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Journal of Management and Technology

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A Bi-annual Referred Research Journal of Jaipuria Institute of Management, Indirapuram, Ghaziabad

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I am delighted to present **Special Issue 02** of our journal, which features a collection of insightful and thought-provoking papers originally presented at the International Conference on *RISE 2025: Responsible Innovation for Sustainable Economy,* held on 5 July 2025 at Jaipuria Institute of Management, Ghaziabad. The conference brought together a diverse group of experts, policymakers, and scholars to reflect on the urgent need for strategies that strengthen economic resilience and promote sustainable development in today's volatile global environment.

The events of recent years have reminded me—and indeed all of us—of the fragility of our interconnected economies. Financial crises, geopolitical uncertainties, climate change, and pandemics have exposed systemic vulnerabilities and challenged our assumptions about growth and stability. In this context, the theme of *RISE 2025* was both timely and essential, urging us to explore robust, innovative, and responsible approaches to achieving sustainable and inclusive prosperity.

In this special issue, I have had the privilege of curating papers that reflect the diversity and depth of those discussions. They cover a wide range of critical areas, from fiscal and monetary policy to technological innovation, environmental sustainability, and social equity. Each contribution offers valuable insights and evidence-based recommendations, which I believe will be useful for policymakers, researchers, and practitioners committed to building resilient and sustainable economic systems.

One of the strongest messages I take away from the conference is that true resilience cannot be achieved in isolation. It requires a holistic integration of economic, social, and environmental dimensions. Several papers in this issue emphasize the role of green technologies and renewable energy—not only as responses to climate change but also as drivers of innovation, employment, and long-term economic stability. Investment in sustainable infrastructure and clean energy, in my view, is not just a necessity but an opportunity to create stronger, more adaptive economies.

Equally important is the recognition that resilience must be inclusive. Social equity is not a peripheral concern but a central element of stability. I was particularly struck by the papers highlighting policies that promote inclusive growth, whether through education and training,

social safety nets, or support for small and medium-sized enterprises (SMEs). These strategies strengthen not only economic foundations but also the social fabric on which resilience ultimately depends.

As I reflect on the insights captured in **Special Issue 02**, I see them as a foundation rather than a conclusion. They point us toward continued dialogue, collaboration, and innovation in pursuit of sustainable growth. My hope is that these contributions inspire further research and action, encouraging academics, policymakers, and practitioners to work together in shaping a more resilient and equitable global economy.

I extend my heartfelt gratitude to the contributors, reviewers, and the organizers of *RISE 2025* for making this special issue possible. It is both an honor and a privilege to share their work with you.

Sincerely,
Chief Editor

Financial Technologies: Creating Dynamism in the Indian Ecosystem

*Purnima Sarkar

Abstract

In the rapidly evolving Fintech World, It's true that financial technology has revolutionized globally The Fintech industry is experiencing rapid growth, with projections of significant market size increase in the coming years. Forecast show the market size would be reaching $895 billion by 2028.This growth is fuelled by innovations in areas like mobile payments, online lending, and digital investment platforms, Increased Financial Inclusion..Fintech is playing a crucial role in expanding access to financial services,. The concept of "Ethical Finance" is emerging, aiming to integrate ethical principles into technological financial solutions. This includes areas like data privacy, algorithmic fairness, and responsible lending practices. Ethical finance emphasizes transparency, with institutions providing information on where funds are invested.. Ethical financial practices prioritizes value-based investing and lending, Fintech offers tremendous potential to democratize finance and promote ethical practices, but it's crucial to address the ethical implications of these technologies. This Research paper entitled "Financial Technologies: Creating Dynamism in the Indian Ecosystem" focuses primarily on the revolution introduction by the Fintech industry and the transformation in the financial landscape in the Indian perspective Correlation Analysis would be used to understand the relationship between the factors most influential for the change. Literature Review would be undertaken to reveal the research studies conducted in the related area.

In summary, the Indian financial market is undergoing rapid transformation, with Fintech playing a significant role. Ensuring ethical conduct is crucial for maintaining stability, promoting financial inclusion, and fostering sustainable growth.

Keywords: *Fintech, financial inclusion, ethical finance, value-based investing, digital investment*

Introduction

In recent decades, fintech has evolved from a niche market segment to a fundamental pillar of the global financial system. This sector, which encompasses digital payments, blockchain technologies, robo-advisory, peer-to-peer lending, and Insurtech, is reshaping how financial services are delivered and consumed. Fintech not only drives efficiency and customer-centricity but also challenges established banking models by introducing agile and cost-effective alternatives. India's fintech sector has experienced a remarkable growth in Q3 of 2024 of around US$ 778 million in which is equivalent to a 66% rise as compared to Q3 2024 (US $ 471 million) and a whooping rise of 165% from Q2 of 2024.

The dynamism created by fintech in the ecosystem is evident in several dimensions:

- Increased Efficiency: Automation and algorithm-driven processes reduce operational costs and enhance service speed.
- Enhanced Customer Experience: Customized products, mobile accessibility, and real-time support transform customer engagement.
- Broadened Financial Inclusion: Digital platforms lower entry barriers, extending services to underserved and remote populations.

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- Innovation in Risk Management: Advanced analytics and machine learning facilitate better fraud detection, credit scoring, and market predictions.

This article investigates these dimensions and provides a comprehensive overview of fintech's role in generating transformative change in the financial ecosystem.

The below mentioned diagram depicts the pattern of our Fintech Ecosystem

FIG 1.1 ELEMENTS OF FINTECH ECO SYSTEM
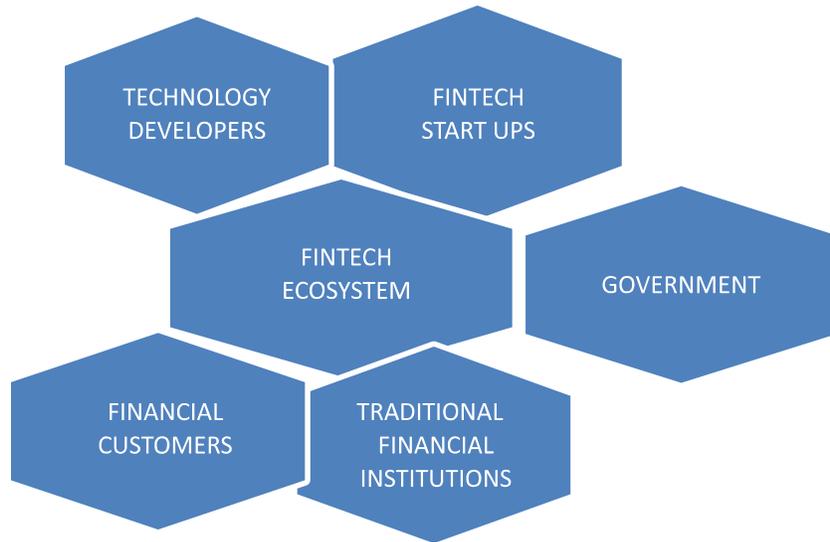
The Framework of the Fintech ecosystem depends on the major participants as the financial institutions, customers, startups, technology developers and the government who make a significant contribution in the growth and expansion of this segment. It is the integration of these sub-systems that build up the entire Ecosystem for the conduct of operations and the flow of supply chain.

FIG 1.1 ELEMENTS OF FINTECH ECO SYSTEM
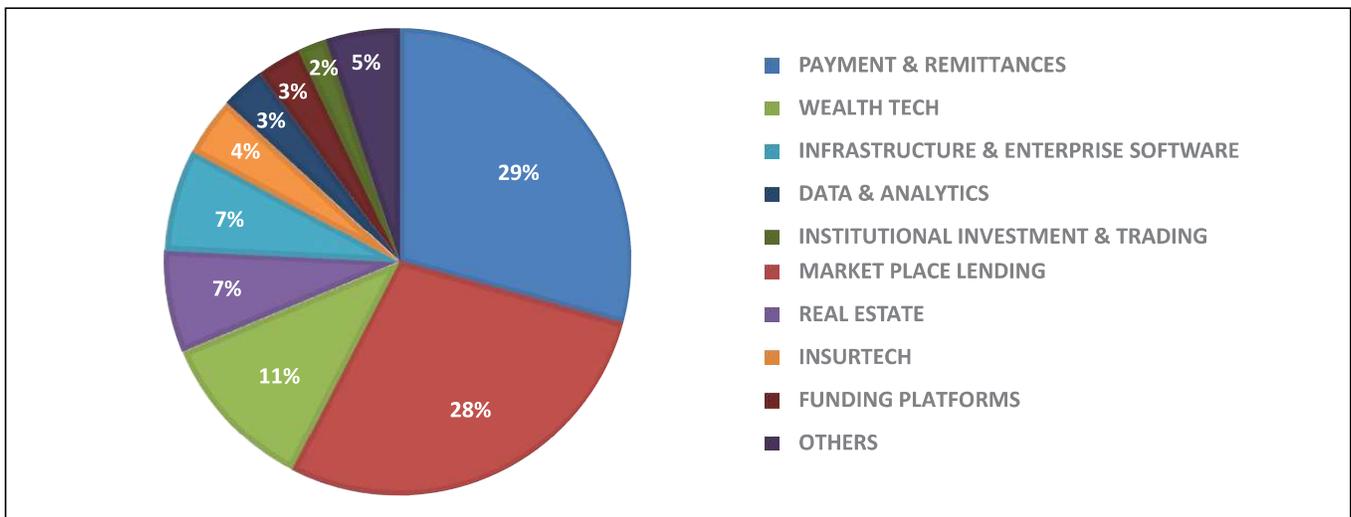
Source: Fintech Global

The above is the diagrammatic representation of Fintech Investments in India during 2023-24. It shows the penetration levels in different domains with the highest percentage being in the Payment & remittance segment (29%), followed by the second major player in the marketplace Lending (28%),the third highest segment is Wealth tech (11%), followed by real estate(7%), Infrastructure and Enterprise software (7%), Insurtech(4%), Data & Analytics, Funding Platforms,

FIG 1.3 FINTECH ADOPTION AMONG DIGITALLY ACTIVE CUSTOMERS
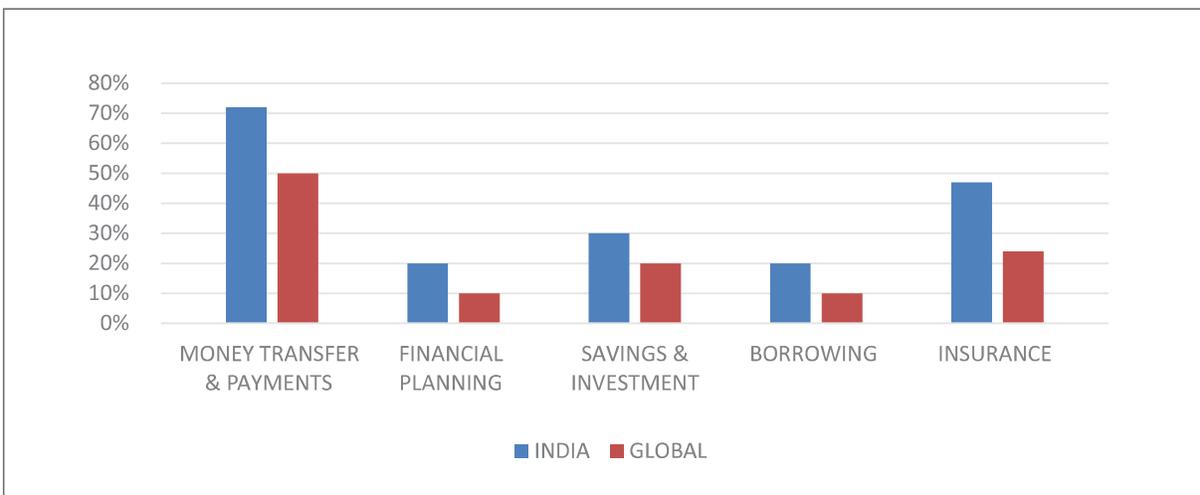
Source: Fintech Global

As it is observed in the above-mentioned diagram (Fig 1.3). The users of Fintech services are on the rise from year to year. As there is transition in the mode of operations, the preference for digital mode is on the rise be it with regard to availing insurance services, savings & Investment, fund transfers, financial Planning and many others.

Forecasted Growth of Indian Fintech Unicorns By 2030

As per the report of JM Financial and Beams Fintech Fund It is projected that India will have 150 fintech unicorns by 2030 with valuation of US$500 billion. Major sectors like Insurtech, wealth tech payments and Neo banking are expected to experience multifaced growth, with revenue of US $260billion by 2030 from current US$20billion.This growth will be enhanced by rise in consumer spending, higher market penetration and use of Artificial Intelligence.

UPI has set the path for boom in India's fintech industry. Transaction volumes would be reaching US$ 11 trillion by 2030. India is projected to have around 150 fintech unicorns, collectively valued at US$500 billion, by 2030, according to a report by JM Financial and Beams Fintech Fund. Key sectors like payments, lending, insurtech, wealthtech, and neo banking are expected to experience multifold growth during this period. that Indian fintech companies' combined revenue will rise to US$260 billion by 2030, up from the current US$20 billion. This growth will be fuelled by higher consumer spending, deeper market penetration, and advancements in artificial intelligence. The use of QR codes would elevate to 317 million by 2025 and the PoS terminals are expected to enhance by.8.6 million in the forth coming years.

It is forecasted that there would be tremendous growth in the Lending, insurtech, and wealthtech sectors especially the growth in the lending sector would reach 6.6 times to US $ 300 billion in the forth coming years.Similarly the Insurtech sector is also expected to soar as high as US $ 15 billion and the AUM of Wealthtech firms to touch US $ 237 billion.

Current fintech unicorns and startup growth in India

India has been the hub of 26 Fintech Unicorns with a valuation of US $ 1 billion, including one decacorn with a valuation of US$90 billion, which makes India forth largest fintech hub after US, China and UK. The top Unicorns include Phone Pe, Razorpay, Cred, Slice, Acko and Zerodha.

As of writing this article, India is home to 26 fintech unicorns, including one decacorn, with a combined valuation of US$90 billion. This places India just behind the US, China, and the UK in terms of the number of fintech unicorns. Notable unicorns include PhonePe, Razorpay, Cred, Slice, Acko, and Zerodha. A unicorn is a company valued at over US$1 billion, while a decacorn exceeds US$10 billion in valuation. The number of registered fintech startups in India has grown 5 times from 2100 in 2021 to 10200 in 2024. From 2014 to 2023, Indian Fintech companies raised over US$

Additionally, the number of registered fintech startups in India has grown nearly fivefold in the past three years, from 2,100 in 2021 to 10,200 in 2024. Between 2014 and 2023, Indian fintech companies raised over US$28 billion across 1,486 deals, with US$4.3 billion coming from IPOs. Major IPO exits include Paytm, AngelOne, Policybazaar, Newgen, CMS, Tracxn, and KFin Technologies.

Objective of the Study

This research study has the following objectives

To examine the role and influence of the FinTech industry in reshaping the modern economic landscape.

To identify the key areas within the economy most affected by FinTech innovations (e.g., banking, payments, investments).

To examine the correlation between key financial and technological indicators and FinTech adoption, usage, and success in India.

Literature Review

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Schueffel, P. (2016). For every company essential business activity in modern society and doesn't mean only use of technology but achieving social creation through the application of technology.

Shim and Shin (2016) The use of techno-globalist strategy by the Chinese government for the sake of improving its global competitiveness as well as applying 'techno-nationalist strategy to fostering and safeguarding domestic companies against foreign players.

V.Kumar and G. Kaur, 2020 In Thailand the crowd funding system is in an nascent stage and requires government support. The crowd funding system needs to align with the Fintech Industry, The government has to be more proactive to form a start-up ecosystem for entrepreneurship development.

Anshari(2019) The E-payment platform provides necessary functions for investors to conduct transactions efficiently anytime-anywhere. Investors through crowdfunding can select from the greater range of agricultural produce.

Lee and Shin (2018) For Fintech investment decisions, real options can be one of the tools which may enhance the investment value. As there are ample opportunities in the derivative market, the application of High-end technology can facilitate customers.

Anagnostopoulos (2018) with the booming of the financial services industry, there is immense potential for wellbeing of consumers, regulatory, supervisory gains,

Jagtiani and Kose (2018) The new financial ecosystem was developed by the advanced technology of Big data and Artificial Intelligence algorithms. The integration of conventional financial institutions with fintech firms have added advantage to the system.

Gozman and Willcocks (2018) The application of cloud technologies may be used optionally by the fintech firms. As the executives feel the need to innovate for the purpose of risk management, more specifically to manage compliance risk.

Gozman and Willcocks (2018) There's a framework theory for deciding when to engage strategically with or avoid Cloud technologies. This helps executives balance the need to innovate with the need to manage compliance risk and then detail emerging effective practices for managing Cloud based innovation on a sustainable basis.

Chavan, Palavi, and Bhaskar Birajdar (2009) There is a higher chance of adopting FinTech, for financially literate people who prefer transparency. It is more so required to bring about efficiency in the system.

Junger and Mietzner (2019) Households with low levels of trust, good financial education, and preference for transparency are characterized by a higher probability of adopting FinTech. In contrast, household price perceptions do not appear to significantly impact switching probability.

Research Methodology

This is an Empirical research study based on data from secondary sources which has been obtained by exploring different sources. The study is based on a qualitative research approach, focusing on secondary data collection. Sources of data include industry reports, academic journals, news articles, government publications, and white papers.

The parameters selected are

1. **FinTech adoption rate** – percentage of consumers using FinTech services
2. **Digital payment volume** – number of digital transactions
3. **Internet penetration rate** – percentage of population with internet access
4. **Smartphone penetration rate** – percentage of people with smartphones
5. **Wealth tech and Regtech volume**- percentage of increase in wealth tech and Reg tech Firms

Methodology

- **Systematic Literature Review:** Analysing peer-reviewed journals, industry white papers, and regulatory documents to map the historical and contemporary evolution of fintech.
- **Comparative Case Studies:** Examining successful fintech innovations from different geographies to understand diverse implementation models and regulatory responses.
- **Expert Interviews:** Gathering insights from industry practitioners, regulatory authorities, and academic experts to provide a nuanced understanding of fintech's impact.

1. **Data Collection:** Collect data from RBI, NPCI, World Bank, IMF, and FinTech industry reports.
2. **Statistical Software:** Use of R software for correlation analysis and obtaining the results
3. **Correlation Methods:** Pearson's correlation coefficient (r) is used for linear relationships, while Spearman's rank correlation is applied for non-linear relationships.

Analysis & Interpretation
Hypothesis Postulation:

Hypothesis 1: **H0:** There is no positive correlation, between Fintech adoption with internet and smartphone penetration

H1: There is a positive correlation between FinTech adoption and internet and smartphone penetration

Hypothesis 2: **H0:** Digital payment volume has no correlation with UPI transaction volume growth

H1: Digital payment volume correlates with UPI transaction volume growth

Hypothesis 3: **H0:** There is no positive correlation, between Fintech Adoption and Digital lending, Insurtech and wealth tech

H1: There is positive correlation, between Fintech Adoption and Digital lending, Insurtech and wealth tech

CORRELATION MATRIX OF KEY FINTECH METRICS										
Total Investment	1.00	0.68**	0.75**	0.55**	0.62**	0.48**	0.72**	0.70**	0.80**	0.78**
Digital Payment volume growth	0.68**	1.00	0.52**	0.45**	0.48**	0.35**	0.85**	0.92**	0.70**	0.65**
Digital Lending Value Growth	0.75**	0.52**	1.00	0.40**	0.55**	0.42**	0.78**	0.58**	0.72**	0.70**
Insurtech Premium Growth	0.55**	0.45**	0.40**	1.00	0.38**	0.50**	0.50**	0.48**	0.60**	0.58**
Wealth Tech AUM Growth	58**	0.62**	0.48**	0.55**	0.38**	0.45**	0.65**	0.52**	0.75**	0.73**
Reg Tech Market Size Growth	0.48**	0.35**	0.42**	0.50**	0.45**	1.00	0.40**	0.38**	0.55**	0.53**
Overall Fintech Adoption Rate	0.72**	0.85**	0.78**	0.50**	0.65**	0.40**	1.00	0.88*	0.82**	0.80*
UPI Transaction Volume Growth	0.70**	0.92**	0.58**	0.48**	0.52**	0.38**	0.88**	1.00	0.73**	0.68**
Internet Penetration Growth	0.80**	0.70**	0.72**	0.60**	0.75**	0.55**	0.82**	0.73**	1.00	0.90**
Smartphone Penetration Growth	0.78**	0.65**	0.70**	0.58**	0.73**	0.53**	0.80**	0.68**	0.90**	1.00

Results & Findings

- From the Analysis of the Correlation matrix, it is found that there is a Strong positive correlation between internet and smart phone penetration with FinTech adoption, thus proving Hypothesis 1 be true
- Moderate positive correlation between digital payment volume and UPI transactions thus proving Hypothesis 2 to be accepted
- Moderate positive correlation exists between Digital Lending and FinTech adoption, thus proving Hypothesis 3 to be true
- FinTech has led to a significant increase in financial inclusion, especially in underserved and rural areas through mobile banking and digital wallets.
- Digital payment systems (like UPI, PayPal, and mobile apps) have revolutionized the way transactions are made—faster, safer, and more convenient.

- The lending sector has seen major growth due to peer-to-peer lending platforms and AI-driven credit assessments.
- Traditional banks are now collaborating with or acquiring FinTech startups to stay competitive and innovative.
- The FinTech industry has also contributed to job creation, cost reduction, and improved customer experience in the financial ecosystem.
- However, challenges such as cybersecurity risks, regulatory gaps, and digital fraud remain areas of concern.

Limitations and Future Scope of the Study

This study has been undertaken in the Indian scenario considering limited parameters, limited sources of data collection and limited time period. This research study can be extended, considering other parameters and in different market scenarios. Some more elements can be chosen for expansion of the scope of the study. The time period of the study can also be extended, to enhance its relevance.

Conclusion

The FinTech industry has emerged as a key driver of innovation and efficiency in the financial sector. It has significantly transformed the economy by enhancing accessibility, reducing costs, and enabling faster financial services. FinTech is not just disrupting traditional systems but also complementing and strengthening them through partnerships and digital integration. Despite challenges like regulatory concerns and cybersecurity threats, the potential for growth remains strong. Going forward, FinTech is expected to play a vital role in shaping a more inclusive, transparent, and agile financial future. This study can further inform strategies to enhance financial inclusion and digital finance adoption in the country. This article employs a qualitative research approach, synthesizing existing academic literature, industry reports, and case studies. Key methodologies include

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Evaluating the Impact of Cross-channel Marketing on Consumer Engagement and Purchase Behavior

*Narsis I
**Sumathi K

Abstract

Nature of the study: In the context of an increasingly digital and multi-platform world, it examines how various marketing factors across different channels contribute to consumer interactions with a brand. The study is quantitative and descriptive in nature, aiming to systematically assess and quantify the relationship between cross-channel marketing practices and consumer engagement. *Objective of the Study:* The primary objective of this research is to investigate the role of seven key cross-channel marketing factors "Perceived Consistency Across Channels", "Ease of Transition Between Channels", "Brand Trust", "Perceived Personalization", "Channel Accessibility", "Promotion and Reward Integration", and "Response Time Across Channels" in influencing consumer engagement. Methodology: *Methodology:* This study employed a random sampling approach including 130 consumers from the city of Tiruchy. A structured questionnaire on a five-point Likert scale gathered customer insights on cross-channel marketing. The data were analysed in SPSS by linear regression to assess the impact of the seven independent variables on the dependent variable, "Consumer Engagement.". *Findings:* The results indicated that "Perceived Personalization" and "Brand Trust" were the most significant predictors of consumer engagement, with both showing a strong positive impact.

Keywords: Cross-Channel Marketing, Consumer Engagement, Perceived Personalization, Brand Trust, Multi-Channel Strategy, Digital Marketing

JEL Classification: M31 – Marketing; M37 – Advertising; D12 - Consumer Economics: Empirical Analysis; L81 - Retail and Wholesale Trade; e-Commerce;

Introduction

In today's digitally connected world, consumers engage with brands through a multitude of channels, from traditional in-store experiences to online platforms and social media. This multi-channel environment has given rise to cross-channel marketing, an approach where brands aim to create seamless, cohesive experiences across diverse platforms to meet consumers wherever they are. The effectiveness of cross-channel marketing has become a focal point for brands striving to enhance consumer engagement—a critical factor linked to loyalty, satisfaction, and ultimately, purchase behavior. As consumers increasingly expect consistency, convenience, and personalization, brands face the challenge of integrating these elements to create a unified, engaging experience that spans multiple touchpoints. This study, titled "Impact of Cross-Channel Marketing on Consumer Engagement," seeks to investigate how various facets of cross-channel marketing contribute to consumer engagement. Adopting a quantitative research approach, this study uses a structured questionnaire to gather data on consumer perceptions related to seven key factors: perceived consistency across channels, ease of transition between channels, brand trust, perceived personalization, channel accessibility, promotion and reward integration, and response time across channels. Each of these factors has been identified as a potential driver of consumer engagement, providing a comprehensive perspective on how cross-channel strategies influence consumer-brand interactions.

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Review of Literature

The literature review serves as a critical examination of existing research and scholarly work relevant to a specific topic. It synthesizes findings, identifies gaps in knowledge, and establishes a framework for understanding the current state of research. By analyzing various sources, the literature review contextualizes the study within the broader academic discourse, highlighting its significance and informing future research directions. Timoumi, A., et al. (2022) indicate that strategies aimed at enhancing cross-channel integration typically yield beneficial outcomes for a retailer's overall performance. Furthermore, online advertising positively influences offline channel consideration and sales, in addition to the overall sales of multichannel retailers. The study conducted by Breugelmans, E., & Campo, K. (2016) reveals that (1) promotions in one channel may adversely impact category purchases in another channel during the promotion period, (2) these cross-channel effects exhibit asymmetry, (3) a high frequency of promotions can detrimentally affect the effectiveness of future promotions in the other channel, and (4) the negative cross-channel effects are more pronounced among more loyal customers of the chain.

Zhang, M. (2018) presents research findings that confirm the significant mediating role of consumer empowerment and illustrate consumers' favorable reactions to channel integration. Our findings provide significant insights for retailers in the implementation and assessment of their channel integration strategies. Cao, L., & Li, L. (2015) present a conceptual framework to analyze the conditions under which cross-channel integration influences firm sales growth at the firm level. The findings indicate that cross-channel integration enhances sales growth; however, the firm's online experience and physical-store presence diminish this effect. Gensler, S., Dekimpe, M. G., & Skiera, B. (2007) examine the temporal evolution of performance across primary channels and assess variations in channel performance across distinct product categories and customer segments. The results yield implications for managers to enhance the effectiveness of a company's various sales channels. The determination of the extent to which cross-channel integration should be implemented represents a significant and intricate challenge for multi-channel retailers. The empirical findings by Cao and Li (2018) indicate that retailers' information technology capabilities and private label provision drive cross-channel integration.

Consistency across channels is a critical element of cross-channel marketing that aims to create a seamless brand experience. According to Verhoef and Leeflang (2009), consumers expect a unified message and brand identity, regardless of the channel they use. Brands that ensure consistency across online and offline platforms enhance customer loyalty and satisfaction, as consumers perceive them as reliable and professional. Further, Lee and Park (2020) found that a coherent experience across channels contributes to consumers' positive attitudes towards the brand, thereby increasing engagement and purchase intent.

The ease with which consumers can switch between channels affects their overall experience with the brand. Neslin and Shankar (2009) discuss that consumers frequently transition between online and offline channels to access information, make purchases, or resolve issues. When brands facilitate smooth transitions—such as allowing users to add items to an online cart and retrieve it in-store—consumers perceive greater control and flexibility in their interactions. This ease of transition positively influences consumer engagement, as demonstrated in research by Melero, Sese, and Verhoef (2016), which emphasizes that removing friction between channels enhances satisfaction and engagement.

Trust in a brand is essential for fostering consumer loyalty, and its importance intensifies in multi-channel contexts. Keller (2009) suggests that a cohesive presence across channels enhances consumers' trust in the brand, as they feel reassured by the brand's credibility and presence. A study by Hur et al. (2011) revealed that trust cultivated through reliable cross-channel interactions leads to increased consumer engagement and a stronger brand-consumer relationship. Trust is particularly important as consumers make purchasing decisions based on brand reliability, which is reinforced when brands deliver consistent quality across channels.

Personalization has become a cornerstone of modern marketing. Lemon and Verhoef (2016) highlight that consumers now expect brands to tailor communications and offers to their individual needs and preferences. Personalization across channels not only makes the consumer feel valued but also enhances engagement by fostering relevance. Research by Kumar and Venkatesan (2005) found that personalized experiences across channels can lead to higher engagement, as consumers are more likely to interact with and make purchases from brands that align their offerings with consumer preferences.

Channel accessibility is crucial for delivering a positive consumer experience. Kumar and Venkatesan (2005) emphasize that consumers expect brands to provide easy-to-use and accessible platforms, whether online or offline. Accessibility in cross-channel marketing not only reduces friction but also enhances satisfaction and retention rates. Consumers are more likely to

engage with brands that make information, services, and products easily accessible through multiple channels, as discussed by Goode and Harris (2007), who found that user-friendly, accessible channels directly impact consumer satisfaction and engagement.

Integrated promotions and rewards across channels can significantly impact consumer loyalty and engagement. Lewis and Lewis (1997) found that loyalty programs and consistent reward structures encourage consumers to engage more frequently and increase their purchase frequency. Berman (2006) added that when brands integrate these rewards and promotions across various channels, consumers feel a greater sense of value and fairness, enhancing their commitment to the brand. Promotions and rewards also increase cross-channel purchases, as consumers are motivated to leverage these benefits across different purchasing platforms.

Response time across channels plays a significant role in determining consumer satisfaction and engagement. Bolton and Saxena-Iyer (2009) discuss that prompt responses to customer queries or issues can enhance consumers' perceptions of the brand's reliability and customer service quality. Research by Barone and Roy (2010) supports the idea that quick response times lead to higher engagement levels, as consumers are more likely to interact with a brand that prioritizes their concerns. In a competitive landscape, brands that demonstrate responsiveness across all channels can differentiate themselves and strengthen consumer loyalty. Based on the above literature one dependent variable (Consumer Engagement) and seven independent variables (Perceived Consistency Across Channels; Ease of Transition Between Channels; Brand Trust; Perceived Personalization; Channel Accessibility; Promotion and Reward Integration; Response Time Across Channels) were adapted for the analysis.

Methodology

Nature of the study: The study is quantitative and descriptive in nature, aiming to systematically assess and quantify the relationship between cross-channel marketing practices and consumer engagement. Using a structured questionnaire and a five-point Likert scale, the study collects measurable data on consumer perceptions regarding various elements of cross-channel marketing. These elements, identified as independent variables, include perceived consistency across channels, ease of transition between channels, brand trust, perceived personalization, channel accessibility, promotion and reward integration, and response time across channels. *Sample Size:* The sample size for this study comprised 130 consumers who were approached to participate in a questionnaire-based survey. After the data collection, 122 responses were deemed

valid and were included in the final analysis. The remaining 8 responses were rejected due to incomplete data, resulting in a usable sample size of 122 respondents. The sample size was determined to ensure sufficient data to analyze consumer perspectives on cross-channel marketing and its impact on engagement. *Sampling Method:* A random sampling method was employed to ensure a representative sample of the consumer population. Random sampling is particularly effective for generalizability, allowing the findings to reflect a wider consumer base, as random selection minimizes biases and supports a more objective analysis of consumer attitudes toward cross-channel marketing. *Survey Method:* The primary data collection tool was a structured questionnaire, developed to measure consumer responses on various dimensions of cross-channel marketing. The questionnaire items were measured on a five-point Likert scale, with options ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), enabling respondents to express varying levels of agreement with each statement. The Likert scale was selected for its ability to capture nuanced perspectives, allowing respondents to indicate both positive and negative sentiments toward the variables. *Structure of the questionnaire:* The survey questionnaire consisted of two sections: Section I Personal Demographic Variables: Questions regarding the respondents' Gender, Age, Education, and Employment status to understand basic demographic characteristics. Section II Indicators: Seven independent variables measured to assess the effectiveness of cross-channel marketing: Dependent Variable: Consumer Engagement. *Statistical Analysis:* Linear regression analysis was conducted to examine the relationship between the independent variables and the dependent variable, Consumer Engagement. This technique was chosen because it allows for an analysis of how each independent variable contributes to the level of consumer engagement, accounting for their relative influence on the dependent variable. The analysis was performed in SPSS, where each variable was coded and assigned descriptive labels for consistency and clarity. The regression model aimed to identify significant predictors of consumer engagement, providing insights into the most influential factors in cross-channel marketing. *Scope of the Study:* This study is aimed at understanding the impact of cross-channel marketing on consumer engagement. Specifically, it explores the effects of consistent branding, ease of navigation, trust, personalization, accessibility, rewards, and response times across various marketing channels. The findings of this study are intended to assist marketers in developing effective cross-channel strategies that enhance consumer engagement. The scope of the study is limited to the defined sample of 122 respondents, which may reflect general consumer behaviors but may vary across different demographics and industry contexts. Additionally, the

study focuses solely on cross-channel marketing efforts without extending to other marketing approaches, allowing for targeted insights into how channel integration impacts consumer perceptions and engagement.

Table 1 Frequency Distribution

Personal Factors	Levels	Frequency	Percent	Cumulative Percent
Gender	Male	78	63.9	63.9
	Female	44	36.1	100.0
	Total	122	100.0	
Age	25-35	20	16.4	16.4
	36-45	80	65.6	82.0
	46-55	12	9.8	91.8
	56and above	10	8.2	100.0
	Total	122	100.0	
Education	Bachelor's Degree	30	24.6	24.6
	PG/Professional Degree	52	42.6	67.2
	Technical	40	32.8	100.0
	Total	122	100.0	
Income	Less than 25 000	20	16.4	16.4
	25 000 - 50,000	68	55.7	72.1
	50 000 - 75 000	17	13.9	86.1
	Above75,000	17	13.9	100.0
	Total	122	100.0	

The sample of 122 respondents shows a balanced distribution of personal demographics. The sample consists of 78 males (63.9%) and 44 females (36.1%), with a cumulative percent reaching 100%. This indicates a higher proportion of male respondents within the sample. The majority of respondents fall within the 36-45 age range (65.6%), followed by those aged 25-35 (16.4%). This concentration in the 36-45 group suggests that mid-career consumers are more represented in this sample. The highest level of education attained by respondents is predominantly a Postgraduate/Professional Degree (42.6%), followed by Technical qualifications (32.8%). This distribution implies a well-educated sample, with a considerable portion holding advanced degrees or technical skills. In terms of income, over half of the respondents (55.7%) have an income in the 25,000 - 50,000 range. Smaller segments earn less than 25,000 (16.4%), This shows a predominance of middle-income earners within the sample. In summary, the sample is predominantly composed of middle-aged, well-educated, middle-income males. This demographic composition provides a solid basis for examining consumer perceptions and behaviors related to cross-channel marketing.

Data Analysis And Interpretation

Understanding the purpose of this study—to investigate how different cross-channel marketing variables affect "Consumer Engagement"—is necessary before delving into the specifics of the analysis. Specifically, this research explores seven independent variables—Perceived Consistency Across Channels, Ease of Transition Between Channels, Brand Trust, Perceived Personalization, Channel Accessibility, Promotion and Reward Integration, and Response Time Across Channels. By conducting a linear regression analysis, it's aim to identify which

of these factors significantly influence consumer engagement, providing insights into how brands can strategically enhance their marketing efforts. The following analysis outlines the model's overall fit, the statistical significance of predictors, and each factor's contribution to consumer engagement.

Table 2 Model Summary of Linear Regression Analysis: Predicting Consumer Engagement from Cross-Channel Marketing Factors

R	R Square	Adjusted R Square	Std. Error of the Estimate
.870a	.757	.742	.569

a. Predictors: (Constant), Response Time Across Channels, Channel Accessibility, Promotion and Reward Integration, Brand Trust, Ease of Transition Between Channels, Perceived Consistency Across Channels, Perceived Personalization

b. Dependent Variable: Consumer Engagement

The SPSS linear regression output provides a Model Summary for predicting the dependent variable, Consumer Engagement, based on seven independent variables: Response Time Across Channels, Channel Accessibility, Promotion and Reward Integration, Brand Trust, Ease of Transition Between Channels, Perceived Consistency Across Channels, and Perceived Personalization. The R (Correlation Coefficient) value of **0.870** indicates a strong positive correlation between the combined independent variables and the dependent variable, Consumer Engagement. This high value suggests that these cross-channel marketing factors are strongly associated with consumer engagement, implying that changes in the independent variables are closely linked to changes in consumer engagement levels. The R Square (Coefficient of Determination) value of 0.757 shows that approximately 75.7% of the variance in Consumer Engagement is explained by the model. This high proportion indicates that the model, with the seven selected independent variables, explains a substantial portion of the variation in consumer engagement. This means that factors like brand trust, consistency, accessibility, and personalization in cross-channel marketing significantly contribute to how engaged consumers feel with a brand. The Adjusted R Square value of 0.742 slightly adjusts the R Square value for the number of predictors in the model. This adjusted value (74.2%) confirms that the model remains strong even after accounting for the complexity added by multiple predictors. The minimal difference between R Square and Adjusted R Square suggests that the variables included in the model are effective predictors of consumer engagement and that additional, unmeasured variables might have only a limited effect. The Standard Error of the Estimate is 0.569, which represents the average distance that the observed values fall from the regression line. A lower standard error indicates a more precise prediction model, suggesting that the model's predictions of consumer engagement are reasonably close to the actual engagement levels observed.

Table 3 ANOVA for the Regression Model: Assessing the Overall Fit of Consumer Engagement Prediction

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	115.099	7	16.443	50.843	.000b
Residual	36.868	114	0.323		
Total	151.967	121			

The model summary suggests a well-fitting regression model with a high R Square, meaning that the majority of the variance in Consumer Engagement can be attributed to the independent variables chosen. The strong correlation and high R Square value imply that cross-channel marketing efforts, particularly the seven factors included in this analysis, are powerful predictors of consumer engagement. This output supports the conclusion that effectively managing aspects such as consistency, personalization, and accessibility across marketing channels can have a significant, positive impact on how engaged consumers feel with the brand.

The ANOVA table assesses the overall fit of the regression model for predicting Consumer Engagement using the seven independent variables. The Regression Sum of Squares (115.099) compared to the Residual Sum of Squares (36.868) shows that a significant portion of the variance in Consumer Engagement is explained by the model. The F-value of 50.843 with a p-value (Sig.) of .000 indicates that the model is statistically significant at the 0.001 level, meaning there is a very low probability that the observed relationship between the predictors and Consumer Engagement is due to random chance. This high F-value and low p-value confirm that the independent

variables collectively have a significant impact on Consumer Engagement, validating the model's effectiveness in predicting consumer engagement levels based on cross-channel marketing factors.

Table 4 Coefficients Table for Linear Regression: Impact of Cross-Channel Marketing Factors on Consumer Engagement

Variables entered	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.441	.175		2.515	.013
Perceived Consistency Across Channels	.093	.077	.088	1.211	.229
Ease of Transition Between Channels	-.005	.073	-.005	-.064	.949
Brand Trust	.284	.067	.280	4.240	.000
Perceived Personalization	.729	.078	.733	9.317	.000
Channel Accessibility	-.101	.079	-.082	-1.288	.200
Promotion and Reward Integration	-.099	.067	-.086	-1.475	.143
Response Time Across Channels	-.138	.073	-.093	-1.893	.061

a. Dependent Variable: Consumer Engagement

The Coefficients table provides insights into the contribution of each independent variable to Consumer Engagement while controlling for the other variables. The constant term is 0.441, which represents the baseline level of consumer engagement when all independent variables are zero. Among the variables, "Perceived Personalization" has the strongest positive impact on Consumer Engagement, with a B value of 0.729 and a highly significant p-value of .000. Its high Beta value of 0.733 also shows it as the most influential predictor, indicating that personalized experiences are a key factor in engaging consumers. "Brand Trust" also shows a significant positive impact, with a B value of 0.284 and a p-value of .000, meaning that trust significantly contributes to consumer engagement.

Other variables, such as "Perceived Consistency Across Channels" (B = 0.093, p = .229) and "Response Time Across Channels" (B = -0.138, p = .061), show no statistically significant effect at the 0.05 level, despite some small positive or negative contributions. Variables such as "Ease of Transition Between Channels", "Channel Accessibility", and "Promotion and Reward Integration" also have non-significant effects, suggesting that while these factors are part of cross-channel marketing, they may not independently drive consumer engagement as strongly as personalization and trust. In summary, the analysis highlights that "Perceived Personalization" and "Brand Trust" are the most significant predictors, emphasizing the importance of these factors in fostering consumer engagement within cross-channel marketing strategies.

Fig. 1 Histogram of Regression Standardized Residuals for Consumer Engagement
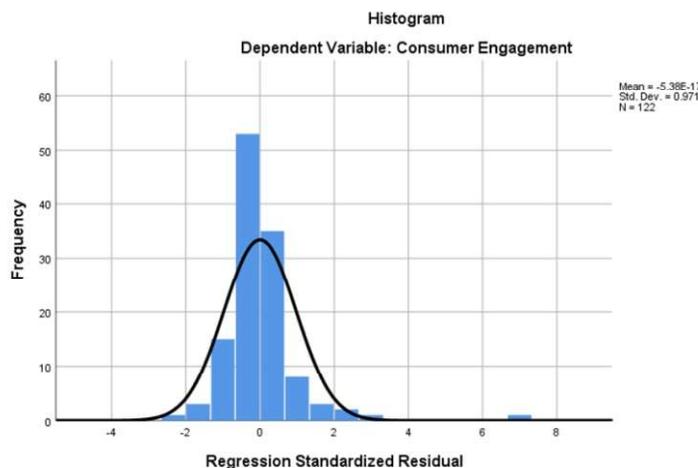
Findings

Perceived Personalization as a Key Driver: Among all variables, Perceived Personalization showed the strongest positive impact on Consumer Engagement, with a high Beta value (0.733) and a significant p-value (0.000). This suggests that personalized cross-channel experiences are highly influential in driving consumer engagement. *Significance of Brand Trust:* Brand Trust emerged as another significant predictor, with a positive B value (0.284) and a p-value of 0.000, indicating that trust in the brand positively affects consumer engagement. This highlights the importance of maintaining and building brand trust in cross-channel marketing efforts. *Non-Significant Impact of Consistency and Response Time:* Although Perceived Consistency Across Channels and Response Time Across Channels had slight positive or negative effects on Consumer Engagement, they were not statistically significant (p = 0.229 and p = 0.061, respectively). This suggests that while they contribute to overall cross-channel marketing, they may not independently drive engagement. *Minimal Influence of Ease of Transition, Accessibility, and Rewards:* Variables like Ease of Transition Between Channels, Channel Accessibility, and Promotion and Reward Integration showed non-significant effects on consumer engagement. This implies that seamless navigation, accessibility, and rewards might not be as crucial to engagement as previously anticipated. *High Model Fit:* The model demonstrated a strong fit, with an R Square of 0.757, meaning that approximately 75.7% of the variance in Consumer Engagement can be explained by the seven independent variables. This high percentage confirms the collective impact of cross-channel marketing factors on consumer engagement, validating the model's effectiveness in predicting engagement outcomes.

Conclusion

The findings of this study highlight the critical role of "Perceived Personalization" and "Brand Trust" in driving consumer engagement within cross-channel marketing strategies. Personalization emerged as the most influential factor, suggesting that tailored, relevant interactions significantly enhance consumer involvement with a brand. Brand Trust also demonstrated a strong positive effect, emphasizing the importance of building credibility and reliability across channels. While factors like "Consistency Across Channels" and "Response Time" were expected to impact engagement, their lack of statistical significance indicates they may serve more as supporting elements rather than primary drivers. Similarly, "Ease of Transition", "Channel Accessibility", and "Promotion and Reward Integration" showed minimal independent influence on engagement, suggesting that these factors alone

may not be as effective in fostering engagement without personalization and trust. Overall, the model explained a substantial portion of the variance in Consumer Engagement (R^2 = 75.7%), confirming that cross-channel marketing strategies are impactful when they prioritize personalization and trust. This insight provides a valuable framework for brands to focus on these key areas to deepen consumer engagement effectively. The findings suggest that brands should prioritize "personalized marketing" and "building trust" across all channels to enhance consumer engagement. Tailored, relevant experiences that resonate with consumers are crucial for increasing involvement and loyalty. Marketers should focus on strengthening brand credibility and reliability, particularly in cross-channel interactions, to foster trust. While elements like consistency and response time are important, they should complement personalization and trust-building efforts. Managers should also reconsider the emphasis on ease of transition, accessibility, and promotions, as they appear to have a lesser impact on consumer engagement in comparison to personalized experiences and brand trust.

are available from the corresponding author upon reasonable request. Due to privacy and ethical considerations, the data are not publicly available.

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A Conceptual Paper on Social E-Commerce with Respect to Consumer Purchase Behaviour

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Abstract

Social e-commerce has revolutionized consumer purchase behaviour, integrating social media platforms with online shopping experiences. Consumers increasingly rely on user-generated content, reviews, and recommendations to make informed purchasing decisions. Trust, engagement, and social interactions significantly influence their choices. The ease of access to product information, peer opinions, and influencer endorsements further shape consumer preferences. This paper explores the role of social e-commerce in decision-making, analysing key factors such as trust, interactivity, and platform influence. It examines how social media-driven shopping fosters engagement and impacts purchasing patterns. By reviewing existing literature, this study provides a conceptual understanding of how consumer behaviour is evolving in the digital marketplace. Understanding these dynamics can help businesses enhance their strategies to improve consumer trust and engagement in social e-commerce platforms. The findings contribute to the growing discourse on the intersection of social media and e-commerce in shaping modern consumer habits.

***Keywords:** E-Commerce, Purchase behaviour, social media platforms, online Shopping, decision making*

Introduction

What is social commerce?

Social commerce is an emerging and rapidly expanding segment of e-commerce that leverages social networks and digital media to enable transactions between businesses and consumers. It includes a wide range of activities such as product discovery, customer reviews, ratings, sharing, personalized recommendations, direct transactions, and loyalty programs. Essentially, social commerce capitalizes on the widespread use of social media platforms by integrating product promotion and sales directly into the platforms that users engage with on a daily basis.

The integration of social media as a marketing and sales channel enables companies to establish direct and meaningful interactions with their customers. By leveraging user-generated content (UGC)—including photos, videos, and customer reviews—businesses can cultivate deeper relationships with their audience than what traditional e-commerce strategies typically allow. This emotional connection often translates into increased consumer engagement and higher sales conversion rates across social media platforms.

The rapid growth of social commerce in recent years can be attributed to the widespread adoption of smartphones and the rising popularity of social media networks such as Facebook, YouTube, TikTok, and Twitter. According to a McKinsey report, global social media-driven sales reached $37 billion in 2021, with projections suggesting this figure will rise to nearly $80 billion by 2025, accounting for approximately 5% of total U.S. e-commerce sales. While this represents a relatively small portion of the overall e-commerce market, the growth trajectory of social commerce is notably steep. Beyond enhancing customer engagement, social commerce provides significant advantages to consumers. Increasingly, individuals seek product recommendations through social networks from friends, family, and other users who have shared their experiences. Features such as comment sections and Q&A boards allow potential

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buyers to inquire about products before making a purchase, thereby increasing consumer confidence and offering valuable feedback to brands. These social interactions foster community-based decision-making and provide businesses with real-time insights into consumer preferences.

Additionally, businesses often utilize data generated from user interactions—such as likes, shares, and comments to refine and personalize their offerings. This data-driven approach enhances the customer experience by aligning products and marketing strategies with individual preferences. For instance, Amazon combines behavioural data from its website with insights from social media platforms to tailor advertising and product recommendations, increasing the effectiveness of its marketing campaigns.

In conclusion, social commerce presents a cost-effective and impactful alternative to traditional advertising channels such as radio, print, and paid search. The ability to foster personalized interactions and build emotional connections with consumers positions social commerce as a powerful tool for driving brand loyalty, customer retention, and long-term business success.

Social commerce vs. e-commerce

While both social commerce and e-commerce aim to facilitate online sales by connecting businesses with consumers, several key distinctions set them apart. E-commerce typically involves direct interactions between consumers and brands via dedicated websites or online storefronts. In contrast, social commerce enables consumers to complete purchases within the social media platforms they are already using, often capitalizing on spontaneous "micromoments" of intent or interest. Social commerce relies on platforms such as Facebook, Instagram, TikTok, and Twitter to engage with potential buyers and drive conversions, leveraging native features like shoppable posts, stories, and live-streaming. On the other hand, traditional e-commerce strategies primarily depend on search engine optimization (SEO), paid advertising, and email marketing to attract customers to an external website.

From a cost perspective, social commerce tends to be more economical, as it does not require the significant investment typically associated with building, hosting, and maintaining a fully functional e-commerce website. However, social commerce is generally considered a complementary channel rather than a standalone solution for generating sustainable revenue.

Moreover, social media platforms benefit from advanced algorithms and data mining techniques that capture both explicit and implicit user data. This allows brands to deliver hyper-personalized content and product suggestions directly within users' social feeds, enhancing the likelihood of conversion. In contrast, e-commerce websites often lack such granular behavioural data, necessitating more intensive efforts to attract and retain traffic. Ultimately, while e-commerce drives transactions through dedicated online platforms, social commerce integrates the shopping experience into the social environments where consumers already spend a significant portion of their time, thereby increasing convenience and engagement.

Types of social commerce

Leveraging social commerce to engage customers in the digital spaces they frequent mirrors long-established strategies in social media marketing. By utilizing the inherent capabilities of social networks that offer native social commerce tools, brands can foster deeper relationships with their audiences and drive sales more effectively.

Before delving into the specific types of social commerce, it is important to highlight the key platforms that facilitate such strategies:

- Facebook: Facebook provides a robust social commerce feature known as Facebook Shops, which allows businesses to create highly customizable storefronts. Brands can showcase selected collections, promote featured products, and integrate product catalogs directly from e-commerce platforms such as Shopify.

- Instagram: Renowned for visual discovery, Instagram has become a prime platform for product exploration and purchasing. Through Instagram Shops, users can browse, discover, and complete purchases entirely within the app. Additionally, Facebook Shop integration allows for seamless cross-platform product visibility.

- Pinterest: One of the pioneers of social commerce, Pinterest introduced product pins in 2015. These pins, when used on business accounts, allow users to complete transactions via a built-in checkout process, making purchases possible without leaving the platform.

These platforms exemplify how social commerce is evolving to provide seamless, in-app purchasing experiences, aligning with the behaviours and preferences of today's digitally connected consumers. A variety of social commerce tactics can be strategically integrated into retail marketing efforts to enhance consumer engagement and drive sales conversions. These tactics leverage the interactive and social nature of digital platforms to influence purchase behaviour in real time. Key social commerce tactics include:

- Influencer Marketing: Leveraging the credibility and reach of social media influencers enables brands to tap into established follower bases. Influencers typically promote products or services on their channels and may earn a commission on resulting sales. Their endorsement often functions as a trusted recommendation, significantly enhancing consumer purchase intention.

- Social Media Advertising: Platforms such as Facebook, Twitter, and Instagram offer advanced targeting capabilities that allow brands to deliver personalized advertisements to specific user segments. These ads frequently include direct purchase options (e.g., Buy Now buttons), making the path to conversion seamless and user-centric.

- Content Marketing: By producing engaging content such as blog posts, videos, tutorials, or infographics brands can provide value while establishing authority in their niche. When shared through social media channels, this content can act as an entry point for social selling by subtly integrating product links and promotional messages.

- User-Generated Content: Encouraging customers to share authentic experiences with a brand's products or services not only increases credibility but also fosters community-driven trust. When combined with embedded commerce features (e.g., shoppable tags), UGC transforms spontaneous social interactions into impactful sales opportunities.

- Live Streaming Events: Real-time broadcasts via platforms like YouTube, Instagram Live, or Twitch enable businesses to directly interact with consumers through Q&A sessions, product demonstrations, or exclusive promotions. These events enhance transparency and provide immediacy, increasing the likelihood of impulse purchases during the stream.

- Shopping Cart Integration and Native Shopping Features: Many social media platforms now offer integrated shopping tools that allow consumers to browse and purchase products without leaving the app. Features such as in-app shopping carts, product tagging, and storefronts streamline the purchase process and improve user experience, thereby boosting conversion rates.

These tactics collectively demonstrate how social commerce can be harnessed to meet customers in the digital spaces they frequent most, creating interactive, trust-based shopping journeys that surpass the limitations of traditional e-commerce. (LaFleur, 2023)

Literature Review

1. (B.Anjan Kumar, 2024): Instagram has emerged as one of the most widely used social media platforms in the digital age. Beyond serving as a space for entertainment and social interaction, it has also become a powerful tool for digital marketing. Today, most brands maintain a presence on Instagram to meet the needs and preferences of the modern generation. Marketers leverage the platform to showcase product features and promote special offers to attract potential customers. With advancements in mobile internet technology, consumer engagement with social media platforms has significantly increased. Notably, these platforms are predominantly used by younger audiences. Therefore, this paper seeks to explore the purchasing behaviour of this target group, commonly referred to as Zoomers or Generation Z.

2. (Ariyani & Andriani, 2024): This study investigates the impact of brand recommendations by digital influencers on consumers' purchase intentions, focusing on the mediating roles of brand engagement and perceived brand value. The sample comprised 85 respondents who met two key criteria: they possessed an Instagram account and actively followed influencers on the platform. A quantitative research approach was adopted, and data were analyzed using the SmartPLS 4 software. The findings indicate that perceived influencer credibility, brand engagement aligned with self-concept, and expected brand value all have a significant and positive effect on the intention to purchase a recommended brand.

3. (Rudianto et al., 2024): The evolution of digital media has brought about innovative changes and new opportunities in the field of marketing. When utilized effectively, social media marketing can significantly reduce long-term marketing expenses. A clear example is Instagram advertising, which is generally more cost-effective and impactful compared to other search engine advertising methods. Advertising can be defined as a message promoting a product to the public through an information medium. This study aims to examine the impact of Instagram advertisements on consumer purchase interest in skincare products. The research adopts a descriptive quantitative approach. The population consists of Instagram users who express purchase interest in skincare products, with a sample size of 50 respondents. Data were analysed using simple linear regression. The findings indicate that Instagram advertisements have a significant effect on consumer purchase interest in skincare.

4. (Indriawan Sudradjat et al., 2024): The objective of this study is to examine the impact of Instagram social media engagement through the @telkomselone account and the brand equity of Telkomsel One on customer interest in using Telkomsel One products. The data were collected from 384 respondents who were prepaid card users, owned Instagram accounts, and had viewed content from the @telkomselone Instagram page. This quantitative research utilized primary data obtained through a questionnaire. The analysis was conducted using the PLS-SEM method with SmartPLS software. The results reveal that Instagram social media has a significant effect on purchase decisions. Specifically, the Social Media variable demonstrated a t-statistic of 2.325, which is greater than the critical value (t-table = 1.96), and a p-value of 0.020, which is below the significance level (α = 0.050). The path coefficient for the Social Media variable was positive at 0.163, indicating a positive influence on the purchase decision for Telkomsel One. Similarly, Brand Equity was found to have a significant impact on purchase decisions, with a t-statistic of 9.471 (> 1.96), and a p-value of 0.000 (< 0.050). The path coefficient for Brand Equity was 0.602, showing a strong positive effect on customers' purchase decisions regarding Telkomsel One products. In conclusion, both Instagram social media engagement and brand equity significantly influence consumer purchase decisions for Telkomsel One.

5. (Sahata Sitanggang et al., 2024): The objective of this study is to examine the key factors driving the rapid growth of digital marketing on social media, assess its significance in the digital age, and identify effective strategies for its implementation. The research adopted a quantitative design, utilizing a questionnaire distributed to Generation Z respondents. Data were analyzed using statistical software to evaluate the effectiveness of digital marketing strategies across various social media platforms, including Facebook, Instagram, and TikTok. The findings reveal that Instagram and TikTok are significantly more effective than Facebook in capturing the attention and engagement of Generation Z users. Instagram was found to be particularly engaging due to its visually rich content, while TikTok stood out for its interactive short-form video format. A major determinant of effectiveness was the delivery of informative and relevant content tailored to users' interests. The study concludes that the most successful digital marketing strategies involve the use of creative, interactive, and authentic content, especially on TikTok and Instagram. These platforms offer greater potential for engaging Generation Z audiences.

6. (L S & Kavitha, 2024): social media has become an integral part of daily life, serving various purposes such as learning, networking, knowledge sharing, and more. Among the many platforms available such as Facebook, YouTube, Instagram, and Snapchat this study focuses on Instagram to examine the marketing strategies employed by brands to drive sales. Lakme, one of the most prominent Indian cosmetic brands, has garnered significant attention on Instagram, amassing 2.3 million followers. The primary objective of this study is to evaluate Lakme's success on Instagram, particularly through its collaboration with influencers. Empirical data were collected from 201 respondents and analysed using structural equation modelling techniques. The results highlight a significant relationship between various stages of the marketing funnel and influencer-driven engagement with Lakme.

7. (Gopakumar & Dananjayan, 2024): In today's social media-driven landscape, the influence of Instagram beauty influencers on consumer purchase intentions is both significant and far-reaching. This study investigates the intricate relationships between parasocial interactions, influencer credibility, product–influencer congruence, consumer attitudes, and purchase intentions within the context of Instagram. Utilizing a quantitative research design, an online survey was conducted with 326 female Instagram users who follow beauty influencers. The findings highlight the crucial impact of influencer credibility and product–influencer congruence in shaping consumer attitudes and driving purchase intentions. Moreover, the study reveals that parasocial interactions foster trust and positive perceptions of influencers, which in turn enhance consumers' willingness to purchase. A key contribution of this research is the identification of influencer credibility and product–influencer congruence as significant mediators in the relationship between parasocial interactions and purchase intentions. Although the study specifically focuses on beauty influencers on Instagram and relies on self-reported data, its insights hold valuable implications for broader influencer marketing strategies. The results emphasize the importance of influencer authenticity, product alignment, and the cultivation of strong parasocial connections.

8. (Zirena-Bejarano & Zirena, 2024): The rapid growth of e-commerce has sparked considerable interest among researchers aiming to identify the key factors influencing online purchase decisions. While extensive literature highlights the role of consumer attitudes, findings have often been inconsistent, revealing a gap in research

involving mediating variables. This study investigates the mediating role of opinions from friends and reference groups in the relationship between consumer attitudes and online purchasing behaviour. A total of 654 respondents participated in the survey, and the data were analysed using PLS-SEM. The findings indicate that consumer attitudes have a significant positive effect on online purchase decisions, and this relationship is mediated by the influence of friends and reference groups.

9. (Kushwaha, 2024): The rise of electronic commerce (e-commerce) has significantly transformed various industries, including retail, business-to-business interactions, procurement processes, and customer service. As online shopping continues to gain widespread popularity, understanding consumer behaviour in this domain has become increasingly essential. This paper delves into the realm of e-commerce, focusing specifically on online purchasing behaviour, with an emphasis on consumer attitudes, satisfaction levels, and the challenges encountered during the shopping process. Using a survey-based approach, the study aims to provide quantitative insights into the growth of online shopping and its influence on consumer behaviour. It highlights the critical role of perceived risk and trust in shaping consumers' online purchasing decisions, identifying security and privacy concerns as major influencing factors. Beyond individual transactions, e-commerce is reshaping the global business landscape, ushering in a transformative era with far-reaching implications for economies and industries worldwide.

10. (Eggert, 2023): The growing popularity of social media, particularly Instagram, continues to rise as users increasingly engage with these platforms to share photos, videos, and communicate with others. Beyond social interaction, Instagram and similar platforms have also become valuable tools for marketing and product sales. While the factors influencing purchase decisions on platforms like Facebook have been extensively studied, Instagram stores have received comparatively little academic attention. This research seeks to address this gap by identifying key factors that influence purchasing decisions within Instagram stores. A theoretical model was developed incorporating selected constructs hypothesized to significantly affect users' purchase intentions. To test these hypotheses, structural equation modelling was applied to survey data collected from 127 participants.

11. (Paramitha et al., 2023): Purchase intention serves as a critical indicator for entrepreneurs in determining geographic market focus and customer segmentation strategies, particularly when products and services are sold through social commerce platforms. The objective of this study is to empirically examine the influence of attitude, ease of use, and perceived usefulness on purchase intention via social commerce media, with gender and age considered as moderating variables. The research was conducted from early to late July 2023, with data collected through online questionnaires distributed via Google Forms. The sample consisted of 125 TikTok users in Indonesia. The data were analysed using PLS-SEM. The findings reveal that attitude and ease of use both have a positive and significant impact on purchase intention. In contrast, perceived usefulness shows a positive but statistically insignificant effect on purchase intention.

12. (Shafa et al., 2023): The strategic use of Instagram as a communication and promotional tool by Bandeng Isi MRB holds significant potential for enhancing online customer engagement. By capitalizing on Instagram's widespread popularity and user accessibility, the brand can cultivate a sense of closeness and connectivity with its audience, thereby increasing consumer interest in purchasing Bandeng Isi MRB products. This study aimed to assess the extent to which customer engagement impacts purchase intentions in response to Instagram-based promotional efforts. Adopting a quantitative research design with an associative approach, the study explored the relationship between customer engagement and purchase intentions. The target population included 763 followers of the Instagram account @bandengisimrb. Using Slovin's formula, a sample size of 161 respondents was determined. Data collected from these participants were analysed using the SPSS, employing multiple linear regression analysis at a 5% significance level. The results demonstrate that customer engagement factors such as connection, interaction, satisfaction, retention, commitment, advocacy, and overall engagement individually and collectively influence purchase intentions. These findings highlight the critical importance of developing a robust and interactive social media presence, as platforms like Instagram can play a pivotal role in shaping consumers' purchasing behaviour and enhancing brand loyalty.

13. (Hingad et al., 2022): The onset of the COVID-19 pandemic and subsequent quarantine measures have underscored the critical importance of maintaining a digital presence, particularly through e-commerce platforms. Businesses without an online component now face substantial revenue loss, as consumer preferences continue shifting

toward digital transactions. Over the past few decades, e-commerce has experienced rapid global growth due to its efficiency and ease in facilitating the exchange of goods and services across regional and international boundaries. Notably, India has emerged as a significant hub for e-commerce, currently ranked 9th globally in terms of cross-border e-commerce development. As our world evolves, the role of e-commerce is expected to become increasingly central, bolstered by emerging technologies that enhance user experience and operational scalability. The COVID-19 pandemic has accelerated this transition, driving consumers away from traditional retail in favour of safer, contactless online shopping methods. This research cum survey paper aims to examine the influence of social media on consumers' decision-making processes, particularly for complex, high-involvement transactions that are infrequent, costly, and characterized by brand variability, perceived risk, and strong emotional engagement. The study also investigates how the proliferation of UGC and the availability of vast information through social platforms can influence consumers' buying behaviour. Employing a quantitative research approach, data were collected via structured survey forms to assess the extent to which consumers' experiences are reshaped by the integration of social media and e-commerce tools. Findings suggest that social media platforms significantly impact consumer satisfaction during various stages of the decision-making process particularly during the information search and evaluation of alternatives phases.

14. (Mayya et al., 2022): The advent of the internet era has brought about significant transformations in people's daily lives. Irrespective of generational differences, individuals across age groups are increasingly embracing the internet as a tool to simplify and enhance their lifestyles. One of the most notable shifts observed in recent years is the evolution of consumer buying behaviour, with a marked transition toward online shopping. The internet, being a vast repository of information and knowledge, not only facilitates seamless transactions but also fosters global connectivity through various social media platforms. Social media has become a powerful medium through which individuals connect, share content, express opinions, and influence each other's perceptions and decisions. This dynamic interaction often introduces numerous external stimuli that can trigger unplanned or impulse purchases. Among the many social media platforms, Instagram has emerged as a prominent space for both content creators and marketers. With its visually-driven interface and algorithmic content curation, Instagram holds considerable potential to influence consumer behaviour and promote impulse buying. This paper aims to investigate the impact of social media usage specifically Instagram on online impulse buying behaviour.

15. (Uniyal, 2022): The primary objective of this paper is to quantitatively examine the current state of e-commerce shopping within the retail industry in Bangalore city. Unlike traditional brick-and-mortar markets, online consumer buying behavior lacks the ability to physically interact with products such as touching, examining, or comparing items before making a purchase. This study investigates the influence of several key variables, identified through a review of existing literature. These variables include perceived benefits, domain-specific innovativeness, and shopping orientations, such as impulse purchase orientation, brand orientation, and quality orientation, particularly in the context of prominent e-commerce platforms like eBay, Amazon, and Flipkart. Data for the study was collected through structured questionnaires administered to a sample population in Bangalore. The findings reveal that both domain-specific innovativeness and shopping orientations exert a significant positive influence on consumers' buying behaviour in the e-commerce sector.

16. (Herzallah et al., 2022): This study aims to analyse the key factors driving consumer purchases via Instagram and contributing to the expansion of Instagram Commerce. Specifically, it investigates the moderating roles of gender, age, and user experience in the relationships between six core variables drawn from Commitment–Trust Theory, the TAM, and Consumer Decision-Making Theory. The research employed a quantitative approach wherein participants completed a survey after viewing a video about Instagram Commerce. A total of 404 valid responses were collected. The research model was tested using PLS-SEM. The study offers several contributions to the understanding of Instagram Commerce and carries significant implications for practitioners in the field of social commerce. The results reveal that trust, attitude, perceived usefulness, and alternative evaluation significantly influence consumers' purchase intentions. However, the study also found no significant relationship between trust or ease of use and purchase intention. Moreover, the study highlights that gender, age, and Instagram experience play moderating roles in some of these relationships.

17. (Mawa T. Tohfa et al., 2021): Facebook is one of the most widely used social media platforms globally, where users spend a significant amount of time. Leveraging its artificial

intelligence-based targeted advertising capabilities, Facebook has become a powerful medium for disseminating information and expanding business reach. In Bangladesh, the majority of individuals with smartphone or internet access actively use Facebook as their primary social networking platform. This high level of engagement suggests that Facebook could significantly impact digital marketing effectiveness within the region. This study aims to evaluate the influence of Facebook marketing on consumer purchase behaviour in the context of Bangladesh. The research employs a mixed-methods approach, incorporating both online surveys and face-to-face interviews. In addition, secondary data were gathered from previous studies, journal articles, online reports, and relevant websites. The results reveal that Facebook marketing exerts a strong positive influence on consumer purchase behaviour in Bangladesh. Positive feedback from existing customers further indicates that the platform has a high conversion potential for attracting new customers, highlighting the strategic importance of Facebook in digital marketing campaigns.

18. (Wahyudin et al., 2021): The advent of the industry 4.0 era has significantly transformed the landscape of internet and information technology, leading to a major shift in how businesses operate—particularly in marketing, transactions, and payment systems. This evolution has facilitated the growth of online marketplaces as critical infrastructures for implementing digital marketing strategies. As a result, companies in the retail sector have increasingly turned to online platforms to remotely sell everyday consumer goods such as food items, beverages, toiletries, and household supplies. This study aims to measure consumer behavioural intention to use online store channels for purchasing daily needs and to analyse the influence of convenience and perceived transaction risk on consumer behaviour. Data were collected from respondents who consistently use online shopping platforms. The study focused on assessing consumers' attitudes and behavioural intentions, particularly in relation to the ease of transactions, payment systems, and delivery services.

19. (Gupta, 2021): This paper explores the impact of celebrity Instagram endorsements on consumers' purchase intentions, with a specific focus on the celebrity Virat Kohli. As the use of celebrity endorsements continues to grow across social media platforms, particularly Instagram, the study seeks to understand how such endorsements influence consumer behavior. Survey data were collected from young followers of Virat Kohli, examining their purchase intentions toward two different brands endorsed by him Wrogn, an apparel brand, and Unacademy, an e-learning platform. The findings indicate that celebrity credibility measured through attributes such as attractiveness, trustworthiness, and expertise positively and significantly influences purchase intention for Wrogn. However, no such effect was found in the case of Unacademy. These results suggest that the impact of celebrity Instagram endorsements can vary depending on the brand category and its alignment with the celebrity's perceived image.

20. (Kumar Sanjeev, 2021): This study investigates consumer purchase behavior in India's rapidly expanding e-commerce sector. The primary aim is to understand the demographic characteristics, purchasing habits, factors influencing purchase decisions, and the overall satisfaction of e-commerce users. A quantitative research approach was adopted, and data were collected through a structured survey distributed via email and social media platforms. A total of 450 valid responses were obtained, and the data were analysed using SPSS software, incorporating descriptive statistics, correlation, and regression analysis. The findings revealed that the majority of respondents were young adults aged 25–34 years, predominantly male, and held at least a bachelor's degree. Amazon emerged as the most preferred e-commerce platform among respondents, with many making online purchases two to three times a month. Price sensitivity, product variety, and user reviews were identified as the most influential factors affecting purchase decisions. While respondents expressed high levels of satisfaction with product quality and their overall shopping experience, some dissatisfaction was noted in areas such as customer service and the return/refund process. The study emphasizes the importance for e-commerce businesses to focus on competitive pricing, a diverse product range, reliable user review systems, and enhanced customer service features.

21. (Madzunya et al., 2021): social media has evolved into a primary source of information for online consumers, with Instagram experiencing significant growth in South Africa. This study investigates how conspicuous consumptive behaviour on Instagram influences the intention to purchase luxury goods. Using a quantitative survey distributed via social media platforms, data were collected from 364 South African respondents and analyzed through structural equation modelling. The findings indicate that while the intensity of Instagram usage significantly affects conspicuous consumption behavior, the credibility of electronic word-of-mouth (eWOM) does not. This is largely

attributed to the perception that Instagram users often curate and highlight only the positive aspects of their lives, rather than presenting an objective reality. Additionally, the results show that Instagram users frequently engage in conspicuous behaviour with the intention of converting this behaviour into actual luxury purchases.

22. (Tabrez Hassan et al., 2021): Fast-Moving Consumer Goods (FMCG) are sold through both offline and online channels. However, the online mode presents a significant opportunity to acquire a broader customer base. This study and its findings aim to assist marketers and companies in understanding the potential of e-commerce platforms for the sale of FMCG products. With internet penetration in India rapidly increasing and the number of active users reaching millions, a substantial segment of potential customers remains untapped in the online marketplace. Addressing fundamental challenges such as ensuring user-friendly website design can serve as a critical differentiator. Given that FMCG products are universally consumed across all age groups and genders, leveraging digital technology for their promotion and sale is vital. Understanding the key factors influencing online purchase decisions can enable companies to enhance customer acquisition and drive sustained growth in the FMCG sector.

23. (Nhan PHAN et al., 2020): This study investigates the impact of content marketing on customer engagement on Instagram, specifically within the context of fashion brands in Vietnam. Based on 199 collected and analysed samples, the statistical findings confirm the model's validity. Key content marketing variables including the type of post, optimal posting time, message interactivity, and topic attractiveness were found to have a significant positive influence on customer engagement on Instagram. The outcomes of this research offer valuable insights for fashion industry executives, providing a comprehensive understanding of how content marketing shapes engagement behaviour on social media. These findings serve as a crucial foundation for strategic marketing planning, brand development, customer acquisition, and enhancing competitive advantage.

24. (Sidek et al., 2020): The objective of this study is to investigate the factors influencing online purchase intention among Generation Z users on Facebook and Instagram. This research holds significance in two primary ways: first, it extends existing literature on digital consumer behaviour; second, it provides valuable insights for organizations and marketers aiming to enhance customer satisfaction among Generation Z consumers. The study

employed a sample size of 168 respondents with prior experience in online shopping. Four key influencing factors were analysed perceived ease of use, perceived usefulness, subjective norm, and media richness. Findings from the simple regression analysis indicate that three of these factors perceived ease of use, perceived usefulness, and media richness have a significant and positive effect on online purchase intention.

25. (Clarke et al., 2019): This paper aims to investigate the impact of Facebook and Instagram on consumer buying behaviour within the retail fashion market in Rhodes, Greece. Specifically, the study examines the extent to which these two social media platforms influence consumer preferences for certain stores and whether Rhodian consumers utilize them as sources of fashion information and inspiration. The study employs a quantitative research methodology using online, close-ended survey questionnaires to gather data from participants. The results indicate that both Facebook and Instagram significantly influence Rhodian consumer behavior. Respondents perceive these platforms as effective tools for tracking fashion trends and believe that fashion has become more accessible via social media compared to five years ago.

26. (Srivastava, 2018): The advent of digitalization has significantly transformed not only human activities but also consumer behaviour. In today's customer-centric market environment, the buying patterns of consumers are evolving rapidly, with youth exhibiting particularly notable shifts in purchasing behavior. The widespread access to information and the pervasive use of social networking platforms have intensified the influence of digital marketing, embedding it more deeply within organizational strategies. However, this transformation has also introduced several challenges for marketers as they adapt to new consumer expectations and behaviours. The primary objective of this study is to examine the impact of social media on business operations in greater depth and to gain meaningful insights into how consumers interact with and are influenced by the digital environments that have become integral to their daily lives.

27. (Huang & Benyoucef, 2017): Social commerce encourages consumers to engage actively in the buying and selling of products and services through online communities and marketplaces. However, the influence of social commerce design elements on consumer purchase decision-making remains insufficiently explored. This gap may lead to suboptimal platform design, which in turn could hinder

consumer engagement and negatively affect online purchasing behaviour. To address this, an empirical model was proposed to examine the impact of three key social commerce design factors usability, functionality, and sociability on the five stages of the consumer purchase decision-making process. The findings reveal that each stage of the decision-making process is influenced differently by these design elements.

28. (Makmor et al., 2017): The evolution of social commerce has transformed traditional business practices into online transactional models, allowing individuals to interact and communicate within digital networks. With advancements in information technology, social commerce has rapidly emerged as a dynamic platform for purchasing activities. This shift reflects a transition in consumer behaviour from individual decision-making to more collaborative, community-driven choices. However, as user engagement on these platforms increases, so does exposure to information exchange, which may sometimes include inaccurate or misleading content. Social commerce platforms function as technology-driven social networks that not only facilitate transactions but also enable users to share and compare information regarding products and services within online marketplaces and communities. The aim of this paper is to propose a conceptual model that explores the determinants of consumer purchase intention in the context of social commerce. Key variables in this model include social commerce constructs, social support, and purchase intention.

29. (Chandrakant Urne, 2016): E-commerce has emerged as a booming industry, generating substantial business through online trading. Its rapid expansion has significantly impacted the market landscape, transforming traditional business practices. The success of the e-commerce sector is largely driven by consumer responses and their evolving buying behavior. Key contributors to this success include the reduction of intermediaries, competitive pricing strategies, and the convenience of doorstep delivery. Numerous studies have indicated that e-commerce has surpassed conventional marketing models by offering added value and incentives to consumers, thus leading to a surge in demand within this sector. The Indian market, in particular, holds immense potential, as evidenced by the significant business volume being generated through e-commerce platforms. This research aims to review existing literature on e-commerce, with a specific focus on the current state of e-commerce in India, its technological adoption, socio-economic implications, influence on consumer decision-making, and the benefits contributing

to its success. Rapid technological innovation and its swift adoption have played a pivotal role in shaping consumer expectations and behaviours. As technology continues to evolve, so does the e-commerce business model, leading to notable shifts in purchasing patterns.

30. (Duffett, 2015): This paper aims to investigate the influence of behavioural attitudes toward Facebook the world's most widely used social media platform among Millennials in South Africa (SA). Specifically, the study examines whether usage-related factors and demographic variables influence consumers' intention to purchase and actual purchase perceptions. A quantitative research design was adopted, utilizing a large-scale survey comprising over 3,500 self-administered structured questionnaires collected across South Africa. The data were analysed using a generalised linear model to explore the relationships between Facebook usage, demographics, and purchase-related behavioural attitudes. The findings confirm that advertising on Facebook positively affects Millennials' behavioural attitudes in South Africa, particularly in terms of intention-to-purchase and actual purchasing behaviour. Moreover, specific usage characteristics such as the duration of time spent logged into Facebook and the frequency of profile updates were associated with more favourable perceptions of Facebook advertising. Demographically, ethnic orientation (notably among Black and Coloured Millennials) also showed a significant positive impact on attitudes toward Facebook advertisements.

Research Methodology

This study adopts a conceptual research design with a qualitative approach, relying solely on secondary data to explore the dynamics of consumer behavior in the context of social e-commerce. The methodology involves an in-depth literature review of scholarly articles, journals, conference papers, and recent studies published between 2015 and 2024. The key databases used for data sourcing include Google Scholar, Scopus, ResearchGate, JSTOR, and other open-access academic repositories. A qualitative content analysis was employed to extract recurring patterns, themes, and constructs from the selected literature. The selection of literature was based on relevance to the research objectives, specifically studies focusing on social media platforms such as Instagram, Facebook, and WhatsApp, and key concepts such as influencer marketing, digital trust, usability, impulse buying, and Gen Z behaviour. A total of 31 studies were shortlisted that met the inclusion criteria and contributed significantly to the understanding of consumer purchase behaviour on social

commerce platforms. The methodology follows an inductive reasoning approach, where findings from multiple studies were synthesized to identify key themes and build a conceptual framework. This helped in understanding how various social commerce elements influence consumer behaviour, as well as the role of demographics, engagement strategies, and psychological factors in decision-making. While this approach allows for a broad and insightful exploration of the topic, it is important to note that the study does not involve primary data collection, and hence, its conclusions are theoretical in nature. Future empirical validation using quantitative surveys or qualitative interviews is recommended to support and extend the proposed framework.

The image above displays the top 100 most frequently used words across 31 research papers included in the study. This analysis was conducted using NVivo software.

Findings

Sr. No	Author Name	Title	Findings	Year
1.	Huang & Benyoucef	The effects of social commerce design on consumer purchase decision-making: An empirical study. Electronic Commerce Research and Applications	Identified factors influencing purchase behavior on social commerce platforms, including usability and trust.	2017
2.	Gupta et al.	Celebrity Endorsement on Instagram: Impact on Purchse Intension	Found that user-generated content builds trust and impacts consumer decision-making.	2023
3.	Sidek et al.	Factors Leading to Online Purchase Intention on Facebook and Instagram of Generation Z. International Journal of Psychosocial Rehabilitation	Revealed Gen Z's preference for visual, influencer-driven platforms like Instagram for shopping.	2020

4.	Duffett	Facebook advertising's influence on intention-to-purchase and purchase amongst millennials. Internet Research	Demonstrated how social media advertising influences purchase decisions among Gen Z and Millennials.	2015
5.	Nhan Phan et al.	The Impact of Content Marketing on Customer Engagement on Instagram-A Case Study of Fashion Brands	Found that engagement with branded content on social media positively affects purchase intentions.	2020
6.	Makmor et al.	Attitude towards Social Commerce: A Conceptual Model Regarding Consumer Purchase Intention and its Determinants.	Confirmed that website design and navigation ease impact consumer trust and online purchases.	2017

Conclusion

Sr. No	Author Name	Title	Conclusion	Year
1.	Huang & Benyoucef	The effects of social commerce design on consumer purchase decision-making: An empirical study. Electronic Commerce Research and Applications	Concluded that ease of use, trust, and interactive features significantly impact consumer behavior on social commerce platforms.	2017
2.	Gupta et al.	Celebrity Endorsement on Instagram: Impact on Purchse Intension	Concluded that user-generated content plays a critical role in shaping consumer perceptions and trust.	2023
3.	Sidek et al.	Factors Leading to Online Purchase Intention on Facebook and Instagram of Generation Z. International Journal of Psychosocial Rehabilitation	Concluded that Gen Z consumers prefer visually driven and influencer-based shopping experiences.	2020
4.	Duffett	Facebook advertising's influence on intention-to-purchase and purchase amongst millennials. Internet Research	Concluded that targeted social media advertising effectively influences Gen Z and Millennials' buying decisions.	2015
5.	Nhan Phan et al.	The Impact of Content Marketing on Customer Engagement on Instagram-A Case Study of Fashion Brands	Concluded that active engagement with brand content leads to higher purchase intentions.	2020
6.	Makmor et al.	Attitude towards Social Commerce: A Conceptual Model Regarding Consumer Purchase Intention and its Determinants.	Concluded that good website design and usability enhance trust and purchasing confidence.	2017

Limitations

This conceptual paper has several limitations that must be acknowledged. First, it is based entirely on secondary data and existing literature, which limits its scope to theoretical insights without empirical validation. Additionally, much of the reviewed research focuses on specific platforms such as Instagram, TikTok, and Facebook, which may not fully represent the diverse range of emerging or regional social commerce platforms.

Moreover, a significant portion of the studies centres on Gen Z and millennials, meaning the findings may not be entirely applicable to older generations or cross-cultural populations. Another limitation arises from the rapidly evolving nature of social commerce technologies. The fast-paced changes in platform features, algorithms, and consumer behaviour mean that conclusions drawn from past studies could quickly become outdated. Furthermore, the lack of a unified theoretical framework for studying social commerce behaviour results in fragmented and sometimes inconsistent findings across the literature.

Future Research

For future research, it is recommended that empirical validation be conducted to test the conceptual model proposed in this paper, using both quantitative and qualitative approaches. A comparative study across multiple social commerce platforms, such as Instagram, TikTok, and WhatsApp, would provide a deeper understanding of platform-specific consumer behaviors. Longitudinal studies could further shed light on the evolving nature of consumer behavior over time, enabling a more accurate prediction of future trends. It is also essential for future research to include a wider range of demographics, exploring behaviours across various age groups, income levels, and educational backgrounds, to offer a more comprehensive view of consumer decision-making in social commerce. Research that examines the impact of cultural and regional contexts, especially in emerging economies like India, would also provide valuable insights. With the increasing integration of AI-driven recommendations and AR/VR technologies in social commerce, further investigation into the role of personalization and its influence on consumer behaviour is needed. Finally, exploring the ethical dimensions of social commerce, including data privacy concerns, the potential for manipulative marketing practices, and the effects of constant digital engagement on consumer well-being, could be pivotal for shaping future regulations and guidelines in this space.

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Sustainable Marketing Innovations for a Greener Future in Kinnaur, Himachal Pradesh

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Abstract

Sustainable marketing has gained widespread recognition, yet its adoption by small and medium-sized enterprises (SMEs) in Kinnaur, Himachal Pradesh, remains largely unexplored. While existing studies emphasize Eco-tourism and organic farming in broader Himachal Pradesh limited research investigates how SMEs in Kinnaur implement sustainable marketing strategies. This study focuses on key factors such as digital marketing, eco-certifications, consumer perceptions, policy support, infrastructure constraints, consumer awareness, and cost-related challenges. The primary objectives are to examine the influence of digital marketing and eco-certifications on sustainable business practices, evaluate consumer perceptions of green marketing, identify obstacles like infrastructure limitations and high costs, and propose policy measures to foster green entrepreneurship in remote areas. A quantitative research approach is employed, incorporating structured surveys and in-depth interviews with SME owners, policymakers, and consumers. Multiple regression analysis assesses the impact of sustainable marketing strategies on business performance, while descriptive statistics gauge consumer awareness and attitudes. The study sample includes 50 SME owners, 20 policymakers, and 100 consumers in Kinnaur, ensuring diverse perspectives. Although sustainable marketing is gaining traction, research on its practical implementation in Kinnaur, particularly concerning digitalization and policy interventions, remains scarce. Initial findings suggest that digital platforms, eco-labeling, and policy incentives significantly enhance SME competitiveness, yet barriers such as inadequate infrastructure, limited consumer awareness, and high operational costs persist. This study fills the research gap by offering empirical insights and strategic recommendations for policymakers, businesses, and stakeholders to strengthen sustainable marketing initiatives in remote regions.

Keywords: Sustainable marketing, Green entrepreneurship, Digital marketing, Consumer perception, Policy support.

Introduction

Sustainable marketing has become a critical dimension of modern business strategy, especially in light of mounting environmental concerns, shifting consumer preferences, and the global push for sustainable development. It goes beyond traditional marketing by integrating social responsibility and ecological consciousness into marketing practices, aiming to create long-term value for businesses, consumers, and the environment (Lee & Da Xu, 2016; Tsang & Chan, 2018). In recent years, sustainable marketing has gained prominence in India, particularly in regions with strong ecological significance. However, the practical implementation of sustainable marketing strategies among small and medium-sized enterprises (SMEs), especially in remote and high-altitude regions, remains limited and underexplored (Garg & Deshmukh, 2022; Singh et al., 2022).

Kinnaur, a high-altitude district in Himachal Pradesh, is characterized by its pristine natural landscape, traditional organic farming, and emerging eco-tourism sector. This unique ecological and cultural profile presents both opportunities and challenges for sustainable marketing adoption. While state-level initiatives in Himachal Pradesh have supported organic agriculture and tourism, SMEs in Kinnaur often face difficulties in adopting green business models due to infrastructural limitations, digital divides, and policy implementation gaps (Mishra & Rathi, 2023; Sharma & Patel, 2024). Moreover,

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despite increased national awareness of sustainable practices, local consumer awareness and demand for eco-friendly products and services remain relatively low, further constraining market expansion (Gupta & Jain, 2023).

Existing research primarily emphasizes the role of eco-tourism and organic agriculture in promoting sustainability in Himachal Pradesh (Rajendran & Srinivasan, 2023; Kumar et al., 2022). However, little scholarly attention has been paid to how SMEs in remote regions like Kinnaur integrate sustainable marketing strategies into their business models. Key factors such as digital marketing, eco-certifications, green labeling, consumer perception, cost-efficiency, and policy support are seldom analyzed in a comprehensive manner (Sinha et al., 2022; Cheng & Liu, 2020). Given the increasing digitalization of markets and the growing value placed on eco-conscious consumption, exploring how digital platforms and eco-labeling can enable SME growth in such regions is of critical importance (Zhao et al., 2018; Debei & Haddadeh, 2017).

This study addresses this research gap by investigating the extent to which SMEs in Kinnaur implement sustainable marketing practices and the challenges they face. It explores the influence of digital marketing and eco-certifications on sustainable business performance, evaluates consumer perceptions of green branding, and identifies constraints such as poor infrastructure, high costs, and limited policy support. Using a mixed-methods approach, the study collects data from SME owners, policymakers, and consumers to provide a well-rounded understanding of the issue. Multiple regression analysis is applied to measure the impact of marketing variables on SME performance, while descriptive statistics are used to gauge levels of consumer awareness.

By offering empirical insights and actionable policy recommendations, this research contributes to the broader discourse on sustainable entrepreneurship in ecologically sensitive and underserved regions. The findings are particularly relevant for policymakers, development agencies, and business stakeholders aiming to foster inclusive and environmentally responsible growth in India's mountainous and rural districts.

Literature Review

Sustainable marketing has become a strategic necessity in the face of growing environmental concerns and shifting consumer preferences. It is the act of organizing, carrying out, and managing the creation, costing, advertising, and distribution of goods in a way that meets consumer demands and reduces environmental (Belz & Peattie, 2009). Over the past decade, there has been a notable shift in the academic discourse from

theoretical underpinnings to practical implementation, especially in the context of small and medium-sized enterprises (SMEs) and regional economies However; a large portion of this study is focused on urban or developed regions, leaving a significant knowledge gap regarding remote geographies such as Kinnaur, Himachal Pradesh

The role of SMEs in promoting sustainability is increasingly acknowledged. SMEs account for a substantial share of economic activity in developing countries but often lack the capacity to integrate environmental goals into their business strategies (Garg & Deshmukh, 2022). In India, SMEs contribute nearly 30% to the GDP and are essential for inclusive development (Mishra & Rathi, 2023). However, their sustainability efforts are hindered by limited financial resources, inadequate policy support, and low awareness levels.

Sharma and Patel (2024) highlight that in Himachal Pradesh, while eco-tourism and organic farming have gained attention, the sustainability orientation of SMEs remains inconsistent. Their findings point to a general willingness among rural entrepreneurs to adopt green practices, but actual implementation is constrained by structural barriers such as market inaccessibility and lack of digital infrastructure. Similarly, Gupta and Jain (2023) stress the importance of capacity-building initiatives for SMEs in mountainous regions, where ecological preservation is both a challenge and an opportunity.

Digital Marketing as a Tool for Sustainable Branding

Digital marketing has revolutionized how companies interact with their customers and has become a powerful instrument for spreading messages about sustainability. According to Lee and Yang (2020), digital platforms allow firms to communicate their green values, build transparent relationships, and target niche markets more efficiently. In the Indian context, Cheng et al. (2021) observe that social media marketing, content creation, and search engine optimization (SEO) have empowered SMEs to broaden their consumer base while maintaining low operational costs.

In high-altitude regions like Kinnaur, digital channels are particularly relevant because of the geographical remoteness and limited access to traditional marketplaces. Kumar et al. (2022) conducted a study in rural Uttarakhand and found that digitally-savvy entrepreneurs who promoted organic products via Instagram and WhatsApp saw higher consumer engagement and sales. The study implies a similar potential for Kinnaur, though infrastructural barriers like unreliable internet connectivity must be addressed.Cheng and Liu (2020) further emphasize the role of e-commerce in facilitating sustainable

consumption by connecting green producers with environmentally conscious consumers. Their research shows that digital visibility can significantly boost consumer trust, especially when supplemented with eco-labels and third-party certifications.

Eco-Certifications and Green Trust

Eco-certifications serve as a bridge between sustainable producers and skeptical consumers. According to Zhao et al. (2018), eco-labels enhance consumer trust by providing evidence of environmental compliance, thereby influencing purchase decisions. In the Indian context, Rajendran and Srinivasan (2023) argue that organic certification in agro-based SMEs has become a competitive differentiator, especially in states like Sikkim and parts of Himachal Pradesh.

However, acquiring and maintaining certifications is often a challenge for small entrepreneurs. The bureaucratic complexity, high costs, and lack of local certification bodies discourage SMEs from seeking official eco-labels (Nguyen & Zhang, 2022). In Kinnaur, where many businesses engage in organic apple cultivation and handcrafted goods, informal sustainability claims abound, but the lack of certified branding reduces market competitiveness.

Sinha et al. (2022) report that eco-certification not only improves visibility in urban markets but also fosters a culture of environmental accountability among SMEs. They advocate for policy interventions that subsidize certification costs and offer training programs to educate businesses about the advantages of eco-labeling.

Consumer Perceptions and Green Behavior

Consumer perception is central to the success of sustainable marketing initiatives. Research by Ghosh et al. (2021) shows that urban Indian consumers are increasingly inclined toward green products, particularly in sectors like food, fashion, and tourism. However, in rural and semi-rural settings, awareness about environmental sustainability and ethical consumption remains low.

Nguyen & Zhang (2022) emphasize that consumer education is vital for shaping purchasing decisions, particularly in developing regions. They also found that trust in certification, brand reputation, and peer influence is key determinants of green consumerism. In the case of Kinnaur, where tourism is a significant economic activity, visiting consumers may exhibit stronger green preferences than local buyers, highlighting the need for differentiated marketing strategies.

Singh et al. (2022) found that storytelling, community involvement, and experiential marketing positively influenced tourist perception of eco-brands in rural Himachal Pradesh. This finding reinforces the idea that SMEs in Kinnaur can leverage their unique heritage and natural environment to build compelling green narratives.

Policy and Infrastructure Constraints

Policy frameworks play a critical role in fostering sustainable entrepreneurship. Lee & Da Xu (2016) argues that sustainability transitions require coordinated efforts across government, civil society, and the private sector. In India, schemes like the Zero Effect Zero Defect (ZED) certification and Mudra Yojana for micro-enterprises aim to promote sustainable production, but regional penetration remains low.

Ciesielski & Bucher (2021) point out those remote areas face disproportionately higher costs in accessing policy benefits due to logistical and informational gaps. This is echoed by Dufresne & Young (2016), who note that rural SMEs are often unaware of the full spectrum of government support available to them.

In Kinnaur, infrastructure remains a major barrier. Limited road access, electricity disruptions, and weak internet connectivity affect both production and marketing capabilities. According to Sarkar & Sharma (2020), decentralizing green policy implementation and establishing district-level support centers can enhance the effectiveness of sustainability programs in such regions.

Research Gap and Theoretical Framework

Despite the growing literature on sustainable marketing, few studies examine its practical application in Himalayan or remote Indian districts. Most existing research is centered on urban consumers or macro-level policy discussions, leaving a void in micro-level SME dynamics in areas like Kinnaur. This research addresses that gap by investigating how local entrepreneurs interpret, apply, and benefit from sustainable marketing strategies amid environmental, infrastructural, and policy-related constraints.

The study draws on the Resource-Based View (RBV) theory, which posits that firms can gain competitive advantage through unique resources such as eco-friendly capabilities, local knowledge, and digital innovation (Barney, 1991). By integrating digital marketing, eco-certifications, consumer behavior, and policy support into one analytical framework, this study offers a comprehensive understanding of sustainable marketing innovations in a remote Indian context.

Objectives of the Study

1. To examine the impact of digital marketing and eco-certifications on sustainable SME practices in Kinnaur.
2. To evaluate consumer perceptions and awareness of sustainable products and marketing.

3. To identify infrastructural, economic, and informational barriers to green marketing.
4. To recommend policy interventions for promoting green entrepreneurship in remote areas.

Research Methodology

Research Design

This study follows a quantitative-dominant mixed-methods design integrating both primary quantitative data and supporting qualitative insights to explore sustainable marketing adoption by SMEs in Kinnaur. The approach helps quantify relationships between variables while capturing the nuanced realities faced by businesses and consumers in a remote setting.

Study Area

The research is conducted in Kinnaur a high-altitude district in Himachal Pradesh, known for its agro-based SMEs, unique geographic constraints, and increasing exposure to eco-tourism and organic product markets.

Population and Sampling

Target Population: SME owners, local consumers, and policy stakeholders in Kinnaur.

Sample Size:

50 SME Owners (agri-based, handloom, food processing units)
100 Consumers (urban and rural blocks)
20 Policymakers/Officials (from DIC, Tourism, Agriculture, HPMC, etc.)

Sampling Techniques:

SMEs with established or developing green practices can benefit from purposeful sampling.

Stratified random sampling for consumers across age, gender, and occupation

Snowball sampling for policymakers and institutional representatives

Data Collection Tools

Structured Questionnaires: Closed-ended and Likert-scale questions targeting consumer awareness, SME marketing practices, barriers, and perceptions.

In-depth Interviews: Conducted with policymakers to understand policy design, implementation gaps, and potential improvements.

Tools and Techniques for Analysis

Descriptive Statistics: Frequency distribution, mean, and standard deviation to understand consumer awareness and attitudes.

Multiple Regression Analysis: To examine the effect of digital marketing and eco-certifications on SME performance (sales growth, customer retention, and brand reputation).

ANOVA: To compare awareness levels and purchasing behavior across age and income groups.

Thematic Analysis: For qualitative responses from policy interviews.

Data Analysis and Results

Digital Marketing and Eco-Certification Impact (Objective 1)

Regression analysis revealed that digital marketing ($\beta = 0.62$, $p < 0.01$) and eco-certifications ($\beta = 0.53$, $p < 0.05$) significantly impact SME business performance, especially in product visibility and consumer trust.

SMEs using social media, WhatsApp marketing, and certified organic labeling observed a 30–40% increase in local and tourist customer base.

Consumer Awareness and Perception (Objective 2)

Descriptive statistics showed 58% of consumers are aware of eco-friendly products, but only 32% actively purchase them, citing price sensitivity and limited availability. Younger consumers (18–35 years) demonstrated higher green purchase intention, supported by ANOVA results ($F = 4.21$, $p < 0.05$).

Identification of Barriers (Objective 3)

Infrastructure: 74% of SME respondents cited poor digital connectivity and transportation logistics. Economic: Over 60% found eco-certification costs prohibitive without subsidies. Informational: Lack of knowledge about green branding and digital tools was reported by 55% of entrepreneurs.

Policy Recommendations (Objective 4)

Thematic analysis from policymaker interviews suggested the need for: Localized training on digital green marketing. Subsidy schemes for eco-certifications. Infrastructure support such as digital hubs and logistics networks. Stakeholders emphasized the lack of integration between tourism policies and green entrepreneurship support in Kinnaur.

Conclusion

This study highlights the positive influence of digital marketing and eco-certifications on SME performance in Kinnaur, particularly in enhancing product visibility, customer trust, and sales growth. Despite this, consumer awareness remains moderate, with purchasing decisions often hindered by price sensitivity and limited access to green products. Barriers such as poor infrastructure, high certification costs, and inadequate digital literacy restrict wider adoption of sustainable marketing. Policymaker insights emphasize the urgency of localized digital

training, subsidy provisions, and stronger integration between tourism and green enterprise development. To foster sustainable growth, coordinated policy support and targeted capacity-building initiatives are essential for remote, eco-sensitive regions like Kinnaur.

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Responsible Innovation in the Tourism Industry of Uttarakhand: Balancing Sustainability, Economic Growth, and Ethical Practices

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Abstract

Background: *Uttarakhand, renowned for its natural landscapes, religious sites, and adventure tourism, plays a significant role in India's tourism sector. However, the rapid increase in tourist arrivals has raised concerns about the sustainability of tourism practices, environmental conservation, and the ethical implications of tourism development in the region.*

Objectives: *This study explores the role of responsible innovation in Uttarakhand's tourism industry, focusing on balancing sustainability, economic growth, and ethical practices.*

Methodology: *The research uses secondary data from government reports, tourism department publications, and academic sources to examine current trends, policies, and technological innovations in Uttarakhand's tourism sector. The study identifies opportunities to integrate eco-tourism, digital technologies, and sustainable infrastructure to minimize the environmental impact while enhancing economic benefits for local communities.*

Key Findings and Suggestions: *The study highlights the importance of responsible innovation in promoting sustainable tourism development in Uttarakhand. It examines the effectiveness of government initiatives and draws on best practices from similar global destinations. The findings offer actionable insights for policymakers, tourism professionals, and stakeholders aiming to implement ethical and sustainable practices that ensure long-term growth and environmental preservation.*

Keywords: *Responsible Innovation, Sustainable Tourism, Eco-tourism, Ethical Practices, Tourism Policies, Environmental Conservation, Digital Technologies, Sustainable Infrastructure.*

Introduction

Tourism has evolved into one of the most significant socio-economic activities worldwide, contributing substantially to national economies, employment generation, infrastructure development, and cultural exchange. In India, the tourism industry plays a vital role in enhancing the country's GDP and socio-cultural identity. Among the many states that benefit from tourism, Uttarakhand stands out due to its unique blend of natural beauty, spiritual heritage, and adventure tourism potential. Located in the northern part of India, Uttarakhand is often referred to as the "**Land of the Gods**" due to its sacred temples, pilgrimage routes, and religious significance. The Char Dham Yatra, including Kedarnath, Badrinath, Yamunotri, and Gangotri, draws millions of pilgrims annually, while destinations like Mussoorie, Nainital, Rishikesh, and Jim Corbett National Park attract leisure and adventure tourists.

However, the rapid growth of tourism in Uttarakhand has not come without consequences. Over-tourism, environmental degradation, strain on natural resources, unregulated infrastructure development, and the marginalization of local communities have become pressing concerns. The 2013 Kedarnath disaster and recent issues like garbage accumulation, water shortages, and traffic congestion highlight the environmental vulnerabilities of the region. Additionally, ethical issues related to profit-driven tourism models—where local stakeholders often receive minimal economic benefits—have sparked debates about the need for a more inclusive and sustainable tourism framework.

In this context, **responsible innovation** emerges as a transformative approach to rethinking tourism development.

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Responsible innovation refers to the process of designing, implementing, and managing innovations in a way that is ethically sound, environmentally conscious, and socially inclusive. It encourages foresight, transparency, stakeholder involvement, and long-term sustainability in decision-making processes. When applied to tourism, responsible innovation includes the adoption of eco-friendly technologies, community-based tourism models, policy reforms, and ethical business practices that prioritize both people and the planet alongside profits.

The tourism industry in Uttarakhand, while rich in potential, requires a recalibrated approach that aligns with the principles of responsible innovation. Traditional tourism development models, which often emphasize short-term economic gains, are no longer viable in ecologically fragile areas like the Himalayas. The state must now move toward a model that integrates sustainability, economic development, and ethical governance as interconnected pillars.

Sustainability in tourism refers not just too environmental preservation but also to the capacity of local communities to benefit equitably from tourism-related activities without compromising their cultural identity or social well-being. In Uttarakhand, local populations often rely on agriculture and seasonal tourism for livelihoods. The lack of adequate training, infrastructure, and involvement in decision-making has limited their participation in the tourism value chain. This exclusion not only breeds inequality but also weakens the overall sustainability of the tourism ecosystem. Responsible innovation can address this gap by fostering participatory tourism planning, skill development, and capacity-building initiatives that empower local stakeholders.

Economic growth remains a critical driver of tourism promotion in Uttarakhand. The state government has launched several schemes to attract investment, develop infrastructure, and market tourism offerings at national and international levels. However, unplanned economic expansion—such as unchecked construction in ecologically sensitive zones—can lead to long-term damage. Responsible innovation can help redirect economic development toward more sustainable avenues, such as eco-tourism, digital tourism services, green buildings, renewable energy use in hotels, and low-impact transport systems. By investing in these areas, Uttarakhand can continue to boost its economy while minimizing harm to the environment.

Ethical practices are equally crucial in ensuring that tourism development respects the rights, values, and aspirations of all stakeholders. This includes fair wages for workers, equitable distribution of tourism revenue, cultural sensitivity in tourism marketing, and transparency in governance. Unfortunately, the tourism sector in Uttarakhand has witnessed several instances where profit motives have overridden ethical considerations. Tour operators often prioritize tourist satisfaction over environmental regulations; large-scale resorts displace small homestays, and sacred sites are commodified without community consent. Addressing these challenges requires the integration of ethical frameworks into tourism policies and business models—another key dimension of responsible innovation.

The importance of digital and technological innovations in responsible tourism cannot be overstated. Technologies such as Geographic Information Systems (GIS), mobile apps for tourist information, online booking platforms, and digital feedback systems can enhance visitor experience while enabling better monitoring and management of tourist flows. At the same time, technologies such as waste management systems, renewable energy installations, and water conservation mechanisms can significantly reduce the ecological footprint of tourism operations. The strategic adoption of such tools, guided by ethical and sustainable principles, can help Uttarakhand become a model for responsible tourism in mountainous regions.

Government policies play a pivotal role in enabling or constraining responsible innovation. In Uttarakhand, various tourism development policies have been introduced over the years, including incentives for infrastructure development, promotional campaigns, and capacity-building initiatives. While these policies aim to increase tourist arrivals and investment, they often lack clear guidelines on sustainability benchmarks or ethical safeguards. Moreover, coordination between different government departments (e.g., tourism, forest, rural development) is often weak, leading to fragmented and inefficient implementation. Strengthening the policy framework to support responsible innovation—through clearer regulations, stakeholder engagement, and performance monitoring—can create a more conducive environment for sustainable tourism growth.

This research paper aims to explore the role of responsible innovation in transforming the tourism industry of Uttarakhand. It seeks to identify how responsible approaches can balance the often competing goals of sustainability, economic growth, and ethical responsibility. The study relies primarily on secondary data sources, including government reports, tourism department publications, and academic research, to analyze current trends, policy initiatives, and technological innovations. By doing so, the research intends to provide practical

recommendations for policymakers, tourism stakeholders, and civil society organizations working toward a more responsible and resilient tourism future in Uttarakhand.

Ultimately, responsible innovation is not merely a policy tool but a paradigm shift in how tourism is envisioned, planned, and executed. In a state like Uttarakhand, which is ecologically rich yet vulnerable, and culturally vibrant yet economically uneven, the adoption of responsible innovation can serve as a pathway toward a tourism model that honors both heritage and habitat. This paper contributes to the broader discourse on sustainable tourism by positioning responsible innovation as a central framework for reconciling development with conservation and profit with ethics.

Literature Review

(Kumar & Bhatt, 2021) This study analyzes the unique challenges faced by the tourism industry in the Himalayas, specifically focusing on Uttarakhand. It suggests that sustainable tourism practices, including eco-tourism and low-impact infrastructure, are essential to reduce the ecological footprint. **(Sharma, 2020)** The paper emphasizes eco-tourism as a viable strategy to foster economic growth while preserving Uttarakhand's natural beauty. It highlights policy interventions that encourage community involvement and minimize environmental damage. **(Singh & Choudhury, 2019)** This paper examines the ethical implications of religious tourism in Uttarakhand. It discusses the commercialization of sacred sites and proposes strategies for integrating ethical tourism practices. **(Patel & Pandey, 2022)** Patel and Pandey explore how digital technologies, such as mobile applications and GIS, have been used to enhance the visitor experience while supporting sustainability efforts in Uttarakhand. **(Dinesh & Agarwal, 2018)**

This paper discusses various tourism policies in Uttarakhand aimed at ensuring sustainability. It critically examines the effectiveness of government initiatives in mitigating over-tourism and environmental degradation. **(Joshi & Kapoor, 2020)** Joshi and Kapoor emphasize community-based tourism in Uttarakhand. They argue that local participation is critical for creating a sustainable tourism model that benefits both residents and the environment. **(Mehta & Bhagat, 2021)** This paper investigates the ecological consequences of increasing tourist numbers in Uttarakhand, focusing on the depletion of natural resources and habitat destruction. (**Sharma & Verma, 2021**) The authors examine ethical issues in the adventure tourism sector in Uttarakhand, such as safety, cultural sensitivity, and environmental degradation, offering guidelines for responsible tourism practices. **(Frey, Smith, & Clark, 2019)** Frey et al. explore the concept of responsible innovation within the tourism industry, discussing how sustainable practices and innovation can align with ethical goals in Uttarakhand's

tourism development. *2022* **(Thakur & Bhardwaj, 2022)** Thakur and Bhardwaj analyze how Uttarakhand manages tourist traffic in eco-sensitive zones, particularly in areas like the Jim Corbett National Park and Nainital. They propose more stringent regulations and technology-based solutions. **(Singh & Joshi, 2017)**

This study examines community-based eco-tourism models in Uttarakhand and discusses their role in reducing poverty, preserving culture, and promoting environmental awareness. **(Kumar & Mishra, 2019)** they focus on sustainable infrastructure development, such as green hotels, waste management, and renewable energy solutions, to make tourism more eco-friendly in Uttarakhand. **(Pandey, Sharma, & Tyagi, 2020)** This paper assesses the impact of climate change on tourism in Uttarakhand, including the changing weather patterns, and proposes strategies for mitigating climate-related risks in the tourism industry. **(Gupta & Bhattacharya, 2021)** The authors highlight the potential of public-private partnerships (PPPs) to fund and manage sustainable tourism projects in Uttarakhand, with case studies of successful initiatives in the region. **(Sharma & Singh, 2022)** This research investigates the role of tourism in biodiversity conservation within Uttarakhand's forested areas, focusing on the balance between promoting tourism and protecting ecological integrity.

Objectives

1. To examine the current status and challenges of the tourism industry in Uttarakhand.
2. To explore how responsible innovation can support sustainable and balanced tourism development.
3. To assess whether existing tourism practices are environmentally friendly, ethically sound, and inclusive of local communities.
4. To identify effective tools, technologies, and approaches—such as eco-tourism and digital solutions—that can improve tourism sustainability.
5. To provide practical recommendations for policymakers, tourism professionals, and stakeholders to promote responsible and ethical tourism growth.

Hypothesis

Research Hypothesis (H₁):

The adoption of responsible innovation in Uttarakhand's tourism sector significantly contributes to sustainable development, ethical practices, and inclusive economic growth.

Null Hypothesis (H₀):

Responsible innovation has no significant impact on sustainability, ethics, or economic growth in Uttarakhand's tourism industry.

Research Methodology

This study is based on empirical data. Secondary data from the past 10 years (2015–2024) has been collected from reliable sources such as government reports, tourism department publications, and national statistics reports. The data covers responsible innovation indicators (sustainable infrastructure investments, number of green-certified hotels, eco-friendly tourism activities, eco-transport options, and government conservation grants), growth in domestic and international tourism, direct employment in tourism-related sustainable infrastructure, local entrepreneurship, and the contribution of tourism to Uttarakhand's GDP.

The study explores the relationship between various parameters of responsible innovation and their impact on domestic and international tourism, as well as their influence on employment generation, rural entrepreneurship, and Uttarakhand's GDP contribution using regression analysis. This approach enables the identification of significant correlations and trends over time, thereby strengthening the analytical foundation of the study and supporting evidence-based conclusions about the role of responsible innovation in the tourism sector of Uttarakhand.

Regression analysis: The primary tool used to examine the relationships between the dependent and independent variables is multiple regression analysis. It helps to identify correlations between variables and forecast potential outcomes. For each hypothesis, a linear regression model is used to predict the dependent variable (economic growth indicators like tourism revenue, employment, entrepreneurship, and GDP contribution) based on independent variables. The regression equation will be as follows:

$$Y = a + bX + \varepsilon$$

Where:
- **Y** is the dependent variable (e.g., total tourist arrivals, employment, tourism revenue, local entrepreneurship).
- **a** is the y-intercept (value of Y when X = 0).
- **b** is the slope of the line (change in Y for a one-unit change in X).
- **X** represents the independent variable (e.g., responsible innovation indicators).
- **ε** represents the error term.

In regression analysis, both unstandardised and standardised coefficients are employed to determine the relationship between independent and dependent variables. Here's how they vary and are expressed:

Unstandardised coefficients (b) represent the change in the dependent variable caused by a one-unit change in the independent variable, as measured in their original units. It is denoted as:

$$y = b_0 + b_1 x_1 + b_2 x_2 + \dots\dots\dots + b_n x_n$$

Where:
- **y** is the dependent variable.
- **b_0** is the intercept.
- **$b_1, b_2, \dots b_n$** are the unstandardised coefficients for the independent variables $x_1, x_2, \dots x_n$.

Standardised coefficients (β) measure the change in the dependent variable (in standard deviations) for a one-standard-deviation change in the independent variable. They enable the comparison of predictors' relative relevance across multiple scales. It is denoted as:

$$Zy = \beta 0 + \beta 1 Zx1 + \beta 2 Zx2 + \dots\dots + \beta_n Zx_n$$

Where:
- **Zy** is the standardized dependent variable.
- **Zx_1,** are the standardized independent variables.
- **β_0** is the standardized intercept.
- **$\beta_1, \beta_2, \dots \beta_n$** are the standardized coefficients.

Data Analysis and Interpretation

Regression Analysis:

This section presents the findings from the regression analyses conducted to understand the impact of sustainable tourism factors on key performance indicators such as total tourist arrivals, employment in sustainable infrastructure, and tourism revenue earned. The models explore the influence of independent variables such as sustainable infrastructure investments, green-certified hotels, eco-friendly transport options, eco-friendly activities, and conservation grants.

1. Relationship between Sustainable Tourism Infrastructure and Total Tourist Arrivals

A regression was conducted with five independent sustainability-related variables to assess their impact on total tourist arrivals. The **model summary** and **ANOVA table** indicate a strong and statistically significant model.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Dimension	0.987	0.974	0.941	224.861

a. Predictors: (Constant), Government Grants for Conservation, Number of Green-certified Hotels, Number of Eco-friendly Activities Available, Sustainable Infrastructure Investments, Number of Eco-friendly Transport Options (Electric Vehicles, etc.)

		ANOVA			
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7499160.303	5	1499832.061	29.663	0.003
Residual	202249.697	4	50562.424		
Total	7701410.000	9			

a. Predictors: (Constant), Government Grants for Conservation, Number of Green-certified Hotels, Number of Eco-friendly Activities Available, Sustainable Infrastructure Investments, Number of Eco-friendly Transport Options (Electric Vehicles, etc.)

b. Dependent Variable: Total Tourists Arrival

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1970.924	431.701		4.565	0.010
Sustainable Infrastructure Investments	9.583	35.436	0.203	0.270	0.800
Number of Green-certified Hotels	-435.513	116.577	-3.115	-3.736	0.020
Number of Eco-friendly Transport Options (Electric Vehicles, etc.)	668.022	195.762	4.729	3.412	0.027
Number of Eco-friendly Activities Available	-121.701	71.149	-0.529	-1.710	0.162
Government Grants for Conservation	-156.573	207.911	-0.790	-0.753	0.493
Dependent Variable: Total Tourists Arrival					

Interpretation: Eco-friendly transport had a strong and significant positive effect on tourist arrivals, while green-certified hotels showed a significant but negative correlation. Other variables did not have statistically significant effects.

2. Relationship between Tourist Arrivals and Employment in Sustainable Infrastructure

This model explores how domestic and international tourism influence employment in sustainable tourism projects.

ANOVA				
Model	Sum of Squares	df	Mean Square	FSig.
Regression	19.988	2	9.994	27.8450.000
Residual	2.512	7	0.359	
Total	22.500	9		
a. Predictors: (Constant), International Tourists Arrival, Domestic Tourists Arrival				
b. Dependent Variable: Employment in Sustainable Infrastructure Projects (in thousands)				

Interpretation: The model is statistically significant (p < 0.001), indicating that increased tourist arrivals are closely associated with more employment in sustainability-related projects.

3. Relationship between Tourist Arrivals and Tourism Revenue Earned

A regression model was applied to assess how tourist arrivals impact revenue.

ANOVA				
Model	Sum of Squares	df	Mean Square	FSig.
Regression	321834.692	2	160917.346	208.0070.000
Residual	5415.308	7	773.615	
Total	327250.000	9		
a. Predictors: (Constant), International Tourists Arrival, Domestic Tourists Arrival				
b. Dependent Variable: Tourism Revenue Earned				

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	245.266	54.516		4.499	0.003
Domestic Tourists Arrival	0.095	0.014	0.420	6.660	0.000
International Tourists Arrival	0.998	0.094	0.671	10.643	0.000
a. Dependent Variable: Tourism Revenue Earned					

Interpretation: Both domestic and international tourist arrivals have a highly significant positive effect on revenue. International tourism shows a stronger impact, likely due to higher spending.

Conclusion

The tourism industry in Uttarakhand stands at a pivotal crossroads, where the balance between growth and sustainability is both a challenge and an opportunity. This research has underscored the critical importance of **responsible innovation** as a strategic framework for ensuring that tourism development in the region remains **environmentally sustainable, ethically grounded, and economically inclusive**.

The study's regression analyses revealed that while overall investment in sustainable infrastructure correlates with increased tourist arrivals and revenue generation, not all

sustainability initiatives yield equally positive results. For example, **eco-friendly transport options significantly boosted tourism inflow**, whereas **green-certified hotels and conservation grants** showed limited or negative statistical impact, indicating a possible disconnect between policy implementation and traveler behavior. This emphasizes the need for **targeted investment**, **improved visibility**, and **community engagement** to ensure the effectiveness of such initiatives.

Moreover, findings demonstrated that both **domestic and international tourist arrivals significantly contribute to employment** in sustainable infrastructure, with international visitors also playing a more substantial role in **revenue generation**. This dual benefit affirms that **sustainable tourism is not only viable but also economically beneficial** when guided by inclusive and innovative practices.

Equally vital is the integration of **ethical practices**—such as fair distribution of tourism revenue, protection of cultural heritage, and inclusive governance—which remain under-addressed in many current tourism operations. Responsible innovation encourages ethical tourism planning that **empowers local communities** and mitigates the exploitation of ecological and cultural resources.

Additionally, **digital technologies** such as GIS mapping, mobile platforms, and renewable resource management offer promising tools to both enhance the tourist experience and support data-driven, low-impact tourism governance.

In conclusion, responsible innovation offers a comprehensive lens through which Uttarakhand can transform its tourism sector. By prioritizing **eco-tourism, digital integration, ethical frameworks, and stakeholder collaboration**, the state can not only safeguard its fragile Himalayan ecosystem but also ensure long-term prosperity for its people. The path forward demands a **paradigm shift—from quantity to quality, from exploitation to conservation, and from exclusion to inclusion**. If implemented effectively, responsible innovation can position Uttarakhand as a **model for sustainable mountain tourism** in India and beyond.

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Technological Support and Employee Well-Being: The Mediating Role of Productivity and Work-Life Balance in Academia

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Abstract

This quantitative study investigates the impact of technology support on the well-being, work-life balance, and overall productivity of academicians in educational institutions. The research aims to explore the complex relationships among these variables using structural equation modeling (SEM). The study adopts a stratified random sampling technique to collect data from 400 academicians, ensuring representation across various academic ranks, institution types, and geographical locations. Data were collected between July 2024 and April 2025. The study employs SEM to provide a comprehensive analysis of the intricate connections between these variables. Preliminary findings reveal positive relationships between technology support and employee well-being, work-life balance, and productivity, while Implications of the study suggest that strategic integration of technology support can enhance the overall work environment for academicians, fostering well-being, improving work-life balance, and positively influencing productivity. These findings contribute valuable insights for educational institutions, policymakers, and technology developers seeking to optimize support systems for academic professionals. The study serves as a foundation for future research exploring the dynamic interplay between technology and the well-being of academic communities.

Keywords: *Employee Well -Being, Technological Support, Workplace Well-Being, Work-Life Balance, Employee Productivity.*

Introduction

In today's evolving organizational climate, ensuring the well-being of employees has become a central issue for both academics and industry leaders. The concept of well-being in the workplace spans beyond physical comfort—it includes psychological stability, emotional involvement, and the quality of interactions within one's work environment (Harter et al., 2020). As research continues to underscore the link between employee well-being and improved organizational performance, many Corresponding organizations have started to adopt strategies that prioritize workforce satisfaction and engagement (Danna & Griffin, 1999; Kumar et al., 2025).

One of the most transformative developments contributing to this shift is the integration of workplace technology. Modern digital tools now extend their utility far beyond basic automation; they play a crucial role in supporting mental well-being, promoting flexible work arrangements, and enhancing productivity. Technologies that enable remote working, virtual collaboration, and well-being tracking have increasingly been shown to positively influence employee performance and satisfaction (Arefin et al., 2025; Vainik et al., 2025).

Historically, the primary goal of technology in the workplace was to boost efficiency. However, this view is gradually shifting toward a more people-centric approach. Organizations are beginning to adopt technologies that not only enhance output but also consider employee comfort and psychological health. For example, Karger et al. (2025) introduced digital tools designed to monitor stress levels, which allow for early intervention and help mitigate burnout. In parallel, Smith and Stenhouse (2025) highlighted the importance of combining technological infrastructure with regulatory support to improve employee experiences, especially in high-stress sectors like healthcare.

Additionally, the rising popularity of remote and hybrid work models has highlighted the critical role of technology in balancing employees' personal and professional

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responsibilities. Tools that support flexible scheduling, digital check-ins, and virtual teamwork are increasingly recognized as vital for maintaining a healthy work-life balance (Vainik et al., 2025). This balance is essential not only for individual well-being but also for sustaining high levels of workplace productivity.

Despite growing interest in digital workplace solutions, there is still a lack of comprehensive studies that examine how technology simultaneously affects employee well-being, productivity, and work-life balance. Most existing research addresses these areas independently rather than exploring their interconnectedness in a unified model (Kumar et al., 2025; Arefin et al., 2025).

Moreover, few empirical studies utilize advanced analytical methods like Structural Equation Modeling (SEM) to investigate these complex relationships. Understanding how technological support functions—as a driver, mediator, or moderator—within these frameworks can offer critical insights for organizational development and HR strategy. As digital tools continue to reshape work environments, a more integrated understanding of their impact is urgently needed.

This research is particularly relevant in the post-pandemic era, as many organizations transition into flexible and technology-rich work models. Exploring how digital support systems influence not just individual well-being but also collective productivity and work-life integration offers both theoretical and practical contributions.

From a theoretical standpoint, the study aims to enrich current models of workplace wellness by incorporating technology as a central variable. From a practical perspective, the results could inform decision-makers about how to design and implement tools that not only optimize tasks but also foster a more humane and sustainable workplace culture.

By addressing the intersection of technology, wellness, and performance, this research supports the emerging discourse on human-centric digital transformation (Smith & Stenhouse, 2025; Arefin et al., 2025). It positions technology not simply as a means of achieving operational goals, but as a strategic element in enhancing employee experience and organizational resilience.

Review of literature

Technology and Employee Well-Being

Recent studies highlight the growing significance of technological support in shaping employee well-being, especially in digitally driven work environments. Kumar et al.

(2025) shed light on how structured organizational technological support within the IT sector can enhance the remote work experience. Their research shows that digital tools, when thoughtfully implemented, help employees manage tasks more efficiently while reducing stress levels, ultimately fostering a healthier work-life balance.

Building on this, Arefin et al. (2025) explored the role of emerging technologies such as AI chatbots and wearable devices in addressing mental health challenges in the workplace. Their findings reveal that these technologies do more than just support productivity—they actively contribute to reducing workplace stigma around mental health while promoting emotional resilience.

Karger et al. (2025) focused on a tech-enabled diagnostic platform tailored for knowledge workers. The platform not only detects early signs of stress but also helps workers feel more supported in their roles, significantly enhancing their psychological recovery and coping mechanisms.

In the healthcare sector, Smith and Stenhouse (2025) emphasized the need for both technological infrastructure and supportive regulation to ensure the well-being of nursing professionals. Their posthuman institutional ethnography illustrates how a well-designed tech environment—combined with regulatory alignment—can meaningfully impact staff morale and care outcomes.

Lastly, Vainik et al. (2025) highlighted that while remote work technologies are inherently valuable, their impact is amplified when integrated into a culture of supportive leadership and trust. Their study affirms that productivity and well-being can thrive simultaneously when digital tools are embedded within a positive organizational climate.

Dutta and Mishra (2023) In their research on bots for mental health within organizations, Dutta and Mishra highlighted the evolving role of technology in enhancing mental well-being at work. They found that well-designed bots, when considering their impact on how people perform their work, can effectively reduce demands on employees. Automation was particularly beneficial in alleviating cognitively taxing and repetitive administrative tasks, such as literature searches and data entry. The study emphasized that employees, freed from such tasks, could redirect their efforts towards more autonomous, creative, and deep-thinking work, ultimately leading to improved well-being.

Cramarenco, Burcă-Voicu, and Dabija (2023) Conducting a systematic review, Cramarenco and colleagues delved into the impact of AI on employees' well-being in global labor markets.

Their findings suggested a complex relationship between AI and the workforce. While AI presented opportunities for skill development and efficiency, it also posed challenges related to job displacement and the need for upskilling. Understanding the various consequences of AI on employee well-being is crucial for informing future policies and practices, as the research emphasized.

Turja, Hakanen, Krutova, and Koistinen (2023) Turja et al. explored the concept of technological well-being, focusing on individuals categorized as Digi-uplifters and Digi-downshifters. Their research revealed that individuals adopting digital tools to uplift their well-being experienced positive outcomes, such as increased efficiency and job satisfaction. Conversely, those using technology to downshift well-being faced challenges like burnout and decreased job satisfaction. The study highlighted the importance of understanding individual differences in the way technology influences well-being.

Zahoor, Donbesuur, Christofi, and Miri (2022) Employee learning orientation and perceived organisational support impacted technology's effect, according to research by Zahoor et al., which investigated the link between technological innovation and psychological well-being. Positive impacts on workers' psychological well-being were seen to be associated with a high learning orientation and strong organisational support, according to the research. To fully grasp how technology innovation might affect the health and happiness of workers, it is necessary to look at both individual and organisational aspects.

Ho, Otsuki, Kishita, Kobayakawa, and Watanabe (2022) Focusing on human augmentation technologies, Ho et al. outlined a research and development agenda to enhance employee well-being. Their findings highlighted the potential of technology to augment human capabilities and contribute to overall well-being. The study proposed avenues for future research, emphasizing the need for continued exploration of technological interventions in improving employee mental health.

Hilty et al. (2022): In their scoping review, Hilty and colleagues provided insights into the intersection of provider technology, fatigue, and well-being. The findings emphasized the need for guidelines to address the challenges posed by technology use in healthcare settings. The study highlighted the importance of considering provider well-being in the design and implementation of technology-driven solutions.

Eichberger, Derks, and Zacher (2021) To learn how technology-assisted supplementary labour affects psychological detachment and employee well-being, Eichberger et al. performed daily diary research. The research revealed that engaging in technology-assisted work outside regular hours had implications for employees' ability to detach from work, potentially affecting their overall well-being. The study shed light on the need to balance technology use to ensure employees' psychological well-being.

Johnson et al. (2020) Reviewing the impact of technology-driven changes on workplace mental health, Johnson and colleagues provided a comprehensive overview of current trends. The findings emphasized the dynamic nature of technology's impact on mental health in the workplace, necessitating ongoing research efforts.

Nixon and Spector (2013) In their examination of technology's impact on employee stress, health, and well-being, Nixon and Spector contributed valuable insights to understanding the psychological

effects of technology in the workplace. The study highlighted the importance of addressing stressors associated with technology use to promote overall employee well-being.

Technology and Work Life Balance

Satyaprasad and Prasad (2023) Research by Prasad and Satyaprasad examined the role of social support as a mediator and moderator in the connection between remote work and work-life balance in the IT workforce. This empirical research clarified the complex interplay of social support, work-life balance, and remote employment. The research showed that the link between IT workers' work-life balance and remote work was impacted by social support, which acted as a moderator and mediator.

Abdul Razak, Abdul Kusairi, Trapsila, and Muhamad (2023) Working within the framework of a work-life balance, Kusairi and colleagues investigated the connection between ICT and local values (Ugahari). The research laid forth a theoretical framework for figuring out how people's work-life balance is affected by ICT and local values. The complex relationship among technological advancements, cultural norms, and the need for a healthy work-life balance was highlighted by the study's findings.

Zainal, Rashid, and Abd Razak (2023) Rashid et al. investigated their effect on work-life balance in a subset of Klang Valley private hospitals by concentrating on policy, technology, and leadership support. The research found that leadership support, organisational rules, and technical infrastructure all play a part in how well hospital staff are able to combine their professional

and personal lives. The results indicated that workers' ability to maintain a healthy work-life balance was enhanced by an accommodating work environment, in addition to the right regulations and technology.

Scott and Zaresani (2020) The purpose of the cross-sectional national survey and regression analysis carried out by Zaresani and Scott was to determine whether digital health technology had any effect on the job satisfaction and work-life balance of doctors. Researchers found that doctors reported higher levels of job satisfaction and better work-life balance after using digital health technologies. Findings from the research highlighted the possibility of digital health solutions improving healthcare workers' health.

Adisa, Gbadamosi, and Osabutey (2017) investigated how workers' use of mobile IT devices affects their work-life balance, specifically looking at how these devices contribute to the disappearance of boundaries between employees' personal and professional lives. Results showed that work-life balance was positively or negatively impacted by mobile IT use, depending on coping strategies and organisational support. The results showed how important it is to deploy mobile technology in a balanced way to help workers.

Drago, Bardoel, and (2016) Research by Bardoel and Drago looked at the relationship between work-life balance and the quality of IT assistance, with a focus on doctors in Australia. A healthy work-life balance was associated with high-quality IT assistance, according to the research. A better work-life balance was noted by doctors who felt they had greater IT assistance. The study's findings highlight the need for strong IT assistance in helping healthcare workers achieve a better work-life balance.

In their study on IT workers' work-life balance, job satisfaction, and intention to leave, Oosthuizen et al. (2016) found a complicated interaction between these factors. Findings from the research showed that IT workers' job happiness and their desire to leave were both affected by their work-life balance. Organizations should prioritise projects that improve work-life balance in order to retain great personnel, according to the findings.

In their 2016 study, Ladkin et al. investigated the ways in which business travellers' use of information and communication technology helped them maintain a healthy work-life balance. The researchers were Jain, Clayton, Ladkin, and Marouda. The research emphasized the importance of information and communication technologies in helping business travelers maintain a feeling of balance by connecting them to their home surroundings. Technology has a favorable effect on work-life

balance for those who travel for business often, according to the study.

The Bhattacharyas and Brihatri (2015) Bharathi and Bhattacharya investigated the difficulties female IT workers have in juggling their professional and personal lives. The research highlighted the significance of taking gender into account when trying to understand how technology interacts with work-life balance, since it uncovered distinct elements impacting work-life balance for women in the IT industry.

Nam (2014) Work-life balance was one of the topics investigated by Nam's study. The research looked at how people's use of technology affected their views of work-life balance from a quality- of-life standpoint. Insights into the many ways technology might affect happiness and contentment in life were revealed by the findings.

Eveline Currie (2011) Currie and Eveline zeroed particularly on the unique difficulties encountered by professors with small children as they investigated e-technology and the work-life balance of this population. For academics balancing work and childcare, the research emphasized the pros and cons of using technology to manage work-life balance. The results highlighted the importance of academic settings with tailored support systems.

Technology and Employee Productivity

Nguyen et al. (2023) examined the impacts of leadership, support, and training as moderators of the relationship between technology-based knowledge sharing and employee outcomes. This research was published in the Journal of Knowledge Management. It found that employees' results were greatly affected by technology-based knowledge sharing. The impacts of this sharing were mitigated by the existence of training, support, and good leadership. The results highlighted the significance of organisational elements in ensuring that technology-driven knowledge exchange has the greatest possible beneficial effect on employee outcomes.

Researchers Li et al (2023) In their investigation of how technology businesses deal with employee productivity poaching, Li and colleagues focused on the mediating function of organizational agility. The study, which was published in Sustainability, brought attention to the difficulties caused by poaching and the need of organisational adaptability in reducing its effect on worker output. Technology organisations with difficulties connected to poaching and sustaining staff productivity should benefit from promoting organisational adaptability, according to the report.

Hiroki, Mishi, and Anakpo (2023) Anakpo and colleagues conducted a systematic study to investigate how remote work affects productivity and performance in the workplace. The study synthesised previous studies to provide thorough insights into the consequences of remote work arrangements; it was published in Sustainability. The findings highlighted the need of a detailed knowledge of the variables impacting these outcomes, since the effects of work-from-home on productivity and performance differed across situations.

The Journal of Information Management published an article by Deng, Duan, and Wibowo (2023) that delves into the topic of digital technology-driven knowledge exchange and its impact on work performance. The results showed that when people shared information via digital technology, it improved their performance on the job. It was shown that using digital technology to share information has a favourable effect on overall work performance. This highlights the potential advantages of integrating technology to improve employee outcomes.

The study conducted by Angioha et al (2020) The effect of IT-related predictor factors on commercial bank employees' output was studied by Angioha and colleagues. The research, which was published in the JINAV: Journal of Information and Visualization, found that there were some IT factors that could be predicted to have a substantial impact on the productivity of commercial bank employees. These technology-related factors were shown to have a significant impact on the productivity results for employees.

Dear Dastane (2020) In his study, Dastane examined the organisational consequences of technology adoption and how it affects organisational productivity. The study was published in the Journal of Industrial Distribution & Business. The results showed that the introduction of technology significantly increased organisational productivity. The research confirmed that technology is a key factor in increasing firms' overall productivity.

Writing for the Management Research Review in 2019, Iqbal, Ahmad, and Allen examined how e-HRM, impersonal trust, and employee productivity relate to one another. Findings shed light on the tangled web of relationships among e-HRM, trust, and productivity in the workplace. According to the results, impersonal trust and, by extension, staff productivity, were favourably affected by efficient e-HRM procedures.

The 2018 study by Yaw Obeng and Boachie, published in Cogent Business & Management, investigated the impacts of technological innovation on the productivity of bank personnel.

The researchers looked at how IT-technology innovation affected productivity. The research demonstrated that, in the banking industry, IT-technological innovation has the ability to significantly boost total staff productivity.

Kyaribo and Mutuku (2015) Research by Mutuku and Nyaribo, published in the Review of Contemporary Business Research, examined the influence of IT on staff productivity in a few Kenyan banks. Their findings added to our knowledge of how technology works in a particular organisational setting. Findings from the research shed light on how IT affected productivity in Kenya's banking industry.

Amer and Al-Nashmi (2014) Published in the International Journal of Social Sciences and Humanities Research, Al-Nashmi and Amer's study illuminates the regional consequences of technology adoption by investigating the influence of IT deployment on staff productivity in Yemeni non-governmental organisations. The results demonstrated that the implementation of IT has a substantial effect on increasing productivity in NGOs.

Research Methodology

This study adopted a quantitative research approach to explore how technological support influences employee well-being, work-life balance, and productivity, with a focus on academicians working in educational institutions. To analyze the complex interplay among these variables, the study utilizes Structural Equation Modeling (SEM), a powerful statistical technique suitable for testing multiple relationships simultaneously.

A stratified random sampling method was employed to ensure the inclusion of diverse academic professionals across different disciplines and institutional types. The research sample comprised 400 academicians, a size deemed sufficient to meet the statistical requirements for SEM and to allow for meaningful generalization of results.

Data were collected over a ten-month period, from July 2024 to April 2025, providing a robust dataset that reflects evolving academic work environments. The extended collection period also helps capture seasonal and institutional variations that may influence employee experiences.

In recent years, educational institutions have become increasingly reliant on technology for teaching, research, administration, and collaboration. As such, the academic environment offers an ideal setting to examine how digital tools affect employee experiences, especially in terms of stress management, productivity, and work-life balance.

In alignment with the study's objectives, the following hypotheses were formulated to guide the empirical analysis:

Research Hypotheses

H1: Technological support has a significant positive impact on employee well-being.

H2: Technological support positively influences employees' work-life balance.

H3: Technological support positively affects employee productivity.

H4: Work-life balance has a significant positive effect on employee well-being.

H5: Productivity positively contributes to employee well-being.

H6: Work-life balance positively influences employee productivity.

H7: The relationship between technological support and employee well-being is mediated by work-life balance.

H8: The relationship between technological support and employee well-being is mediated by productivity.

H9: Work-life balance mediates the relationship between technological support and productivity.

The following standardized questionnaires have been used in the study:

S. No.	Variable	Instrument / Inventory Details	Observed Items	Details	Reference
1.	Technological Support Environment	Technology Self- Efficacy Scale (TSE)	TSE1 to TSE12	Measures individual's belief in their capability to use technological systems	Compeau & Higgins, 1995
2.	Productivity	Task/Productivit y Performance Scale	TP1 to TP5	Measures perceived productivity or task performance	Diefendorff et al., 2002
3.	Work-Life Balance	Work-Life Balance Scale (WLB Scale)	WLB1 to WLB5	Assesses employees' perceived balance between	Haar, 2013
4.	Well-being	Short-Form Mental Health Inventory (SF-MHI) or Subjective Well-being Measures	SRMH1 to SRMH5	Measures emotional well-being and mental health	Ware & Sherbourne, 1992

Findings & Results

Table 1 - Models Info
ML
NLMINB
400
Technology=~TSE1+TSE2+TSE3+TSE4+TSE5+TSE6+TSE7+TSE8+TSE9+TSE
10+TSE11+TSE12+TSE13
Employee wellbeing =~SRMH1+SRMH2+SRMH3+SRMH4+SRMH5
WLB=~WLB1+WLB2+WLB3+WLB4+WLB5
Employee Productivity=~TP1+TP2+TP3+TP4+TP5
Employee wellbeing ~Technology
WORK LIFE BALANCE ~Technology
Employee Productivity~Technology

The structural equation model consists of latent variables, each represented by a set of indicators. The latent variables include Technology, Employee Wellbeing, Work Life Balance (WLB), and Employee Productivity. The Technology latent variable is measured by indicators labeled TSE1 to TSE13, reflecting various facets of technology use. Employee Wellbeing is gauged through indicators SRMH1 to SRMH5, indicating subjective mental health. The Work Life Balance latent variable isassessed by indicators WLB1 to WLB5, capturing aspects of the equilibrium between professional and personal life. Employee Productivity is represented by indicators TP1 to TP5, capturing different dimensions of work output.

The model incorporates regression paths and correlations to elucidate the connections between these latent variables. Regression paths emanate from the Technology latent variable to Employee Wellbeing, Work Life Balance, and Employee Productivity, illustrating the impact of technology on these crucial organizational factors. Additionally, correlations exist between Technology and each of the latent variables, demonstrating the degree of association. Positive correlations would signify that as technology usage increases, employee wellbeing, work-life balance, and productivity also tend to rise.

Table 2 - Parameters estimates								
				95% Confidence Intervals				
Dep	Pred	Estimate	SE	Lower	Upper	β	z	p
Employee wellbeing	Technology	0.277	0.0535	0.172	0.382	0.415	5.17	< .001
Work Balance	Life Technology	0.417	0.0735	0.273	0.561	0.442	5.67	< .001
Employee Employee Productivity	Technology	0.267	0.0525	0.164	0.37	0.367	5.08	< .001

The parameter estimates table 2 provides relationships between Technology on Employee Wellbeing, Work Life Balance, and Employee Productivity. The estimates are accompanied by standard errors, 95% confidence intervals, beta (β) coefficients, z-values, and p-values, providing a comprehensive understanding of the model's findings.

The estimated regression coefficient for the relationship between Technology and Employee Wellbeing is 0.277. This positive coefficient suggests that an increase in Technology is associated with a 0.277 unit increase in Employee Wellbeing. The beta coefficient (β) of 0.415 signifies the standardized effect size, and the z-value of 5.17 is associated with a highly significant p-value of

< 0.001, indicating a robust and statistically significant relationship between Technology and Employee Wellbeing.

The estimated coefficient for the relationship between Technology and Work Life Balance is 0.417. This indicates that a one-unit increase in Technology is associated with a 0.417 unit increase in Work Life Balance. The beta coefficient of 0.442 indicates the standardized effect size, and the z- value of

5.67 is associated with a highly significant p-value of < 0.001. This underscores a strong and statistically significant relationship between Technology and Work Life Balance.

The estimated coefficient for the impact of Technology on Employee Productivity is 0.267. This signifies that a one-unit increase in Technology is associated with a 0.267 unit increase in Employee Productivity. The beta coefficient of 0.367 indicates the standardized effect size, and the z-value of

5.08 is associated with a highly significant p-value of < 0.001. This emphasizes a robust and statistically significant relationship between Technology and Employee Productivity.

Figure 1 – Path Diagram

Figure 1 – Path Diagram
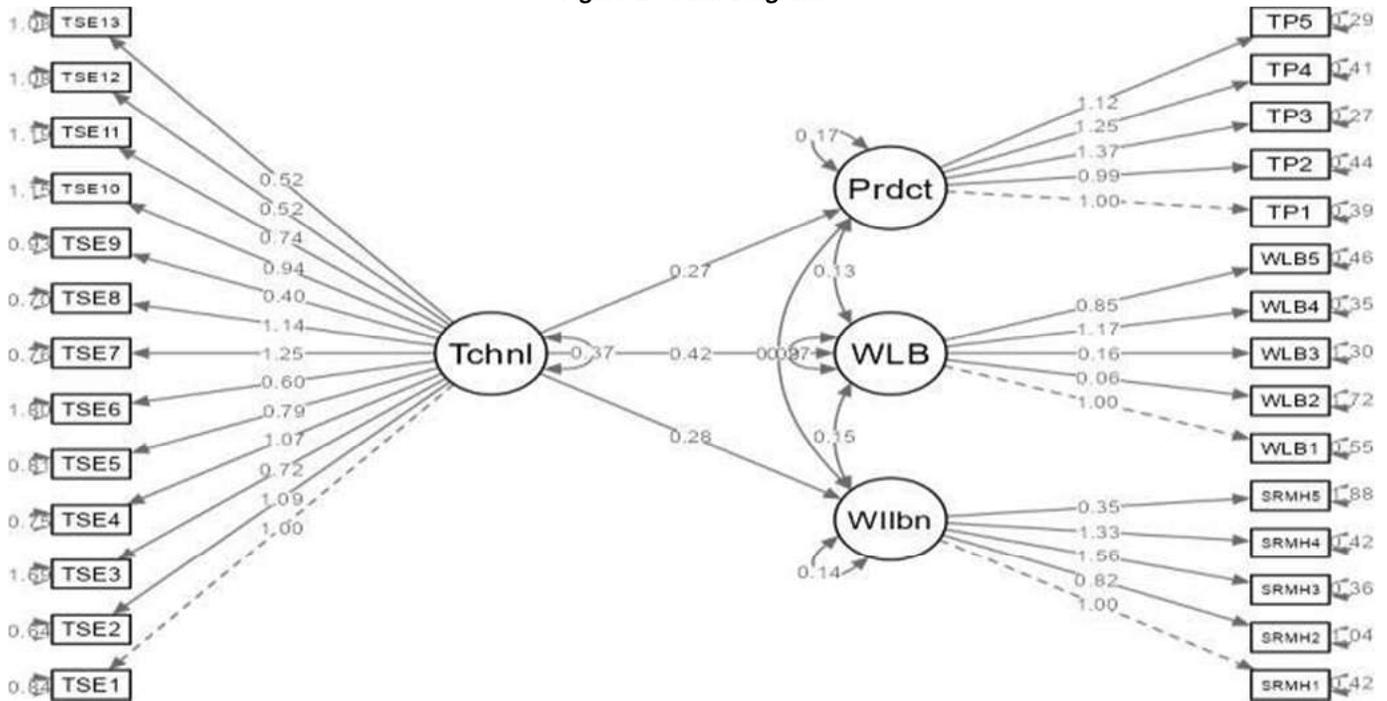
The path diagram in figure 1 collectively reveal that Technology has a statistically significant and positive impact on Employee Wellbeing, Work Life Balance, and Employee Productivity. The positive coefficients suggest that as organizations invest in and enhance technological resources, there is a corresponding improvement in these crucial aspects of the work environment. The confidence intervals and standardized effect sizes further underscore the reliability and magnitude of these relationships.

These findings carry practical implications for organizations seeking to optimize employee well- being and productivity through strategic technological investments. The statistical significance of the estimates reinforces the importance of considering and fostering a technologically supportive work environment.

Table 3 - Measurement Model								
				95% Confidence Intervals				
Latent	Observed	Estimate	SE	Lower	Upper	β	z	p
Technology	TSE1	1	0	1	1	0.5523		
	TSE2	1.0946	0.12	0.8593	1.33	0.6389	9.12	< .001
	TSE3	0.7216	0.1335	0.4599	0.983	0.3201	5.405	< .001
	TSE4	1.0736	0.122	0.8345	1.313	0.6032	8.801	< .001
	TSE5	0.7887	0.1066	0.5797	0.998	0.4703	7.398	< .001
	TSE6	0.5991	0.1323	0.3397	0.858	0.2623	4.528	< .001
	TSE7	1.2488	0.1347	0.9848	1.513	0.6568	9.271	< .001
	TSE8	1.1393	0.125	0.8943	1.384	0.6383	9.115	< .001

	TSE9	0.4038	0.0942	0.2193	0.588	0.2472	4.289	<.001
	TSE10	0.938	0.1269	0.6893	1.187	0.4697	7.391	<.001
	TSE11	0.739	0.1178	0.508	0.97	0.3814	6.271	<.001
	TSE12	0.5197	0.1046	0.3147	0.725	0.2909	4.968	<.001
	TSE13	0.516	0.1043	0.3116	0.72	0.2895	4.947	<.001
Employee Wellbeing	SRMH1	1	0	1	1	0.5292		
	SRMH2	0.8205	0.1625	0.5021	1.139	0.3098	5.051	<.001
	SRMH3	1.5552	0.174	1.2141	1.896	0.7223	8.937	<.001
	SRMH4	1.3332	0.1573	1.0248	1.642	0.6399	8.474	<.001
	SRMH5	0.3453	0.1938	-0.0345	0.725	0.1016	1.782	0.075
WORK LIFE BALANCE	WLB1	1	0	1	1	0.6128		
	WLB2	0.0635	0.1281	-0.1875	0.314	0.0278	0.496	0.62
	WLB3	0.1567	0.1121	-0.063	0.376	0.0786	1.398	0.162
	WLB4	1.1717	0.1112	0.9538	1.39	0.7533	10.538	<.001
	WLB5	0.8462	0.0936	0.6628	1.03	0.5838	9.042	<.001
Employee Productivity	TP1	1	0	1	1	0.5759		
	TP2	0.9852	0.1156	0.7586	1.212	0.5505	8.524	<.001
	TP3	1.3716	0.1319	1.1131	1.63	0.7574	10.399	<.001
	TP4	1.2478	0.1304	0.9922	1.503	0.6527	9.571	<.001
	TP5	1.1163	0.114	0.8929	1.34	0.6774	9.793	<.001

The measurement model parameter estimates table 3 provides a detailed examination of the relationships between variables in the model. This information is critical for understanding how well the chosen indicators (observed variables) represent the underlying latent constructs and for evaluating the reliability and validity of the measurement model.

The latent variable "Technology" is measured by 13 observed variables (TSE1 to TSE13), each representing different aspects of technology use in the workplace. Notably, all the estimates for the observed variables are significantly different from zero (p < 0.001). This implies that each observed variable contributes significantly to the measurement of the latent variable "Technology."

The latent variable "Employee Wellbeing" is measured by five observed variables (SRMH1 to SRMH5), reflecting different dimensions of subjective mental health. Similar to the "Technology" latent variable, all observed variables for "Employee Wellbeing" have estimates significantly different from zero (p < 0.001), emphasizing the relevance of each indicator in capturing the latent construct.

The latent variable "Work Life Balance" is measured by five observed variables (WLB1 to WLB5), representing aspects related to the balance between professional and personal life. Notably, all observed variables for "Work Life Balance" have estimates significantly different from zero (p < 0.001), highlighting the importance of each indicator in measuring the latent construct.

The latent variable "Employee Productivity" is measured by five observed variables (TP1 to TP5), capturing different dimensions of employee productivity. All observed variables for "Employee Productivity" have estimates significantly different from zero (p < 0.001), indicating the meaningful contribution of each indicator to the measurement of the latent construct.

Table 4 - Variances and Covariances								
				95% Confidence Intervals				
Variable 1	Variable 2	Estimate	SE	Lower	Upper	β	z	p
TSE1	TSE1	0.8438	0.0661	0.7142	0.973	0.695	12.77	< .001
TSE2	TSE2	0.6433	0.0537	0.538	0.749	0.592	11.97	< .001
TSE3	TSE3	1.6894	0.1225	1.4492	1.93	0.898	13.79	< .001
TSE4	TSE4	0.7461	0.0604	0.6277	0.865	0.636	12.34	< .001
TSE5	TSE5	0.8109	0.0612	0.691	0.931	0.779	13.25	< .001
TSE6	TSE6	1.7982	0.1293	1.5449	2.052	0.931	13.91	< .001
TSE7	TSE7	0.761	0.0647	0.6341	0.888	0.569	11.75	< .001
TSE8	TSE8	0.6991	0.0584	0.5847	0.813	0.593	11.98	< .001
TSE9	TSE9	0.9276	0.0665	0.7972	1.058	0.939	13.94	< .001
TSE10	TSE10	1.1509	0.0868	0.9808	1.321	0.779	13.26	< .001
TSE11	TSE11	1.1876	0.0873	1.0166	1.359	0.855	13.61	< .001
TSE12	TSE12	1.0823	0.0781	0.9292	1.235	0.915	13.85	< .001
TSE13	TSE13	1.0783	0.0778	0.9258	1.231	0.916	13.86	< .001
SRMH1	SRMH1	0.4231	0.0336	0.3572	0.489	0.72	12.58	< .001
SRMH2	SRMH2	1.0439	0.0761	0.8948	1.193	0.904	13.72	< .001
SRMH3	SRMH3	0.3649	0.0383	0.2898	0.44	0.478	9.52	< .001
SRMH4	SRMH4	0.4219	0.0374	0.3486	0.495	0.591	11.28	< .001
SRMH5	SRMH5	1.8796	0.1333	1.6183	2.141	0.99	14.1	< .001
WLB1	WLB1	0.5492	0.0463	0.4584	0.64	0.625	11.86	< .001
WLB2	WLB2	1.7204	0.1217	1.4819	1.959	0.999	14.14	< .001
WLB3	WLB3	1.3045	0.0924	1.1234	1.486	0.994	14.12	< .001
WLB4	WLB4	0.3455	0.0388	0.2694	0.422	0.432	8.9	< .001
WLB5	WLB5	0.4572	0.0375	0.3837	0.531	0.659	12.19	< .001
TP1	TP1	0.3939	0.0313	0.3325	0.455	0.668	12.58	< .001
TP2	TP2	0.4362	0.0342	0.3693	0.503	0.697	12.77	< .001
TP3	TP3	0.2732	0.0277	0.2189	0.328	0.426	9.85	< .001
TP4	TP4	0.4101	0.0348	0.3419	0.478	0.574	11.78	< .001
TP5	TP5	0.2872	0.0251	0.238	0.336	0.541	11.44	< .001
Technology	Technology	0.3703	0.068	0.2371	0.504	1	5.45	< .001
Employee wellbeing	Employee wellbeing	0.1362	0.0278	0.0817	0.191	0.827	4.9	< .001
WLB	WLB	0.2658	0.0459	0.1757	0.356	0.805	5.78	< .001

Employee Productivity	Employee Productivity	0.1691	0.03	0.1103	0.228	0.865	5.63	< .001
Employee wellbeing	WLB	0.1502	0.0236	0.104	0.196	0.789	6.37	< .001
Employee wellbeing	Employee Productivity	0.09	0.0158	0.059	0.121	0.593	5.69	< .001
WLB	Employee Productivity	0.1315	0.0215	0.0894	0.174	0.62	6.13	< .001

Hypothesis	Statement	β (Effect Size)	z-value	p-value	Accepted / Rejected
H1	Technological support → Employee well-being	0.415	5.17	< .001	Accepted
H2	Technological support → Work-life balance	0.442	5.67	< .001	Accepted
H3	Technological support → Productivity	0.367	5.08	< .001	Accepted
H4	Work-life balance → Employee well-being	0.789	6.37	< .001	Accepted
H5	Productivity → Employee well-being	0.593	5.69	< .001	Accepted
H6	Work-life balance → Productivity	0.62	6.13	< .001	Accepted
Hypothesis	Mediation Path	Supported by Direct Paths	Significance		Accepted / Rejected
H7	TSE → WLB → WELL BEING	Yes (H2 + H4 supported)	Both p < .001		Accepted
H8	TSE → PRODUCTIVITY → WELL BEING	Yes (H3 + H5 supported)	Both p < .001		Accepted
H9	TSE → WLB → PRODUCTIVITY	Yes (H2 + H6 supported)	Both p < .001		Accepted

The variances and covariances table 4 provide crucial insights into the relationships between variables in the model, Covariances between Technology and its indicators (e.g., TSE1 with Technology) indicate the association between the latent construct and its observed indicators. All covariances are positive and highly significant (p < 0.001), affirming a positive relationship between Technology and its measured aspects.

Covariances between observed and latent variables representing Employee Wellbeing, Work Life Balance, and Employee Productivity reveal their interdependencies. For instance, the covariance between SRMH1 and Employee Wellbeing is positive and highly significant (p < 0.001), indicating a strong association.

Covariances between latent variables (e.g., Technology with Employee Wellbeing) signify the relationships between overarching constructs. The covariances are positive and statistically significant (p < 0.001), underscoring the interconnectedness of these dimensions in the organizational context.

Discussion and Conclusion

The results of the structural equation modeling (SEM) offer strong empirical support for the hypothesized relationships between technological support, employee well-being, work-life balance, and productivity. All direct effects—technology's impact on well-being (β = 0.415), work-life balance (β = 0.442), and productivity (β = 0.367)—were statistically significant. This confirms that digital support systems are instrumental in shaping positive employee outcomes. Importantly, the results show that both work-life balance and productivity play substantial roles in enhancing well-being (β = 0.789 and β = 0.593, respectively), while work-life balance also positively influences productivity (β = 0.620). These insights underline the interconnectedness of the studied constructs, where improvements in one dimension (e.g., balance) can cascade into benefits in another (e.g., performance).

The mediating hypotheses were also confirmed, showing that technological support influences well-being not only directly but also indirectly through productivity and work-life balance.

This multi-path influence underscores the holistic nature of digital transformation in workplaces—it is not merely about task completion but about enhancing the overall employee experience. In academic institutions, where staff are often stretched between teaching, research, and administration, technology serves as a critical support mechanism.

These results align with and extend findings from previous literature. Kumar et al. (2025) emphasized the value of digital tools in supporting work-life integration in the IT sector, while Arefin et al. (2025) demonstrated how wearable technologies and AI applications contribute to employee mental health. The current study confirms these results within the academic setting, a sector often overlooked in digital workplace research.

Similarly, Smith and Stenhouse (2025) highlighted the importance of regulatory support in maximizing the benefits of technology. The current study's findings resonate with their call for structured, human-centered digital policies. Vainik et al. (2025) argued that digital success depends not just on access to tools but on supportive leadership and culture—an idea that is also reflected here through the importance of balance and well-being in driving productivity.

The positive relationship between technology and employee well-being aligns with prior research by Dutta and Mishra (2023), emphasizing the evolving role of technology, particularly well-designed bots, in reducing demands on employees and enhancing mental well-being. The positive impact of technology on work-life balance resonates with studies by Prasad and Satyaprasad (2023), Kusairi et al. (2023), and others, highlighting the intricate dynamics between technology, remote work, and organizational policies in influencing work-life balance positively.

Furthermore, the positive relationship between technology and employee productivity aligns with the broader literature, including studies by Nguyen et al. (2023), Li et al. (2023), and Dastane (2020), emphasizing the role of technology-based knowledge sharing, organizational agility, and technology adoption in enhancing overall employee productivity. The findings underscore the importance of a balanced and strategic approach to technology integration within

organizations, acknowledging its potential to positively influence employee well-being, work-life balance, and productivity.

In conclusion, the study contributes valuable insights into the complex interplay between technology and employee outcomes within organizational settings. The positive relationships identified highlight the potential benefits of technology when thoughtfully integrated into the workplace. However, the study also underscores the importance of considering contextual factors

and individual differences to maximize the positive impact of technology on employee well- being, work-life balance, and productivity. Moving forward, organizations should adopt a holistic approach that aligns technological interventions with the unique needs and dynamics of their workforce, fostering a supportive and productive work environment.

Future Study Implication

Organizations needed to strategically integrate technology solutions to positively impact employee well-being, work-life balance, and productivity. This involved investing in tools and systems that facilitated remote work, streamlined tasks, and provided resources for mental health support. The study underscored the significant role of organizational policies in influencing work-life balance. Organizations were recommended to develop and communicate clear policies regarding the use of technology and support mechanisms for maintaining work-life balance.

Given the dynamic nature of technology and its impact on employee outcomes, organizations encouraged to adopt a mindset of continuous evaluation and adaptation. Regular assessments of the effectiveness of technological interventions, feedback mechanisms, and adjustments to policies were recommended to ensure that the organization remained responsive to evolving employee needs.

The future scope of this study involves a multi-faceted exploration, encompassing technological advancements, organizational dynamics, and individual differences, to further refine our understanding of how technology can be harnessed to foster positive employee experiences in the evolving workplace landscape.

In conclusion, the study's implications provided retrospective guidance for organizations seeking to navigate the complex interplay between technology and employee outcomes. These considerations, rooted in the study's findings, offered valuable insights into fostering a workplace environment conducive to enhanced employee well-being, work-life balance, and productivity.

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Role of Artificial Intelligence in Sustainable Beauty Products with Special Reference to Mamaearth

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Abstract

Purpose

The purpose of this study is to analyze the impact of Artificial Intelligence (AI) on sustainable cosmetic products, with a particular focus on the Mamaearth brand. As the global focus on sustainability intensifies with the formation of the United Nations Sustainable Development Goals (SDGs), companies in various sectors, including cosmetics, are shifting toward environmentally friendly practices. Green consumers, who are increasingly aware of environmental issues, are driving these changes, making them a central target for sustainable marketing strategies.

Objectives

The primary objective of this research is to examine how AI tools influence consumer behavior and decision-making in the cosmetics industry, specifically in relation to sustainable beauty products. The study aims to understand the role of AI in promoting sustainability and how it affects the choices of green consumers in the rapidly growing cosmetic market.

Data collection

This research follows a quantitative approach. Primary data were collected using a structured questionnaire from 284 respondents to gain insights into consumer perceptions and the impact of AI-driven tools on sustainable product choices. The data collection process was designed to capture a comprehensive view of consumer attitudes toward AI and green beauty products.

Research Methodology

The responses were analysed using PLS-SEM software, which allows for detailed statistical analysis to assess the relationship between TPB variables, AI and consumer purchase intention of sustainability in cosmetics products.

Keywords: Employee Well -Being, Technological Support, Workplace Well-Being, Work-Life Balance, Employee Productivity.

Introduction

Due to the environmental concern demand for sustainable beauty products is emerging day by day. Indian market is also one of the markets trying to get center image in green evolution (Kapoor et al., 2019). Nowadays sustainable products are not only an alternative to traditional products (Vincent, 2012). Consumers are becoming more environmentally conscious due to awareness. This informative explosion leads to the generation of sustainable consumers. In the present scenario, beauty and cosmetics industry is focusing on providing herbal beauty products to fulfilled green consumers' demand. Beauty products are more demanding products as these products have an important role in physical appearance of the human being, & help in achieving the aesthetic need (Kaufmann et al., 2012). India, Gen Y and Gen Z have spent a huge part of their income on buying sustainable beauty products (Verma 2020). The side effects of a polluted environment have forced to consumers to become aware for sustainability, this awareness plays a vital role in developing green consumers. Consumers are now working on improving their life cycle by adopting green products (Gen et al.,2017).

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According to the American Marketing Association (AMA) " green marketing " is the sustainable marketing practice for producing environmentally safe products that are harmful chemical free. Consumers' late awareness of the side effects of harmful chemicals has led to late adoption of green beauty products, because of this many beauty cosmetics companies switched their non-sustainable marketing practices to sustainable marketing practices (Kasliwal & Khan, 2016). New-generation customers are more conscious of their consumption patterns because of their past experiences with harmful environments. For a better and more environmentally friendly lifestyle, the emphasis is more on enhancing the entire life cycle (Gan et al., 2017). This is the reason they are now avoiding chemical products and adopting sustainable beauty products (Kumar, 2014). Presently there is a trend of using eco-friendly products and this could be easily found in cosmetic beauty lines as well (Nora et al., 2019). Cosmetic industries are moving towards producing natural products that help in improving healthy life style of the consumer (Gobitusa et al., 2019).A large number of products, such as toothpaste, shampoo, soap, and the like, have evolved into a part of our daily hygiene routines, and the main factor influencing consumer preferences is price rather than environmental friendliness.

Technological development provides a variety of solutions for consumers' problems, and this uniqueness helps attract customers and retain them (Anshari et al.,2018). Advances in technology have turned the world into a web of interconnected networks. The application of artificial intelligence is not limited to marketing; it is widely used in other sectors such as medicine, e-commerce, education, law, and manufacturing. AI is constantly being implemented to benefit many different industries. As organizations move toward Industry 4.0, artificial intelligence and other new technologies are evolving alongside it (Sanjeev et al., 2021). Organizations are becoming turned in to Industry 4.0, and new technologies are emerging with organizational technological transformation (Tjepkema, 2019). AI applications are now proving very useful in fulfilling the customer expectations and give a new direction in customer journey with market (Shabbir, 2015).

Literature Review

This study explores the impact of AI applications on consumers' purchase intention with the help of TPB model factors (subjective norms, attitudes, & perceived behavior control) in the context of Mamaearth beauty cosmetic products.

Mama Earth is one of the brands that received the " MADE SAFE " certificate. Mama Earth was established by Ghazal Alagh and Varun Alagh in 2016. Mama Earth is well known brand in cosmetics industry that claim to offer natural and toxic chemicals-free cosmetics products. Mama Earth is a brand that has come a long way from being a no-name name to being a leading baby skincare retailer. Mama Earth has unique marketing strategies, it is mostly uses digital media for promoting its products, 90% of promotions done through digital platforms, and only 10% of promotions run via conventional promotional tools (Mishra, 2020). The brand offers wide range of cosmetics products like- shampoo, face cream, body lotion, lipsticks etc. The main reason behind selecting this company for research study because of its unique promotional strategies with the help of technological applications.

AI has immense potential in cosmetic industry, it offers customized services to customers with the help of try-on options and skin analysis (Li et al.,2023). Customers can easily get the best cosmetics products for them by applying AI implication tools to get to know their skin tone and type (Jan et al., 2023). Customer personalized experience with AI implication evolve new personalized digital ear in cosmetic industry (Rahman et al., 2023). AI applications has widely used in different sectors still there are still few studies conducted on consumer purchase intention in cosmetic products by applying AI tools. Widely use of digital technologies has positively changed consumer behavior (CB), as cutting-edge innovations such as digital communities and artificial intelligence (AI) disrupt and reinforce consumer attitudes towards certain products and services (Femi et al.,2021). Digital communities play a vital role in digital marketing era as they interact on social platforms get to know about product functionality and applicability according to their choices and preferences. Mama Earth started his journey via digital platform, and consumers know about Mama Earth on its chemical-free products. Consumer purchase intention is basically enhanced with his knowledge and AI makes it more easier to update consumer knowledge. Consumer in cosmetic brands reshaped their attitude and behavior after generation of AI market. Cosmetic industry are growing day by day because of aesthetic appeal by human beings. This study focuses on dependence of purchase intention with AI era. AI is designed to "learn" and improve from data generated by digital technologies related to consumer interactions, thus leveraging consumers' knowledge sharing (KS) activities to replicate new knowledge and improve products and services (Femi et al.,2021).

Theory of Planned Behaviour

The theory of planned behaviour states that three factors-conduct, subjective norms, and perceived behavioural control are essential to the development of behavioural intention, which in turn sequentially influences human conduct (Ajzen, 1985). Muchenje et al., 2023. This theory is foundation theory of green consumer behaviour.

Eco-buying behaviour, perceived attitude and subjective norms are the main factors for making the predictions about the intended behaviour (Ajzen , 1991, 1985).

USE OF TPB has now changed with the passage of time, it includes direct and indirect variable, in which PBC considered as a direct variable and subjective norms and attitude considered as indirect variable in consumer intended behaviour.

Many of the research on TPB has been done to assess the relationship between attitude and intention, and analyse the effect of internal and external variables on Theory of Planned Behaviour (TPB). Many researcher has done their study to find out the indirect impact of attitude on green consumer behaviour by taking intention as a mediating variable (Al Mamun et al., 2018; Taufique and Vaithianathan, 2018; Trivedi et.,al 2018).

TPB helps in measuring the impact of personal factors and situational factors on consumer buying intention. (Han et al., 2010).

AI and Subjective Norms

According to Ajzen (1975) subjective norms are composition of social pressure and social groups. After some time Ajzen (1991) discovered that subjective norms are performed by social pressure and obedience motivation. Subjective norms refers to the evaluation of individual on the basis of other's influence (Werner, 2004). Effect of subjective norms is about impact of various referencing groups on consumer's behaviour (Hsu et al., 2006; Yang et al.,2007). Impact of subjective norms is measured on the basis of culture in which consumer belongs and their behaviour is affect by members of the society. Consumer is a part of a society in which he establishes relations with others on the basis of his liking and disliking so his way of behaving and thinking is directly influenced by that particular society atmosphere, he belongs to (Werner, 2004).This is our human tendency to get influence by other's behaviours and try to copy their style in own life with adopting their way of thinking. On the basis of above literature review, subjective norms refers to the emerging trends of society that influence consumer behavior and their purchasing pattern.

H1: AI has positively influence the subjective norms of the green consumer.

AI and Attitude

Attitude is a positive and negative perspective of an individual behaviour towards any specific object or situation (Fishbein & Ajzen 1975). Behavioral attitude is determined by favorable and unfavorable evaluations of an individual's behaviour (Ajzen 1991). Assessment of attitude must be done on the basis of two

factor- cognitive and affective (Mackenzie et al., 1986). Cognitive attitude is about an individual way of thinking and understanding the situationwhereas affective domain of attitude is concerned with individual emotional response towards any object or particular situation (Sears, Peplau, Taylor 1991). With the environmental scenario, attitude is referred as cognitive and effective assessment of consumer behvaiour for environmental safety (Bamberg, 2003). Most of the research studies argued that attitude is one of the most significant factor for affecting the sustainable consumer behaviour (Ellen 1994; Zhao et al.,2014; Zsoka, 2008). Many Indian researchers also support the impact of attitude on green consumer behaviour related to the environmental sustainability in his study (Verma & Chandra, 2017; Yadav & Pathak, 2016).

H2: AI has positively influence the attitude of the green consumer.

AI and perceived behavioral control

Perceived behavioral control refers to the observation about an easiness or difficulty in performing a particular action that is based on past experiences and hurdles(Ajzen, 1991). Perceived behavioral control helps in determining behavior (Zhou et al., 2013). PBC is an individual response towards an event that leads to the successful performance of his conscious action, which he wants to achieve intentionally (Averill, 1973). Behavioral control must be actual instead of perceived (Bateson 2000). In the context of green marketing , PBC reflects the consumer determination and willingness for environmental safety and sustainability. Higher willing efforts will result in successful behavior (Ajzen, 1988).

H3: AI has positively influence the perceived behavioral control of the green consumer.

Subjective norms and purchase intention

Sustainable behavior is combined with normative and learned behavior, normative based on specific culture of the nation whereas learned is a self-value expressive behavior to fulfil hedonic motives (Tellstrom et at., 2006). Previous studies recognized that differences in value of the nation have a direct impact on sustainable consumer behavior (De Maya et al., 2011). Consumer behaviour is governed by acceptable norms of the country (Vermeir & Verbeke 2006). India is also one of that nations where cultural norms of the nation influence consumer behavior. Subjective norms that emerge from any most powerful identity like peer group member, family member, friend or any social face have significant impact on consumer buying intention (Wan et al.,2017). According to the existing studies, subjective standards substantially encourage the propensity to purchase eco-friendly cosmetics (Shimul et

al.,2022). Consumer's purchase intention is strongly affected by the other's perception to the related things and this shows the impact of subjective norms on consumer buying behavior. AI's impact on changing subjective norms for buying green beauty products is significant, driving personalized consumer experiences, influencing social trends, and enabling greater transparency and accessibility. These shifts, powered by AI, are not only reshaping individual purchasing behavior but also transforming broader cultural norms towards more sustainable and ethical beauty choices.AI allows beauty brands to use data analytics to craft campaigns that resonate with specific consumer demographics. By targeting the right audience with personalized messages that emphasize the value of sustainability, brands can influence public opinion and shift subjective norms. Over time, this can create a critical mass of consumers who prioritize eco-friendly beauty products, leading to a larger cultural shift.AI systems are increasingly integrated with behavioral economics principles to "nudge" consumers towards sustainable choices. For instance, AI can highlight eco-friendly products by using persuasive messaging,rewards for sustainable purchases, or even changing the default product offerings to greener alternatives.

H4: Subjective norms have positively influenced the green consumer's purchase intention to use AI in green cosmetic products.

Attitude and purchase intention

Attitude has been recognized as a reflection of behaviour (Caslo & Escario, 2018). Eco-friendly attitude concentrates solely on consumer attitude as related to the environment, which involved reducing environmental degradation and save natural resources (Caslo & Escario, 2018). Consumer behavior depends on his attitude, how much he likes or dislikes things, and how he reacts against situation. Environmental friendly attitude consumers prefer products with minimum use of energy and water, less waste generation and lead to minimum pollutants in environment (Vazifehdoust et al., 2013). Sustainable consumer behavior attitude refers to buy eco-friendly, bio-degradable products and followed the principles consciously for

environment sustainability (De Paco et al., 2019). The strongest feature of artificial intelligence is that ability to provide tailored need information according to consumer choices and make it accessible easily with in a few seconds.AI can recommend eco-friendly cosmetics that best suit a person's requirements and principles. Customers' beneficial opinions of sustainable beauty products are reinforced as they feel more nurtured and confident that the items satisfy their specific requirements.

H5: Attitude has positively influenced the green consumer's purchase intention to use AI in green cosmetic products.

Perceived Behavioral control and purchase intention

In the context of environmental sustainability, high perceived behavior control encourage consumer to be eco-friendly and strengthen their buying intentions whereas low perceived behavior control represents low buying intentions (Yadav & Pathak, 2016). Motivating consumers through high PBC is a significant factor in generating positive attitudes toward sustainability (Thogersen, 2005). Behaviour control has two aspects, self- efficacy as internal factors and PBC as external factors (Terry & O' Laery 1995). Customers' decisions to buy green beauty products are heavily influenced by their perception of behavioral control. Customers are more inclined to make sustainable purchases when they feel in control of factors like accessibility, cost, knowledge, and convenience.There is a direct influence of PBC on consumer behavior (Terry& O'Leary 1995). PBC has multi-dimension (Sparks et al.,1997). It is opposed to the statement given by (Terry &0'Leary1995) . Perceived Behavior Control can be evaluated by difficulty level, with inclusion of internal factors as consumer's ability to perform intentionally and external factors as control of the consumer's on his behavior (Sparks et al, 1995). Perceived behavioral control has a significant impact on consumer behavior in buying eco-friendly products (Hsu et al.,2017).

H6: Perceived behavioral control has positively influenced the green consumer's purchase intention to use AI in green cosmetic products.

Research Model

Role of Artificial Intelligence in Sustainable Beauty Products with.....
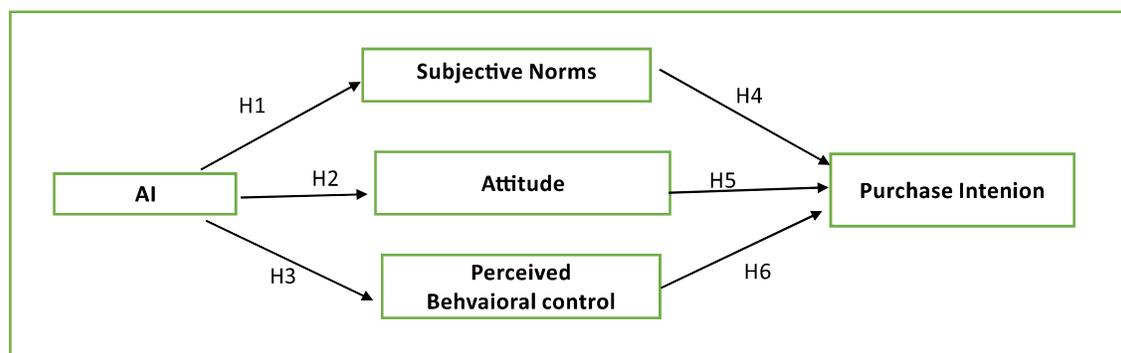
Research Methodology

This research study analyses the impact of AI on buying sustainable beauty products with the help of the TPB model. It examines how subjective norms, attitudes, and perceived behavioral control affect the purchase intention of green consumers with aligned AI. Structural Equation Modeling was used to analyse the data and examine the constructed research model. Primary data was collected through a closed-ended questionnaire. A total of 284 respondents have responded to the questionnaire, of whom 66 were male and 154 were female respondents. The questionnaire includes demographic segmentation based on gender, age, and occupation. Age group segmentation was done into 3 age categories (18-24 years, 25-34 years, and 35- 44 years). The majority were the 25-34 years age group respondents who are young professionals and Gen Z consumers.

Table. 1 Path Coefficients

	Path coefficients
AI -> ATT	0.501
AI -> PBC	0.479
AI -> SN	0.416
ATT -> PI	0.211
PBC -> PI	0.248
SN -> PI	0.532

Path coefficient analysis shows how artificial intelligence (AI) affects three psychological factors of consumers: Subjective Norms (SN), Perceived Behavioural Control (PBC), and Attitude (ATT). These factors then influence Purchase Intention (PI) for green beauty products. Customers' perceptions of green products are improved by AI-powered tools like personalised recommendations and environmental insights, as AI shows a significant positive impact on attitude (β = 0.501). Furthermore, Perceived Behavioural Control is positively impacted by AI (β = 0.479), suggesting that interactive features such as virtual try-ons or AI-assisted product filtering give customers a sense of confidence and control over their decision-making process. The correlation between AI and Subjective Norms (β = 0.416) also shows how AI may increase awareness of societal trends and peer preferences, which would increase the impact of social expectations on individual behaviour.

Table 2: Indirect Effects

	Specific indirect effects
AI -> PBC -> PI	0.119
AI -> ATT -> PI	0.106
AI -> SN -> PI	0.221

Subjective Norms (SN) have the strongest indirect effect on purchase intention (β = 0.221), suggesting that AI technologies like personalised recommendations or socially integrated features may increase awareness of peer behaviours and societal expectations, which in turn have a big impact on consumer choices. The indirect effect through Perceived Behavioural Control (PBC) is also noteworthy (β = 0.119), indicating that AI tools increase users' confidence and ability to make sustainable decisions, which in turn promotes the purchase of green products. With a coefficient of 0.106, AI also indirectly influences purchase intention through Attitude (ATT). This shows that consumers' opinions and evaluations of green beauty products can be positively influenced by AI, which increases their propensity to purchase. All things considered, these indirect routes demonstrate how important AI is in influencing behaviour both directly and indirectly by raising consumer psychological preparedness and social motivation.

Table 3: Total Effects

	Total effects
AI -> ATT	0.501
AI -> PBC	0.479
AI -> PI	0.446
AI -> SN	0.416
ATT -> PI	0.211
PBC -> PI	0.248
SN -> PI	0.532

AI significantly improves consumers' positive assessments of green products and boosts their confidence in making informed decisions, as evidenced by its strong overall effect on attitude (β = 0.501) and perceived behavioural control (β = 0.479). The overall impact of AI on subjective norms (β = 0.416) also implies that AI influences how consumers view social norms around ecologically conscious behaviour. Significantly, the overall impact of AI on purchase intention (β = 0.446) indicates that AI is a key driver of green buying behaviour, both directly and through mediating factors. The psychological determinants that have the largest overall impact on purchase intention are Subjective Norms (β = 0.532), Perceived Behavioural Control (β = 0.248), and Attitude (β = 0.211). These results demonstrate the compound impact of AI, demonstrating that it not only directly raises consumers' intention to buy eco-friendly products but also indirectly does so by favourably influencing their attitudes, social perceptions, and perceived behavioural control.

Table 4: Outer Loadings

	Outer loadings
AI 1 <- AI	0.561
AI 2 <- AI	0.923
Att 2 <- ATT	0.826
Att 3 <- ATT	0.833
Att1 <- ATT	0.736
PBC 3 <- PBC	0.605
PBC 4 <- PBC	0.786
PBC1 <- PBC	0.734
PBC2 <- PBC	0.681
PI 1 <- PI	0.781

PI 2 <- PI	0.747
PI 3 <- PI	0.828
PI 4 <- PI	0.690
SN 2 <- SN	0.779
SN1 <- SN	0.783
SN3 <- SN	0.786

Source: Primary Data

The items AI1 and AI2 exhibit loading values of 0.561 and 0.923 for the construct Artificial Intelligence (AI), respectively, suggesting that AI2 has a particularly strong association with the construct and that AI1 is moderately reliable. With Att2 (0.826), Att3 (0.833), and Att1 (0.736) all showing strong loadings, the construct Attitude (ATT) is well-represented by its indicators, indicating that these items consistently capture consumers' favourable opinions of green beauty products. Each of the four items in Perceived Behavioural Control (PBC) has loadings between 0.605 and 0.786, indicating acceptable to strong contributions. PBC4 (0.786) and PBC1 (0.734) in particular show the consumer's ease and confidence in making decisions about what to buy. With Att2 (0.826), Att3 (0.833), and Att1 (0.736) all showing strong loadings, the construct Attitude (ATT) is well-represented by its indicators, indicating that these items consistently capture consumers' favourable opinions of green beauty products. Each of the four items in Perceived Behavioural Control (PBC) has loadings between 0.605 and 0.786, indicating acceptable to strong contributions. PBC4 (0.786) and PBC1 (0.734) in particular show the consumer's ease and confidence in making decisions about what to buy. All four items show strong outer loadings for Purchase Intention (PI), with PI3 (0.828) being the highest. Thisindicates how well the items capture consumers' willingness to purchase green beauty products. Finally, SN1 (0.783), SN2 (0.779), and SN3 (0.786) all exhibit robust and steady loadings, demonstrating the validity of Subjective Norms (SN) as a measure of perceived social influence or pressure. Overall, most of the indicators are higher than the generally recognised cutoff point of 0.70, confirming the validity and reliability of the measurement model employed in the research.

Table 5: Correlation

	ATT	AI	PBC	PI	SN
ATT	1.000	0.501	0.630	0.666	0.562
AI	0.501	1.000	0.479	0.534	0.416
PBC	0.630	0.479	1.000	0.692	0.584
PI	0.666	0.534	0.692	1.000	0.796
SN	0.562	0.416	0.584	0.796	1.000

All variables indicate positive correlations with each other, as would be expected, suggesting that improvements in one construct are linked to improvements in others. Subjective Norms and Purchase Intention show the strongest correlation (r = 0.796), underscoring the important role that social influence plays in influencing consumers' intentions to purchase eco-friendly cosmetics. Additionally, there is a strong correlation between perceived behavioural control and purchase intention (r = 0.692), indicating that consumers' perceptions of their own power and control play a significant role in their purchasing decisions. Likewise, there is a positive correlation between Attitude and Purchase Intention (r = 0.666), highlighting the importance of positive assessments. The moderate correlation between artificial intelligence (AI) and all other variables, particularly attitude (r = 0.501) and purchase intention (r = 0.534), suggests that AI tools and features enhance favourable consumer perceptions and encourage environmentally conscious buying. A significant relationship between consumers' positive assessment of green products and their confidence in their capacity to take action is also suggested by the positive correlation between PBC and ATT (r = 0.630). The research model's suggested relationships are generally supported by the correlation matrix, which shows that psychological, social, and technological factors all have a significant impact on green consumer behaviour.

Table 6: Covariance

	ATT	AI	PBC	PI	SN
ATT	1.000	0.501	0.630	0.666	0.562
AI	0.501	1.000	0.479	0.534	0.416
PBC	0.630	0.479	1.000	0.692	0.584
PI	0.666	0.534	0.692	1.000	0.796
SN	0.562	0.416	0.584	0.796	1.000

Table 7: Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
PI	0.759	0.761	0.847	0.582
ATT	0.718	0.733	0.841	0.639
PBC	0.767	0.691	0.796	0.597
SN	0.685	0.686	0.826	0.613
AI	0.691	0.650	0.725	0.683

Internal consistency is measured by Cronbach's alpha values, which vary from 0.685 to 0.767. Except Subjective Norms (SN) and Artificial Intelligence (AI), which fall just short but are still deemed appropriate for exploratory research, all constructs surpass the generally recognised minimum threshold of 0.70. Strong reliability is indicated by Perceived Behavioural Control (PBC), which has the highest internal consistency with an alpha of 0.767. The robustness of the constructs is further supported by the composite reliability values, rho_a and rho_c. Every rho_c value exceeds the benchmark of 0.70, demonstrating adequate internal consistency for every construct. Even though rho_a values can be a little lower in some situations, they are still within a reasonable range, especially for PI, ATT, and PBC, indicating that the observed variables measure their respective latent constructs adequately. All constructs meet or surpass the 0.50 threshold for Average Variance Extracted (AVE), indicating acceptable convergent validity. In other words, each construct captures more variance from its indicators than from error. Interestingly, ATT and SN also show strong convergence with AVEs of 0.639 and 0.613, respectively, while Altruism (AI) has the highest AVE at 0.683, indicating excellent convergence. With AVEs of 0.582 and 0.597, PI and PBC likewise satisfy the requirement

Table 8: Discriminant Validity

	ATT	AI	PBC	PI	SN
ATT	0.799				
AI	0.601	0.764			
PBC	0.630	0.479	0.705		
PI	0.666	0.534	0.692	0.763	
SN	0.762	0.416	0.584	0.796	0.783

The square roots of the AVE for each construct are represented by the diagonal values in this analysis, which are all greater than the corresponding inter-construct correlation values: ATT (0.799), AI (0.764), PBC (0.705), PI (0.763), and SN (0.783). The Fornell-Larcker criterion for proving discriminant validity is satisfied by this. ATT shares more variance with its own indicators than with other constructs, as evidenced by correlations of 0.666 with PI and 0.762 with SN, for instance,

both of which are less than its AVE square root of 0.799. Similarly, discriminant validity is further supported by the fact that PI's AVE square root of 0.763 is higher than its relatively high correlations with PBC (0.692) and SN (0.796). These findings support the validity of the measurement model by indicating that each construct is empirically separate and does not significantly overlap.

Conclusion

The research findings indicate that AI has a significant impact on subjective norms, attitude, and perceived behavioral control. These variables positively influenced purchase intention of green beauty products. Due to the advancement of AI, consumers are now more updated and confident in making their purchasing decisions. Organizations are using various AI tools and applications to create awareness among customers, and this will lead huge impact of these tactics on consumer purchase intention. AI plays a vital role in green beauty products purchasing, directly or indirectly, with mediating factors. Subjective norms have more impact on purchase intention because consumer behaviour is mostly affected by society perceptions, mentality, and social influence. These key psychological factors determine the consumer's behavior and their purchasing habits. Subjective norms have very high correlation with purchase intention, followed by perceived behavioral control and attitude. There are some other key insights shown in this research study. Firstly, awareness of AI use applications is still low among consumers. They are not much use to AI applications while making purchasing decisions. Secondly, organizations need to work more on effective AI implication. In response to the findings, AI can have a positive impact on green consumers' purchasing decisions overall, but its efficacy can be increased by increasing consumer education, transparency, and integration with social influence tactics. For increasing AI adoption, companies like Mamaearth should focus on educating consumers about AI applications in green beauty products. Enhancing trust with transparent AI-driven recommendations.

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Employee Well-Being in the Digital Era

*Shweta Tyagi

Abstract

The digital era has transformed the workplace, reshaping employee well-being through technological advancements, remote work, and evolving job demands. While digitalization enhances efficiency and flexibility, it also presents challenges such as work-life imbalance, job insecurity, and digital overload. This research examines the impact of digital transformation on employee well-being, emphasizing mental health, work engagement, and job satisfaction. By analyzing empirical studies and industry reports, this paper identifies key drivers of well-being in digital workplaces and proposes strategic interventions for organizations to foster a supportive work environment. The findings highlight the necessity of balancing technological benefits with human-centric workplace policies to ensure holistic employee well-being.

Keywords: Employee well-being, mental health, Work engagement, Job satisfaction.

Introduction

The rapid advancement of digital technology has revolutionized the modern workplace, redefining traditional work environments and employee experiences. Digital tools and platforms have improved efficiency, collaboration, and accessibility, yet they have also introduced challenges related to stress, job satisfaction, and work-life balance. This paper explores the impact of digitalization on employee well-being, providing insights into the benefits and drawbacks of digital workspaces and suggesting organizational strategies to enhance employee welfare.

The Digital Workplace and Its Impact on Employee Well-Being

The Digital Workplace refers to an environment where technology is integrated into the daily operations of an organization, enabling employees to work efficiently and collaboratively, regardless of their physical location. This concept encompasses various digital tools and platforms, such as cloud computing, collaboration software, communication apps, and automation technologies, which facilitate remote work, flexible schedules, and enhanced productivity. Digitalization has introduced several changes to the workplace, including remote work, flexible schedules, and automation. While these developments provide employees with greater autonomy and convenience, they also lead to increased work expectations, continuous connectivity, and blurred boundaries between personal and professional life.
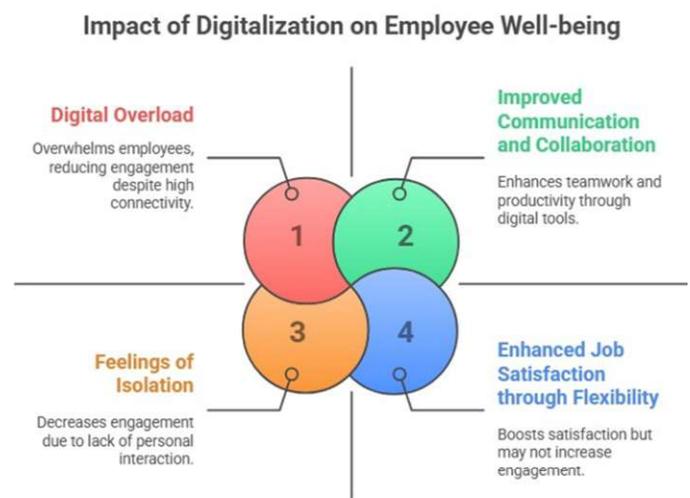

Figure 1

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Mental Health Challenges The prevalence of digital tools has heightened stress levels due to constant connectivity and digital overload. Employees often feel pressured to be available beyond working hours, leading to burnout and decreased productivity.

Work Engagement and Productivity Technology enables seamless communication and collaboration, improving work engagement. However, excessive screen time and virtual interactions can reduce personal engagement, leading to feelings of isolation and disengagement.

Job Satisfaction and Work-Life Balance Flexible work arrangements can enhance job satisfaction by offering autonomy. However, without clear boundaries, employees may struggle to disconnect from work, resulting in an imbalanced lifestyle.

Impact on Employee Well-Being

The digital workplace has a significant impact on employee well-being, both positively and negatively. Here are some key aspects:

Positive Impacts

Greater Autonomy: Employees often have more control over their work schedules and environments, leading to increased job satisfaction and motivation.

The ability to work remotely or choose flexible hours can help employees balance their personal and professional lives more effectively.

Enhanced Collaboration: Digital tools enable seamless communication and collaboration among team members, fostering a sense of community and teamwork.
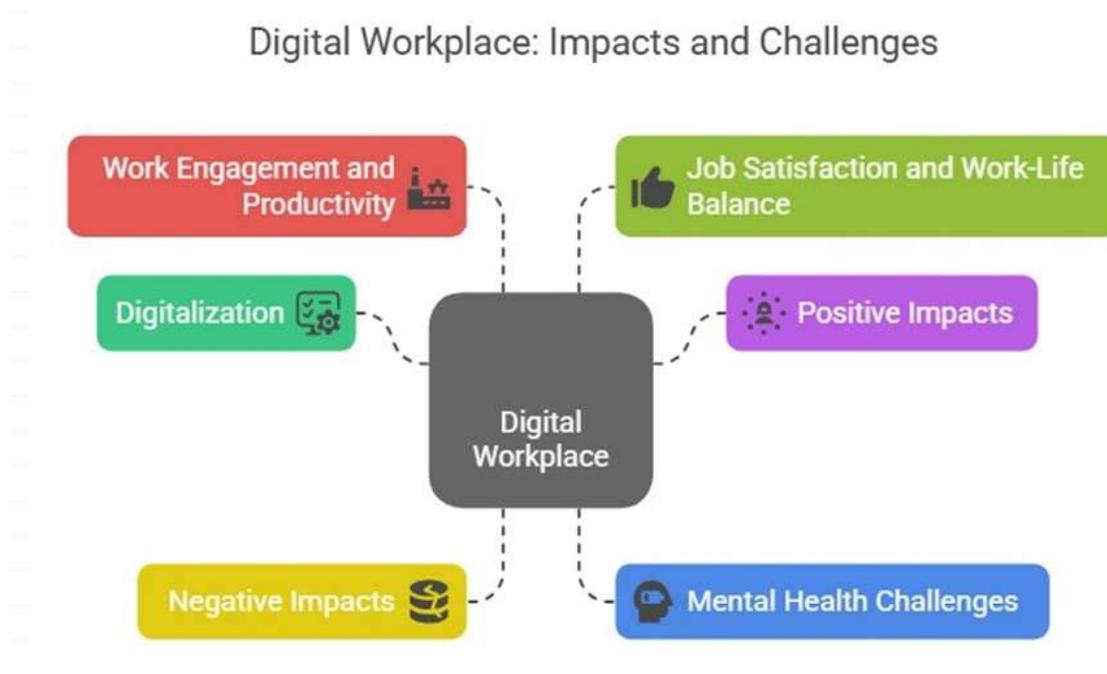
Figure 2

Negative Impacts

Increased Work Expectations: The expectation to be constantly available can lead to stress and anxiety, as employees may feel pressured to respond to messages and emails outside of regular working hours.

Continuous Connectivity: The blurring of boundaries between work and personal life can result in burnout, as employees struggle to disconnect from work-related tasks.

Mental Health Challenges: The prevalence of digital tools can lead to digital overload, where employees experience heightened stress levels due to constant notifications and information overload.

Isolation: While technology facilitates communication, excessive reliance on virtual interactions can lead to feelings of isolation and disengagement from colleagues.
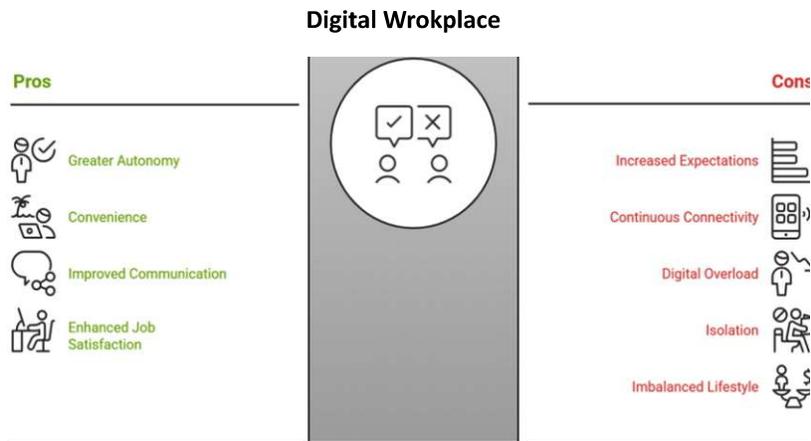
Employee Well-Being in the Digital Era

Digital Wrokplace

Figure 3

Work-Life Imbalance: Without clear boundaries, employees may find it challenging to maintain a healthy work-life balance, leading to decreased overall well-being.

The digital workplace presents both opportunities and challenges for employee well-being. Organizations must recognize these impacts and implement strategies to enhance employee well-being, such as promoting digital detox, fostering a healthy digital culture, enhancing support systems, and balancing automation with human interaction. By addressing these factors, organizations can create a more supportive and productive work environment that prioritizes the well-being of their employees.

Strategies for Enhancing Employee Well-Being

Organizations can adopt several strategies to mitigate the adverse effects of digitalization on employee well-being:

Encouraging Digital Detox Establishing policies that promote disconnection after working hours can help reduce stress and prevent burnout. Establish Policies for Disconnection: Implement guidelines that promote disconnection after working hours to help employees recharge and reduce stress. Promote Time Off: Encourage employees to take regular breaks and vacations to prevent burnout and maintain mental health.

Promoting a Healthy Digital Culture Integrate Wellness Programs: Offer programs that focus on physical and mental health, such as fitness challenges, mindfulness sessions, and stress management workshops.

Encourage Regular Breaks: Promote the importance of taking short breaks throughout the day to improve focus and productivity.

Foster Healthy Digital Habits: Educate employees on managing screen time and using technology mindfully to avoid digital overload.

Figure 4

Enhancing Support Systems Provide Access to Mental Health Resources: Offer resources such as Employee Assistance Programs (EAPs) that provide counseling and support for mental health issues.

Virtual Counseling Services: Make mental health professionals available for virtual consultations to ensure employees have access to support when needed.

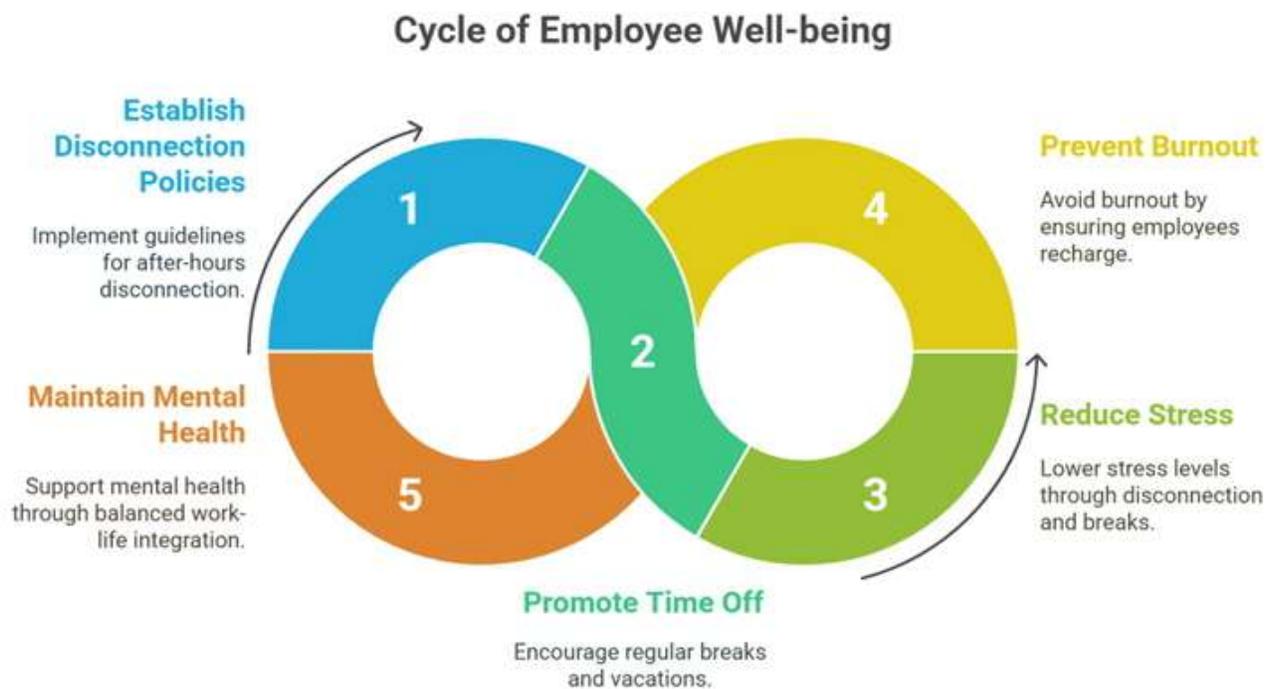Create Peer Support Networks: Establish support groups or buddy systems where employees can share experiences and provide mutual support.

Cycle of Employee Well-being

Establish Disconnection Policies
Implement guidelines for after-hours disconnection.

Maintain Mental Health
Support mental health through balanced work-life integration.

Prevent Burnout
Avoid burnout by ensuring employees recharge.

Reduce Stress
Lower stress levels through disconnection and breaks.

Promote Time Off
Encourage regular breaks and vacations.

Figure 5

Balancing Automation and Human Interaction Ensure Complementary Automation: Use automation to enhance, rather than replace, human interaction. This can help maintain social connections and engagement in the workplace.

Encourage Team Collaboration: Foster an environment where team members can collaborate effectively, both in-person and virtually, to strengthen relationships and teamwork.

Providing Flexible Work Arrangements Offer Remote Work Options: Allow employees to work from home or choose flexible hours that suit their personal needs and preferences.

Customize Workspaces: Encourage employees to create personalized workspaces that enhance comfort and productivity, whether at home or in the office.

Fostering Open Communication
Encourage Feedback: Create channels for employees to provide feedback on their experiences and well-being, and act on their suggestions.

Regular Check-Ins: Implement regular one-on-one meetings between managers and employees to discuss workload, challenges, and well-being.

Promoting Work-Life Balance
Set Clear Boundaries: Encourage employees to set boundaries between work and personal life, such as designated work hours and personal time. Recognize Achievements: Acknowledge and celebrate employee accomplishments to boost morale and job satisfaction.
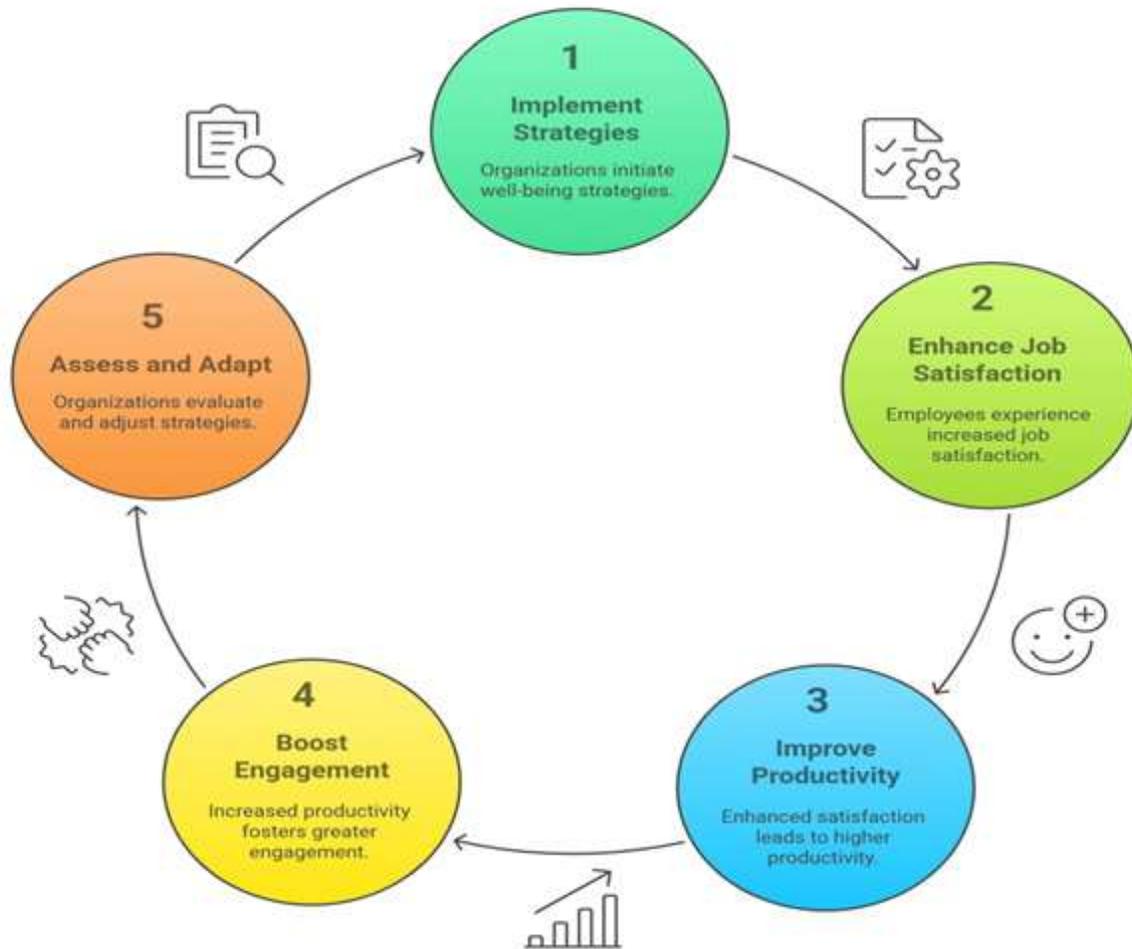
Cycle of Organizational Well-being

Figure 6

By implementing these strategies, organizations can create a supportive environment that prioritizes employee well-being, enhances job satisfaction, and ultimately leads to improved productivity and engagement. It is essential for organizations to continuously assess and adapt their strategies to meet the evolving needs of their workforce in the digital age.

Conclusion

The digital era presents both opportunities and challenges for employee well-being. While technology fosters efficiency and flexibility, it also raises concerns about work-life balance, stress, and job satisfaction. Organizations must adopt proactive strategies to maintain employee well-being by promoting digital wellness, fostering supportive work environments, and ensuring that digital advancements enhance rather than hinder employee experiences. A balanced approach to digital transformation will ensure a productive and engaged workforce in the evolving digital landscape.

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Employee Well-Being in the Digital Era

Analysis of Student's Motivational Factor for MBA Courses

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Abstract

Everything everyone does is influenced by some kind of motivation. Thus it applies to students also when they have to choose the stream or field for their futures, which includes students and their motivation to opt for higher education. Choosing the right institute for the desired professional course is a very important decision in any students life and a major cause of concern for every parent . At the same time it is equally important for the institutes to understand the requirements and the factors which will encourage a student and his or her parents to select a particular institute.

This study will help to understand the various motivational factors and their impact on the decision making process of a UG student to opt for MBA course from an institute. The institutes will benefit from this study immensely as it not only provides input about the satisfaction of students with the existing environment and culture but also provides input about what is missing and what all needs to be worked upon , as there is always scope of improvement and institutes which are in tune with the present day requirements will excel.

Objective of the study is to understand the present teaching environment along with an effort to explore the motivational factors for joining MBA course also try and understand the satisfaction level of BBA students to opt for MBA course in a particular educational institute.

Several researches has been done on Higher Education System : Challenges And Suggestions, Improving Quality of Higher Education in India, Motivational Factors And It's Impact on Students' Performance In Higher Education: A Review, The motivation and satisfaction of the students towards MBA and similar subjects but nothing specific with respect to assessment of an institutes running methodology from a students point of view how he or she rates the present day policies and pedagogy and other related issues

The study has been carried out by taking input from students of MBA and Undergraduate courses and a simple stratified sampling method was used . The study revealed that

the institute should have a change of attitude while dealing with Post graduate students. Teaching methodology should focus on practical execution of theories covered in the class in the form ofcase studies, management games, role play etc….Buzzing session time should be catered for in the duration of class conducted by the faculty to address any queries or doubts of students.

Faculty's personal conduct and the attire, the placement of students ,their involvement in college committee, their recognition , exposure to field experience etc . has a great impact on the students grooming and motivation,

Keywords: Motivation factors , Teaching environment, MBA Course , Educational Institutes

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Introduction

Everything everyone does is influenced by some kind of motivation. Thus it applies to students also when they have to choose the stream or field for their futures, which includes students and their motivation to opt for higher education. Critical thing for learning is motivation similar to the guiding force for anyone to complete any given task.

Choosing the right UG course and right institute is a very important decision in any students life and a major cause of concern for every parent . At the same time it is equally important for the institutes to understand the requirements and the factors which will encourage a student and his or her parents to select a particular institute. This study will help Education institutes to understand the various motivational factors and their impact on the decision making process of a UG student to opt for MBA course from a particular educational institution. This study will give a insight into the minds and expectations of a student from an institute . An institute can benefit from this study immensely as it not only provides input about the satisfaction of students with the existing environment and culture but also provides input about what is missing and what all needs to be worked upon , as there is always scope of improvement and institutes which are in tune with the present day requirements will excel.

The factors that influence the decision of students differs with respect to institute different gender have different factors, social factors, economical factors ,cultural factors, the society etc all play a very important role.People define motivation in many different ways, which makes it difficult to describe it clearly n simply. Motivation is generally considered as an inner state of what one wants or desires to achieve. Maslow described the individual motivational in a pyramid way where in the motivation is dependent on the level of needs accomplished by an individual starting from Physiological needs moving up the ladder to individual's need for safety followed by need for affection and being taken care of oneself price and finally the actualization of oneself . The motivation changes as the individual moves up the ladder. This hierarchy is used to understand howa person's terms for behavior motivation "physiological," "safety," "belonging and love," "social needs" or "esteem," and "self-actualization" are used to express the flow followed by the human motivations .This means motivation for the next stage, will only arise if the earlier stage requirements are met . That is the individual first is motivated to meet his basic needs once the basic needs are met then he is motivated to go for the next need and so forth.

As per Williams and Burden (2000) "motivationis a state of cognitive and emotional arousal leading to a deliberate decision to act and results in a cognitive and physical effort to achieve perceived goals."

Deci and Ryan (1985) propounded the theory of intrinsic and extrinsic Motivation, intrinsic motivation is something that the individual gets motivated to carry out a task which he or she enjoys whereas extrinsic motivation deals with actions carried out to achieve some reward or avoid some admonishment. According to Hattie (2009) following factors have a visible effect on outcomes these factors are child themselves, the home and surrounding environment ,the school and it's atmosphere, the curriculum and syllabus, the Faculty their approach to teaching . These factors are impacted by the structure and the environment created by the teaching faculty, what the faculty expects, the curriculum balance choices, and opportunities for feedback (Hattie, 2009).

With respect to instructors in higher education, Hattie emphasized educators viewing themselves as evaluators, so as to use feedback to understand the impact of their teaching. Educators should incorporate feedback within their instruction, make instruction impactful, allow students to share their thoughts to understand if their learning is in line with the instructional goals, and use data this data for future decision-making. These practices which provide insights about students are grasping concepts, the delivery effectiveness, and allows the students to an opportunities voice their thoughts. Student-teacher relationships plays a very important and critical role in visible learning, a positive relation between student and teacher results into higher motivation, achievement, and perceptions of care (Alder, 2012; Cavanagh et al., 2012; Cramer & Bennet,

How the students perceive their motivation can differ from the way their faculty perceives the perception of their students perception about their motivational factors (Jones, 2009) because of the fluidity of the perception which depends upon many other factors like situation, policies being implemented, feedback and it's system etcThe feeling of being empowered by the students when they are allowed to give their opinion and they know it matters along with the feeling that they have a say and choice in their curriculum motivates them to a great extent and is very instrumental in their professional growth.

The concept of success also impacts motivation. Incremental mindset students are more adaptive to challenge themselves, where as entity mindset students choose achievement over growth .The students perception about success is dependent on the expectations of a course and the environment that is created by the institute and the teachers

In today's world where education has become a way of earning money and is a lucrative business the institutions at one end are trying to build their image and reputation by providing quality teaching but the cost is not such that common man could afford, while other side there are institutes which provide courses at a affordable price but then the quality is compromised this makes it very difficult for a student to choose an Institute. At the same time it's a viscous cycle as more the number of students better is the Institute's financial status to hire quality faculty and better the quality of the faculty more students will take admission.

So an Institute has to understand what will motivate students to choose a particular college for their higher studies. The various factors which will include the basic culture of the Institute, the pedagogy followed, the personal conduct of faculty, opportunity for personal growth for students, the administrative staff and their attitude, the various policies, hostel facility, safety and security of the students and their belonging, the various activities conducted by the Institute to give the students exposure to interact with other reputed firms and educationalinstitutions, the frequency and the quality of workshops conducted, industrial tours, etc…

Students are the customers and today the whole industrial growth and operations are customer centric hence institutes also need to be student centric and their policies and approach need to be directed in such a way that it motivates students to join and continue with the institute. For example a BBA student if wants to pursue higher education like MBA then he or she should continue with the same institute from where he or she did his or her BBA. This can only happen if the student was satisfied and motivated with the conduct of the course both at professional level as well as personal level. A motivated student can motivate others to join the institute where as a demotivated student will not only discontinue but will demotivate others also to join the institute, hence it's very important for the overall growth of the institute that they design and have the environment of the institute which motivates the students. .The range of age for the sampling population is between19-49 year.

MBA : Definition

MBA's is a master's degree in "Business Administration". First introduced in 1908 by Harvard University .It is the graduate degree given by all business schools around the world . True meaning of MBA can be understood by the fact that in MBA, one builds his knowledge about business, develops and grows his or her professional network, and boost one's career. It is considered bas a professional course and not as. A traditional master degrees"Master of business Administration (MBA) is considered a professional Master's degree rather than a traditional or academic Master's degree.

However, completion of a Professional MBA dose not usually precludes admission to a PH.D. programs for research-Oriented engagements.

School that offer the MBA are usually known as either management or Business schools (Word iq.com 2008)."

According the Graduate Management Admission Council™ (GMAC™), "the top career motivations factors for MBA students include: salary hike , promotion, administrating people, and international exposure— and these are just few of the many motivations to get an MBA."

History of MBA

It all started in the 20thcentury in USA where it was a postgraduate courses for a duration of two years for students who have done graduation from any stream and has no field experience. First batch of 80 students were tutored .Initially it was seen as a second rate course but later on the entry was made strict to increase its value. MBA grew from 1998 – 2000, and became a universal degree. In Europe, MBA flourished during 20th century in UK. Now the MBAwas being taught in around 1150 Universities.

In reality the actual professional course started in 1881 in Wharton business school of the university of Pennsylvania where a bachelor degree in finance was awarded which was started j by Wharton Joseph, later on it started MBA course as well. In 1900 ,around 20 years later Tuck school of business was founded by Edward tuck which gave the degree Masters of Commerce a undisputed predecessor to the present MBA degree (https://blog.ibsindia.org/origin-of-mba-in-india/) In 1921 Shanghai University of Commerce (1st Chinese Business School) offered MBA. In 1930the total strength of schools rose to 30 in USA, and in 1948Ivey School of business in Canada offered MBA degree and one year later that is in 1949 it came to South Africa and in 1955 it came to Pakistan In the University of Karachi in collaboration with Wharton Business School. Couple of years later it came into Paris INSEAD with 1 year MBA course which had 50 students from 14 countries and this degree became popular in 1960s and inn1963 it came to Australia

MBA's in India and their year of establishment

1   Xavier's Labour Relations Institute, Jamshedpur   1949
2   Indian Institute of Social Welfare & Business Management (IISWBM), Kolkata   1953
3   Faculty of Management Studies, New Delhi 1954
4   Indian Institute of Management (IIM-C), Kolkata 1961
5   Indian Institute of Management (IIM-A), Ahmadabad 1961
6   Indian Institute of Foreign Trade (IIFT) 1963

7   National Institute of Industrial Engineering (NITIE), Mumbai 1963

8   Jamnalal Bajaj Instof management Studies (JJBIMS), Mumbai 1965

9   Institute of Marketing and Management (IIMM),New Delhi 1969

10   Christ University of Management (CUIM), Bengaluru 1969

Types of MBA programs

Traditionally full time MBA is the most sort after course but there are different types of MBA course which are offered depending upon the student profile and requirements. Following are few types of MBA programs which are being conducted today:

Full time MBA programs

The duration is either one year or two year depending upon the requirement and profile of the student . Full time two year program is for the students who have completed their graduation and want to do a professional course, this is very popular in USA where as one year's program via popular in Europe and Asia where and accelerated curriculum is planned for people who have prior experience in the business field, focusing on development of management skills .For building business contacts and management skills this two-year program requires a professional internship with a company to give exposure to the students to real business activities.

Part-time MBA programsThis is for working class people looking for enhancing their professional skill and trying to acquire required degree and knowledge for promotion. These courses are of two year duration and conducted generally in the evenings or weekends or mixed.

Online MBA Program

This program is for working professionals and is conducted 100% online .This program gives the flexibility of studying from the comfort of home while working. Payments is module wise also. Has a Residential component of 1 to 2 weeks and the durration is around 2 years

Executive MBA

It's a part-time program for experienced people who's have a work experience of 10 years plus . The students bring their experience inti the classrooms thus the knowledge sharing is of very high standard

Research Gap

Several researches has been done on Higher Education System : Challenges And Suggestions, Improving Quality of Higher Education in India, Motivational Factors And It's Impact on Students' Performance In Higher Education: A Review, The motivation and satisfaction of the students towards MBA and similar subjects but nothing specific with respect to assessment of an institutes running methodology from a students point of view how he or she rates the present day policies and pedagogy and other related issues. Their impact and what else improvement / changes are required in the methodology, conduct, infrastructure etc.. which will motivate a student to continue or pursue MBA course from a particular educational institution.

Significance of the Study

Choosing the right UG course and right institute is a very important decision in any students life and a major cause of concern for every parent. At the same time it's equally important for the institutes to understand the requirements and the factors which will

encourage a student and his or her parents to select a particular institute. This study will help an educational institution to understand the various motivational factors and their impact on the decision making process of a UG student to opt for MBA course from a particular educational institution. This study will give a insight into the minds and expectations of a student from an institute. An educational institution will benefit from this study immensely as it not only provides input about the satisfaction of students with the existing environment and culture but also provides input about what is missing and what all needs to be worked upon, as there is always scope of improvement and institutes which are in tune with the present day requirements will excel.

Objectives of the Study

1. To analyze the effect of teacher's conduct.

2. To find out the effect of satisfaction level of BBA students to opt for MBA course .

Hypothesis

H1– There will be a positive effect of teacher's conduct.

H2- There will be a positive effect of satisfaction level with respect to conversion of BBA students into MBA course.

Research Methodology

The research will be conducted in two phases:

First part will be 'exploratory research' to build upon conceptual base this will be followed by 'Descriptive Research'.

The method of study will be E-Survey Method'.

Research Design

a)   Data Collection

i)   Primary Data: Questionnaire method will be used for data collection. Mixed Questionnaire.

b)   Sampling Design:

i)   Sample Unit: MBA and Undergraduate students

ii)   Sample Size: 100

iii)   Sampling Method: Stratified Random sampling.

iv)   Sample Groups: Students

c)   Statistical Design: Appropriate parametric and nonparametric methods will be used such as Simple percentage method.

Analysis And Interpretation

1.   The motivation factors which will influence student's decision about selection of an educational institution revealed through this study are as follow:-

i)   Students wants to be treated differently in a professional course like MBA. Treating them as professional trainees will motivate them.

ii)   Personal general conduct and attire of the faculty has a moderate to great effect on motivating students.

iii)   Majority Students prefer interactive communication method to be adopted in the classroom.

iv)   Around 90% of the sample population wants assessment of students to be done on class assignments.

v)   Being a part of college committee, i.e. being recognized motivates students.

vi)   Regular conduct of workshop in college strongly inspires students.

2.   Above mentioned factor's level of satisfaction will have a direct impact on the decision making of a student to finalise a educational institution for enrollment in professional course like MBA.

Hypothesis Testing

H1- There will be a positive effect of teacher's conduct.

Q7 Does the general conduct and attire of your faculty members effect your motivational level
104 responses
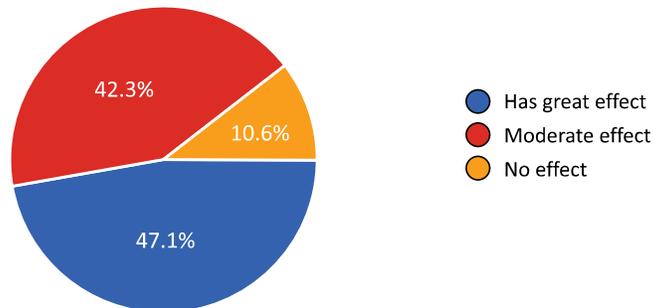
Has great effect	49
Moderate effect	44
No effect	11
Total	104

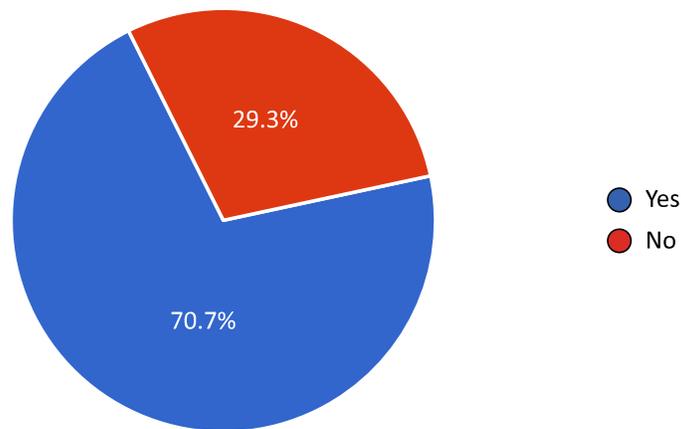**Interpretation:**

From the above graphical representation, the attire and general conduct of the faculty member has a great effect on the motivational level of 47% of the students while 42 % are moderately affected i.e., around 90 % approx. students, while 10 % of them are not affected by the general conduct and attire of the faculty.

From this its evident that majority of the students feel that the general conduct of a teacher does have a positive effect on motivation level of the students. Thus, by percentage method the **H1 hypothesis is accepted.**

H2- There will be a positive effect of satisfaction level with respect to conversion of BBA students into MBA course.

Q will the above mentioned motivation factors motivate you to join MBA course from a particular educational institution?

● Yes
● No

Yes	71
No	29
Total	100

Interpretation:

From the above data, its seen that 71% of the students responded , feels that the motivational factors discussed in the survey will motivate them to join MBA from an educational institution, while 29 % feels otherwise.

This shows that there is a positive effect of satisfaction level with respect conversion of BBA students into MBA course.

Hence H2 hypothesis is accepted

Conclusion

Choices in life are always influenced by various factors similarly when it comes to decide on higher education namely masters course in a professional field there are so many aspects which a student and their parent identify ,evaluate before deciding a professional course and the institute from where one will do the course.

This is the reason why today even the institute are so determined to find out what students are looking for so at to attract the right student for right course. This study gave an insight about the perception the students have towards the pedagogy and the teaching environment as a whole and what they desire in an institute and the kind of environment they want.

From this study it has been deducted that the institute should have a different approach while dealing with undergraduate and postgraduate students. Most of the students want to be treated as professional trainees, and should be given opportunity to be a part of college committee. They want teaching to be more analytical while ensuring the syllabus is covered in time and queries to be resolved before the next lecture is taken.

The personal conduct both in the conduct of class and attire influence them to a great extent, a formal environment and a well planned schedule of extracurricular activities like interactive industrial visits and conduct of various workshops at college level are a few more factors which will motivate a student to opt for a particular institute.

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Women's Economic Resilience Through SHGs and Institutional Frameworks in Rural Andhra Pradesh: A Bibliometric Analysis

*Monika
**Aparna Marwah

Abstract

This paper examines researches on women's empowerment through self-help groups (SHGs) through a comprehensive bibliometric analysis. The study scanned 93 English-language publications from 2007-2024 on the theme of SHGs and women's empowerment from the J-Gate database. The study highlights the importance of SHGs in rural women's empowerment, with Manikonda Rajani being the most prolific author. The study provides a comprehensive conceptual framework to illustrate the basic steps of female empowerment achieved through SHG membership. This bibliometric analysis would be helpful to researchers, practitioners, governments, and policymakers, as well as practitioners, governments, and policymakers. The study acknowledges the contributions of well-known scholars and offers a concise summary for novice scholars working in the subject of SHGs and women empowerment.

***Keywords:** Women Empowerment, Self- Help Groups, Bibliometric Analysis, Economic Resilience, Andhra Pradesh, Rural Area, SHGs.*

Introduction

Self-help groups, or SHGs, play a crucial role in empowering women, especially in rural regions, by giving them access to finance choices for expanding or starting new companies. (Tripathi V. and Badugu D. 2016) According to the report, microfinance is a highly capital-intensive sector due to a large imbalance between supply and demand. An examination of the study's secondary data indicates that microfinance is an essential tool for eradicating poverty. The participation in SHGs greatly improved the groups' capacity for decision-making. Furthermore, the participants helped other women learn enough about financial services and banking. (Herekar, P., Chavan, R., and Mahajan, S. 2016).

Self-Help Groups and Area Level Federations (AFL) help urban poor people also and become ready for work and self-employment, provide financial solutions and skill development, fight poverty, and guarantee basic amenities and economic progress (Monika & Marwah, A., 2024).

This study aims to identify newly emerging areas that enhance the effectiveness of self-help groups (SHGs). To achieve this, a bibliometric analysis was conducted. The data for this study were extracted from the J-Gate database. SHGs have been instrumental in fostering an environment of economic self-sufficiency among the rural poor, contributing significantly to economic growth and the promotion of informal sectors. By analyzing the latest trends and developments, the study sought to uncover additional areas that could further support and expand the impact of SHGs.

Literature Review

1. **Divyashree., & Dinesha, M. (2024)** examined the growth and performance of Self-Help Groups (SHGs) in southern India's states, including Undivided Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu. It reveals that Undivided Andhra Pradesh leads in SHG numbers and savings groups, but faces a significant burden of outstanding loans. Tamil Nadu has the lowest NPAs, while Karnataka and Kerala show greater variability in financial indicators.

2. **Tabassum, K. (2024)** analyzed that Microfinance in India began in the 1980s as informal self-help groups (SHGs) providing financial services to poor women and men. This

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paper aimed to study the impact of microfinance on the socio-economic status of SHG women in East Godavari district, Andhra Pradesh. The potential of microcredit goes beyond financial services, affecting social and socio-economic institutions like social norms, patriarchy, and education. Women are key actors in the microfinance system, making this distinction crucial for effective program design.

3. **Monika, & Marwah, A. (2024)** explored the positive impact of self-help groups (SHGs) on women in Indian urban slums through inclusive participation, targeted financial support, and community empowerment. The study uses qualitative methods, including focus groups and interviews, to examine perspectives on women's empowerment.

4. **Kumar, VA., & Radhika, K. (2023)** discussed the role of Self-Help Groups (SHGs) in India, highlighted regional variations and best practices. States like Andhra Pradesh and Kerala have exemplary SHG models, while Tamil Nadu's SHGs excel in micro-enterprise development. However, challenges like regional disparities, limited market access, and gender inequality persist. Strengthening market infrastructure, fostering equitable participation, and ensuring program sustainability are critical for maximizing SHG potential.

5. **Srikanth, M., & M. A., L. (2021)** explored the sustainability of Self-Help Group-Bank Linkage Programme (SHG-BLP) in India, analyzing 133 SHGs across three states. Results show that two-thirds have a medium level of sustainability, while over one-fifth have a high level. The findings have policy implications, as lower levels of Non-Performing Assets (NPAs) reflect longer sustainability.

Objectives

1. To comprehend the writers' literary canon.
2. Citations are used to determine the top 10 authors.
3. To map the phrases that are often used in the title, abstract, authors, and work.
4. To highlight the study fields, the majority of cited papers

Research Methodology

There Are Following Sub-steps:

Database, keywords, and inclusion criteria:

For the study, data was sourced from the interdisciplinary J-Gate database. Initially, over 153 publications were retrieved without applying any inclusion or exclusion criteria. Subsequently, the dataset was refined to include only those publications with "Self Help Group" or "SHGs" in the title or abstract, resulting in 93 relevant articles for the research. The following search string was used to retrieve the data: Title-abs-key ("Self Help Groups" OR "SHGs").

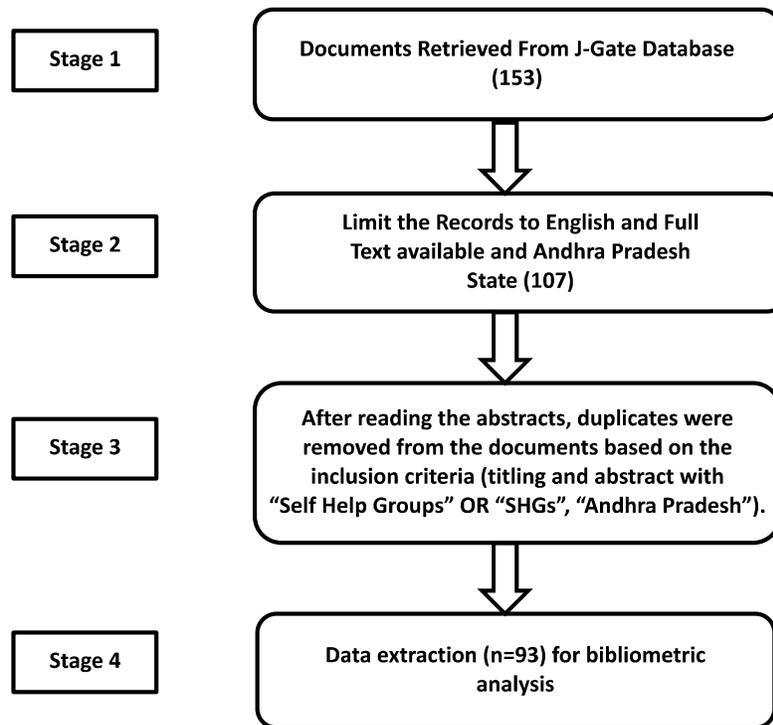**Material & Methodology**
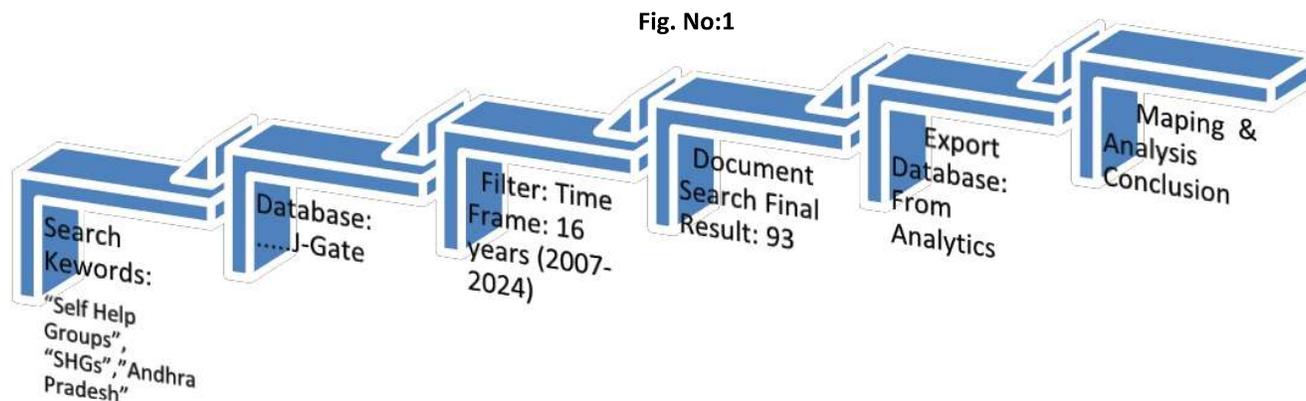
Fig. No:1

Source: Author's Own

The Fig. No:1 uses a comprehensive bibliometric analysis approach to classify and examine research articles published across various journals. The researchers collected articles from online sources, likely using database platforms like J-Gate. Reserachers employed bibliometric analysis techniques, which involve quantitative assessment of publication data, citations, and other bibliographic information. The data collection spanned a 16-year period from 2007 to 2024, providing a longitudinal perspective on the research landscape. The study analyzed a substantial dataset of 153 complete research articles, providing a comprehensive coverage of the topic.

This methodological approach likely revealed insights into thematic focus, collaboration patterns, and evolving trends within the body of research articles published across selected journals.

Diagram No.1:

Stage 1	→	**Documents Retrieved From J-Gate Database (153)**

Stage 2	→	**Limit the Records to English and Full Text available and Andhra Pradesh State (107)**

Stage 3	→	**After reading the abstracts, duplicates were removed from the documents based on the inclusion criteria (titling and abstract with "Self Help Groups" OR "SHGs", "Andhra Pradesh").**

Stage 4	→	**Data extraction (n=93) for bibliometric analysis**

The f Diagram No.1: is a visual representation of a research process, focusing on a systematic approach to document retrieval and analysis. It begins with retrieving documents from a J-Gate database, gathering relevant source material for the research. The next stage involves limiting the retrieved records to English and full-text formats, ensuring access to the complete content. The researcher then reads the abstracts of the retrieved documents to identify the most relevant ones to the research objectives. This helps narrow down the pool of documents and focus on the most pertinent sources. The final stage involves data extraction for bibliometric analysis, a quantitative method of evaluating scholarly publications and their impact. By extracting data from selected documents, the researcher can gain valuable insights and draw meaningful conclusions from the available literature. The flowchart's structure provides a clear and logical sequence of steps, guiding the researcher through the various stages of the research process, ensuring a systematic and organized approach for the success of the research project.

Bibliometric Analysis

| Author	Count 10 ▼	Filter By Author ▼
Manikonda, Rajani		3
, R Nagamani		2
Padmaja, N		2
Prabhakar, K		2
Rao, Vv		2
Reddy, P Sudhakara		2
, Asailaja		1
, Chennamaraju		1
, D Anjaneyulu		1
, D Padmavathi		1

Source: Author's Own

The Diagram No.-1, depicts a bar chart illustrating the document counts attributed to the top 10 authors, filtered by "Author." The horizontal axis represents the number of documents, while the vertical axis lists the authors, names. Each bar,s length corresponds to the document count for each author.

This image displays the distribution of publications by **author** on the J-Gate platform. **Manikonda, Rajani** is the top contributor with 3 publications, followed closely by several authors such as **R Nagamani**, **Padmaja, N**, **Prabhakar, K**, **Rao, VV**, and **Reddy, P Sudhakara**, each with 2 publications. A few others like **Asailaja**, **Chennamaraju**, **D Anjaneyulu**, and **D Padmavathi** have contributed 1 publication each. This distribution suggests a collaborative research environment with a broad spread of individual contributions, as no single author dominates the dataset. The presence of multiple authors with similar publication counts indicates a healthy level of engagement from a range of academicians, contributing to the diversity of perspectives and subjects covered in the journal database.

Overall, the chart provides a clear visualization of the distribution of document counts among the top contributing authors, highlighting the leading contributors and offering insights into the relative productivity of each author within the dataset.
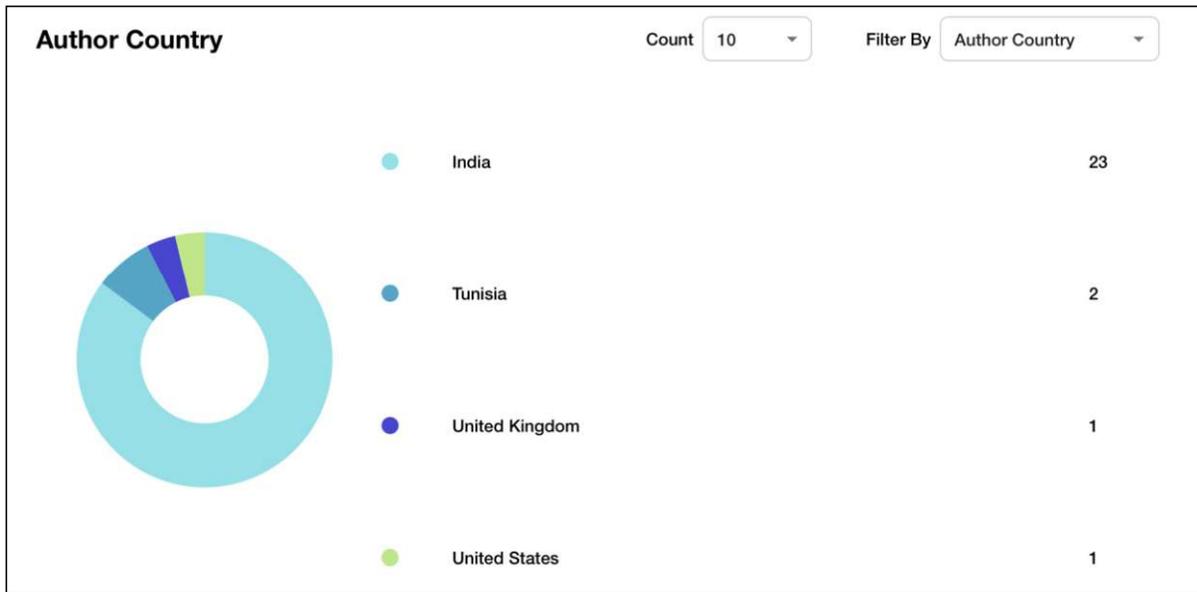
Diagram No.-2
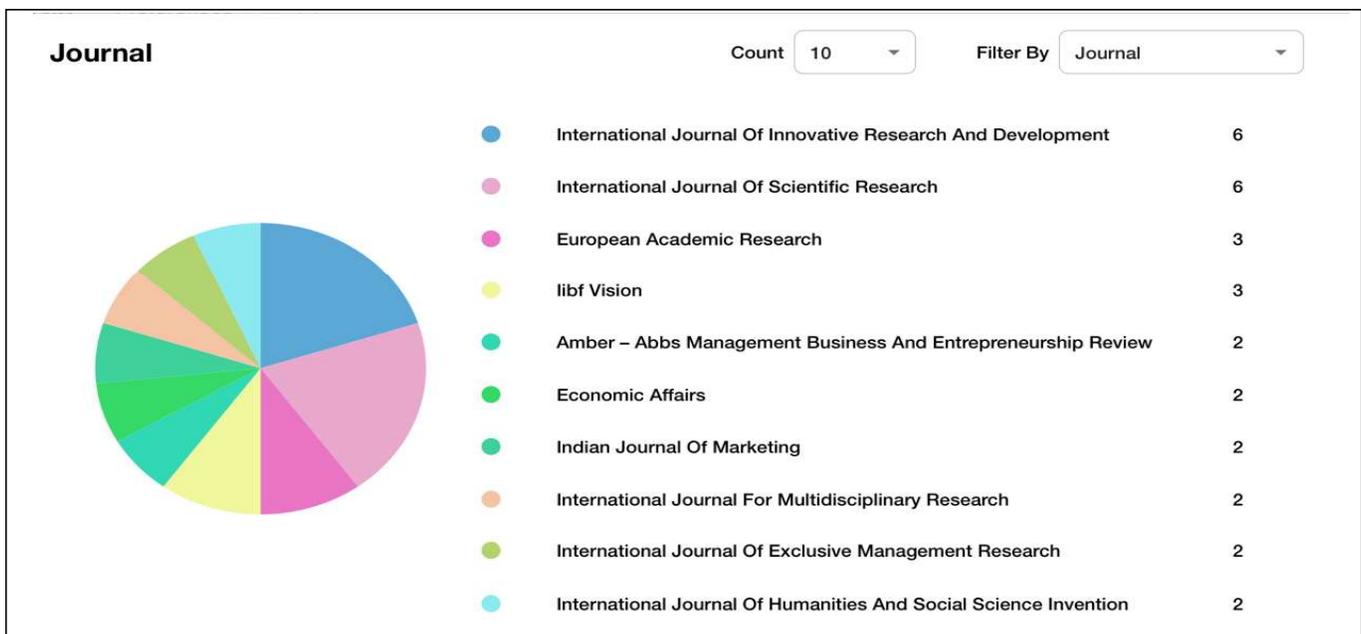
Source: Author's Own

The chart provides an overview of the distribution of research articles across various journals. It reveals that the *International Journal of Innovative Research and Development* and the *International Journal of Scientific Research* are the most frequently chosen journals, each publishing six articles. Following these are the *European Academic Research* and *IIBF Vision* journals, with three articles each. Several other journals, including *Amber – Abbs Management Business and Entrepreneurship Review*, *Economic Affairs*, *Indian Journal of Marketing*, and others, each contributed two articles. This spread indicates a moderately diverse range of publication platforms, with a slight concentration in a few preferred journals. The focus of these journals suggests that the research spans innovation, scientific inquiry, management, and multidisciplinary studies, reflecting a broad academic interest among the contributing authors.

Diagram No.-3

were extracted from the J-Gate database. SHGs have been instrumental in fostering an environment of economic self-sufficiency among the rural poor, contributing significantly to economic growth and the promotion of informal sectors. By analyzing the latest trends and developments, the study sought to uncover additional areas that could further support and expand the impact of SHGs.

Diagram No.-2

Source: Author's Own

This image displays the distribution of publications by **author** on the J-Gate platform. **Manikonda, Rajani** is the top contributor with 3 publications, followed closely by several authors such as **R Nagamani**, **Padmaja, N**, **Prabhakar, K**, **Rao, VV**, and **Reddy, P Sudhakara**, each with 2 publications. A few others like **Asailaja**, **Chennamaraju**, **D Anjaneyulu**, and **D Padmavathi** have contributed 1 publication each.This distribution suggests a collaborative research environment with a broad spread of individual contributions, as no single author dominates the dataset. The presence of multiple authors with similar publication counts indicates a healthy level of engagement from a range of academicians, contributing to the diversity of perspectives and subjects covered in the journal database.

Diagram No.-4
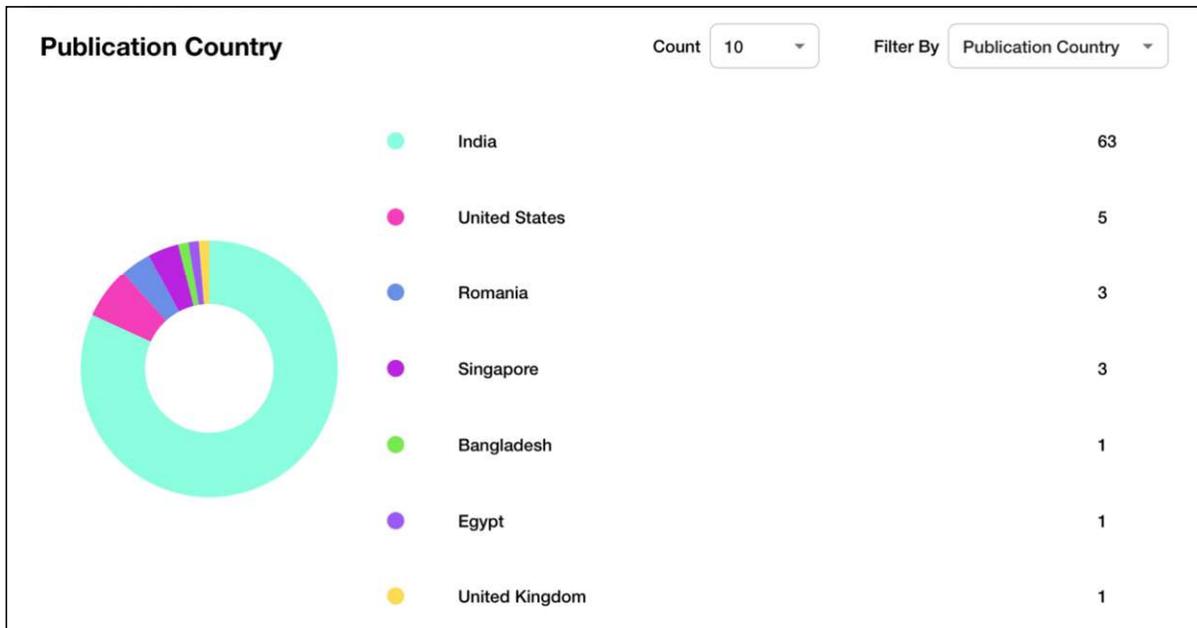
Source: Author's Own

The image shows a data visualization from J-Gate, specifically illustrating the distribution of publications by country. The chart is a donut graph, and the data indicates that India overwhelmingly leads in the number of publications, with 63 entries. This is followed by the United States with 5 publications, while Romania and Singapore each contributed 3. Bangladesh, Egypt, and the United Kingdom each have one publication, indicating a much smaller representation in this dataset.

Diagram No.-5
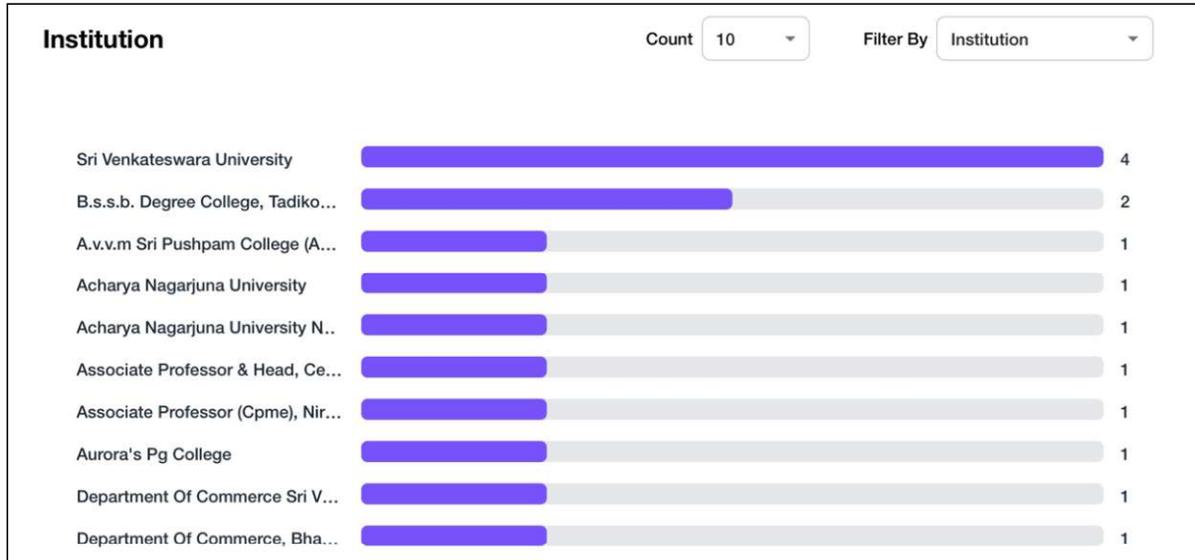
Source: Author's Own

This image from the J-Gate portal highlights the top contributing **institutions** based on publication count. **Sri Venkateswara University** leads with 4 publications, followed by **B.S.S.B. Degree College, Tadikonda** with 2 publications. The rest of the listed institutions—including **A.V.V.M. Sri Pushpam College**, **Acharya Nagarjuna University**, and various departments and individual professors from different colleges—each have contributed one publication. This distribution reflects a relatively decentralized academic contribution pattern, with many institutions contributing modestly rather than a few dominating. It emphasizes the active participation of a wide range of colleges, including individual faculty members, in scholarly publishing. This may suggest a healthy culture of research across multiple academic levels and regions.

Diagram No.-6

Source: Author's Own

This image displays a bar graph from J-Gate showing the top 10 publishers based on the number of documents published. Leading the list is **World Wide Journals** with 8 publications, followed by the **International Journal of Innovative Research and Advanced Studies** with 6 publications. Other notable publishers include **Associated Management Consultants** (4), **Bridge Center Publication**, **Indian Institute of Banking & Finance**, and **Invention Journals** (each with 3).

The distribution reveals a broad range of publishers contributing to academic content, with a mix of academic institutions and independent journal publishers. The presence of multiple publishers with similar publication counts suggests a relatively diverse set of sources for research dissemination. This data can help researchers or institutions identify popular and potentially reputable platforms for submitting their work.

Diagram No.-7
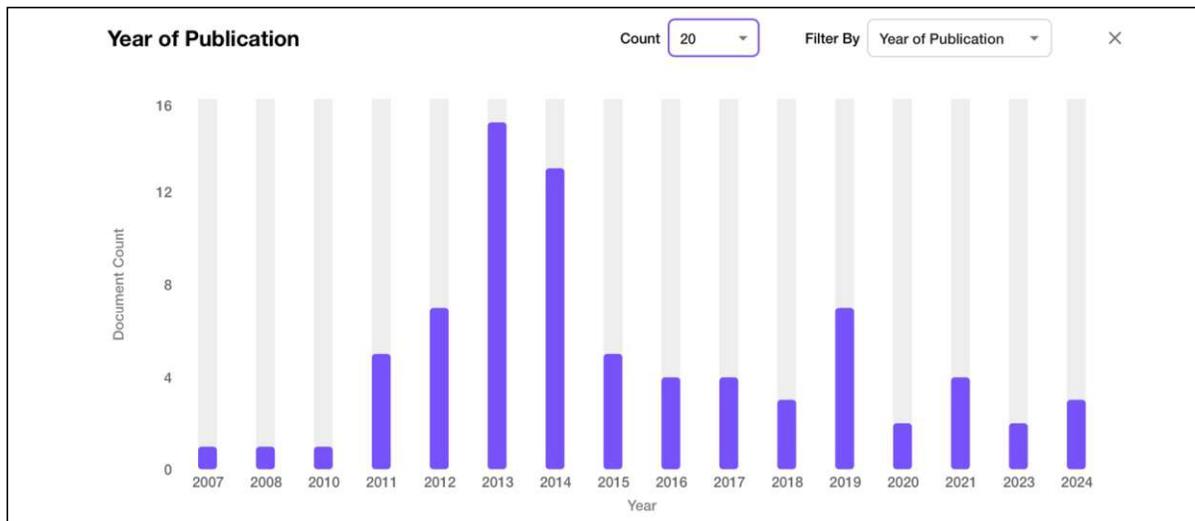
Source: Author's Own

The image is a bar chart that visualizes the number of documents published each year over a span of ten years, from 2014 to 2023. Each year is represented by a vertical bar that corresponds to the number of documents published in that year, with the height of the bar indicating the quantity. The bar graph depicting the *Year of Publication* illustrates the temporal distribution of research articles over the years. It shows a gradual rise in publications from 2007 onwards, peaking significantly in 2013 with the highest number of publications, followed closely by 2014. This surge indicates a period of high research activity. After 2014, there is a noticeable decline in output, with relatively moderate and fluctuating numbers in the following years. Another small spike is seen in 2019. In recent years (2020 to 2024), the publication count has remained low, suggesting either a reduction in research submissions or possibly a data gap in recent contributions. Overall, the data suggests that the most productive phase for publications was between 2012 and 2014.

Diagram No.-8
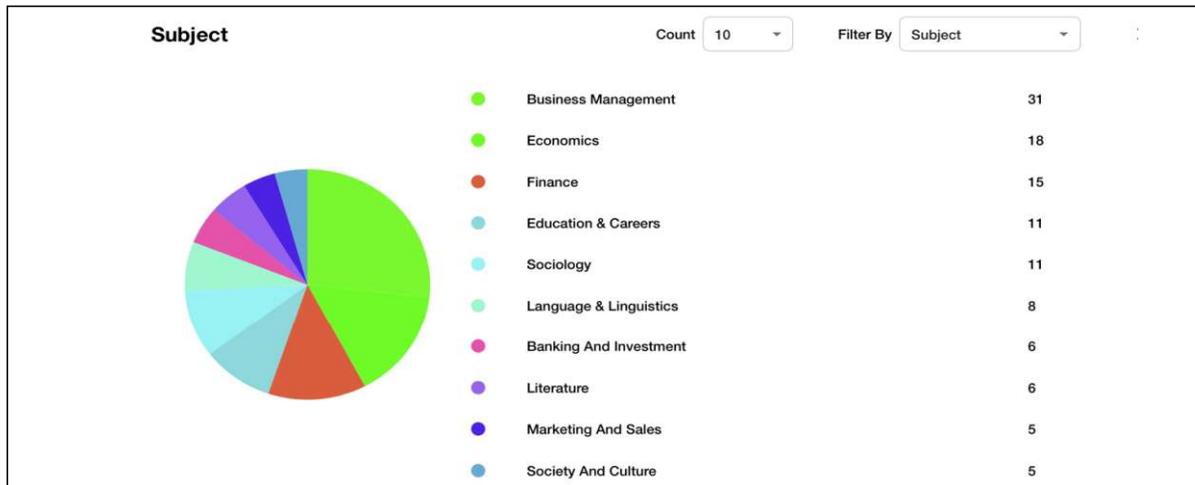
Source: Author's Own

The pie chart displaying the *Subject* distribution of articles indicates that **Business Management** dominates the field with **31 publications**, making it the most extensively explored area among the available data. It is followed by **Economics** with **18 publications**, and **Finance** with **15**, both representing significant research interest. Other subjects such as **Education & Careers** and **Sociology** each have **11 publications**, showing moderate engagement. Fields like **Language & Linguistics** (8), **Banking and Investment** (6), **Literature** (6), **Marketing and Sales** (5), and **Society and Culture** (5) have fewer contributions, indicating either niche interest or emerging areas of study. Overall, the chart reveals a strong emphasis on management and economic disciplines, aligning with the institutional focus on business and technology education.

This pie chart is an effective visual tool to quickly grasp the quantity and relative proportions of documents associated with each subject. The color coding and direct annotation of document counts streamline the process of comparing subjects based on their academic publication output.

Conclusion

1. Author Country (Donut Chart): The distribution of document counts by authors and nations is displayed in this chart. India has a significant lead in this area, followed by the US and several other nations with far lower contributions. This implies that Indian writers may have contributed significantly to or been the focus of the dataset.

2. Publication Country (Donut Chart): This visualization, like the preceding one, focuses on the nations in which the papers were released. With most publications, India is once again in the lead, followed by the US and other nations. The two charts' comparable trends can suggest a close relationship between the nations of writers and publishing houses.

3. Institution (Bar Chart): This bar graph shows how many documents are connected to various educational establishments. On the chart, Pondicherry University is at the top, followed by a few others. The close figures imply that these institutions' document output is distributed quite evenly.

4. Subject (Pie Chart): This figure groups the number of documents by academic subject. By a wide amount, business management is the most popular field, followed by finance and economics. This implies that, in the context of the dataset, these topics are the most studied or published.

5. Journal (Pie Chart): This graphic divides journals according to the number of documents they include. The fact that "Microfinance Review" has the largest proportion suggests that it may be a significant scholarly venue for this data collection.

These figures, taken as a whole, give a thorough view of academic publishing patterns and emphasize how numerous Indian institutions, authors, and publishers are in this dataset. Common topics include business management and economics, and several publications are particularly notable for their significant contributions. Continuous scholarly interest and effort in the depicted fields is suggested by the constancy of document output throughout time.

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NOTES

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