywords “Corporate Governance” and “India” to ensure comprehensive coverage of Indian studies. The advanced search query filtered results by subject areas (Business, Economics, and Social Science), document type (articles), language (English), affiliation (India), publication stage (final), and access type (open access).

The specific search query used was: “TITLE-ABS-KEY (“Corporate governance” AND India) AND (LIMIT-TO (SUBJAREA, “BUSI”) OR LIMIT-TO (SUBJAREA, “ECON”) OR LIMIT-TO (SUBJAREA, “SOCI”)) AND (LIMIT-TO (DOCTYPE, “ar”)) AND (LIMIT-TO (LANGUAGE, “English”)) AND (LIMIT-TO (EXACTKEYWORD, “Corporate Governance”) OR LIMIT-TO (EXACTKEYWORD, “India”)) AND (LIMIT-TO (AFFILCOUNTRY, “India”)) AND (LIMIT-TO (PUBSTAGE, “final”)) AND (LIMIT-TO (OA, “all”))”. Initially, 815 articles were identified, which were narrowed down to 63 after applying filters. Data extraction was completed on August 1, 2024.

Bibliometric Analysis

Between 2006 and 2024, 63 research articles on Corporate Governance (CG) in India were published across 35 sources, involving 142 authors. Only 18 were single-authored, highlighting strong academic collaboration. The first study appeared in 2006 (Grover, (2006)), marking the beginning of a steadily growing body of literature and reflecting increasing scholarly interest in CG within the Indian context.

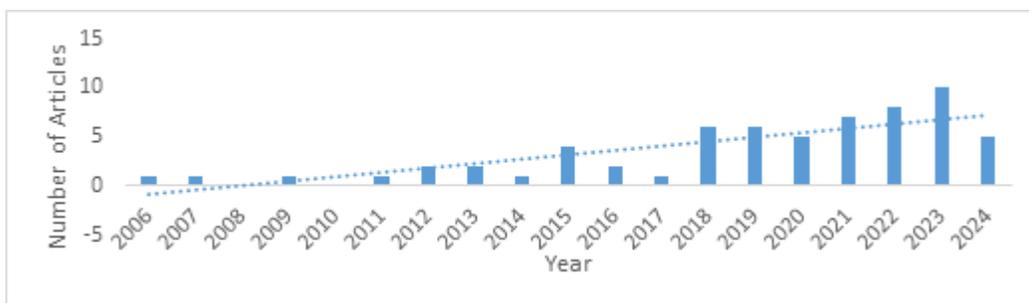


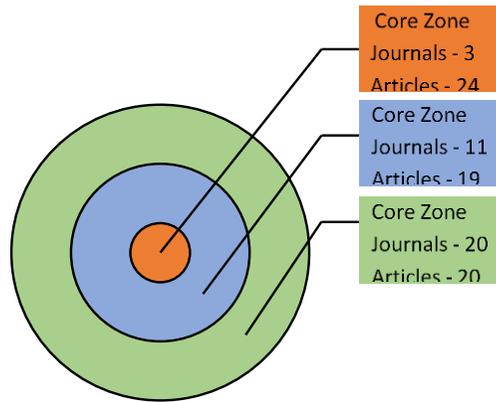
Figure 2: Annual Scientific Production in the area of Corporate Governance

Source: Author compilation

Using Bradford’s Law, journals on Indian corporate governance clustered into three zones. Four core journals—*Corporate Ownership and Control*, *Indian Journal of Corporate*

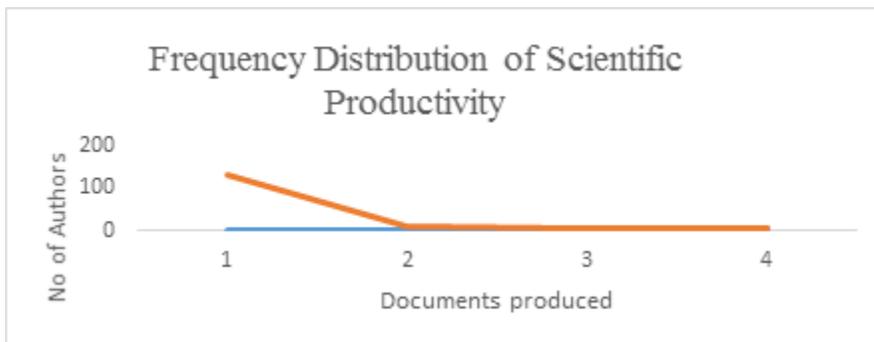
Governance, Cogent Economics and Finance, and Journal of Risk and Financial Management – accounted for 38% of articles from just 13% of sources. Eleven journals formed the middle zone (30% of articles), while 20 journals each published one article, making up the remaining 32%. This shows a concentration of research in a few key journals.

Figure 3 Bradford’s law-based document source clustering



Source: Author compilation

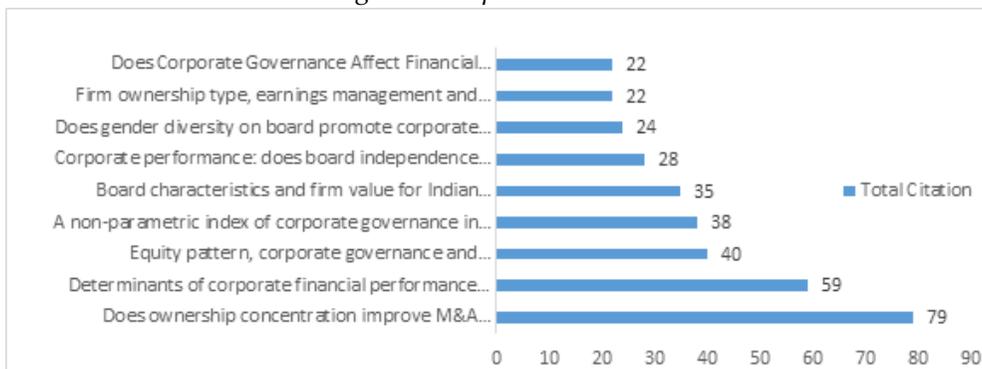
Figure 4 Frequency Distribution of Scientific productivity



Source: Author compilation

Author productivity analysis reveals that out of 142 contributors to Indian corporate governance research, 129 have only one publication, indicating a predominance of occasional authors. Only eight authors have two papers, and four have three. Dr. Arunima Haldar (SPJIMR) stands out with four publications, making her the most prolific contributor (Haldar et al., 2018; Haldar & Nageswara Rao, 2015; Haldar & Rao, 2014a; Raithatha & Haldar, 2021). Other key authors with three papers each include Venkata Mrudula Bhimavarapu (Agarwal et al., 2023; Kanoujiya et al., 2023; Shingade et al., 2022), Siddharth Kanojia (OP Jindal Global University) (Kanojia, 2023; Sharma, Kanojia, & Gupta, 2018; Sharma, Kanojia, & Sachdeva, 2018), Prof. S.V.D. Nageswara Rao (IIT Bombay) (Haldar & Nageswara Rao, 2015; Haldar & Rao, 2014b; Satnalika & Nageswara Rao, 2016), and Shailesh Rastogi (SIBM Nagpur) (Agarwal et al., 2023; Kanoujiya et al., 2023; Shingade et al., 2022). This pattern reflects an emerging field driven by a core group of committed researchers.

Figure 5 Top Cited Articles



Source: Author compilation

The bibliometric analysis highlights influential contributions to Corporate Governance (CG) research in India. Bhaumik & Selarka's (2012) study on ownership concentration and M&A outcomes leads with 79 citations and a strong annual rate of 6.08. Gulati et al. (2020) achieved the highest citations per year (7.60) and a high normalized rate (4.13), indicating strong short-term impact. Notable works by Palaniappan (2017), Mishra & Kapil (2018), and Singh et al. (2021) further reflect growing academic focus. Most top-cited papers examine board structure and performance, highlighting evolving discourse on transparency and accountability in India's CG landscape.

Discussion and Conclusion

Corporate Governance (CG) plays a pivotal role in ensuring transparency, accountability, and trust in corporate operations, thereby preventing failures and fostering economic growth (Fernando, Muraleedharan, & Satheesh, 2018). In the evolving corporate landscape, where ownership patterns are shifting and the stakeholder base is widening, CG serves as a critical mechanism to curb the misuse of power by directors and minimize financial irregularities (Mukher, n.d.; Akrani, 2011). Regulatory bodies like SEBI have institutionalized CG norms to safeguard investor interests and ensure the efficient functioning of capital markets (Nambi, 2005). Despite such frameworks, several persistent challenges—such as ineffective Boards of Directors, conflicts between ownership and management, and passive shareholder engagement—continue to obstruct effective governance (Shashank & Kumar, 2015; Carnes, n.d.).

The post-global financial crisis era has brought a paradigm shift in CG practices, expanding the scope from shareholder-focused models to broader societal and environmental responsibilities, with a greater emphasis on long-term sustainability (Cooper, 2014). Modern CG now demands proactive and accountable boards, regular performance evaluations, effective risk management systems, technology integration, and a strong ethical foundation to promote sustainable organizational performance (Dy, 2018).

This study's bibliometric and systematic analysis of 63 CG-related articles published between 2006 and 2024 provides a comprehensive overview of the research trajectory in

India. The steady increase in scholarly output over the past two decades reflects growing academic and institutional interest in CG. However, the analysis also reveals a concentration of influential research within a small set of journals – most notably *Corporate Ownership and Control* and *Indian Journal of Corporate Governance* – and among a few recurring authors such as Dr. Arunima Halder, Bhaumik S.K., and Palaniappan G. This pattern, validated through Bradford’s Law, indicates that impactful contributions are disproportionately clustered, while the majority of authors remain occasional contributors.

The clustering effect has important implications: while it underlines the presence of key thought leaders in Indian CG research, it also highlights the need for broader dissemination and inclusivity. Greater diversity in publication venues and increased participation from a wider pool of researchers are essential to enrich the academic discourse and address emerging governance challenges. Furthermore, the findings emphasize the importance of translating theoretical insights into practical frameworks, promoting stakeholder-centric models, and aligning governance mechanisms with sustainable development goals.

In conclusion, this study not only maps the research landscape of CG in India but also identifies critical gaps and areas for future inquiry. By advocating for a more inclusive, practice-oriented, and sustainability-driven approach, it contributes to strengthening the governance architecture of Indian corporations and sets the foundation for a more resilient and responsible corporate ecosystem.

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CHAPTER 9

A STUDY ON STUDENTS SATISFACTION WHILE USING META AI IN MARTHANDAM TOWN

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Abstract

With artificial intelligence transforming various sectors, Meta AI, a generative AI technology, has seen increasing relevance in learning environments. The study focuses on understanding students' awareness, usage patterns, and perceptions of Meta AI's usefulness, quality, experience, and tools. A sample of 100 students from Marthandam was surveyed using questionnaires, and statistical tools such as percentage analysis, Kolmogorov-Smirnov test, and Garrett's Ranking Technique were employed to analyze the data. The findings highlight that most students are somewhat familiar with Meta AI, and the majority believe it enhances creativity and helps solve complex problems. However, concerns remain about AI bias and data privacy.

Keywords: *Meta AI, Student Satisfaction, Artificial Intelligence (AI), Generative AI, Educational Technology, Personalized Learning, AI Tools, Creativity Enhancement, AI Awareness, AI Bias, Data Privacy, Kolmogorov-Smirnov Test, Garrett's Ranking Technique, Technology Adoption, AI Challenges and Risks, Statistical Analysis*

Introduction

Artificial Intelligence (AI) enables machines to replicate human abilities such as learning, problem-solving, and decision-making. Generative AI, a recent advancement, creates original content and supports automation across various sectors, including education. Meta AI, developed by Meta, integrates these capabilities to enhance user experience and learning. This study examines the awareness, usage, and satisfaction levels of students using Meta AI in Marthandam Town. It explores the benefits, such as improved learning outcomes and creativity, alongside concerns like data privacy and AI bias. The research provides insights into how students perceive Meta AI and its impact on their educational experiences.

Statement of Problem

Meta AI is a relatively new concept among students, and its effectiveness and impact are not well understood in educational settings. The study aims to explore how students in Marthandam Town perceive and experience Meta AI. It seeks to address the gap in awareness, usage, and satisfaction levels, identifying potential challenges and benefits in its academic application.

Scope of the Study

Students' satisfaction with Meta AI in educational contexts can be assessed across various domains, including personalized learning, AI-driven tutoring, and engagement with

AI-generated content, with benefits like improved academic performance and time management, but also concerns about AI bias and the potential for over-reliance on AI.

Objectives of the Study

- To identify the awareness of the students about Meta AI.
- To determine the factors influencing the choice of the Meta AI.
- To know the students' satisfaction level with the Meta AI.
- To identify the problems faced by respondents while using Meta AI.

Review of Literature

Adel Mahmoud, Al Samman et al. (2024) in their article 'Harnessing Potential: Meta-Analysis of AI Integration in Higher Education' offer recommendations for future practice, policy, and exploration, championing the integration of AI into faculty, teaching, learning, ethical guidance, and investment in ongoing studies.

Ahmad Almufarreh (2024), in his article 'A Meta-analysis of College Students' Intention to Use Generative Artificial Intelligence,' The emergence of artificial intelligence (AI) technology has significantly disrupted the educational landscape. The latest development in AI, generative AI that can generate new and tailored content, has significantly impacted education. The two-stage method of partial least squares structural equation modeling (PLS-SEM) and artificial neural network (ANN) has been employed.

Research Methodology

The study employed a quantitative research approach to assess student satisfaction with Meta AI. Data was collected through a structured questionnaire distributed to 100 respondents in Marthandam Town using the convenience sampling method. Both primary and secondary data sources were utilized

Sources of Information

To attain the aforesaid objectives, data collection plays a very important part in the study. The study depends on primary as well as secondary sources.

1. Primary Data: The information has been directly gathered by means of the interview schedule, and the data furnished by the respondents are the primary data.
2. Secondary Data: Secondary data were collected from published or unpublished sources like standard textbooks, leading journals, magazines, research papers, and a few websites.

Sampling

The sample size chosen for the study was 100 respondents from the town Marthandam. The selection of the sample was based on the convenience sampling method, and the sample was selected according to the personal discretion of the investigator.

Statistical tools:

The study employed the following statistical tools to analyze student satisfaction with Meta AI:

Percentage analysis

The percentage level was used to study characteristics like gender, age, occupation, family type, marital status, no. of family members, residential area, income, etc. To calculate the percentage of any number, the number is divided by the whole and multiplied by 100.

Kolmogorov Smirnov Test

In order to apply the Kolmogorov-Smirnov test, first of all, we should have the cumulative frequency distribution of the sample. Second, we have to establish the cumulative expected frequency distribution, which would be expected on the basis of the null hypothesis. Third, we have to determine the largest absolute deviation between the two distributions mentioned above. Finally, this value is to be compared with the critical value to ascertain its significance.

Garret's Ranking Technique

Garrett's ranking technique was used to rank the preferences indicated by the respondents based on different factors. As per this method, respondents have been asked to assign the rank for all factors, and the outcomes of such ranking have been converted into a score value with the help of the following formula:

$$\text{Percent Position} = 100 (R-0.5) / N$$

where R = Rank given for the factors by respondents

N = Number of factors ranked by a respondent

Theoretical Aspects of Meta AI

Meta artificial intelligence is an AI-driven chatbot powered by Llama 3, a's newest and most powerful large language model (LLM). Meta AI blends into your daily digital interactions by integrating into Meta's chat technology. Meta's AI-driven tools are not just about technological enhancement but also about creating a deeper connection with users by employing advanced algorithms and machine learning models

Importance of Meta AI

Meta AI is crucial because it revolutionizes our digital interactions across social media, messaging apps, and search engines. Here are some key reasons

- **Personalization:** Meta AI tailors experiences to individual users, making interactions more relevant and efficient.
- **Efficiency:** It helps manage tasks and find information quickly. It expands users' knowledge and capabilities.
- **Integration:** Meta AI embeds in apps like Facebook, WhatsApp, Instagram, and Messenger, making them smarter and more intuitive.
- **Accessibility:** It democratizes access to information and enhances social connections, benefiting billions of users worldwide.

Tools of AI

Machine Learning (ML):

ML enables computers to learn from data without explicit programming. It includes techniques like linear regression, decision trees, support vector machines, and neural networks. The most common form is supervised learning, where algorithms learn from labeled data to make predictions or classifications.

Deep Learning (DL):

A subset of ML, deep learning uses multi-layered neural networks to process large volumes of unstructured data. It excels in tasks like natural language processing and image recognition, enabling AI to function without human intervention and automate complex decision-making.

Advantages and Disadvantages of AI

Artificial intelligence provides numerous benefits such as reducing human errors, time-saving capabilities, digital assistance, and unbiased decisions. However, the disadvantages include emotional intelligence, encouraging human laziness, and job displacement.

Analysis and Interpretation

In this study, data were collected from a sample of 100 individuals in Marthandam to assess their satisfaction with the Meta AI. The collected data were organized according to predefined criteria, and statistical tools such as percentages, the K.S. test, and the Garret's ranking technique were employed for analysis.

Analysis based on Demographic Factors

The demographic analysis in the study explores how various personal characteristics influence students' interaction with and perception of Meta AI. The below Table 1 shows the details of the respondents.

Table 1: Analysis based on Demographic factors

Demographic Factor	Categories	Major Findings
Gender	Male (33%), Female (67%)	Majority of users are female.
Age Group	15-20 (60%), 21-25 (29%), 26-29 (3%), 30+ (8%)	Most users are between 15 and 20 years old.
Marital Status	Married (18%), Unmarried (82%)	Most respondents are unmarried.
Education Level	SSLC (6%), HSC (9%), UG (70%), PG (15%)	Predominantly undergraduate students.

AI Impact Area	Education (67%), Entertainment (11%), Others	Education is the primary area impacted.
Familiarity with Meta AI	Very Familiar (37%), Somewhat Familiar (49%), Not Familiar (14%)	Majority are somewhat familiar.

This demographic insight supports the focus of the study on student satisfaction and their adaptive use of AI in academic contexts. The typical respondent is a young, unmarried undergraduate female with moderate familiarity with Meta AI and a strong belief in its impact on education.

Preferential Attributes of Meta AI:

The section on Preferential Attributes of Meta AI examines the students' preferences across key dimensions using Garrett’s Ranking Technique. The goal is to identify which features of Meta AI students value most.

Table 2: Preferential Attributes of Meta AI

Attribute	Response Trend	Key Insight
Usefulness of Meta AI	High preference	Most students find Meta AI useful.
Quality of Information	Positively rated	Students appreciate the reliability of information.
User Experience	Generally positive	Users report a good overall experience with Meta AI.
Tools of Meta AI	Well-received	The available tools are considered effective.

Table 2, summarizes the preferential attributes of Meta AI. Students positively rated Meta AI across usefulness, information quality, user experience, and tools indicating strong satisfaction with its features and functionality.

Findings of the Study

Demographic Findings:

- Majority of respondents were female (67%) and in the 15–20 years age group (60%).
- Most were unmarried (82%) and pursuing undergraduate education (70%).

Awareness & Familiarity:

- 49% were somewhat familiar and 37% were very familiar with Meta AI.
- Meta AI was perceived to have its greatest impact in the education sector (67%).

Student Perceptions of Meta AI:

- 75% believe AI will eventually replace human jobs.
- 63% do not trust AI with their personal data.
- 81% agree Meta AI enhances creativity.

- 64% say Meta AI helps in solving complex problems.
- 63% feel it has surpassed human intelligence.
- 47% see Meta AI as most useful for research and data analysis in academics

Conclusion of the Study

The study shows that Meta AI is mainly used by young female undergraduates for education. While it's seen as creative and helpful for learning, concerns about trust, ethics, and job loss remain. Key issues include network problems and lack of personalized responses. Overall, users find Meta AI useful but believe it needs improvements and wider awareness.

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CHAPTER 10

GLOBAL TRADE & DIGITAL CONNECTIVITY – EXPANDING MARKET REACH THROUGH TECHNOLOGY

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Abstract

The evolution of digital connectivity has significantly transformed global trade, enabling businesses to access and operate in international markets with increased speed, efficiency, and reduced cost. Technological advancements such as e-commerce, cloud computing, artificial intelligence, and digital payment systems have redefined trade practices, offering real-time communication, streamlined logistics, and enhanced customer engagement across borders. This chapter examines how digital tools are expanding market reach, particularly for micro, small, and medium enterprises (MSMEs), allowing them to compete globally. It also highlights how digital platforms reduce trade barriers, simplify compliance processes, and improve transparency in supply chains. Despite these benefits, the digital divide and disparities in infrastructure and digital literacy remain significant challenges. This chapter presents case studies and data-driven insights to illustrate the opportunities and limitations of digital trade. It emphasizes the importance of inclusive digital policies and global cooperation in ensuring sustainable, equitable participation in the global economy.

Keywords: *Global Trade, Digital Connectivity, E-commerce, Technology, MSMEs, Supply Chains, Digital Economy, International Business, Trade Barriers.*

Introduction

In the 21st century, global trade has undergone a profound transformation, driven by the rapid growth of digital connectivity and emerging technologies. Traditional trade models, which once relied heavily on physical infrastructure, face-to-face interactions, and lengthy processes, are now being replaced or supplemented by digital platforms, automated systems, and real-time communication tools. The integration of technology into global commerce has allowed businesses—especially Micro, Small, and Medium Enterprises (MSMEs)—to transcend geographical boundaries, reduce transaction costs, and tap into previously inaccessible markets.

Digital tools such as e-commerce platforms, blockchain for supply chain transparency, artificial intelligence for market analysis, and digital payment systems have revolutionized the way products and services are exchanged internationally. Furthermore, global events such as the COVID-19 pandemic have accelerated the adoption of digital solutions, highlighting their necessity in maintaining trade continuity. This chapter explores the significant role of digital connectivity in enhancing global trade, focusing on its impact, opportunities, and challenges in an increasingly connected world.

Significant Role of Digital Connectivity in Enhancing Global Trade

Digital connectivity has emerged as a cornerstone of contemporary global trade, fundamentally altering the structure, dynamics, and scope of international commerce. It facilitates the seamless exchange of goods, services, information, and capital across borders, enabling businesses to transcend geographic and temporal constraints. As digital technologies penetrate every layer of trade activity – ranging from logistics and supply chain management to marketing and customer engagement – they have become instrumental in fostering efficiency, transparency, and inclusiveness.

One of the most transformative effects of digital connectivity is the democratization of market access. Digital platforms such as e-commerce marketplaces, cloud-based enterprise systems, and virtual payment gateways allow Micro, Small, and Medium Enterprises (MSMEs) to participate in global trade ecosystems, which were historically dominated by large multinational corporations. This inclusion not only enhances global economic participation but also promotes equitable development by integrating marginalized producers into global value chains.

Moreover, real-time communication technologies – including AI-driven analytics, Internet of Things (IoT), and blockchain – support agile decision-making and operational efficiency in global transactions. For instance, IoT-enabled devices optimize supply chain flows through real-time tracking, while blockchain ensures secure, tamper-proof digital records, thus minimizing transactional friction and fraud.

Digital connectivity also reduces trade costs and delays by digitizing customs procedures, documentation, and compliance mechanisms. Initiatives such as the WTO's Trade Facilitation Agreement (TFA) encourage the adoption of digital trade facilitation measures, leading to faster clearance and reduced bureaucratic burden, especially in developing economies. Furthermore, data flows have become a new trade enabler, representing a shift from traditional goods-based trade to information-driven global interactions. Services such as digital education, telemedicine, legal consulting, and software development are now deliverable across continents through virtual platforms, contributing significantly to the global digital economy.

However, to harness the full potential of digital connectivity, critical challenges such as the digital divide, cybersecurity threats, and unequal regulatory frameworks must be addressed. Countries with robust digital infrastructure and policy ecosystems are better positioned to leverage these technologies, whereas digitally excluded regions risk further marginalization.

Challenges and Opportunities in Digital Connectivity and Global Trade

Challenges

Digital Divide and Infrastructure Inequality

A primary challenge is the uneven access to digital infrastructure across countries and regions. Low-income and developing nations often lack reliable internet connectivity, digital payment systems, and cloud services, thereby limiting their participation in digital trade.

This digital divide not only exacerbates existing inequalities but also marginalizes rural populations and small enterprises from global value chains.

Cybersecurity and Data Sovereignty

As trade becomes increasingly digital, cybersecurity threats such as data breaches, ransomware attacks, and intellectual property theft pose significant risks. Furthermore, debates over data localization and sovereignty – where nations seek to control the storage and transfer of data across borders – create regulatory complexity and hinder the seamless flow of digital services.

Regulatory Fragmentation and Lack of Harmonization

Inconsistent digital trade regulations, especially concerning e-commerce taxation, consumer protection, cross-border data flows, and encryption standards, lead to trade inefficiencies. The absence of a unified global digital trade framework complicates compliance for multinational firms and restricts digital interoperability between economies.

Platform Monopolies and Market Concentration

A small number of digital giants dominate global e-commerce, cloud computing, and online advertising. These monopolies can exert disproportionate influence over pricing, visibility, and market access, often disadvantaging smaller businesses and creating anti-competitive environments.

Digital Literacy and Workforce Preparedness

The effective adoption of digital technologies requires human capital that is digitally literate and technologically adaptable. Many emerging economies face challenges in upgrading their workforce skills, leading to inefficiencies and limited digital trade participation.

Opportunities

Empowerment of MSMEs and Entrepreneurs

Digital platforms reduce entry barriers, enabling MSMEs and individual entrepreneurs to access global markets, distribute products through e-commerce, and receive payments electronically. This democratization of trade supports local innovation and job creation.

Service Trade Expansion and Digital Export Growth

Digital connectivity enables the export of services such as software development, digital education, healthcare consulting, and business process outsourcing. This trend supports economies that lack physical export infrastructure but possess a skilled digital workforce.

Digital Trade Facilitation and Paperless Transactions

Governments are adopting technologies such as e-customs, electronic documentation, and blockchain-based trade finance. These innovations reduce clearance times, lower corruption risks, and improve trade transparency.

Enhanced Supply Chain Resilience

Digital tools like AI and IoT enable businesses to anticipate disruptions, manage inventories in real time, and optimize logistics. This is especially crucial during global crises (e.g., COVID-19), where digital agility supports business continuity.

Sustainable Trade and Environmental Monitoring

Digital technologies contribute to environmentally responsible trade practices by optimizing transportation, reducing paper usage, and enabling carbon tracking across supply chains. Green digital trade is emerging as a key focus of sustainable development agendas.

Data Interpretation

1. Growth in E-commerce Trade Volumes (2015–2024)

Year	Global B2C E-commerce Sales (USD Trillion)	% Growth
2015	1.55	—
2018	2.86	23.5%
2020	4.21	22.1%
2022	5.71	17.5%
2024	6.54	14.5%

Interpretation

From 2015 to 2024, global e-commerce has quadrupled. The pandemic accelerated online trade, but even post-pandemic, growth remains steady due to digital logistics, fintech integration, and cross-border digital access. Global B2C e-commerce sales have quadrupled from 2015 to 2024.

2. Digital Infrastructure vs Trade Index (Top 5 Countries, 2024)

Country	Digital Connectivity Index	Export Volume Growth (2020–2024)
Singapore	92/100	13.2%
South Korea	89/100	11.8%
Germany	88/100	10.4%
USA	85/100	9.7%
UAE	82/100	12.1%

Interpretation

Countries with higher Digital Connectivity Index scores (e.g., Singapore, South Korea) report greater export volume growth. A positive correlation exists between digital readiness and trade performance. Stakeholders believe government investment in digital infrastructure significantly boosts export potential.

3. Role of Digital Platforms in MSME Globalization (India Focus)

Factor	Before Digital Integration	After Digital Integration
Average Export Markets Reached	1-2 countries	5-7 countries
Lead Time for Trade Orders	18-25 days	7-10 days
Trade Documentation Time	8-10 days	1-2 days
Sales Conversion Rate	5%	18%

Interpretation

Indian MSMEs using digital trade platforms like ONDC, Amazon Global, and Alibaba have expanded their export reach from 1-2 to 5-7 markets.

Lead times and documentation delays have reduced drastically after digital adoption.

Sales conversion rates have increased more than threefold, showing that digital tools significantly enhance global trade participation among small businesses

4. Barriers to Trade Despite Digital Access

Barriers	% of Respondents Affected
Cybersecurity Concerns	61%
Digital Literacy Gaps	47%
Infrastructure Limitations	39%
Cross-border Data Regulation	33%
Currency/Payment Gateway Issues	28%

Interpretation

Cybersecurity risks (61%) and digital literacy gaps (47%) are the most reported challenges. Many MSMEs face issues due to infrastructure limitations and cross-border regulatory complexity. Despite digital tools being available, awareness, skills, and trust remain unevenly distributed, especially in developing and rural areas.

Suggestions

To enhance global trade through digital connectivity, several key strategies are recommended. First, governments should invest in strengthening digital infrastructure, particularly in rural and underserved regions, to ensure inclusive participation in global markets. Micro, Small, and Medium Enterprises (MSMEs) must be encouraged and supported to adopt digital platforms through subsidies, public-private partnerships, and targeted training programs. To address growing concerns over cybersecurity, a strong regulatory framework and secure digital transaction systems must be implemented. Furthermore, bridging the digital literacy gap is essential; this can be achieved through widespread digital skills training and educational initiatives aimed at both entrepreneurs and workers.

Simplifying cross-border digital regulations and fostering global cooperation in areas like data exchange, e-invoicing, and digital customs procedures will also reduce friction in international trade. Finally, governments and institutions should promote innovation by supporting the adoption of AI, blockchain, and other emerging technologies that can optimize trade processes and improve global market accessibility for businesses of all sizes. Based on the analysis of data and stakeholder responses, the following suggestions are made to improve global trade performance through digital connectivity:

Conclusion

Digital connectivity has revolutionized global trade by removing traditional geographic, infrastructural, and institutional barriers. E-commerce platforms, smart logistics, digital documentation, and fintech innovations have opened up vast opportunities for businesses of all sizes—particularly micro, small, and medium enterprises (MSMEs).

Survey findings clearly show that countries with robust digital infrastructure and proactive policy support have seen significantly higher export growth. Businesses that embrace digital tools experience faster transaction cycles, broader market access, and improved conversion rates. However, challenges such as cybersecurity risks, digital skill gaps, and cross-border regulatory hurdles continue to impede the full realization of digital trade potential.

To sustain and expand this momentum, a holistic approach is required—combining technology adoption with supportive policy frameworks, capacity building, and global cooperation. Digital trade is no longer optional; it is the future of economic globalization.

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CHAPTER 11

MICROFINANCE INNOVATION FOR WOMEN ENTREPRENEURS

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Abstract

This study explores the impact of microfinance on women entrepreneurs in India, focusing on their business growth. Microfinance offers small-scale financial services like loans, savings, and insurance, aiming to improve financial inclusion, alleviate poverty, and support underserved communities. The research highlights challenges faced by women-led enterprises, including limited access to capital, systemic barriers, and gender-based discrimination. Digital Financial Services (DFS) offer new opportunities for sustainable growth and empowerment.

Keywords: *Microfinance, women empower, entrepreneurship, socio-economic, digital technology.*

Introduction

Microfinance, also known as microcredit, refers to a range of financial services aimed at low-income individuals and groups who are often excluded from traditional banking systems. It provides small-scale financial products – such as loans, savings, and insurance – customized to meet the needs of underserved populations. The central objective of microfinance is to alleviate poverty, enhance financial inclusion, and empower individuals by offering access to capital and critical financial tools **Focus:** Microfinance is centered on Providing financial services to individuals underserved or excluded by traditional banking systems. **Purpose:** The overarching goal is to promote entrepreneurship, foster economic development, and support individuals in achieving financial self-reliance.

Significance

- **Poverty Alleviation:** Microfinance offers financial support to low-income individuals and small enterprises empowering them to start or expand their businesses, boost their income, and enhance their quality of life
- **Financial Inclusion:** It broadens access to financial services for underserved and marginalized communities, enabling them to engage with the formal economy and build long-term financial resilience.

- **Women's Empowerment:** Microfinance serves as an effective means of empowering women through access to credit and savings. This financial inclusion fosters economic independence and strengthens their position within the household and community
- **Economic Growth:** Through support for small enterprises and entrepreneurship, microfinance fosters job creation and contributes to broader economic development, especially in low- and middle-income countries.

Objectives of Microfinance Innovation for Women Entrepreneurs

The primary objectives of microfinance innovation for women entrepreneurs are to:

- **Enhance Financial Inclusion:** Expand access to a wide range of financial services – such as savings, insurance, and payment solutions – tailored to the unique needs of women entrepreneurs who are often excluded from formal banking systems.
- **Empower Economic Participation:** Support women in starting, sustaining, and growing their businesses, leading to greater income, asset ownership, and financial independence. This promotes self-reliance and enhances their overall economic well-being.
- **Promote Gender Equality:** Challenge societal norms and traditional gender roles by recognizing women as key economic contributors and empowering them as decision-makers within their households and communities.
- **Alleviate Poverty:** Help reduce poverty by equipping women with financial tools to generate income, create jobs, and improve living conditions for themselves and their families.
- **Drive Innovation and Growth:** Promote the creation of innovative financial products, delivery methods, and business models specifically designed to address the challenges and opportunities faced by women entrepreneurs.

Scope of Microfinance Innovation for Women Entrepreneurs

The scope of microfinance innovation for women entrepreneurs encompasses a wide range of areas, including:

Product Innovation:

- **Develop Flexible, Collateral-Free Loan Products:** Create loan offerings tailored to women's business needs, with repayment schedules that align with their income cycles and do not require traditional collateral.
- **Design Accessible and Secure Savings Solutions:** Introduce savings products that are easy to use, safe, and encourage consistent saving habits among women entrepreneurs.
- **Introduce Targeted Micro-Insurance:** Develop micro-insurance products that protect women and their businesses from common risks, such as health emergencies, natural disasters, and business-related losses.

- **Leverage Digital Financial Services (DFS):** Utilize mobile and digital platforms to deliver financial services efficiently, reduce transaction costs, and increase accessibility for women in remote or underserved areas

Delivery Channel Innovation:

- **Utilize Mobile Technology and Community-Based Networks:** Employ mobile platforms, agent networks, and localized outreach strategies to effectively reach women in remote and underserved regions.
- **Adopt Group Lending and Self-Help Models:** Implement group lending approaches and self-help groups (SHGs) that foster peer support, shared accountability, and social collateral to enhance credit access and repayment.

Technology and Digitalization:

- **Harness Data Analytics and Artificial Intelligence (AI):** Apply data analytics and AI technologies to strengthen risk assessment, customize financial products to individual client needs, and elevate the quality of customer service.
- **Use Digital Platforms for Capacity Building and Market Access:** Leverage digital solutions to deliver financial literacy training, offer business development support, and facilitate market linkages for women entrepreneurs.

Non-Financial Services Innovation:

- **Design Targeted Training Programs:** Create innovative training initiatives that address the unique gaps in business management, financial literacy, and digital skills faced by women entrepreneurs.
- **Provide Mentorship and Peer Learning Opportunities:** Facilitate access to mentorship, coaching, and peer-to-peer learning to support personal and professional growth.
- **Promote Business Networks and Cooperatives:** Support the development of business networks and cooperatives to encourage collaboration, resource sharing, and improved access to markets.

Impact of Microfinance on Women Entrepreneurship

Microfinance has demonstrated a significant positive impact on women entrepreneurship by:

- **Expand Access to Capital:** Provide women with the financial resources needed to start or grow their businesses, helping them overcome one of the most significant barriers to entrepreneurship.
- **Increase Income and Savings:** Enable women to boost their earnings, enhance household financial stability, and build savings for future investments and unforeseen challenges.

- **Promote Business Growth and Sustainability:** Support the development, profitability, and long-term success of women-led enterprises.
- **Improve Financial Literacy and Business Skills:** Equip women with essential financial and managerial skills to effectively handle their finances and make sound business decisions.
- **Strengthen Social and Support Networks:** Foster the creation of peer groups and professional networks that offer emotional support, shared learning, and collaborative business opportunities.

Challenges Faced By Women in Accessing Finance

Women entrepreneurs globally and in India encounter a range of interconnected challenges when seeking financial support for their businesses. These hurdles often stem from systemic issues, gender biases, and socio-economic factors. Here are some key challenges:

1. Limited Credit History:

- Many women, especially those from traditional backgrounds or who have primarily focused on unpaid care work, may lack a substantial or independent credit history. Financial accounts might be primarily in the names of male family members.
- Without a strong credit record, financial institutions often perceive women applicants as higher credit risks, leading to loan rejections or less favourable terms like higher interest rates.

2. Gender Bias and Stereotypes:

- Despite increasing awareness, gender bias persists within the financial sector. Some institutions may hold preconceived notions about women's business acumen, commitment, and ability to manage finances or scale their ventures.
- Loan officers might implicitly discriminate, for instance, by being more likely to require a guarantor for a female applicant compared to a male applicant with a similar profile.

3. Financial Literacy Gap:

- Women, on average, tend to have lower levels of financial literacy compared to men. This gap can hinder their ability to understand complex financial products, prepare strong loan applications, and manage their business finances effectively, making them appear riskier to lenders.

4. Smaller Loan Sizes and Higher Transaction Costs:

- Women-owned businesses often start smaller and may initially seek smaller loan amounts. Financial institutions may find these small loans less profitable due to the high per-customer cost of administration and servicing.
- The credit risk assessment process can be equally complex for small and large loans, making small-ticket lending less attractive to some institutions.

5. Limited Awareness of and Access to Government Schemes:

- While governments in India and elsewhere have introduced schemes specifically aimed at supporting women entrepreneurs with access to finance (e.g., Pradhan Mantri Mudra Yojana, Stand Up India in India), awareness and accessibility of these schemes can be limited, especially in rural areas.
- Complex application processes and lack of outreach can prevent women entrepreneurs from benefiting from these initiatives.

Self Groups

Village Savings and Loan Associations (VSLAs) are a distinctive microfinance model that has shown significant success in empowering women, especially in communities with limited access to formal financial institutions.

VSLAs are self-managed groups, usually consisting of 15 to 30 members from the same community, who collectively save and lend money to one another. The key features of VSLAs include:

- **Self- Selection and Regular Meetings:** : Members choose each other based on trust, The group meets regularly (weekly, bi-weekly, or monthly) to save.
- **Share Purchase:** Members save by buying a fixed number of shares at each meeting. The price and number of shares are decided by the group. **Loan Fund:** The accumulated savings form a loan fund from which members can borrow.
- **Loan Terms and Interest:** The group decides on loan terms, interest rates, and repayment schedules. Interest earned on loans becomes part of the group's savings.
- **Social Fund (Optional) and Annual Cycle and Share-Out:** The VSLA operates in a cycle of about one year. At the end of the cycle, all loans are repaid, and the accumulated savings and interest are distributed back to the members based on the number of shares they hold. The group then typically starts a new cycle.

Digital Financial Services

Financial Services (DFS) refer to the use of digital technologies to deliver and access financial services. These services can include payments, savings, credit, insurance, and remittances, and are typically accessed through mobile phones, the internet, and other digital channels.

Role of DFS in Supporting Women in Microfinance:

DFS offers significant potential to enhance the reach and impact of microfinance for women:

- **Increased Convenience and Accessibility:** DFS can overcome geographical barriers and time constraints, allowing women in remote areas to access financial services without the need for physical branches. Mobile money, for instance, enables women to conduct transactions from their homes or workplaces.
- **Reduced Costs:** Digital channels can lower transaction costs for both microfinance institutions (MFIs) and clients, making small-value transactions more viable and affordable for women entrepreneurs.

- **Greater Control and Privacy:** DFS can provide women with more control over their finances and greater privacy in their financial dealings, potentially increasing their autonomy within the household.

Challenges of DFS for Women

Despite the significant opportunities, several challenges need to be addressed to ensure that DFS effectively supports women in microfinance:

- **The Digital Gender Gap:** Women in many developing countries have lower rates of mobile phone ownership and internet access than men, limiting their ability to utilize DFS.
- **Lower Digital Literacy and Financial Literacy:** Women may have lower levels of digital and financial literacy, making it difficult for them to understand and use digital financial products safely and effectively.
- **Security and Trust Concerns:** Lack of trust in digital platforms and concerns about fraud and data privacy can be significant barriers for women.
- **Affordability:** The cost of mobile phones, data, and transaction fees can be prohibitive for low-income women.
- **Connectivity and Infrastructure:** Poor network connectivity and inadequate digital infrastructure in rural areas can hinder the adoption and usage of DFS.
- **Biases in Algorithms:** There's a risk of biases in algorithms used for credit scoring and other automated processes, potentially disadvantaging women.

Conclusion

Microfinance innovation has become a powerful catalyst for empowering women entrepreneurs, particularly in developing economies. By providing accessible, affordable, and customized financial products, microfinance institutions help women overcome long-standing barriers to entrepreneurship. These innovations play a crucial role in promoting gender equality, increasing household income, and contributing to broader national economic development. Key areas of innovation in microfinance for women include expanding financial inclusion, supporting skill development, fostering economic independence, and enhancing social status. The scope of microfinance is rapidly evolving with the integration of digital financial services—such as mobile banking, digital wallets, and fintech platforms—which have made financial access faster, safer, and more efficient. These digital advancements have significantly extended the reach of microfinance to remote and underserved areas. The impact of microfinance on women entrepreneurs has been substantial, enabling many to start or grow small businesses, improve household well-being, and contribute to community development. However, several challenges remain, including low financial literacy, collateral demands, gender-based discrimination, and limited awareness of available financial services. Addressing these barriers through supportive policies, education, technological innovation, and inclusive financial practices is essential. With continued efforts, microfinance can remain a driving force for social transformation

and economic empowerment, helping build a more equitable and prosperous society for women entrepreneurs.

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CHAPTER 12

METaverse AND COMMERCE: A NEW FRONTIER OF DIGITAL EXCHANGE

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Abstract

The convergence of commerce and the metaverse marks a revolutionary shift in the global economic landscape. As an immersive digital universe composed of augmented reality (AR), virtual reality (VR), blockchain, and artificial intelligence (AI), the metaverse presents new possibilities for trade, consumer experience, and brand engagement. This article explores the evolving dynamics between commerce and the metaverse, examining how traditional business models are being redefined and new digital economies are emerging. Drawing from recent innovations and scholarly insights, it emphasizes the transformative potential of virtual marketplaces, digital assets, and avatar-driven transactions, while also reflecting on the ethical, economic, and regulatory challenges ahead.

Introduction

The metaverse, once a sci-fi dream, has become an imminent digital frontier. Defined as a persistent, shared, 3D virtual space linked into a perceived virtual universe (Stephenson, 1992; Dionisio et al., 2013), the metaverse combines virtual environments with real-time user interaction. For commerce, this transformation is both disruptive and evolutionary – altering how goods are exchanged, how brands are built, and how consumers experience products. No longer confined to brick-and-mortar stores or even traditional e-commerce platforms, businesses now engage customers through immersive virtual experiences where identity, ownership, and interaction take on novel forms.

Metaverse Commerce: Redefining the Business Paradigm

The metaverse enables a phygital (physical + digital) integration where virtual and real-world commercial experiences overlap. Businesses are investing heavily in digital twins of stores, allowing customers to explore and shop in virtual showrooms (PwC, 2022). Giants like Nike (with Nikeland on Roblox) and Gucci (with Gucci Garden) have pioneered this transformation, generating significant consumer engagement through avatar-based personalization and limited edition Non-Fungible Tokens (NFTs).

- Key Elements of Metaverse Commerce:
- Virtual Real Estate & Stores: Companies are buying digital land on platforms like Decentraland and Sandbox.

- **NFTs as Digital Goods:** Digital assets backed by blockchain provide verifiable ownership.
- **Cryptocurrency Transactions:** Facilitate decentralized, global transactions.
- **Immersive Marketing:** AR/VR allows customers to try products and interact with avatars.

Innovation in Consumer Experience

The metaverse enhances experiential commerce, where emotional and social experiences drive purchasing decisions. The ability to socialize, co-create, and personalize in real time increases brand stickiness. Virtual pop-up shops, interactive brand quests, and gamified loyalty programs are now tools to engage digital natives and Gen Z consumers.

Moreover, AI-driven avatars act as virtual customer assistants, delivering real-time, emotion-sensitive responses that simulate human engagement. This not only streamlines customer service but also offers unprecedented personalization (Lee et al., 2021).

Economic and Ethical Considerations

While metaverse commerce offers new revenue streams, it also raises pressing issues:

- **Data Privacy and Surveillance:** Hyper-personalization requires extensive data collection.
- **Digital Divide:** Access requires high-speed internet and VR hardware.
- **Intellectual Property and Taxation:** Legal frameworks are still evolving for digital assets.

As virtual assets grow in value, governments and organizations must explore taxation models and legal protections for digital property, labor, and transactions.

Future Trends and Opportunities

The metaverse is predicted to generate over \$5 trillion in value by 2030 (McKinsey, 2022), reshaping sectors like education, healthcare, tourism, and entertainment alongside commerce.

- **Innovative Commercial Applications Include:**
- **Virtual Influencers and AI Brand Ambassadors.**
- **Metaverse Supply Chains and blockchain-based traceability.**
- **Tokenized Reward Systems for loyalty programs.**
- **Crowdsourced Product Development using virtual communities.**

Businesses must now cultivate metaversal literacy – the capability to strategize, design, and operate within immersive economies.

Conclusion

The marriage of the metaverse and commerce is not just a technological upgrade – it's a philosophical shift in how we understand space, value, and human interaction. As immersive platforms become increasingly mainstream, businesses must innovate beyond

product and price, focusing instead on creating shared experiences, emotional resonance, and trust in virtual realms. With appropriate regulation, inclusive access, and responsible innovation, metaverse commerce has the potential to democratize entrepreneurship and expand economic opportunity in unprecedented ways.

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CHAPTER 13

AN ANALYSIS OF WORKING WOMEN'S JEWELLERY BUYING BEHAVIOUR IN SELECTED KARNATAKA DISTRICTS

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Abstract

This study explores the jewellery purchasing behaviour of working women across selected districts in Karnataka, aiming to understand the key factors that influence their buying decisions. In addition to psychological and marketing influences like brand preference, design, pricing, promotional strategies, and peer influence, the research focuses on socioeconomic variables like income, age, occupation, education, marital status, and cultural background. Structured questionnaires were used to collect primary data from a sample of working women in Bengaluru, Mysuru, Tumakuru. The study reveals that working women increasingly view jewellery not only as a traditional asset but also as a fashion statement and investment tool. The preference has shifted toward contemporary, lightweight designs, with a strong preference for branded jewelry and online shopping options. The findings offer valuable insights for jewellers and marketers to tailor their strategies in product design, pricing, and promotional efforts to better serve the evolving needs of the working female demographic in Karnataka.

Keywords: Working women, Jewellery buying behaviour, Consumer preferences, Karnataka districts, Branded jewellery Purchasing patterns.

Introduction

Jewellery has been a significant part of human culture for centuries, with deep-rooted cultural, social, and economic importance. In India, the significance of jewellery is exceptionally prominent, where it is not just a luxury but a symbol of wealth, status, and tradition. Over the years, the jewellery market has seen a shift in consumer buying behaviour, influenced by various factors like changing lifestyles, socioeconomic status, globalization, and technological advancements. The buying behaviour of working women towards jewellery products has been an important area of study in consumer behaviour research. As both a functional and symbolic product, Jewellery often carries cultural, social, and emotional significance for individuals, particularly in India, where it is a vital aspect of personal and social identity. Working women, in particular, represent a unique demographic in the study of jewellery purchasing habits, as their preferences may differ from non-working women due to their increased financial independence, changing lifestyle, and evolving societal roles.

Patel and Desai (2017) state that jewellery serves as an ornament and a representation of social status, wealth, and personal identity. For working women, these cultural and traditional values often influence purchase decisions, but the balance between modernity and convenience has become increasingly important in recent years. Gupta and Bansal

(2020) found that working women, particularly in urban settings like Bengaluru, are increasingly attracted to modern jewellery designs that blend traditional elements with contemporary aesthetics. In Karnataka, a state known for its rich cultural heritage and traditional affinity towards jewellery, the role of working women as consumers has seen a marked shift in recent years. The emergence of urbanization, along with access to various products and brands, has made it crucial for marketers and jewellery designers to understand the specific factors influencing the purchasing decisions of working women. A study by Sharma et al. (2019) highlighted that working women in metropolitan areas spend more on jewellery, driven by disposable income and the desire for financial independence. Bhat and Rao (2021) observed that working women in Karnataka districts are likelier to invest in jewellery when they perceive it as an asset that holds value. It is used for social and personal occasions. This research explores the buying behaviour of working women in selected districts of Karnataka, examining factors such as socio-economic status, cultural influences, brand preferences, and the impact of marketing strategies. The goal is to provide insights into this segment's preferences, needs, and purchasing patterns, enabling businesses to tailor their marketing strategies and product offerings to better meet their demands.

The Scope and Need for the Study

This study focuses on understanding the purchasing behaviour of working women towards jewellery products in selected districts of Karnataka, a region known for its diverse culture, economic development, and a significant proportion of women actively participating in the workforce. The study will specifically examine various factors influencing the buying decisions of working women, including socio-cultural, psychological, and economic aspects, as well as the impact of technological advancements, such as online shopping. The study will focus on working women in selected districts of Karnataka, including urban and semi-urban areas. It will analyze their preferences for jewellery products such as necklaces, earrings, rings, and bracelets and will also compare their preferences for branded versus non-branded jewellery. The study aims to provide a regional understanding of jewellery purchasing behaviour, offering insights specific to Karnataka's local culture, economic factors, and digital transformation. The scope of the study will be limited to working women in selected districts of Karnataka, with a primary focus on urban and semi-urban regions where the working population is concentrated. These districts feature a growing middle class, rising disposable income, and a notable increase in women's economic participation. The study will also encompass various types of jewellery products, including traditional gold jewellery, contemporary designs, and costume jewellery, enabling a comprehensive understanding of the segment's diverse preferences and purchasing patterns.

Need for the Study

Emerging Market for Jewellery in India: India boasts one of the largest jewellery markets in the world, with working women representing a significant and growing segment of this

market. However, there is a lack of comprehensive studies that specifically address the jewellery purchasing behavior of this demographic group. This study aims to fill that gap by offering insights into their needs, preferences, and the factors influencing their purchasing decisions. Changing Dynamics of Working Women's Buying Behavior -In the past, jewellery was primarily seen as a long-term investment, a form of inheritance, and something reserved for special occasions. However, today, working women are increasingly purchasing jewellery for personal use, convenience, and as a fashion statement. This study highlights these shifting dynamics and aims to assist businesses in better meeting the evolving demands of working women in Karnataka.

Statement of the Problem:

The jewellery market in Karnataka is undergoing transformative changes influenced by shifting purchasing behaviors, particularly among working women. While the traditional paradigms of jewellery acquisition are well-documented, the modern preferences of this demographic, shaped by factors such as income, occupational status, lifestyle evolution, emotional significances, and digital engagement, remain under-researched. Moreover, as working women in Karnataka gain financial autonomy and access to contemporary shopping platforms, they exhibit unique preferences for jewellery that harmonizes traditional craftsmanship with modern aesthetics, convenience, and quality. However, there is a paucity of comprehensive analyses regarding the factors that influence their purchasing decisions, including brand loyalty, price sensitivity, material selection, and the implications of online shopping. This study aims to explore the principal drivers behind the jewellery purchasing behaviors of working women across selected districts in Karnataka, enabling businesses to adapt their offerings to meet the demands of this emerging market segment effectively. A thorough examination of these pivotal factors will facilitate a nuanced understanding of buying behaviors in this demographic.

Objectives of the Study

The objective of the study is to examine the Working Women's Jewellery Buying Behaviour in Selected Karnataka Districts.

Sampling Design

The research will employ a cross-sectional survey design, facilitating the collection of data at a singular time point across diverse segments of the population. The population will be stratified based on key demographic and behavioral attributes, including age, income, geographic location, and cultural background. This stratification will enable a targeted sampling approach to capture a wide range of responses, which is essential for a comprehensive analysis of consumer behavior relating to gold jewellery in Karnataka.

Sampling Method: A stratified random sampling technique will be utilized, systematically selecting respondents from predefined subgroups defined by demographics such as age, occupation, and income level.

Sample Size:

A sample size of 365 respondents was strategically determined to ensure a statistically robust representation of the jewellery consumer demographic in Karnataka. This sample size is calculated with a confidence level of 95% and a margin of error of 5%, based on estimates of the consumer base for jewellery products. The distribution of participants across various strata will align proportionally with the population distribution, thereby ensuring representation of all significant sub-groups. The focus will be on engaging approximately 365 working women from selected districts in Karnataka, ensuring representation across varied age groups, professions, and socio-economic strata. The anticipated sample size will consist of approximately 350-365 respondents, ensuring sufficient geographic representation and capturing a range of purchasing behaviors across different demographic groups.

Data Analysis Tools:

Quantitative Data: The quantitative data will be analyzed using statistical software such as SPSS or Excel, which will facilitate the application of descriptive statistics, cross-tabulations, and factor analysis to derive insights from the collected data.

Qualitative Data: A thematic analysis will be conducted on the qualitative data collected from interviews and focus groups, aiming to identify prevailing themes and insights related to consumer attitudes towards gold jewellery.

Secondary Data Sources

Industry Reports: Utilize reports and studies from market research firms, industry associations, and government entities to obtain insights into the jewellery market. This includes analysing trends, consumer preferences, and understanding the buying behavior of working women. **Published Academic Research:** Conduct a thorough review of scholarly articles, dissertations, and papers focused on consumer behavior within the jewellery sector, emphasising working women and pertinent socio-economic studies. Annual reports and case studies from leading jewellery brands, such as Tanishq, Kalyan Jewellers, and Malabar Gold, will also be examined to evaluate market positioning, customer preferences, and buying trends, with a specific focus on how these brands engage working women..

Target Population The study will target working women across diverse age groups and demographic segments in select districts of Karnataka to accurately represent the varied buying behaviors of these individuals.

Sources of Data **Surveys:** Quantitative data will be collected to yield statistically relevant insights. **Interviews:** Qualitative insights will be sourced from consumers regarding their jewellery usage patterns among working women within the defined districts.

Statistical Tools

Analysing consumer behavior towards purchasing gold jewellery involves utilizing a range of statistical tools to draw meaningful insights. Descriptive statistics help summarize and understand data trends, such as preferences, purchasing frequency, and demographic

patterns. Regression analysis is invaluable for identifying relationships between factors such as income, cultural influences, and purchasing behavior. Cluster analysis groups consumers based on shared characteristics, enabling targeted marketing strategies. Additionally, chi-square tests evaluate the associations between categorical variables, such as gender and preferred types of gold jewellery. Tools like factor analysis uncover underlying motivations or attitudes, while conjoint analysis assesses the importance of various product attributes, such as design, purity, or pricing. Together, these tools offer a comprehensive understanding of consumer decision-making in the gold jewellery market.

Statistical Tools to be Used

Objective/Variable	Suggested Statistical Tests
Demographics vs Buying Behaviour	Chi-square test
Factor Importance	Factor Analysis
Satisfaction Levels	Descriptive statistics, Likert scale analysis
Branded vs Non-branded Preferences	T-test / ANOVA
Awareness vs Behaviour	Correlation Analysis, Regression
Occasions vs Frequency of Purchase	Chi-square test, Crosstab analysis
Pre vs Post Purchase Perception	Paired T-test
Attitude Constructs	Confirmatory Factor Analysis (CFA)
Demographics & Preferences	Multiple Regression / MANOVA
Grouping Consumers by Similar Traits	Cluster Analysis

Tools for Data Collection

Data collection can be conducted through various methods, each suited to specific research needs. Surveys are widely used to gather standardised information from large groups, whereas interviews provide in-depth insights through one-on-one conversations. Focus groups foster discussions among participants, capturing diverse perspectives in a shared setting.

Questionnaire Distribution: Conducted via WhatsApp and in-person surveys, with questionnaires available in regional languages.

Chi-Square Test: To examine the relationships between categorical variables, treating purchasing behavior as the dependent variable. The necessary tests will include: T-Test, ANOVA, Multiple Regression Analysis, Confirmatory Factor Analysis (CFA)

Conclusion

According to the study on the purchasing habits of working women in particular Karnataka districts, jewelry remains significant to this group on a personal and cultural level. Working women's purchasing decisions are impacted by a variety of factors, such as price sensitivity, design, quality, brand preference, income levels, and promotional tactics. It was noted that gold and diamond jewellery are still very popular, and that people are becoming more interested in contemporary, lightweight styles that go well with both formal

and business wear. The fact that the majority of respondents bought jewellery for weddings, holidays, or as an investment emphasizes how jewellery can be used as both an asset and an ornament. Working women valued certification, trust, and after-sales service, and they were more likely to purchase branded jewellery.

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CHAPTER 14

CHALLENGES AND OPPORTUNITIES IN PRACTISING GREEN ENTREPRENEURSHIP IN BEAUTY SALONS: A STUDY OF GREEN ENTERPRISES AND ECO-CONSCIOUS PRACTICES

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Abstract

The beauty salon industry is progressively integrating sustainability by implementing principles of green entrepreneurship. This study explores the challenges and opportunities faced by beauty salons in evolving into green enterprises through the implementation of eco-conscious practices. Based on a quantitative survey of 63 salon professionals across urban, semi-urban, and rural areas, the study employs descriptive statistics, Chi-square tests, and ANOVA to analyze the motivating factors, awareness, and implementation of green initiatives. The findings reveal that customer demand serves as the most substantial motivator, whereas the elevated costs associated with eco-friendly products continue to pose a significant obstacle. The statistical analysis indicates that there are no significant differences in awareness or implementation based on location. This finding suggests a widespread readiness for the adoption of environmentally sustainable practices across various regions. The research provides actionable insights for policymakers and salon proprietors seeking to promote environmentally sustainable business practices within the personal care sector.

Keywords: *Green entrepreneurship, Beauty salons, Eco-conscious practices, Customer demand and Green enterprises.*

Introduction

Green entrepreneurship involves creating and managing businesses that blend economic goals with environmental stewardship (Schaper, 2016). This approach aims to reduce environmental harm through sustainable resources, eco-friendly processes, and responsible business models. In the beauty salon industry, which significantly impacts the environment via chemical use, energy consumption, and non-biodegradable packaging, there is a growing interest in green practices (Lim & Kwon, 2023). Salons adopting eco-conscious practices, such as using organic products and reducing plastic waste, are shifting toward sustainable models (Baden & Prasad, 2016).

This trend is driven by consumer awareness, supportive government initiatives, and global sustainability goals (Khandai et al., 2023). However, challenges like high operational costs, limited training, and access to green alternatives, especially in rural areas, persist (Luthra et al., 2025). On the other hand, benefits like increased customer loyalty and market differentiation motivate some salons to pursue sustainable practices (Wong et al., 2023). As attention to sustainability grows, it's crucial to investigate how beauty salons balance ecological values with operational challenges.

This study seeks to identify the challenges and motivators influencing eco-conscious practices in beauty salons and analyzes how awareness and implementation vary across locations using a quantitative approach.

Literature Review

This review highlights the key concepts and challenges of green entrepreneurship in beauty salons, covering environmental impacts, sustainable practices, and existing gaps, thereby establishing the rationale for the present study.

Concept of Green Entrepreneurship

Green entrepreneurship involves business activities that prioritize profitability alongside environmental sustainability. It includes creating eco-friendly products and services that reduce environmental harm (Odeyemi et al., 2024). Entrepreneurs in this field are motivated by environmental stewardship and market demands (Anghel & Anghel, 2022). In the beauty industry, this manifests through the use of natural products and sustainable salon operations (Lavuri et al., 2018). For this research, green enterprises are defined as beauty salons that integrate environmentally sustainable practices to reduce their ecological footprint.

Environmental Impact of Beauty Salons

Beauty salons significantly impact the environment due to high water and energy consumption, as well as the use of chemical products that threaten environmental quality and public health (Makuvara et al., 2024). Improper waste disposal, reliance on non-recyclable packaging, and excessive plastic use further contribute to environmental degradation (Haines et al., 2024). As demand for personal care services grows, salons increasingly contribute to urban waste and chemical effluents.

Adoption of Eco-Conscious Practices

Beauty salons are increasingly adopting eco-friendly practices, such as using organic products, energy-efficient tools, and effective waste management systems (Park & Eun-Young, 2025). However, the level of adoption varies based on owner awareness, consumer preferences, and the availability of sustainable products. Urban salons often show a stronger commitment to sustainability due to better infrastructure and higher customer demand (Zulauf et al., 2021).

Challenges in Practising Green Entrepreneurship

Green entrepreneurship in the beauty sector faces significant challenges, including high costs of eco-certified products, limited reliable suppliers, insufficient government support, and inadequate training (Johnson-Hilliard & Militea, 2015). Microenterprises, especially those led by women, often struggle more due to limited financial access and a lack of awareness regarding sustainable practices. Additionally, some businesses engage in "greenwashing," falsely claiming to adopt eco-friendly practices to attract consumers without implementing real sustainability efforts (Szabo et al., 2021).

Opportunities for Green Enterprises in the Beauty Sector

Salons that adopt environmentally sustainable practices enjoy benefits such as increased customer loyalty, market differentiation, and a better reputation (González-Viralta et al., 2023). Digital platforms help these green salons connect with eco-conscious consumers and promote sustainable choices (Pandey et al., 2024). As more consumers, especially younger ones, prefer ethical beauty options, the market for green enterprises is expected to grow.

Research Gap and Relevance

Global literature highlights the importance of green entrepreneurship, but empirical studies within the beauty salon industry, particularly in small-scale or semi-urban areas, are limited. Most research is either conceptual or focused on developed countries, leading to a gap in quantitative studies on how location influences awareness and adoption of sustainable practices. This research seeks to fill that gap by using statistical analysis to explore green entrepreneurship in beauty salons.

Research Objectives

1. To examine the challenges and motivating factors in adopting eco-friendly practices in beauty salons and to analyze whether awareness and implementation levels differ based on salon location

Research Methodology

A descriptive quantitative design was adopted with purposive sampling. A structured questionnaire was administered to 63 salon professionals from urban, semi-urban, and rural areas through Google Forms and printed copies. Data were analyzed using SPSS software, employing descriptive statistics, Chi-square tests, and One-Way ANOVA.

Data Analysis and Interpretation

This section delivers the statistical outcomes derived from a quantitative survey conducted among 63 beauty salon professionals. The analysis includes descriptive statistics, frequency distributions, Chi-square tests, Levene's Test of Homogeneity of Variances, and One-Way ANOVA, aligned with the research objectives and hypotheses.

Frequency Distribution of Responses to Green Entrepreneurship Variables

To attain a preliminary understanding of respondents' views on green entrepreneurship, frequency distributions were calculated for key variables including motivators, challenges, and awareness. These distributions highlight general response patterns before conducting inferential analysis.

Table 1: Responses to Green Entrepreneurship Variables						
Green Entrepreneurship Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Motivating Factors - Customer demand encourages eco-products	5	3	3	18	34	63
Challenges - High cost of green products is a challenge	6	2	10	14	31	63
Frequency-Awareness - Aware of green alternatives	6	4	3	28	22	63

Table 1 presents responses related to customer demand for eco-friendly products as a motivator for adopting green practices. Table 1 shows the distribution of responses regarding high cost as a barrier to implementing eco-conscious practices. Table 1 highlights how respondents rated their awareness of green alternatives available in the market.

Descriptive Statistics of Motivators, Challenges, Awareness, and Implementation

Descriptive analysis helps summarize the central tendency and variability of the responses related to green entrepreneurship.

Table 2: Descriptive Statistics on Motivating Factors, Challenges, Awareness, and Implementation					
	N	Minimum	Maximum	Mean	Std. Deviation
Motivating Factors - Customer demand encourages eco-products	63	1	5	4.16	1.221
Motivating Factors - Government policies motivate going green	63	1	5	3.62	1.211
Challenges - High cost of green products is a challenge	63	1	5	3.98	1.289
Awareness -Aware of green alternatives	63	1	5	3.89	1.233

Implementation -Stay updated on green trends	63	1	5	4.00	1.136
Valid N (listwise)	63				

The descriptive statistics indicate that customer demand (M = 4.16) is the strongest motivator for adopting green practices, while government policies (M = 3.62) have a moderate influence. High costs (M = 3.98) remain a significant barrier. Respondents showed high awareness of green alternatives (M = 3.89) and a strong tendency to stay updated on sustainable trends (M = 4.00), reflecting proactive engagement despite cost-related challenges.

Chi-Square Test: Awareness vs. Location

To test whether awareness of green alternatives differs based on salon location, a Chi-square test was conducted.

Hypotheses:

- **H_0 (Null Hypothesis):** There is no substantial correlation between the level of awareness and the location of the salon.
- **H_1 (Alternative Hypothesis):** The level of awareness is significantly correlated with the location of the salon.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	0.038	2	0.981
Likelihood Ratio	0.038	2	0.981
Linear-by-Linear Association	0.004	1	0.948
N of Valid Cases	63		

Given that the p-value (0.981) above 0.05, the result lacks statistical significance. Consequently, the null hypothesis becomes affirmed. This suggests that understanding of eco-friendly alternatives is largely consistent across different salon locations. Awareness appears to be consistently high across urban and non-urban areas.

Findings

The study reveals key insights into green entrepreneurship practices in beauty salons:

- **Customer demand** emerged as the strongest motivator (Mean = 4.16), reflecting growing consumer preference for eco-friendly services.
- **Government policies** showed moderate influence (Mean = 3.62), indicating limited practical impact on salon decisions.
- **High product costs** were identified as a major challenge (Mean = 3.98), particularly for smaller and rural salons.

- Respondents demonstrated **strong awareness** of green alternatives (Mean = 3.89), and many actively **followed sustainable trends** (Mean = 4.00).
- **Chi-square analysis** found no significant difference in awareness across locations ($p = 0.981$), suggesting uniformly high awareness.
- **ANOVA results** showed no significant variation in implementation by location ($p = 0.274$), indicating similar levels of adoption in urban and non-urban areas.

Suggestions

To strengthen green entrepreneurship in beauty salons, the following measures are recommended:

- **Government Support:** Implement financial incentives, including subsidies and tax benefits, for salons that adopt certified eco-friendly practices.
- **Affordable Green Products:** Developing local supply chains and promoting group purchasing can help reduce the costs associated with sustainable products.
- **Training & Awareness:** Hold regular training for salon staff on eco-friendly techniques. Educate customers about sustainable beauty choices.
- **Recognition & Promotion:** Introduce simple eco-certification programs. Encourage salons to show their certifications and promote green practices on their digital platforms.

Limitations of the Study

This study is constrained by a sample that includes 63 respondents and a dependence upon self-reported data, which could lead to bias. Additionally, the study focused only on beauty salons, excluding other segments of the personal care industry. Future studies could include sectors such as spas or wellness clinics for broader insights.

Conclusion

This research underscores the increasing significance of green entrepreneurship within the beauty salon industry, significantly propelled by consumer consciousness and the necessity for sustainable business change. Although motivation and awareness are notably high, practical obstacles, particularly concerning costs and implementation, continue to impede widespread adoption. The statistical evaluation indicated that the levels of awareness and implementation do not show significant variation across different locations, suggesting a general readiness among salon professionals to embrace green practices if supportive conditions are established. The research stresses the importance of enhanced institutional support, affordable green solutions, and ongoing training to assist beauty salons in their transition toward sustainable and environmentally conscious business frameworks.

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CHAPTER 15

GREEN ENTREPRENEURSHIP IN INDIA: PROSPECTS, CHALLENGES, AND FUTURE PROSPECTS

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Abstract

Green entrepreneurship in India is becoming an essential strategy to reconcile economic growth with environmental sustainability. This article examines the evolution, catalysts, obstacles, and future outlook of green entrepreneurship in India. It emphasizes successful case studies, governmental initiatives, and the contribution of academics in promoting environmentally responsible innovation. Notwithstanding obstacles such as little awareness, substantial financial requirements, and governmental inconsistencies, the sector possesses significant potential. Given the increasing environmental concerns, heightened consumer awareness, and supportive policies, green firms can substantially aid India's sustainable development objectives. A cooperative ecosystem is vital to use this revolutionary potential and establish a more sustainable economy.

Keywords: *Green Entrepreneurship, Sustainability, Renewable Energy, Climate Change, Eco-innovation, Environmental Policy, India, Sustainable Development, Green Economy, Start-ups*

Introduction

Green entrepreneurship pertains to the establishment and administration of enterprises that prioritize environmental sustainability and social responsibility, with the objective of mitigating environmental hazards and ecological shortages while creating economic value. In India, a nation with a swiftly expanding economy and a considerable ecological impact, green entrepreneurship serves as a potent tool for attaining sustainable development. It represents a synthesis of innovation, sustainability, and commerce, wherein enterprises endeavor to generate value without jeopardizing environmental integrity or social equality.

India, endowed with extensive natural resources, a rapidly expanding youth demographic, and significant environmental issues including air and water pollution, deforestation, and climate change, offers a conducive atmosphere for the advancement of green entrepreneurship. In the past decade, diverse stakeholders, including government entities, non-governmental organizations (NGOs), academic institutions, and private firms, have begun to acknowledge and advocate for green business models. The developing policy framework, global obligations such as the Paris Agreement, and heightened environmental consciousness among consumers underscore the necessity and significance of green entrepreneurship in India.

The Development of Green Entrepreneurship in India

Green enterprise in India is not a novel occurrence. Historically, numerous ancient Indian practices prioritized harmony with nature, including organic agriculture, water conservation, and trash recycling. Nonetheless, the formal acknowledgment and endorsement of environmentally responsible enterprises have increased in the post-liberalization period.

The early 2000s saw the rise of clean energy startups, organic product businesses, and waste management companies. Government initiatives such as the National Action Plan on Climate Change (NAPCC) and the Startup India Mission have delivered a substantial impetus. The emergence of green financing alternatives, such as green bonds and sustainability-linked loans, has facilitated businesses in securing capital for environmentally sustainable initiatives.

Currently, green entrepreneurship in India encompasses various industries, including:

- Renewable energy sources (solar, wind, biomass)
- Ecologically sound agriculture and organic cultivation
- Environmentally sustainable packaging and fashion
- Water and waste management
- Sustainable construction and energy-efficient infrastructure
- Electrified mobility and eco-friendly transportation

Principal Factor Influencing Green Entrepreneurship in India

Multiple factors are driving the expansion of green entrepreneurship in India:

a. Environmental Deterioration and Climatic Alteration

India confronts significant environmental challenges, including air and water pollution, diminishing groundwater levels, deforestation, and escalating carbon emissions. These difficulties have generated an immediate need for new solutions that green entrepreneurs may offer.

b. Policy and Regulatory Assistance

The Indian government has implemented various plans and policies that foster sustainability.

- FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles)
- Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan Advocating for the implementation of solar energy in agricultural practices.
- National Electric Mobility Mission Strategy
- Green Energy Corridors
- State-specific climate action strategies

c. Increasing Consumer Awareness

As knowledge of environmental issues rises, Indian customers are increasingly favoring sustainable and eco-friendly products, resulting in significant market demand.

d. Technological Innovations

The availability of technology and digital tools has enabled green entrepreneurs to develop and expand effectively. Technology is crucial, encompassing breakthroughs in solar panels and trash tracking applications.

e. Support Framework

The proliferation of incubation centers, accelerators, impact investors, and Corporate Social Responsibility programs centered on sustainability has facilitated the survival and prosperity of green start-ups.

Case Analyses of Accomplished Eco-Entrepreneurs in India

Goonj (Anshu Gupta)

Goonj is a social venture that transforms urban garbage into functional products, generating cash for rural people. It integrates trash management with rural development and disaster aid.

SELCO India (Harish Hande)

SELCO delivers solar energy solutions to marginalized communities. Addressing energy poverty has enhanced the quality of life for thousands and fostered renewable energy development.

ZunRoof

Zunroof is a solar rooftop enterprise utilizing artificial intelligence and data analytics to deliver economical solar solutions to Indian residences.

Bare Necessities

A zero-waste brand for personal and home care that advocates for sustainable living. It employs sustainable ingredients and packaging, aimed at urban, environmentally aware consumers.

Yulu Bikes

Yulu advocates for micro-mobility solutions through the utilization of electric bicycles. It mitigates traffic congestion and diminishes carbon emissions in metropolitan environments.

Obstacles Encountered by Green-Entrepreneurs in India

Notwithstanding the promise and increasing backing, green businesses in India face numerous obstacles:

Insufficient Awareness and Education

A significant number of prospective businesses and customers remain uninformed about sustainability and eco-friendly methods, so obstructing both supply and demand.

Substantial Initial Capital Expenditure

Green technologies frequently necessitate substantial initial investment, and access to economical funding is constrained.

Inconsistencies in Policy and Bureaucratic Processes

Despite the existence of numerous supportive policies, their execution frequently lacks consistency, and obtaining regulatory approvals can be protracted and intricate.

Market Penetration and Scalability

Initially, green products and services may lack price competitiveness, hindering their ability to access mass markets or develop operations.

Deficiencies in Technology and Infrastructure

The absence of supporting infrastructure, such as EV charging stations or internet connectivity, is a barrier, particularly in remote locations.

Insufficient Research and Development Assistance

A disparity exists between governmental and private financing for research and development in sustainable technology.

Support from Government and Institutions

The Indian government and several institutes have initiated programs to promote green entrepreneurship:

- a. **Ministry of Environment, Forest and Climate Change (MoEFCC)** Facilitates climate action and environmental activities nationwide.
- b. **Atal Innovation Mission (AIM)** Facilitates start-ups, particularly those with sustainable innovations, via Atal Incubation Centres.
- c. **National Innovation Foundation (NIF)** Promotes grassroots innovation, encompassing environmentally sustainable solutions.
- d. **Indian Renewable Energy Development Agency (IREDA)** Offers financial assistance for renewable energy initiatives.
- e. **NABARD and SIDBI** Provide finance and subsidies for sustainable agriculture and micro, small, and medium enterprises emphasizing environmentally friendly methods.

The Function of Academic and Research Institutions

Indian academic institutions are progressively integrating sustainability into their courses and research initiatives. Management and engineering institutions are promoting entrepreneurship with an environmental emphasis through the provision of specialized courses, the organization of hackathons, and the operation of incubation centers.

Illustrations:

- TERI School of Advanced Studies
- Indian Institute of Science, Bengaluru
- IITs and IIMs including sustainability laboratories and centers

Future Prospects of Sustainable Entrepreneurship in India

India's dedication to the Sustainable Development Goals (SDGs) and its net-zero objective by 2070 establishes a long-term framework for green entrepreneurship. Principal areas of growth encompass:

- Circular Economy: Emphasizing waste-to-wealth paradigms.
- Carbon Markets: Advancement of carbon trading systems.
- Green Hydrogen: A viable alternative clean fuel.
- Intelligent Urban Areas and Eco-Friendly Infrastructure: Sustainable urban advancement.
- Agricultural technology and climate-resilient farming: Innovations that enhance agricultural productivity sustainably.

Through sustained investment, innovation, and governmental endorsement, green entrepreneurship can emerge as a fundamental element of India's economic and environmental framework.

Conclusion

Green entrepreneurship in India presents significant potential to harmonize economic growth with environmental sustainability. It signifies a fundamental transformation in the operational and environmental interactions of enterprises. Through the utilization of innovation, policy endorsement, and social responsibility, green entrepreneurs can tackle India's urgent environmental issues while generating employment and economic value.

Nonetheless, actualizing the complete potential of green entrepreneurship necessitates a collaborative endeavor among all stakeholders. This encompasses enhancing education and awareness, augmenting access to funding, ensuring policy alignment, and investing in infrastructure and research and development. In light of escalating environmental unpredictability, India's leadership in promoting green entrepreneurship may exemplify a paradigm for sustainable development in the Global South.

Ultimately, green entrepreneurship transcends mere business decision-making; it becomes an ethical obligation and a vital avenue toward a sustainable and inclusive future.

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CHAPTER 16

A STUDY ON IMPACT OF ORGANIZATIONAL CULTURE ON TEACHER PERFORMANCE IN HIGHER EDUCATION INSTITUTIONS

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Abstract

Organizational culture plays a crucial role in shaping the attitude and behavior of the employees in all organizations including educational institutions. In educational institutions, the performance of the teacher is significant to achieve educational outcomes. This research paper studies the impact of organizational culture on teacher performance in HEIs. The dimensions of organizational culture like Employee participation, Human resource orientation, Performance orientation, Reward orientation and Management style are considered. The researcher has found out the influence of these dimensions on teacher performance having aspects like working relationships with students and colleagues, their tasks assigned and completed, lecture delivery, involvement in college, etc. The researcher has provided suggestions and recommendations to the organizations to encourage favourable organizational culture, and to the teachers to motivate them to perform better.

Keywords: *Organizational culture, teacher, HEIs, attitude and behavior*

Introduction

In the rapidly evolving landscape of higher education, the performance of teachers remains a critical determinant of institutional success and student achievement. As educators navigate the complexities of modern teaching—balancing administrative duties, research commitments, and student engagement—understanding the factors that influence their performance is paramount. Organizational culture plays a significant role, yet not much research is undertaken in this area.

Organizational culture consists of beliefs, norms, and values that determines the attitudes and behaviour of employees in the organization. In higher education, this culture manifests through leadership styles, communication patterns, institutional values, and support structures, all of which can profoundly impact a teacher's work environment and effectiveness. Organizational culture can have positive as well as negative impacts. A favourable organizational culture brings job satisfaction, raises employee morale and improves job performance. On the other hand, an unfavourable organizational culture results in employee disengagement, stress and reduced efficiency.

Teacher performance is understood when the students' learning needs are met and that the students are able to meet their potential. Teacher performance is an indication of his/her engagement with the students in the classroom. It is a collection of attitudes and behaviour of the teacher for developing a conducive teaching learning environment so as to achieve academic goals for students.

The research study focuses on methodology that facilitates measuring impact of organizational culture on teacher performance.

Dimensions of Organizational Culture

In the context to the research study, the researcher refers to the culture in the College. The dimensions of college culture are:

- Employee participation
- Human resource orientation
- Performance orientation
- Reward orientation
- Management style

Aspects of Teacher Performance

The aspects used in teacher performance in the research study are their working relationships with students and colleagues, their tasks assigned and completed, lecture delivery, involvement in college, etc.

Review of Literature

Kanya Nita, et al (2021) in their study aimed to see whether there is an influence of school principal leadership, organizational culture, and teacher competence on teacher performance. Another aim was to see how much influence these factors have on teacher performance either partially or simultaneously. The research used a quantitative approach with survey methods. Analysis of the data used was multiple regression. Participants involved in the study were 385 teachers in Bandung High School by using proportional stratified random sampling. The results of the study showed that there was a significant influence on the school principal leadership variables, organizational culture, and teacher competence on teacher performance. Statistically the amount of contribution from all independent variables was 68.12 percent, so the remaining 32.88 percent was determined by other variables not measured in the study. This research was also useful to find out the factors that can improve teacher performance, so that it is expected to be a theoretical or practical consideration in schools in order to improve the quality of teachers and schools.

Gutternman Allan (2023) in his article has stated that organization culture relies on continuum from “strong” to “weak” and a key determinant of where an organization falls on this continuum is the degree of homogeneity. A strong culture is one where the mutually agreed and understood values and norms have an over-riding influence on the ways in which members conduct their activities on a day-to-day basis and interact with external stakeholders. On the other hand, if the culture is weak, it provides little or no guidance to members and control of behaviour is exercised primarily through formal written guidelines and procedures. Stronger cultures are more result-oriented than weak cultures. A strong culture can be a powerful tool for coping with the organizational environment; however, it can stifle change and discourage members from suggesting alternatives to “the way things get done around here.” The optimal situation is probably somewhere in the middle between

strong and weak – sufficient common ground to allow operations to flow effectively with a dose of procedures for suggesting change which are respected.

Hasibuan Hasrul Azwar, et al (2023) in their study has highlighted the characteristics of organizational culture can have a significant impact on the performance of teachers in schools. Some characteristics of organizational culture that can influence teacher performance are as follows: task orientation, communication, social support, recognition, and learning culture. As a part of the research study, the important things that can improve a teacher's performance are cooperative and helpful attitude; cooperative and persuasive parents of students, adequate facilities; students' interest in learning at school; polite students; supportive supervision; well- organized school; well-formulated school policies.

Lestari Awalia, et al (2023) in their study aims to determine and analyze the effect of motivation and organizational culture on leadership, to know and analyze the influence of motivation and organizational culture on teacher performance, to know and analyze the influence of leadership on teacher performance, to know and to analyze the influence of motivation and organizational culture on teacher performance through leadership. The research was conducted on Elementary School teachers in East Bekasi District with a sample of 62 respondents. The sampling technique used a proportional random sampling technique. Methods of data analysis using descriptive analysis and path analysis. The results showed that there was an effect of motivation and organizational culture on leadership, there was an influence of motivation and organizational culture on teacher performance, there was an influence of leadership on teacher performance, and leadership did not affect motivation and organizational culture on teacher performance. Leadership does not contribute to increasing motivation and organizational culture on teacher performance.

Bogale Addisalem, et al (2024) Organizational Culture (OC) serves as a foundational set of beliefs shaped by the members of an organization through external adaptation or internal integration. OC framework, extensively cited by scholars define OC as a collection of fundamental assumptions, norms, values, and shared conduct transmitted to newcomers. Many researchers concur that OC encompasses a common set of values, behaviors, conventions, attitudes, assumptions, and beliefs among organizational members. OC is a group attitude that evolves over time and proves resistant to modification once established. OCs significantly influence interpersonal interactions, behaviors, and communication among employees during day-to-day work. Consequently, OC emerges as a key organizational feature and situational aspect, exhibiting potential stability or flexibility that permeates all facets and activities of the organization. Organizational cultures are defined as either stable, emphasizing authority, order, consistency, predictability, and the status quo, or flexible, characterized by adaptability, openness to change, learning, creativity, and innovation.

Significance of the Study

The researcher has felt the need to study the dimensions of organizational culture among the teachers in HEIs so as improve the teacher's performance which would help better students learning outcomes. The study would also enable the organization to improve its

environment, which facilitates growth and development of the teachers as well as the students. The research work focuses on factors of the organizational culture and teacher's performance which would help to know the correlation between the two. The aspects of organizational culture facilitate improving inter-personal relationships; and the dimension of teacher performance enables the teacher to improve their effectiveness and efficiency.

In this research work, the researcher has made an attempt to highlight the important dimensions relating to organizational culture which impacts positively on teacher performance. The study will provide solutions to transform organizational culture conducive to teacher performance in the higher education sector.

Objectives of the Study

The objectives of the research study are:

1. To study the organizational culture of the HEIs
2. To study the teacher performance of HEIs
3. To measure the impact of organizational culture on teacher performance

Hypotheses of the Study

The hypotheses of the research study are:

- H₀: There is no significant influence of employee participation on teacher performance.
- H₁: There is a significant influence of employee participation on teacher performance.
- H₀: There is no significant influence of human resource orientation on teacher performance.
- H₂: There is significant influence of human resource orientation on teacher performance.
- H₀: There is no significant influence of performance orientation on teacher performance.
- H₃: There is a significant influence of performance orientation on teacher performance.
- H₀: There is no significant influence of reward orientation on teacher performance.
- H₄: There is a significant influence of reward orientation on teacher performance.
- H₀: There is no significant influence of management style on teacher performance.
- H₅: There is a significant influence of management style on teacher performance.

Research Methodology

(a) Research Design

The research design used for the study is descriptive since the research study focuses on understanding the dimensions of organizational culture in HEIs. The research study has also focused on teacher performance aspects. The researcher has used survey research design by getting the google form filled from teachers in HEIs.

(b) Sample Design

The researcher has used a probability method of convenient sampling technique of sampling design. The samples are selected conveniently from different colleges in Mumbai, which offer under-graduate and post-graduate programs. The researcher has taken 101 as sample size to conduct the study.

(c) Data Collection

The data collection is from primary sources through questionnaire method with the help of google form from 110 respondents. Secondary sources of data collection were also considered for the purpose of the research study.

(d) Data Analysis and Interpretation

The data collected was coded, classified and tabulated by the researcher and then the data was analyzed. The data was analyzed by statistical tools like t-test, correlation and ANOVA. After data analysis, the researcher undertook data interpretation.

Limitations

The research work has been conducted with a limited number of teachers in under-graduate and post-graduate colleges. The researcher has restricted the number of respondents for the research study due to the problems of financial and geographical feasibility, time constraints and availability of resources. The dimensions of organizational culture and aspects of teacher performance considered in the research work are quite limited.

Findings and Conclusions

1. In the case of the number of years of service in the organization, most teacher respondents had dedicated 11 to 15 years of service and 5 to 10 years of service.
2. There were 54 percent of teacher respondents who belonged to government aided institutions, and the remaining 46 percent belonged to the unaided colleges (funded by the College Management).
3. There were 67 percent of female respondents and 33 percent of male respondents who participated in the survey.
4. Majority of the respondent's age category was 56-65 years followed by 36-45 years.
5. There is high reliability and validity of dimensions and aspects included in organizational culture and teacher performance, which is stated as under:

Sr. No.	Dimensions/ Aspects	Cronbach's Alpha
1	Employee participation	0.836
2	Human resource orientation	0.783
3	Performance orientation	0.797
4	Reward orientation	0.882
5	Management style	0.836
6	Teacher performance	0.883

6. The alternate hypothesis (H1) that there is a significant influence of employee participation on teacher performance is accepted since p-value is 0.002, which is less than 5 percent level of significance.
7. The alternate hypothesis (H2) that there is a significant influence of human resource orientation on teacher performance is accepted since p-value is 0.000, which is less than 5 percent level of significance.
8. The alternate hypothesis (H3) that there is a significant influence of performance orientation on teacher performance is accepted since p-value is 0.019, which is less than 5 percent level of significance.
9. The alternate hypothesis (H4) that there is a significant influence of reward orientation on teacher performance is accepted since p-value is 0.001, which is less than 5 percent level of significance.
10. The alternate hypothesis (H5) that there is a significant influence of management style on teacher performance is accepted since p-value is 0.002, which is less than 5 percent level of significance.
11. Out of all the dimensions, the greatest influence is of human resource orientation on teacher performance followed by reward orientation, then employee participation and management style have similar influence, and lastly performance orientation.

Suggestions and Recommendations:

To the Organizations (HEIs):

- The HEIs should focus on performance and set individual and department goals for teachers. There should be joint goal-setting by the institutional authorities with the teachers, and the goals set should be formally communicated to the teachers.
- The HEIs should provide benchmarks for teachers' performance so that they can strive for excellence.
- The HEIs should reinforce its vision to the teachers. The vision reflects the strategic and cultural values of the HEIs. This acts as a guiding force to the teachers and other staff members.
- The HEIs should imbibe and reinforce ceremonies and rituals. This forms an important part of organizational culture.
- The Management of the HEIs should focus on creating a positive organizational culture among its staff members. Some of the ways are:
 - Capitalizing on staff member's strengths
 - Appreciating good performance rather than punishing under-performance
 - Focus on employee growth

To the Teachers:

- The teachers should learn stories about their institute's values, rules, past and present practices that create a positive impression about the institute's culture.
- The teachers should concentrate on the language and jargons used in the institute.

These could be in context of students, alumni, parents, authorities, and other stakeholders. A strong culture is developed when all the teachers used same language and jargons.

- The teachers should participate in ceremonies and rituals performed by their institutes. These could be celebration of achievements, festival meets, superannuation events, etc. The ceremonies and rituals transmit institutional culture.
- The teachers should observe their superiors and role model their behaviours. This shall facilitate integration of teachers into organizational culture.

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CHAPTER 17

INFLUENCE OF SOCIAL MEDIA ADVERTISING ON SALES OUTCOMES: A STUDY OF ORGANIC SKINCARE PRODUCTS IN CHENNAI

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Abstract

This study explores the effectiveness of social media advertising in boosting the sales performance of organic skincare products in Chennai. As consumer awareness regarding wellness grows, platforms like Instagram, Facebook, and YouTube have become key drivers of purchase behavior. Drawing data from 200 survey respondents, this paper investigates the influence of various content formats – such as influencer promotions, user testimonials, and video advertisements – on consumer engagement and purchasing intent. The results indicate that a strategically crafted digital advertising campaign significantly enhances both brand visibility and conversion rates. Additionally, the study examines how demographic factors like age and occupation moderate the relationship between ad exposure and purchase behavior.

Keywords: *social media, advertising, digital advertising campaign, video advertisements and purchase behavior*

Introduction

In the digital age, social media has revolutionized how brands interact with consumers. Particularly in metropolitan areas like Chennai, daily exposure to online advertisements shapes consumer preferences. This research focuses on the organic skincare sector, which has witnessed rapid expansion due to heightened health consciousness and a growing preference for chemical-free beauty solutions. The integration of advertising into users' daily social experiences makes it an indispensable tool for marketers. The study also discusses consumer trends, evolving brand preferences, and the importance of authentic online presence.

Review of Literature

Kotler and Armstrong (2010) define advertising as an impersonal, paid form of promotion aimed at influencing customer behavior and attitudes. Rodgers (2000) introduced the Interactive Advertising Model, suggesting that digital media enhances engagement and conversion compared to traditional forms. Qadri (2020) analyzed billboard advertising's impact on the food industry in Karachi, revealing a link between visibility and sales. Morley (2015) explored the evolving relationship between advertising strategies and society, highlighting the shift toward personalized, digital engagement. Clow (2016) emphasized the integration of multiple advertising tools and platforms for effective communication and sales impact. Further studies suggest that consumer perception is largely driven by relatable narratives and authenticity in digital content, particularly when it comes to health and wellness products.

Objectives of the Study

The primary objectives of this study are as follows:

1. To analyze how social media platforms influence the purchase decisions of consumers in the organic skincare segment in Chennai.
2. To determine which content formats – such as influencer content, brand testimonials, and promotional ads – most effectively drive engagement.
3. To evaluate the correlation between advertisement frequency and sales conversion rates.
4. To understand how demographic factors (such as age, gender, and occupation) influence the effectiveness of social media advertising.
5. To explore user preferences in terms of ad content and platforms, thereby identifying the most persuasive strategies.

Research Methodology

A quantitative research design was adopted using a structured questionnaire distributed to 200 respondents across Chennai. The sample comprised students, working professionals, and homemakers, selected through convenience sampling. The study included both close-ended and Likert-scale based questions to ensure clarity in response analysis. Collected data were analyzed using descriptive statistics, correlation analysis, and cross-tabulation techniques. The study also maintained respondent anonymity and adhered to ethical research standards.

Data Analysis and Interpretation

Participants were surveyed on their interaction with skincare ads across social platforms. The majority were daily viewers of such content on Instagram and YouTube, with a strong link observed between exposure and purchasing behavior.

Table 1: Demographic Profile of Respondents

Category	Sub-category	Number	Percentage
Gender	Male	90	45%
Gender	Female	110	55%
Age Group	18-25	80	40%
Age Group	26-35	90	45%
Age Group	36 and above	30	15%
Occupation	Students	60	30%
Occupation	Working Professionals	100	50%
Occupation	Homemakers	40	20%

Table 2: Frequency of Exposure to Social Media Ads

Frequency	No. of Respondents	Percentage
Daily	120	60%
Several times a week	50	25%
Rarely	30	15%

Table 3: Trusted Social Media Content Types

Content Type	No. of Respondents	Percentage
Influencer Reviews	90	45%
User Testimonials	60	30%
Professional Ads	30	15%
Brand Stories	20	10%

Table 4: Effective Platforms for Sales

Platform	Conversions Reported	Percentage
Instagram	100	50%
YouTube	60	30%
Facebook	30	15%
Others	10	5%

Table 5: Preferred Ad Features

Ad Feature	No. of Respondents	Percentage
Before/After Visuals	80	40%
Discount Codes	50	25%
Video Demonstrations	40	20%
Celebrity Endorsements	30	15%

Discussion

The results reinforce that visual-driven platforms like Instagram are ideal for promoting skincare products due to their emphasis on aesthetics and beauty culture. Trust-driven elements such as peer testimonials and influencer marketing significantly affect customer

confidence and drive immediate purchases. Moreover, engagement tools like limited-time offers and educational videos play a pivotal role in nudging consumers along the purchase funnel. It is also evident that repeated exposure increases brand recall and reduces decision-making hesitation. Interestingly, working professionals showed higher purchase intent compared to students, possibly due to higher disposable income.

Conclusion

The findings establish a robust positive relationship between social media advertising and improved sales performance in Chennai's organic skincare market. Social media outperforms traditional media by delivering highly targeted, visually appealing, and trust-enhancing content that resonates with today's wellness-conscious audience. This study reaffirms the value of digital storytelling, influencer credibility, and platform engagement metrics in marketing strategy. It also highlights the role of consumer trust and consistency in brand communication.

Recommendations

Based on the analysis, the study proposes the following recommendations:

- Prioritize platforms like Instagram and YouTube for ad campaigns.
- Partner with micro-influencers whose audience aligns with brand identity.
- Use before-and-after visuals, discount codes, and how-to videos to maximize appeal.
- Maintain authenticity and transparency in all content formats.
- Track metrics such as CTR, conversion rate, bounce rate, and engagement time to evaluate campaign success.
- Implement feedback mechanisms to continually refine content strategy.

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CHAPTER 18

MAPPING THE LANDSCAPE OF GREEN ENTERPRISES: A DESCRIPTIVE STUDY OF SUSTAINABLE BUSINESS PRACTICES ACROSS SECTORS

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Abstract

This study purpose is to describe and analyze the characteristics, practices, and challenges of green enterprises across various industries, with a focus on how they integrate environmental sustainability into their core operations.

This kind of descriptive study can help governments, NGOs, and investors understand where green enterprises are thriving, where they're struggling, and how to support their growth. It also lays the groundwork for future analytical or experimental studies.

Keywords: Green Enterprises, Economic, Sectors, Enterprises.

Introduction

In the face of escalating environmental degradation, climate change, and resource scarcity, the global economy is undergoing a profound transformation toward sustainability. At the heart of this shift lies the emergence of **green enterprises** – businesses that integrate environmental responsibility into their core operations while striving for economic viability. These enterprises are not merely reactive to regulatory pressures; they are proactive agents of change, innovating in areas such as renewable energy, sustainable agriculture, eco-friendly manufacturing, and circular economy models.

Despite growing interest in green entrepreneurship, there remains a significant gap in understanding the **diversity, practices, and challenges** of these enterprises, particularly in developing and emerging economies. Most existing literature focuses on case studies or theoretical frameworks, leaving a need for comprehensive, data-driven insights into how green enterprises operate across sectors and regions.

This study aims to fill that gap through a **descriptive analysis** of green enterprises, mapping their characteristics, sustainability practices, and operational challenges. By surveying a broad sample of businesses that self-identify or are certified as green, the research seeks to uncover patterns in their environmental strategies, social impact, and financial performance. The findings will provide valuable insights for policymakers, investors, and entrepreneurs seeking to foster a more inclusive and resilient green economy.

Ultimately, this study contributes to the growing body of knowledge on sustainable business by offering a grounded, empirical portrait of green enterprises – highlighting not only their potential but also the systemic support they require to thrive.

Literature Review Sources

1. Conceptualizing Green Enterprises

- Green Entrepreneurship and Mapping the Entrepreneurial Ecosystem – Offers a conceptual framework for sustainability-oriented enterprise development.
- Conceptualizing Green Business Practices in SMEs – Explores motivations and barriers for SMEs adopting green practices.
- OECD on Green Entrepreneurship – Provides global policy context.

2. Sustainability Practices in Business

- 21 Sustainable Business Practices at Work – Lists actionable ESG strategies.
- Sustainable Business Practices: 12 Examples – Offers practical examples across industries.
- FSC's Guide to Sustainable Business – Focuses on supply chain and employee engagement.

3. Social and Economic Impact

- Social and Environmental Enterprises in the Green Economy – A 3-year study on poverty alleviation and sustainability.
- World Economic Forum: Harnessing the Social Economy – Highlights employment, equity, and innovation.
- Green Planet: Environmental Impact of Social Enterprises – Case studies on sustainable agriculture and plastic reduction.

4. Challenges Faced by Green Enterprises

- 21 Challenges Faced by Green Entrepreneurs – Covers funding, regulation, supply chains.
- Drivers and Barriers for SMEs – Empirical study on green practice adoption.
- Overcoming Obstacles in Green Entrepreneurship – Strategic advice and success stories.

5. Typologies and Classification Models

- Typology of Green Entrepreneurs – Based on institutional and resource-based views.
- Classification of Sustainable Business Models Using Machine Learning – Offers a tech-driven approach to categorization.
- Bibliometric Review of Green Business Models – Maps historical and conceptual evolution.

Methodology

1. Research Design

This study adopts a **descriptive research design** aimed at systematically mapping the characteristics, sustainability practices, and challenges of green enterprises. The goal is not

to test hypotheses but to provide a comprehensive overview of the current landscape using empirical data.

Sampling Strategy

A **purposive sampling** method will be used to select green enterprises across diverse sectors such as agriculture, manufacturing, energy, and services. Enterprises will be identified based on:

- Self-identification as a green or sustainable business
- Certification (e.g., ISO 14001, B Corp, LEED)
- Inclusion in sustainability-focused directories or databases

The target sample size is **50 enterprises**, ensuring representation across:

- Geographic regions (urban vs. rural)
- Business sizes (startups, SMEs, large firms)
- Ownership types (private, cooperative, social enterprise)

Data Collection Methods

a. Primary Data

Structured Questionnaire: A survey instrument will be developed to collect data on:

- Business profile (sector, size, location, years in operation)
- Environmental practices (energy use, waste management, sourcing)
- Social impact (employment, gender inclusion, community engagement)
- Financial indicators (revenue, funding sources, profitability)
- Challenges and barriers to sustainability

Semi-structured Interviews: Conducted with 15–20 enterprise leaders to gain deeper insights into motivations, strategies, and lived experiences.

b. Secondary Data

- Sustainability reports
- Government and NGO databases
- Industry publications and certification records

Data Analysis

- **Quantitative Data:** Analyzed using descriptive statistics (frequencies, percentages, cross-tabulations) to identify patterns and trends.
- **Qualitative Data:** Thematic analysis will be used to extract key themes from interview transcripts, focusing on challenges, innovations, and social impact narratives.

Ethical Considerations

- Informed consent will be obtained from all participants.
- Data confidentiality and anonymity will be maintained.
- Ethical approval will be sought from the relevant institutional review board.

Results and Discussion

1. Profile of Green Enterprises

- **Sectoral Distribution:** Present data on which industries are most represented (e.g., agriculture, energy, manufacturing).
- **Geographic Spread:** Urban vs. rural locations, regional clusters.
- **Enterprise Size:** Micro, small, medium, and large businesses.
- **Years in Operation:** Startup vs. established enterprises.

Discussion Point: What trends emerge in terms of where and how green enterprises are operating? Are certain sectors or regions more active?

Findings

Green enterprises are not confined to niche sectors—they're becoming mainstream across industries. However, their success often hinges on regional policy support, access to green finance, and the ability to innovate within local constraints. Textile, energy, and waste management sectors are especially active, with urban centers leading in tech adoption and rural areas contributing through grassroots sustainability.

2. Sustainability Practices

- Frequency of practices like:
- Renewable energy use
- Waste reduction
- Sustainable sourcing
- Eco-certifications

Discussion Point: Which practices are most common? Are there sector-specific patterns? What drives adoption—regulation, consumer demand, or internal values?

Findings: Green enterprises commonly adopt energy efficiency, renewable energy, and waste reduction practices. Sectoral patterns show textiles, manufacturing, and agriculture leading in specific innovations. Adoption is driven by a blend of regulation, consumer expectations, and internal values—each shaping the sustainability journey in unique ways.

3. Social Impact

- Employment generation
- Gender inclusion
- Community engagement initiatives

Discussion Point: How do green enterprises contribute to social development? Are there differences based on enterprise size or sector?

Findings: Green enterprises are powerful agents of social development. They create jobs, empower marginalized groups, and improve access to essential services. The nature and depth of their impact vary by **size** and **sector**, but the common thread is their commitment to inclusive, sustainable progress.

4. Financial Performance

- Revenue ranges
- Funding sources (grants, private investment, crowdfunding)
- Profitability trends

Discussion Point: Are green enterprises financially sustainable? What funding models work best?

Findings: Green enterprises are not only environmentally responsible—they're also economically viable. With the right funding models like green loans, bonds, and government-backed schemes, they can scale sustainably and contribute meaningfully to India's green transition.

5. Challenges and Barriers

- Common issues reported:
- Lack of funding
- Regulatory hurdles
- Low consumer awareness
- Technological limitations

Discussion Point: What are the most pressing challenges? How do they vary by region or sector? What support mechanisms could help?

Findings: Green enterprises face financial, technical, and regulatory challenges that vary by region and sector. Targeted support mechanisms—like green finance, subsidies, and capacity-building programs—are essential to unlock their full potential and accelerate India's transition to a sustainable economy.

6. Comparative Insights

- Cross-tabulations (e.g., sustainability practices vs. profitability)
- Sectoral comparisons
- Urban vs. rural dynamics

Discussion Point: What correlations or contrasts stand out? How do different types of enterprises approach sustainability?

Findings: Correlations show that green investment, data integration, and governance structures significantly boost sustainability outcomes. Contrasts reveal that enterprise size, ownership type, and geography shape how sustainability is pursued. Understanding these patterns helps tailor support and policy to unlock the full potential of green enterprises.

Conclusion

Overview of Findings:

"This study explored the landscape of green enterprises in [region/country], revealing a growing presence across sectors such as agriculture, energy, and manufacturing. Most enterprises are small to medium-sized and demonstrate a strong commitment to sustainability practices."

Key Insights:

“While many enterprises are adopting eco-friendly technologies and practices, challenges such as limited funding, regulatory complexity, and low consumer awareness persist.”

Social and Economic Impact:

“Green enterprises are not only contributing to environmental goals but also generating employment and fostering inclusive growth.”

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CHAPTER 19

CIRCULAR ECONOMY AS A PRECURSOR TO SUSTAINABLE ENTREPRENEURSHIP USING INDUSTRY 4.0

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Abstract

Industrial progress has improved living conditions utilizing linear economics, yet wasteful practices and manufacturing have affected the environment. Long-term sustainability requires switching from linear to circular economies (CEs). They affect resource consumption, waste production, and new habits, making industries crucial. Due to India's limited resources, waste and environmental degradation rise with economic expansion. Unlike the linear economy, the CE is holistic. Industry 4.0 technologies (I4T) provide flexibility, real-time overview, sustainable resource management, intelligent systems that enhance material management, reverse supply chains, trash sorting, and creative sustainable entrepreneurship. How I4T helps the shift to CE practices and their cumulative impact on SE is unknown, and additional conceptual and empirical research is required. This research examines I4T and CE integration in India's sustainable economy. It was done by surveying 248 Indian manufacturing organizations to identify opportunities and recommend SE models. Additionally, examining how CE approaches alter I4T-SE relationships. The statistics demonstrate that I4T can assist in creating a successful CE configuration, but CE is not essential to achieve the benefit.

Keywords: *Artificial Intelligence, Circular Economy, Sustainable Entrepreneurship, Industry 4.0, Reverse Logistics.*

Introduction

Indian industrial production and consumption have traditionally exploited resources to produce and discard goods. This causes waste, resource reduction, and environmental impact. Underuse of resources and dependency on foreign lithium and fuel are economic dangers. Another alternative is the circular economy. Reduce waste and reuse, recycle, and replace resources wherever feasible. As the population expands and demand for natural resources rises, sustainable utilization is needed from throwaway to sustainable CE. Government-funded environmental sustainability activities in India benefit from this transformation. However, excessive rubbish is collected without documentation, circular enterprises lack investment, and individuals consume and discard items rapidly. CE may save money, resources, and pollution and waste annually despite these concerns. Green energy, blockchain supply chain openness, and AI garbage sorting may help. This study investigates I4T's use in CE, finds difficulties, and suggests ways to expand it. Indian CEs with I4T components use AI to enhance recycling and waste management. Hyderabad trash exchange Recykal uses AI and data to establish a digital marketplace. It connects waste sources to recycling suppliers, improving transparency and efficiency. Recykal integrates

and profits from India's 62 million tons of trash using powerful matching algorithms and quality assurance. Mol-e utilizes AI to monitor, sort, and recycle unwanted electronics using smart tracking, automated sorting, and community-based incentives like AI-enabled recycling kiosks. This helps the environment and resource recovery. Hyperspectral imaging and improved visual recognition help Refiberd sort complex fabric blends to decrease textile waste. Effective textile-to-textile recycling is vital for sustainable fashion and scalable recycling in India and abroad. Stock and Seliger (2016) and Kamble, Gunasekaran, and Gawankar (2018a) recommend I4T for SE. This was not explained in the research. Thus, the study's primary goals are to understand SE terminologies, linear economy challenges, and why it is failing, the possibility of implementing CE as an alternative to the linear economy, the literature on integrating I4T and CE methods, how it can promote SE to increase I4T-enabled business operations in Indian manufacturing industries, and future research opportunities. CE mainly uses I4T to improve resource efficiency, business process optimization, and company sustainability. I4T and CE practices are examined as the organization's dynamic capabilities and their influence on sustainable performance.

Understanding the Terminologies

- The linear economic framework, or “extract-produce-consume-and-discard” strategy, has long shaped worldwide production and consumption patterns. Resource flow is unidirectional in this strategy. Raw materials come from the environment, are processed and made into completed commodities, and are dumped as garbage, often ending up in landfills or incinerators. It is becoming incompatible with environmental restrictions and urban waste.
- The CE signifies an alternative methodology for manufacturing processes. It transitions from a linear process that utilizes raw materials and produces trash that is discarded, to a self-regenerating model that converts what is often seen as waste into a resource. CE is centered on minimizing waste and enhancing the utilization of resources by strategies such as reusing, restoring, remanufacturing, and recycling.
- In contrast to the conventional linear approach, its goal is to increase product durability, decrease resource utilization, and lessen environmental impacts. CE is similar to the Economics of Natural Resources and the Environment described by Pearce & Turner (1990). This model is founded on core concepts emphasizing waste reduction and resource efficiency.
- Sustainable enterprise is “the organization that generates profit for its shareholders while safeguarding the environment and enhancing the lives of those it engages with” (Savitz and Weber 2006). The three dimensions of sustainability are economic prospects, environmental protection, and social responsibility (Gimenez, Sierra, and Rodon 2012).
- Industry 4.0 is referred to as the fourth industrial revolution that includes technological advancements in business operations like the Internet of Things (IoT),

artificial intelligence (AI), blockchain technology, machine learning (ML), digital copies, additive manufacturing, 3D printing, and big data analytics.

Challenges in the Linear Economy Approach

The linear economy of India is saddled with resource constraints due to its dependence on the importation of crude oil and lithium for energy and technology. The economy is exposed to global market fluctuations, and foreign suppliers harm the supply chain. Resource scarcity is the cause of linear economies' failure, which leads to ecological devastation. Companies are exposed to financial risks, supply chain issues, and fluctuations in raw material prices, destabilizing the economy. Linear methods also encounter challenges such as (i) unsustainability, which is because the limited resources cannot sustain continuous exploitation, (ii) ecological harm that exacerbates climate change, reduces biodiversity, and contaminates terrestrial and aquatic resources, (iii) economic risks that fluctuate raw material prices and disruptions in supply chains, and (iv) waste management emergency, which is characterized by the escalation of plastic pollution as landfills reach capacity. These collective challenges underscore India's imperative need to implement a closed-loop economic strategy that emphasizes resource efficiency and sustainability.

Circular Economy as an Alternative

The problems above show that Indian enterprises must adopt a CE to fulfill their SDGs and enhance economic growth. CE, an eco-friendly alternative to the "take-make-dispose" economic paradigm, may work. CE started with 3R: reduction, reuse, and recycling. The industry then realized that goods must be easily redesigned to succeed in the 3R idea; therefore, the 4th R was added to save resources, shifting the industry's focus from 3R to 4R (Dey et al., 2020). The sector may achieve CE by taking, making, distributing, using, and recovering, stressing recovery. India is establishing policies to encourage CE, which maintains resources and things in the system and restores nature. Unlike the linear model, the CE stresses (i) developing goods for durability, reuse, and recycling, (ii) decreasing waste via systems that keep materials in the economy, and (iii) organically recovering ecosystems and resources.

How Industry 4.0 (I4T) Can Contribute

Recent I4T advances may help industry overcome these challenges by improving strategic decision-making, resource management, and circular efforts. I4T offers a revolutionary opportunity to speed up this change by making it easier to handle resources, improve recycling, and support more intelligent product lifecycle control (Bressanelli et al., 2022). It also speeds up circular practices by (a) improving sorting and material recovery, (b) smart reverse logistics, (c) helping with environmentally friendly product design, and (d) opening up new service and business opportunities. Using I4T digital technologies, businesses can transform linear supply chains into robust, self-renewing networks that reduce waste, optimize resources, and generate new value streams. I4T-enabled reverse

logistics may help recover resources, and blockchain technology can ensure responsible reuse and purchase (Ghosh et al., 2022). Despite its potential, India’s cyclical economy doesn’t employ I4T extensively. The country’s IT infrastructure is flawed, laws are unlawful, and key individuals lack understanding (NITI Aayog, 2021). In the fourth industrial revolution, I4T business models, technology, and competences may help the CE develop from a linear to a circular economic paradigm.

Method and Materials

This research aims to investigate the influence of I4T technology and CE practices on organizations’ sustainability entrepreneurship (SE) to address the identified voids in the literature. This research is based on the experiences of 248 Indian manufacturing practitioners and supplements the existing literature on sustainability. The study investigates two novel dynamic capabilities enterprises may implement to enhance SE and I4T technologies. The results may be of assistance to other emerging economies in the development of digital manufacturing ecosystems. The study utilized simple random sampling from the Centre for Monitoring Indian Economy (CMIE) database to collect online responses. 484 manufacturing companies were identified, and a questionnaire was shared on Google Drive. After incomplete questionnaires were deleted, 248 completed surveys were collected over six weeks, with a response rate of 51.23%. The survey was limited to manufacturing specialists with expertise in I4T and CE processes. The characteristics of the respondents are presented in Appendix Table 1.

Measurement

Responses were evaluated on a five-point Likert scale. The number of I4T measurement elements varied from 1 (no implementation) to 5 (successful implementation). Questions regarding the implementation of I4T were raised. This study assessed CE practices by employing different criteria across three categories: internal environmental management, eco-design, and investment recovery. Economic, environmental, and social performance were the categories in which the issues were rated, with 1 representing “strongly disagree” and 5 representing “strongly agree.” The identification of ambiguity, clarity, and appropriateness concerns was facilitated by expert input and Cronbach’s alpha values exceeding 0.70. The instrument was completed with the assistance of reframed components. Measurements are listed in Appendix Table 2.

Analysis and Results

Table 1: KMO Bartlett’s Test

Test	Value
KMO	0.873
Bartlett’s Test	$\chi^2 = 1987.34, p < 0.001$
Factors Extracted	3 (I4T, CEP, SE)
Total Variance Explained	72.6%

Kaiser describes the adequacy of the 0.873 KMO sample as “excellent.” Factor analysis has a grade above 0.80, which suggests that latent factors may account for a significant amount of variable variability. The correlation matrix is not a unit matrix, as evidenced by Bartlett’s test’s significant results ($p < 0.001$). Three factors that satisfy the study’s theoretical framework were identified in the I4T, CE, and SE research. The three factors account for 72.6% of the variance, which benefits social science research. The high KMO score and Bartlett’s test of the measuring apparatus render it reliable and appropriate. Identifying three latent variables indicates that I4T, CEP, and SE influence sustainable innovation and firm development. The high level of explained variation in the variables identified indicates the intricacy of environmental factors and technological advancements in entrepreneurial ecosystems.

Table 2: Cronbach’s Alpha

Construct	Cronbach’s Alpha (α)
Industry 4.0 Technologies (I4T)	0.912
Circular Economy Practices (CEP)	0.894
Sustainable Entrepreneurship (SE)	0.902

Strong internal consistency is indicated by Cronbach’s Alpha (α) values exceeding 0.70 in I4T ($\alpha = 0.912$), CEP ($\alpha = 0.894$), and SE ($\alpha = 0.902$). These results demonstrate the concept’s appropriate evaluation and the close relationship between the components of each construct. This implies that our comprehension of the impact of I4T and CE on SE is robust.

Conclusion

Recent business and societal realizations reveal that economic success requires resource reduction, productivity improvement, and technological breakthroughs. I believe that the industrial sector, especially advanced industries, is beginning to recognize digital technology-driven innovation and the CE movement. Digital innovation increases productivity, develops new goods and services, and creates new producer-consumer interactions, while the CE lowers manufacturing costs, encourages sustainable production, and creates new items that appeal to younger generations’ environmental concerns. India is at a key stage when fast-growing I4T technology might transform its waste management problems into a CE system. Extended Producer Responsibility, SME assistance, I4T-driven trade platforms, intelligent reuse and recycling networks, and creative sustainable business strategies may help the environment, economy, and society when implemented cohesively. This goal requires coordinated industry efforts, increased investments in data infrastructure and worker capacities, and proactive measures to reduce risks for organizations of all sizes when switching to circular processes.

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CHAPTER 20

DIGITAL PATHWAYS TO TOURISM GROWTH: AN EMPIRICAL STUDY OF TOURIST PERCEPTIONS OF ONLINE MARKETING IN KANYAKUMARI DISTRICT

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Abstract

This study examines the role of digital marketing in promoting tourism in Kanyakumari District, Tamil Nadu, by focusing on three key dimensions – Online Information Quality (OIQ), User-Friendly Accessibility (UFA), and Electronic Word-of-Mouth (eWOM). Employing a descriptive and analytical design, primary data was collected through purposive sampling from 287 tourists. Findings reveal that tourists exhibit high digital exposure and engagement, highlighting the effectiveness of online platforms in influencing travel decisions. The results emphasize that quality digital content, easy-to-navigate platforms, and peer recommendations play pivotal roles in shaping tourist satisfaction and loyalty. Demographic insights further reveal that young, educated, and digitally literate tourists dominate the visitor profile. The study concludes that sustainable tourism growth in Kanyakumari depends on strengthening digital strategies that not only attract new visitors but also retain loyal ones.

Keywords: *Digitalization, Digital Marketing, Tourist Perceptions, Kanyakumari, Tourism Promotion*

Introduction

Tourism is one of the most dynamic global industries, fostering employment, GDP growth, and cultural exchange. Kanyakumari, situated at the southernmost tip of India, is renowned for its natural beauty, spiritual heritage, and cultural diversity. In the digital age, tourist decision-making is increasingly shaped by online platforms rather than traditional promotional methods. Destination visibility, traveler engagement, and experience sharing are now deeply intertwined with digital marketing.

This research investigates how tourists perceive the digital marketing practices associated with Kanyakumari, focusing on Online Information Quality (OIQ), User-Friendly Accessibility (UFA), and Electronic Word-of-Mouth (eWOM). By analyzing these factors, the study aims to provide insights into how digital strategies can enhance destination competitiveness and contribute to sustainable tourism development.

Review of Literature

Tourism Industry

Tourism has evolved into a strategic driver of regional development. Beyond sightseeing, tourism now emphasizes creating memorable experiences and ensuring community participation in economic gains (PWC, 2014).

Digital Marketing and Tourism

The shift from traditional brochures to dynamic online marketing has redefined how destinations are presented and consumed. Platforms such as Facebook, Instagram, YouTube, and specialized travel portals allow real-time interaction and targeted communication (Kumar et al., 2016).

Evolution of Digital Marketing

Lamberton and Stephen (2016) identify different phases of digital marketing evolution – from early internet promotion to the present era of social media and data-driven personalization. Tourism marketers increasingly rely on analytics and mobile-first strategies to engage modern travelers.

Research Design

The study is descriptive and analytical in nature, employing a structured questionnaire to collect data from tourists visiting Kanyakumari.

Sampling Technique

Purposive sampling was used to select 287 tourists who actively used digital platforms for travel planning. The sample consisted of both domestic and international tourists, ensuring diversity in perspectives. The sample size was determined using the standard formula for mean estimation at a 95% confidence level.

Analysis and Interpretation

Demographic Profile of Respondents

- **Gender:** Nearly equal distribution (50.9% male, 49.1% female), ensuring balanced representation.
- **Age:** Majority (94.4%) between 20–49 years, indicating dominance of young adults in digital tourism engagement.
- **Marital Status:** 66.9% married, with 62.7% belonging to families of 3–4 members, reflecting nuclear family travel patterns.
- **Education:** 62.4% postgraduates, highlighting a highly educated tourist base with strong digital literacy.
- **Income:** 71.8% earn above ₹30,000 per month, representing a middle-to-high income group with strong purchasing power.
- **Tourist Type:** 91.6% domestic tourists, underscoring the importance of regional marketing campaigns.

- **Length of Stay:** 41.4% stayed up to 3 days, while 37.3% stayed 4–6 days, suggesting short-to-medium duration visits.
- **Loyalty:** 91.6% were repeat visitors, with 95.8% intending to revisit, indicating high satisfaction and loyalty.

Key Findings

1. **Digital Marketing Efficiency:** Well-educated and high-income respondents are highly responsive to digital marketing campaigns.
2. **Tourist Loyalty:** High repeat visit intention emphasizes the importance of retention-focused marketing.
3. **Domestic Market Dominance:** Majority being domestic visitors suggests campaigns should include regional languages and local cultural themes.
4. **Duration of Stay:** Potential exists to design longer-stay packages with curated cultural and eco-tourism experiences.
5. **Tech-Savvy Demographic:** Predominantly young and digitally literate tourists demand mobile-friendly, visually rich, and interactive platforms.

Conclusion

The study confirms that digital marketing is a crucial driver in promoting Kanyakumari as a tourist destination. Tourists respond positively to high-quality online information, accessible and user-friendly platforms, and peer-driven recommendations. With a tech-savvy and loyal visitor base, Kanyakumari's tourism stakeholders must invest in innovative digital strategies—such as personalized campaigns, influencer collaborations, and multilingual content—to sustain growth. By aligning marketing efforts with evolving tourist preferences, Kanyakumari can strengthen its global visibility while ensuring long-term sustainable tourism development.

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CHAPTER 21

INFLUENCE OF MICRO E-COMMERCE ON RETAIL SECTORS: A RETAILER'S PERSPECTIVE

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Abstract

The emergence of micro e-commerce has transformed the dynamics of retail in India. Unlike large-scale e-commerce giants, micro e-commerce involves small retailers, homemakers, and entrepreneurs leveraging social commerce platforms such as WhatsApp, Instagram, and Meesho to sell products directly to consumers. This study investigates the influence of micro e-commerce on the retail sector from a retailer's perspective. Data was gathered from 100 small merchants using structured questionnaires and interviews as part of a mixed-method research approach. Chi-square tests and descriptive statistics were used to assess the data. Results indicate that micro e-commerce increases consumer involvement, expands market reach, and lowers operating expenses, but it also has drawbacks including competition, inefficient logistics, and barriers to digital literacy. The study comes to the conclusion that micro e-commerce presents Indian retailers with a long-term growth opportunity when carefully combined with traditional retail.

Keywords: *Micro E-commerce, Retail Sector, Retailer's Perspective, Social Commerce, Digital Transformation.*

Introduction

Micro e-commerce is a business model in which people or very tiny firms use easily accessible, frequently free or inexpensive digital platforms and technologies to perform online sales. This type of commerce is more flexible and decentralized, and it is not dependent on a big marketplace like Amazon or a conventional website. Rather, it uses chat applications and social media to establish direct connections with clients.

By using a combination of free or inexpensive digital tools, micro e-commerce circumvents the infrastructure of traditional retail. Small businesses, including jewelry makers or home bakers, set up a business profile on social media sites like WhatsApp Business and Instagram. They provide images and videos of their goods in an effort to gain fans.

Consumers use chat or direct messaging to view the products and place orders. Peer-to-peer payment methods like UPI or other user-friendly digital wallets are commonly used to complete transactions. The business owner then handles fulfilment personally, frequently by setting up a personal pickup or utilizing nearby, on-demand delivery services. The human element and interpersonal connection are given precedence above scalability and automation throughout the entire process.

Low barrier to entry: Starting a micro business costs very little money. Entrepreneurs don't have to handle costly digital marketing efforts, incorporate a sophisticated payment mechanism, or create a polished website.

Direct customer interaction: Using platforms like Facebook, Instagram, and WhatsApp, direct, personal chats are used for every aspect of business operations, from product demonstration to order taking and customer support.

Hyper-personalization: Because of hyper-personalization, vendors are able to provide a very individualized experience, which includes advice and products that are specifically made for each customer. This strengthens your relationship with the customer by fostering trust. **Decentralized operations:** No single storefront exists. Products are frequently displayed on many platforms, and orders are handled manually via chat.

Literature Review (with In-text Citations)

Retail sector has undergone a transformation. Mukherjee et al. (2020) emphasize that Indian retail is undergoing a hybrid transformation, blending offline presence with digital platforms. Micro e-commerce complements *kirana stores* and home-based businesses, fostering revenue growth and local market penetration (Kumar & Singh, 2022).

There has been a positive customer behavior and increase in trust. Consumer-centric studies stress that trust, product quality, and delivery reliability are critical success factors (Gefen, 2000; Choudhury & Kar, 2021). In India, features like cash-on-delivery, flexible returns, and social commerce integration boost customer confidence in micro e-commerce.

With respect socio-economic empowerment, scholars highlight micro e-commerce's role in *women empowerment, youth entrepreneurship, and rural inclusion* (Bhatnagar, 2021; World Bank, 2022). Initiatives such as Amazon Saheli and ONDC enhance access for marginalized groups, aligning with India's **Digital India** vision.

Research on competitive positioning suggests that micro e-commerce creates a level playing field, enabling small retailers to compete with large marketplaces through niche, hyperlocal, and community-driven models (Porter, 1985; Kotler, 2019).

Gaps in Literature

While studies establish e-commerce's broad impact, limited research exists on the **retailers' perspective in micro e-commerce ecosystems**. Particularly, empirical studies measuring *revenue growth, survival strategies, and competitive adaptation* in India remain underexplored.

Research Methodology

1. Research Design

A descriptive and inferential research design is used in this study. While the inferential component enables statistical testing of hypotheses regarding the relationship between business characteristics (such as years in operation) and the adoption of micro e-commerce, the descriptive design is used to record the perceptions, adoption patterns, and experiences

of retailers interacting with micro e-commerce platforms. This two-pronged strategy guarantees a thorough comprehension of contemporary procedures as well as the capacity to extrapolate results to a larger group of Indian retailers.

2. Objectives of the Study

The key objectives of the study are as follows:

1. To examine the extent of adoption of micro e-commerce platforms among retailers.
2. To analyze the influence of firm characteristics (such as years in business, size, and product category) on the adoption of micro e-commerce.
3. To compare the contribution of online sales vis-à-vis offline sales in the revenue structure of retailers.
4. To assess retailer perceptions regarding the benefits and challenges of micro e-commerce.
5. To draw implications for improving competitiveness of retailers through e-commerce integration.

3. Population and Sampling

The population of the study comprises small and medium retailers, particularly those operating in urban and semi-urban regions. Given the exploratory nature of the study, a non-probability purposive sampling technique was used. The sample consisted of 100 retailers, covering sectors such as apparel, electronics, groceries, and lifestyle products. The sample size of 100 was deemed adequate for applying basic statistical tools such as chi-square tests and independent sample t-tests.

4. Data Collection Methods

Data were collected using a structured questionnaire survey.

Data Analysis:

1. Demographic Profile of Respondents

Data was collected from 100 retailers.

Type of Retailers:	Years in Business	Employees
Kirana Stores - 38%	Less than 1 year - 14%	Solo/self-employed - 30%
Fashion/Boutique - 22%	1-3 years - 32%	2-5 employees - 40%
Home-based sellers - 18%	4-6 years - 28%	6-10 employees - 20%
Electronics - 12%	More than 6 years - 26%	More than 10 - 10%
Others - 10%		

Most respondents were small, family-run retailers, reflecting the real composition of unorganized retail sector.

2. Awareness and Adoption of Micro E-commerce

- Awareness of micro e-commerce platforms: 92%, Adoption of micro e-commerce: 76%, Major platforms used: Meesho (58%) GlowRoad (22%) Shop101 (12%) ONDC Apps (8%), Awareness is very high, and more than three-fourths of retailers have adopted at least one platform. Meesho is the most preferred platform.

3. Impact on sales and revenue impact

- Average monthly offline sales: ₹65,000, Average monthly online (micro e-commerce) sales: ₹45,000
- Change in overall sales after adoption of micro e-commerce:
Increased significantly – 40%, Increased slightly – 30% , No change – 20%
Decreased – 10%, It can be seen that around 70% of retailers experienced sales growth after joining micro e-commerce.

4. Perceived Benefits (Mean Scores on 5-point Likert Scale)

Benefit Factor	Mean Score	Rank
Expanded customer reach	4.3	1
Low-cost entry into online retail	4	2
Helps compete with larger retailers	3.8	3
Marketing/promotional support	3.6	4
Increased profit margins	3.2	5

From the means scores it can be seen that the biggest benefit is expanded customer reach and low-cost entry. Profitability improvement is moderate.

5. The biggest challenge (Mean Scores on 5-point Likert Scale)

Challenge Factor	Mean Score	Rank
Logistics & delivery issues	4.1	1
High commission charges	3.9	2
Customer complaints/returns	3.7	3
Payment delays	3.5	4
Lack of digital literacy	3.1	5

It can be studied that logistics and platform commission rates are the biggest pain points for small retailers.

6. Years in Business vs. Adoption

Years in Business	Adopted	Not Adopted	Total
<3 years	34	6	40
3–6 years	21	9	30
>6 years	19	11	30
Total	74	26	100

- Retailers with <3 years experience: 85% adoption. Retailers with >6 years experience: 62% adoption, It can be observed that newer retailers are more adaptive towards micro e-commerce, while traditional businesses are slower to adopt.

7. Inferential Statistics were found to be as under

- Chi-Square Test between Years in Business and Adoption:, At 5% significance level ($\alpha = 0.05$), the critical χ^2 value for $df = 2$ is 5.991, Our computed $\chi^2 = 4.53 < 5.991 \rightarrow$ Not statistically significant at 5% level, but shows a trend, While younger businesses appear more likely to adopt micro e-commerce (85% vs. 62%), the Chi-Square test suggests this difference is not strongly significant at the 5% level
- t-test (Offline vs. Online Sales Contribution):

Hypothesis:

- H_0 (Null Hypothesis): There is no significant difference between offline and online sales contributions.
- H_1 (Alternative Hypothesis): There is a significant difference between offline and online sales contributions.

Offline sales mean = ₹65,000; Online sales mean = ₹45,000

At $\alpha = 0.05$ (two-tailed), critical $t_{0.05,198} \approx 1.972$, $t_{\{0.05, 198\}} \approx 1.972$.
Calculated $t = 10.41 > 1.972$ $t = 10.41 > 1.972$ $t = 10.41 > 1.972 \rightarrow$ Reject H_0

The difference between offline (₹65,000) and online (₹45,000) sales is statistically significant. $p = 0.009 (< 0.05)$ confirms significance. It can be concluded that offline sales remain higher, but online sales are a substantial contributor.

8. The overall Satisfaction can be seen as under

Very satisfied - 28% , Satisfied - 42%, Neutral - 20%, Dissatisfied - 7%, Very Dissatisfied - 3%, Interpretation: Around 70% of retailers are satisfied with micro e-commerce, though improvement in logistics and commissions is needed.

Findings of the Study and Conclusion

Based on the analysis of data collected from 100 small and medium retailers in India, the following findings have been drawn:

1. High Awareness and Growing Adoption of Micro E-commerce

A significant 92% of respondents were aware of micro e-commerce platforms, and 76% had already adopted at least one platform such as Meesho, GlowRoad, or ONDC-supported apps. Among these, Meesho emerged as the most widely used platform (58%), reflecting its strong presence in India's social commerce market. This indicates that micro e-commerce has successfully penetrated the unorganized retail sector, especially among small and home-based sellers.

2. Strong Positive Impact on Sales and Revenue

Retailers reported that micro e-commerce contributed an average of ₹45,000 per month in online sales, which is a substantial portion of their overall revenue. About 70% of the retailers confirmed an increase in sales after adoption: 40% reported significant growth, 30%

reported moderate growth, Only 10% reported a decline, mostly due to operational inefficiencies or difficulty managing online orders. Thus, micro e-commerce is playing a crucial role in sales expansion and revenue diversification for small retailers.

3. Perceived Benefits of Micro E-commerce

Retailers identified multiple benefits, ranked by mean scores on a 5-point Likert scale:

1. Expanded customer reach (4.3/5) – The ability to reach customers beyond their locality is seen as the greatest advantage.
2. Low-cost entry into digital commerce (4.0/5) – Retailers appreciate that micro e-commerce platforms allow participation without heavy investments in infrastructure or websites.
3. Enhanced competitiveness (3.8/5) – Retailers feel empowered to compete with larger players by gaining access to online buyers.
4. Marketing and promotional support (3.6/5) – Platforms assist with visibility, though retailers feel it can be improved further.
5. Profitability (3.2/5) – While sales increase, higher commission rates and logistics costs reduce profit margins.

4. Major Challenges Faced by Retailers

Despite the opportunities, retailers highlighted several challenges:

1. Logistics and delivery issues (4.1/5) – Delays, product damage, and lack of local delivery partners are major concerns.
2. High commission charges (3.9/5) – Platform fees significantly affect small retailers' margins.
3. Customer complaints and product returns (3.7/5) – High return rates increase operational costs.
4. Payment delays (3.5/5) – Cash flow management becomes difficult when payments are delayed.
5. Digital literacy gaps (3.1/5) – Some traditional retailers struggle with app usage, order management, and online marketing.

5. Differences Across Retailer Types

Newer businesses (operating for less than 3 years) showed 85% adoption, while older retailers (>6 years) showed only 62% adoption. This indicates a generation gap in adoption – younger entrepreneurs are more open to micro e-commerce.

6. Statistical Associations

A Chi-square test revealed a significant relationship between years in business and adoption ($p < 0.05$). Younger businesses are more adaptive to online retail platforms. A t-test comparison between offline and online sales showed that while offline sales remain higher, online sales contribute significantly and cannot be ignored.

7. Overall Satisfaction Levels

70% of retailers reported being either satisfied or very satisfied with their micro e-commerce experience. Only 10% reported dissatisfaction, mainly due to logistics inefficiencies and low profit margins. This reflects a generally positive outlook towards micro e-commerce as a business model.

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