TKM
INTERNATIONAL
JOURNAL
FOR RESEARCH
IN MANAGEMENT

TKM
Since 1956

TiM
Since 1995

**TKM INSTITUTE
OF MANAGEMENT**

The Legacy of TKM College Trust

The TKM College Trust was founded by Janab A.Thangal Kunju Musaliar, a successful industrialist, philanthropist and businessman. Born in a middle class family on 12th January 1897 at his ancestral home in Kollam. Janab Thangal Kunju Musaliar built up a vast business empire which dominated the cashew export trade in the 1940s and 50s. As a man of extra ordinary vision, he foresaw the tremendous importance of education and this led to the establishment of the TKM College Trust in the year 1956. T.K.M. College of Engineering, the first private Engineering College in Kerala, was set up by the Trust in 1958 followed by the T.K.M. College of Arts and Science in the year 1965. Janab Musaliar passed away on 19th February 1966 after an illustrious career that paved the way for advancement of professional education in Kerala.

True to the vision of its founder, the TKM College Trust has, over the years, added several other educational institutions to its fold - The TKM Institute of Management in 1995, The T.K.M. School of Communication & Information Technology in 1996, the T.K.M. Centenary Public School in 1997, the T.K.M. High School and T.K.M. Higher Secondary School in 2000, the T.K.M. Institute of Technology in 2002 and the T.K.M. School of Architecture in 2014.

Today, the dream of the late Janab A. Thangal Kunju Muslaiar of uplifting society through education has to a large extent been fulfilled. His life exemplifies greatness in its true sense. Several of his initiatives, innovations and achievements are standing monuments in the changing national and global scenario. No wonder that the Government of India has thought it fit to issue a commemorative stamp in recognition of the services of this great man in 2001.

CONTENTS

From the Desk of Chief Editor

¹Jb. T.K. Shahal Hassan Musaliar
¹Hon.President, TKM College Trust

I am delighted to note that TKM Institute of Management is coming out with the 10th Volume, Issue 2 of the TKM International Journal for Research in Management.

I am grateful to our readers and thank our contributors for an overwhelming response to the call for papers. I would like to congratulate the authors for sharing their research insight by contributing their research articles to our Journal. The present issue of the Journal comprises of thirteen research papers from academicians, research scholars and students from various Institutions, covering multidisciplinary topics in Management Science.

As we navigate through the ever-evolving landscape of business and technology, it becomes increasingly evident that our success hinges on our ability to adapt and capitalize on new trends in the business world.

I hope that the insights and recommendations presented in this issue of the Journal will stimulate further research and contribute to a deeper understanding of organizational dynamics and technological disruptions affecting consumer decisions.

I congratulate the entire editorial board for their efforts to attract, review, and publish articles in TKM International Journal for Research in Management.

ZENITH AGROTECH'S DISRUPTIVE WATER CRISIS: FINANCING AI SOLUTIONS FOR SUSTAINABLE IRRIGATION

**[1]Aiwin Philipose,[2]Aney N.Varghese,
[3]Milan K.Sonagra & [4]Sneha M.Parab**
[1,2,3&4]Student XIME, Kochi
Email: aiwin11koc@xime.org

ABSTRACT

Disruptive innovations often bring unintended consequences, necessitating strategic financial decisions to mitigate risks. Effective financial decision-making is crucial for ensuring business sustainability, particularly in balancing debt and equity financing. This decision directly influences ownership structure, financial risk, and expansion potential. Corporate finance revolves around three key decisions: investment, financing, and dividend decisions, with capital structure falling under financing decisions. The net income theory of capital structure states that the optimal capital structure is achieved when the cost of capital is minimized, and the firm's market value is maximized (Horne, 1977; Weston & Brigham, 1978). According to Modigliani & Miller (1958), under the assumption of a perfect market, a firm's capital structure does not impact its cost of capital. However, in real-world scenarios, this assumption does not hold. Subsequent research suggests varying perspectives, with some theories indicating an indirect effect of capital structure on cost of capital (Myers & Majluf, 1984), while others argue for a direct relationship (Frank & Goyal, 2009). Zenith AgroTech, a pioneering agritech startup specializing in AI-powered precision farming, faces a critical financing dilemma. The case study explores the financial implications of pure debt financing versus pure equity financing while also considering the theoretical capital structure. Each option carries distinct advantages and risks concerning cost of capital, ownership dilution, and financial stability. By analyzing these strategies, this study provides insights into the most viable financing model, helps in assessing the funding decision for Zenith AgroTech's growth and long-term sustainability.

***Keywords:** Capital Structure Evaluation, Optimum Debt to Equity Ratio, Ownership Dilution, Weighted Average Cost of Capital, Net Income Theory, Loan Amortization Table*

I.INTRODUCTION

Founded in 2011 in Gujarat, India, Zenith AgroTech is a pioneering agritech company integrating AI-driven solutions to optimize farming productivity. Its technological suite includes precision soil monitoring, automated irrigation, predictive analytics for pest control, and high-yield crop recommendation systems. Zenith AgroTech has established a strong presence in the Indian agritech sector, holding

approximately 8% of the market share. The company differentiates itself through proprietary AI algorithms that enhance real-time decision-making for farmers. After years of steady growth and innovation, Zenith AgroTech went public in 2019, further strengthening its market position and expanding its reach.

Despite its success, Zenith AgroTech is now facing a major challenge due to its automated irrigation systems, which optimize for maximum crop yield but overlook water conservation. This has resulted in excessive groundwater usage, drawing government scrutiny and dissatisfaction among farmers. Recognizing the need for a sustainable solution, the CEO proposes a transformative initiative—autonomous irrigation equipment equipped with AI-driven real-time water conservation techniques. This innovation aims to strike a balance between high agricultural productivity and responsible water usage, addressing both regulatory concerns and farmer grievances. However, implementing this advanced technology requires a substantial capital investment of [1] 1000 crores. The management is now confronted with a crucial decision on how to finance this expansion. Each financing option brings distinct financial and operational implications that must be carefully evaluated.

1. Current Financial Position

Zenith AgroTech has maintained a stable financial performance over the past few years, demonstrating consistent growth with a revenue of [1] 640 crores in 2024 and a projected annual growth rate of 13%, reflecting strong market demand and adoption of its technology. The company's EBITDA and net profit stand at [1] 390 crores and [1] 269 crores, respectively, with a projected steady 8% annual growth in net profit over the next decade. Zenith AgroTech's market value of equity is [1] 2,675 crores, with 19 crore outstanding shares, reinforcing investor confidence. Additionally, the company has existing total debt obligations of [1] 914 crores at a 12% annual interest rate, which needs to be settled within 8 years through equated instalments. Accumulated retained earnings are reported at [1] 1567 crores. The company's balance sheet values for the past five years are presented in Exhibit 1.

As the company recognizes that self-funding such a large innovation would be impractical and could limit its ability to maintain a competitive edge, the management is exploring external financing options to fuel expansion without jeopardizing the company's financial health. It aims to maintain an optimal balance between financial leverage and ownership control while ensuring long-term sustainability.

2. Financial Dilemma

Zenith AgroTech must determine the best approach to securing [1] 1000 crores in funding, considering two primary options: debt or equity. Currently, the company does not have enough cash flow to start the new initiative. Possibility of internal sourcing can be analysed from the exhibit 1, Balance sheet, if required.

The management is open to raising funds through debt, provided that the debt-to-equity ratio does not exceed **1**. On the other hand, the founders strongly prefer to limit ownership dilution, ensuring that total equity dilution remains below 25% post-money equity valuation. If the dilution remains within this limit, both the existing founders and other shareholders will share the dilution equally.

Beyond financial considerations, the company must evaluate the broader impact of its financing decision. Striking the right balance is essential to securing the necessary funds while sustaining the company's growth in an increasingly competitive industry.

II.OPTION 1: DEBT FINANCING

Under this option, Zenith AgroTech would raise the full ₹ 1000 crores through a loan at an 11% annual interest rate, structured over a 10-year tenure with equated annual instalments.

III.OPTION 2: EQUITY FINANCING

If Zenith AgroTech chooses to raise funds through equity, the existing shareholders would equally share the ownership dilution, but only if the total equity dilution remains below 25% post-money equity valuation. The investment would be secured at a post-money valuation of ₹ 3675 crores. This would result in new investors acquiring a stake, likely influencing strategic decision-making and governance.

IV.CONCLUSION

Each financing option presents different implications for the company's financial structure, operational flexibility, and long-term growth trajectory. Management must evaluate key financial metrics such as the debt-to-equity ratio and shareholder structure while aligning the financing decision with the company's growth objectives. To make an informed choice, the company can prepare a loan amortization table to analyze repayment schedules, interest costs, and cash flow impact, ensuring the selected option supports long-term financial stability. The ultimate choice will depend on how Zenith AgroTech prioritizes financial stability, ownership control, and operational flexibility.

Questions:

1) What will be the Debt-to-equity ratio for the next seven years if the company adopts debt financing?

2) Is it feasible for Zenith AgroTech to rely solely on debt financing? What are the potential risks and benefits?

3) Is it possible for Zenith AgroTech to rely solely on equity financing, provided the criteria is given? What are the potential risks and benefits?

4) Does the company's decision of keeping the debt-to-equity ratio within 1 align with the optimal capital structure based on Net Income Theory? The 10-year treasury bond yield is 7.20%, with a risk premium of 7%. As per Exhibit 2, sourced from Aswath Damodaran's dataset on small-cap and high-risk companies, the relevant credit spread must be taken into account. Additionally, Zenith AgroTech's unlevered beta, which reflects its business risk, is 1.5, and the company's tax rate is 25%.

Exhibit 1 : Balance Sheet (Amt in crore)

Year	2020	2021	2022	2023	2024
Liabilities & Equity:					
Equity					
Common Equity	20	20	20	20	20
Retained Earnings	689	869	1,068	1,298	1,567
Total Equity	**709**	**889**	**1088**	**1318**	**1587**
Accounts Payable	501	579	678	784	917
Long-term Debt	1164	1134	1079	1009	914
Other liabilities	650	707	775	765	790
Total Liabilities	2,315	2,420	2,532	2,558	2,621
Total Liabilities & Equity	**3,024**	**3,309**	**3,620**	**3,876**	**4,208**
Assets:					
Cash & Cash Equivalents	281	299	315	327	358
Accounts Receivable	588	677	782	893	1019
Inventory	687	786	898	1020	1161.6
Property, Plant & Equipment	1011	1279	1368	1463	1560.6
Intangible Assets (Patents, R&D)	290	144	127	82	66
Other Assets	167	124	130	91	44
Total Assets	**3,024**	**3,309**	**3,620**	**3,876**	**4,208**

Exhibit 2: For Smaller and Riskier Firms

| If interest coverage ratio is | | | |
Greater than	≤ to	Rating is	Spread is
-100000	0.499999	D2/D	20.00%
0.5	0.799999	C2/C	17.00%
0.8	1.249999	Ca2/CC	11.78%
1.25	1.499999	Caa/CCC	8.51%
1.5	1.999999	B3/B-	5.24%
2	2.499999	B2/B	3.61%
2.5	2.999999	B1/B+	3.14%
3	3.499999	Ba2/BB	2.21%
3.5	3.9999999	Ba1/BB+	1.74%
4	4.499999	Baa2/BBB	1.47%
4.5	5.999999	A3/A-	1.21%
6	7.499999	A2/A	1.07%
7.5	9.499999	A1/A+	0.92%
9.5	12.499999	Aa2/AA	0.70%
12.5	100000	Aaa/AAA	0.59%

REFERENCES

Valaskova, K., Lazaroiu, G., Olah, J., Siekelova, A., & Lancova, B. (2019). How capital structure affects business valuation: A case study of Slovakia. Central European Business Review, 8(3). DOI:10.18267/j.cebr.218

Berglund, J., & Parsonage, M. (2017). The decision of debt or equity financing (Master's thesis, Lund University School of Economics and Management).

Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. Journal of Financial Economics, 79(3), 469-506. https://doi.org/10.1016/j.jfineco.2005.03.004

Clork, M. W. (1993). Entity theory, modern capital structure theory, and the distinction between debt and equity. Accounting Horizons, 7(3), 14-31.

Baker, M., & Wurgler, J. (2002). Market timing and capital structure. The Journal of Finance, 57(1), 1-32. https://doi.org/10.1111/1540-6261.00414

Nunkoo, P. K., & Boateng, A. (2010). The empirical determinants of target capital structure and adjustment to long-run target: Evidence from Canadian firms. Applied Economics Letters, 17(10), 983-990. https://doi.org/10.1080/17446540802599671

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. The Journal of Finance, 28(4), 911-922. https://doi.org/10.1111/j.1540-6261.1973.tb01415.x

NAVIGATING CONVENIENCE AND EXPECTATIONS: A CASE STUDY ON ONLINE GROCERY APPS AT XIME REVOLUTIONIZING QUICK COMMERCE: STUDENT-CENTRIC INSIGHTS

[1]Meduri Naga Sai Gopinath, [2]Harshasree Badithala, [3]Dr. Ranjana Mary Varghese
[1&2]Student, XIME, Kochi
[3]Dean, External Affairs, XIME, Kochi
Email:harshasree11koc@xime.org

ABSTRACT

The rapid growth of online grocery delivery platforms, such as Instamart, Blinkit, Zepto, and Big Basket, has transformed how students manage their daily lives, especially in residential campuses like those of XIME in Bangalore, Kochi, and Chennai. These platforms offer convenience and speed, catering to the tech-savvy, time-constrained student population aged 20–25. However, despite their widespread adoption, these platforms face significant challenges in meeting user expectations, particularly in terms of delivery speed, product variety, and customer support. This case study delves into the usage patterns, preferences, and pain points of students, providing a comprehensive analysis of the service gaps and their impact on user satisfaction. Regression analysis highlights delivery speed as the top priority in Chennai, product variety in Bangalore, and affordability-reliability balance in Kochi. Insights from case discussions and interviews further inform regional preferences and improvement strategies.

Keywords: *Online Grocery, Delivery Delays, Quick Commerce, Service Quality, Delivery Speed, Product Variety*

I.A STUDY ON USAGE PATTERNS, APP PREFERENCES, AND SERVICE GAPS AMONG STUDENTS

It was a typical Monday afternoon at XIME's fully residential campus in Bangalore. The HR Club had organized a case discussion on the growing role of online grocery platforms like Instamart, Blinkit, Zepto, and BigBasket in students' lives. Prof. Jessica , a key facilitator invited the students for the discussion , began the session with a question that piqued everyone's interest.Some noted students John, Ria , Smitha, Priya , Raj had been the highlights of the discussion jumping in as soon as the discussion began.

Prof. Jessica: "Imagine you're on campus during exam week, and you're relying on an app to deliver groceries. The clock's ticking, and the delivery gets delayed. How would you feel? Let's hear from you, John ."

John: "Frustrated, ma'am! With back-to-back exams, waiting for groceries adds unnecessary stress. It's happened to me, especially with Blinkit during rush hours."

Prof. Jessica: " Fair point. Delivery speed is

critical. Now, let's look at another dimension - product variety. Ria, what's your experience? "

Ria: "Ma'am, I'm a health-conscious eater. Finding organic produce or specialty items on these platforms is tough. That's why I sometimes prefer Big Basket over others."

Prof. Jessica: "Interesting! So, we have delivery speed and product variety. Let's add one more customer support. Priya, what's your take?"

Priya : "I once received the wrong order and faced delays resolving it. Zepto's customer service in Chennai was disappointing."

Prof. Jessica: "These are real issues that students across XIME campuses have shared in a recent survey. Let me present the data so that we can dig deeper."

II. THE DATA AND THE DISCUSSION

Prof. Jessica dived deep into the case by analyzing the details presented in the case:

Delivery Delays: 40% of students reported dissatisfaction during peak times, especially during exams.

Product Variety: 17% demanded niche items like organic products due to health consciousness.

Customer Support Issues: Incorrect orders and billing errors were common complaints.

She continued, " The survey also revealed regional preferences: Instamart leads in Bangalore and Kochi, while Zepto dominates in Chennai. Each platform has strengths, but also challenges like delivery speed, variety, and support affect overall satisfaction. Now, let's brainstorm solutions."

1.Collaborative Problem-Solving

Prof. Jessica: " To start, how can platforms address delivery delays? Smitha? "

Smitha : Ma'am "AI-powered logistics! Optimizing routes and offering premium express delivery options could reduce delays .It will enhance customer satisfaction as well."

Prof. Jessica: " Excellent. Now, about product variety. What can be done? Priya? "

Priya : Ma'am "Partnering with local suppliers for fresh and specialty items. It's a win-win situation for delivery platforms and students ."

Prof. Jessica: "Great. And customer support? Raj? "

Raj : Ma'am "Introducing 24/7 AI chatbots and clear escalation channels would make issue resolution faster and more reliable."

The growing dependence on online grocery delivery services has transformed how students manage their daily lives, especially in residential settings like XIME's campuses in Bangalore, Kochi, and Chennai. With the student population ranging from ages 20 to 25, the demand for efficient, reliable, and convenient grocery delivery options is higher than ever. This age group, known for its tech-savviness and preference for seamless digital experiences, increasingly favors platforms such as Instamart, Blinkit, Zepto, and BigBasket for their grocery needs. However, despite their widespread use, these platforms face challenges in meeting user expectations across three critical dimensions: delivery speed, product variety, and customer support.

The importance of these services goes beyond convenience; they play a pivotal role

in helping students balance academic responsibilities, social engagements, and personal care. Delays, limited product choices, and inadequate customer support not only disrupt daily routines but also impact student satisfaction and trust in these services. This case study seeks to address these issues by providing a comprehensive analysis of usage patterns and feedback collected from over 300 students across XIME's campuses.

By leveraging data analysis and regression models, this research aims to identify key service gaps and propose actionable solutions tailored to enhance user experience and platform loyalty.

Understanding the nuances of student preferences and pain points is crucial for service providers aiming to capture and retain this demographic. The findings and recommendations from this study can serve as a blueprint for online grocery platforms to refine their operations, optimize delivery logistics, expand product offerings, and elevate customer service, ultimately positioning themselves as leaders in the competitive quick-commerce market. The broader implications highlight the importance of customer-centric strategies in fostering trust and sustained growth within this burgeoning industry.

1. What strategies can be implemented to expand product variety, including niche market and specialty items, to improve customer satisfaction?

2. What measures can be taken to strengthen customer support and ensure prompt issue resolution to maintain trust and loyalty among users?

2. Background

Zomato: Zomato, a leading player in India's food delivery market, has significantly expanded into quick commerce through its ownership of Blinkit. As of 2024, Zomato is valued at $13 billion, reflecting robust growth from $8 billion in 2023. The company focuses on rapid, 10- minute delivery of essential goods through its Blinkit segment, managing over 1.25 lakh daily orders. This service is available in major urban centers in Karnataka, Tamil Nadu, and Kerala, meeting high consumer demand for instant delivery services. Zomato benefits from its established user base and brand trust, aiding in its expansion and customer acquisition. The company anticipates reaching EBITDA-level profitability by June 2025, demonstrating progress towards operational efficiency.

Swiggy: Swiggy, valued at $15 billion, is a major competitor in the online delivery industry. For FY24, the company reported revenue of [1] 11,247 crore, marking a 36% increase from FY23. Despite this, Swiggy reported a loss of [1] 2,350 crore for the fiscal year. Its Instamart segment, focusing on quick grocery delivery, contributed [1] 1,100 crore to the revenue in FY24. Swiggy operates extensively across Karnataka, Tamil Nadu, and Kerala, serving urban and suburban areas. The company also offers Swiggy One, a premium service that provides benefits such as free deliveries. Swiggy plans further growth through strategic partnerships and improvements in its food delivery and quick commerce services.

Zepto: Zepto has rapidly emerged as a strong contender in the online grocery market, attaining a valuation of $5 billion after a $340 million funding round led by General Catalyst.

In FY23, Zepto reported revenue of ₹ 2,024 crore, showing a 14-fold increase. The company uses a dark store model to achieve 10-minute delivery, enhancing service speed and market reach. Zepto is expanding its presence, notably in Bangalore, and plans to increase its network of delivery hubs. By mid-2024, 75% of its stores were reported as profitable, indicating progress toward sustainable operations. Zepto competes with other major players such as Blinkit and Swiggy.

Blinkit: Blinkit, under Zomato's ownership, has solidified its position in India's quick commerce market with a valuation of $13 billion in 2024. The company reported revenue of ₹ 2,301 crore in FY24, representing a 169% increase in gross order value. Blinkit operates in key markets across Karnataka, Tamil Nadu, and Kerala, with a strong presence in cities like Kochi and Chennai. Its focus on 10-minute delivery caters to high-demand urban areas, handling over 1.25 lakh daily orders. Blinkit is expected to reach EBITDA-level profitability by mid-2025. The integration with Zomato enables Blinkit to leverage a larger user base and expand its market share efficiently.

Exhibit 1: Zomato

Category	Metric	Details
Company Valuation	Valuation	Estimated at $13 billion as of 2024, an increase from $8 billion in 2023.
Revenue	Adjusted Revenue	Significant growth with a 32% projected revenue CAGR for Zomato (Blinkit's owner) by 2027.
Presence in Karnataka	Operations	Extensive urban-focused operations, with coverage in major cities, including areas in Karnataka.
Presence in Tamil Nadu	Operations	Active in key urban centers such as Chennai, leveraging a strong customer base for quick commerce services.
Presence in Kerala	Operations	Present in major cities like Kochi and Thiruvananthapuram, expanding its services to meet local demand for instant delivery of essentials.
Market Share	Quick Commerce Share	Commands nearly 40% of India's quick-commerce GMV, surpassing competitors like Instamart and Zepto.
Quick Commerce	Focus	Specializes in 10-minute delivery of over 5,000 essential items, handling 1.25 lakh orders daily.
Profitability	EBITDA-level Profitability	Projected to achieve EBITDA profitability by June 2025.
Subscription Services	Synergy with Zomato	Benefits from Zomato's user base and brand trust, leveraging synergies for growth.
Future Plans	Aggressive Expansion	Plans to expand further across urban areas and refine its quick-commerce strategy, maintaining its focus on essentials and rapid delivery.

Exhibit 2: Swiggy

Category	Metric	Details
Company Valuation	Valuation	Swiggy is estimated to be valued at $15 billion as it prepares for its IPO, a significant valuation but lower than Zomato's.
Revenue	FY24 Revenue	Swiggy reported annual revenue of ₹11,247 crore in FY24, a 36% increase from FY23.
Presence in Karnataka	Service Availability	Operates extensively across Karnataka, catering to various urban and suburban areas.
Presence in Tamil Nadu	Service Availability	Has strong operations in major cities like Chennai, serving a wide customer base.
Presence in Kerala	Service Availability	Active in urban centers like Kochi and Thiruvananthapuram, with growing market reach.
Market Share	Market Position	Swiggy, while competitive, trails behind Zomato in terms of market share and profitability.
Quick Commerce	Instamart	Generated ₹1,100 crore in FY24, with significant year- on-year growth.
Profitability	Financial Status	Swiggy reported a loss of ₹2,350 crore in FY24, despite revenue growth.
Subscription Services	Swiggy One	Offers Swiggy One for premium services including free deliveries and exclusive benefits.
Future Plans	Expansion and Investment	Aiming for further growth through enhanced food delivery, expansion in quick commerce, and strategic partnerships.

Exhibit-3 Blinkit

Category	Metric	Details
Company Valuation	Valuation	Estimated at $13 billion as of 2024, with significant growth since its $8 billion valuation in 2023.
Revenue	FY24 Revenue	Adjusted revenue of ₹2,301 crore in FY24, representing a 169% increase in gross order value.
Presence in Karnataka	Service Availability	Well-established operations in major urban areas of Karnataka, catering to high demand for quick services.
Presence in Tamil Nadu	Service Availability	Active in urban markets like Chennai, with robust demand for essential delivery services.
Presence in Kerala	Service Availability	Present in cities including Kochi and Thiruvananthapuram, expanding its reach for on-demand deliveries.
Market Share	Quick Commerce Position	Holds nearly 40% of the market in India's quick commerce sector, competing closely with Swiggy and others.
Quick Commerce	Operations Growth	Specializes in 10-minute delivery for a variety of items, handling over 1.25 lakh daily orders.
Profitability	Profit Projections	Expected to achieve EBITDA-level profitability by June 2025, signaling operational efficiency.
Subscription Services	Integration with Zomato	Benefits from synergies with Zomato, using a shared user base for growth and user acquisition.
Future Plans	Strategic Expansion	Plans to broaden its service network and enhance delivery models to capture a larger share of the market.

Exhibit 4: Zepto

Category	Metric	Details
Company Valuation	Valuation	Valuation surged to $5 billion after a $340 million funding round led by General Catalyst.
Revenue	Annual Revenue	Reported ₹2,024 crore for FY23, showing a 14-fold increase.
Presence in Karnataka	Regional Presence	Expanding operations and plans to move the majority of its base to Bangalore.
Presence in Tamil Nadu	Regional Presence	Active in Chennai and other key urban centers, enhancing delivery networks to support local demand.
Presence in Kerala	Regional Presence	Active in expanding delivery hubs to increase market reach.
Market Share	Competition	Competes with Blinkit, Swiggy, and BigBasket in the grocery delivery market.
Quick Commerce	Operations	Utilizes dark stores to achieve 10-minute delivery services.
Profitability	EBITDA Status	Almost reached EBITDA-level profitability, with 75% of stores profitable as of mid- 2024.
Subscription Services	Service Offerings	Plans to enhance offerings and expand infrastructure with additional dark stores.
Future Plans	Expansion Strategy	Aiming to double its dark store network to700 by March 2025, targeting new metro cities.

III.OBSERVATIONS

The study of grocery delivery app usage among students across the three XIME campuses (Kochi, Bangalore, Chennai) reveals diverse preferences shaped by convenience, speed, and affordability. Instamart emerges as the most preferred app overall, especially in Kochi and Chennai, where its fast delivery and user-friendly experience are highly rated. Blinkit follows closely, popular among students for its reliability and variety, particularly in Bangalore. Zepto and BigBasket, while less favored, maintain significant traction due to niche advantages like ultra-fast deliveries (Zepto) and broader product availability (BigBasket).

Usage frequency trends highlight a mix of weekly and monthly orders, driven by students' lifestyle and financial planning. Across all campuses, students value apps that offer swift delivery, reasonable pricing, and

frequent discounts. While delivery speed is a dominant driver, additional factors such as app usability and customer service play pivotal roles. Students consistently suggest improvements like expanding product ranges, enhancing payment options, and ensuring consistent availability of time slots to better meet their needs.

The product categories most ordered - snacks, fruits and vegetables, dairy, and cleaning essentials - underscore the convenience these apps bring to daily routines. Ratings across campuses show high satisfaction with Instamart and Blinkit, with room for improvement in BigBasket's user experience and reliability. The data reflects an adaptive and competitive market where apps need to innovate continually to capture and retain a cost- conscious yet quality - demanding student demographic.

IV.CAMPUS INSIGHTS

Kochi Campus students exhibit a strong preference for Instamart, appreciated for its fast delivery and seamless user experience. Many students prioritize affordability and frequently use BigBasket, leveraging its price sensitivity for bulk purchases. Ratings for Instamart consistently range between 7–9, reflecting high satisfaction, while BigBasket garners mixed reviews, highlighting potential areas for improvement in delivery consistency and customer support. Most students in Kochi order fresh produce and daily essentials, aligning with their reliance on quick and economical solutions.

At the Bangalore Campus, the competitive edge of Zepto and Blinkit stands out, with students valuing their variety of products and ultra-fast deliveries. Zepto's high ratings (8– 10) indicate strong loyalty in this

market, supported by its ability to meet the fast-paced lifestyle of students. Blinkit also secures a solid position, balancing speed with product diversity. The students' feedback emphasizes a need for wider product ranges and flexible payment options, signaling opportunities for apps to further tailor their offerings to this tech-savvy and demanding user base.

In Chennai Campus, preferences are more balanced, with Instamart and Blinkit leading the market. Blinkit achieves notably high ratings (8–10) due to its reliability and focus on user satisfaction. Instamart remains competitive, though suggestions for enhanced availability of time slots and more frequent discounts highlight areas for growth. Chennai students show significant interest in user-friendly interfaces and the ability to customize delivery times, reflecting their expectation for flexible and personalized services.

V.Survey Highlights

1. Demographics

Male users: 60-68% (highest in Kochi).

Female users: 32-40% (highest in Bangalore).

2.Usage Patterns

Daily: 24-28% (highest in Chennai).

Weekly: 47-53% (dominant in Bangalore and Kochi).

Monthly: ~10%.

Rarely: ~5%.

3.Preferred Apps

Instamart: Leads in Bangalore (42%) and Kochi (34%).

Zepto: Dominates in Chennai (48%).

BigBasket: Consistently used for product variety.

4. Key Concerns

· Delivery Delays: 40% reported dissatisfaction during exams/projects.

· Product Variety: 17% dema'amed organic and specialty items.

· Payment Options: 6% called for more flexible payment methods.

VI. REGRESSION MODEL INSIGHTS

A regression model analyzing survey data indicated:

Regression Model Equation

For each campus, the regression equation can be defined as:

$Y = b_n + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + e$ Where:

Y is the overall satisfaction rating or preference score for each app.

X1 represents the impact of Delivery Speed.

X2 represents the impact of Product Variety.

X3 represents the impact of Customer Support Quality.

X4 represents the impact of User Frequency.

$\beta 0$ is the intercept.

$\beta 1, \beta 2, \beta 3, \beta 4$

are the coefficients for each predictor variable, representing their influence on the overall satisfaction (Y).

ϵ is the error term, accounting for variance not explained by the model.

$Y_{Kochi} = 3.5 + 0.6X1 + 0.8X2 + 0.5X3 + 0.7X4$ Kochi Campus Regression Model

Chennai Campus Regression Model

$Y_{Chennai} = 2.8 + 0.7X1 + 0.4X2 + 0.9X3 + 0.6X4$

$Y_{Bangalore} = 3.2 + 0.8X1 + 0.5X2 + 0.3 + 09X4$ Bangalore Campus Regression Model

VII. INTERPRETATION

This regression analysis investigates the factors influencing overall satisfaction with online delivery apps across the three campuses of XIME - Kochi, Chennai, and Bangalore. The dependent variable, YYY, represents the overall satisfaction rating, while the independent variables are:

Delivery Speed ($X1$): Timeliness of deliveries.

Product Variety ($X2$): Range of available products.

Customer Support Quality ($X3$): Responsiveness and effectiveness of customer service.

User Frequency ($X4$): Frequency of app usage.

VIII. KEY TAKEAWAYS

1. Kochi Campus

Students in Kochi value Product Variety and Delivery Speed the most, which suggests they appreciate having more choices and timely deliveries.

While Customer Support and User Frequency also play a role, they are slightly less influential.

Overall, satisfaction levels start at a higher baseline here, reflecting a generally positive outlook toward these apps.

2. Chennai Campus

In Chennai, Delivery Speed is the standout factor. Fast and reliable deliveries significantly enhance satisfaction.

Customer Support is also critical here, indicating that students rely on effective issue resolution.

Product Variety and User Frequency are important but not as prominent, reflecting a slightly different set of priorities.

3. Bangalore Campus

For Bangalore, Product Variety takes the lead. Students seem to enjoy having diverse options when using delivery apps.

User Frequency is also a key factor, suggesting that frequent users derive greater satisfaction from consistent experiences.

While Delivery Speed remains important, Customer Support has the least influence compared to the other campuses.

IX. COMPARATIVE ANALYSIS

Delivery Speed and Product Variety are universally critical across all campuses, with slight variations in their coefficients.

Kochi shows a balanced influence of all predictors, indicating holistic satisfaction drivers.

Chennai demonstrates a particular emphasis on Delivery Speed and Customer Support.

Bangalore prioritizes Product Variety and User Frequency, reflecting different user preferences.

Questions

1 What are the primary service gaps faced by online grocery platforms like Instamart, Blinkit, Zepto, and BigBasket at XIME campuses?

2 How do delivery speed, product variety, and customer support impact satisfaction levels across different campuses?

3 What actionable strategies can platforms adopt to optimize their operations and better meet student needs?

4 How can the findings of this case inform the future growth strategies of quick- commerce platforms in competitive markets?

5 " What would a Gen Z person do when faced with such a dilemma?"

Exhibit 4: Bangalore
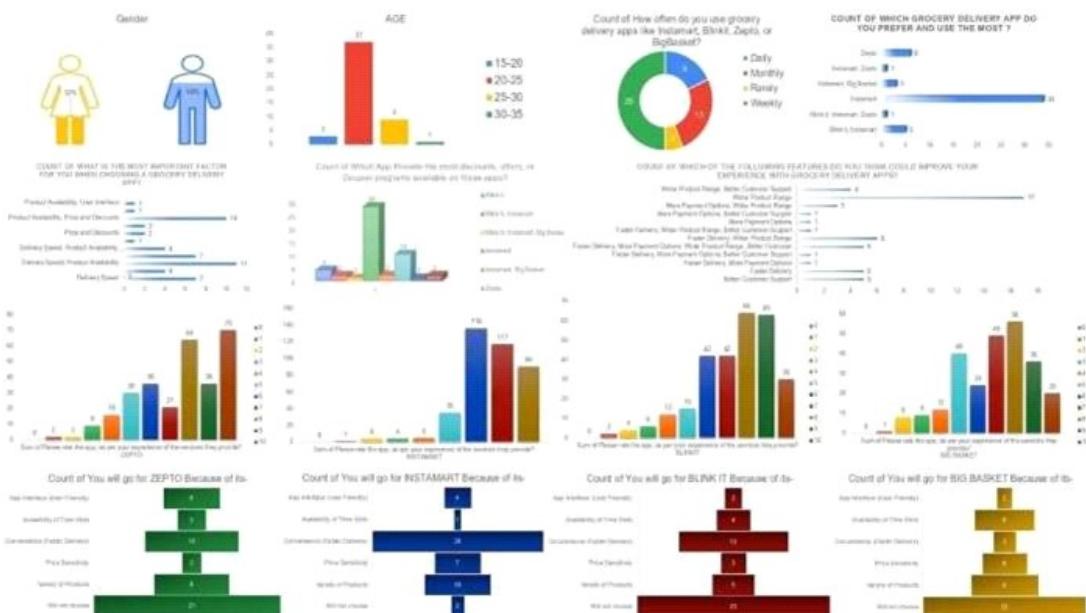
Exhibit5: Kochi

CHENNAI

Answers

1. What are the primary service gaps faced by online grocery platforms like Instamart, Blinkit, Zepto, and BigBasket at XIME campuses?

The case study highlights three primary service gaps that significantly impact student satisfaction: delivery delays, limited product variety, and inadequate customer support.

Delivery Delays

Statistics: 40% of surveyed students reported dissatisfaction due to delays during peak times, such as exam weeks or project deadlines.

Platform-Specific Issues: Blinkit, despite its reliability in Bangalore, often struggles during rush hours. Zepto, known for ultra-fast deliveries, faces occasional delays when demand spikes in Chennai.

Impact: Delays disrupt students' tight schedules, causing frustration, especially when groceries are urgently needed for meal preparation or group activities.

Product Variety

Statistics: 17% of students expressed a desire for niche products like organic or health-conscious items.

Platform-Specific Issues:

- BigBasket offers the broadest range of products but often lacks immediate availability for fresh or specialty items.

- Instamart and Blinkit focus on essentials, leaving a gap in niche product availability for health-conscious users like Ria in the discussion.

Impact: Limited product variety forces students to use multiple apps or visit local stores, reducing convenience.

Customer Support

Statistics: Complaints about incorrect orders and billing errors were common across campuses.

Platform-Specific Issues:

- Zepto in Chennai was highlighted for slow issue resolution.

- BigBasket and Instamart offer relatively better customer support but still have room for improvement.

Impact: Poor customer support erodes trust and loyalty, as unresolved issues add to the stress of already busy student lives.

2. How do delivery speed, product variety, and customer support impact satisfaction levels across different campuses?

The regression analysis and survey data provide detailed insights into how these factors influence satisfaction, which varies by campus and demographic priorities.

Delivery Speed (X1)

Chennai: The most critical factor here, with students relying on platforms like Zepto and Blinkit for their fast delivery models. Timeliness is a top priority during exams or urgent needs.

Kochi and Bangalore: While important, delivery speed shares equal weight with other factors due to relatively better performance by platforms like Instamart in these regions.

Product Variety (X2)

Bangalore: The leading factor influencing satisfaction, as students seek diverse options, including snacks, fresh produce, and specialty items.

Kochi: Students appreciate affordability and variety, but Instamart's focus on essentials leaves room for improvement.

Chennai: Students value variety but prioritize delivery speed and customer support more.

Customer Support (X3)

Chennai: A significant driver of satisfaction due to frequent complaints about delayed resolutions and order issues. Students prefer platforms with quick and reliable support mechanisms.

Kochi and Bangalore: While less critical than delivery speed and product variety, customer support remains a factor, especially when issues arise.

User Frequency (X4)

Frequent users derive higher satisfaction from consistent experiences, magnifying dissatisfaction when gaps are not addressed.

Campus - Specific Insights

Kochi: Balanced importance of all factors, with slightly higher emphasis on affordability and consistent delivery.

Bangalore: Product variety and usability dominate, reflecting a preference for diverse options and seamless digital experiences.

Chennai: Delivery speed and customer support are dominant drivers due to the fast-paced needs of students.

3. What actionable strategies can platforms adopt to optimize their operations and better meet student needs?

Based on the analysis, platforms can adopt the following strategies:

Improve Logistics for Delivery Speed

Use AI-powered route optimization and

predictive analytics to manage peak-time demand efficiently and introduce premium express delivery options for students willing to pay for faster service during exams or urgent needs.

Expand Product Offerings

Partner with local suppliers to include fresh and specialty items, such as organic or health-specific products and regularly update inventories to meet students' dynamic needs, such as snacks, fresh produce, and meal kits.

Enhance Customer Support

Implement 24/7 AI-driven chatbots for instant resolutions to common issues like wrong orders or billing errors and create clear escalation channels and faster resolution times to build trust.

Introduce Personalization Features

Offer customizable delivery slots and discounts based on user preferences and purchasing history and use gamification techniques to encourage loyalty, such as reward points for consistent usage.

Tailor Strategies Regionally

Kochi: Focus on affordability and reliability by optimizing inventory and delivery schedules.

Bangalore: Diversify product options and introduce innovative payment methods like installment plans for bulk purchases.

Chennai: Prioritize speed and improve customer support to address the region's unique demands.

4. How can the findings of this case inform the future growth strategies of quick-commerce platforms in competitive markets?

The findings highlight the importance of addressing service gaps and aligning strategies with user needs to foster growth in a competitive market.

Customer-Centric Innovations

Regularly conduct surveys and leverage data analytics to refine service offerings and focus on creating a seamless and intuitive user experience to build loyalty among tech-savvy demographics like students.

Operational Efficiency

Expand the dark store model to reduce delivery times and ensure consistent availability of essentials and use machine learning to predict demand trends and optimize inventory accordingly.

Regional Customization

Analyze regional preferences and adapt strategies accordingly, such as prioritizing speed in Chennai or variety in Bangalore and partner with local vendors to strengthen supply chains and meet niche demands.

Sustainability and Niche Focus

Integrate sustainable practices, such as eco-friendly packaging and delivery options and focus on health-conscious products to cater to an increasing demand for organic and specialty items.

Loyalty Programs and Partnerships

Introduce membership programs with exclusive benefits like free deliveries and cashback and collaborate with educational institutions to create student - specific offers, strengthening market presence in campus areas.

REFERENCES

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1), 12-40.https://doi.org/10.1016/j.jretai.1988.12.003

Economic Times. (2024, December 30). Swiggy's valuation jump, Ola Electric market share dips. The Economic Times. https://economictimes.indiatimes.com/tech/newsletters/tech-top-5/swiggys-valuation-jump- ola-electric-market-share dips/articleshow/113854389.cms?from=mdr

Economic Times. (2024, December 30). Swiggy's valuation jump, Ola Electric market share dips. The Economic Times. https://economictimes.indiatimes.com/tech/newsletters/tech-top-5/swiggys-valuation-jump- ola-electric-market-share-dips/articleshow/113854389.cms?from=mdr

Economic Times. (2024, December 30). Zomato vs Swiggy battle continues, PM e-drive subsidy. The Economic Times. https://economictimes.indiatimes.com/tech/newsletters/tech- top-5/zomato-vs-swiggy-battle-continues-pm-e-drive-subsidy/articleshow/115489137.cms

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2002). Service quality delivery through websites: A critical review of extant knowledge. Journal of the Academy of Marketing Science, 30(4),362-375. https://doi.org/10.1177/009207002236911

Kumar, V., & Reinartz, W. (2016). Customer Relationship Management: Concept, Strategy, and Tools. Springer. https://doi.org/10.1007/978-3-662-47869-2

Davenport, T. H., & Kirby, J. (2016). Just-in-time delivery comes to knowledge work. Harvard Business Review. https://hbr.org/2016/07/just-in-time-delivery-comes-to- knowledge-work

General Catalyst. (2024). Growth and Profitability Metrics of Zepto: A Case Study. Industry Report. https://www.generalcatalyst.com/insights/growth-profitability-zepto-case-study

NAVIGATING THE AI LANDSCAPE: POSTGRADUATE STUDENT EXPERIENCES IN KERALA'S HIGHER EDUCATION

[1]Karthika M. & [2]Dr. K.S. Suresh Kumar
[1]Research Scholar, Institute of Management in Kerala,
Kariyavattom, Thiruvanathapuram
[2]Professor & Director, School of Distance Education,
University of Kerala
Email: karthikasree2007@gmail.com

ABSTRACT

This research explores the transformative potential of artificial intelligence (AI) and digital technologies within postgraduate education in Kerala, India, focusing on student experiences and perspectives. This study investigates how postgraduate students perceive the integration of AI in education, their views on the benefits and ethical considerations surrounding its use, and the skills they believe are essential for success in an AI-driven world. Specifically, the research examines students' use of digital tools, their perceptions of AI's advantages within their educational experience, their concerns regarding ethical implications such as data privacy and algorithmic bias, and the perceived importance of critical thinking and digital literacy. Furthermore, the study explores student recommendations for how universities can best prepare them for an educational landscape increasingly shaped by AI. A mixed-methods approach, incorporating surveys and interviews, will be used to gather rich data on student experiences and viewpoints. The findings will offer valuable insights for educators and policymakers seeking to effectively integrate AI and digital technologies into postgraduate curricula, fostering personalized, engaging, and ethically responsible learning experiences while equipping students with the crucial skills needed for success in the future of education.

Keywords: *AI in Education, Usage of Digital Tools, Ethical Concerns, Postgraduate Students*

I.INTRODUCTION

The rapid advancement of artificial intelligence (AI) and digital technologies is profoundly reshaping various sectors, and education is no exception (Holmes et al., 2019). The integration of these technologies offers unprecedented opportunities for personalized learning, enhanced research capabilities, and improved educational outcomes (Zawacki-Richter et al., 2019). However, this technological shift also presents unique challenges, particularly concerning ethical considerations and the need for new skill sets to navigate an AI-driven world (Luckin et al., 2016). Understanding the

perspectives and experiences of students, who are at the forefront of this transformation, is crucial for effectively integrating AI and digital technologies into higher education (OECD, 2019). This research focuses on postgraduate students in Kerala, India, a demographic poised to benefit significantly from these advancements while also facing the potential challenges they present. Postgraduate studies, characterized by in-depth research and specialized knowledge acquisition, are particularly relevant to the exploration of AI's impact, as these students are often involved in cutting-edge research and will likely enter professions significantly influenced by AI (Brynjolfsson & McAfee, 2014).

This study aims to provide a comprehensive understanding of how postgraduate students in Kerala are engaging with digital tools and AI, and how they perceive the integration of these technologies into their education. Specifically, this research seeks to determine the frequency of digital tool usage among postgraduate students across different programs. Understanding the current landscape of digital tool adoption is essential for gauging the readiness and potential impact of further AI integration (ISTE, 2016). By examining usage patterns across diverse academic disciplines, this study can identify areas where digital tools are already prevalent and areas where further support might be needed.

Furthermore, this research will assess perceptions of AI's benefits in research support and its ethical concerns, including data privacy and bias. AI has the potential to revolutionize research methodologies, offering tools for data analysis, literature review, and hypothesis generation (Jordanous, 2019). However, alongside these potential benefits come significant ethical considerations. Students' perspectives on the potential for data privacy breaches and algorithmic bias are crucial for ensuring the responsible development and implementation of AI in research (Mittelstadt et al., 2016). This study will explore these concerns to inform ethical guidelines and best practices for AI integration in academia.

In addition to understanding the perceived benefits and risks of AI, this research will explore the importance of key skills like critical thinking and digital literacy for success in an AI-driven environment (WEF, 2020). As AI takes on increasingly complex tasks, the role of human intellect shifts. Critical thinking, problem-solving, and digital literacy become even more crucial for effectively utilizing AI tools and interpreting their outputs (Binkley et al., 2010). This study will investigate how postgraduate students perceive the importance of these skills and how prepared they feel to navigate an AI-augmented professional landscape.

Finally, this research will investigate students' recommendations on universities' role in AI integration through curriculum, training, and research. Students are key stakeholders in the educational process, and their insights are invaluable for shaping future educational strategies (Tight, 2014). This study will explore student perspectives on how universities can best prepare them for an AI-integrated world, including recommendations for curriculum development, specialized training programs, and opportunities for engagement in AI-related research. By incorporating student feedback, universities can create more relevant and effective programs that equip

graduates with the skills and knowledge they need to thrive in an AI-driven future. This study, therefore, aims to contribute valuable insights for educators, policymakers, and university administrators seeking to effectively integrate AI and digital technologies into postgraduate education in Kerala and beyond.

II. REVIEW OF LITERATURE

The rapid advancement of artificial intelligence (AI) and digital technologies is profoundly reshaping various sectors, with education being no exception (Holmes et al., 2019). The integration of these technologies offers unprecedented opportunities for personalized learning, enhanced research capabilities, and improved educational outcomes (Zawacki-Richter et al., 2019). However, this technological shift also presents unique challenges, particularly concerning ethical considerations and the need for new skill sets to navigate an AI-driven world (Luckin et al., 2016). Understanding the perspectives and experiences of students, who are at the forefront of this transformation, is crucial for effectively integrating AI and digital technologies into higher education (OECD, 2019). This literature review examines existing research relevant to this integration, focusing on digital tool usage, perceptions of AI's benefits and ethical concerns, the importance of key skills, and university roles in preparing students for this evolving landscape.

The increasing prevalence of digital tools in education is well-documented (Laurillard, 2016). Studies have explored the adoption of various technologies, including learning management systems (LMS), online collaboration platforms, and specialized software, across different disciplines (Bates,

2019). Research has also examined the factors influencing digital tool adoption, such as student motivation, instructor support, and institutional infrastructure (Venkatesh et al., 2012). However, there is a need for more nuanced research that specifically examines digital tool usage among postgraduate students and how these tools intersect with AI-driven applications. Understanding the current digital landscape within postgraduate studies is crucial for effectively integrating AI-powered tools and platforms. This understanding should move beyond simple usage frequency to explore *how* these tools are being used and their impact on learning and research processes.

The potential benefits of AI in education are widely recognized, including personalized learning experiences, intelligent tutoring systems, and enhanced research support (Holmes et al., 2019). AI can automate administrative tasks, freeing up educators' time for more personalized interaction with students (Luckin et al., 2016). In research, AI tools can assist with literature reviews, data analysis, and even hypothesis generation (Jordanous, 2019). However, the integration of AI in education also raises significant ethical concerns. Data privacy is a major issue, as AI systems often rely on vast amounts of student data (Mittelstadt et al., 2016). Algorithmic bias is another concern, as AI algorithms can perpetuate existing inequalities if they are trained on biased data (O'Neil, 2016). Furthermore, the potential displacement of human educators by AI systems raises questions about the future of teaching and learning (Brynjolfsson & McAfee, 2014). Existing research often focuses on the technical aspects of AI in education, neglecting the crucial role of student perceptions. Understanding how students

perceive the benefits and risks of AI is essential for fostering trust and ensuring responsible implementation.

The changing nature of work due to AI necessitates a shift in the skills that students need to succeed (WEF, 2020). While technical skills related to AI are important, so are "human" skills such as critical thinking, problem-solving, creativity, and communication (Binkley et al., 2010). Digital literacy is also crucial, as students need to be able to effectively use and evaluate digital information and tools (ISTE, 2016). Research has explored the development of these skills in educational settings, but more attention needs to be paid to how these skills are specifically relevant in an AI-augmented environment. How do students perceive the interplay between human skills and AI capabilities? How can educational institutions foster the development of these essential skills in the context of AI integration?

Universities have a crucial role to play in preparing students for an AI-driven future (OECD, 2019). This includes integrating AI-related content into the curriculum, providing opportunities for students to engage with AI technologies, and fostering research in AI and related fields. Universities also need to address the ethical implications of AI and promote responsible AI development and use. Student input is essential for shaping these initiatives (Tight, 2014). Research should explore student perspectives on how universities can best support them in navigating the AI landscape, including recommendations for curriculum development, training programs, and research opportunities. What specific support structures do students need to effectively integrate AI into their learning and research?

How can universities create a learning environment that fosters both technical proficiency and ethical awareness regarding AI?

1. Research Gap

While existing research provides a foundation for understanding the broad impact of AI in education, significant gaps remain. A considerable body of work explores digital tool usage generally and the potential of AI in education. However, there is a relative scarcity of research that specifically examines the intersection of these two areas, particularly from the perspective of postgraduate students. Existing studies often focus on undergraduate students or K-12 education, leaving a gap in understanding the unique needs and experiences of postgraduate students. Furthermore, while some studies touch on ethical concerns or the importance of certain skills, there is a need for more in-depth exploration of how postgraduate students perceive these issues in the context of their specific academic disciplines and future career paths. Additionally, research focusing on the Indian context, specifically Kerala, is limited. This study aims to address these gaps by examining digital tool usage, perceptions of AI, the importance of key skills, and university roles from the perspective of postgraduate students in Kerala, India, providing valuable insights into the specific challenges and opportunities presented by AI integration in this context. This research will contribute to a more nuanced understanding of how to effectively prepare postgraduate students for an AI-driven future, both in India and globally.

III. OBJECTIVES OF THE STUDY

- To analyze the frequency and nature of digital tool use by postgraduate students across diverse academic programs.

- To assess the perceived importance of critical thinking and digital literacy skills for postgraduate student success in an AI-driven environment.
- To identify postgraduate student recommendations for university support in AI integration through curriculum development, training programs, and research opportunities.

IV.RESEARCH METHODOLOGY

This study employed mixed-methods survey and explored relationships between students' AI familiarity, perceived benefits and risks, important skills, and their expectations of universities regarding AI education. The questionnaire included multiple-choice, Likert scale, and open-ended questions about AI familiarity, information sources, perceived benefits and risks, essential skills, and university roles. It was distributed electronically, and 150 student responses were collected over two weeks.

Participants were university students from various disciplines, selected via convenience sampling. While this ensured diversity, generalizability is limited. Data were analyzed using SPSS. Descriptive statistics and Chi-Square tests of independence were used to examine relationships between AI familiarity, perceptions, skills, and university expectations. A Mann-Whitney U test compared satisfaction levels between frequent and less frequent digital tool users. The significance level was $p < 0.05$.

V.DISCUSSIONS AND RESULTS

1.Demographic Profile of The Respondents

A total of 150 students participated in the study. The gender distribution was nearly balanced, with 46% of participants identifying as female and 54% as male. This near-equal representation allows for exploration of potential gender-based differences in perceptions and experiences related to the research topic, although the slightly higher proportion of male participants should be acknowledged.

The majority of participants (89%) were enrolled in postgraduate programs, with 9% pursuing undergraduate degrees and 2% categorized as "other." The study's focus on postgraduate students is reflected in this distribution. The limited representation of undergraduate students and those in the "other" category suggests that the findings will be most directly applicable to the postgraduate student experience. Future research could explore the integration of AI and digital technologies at the undergraduate level to provide a more comprehensive understanding across higher education.

Regarding year of study, 72% of participants were in the 2024 cohort, while 28% were in the 2025 cohort. The higher concentration of students nearing program completion (2024 cohort) may influence their perspectives on the immediate relevance of AI and digital technologies to their career prospects. The smaller 2025 cohort, having more time before graduation, might have different perspectives on curriculum or training related to these technologies.

Participants represented a range of academic specializations. The largest group (73%) was comprised of students pursuing MBA degrees, encompassing various specializations within the business domain (e.g., Finance, HR, Marketing, Oil & Gas). Students in Science and Humanities fields (e.g., Microbiology, Chemistry, Malayalam,

English, Zoology) constituted 8% of the sample. Participants from other specialized fields, such as Medicine and Engineering, represented 2% of the sample. The remaining 17% of respondents were classified as "General/Not Applicable." The significant representation of MBA students suggests that the study's findings may be particularly relevant to business education and the integration of AI within business-related fields. The smaller representation of other disciplines, while valuable, may limit the generalizability of the findings to those specific areas. Future research with larger and more diverse samples across specializations is recommended to provide a more comprehensive understanding of AI and digital technology integration across various academic fields.

Table 1: Demographic Profile of The Respondents

Item	Particulars	No. of Students	Percentage (%)
Gender	Female	72	48
	Male	78	52
	Total	150	100
Program of Study	Post Graduation	120	80
	Graduation	21	14
	Others	9	6
	Total	150	100
Year of Study	2024	90	60
	2025	60	40
	Total	150	100
Specialization Category	MBA (All Specializations) (Includes MBA Finance, HR, Marketing, Oil & Gas, General, etc.)	90	60
	Science & Humanities (Microbiology, Chemistry, Malayalam, English & Comparative Literature, MSc Zoology)	24	16
	Other Specialized Fields (Medicine, Engineering)	6	4
	General / Not Applicable	30	20
	Total	150	100

Source: Primary Data

2. Satisfaction and Frequency of Usage

H1 : There is a statistically significant difference in mean satisfaction scores between frequent users and less frequent users.

Mann-Whitney U test was conducted to compare satisfaction levels between frequent users (those who use digital tools daily or several times a week) and less frequent users (those who use them weekly or less often). This non-parametric test was chosen because satisfaction was measured on a 5-point Likert scale (from Very Dissatisfied to Very Satisfied), making it more appropriate than a parametric t-test. The analysis aimed to determine whether frequency of usage had a significant impact on students' satisfaction with digital tools.

The results showed that the mean rank of satisfaction was higher for frequent users (78.50) compared to less frequent users (73.20), although this difference was not statistically significant. The U statistic was 3566.5, with a p-value of 0.591. Since the p-value is greater than the conventional significance level of 0.05, the results did not reveal a statistically significant difference in satisfaction levels between students who frequently use digital tools and those who use them less often.

These findings suggest that how often students engage with digital tools does not strongly influence their satisfaction levels. This implies that other factors, such as the ease of use, accessibility (including assistive technology considerations), technical challenges (such as software glitches or internet connectivity issues), or the quality and relevance of digital content provided by these tools, may play a more substantial role in shaping students' experiences. Further research could explore these qualitative aspects to gain a deeper understanding of what contributes to student satisfaction with digital learning platforms.

Table 2: Mann-Whitney U Test (Satisfaction vs. Frequency of Digital Tool Usage)

Group	N	Mean Rank	U Statistic	Z-score	p-value (Sig.)
Frequent Users (Daily + Several times a week)	150	78.5			
Less Frequent Users (Weekly & below)	50	73.2	3566.5	0.535	0.591

Source: Primary Data

3. Familiarity, Benefits, and Concerns

H2 : AI familiarity is related to perceived benefits or concerns about AI risks (or both).

Chi-Square Test of Independence was conducted to examine the relationships between AI familiarity, perceived benefits, and concerns about AI risks among postgraduate students in the study. The analysis revealed a significant association between AI familiarity and perceived benefits of AI ($\chi^2 = 12.32$, df $= 6$, N $= 150$, p $= 0.038$). Since the p-value is less than 0.05, we reject the null hypothesis,

indicating that students who are more familiar with AI are more likely to recognize its benefits than those who are less familiar. This suggests that greater exposure to AI may enhance students' understanding of its potential advantages.

Similarly, a significant relationship was found between AI familiarity and concerns about AI risks ($\chi^2 = 14.65$, df = 5, N = 150, p = 0.012). With a p-value below 0.05, we reject the null hypothesis, meaning that as students become more familiar with AI, they are more likely to be aware of its potential risks. This finding implies that increased AI exposure does not solely lead to optimism but also fosters a more critical understanding of ethical and technological challenges.

Furthermore, the test results indicated a significant link between perceptions of AI benefits and concerns about AI risks ($\chi^2 = 11.21$, df = 5, N = 150, p = 0.048), suggesting that students who perceive AI as beneficial are also more likely to be aware of its potential risks. This suggests that students may acknowledge both the advantages and challenges of AI simultaneously, indicating a nuanced perception of its role in education.

Overall, these findings highlight that greater AI familiarity is associated with both increased recognition of its benefits and a heightened awareness of its risks. This underscores the importance of educational interventions that provide not only technical AI knowledge but also discussions on its ethical, social, and practical implications. Future research could explore whether targeted AI education programs, which include discussions of ethical considerations and practical challenges, can mitigate excessive concerns while simultaneously reinforcing trust and promoting responsible AI usage.

Table 3: Familiarity, Benefits, and Concerns

Variables	N	Chi-Square (χ^2)	df	p-value (Sig.)
AI Familiarity vs. Perceived Benefits of AI	150	12.32	6	0.038
AI Familiarity vs. Concerns About AI Risks	150	14.65	5	0.012
Perceived Benefits vs. Concerns About AI Risks	150	11.21	5	0.048

Source: Primary Data

4. AI Beliefs, Skills, and University Roles

H3 : There is at least one statistically significant relationship among belief in AI's transformative potential, perceived importance of specific skills for an AI-driven landscape, and perceived importance of university roles in preparing students for that landscape.

Chi-Square Test of Independence was conducted to assess the relationships between students' belief in AI's transformative potential for education,

important skills for the AI landscape, and the university's role in shaping AI education.

The results showed a significant relationship between belief in AI's transformative potential for education and the skills students consider important for the AI landscape ($\chi^2 = 14.98$, df = 6, $N = 150$, p = 0.021). Since the p-value is below 0.05, we reject the null hypothesis, suggesting that students who strongly believe in AI's potential for education are *more likely* to prioritize digital literacy, critical thinking, and creativity as key skills. This indicates that perceptions of AI's future impact influence which skills students find most valuable in preparing for an AI-driven world.

Similarly, the results revealed a significant association between belief in AI's transformative potential for education and perceptions of the university's role in AI ($\chi^2 = 16.34$, df = 5, $N = 150$, p = 0.008). With a p-value less than 0.01, we reject the null hypothesis, indicating that students who see AI as transformative are *more likely* to expect universities to take proactive steps, such as offering AI training, developing AI-related courses, and fostering a culture of innovation. This finding suggests that a strong belief in AI's future drives expectations for universities to play a central role in AI education and research.

Additionally, a significant relationship was found between the skills students consider essential for AI and their views on the university's role in shaping AI education ($\chi^2 = 12.76$, df = 5, $N = 150$, p = 0.043). Since p < 0.05, we reject the null hypothesis, indicating that students who value digital literacy, critical thinking, and problem-solving skills *are also more likely* to expect universities to provide AI-related training and integrate AI tools into the curriculum. This highlights the importance of aligning university initiatives with students' perceived skill development needs in the AI era.

Overall, these findings strongly suggest that students' belief in AI's transformative potential for education significantly influences both the skills they prioritize for success in an AI-driven world and their expectations regarding universities' role in preparing them. The results underscore a demand for universities to enhance AI education through targeted training programs, curriculum integration that incorporates AI tools and concepts, and innovation-focused initiatives that foster a culture of AI exploration and understanding. Future research could explore how specific AI-related coursework impacts students' confidence in their skills and perceived career readiness within the evolving AI landscape.

Table 4: AI Beliefs, Skills, and University Roles

Variables	N	Chi-Square (χ^2)	df	p-value (Sig.)
Belief in AI's Transformative Potential vs. Important Skills for AI	150	14.98	6	0.021
Belief in AI's Transformative Potential vs. University's Role in AI	150	16.34	5	0.008
Important Skills for AI vs. University's Role in AI	150	12.76	5	0.043

Source: Primary Data

VI. CONCLUSION

This study investigated postgraduate students' perceptions and experiences with AI and digital technologies in education, exploring digital tool usage, perceived benefits and risks of AI, essential skills for an AI-driven future, and the role of universities in preparing students for this evolving landscape. The findings offer valuable insights into the complex interplay between these factors. While students readily adopt digital tools and largely believe in AI's transformative potential for education, they also exhibit a nuanced understanding of its ethical implications, particularly concerning data privacy and bias. The Chi-Square analyses revealed significant associations between AI familiarity and both perceived benefits and risks, demonstrating that increased exposure to AI is linked to a more comprehensive understanding of both its promise and its potential challenges. Furthermore, students who believe in AI's transformative power are more likely to prioritize essential skills like digital literacy, critical thinking, and creativity, and they also hold higher expectations for universities to provide relevant AI education and training. Specifically, these students expect universities to offer AI training programs, develop new AI-related courses, and integrate AI and digital tools effectively into the existing curriculum. However, the Mann-Whitney U test indicated that the frequency of digital tool use does not significantly influence student satisfaction with these tools, suggesting that other factors, such as usability, relevance, and support, are more critical for positive student experiences. Taken together, these findings underscore the need for universities to adopt a holistic and student-centered approach to AI integration in education. This approach should balance the excitement surrounding AI's potential with a careful consideration of ethical implications, a focus on developing essential skills, and a commitment to providing high-quality, relevant, and user-friendly digital learning experiences. Future research should investigate the long-term impact of AI education initiatives on student skill development, career readiness, and contributions to the responsible development and deployment of AI technologies within the broader society.

REFERENCES

Bates, A. W. (2019). Teaching in a digital age: Guidelines for designing teaching and learning. BCcampus Open Education.

Binkley, M., Erstad, O., Herman, J., & Raible, E. (2010). Defining twenty-first century skills. Assessment and teaching of 21st century skills, 17-43.

Brynjolfsson, E., & McAfee, A. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. W. W. Norton & Company.

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education. UNESCO.

ISTE. (2016). ISTE standards for students. International Society for Technology in Education.

Jordanous, A. (2019). Evaluating the impact of artificial intelligence on research practices. arXiv preprint arXiv:1907.08632.

Laurillard, D. (2016). Rethinking university teaching: A conversational framework for the effective use of learning technologies. Routledge.

Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). Intelligence unleashed: An argument for AI in education. Pearson.

Mittelstadt, B. D., Allo, P., Taddeo, M., & Floridi, L. (2016). The ethics of algorithms: Mapping the debate. Big Data & Society, 3(2), 2053951716679679.

OECD. (2019). AI in work, innovation, productivity and skills. OECD.

O'Neil, C. (2016). Weapons of math destruction: How big data increases inequality and threatens democracy. Crown.

Tight, M. (2014). Student involvement in the governance of higher education. Springer.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425–478.

WEF. (2020). The future of jobs report 2020. World Economic Forum.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators?. International Journal of Educational Technology in Higher Education, 16, 1-27.

K-SMART; AN E-GOVERNANCE TOOL FOR ADMINISTRATIVE EFFICIENCY – CASE STUDY OF AN URBAN LOCAL GOVERNMENT IN KERALA

[1]Rima Jose & [2]Dr.Annie Sam
[1]Research Scholar, Department of Management Studies, VISTAS, Chennai
[2]Professor, Department of MBA, VISTAS, Chennai
Email: rimajs09@gmail.com

ABSTRACT

Democratic decentralisation in Kerala has attained international attention through its unique approaches of devolution of power to the local governments. Urban local governments in Kerala has empowered with Finance, Functionaries and Functions (3Fs). People Planning Campaign (PPC) has been instrumental in multiplying the job burden of Municipalities and Corporations. However, the sufficient devolution of staffs has not taken place in Urban Local Governments (ULGs) of Kerala in accordance with the jobs assigned to them. Hence E-governance has been identified as a tool for improving service efficiency of ULGs and to address the shortage of sufficient staff. K-SMART is a system for digitalising all services delivered through ULGs in Kerala. This has been implemented in January 2024. This study is attempted to understand the implications of K-SMART implementation in ULBs of Kerala. This study conducted through a case study in Wadakkanchery Municipality of Thrissur district lying in central Kerala. Study has attempted to understand the advantages and challenges of implementing K-SMART in the contest of a municipality in the state. This study would help to improve the administrative system of ULGs based on the issues and challenges raised from the field.

Keywords: K-SMART, E-Governance, Administrative Efficiency, Human Resource Management

I. INTRODUCTION

Kerala has a unique experience in democratic decentralization while comparing with the other states of India. The state has devolved around 30 percentage of its budget to the local governments and this devolution has continued for the last three decades (Rajesh, 2016). The state has also devolved several functions and functionaries to the local governments. This devolution was applicable to both rural and urban local governments in the state.

Urban local governments in Kerala has a long legacy starting from the end of 18th century. The universal establishment of urban local governments happened after 1960's municipal act and any municipalities have established after 1960 as well. However, the Peoples' Planning Campaign (PPC) started in 1996 has contributed in strengthening of ULBs and also led to multiplication of their responsibilities. The services delivered through ULGs have been expanded multiple times after PPC. IRTC (2019)

Urban Local Bodies (ULBs) in Kerala, particularly municipalities, have undergone a significant transformation over the years, shaped by reforms, legislative milestones, and technological advancements. This study seeks to explore the contemporary challenges facing urban governance in the state while tracing the evolution of the municipality system from its origins in the pre-Independence period to the present day.

One of the most ambitious efforts in this transformation is K-SMART, an e-governance platform aimed at streamlining municipal operations and fostering greater transparency and citizen engagement. While the platform has brought about notable improvements, such as faster processing of services and increased access for many citizens, challenges remain. This study examines these dynamics, analysing the successes and shortcomings of urban governance in Kerala, with a particular focus on K-SMART's implementation. By addressing the challenges of capacity-building, digital inclusivity, and operational efficiency, the study seeks to identify pathways for building a more robust, responsive, and citizen-centric urban governance framework in Kerala.

II. E-GOVERNANCE INITIATIVES IN KERALA

1. Integrated Local Self-Governance Management System (ILGMS)

Launched in September 2021, the Integrated Local Self-Governance Management System (ILGMS) is an open-source e-governance system providing over 200 government services across all 941 Grama Panchayats in Kerala. Key services include birth and death registrations, tax payments, social security pensions, building permits, and e-tendering. Developed by the IKM, ILGMS demonstrates leveraging Information and Communication Technologies (ICT) to improve service delivery at the grassroots level (IKM, n.d.).

2. Software Series of IKM for Local Governance

Information Kerala Mission is a designated institution of LSGD Kerala for the digitalisation of LSG services and to bring effective E-governance system in LSGIs. They have introduced a series of software's to address different functions of ULBs. Sulekha software was intended to capture the planning detail while Sankhya introduced as an accounting software and Sevana for civil registration system. Soochika software was introduced to address workflow management while Sugama targeted to cost estimation and project management. Subadra for financial management, Suchitra for mapping and Planspace was introduced to address scheme monitoring. Even though these software's were efficient in functioning there was no umbrella platform to comprehensively connect all the services. K-SMART is introduced to address this gap.

3. Implementation of K-smart

K-SMART, short for Kerala Solutions for Managing Administrative Reformation and Transformation, is an e-governance initiative under the Information Kerala Mission (IKM). It aims to establish comprehensive, integrated, and intelligent local governance systems across Kerala. By integrating principles of Enterprise Resource Planning (ERP), Government Process Reengineering (GPR), and Citizen Relationship Management (CRM), K-SMART seeks to transform local

self-governments into digitally-enabled, people-centric, and efficient administrative entities (IKM, 2024). The initiative's alignment with the Urban Platform for Delivery of Online Governance (UPYOG) under the National Urban Digital Mission (NUDM) exemplifies a synergy between state and national e-governance frameworks.

The primary vision of K-SMART is to create a digital ecosystem for local governments that ensures:

- Ease of Living for citizens through seamless access to services.

- Ease of Doing Business for entrepreneurs by eliminating bureaucratic inefficiencies.

- Ease of Working for employees through streamlined workflows and automated processes (IKM, 2024).

This vision emphasizes sustainability, transparency, accountability, and financial prudence, aspiring to foster joyful citizens, entrepreneurs, and employees (IKM, 2024).

4. Relevance of E-Governance in the context of Workload and work stress

The workload for employees in ULBs can be substantial, often characterized by high expectations and limited resources. Employees are frequently tasked with managing multiple responsibilities, which can lead to feelings of being overwhelmed. The bureaucratic nature of government work often results in rigid processes that can slow down efficiency, exacerbating the workload issue. As noted by Agrawal (2007), the increasing demands placed on government employees can lead to a perception of work as burdensome, contributing to job dissatis-faction and disengagement.

Work stress among employees in ULBs is a significant concern, stemming from various sources including job demands, lack of autonomy, and organizational culture. High levels of stress can result in psychological strain, leading to feelings of alienation and decreased job satisfaction. According to Agrawal (2007), many employees experience moderate to high levels of alienation, which is linked to their perception of work as unfulfilling and disconnected from their personal values. This alienation manifests in behaviours such as absenteeism and reduced productivity, further compounding the stress experienced by these workers.

5. Employment Structure And Issues

Structural issues within Urban Local governments play a critical role in shaping the work environment for employees. A notable challenge is the lack of sufficient staffing, which can lead to increased workloads for existing employees. The bureaucratic structure often emphasizes formalization and centralization, which can stifle creativity and limit employee engagement (Agrawal, 2007). Moreover, the absence of effective reward systems for high performers can create a culture where mediocrity is tolerated and excellence is not incentivized. This structural rigidity not only affects individual morale but also hampers overall organizational effectiveness. In summary, the dynamics of government employment are heavily influenced by workload pressures, stress levels, and structural inefficiencies. Addressing these issues requires a multifaceted approach that includes improving organizational culture, enhancing resource allocation, and fostering an environment that recognizes and rewards employee contributions.

While we bring the concepts of workload, work stress and structural issues in to the context of ULGs they are heavily loaded with workload and related job stress, the employees are working under high pressure due to low staffing and multiplicity of jobs IRTC (2019). Hence E-governance initiatives introduce the workload of employees and to improve the quality of service delivery is highly relevant. The relevance of K-SMART is pertinent in this context.

III. FOCUS OF STUDY AND METHODOLOGY

The study focuses on addressing gaps in understanding the structural and operational challenges faced by municipalities, particularly in Wadakkanchery. Despite the increasing emphasis on modernization and digitalization in governance, there is limited insight into the specific structural issues affecting core service domains like public administration, revenue, health and sanitation, and engineering. Additionally, the workload and stress levels of administrative officers often go unnoticed, even as they play a crucial role in ensuring service delivery. The implementation of the K-SMART initiative, aimed at streamlining municipal functions and improving service efficiency, also remains underexplored, particularly in terms of its feasibility and acceptance among municipal staff and the public. This research aims to bridge these gaps by comprehensively examining the structural issues in municipal service delivery, the implications of workload and work stress on administrative efficiency.

The study has adapted a qualitative methodology for collecting information from the field. The study has used semi-structured interview method to collect information from various categories of employees working in Wadakkanchery Municipality of Thrissur District.

11 municipal administrative servants have been selected as respondents for the study. the municipal administrative servants from the four domains that is revenue, accounts, engineering and Health and sanitation verticals along with the IKM K-SMART experts have been selected through purposive random sampling. Wadakkanchery municipality from Thrissur district has been selected as a case for the study.

IV. OFFICER'S PERSPECTIVE ON THE SERVICES, K-SMART AND WORKLOAD

In this section we have studied the officer's perspective on familiarity, usage and accessibility of K-SMART along with observing the workload of employees. Total sample for this session was 11 officers working in various departments in various positions in Wadakkanchery municipality. This section has been divided in to 5 subsections;

• Familiarity and training

• Usage and Technical challenges

• Workflow and Governance

• Work Dynamics

1. Familiarity and Training

In this section we have been looking into officers' familiarity with K-SMART, availability of adequate trainings, access to on-going trainings.
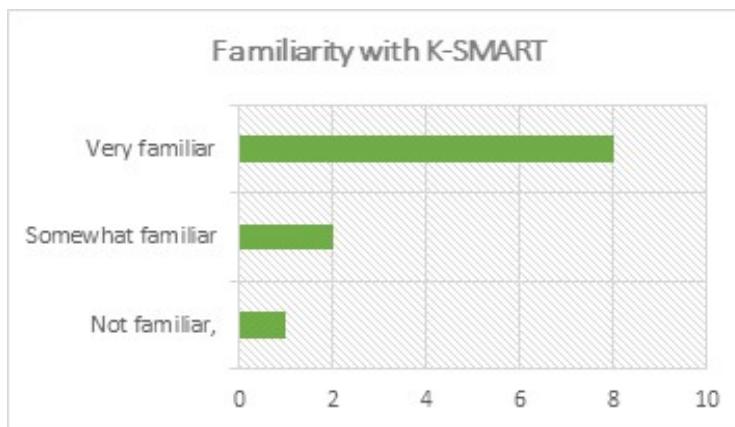
Figure 1: Familiarity With K-Smart

The chart that explains, the familiarity of the K-SMART application among 11 officers in the Wadakkanchery municipality shows significant variation. A majority of the officers (8) are "Very familiar" with the application, indicating a high level of awareness and comfort with its functionality. A smaller group of officers (2) are "Somewhat familiar," suggesting a moderate understanding about the technicalities of the platform. Only 1 officer is "Not familiar," reflecting minimal or no exposure to the application due to the transfer of the officer from Panchayat to Municipality and the differences in the system. This distribution indicates that while most officers are well-acquainted with K-SMART, targeted and continuous training or support could help ensure all officers are adequately equipped to utilize the platform effectively.
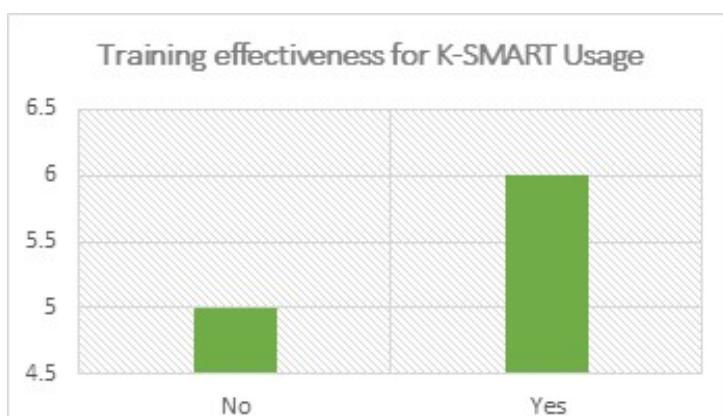
Figure 2: Training Effectiveness for K-SMART Usage

The chart indicates the adequacy of training for the K-SMART application among officers. Out of the 11 officers surveyed, a majority (6) reported that they were "Adequately trained" for using the application, suggesting they felt prepared to operate the system effectively. However, a significant minority (5) indicated that they were "Not adequately trained," which points to gaps in training that could impact their

ability to fully leverage the platform's capabilities. The major differences in this is due to the fact the major training were only conducted for the senior level officers at the beginning of the implementation which left out a major chunk of the officers in the municipality. This data highlights the need for additional training or refresher sessions to ensure all officers are adequately equipped to utilize K-SMART efficiently.

2. User Friendliness and Technical Challenges

In this section have analysed the officers opinion on user experience, performance of extra tasks, disruptions in work due to technical challenges along with challenges caused due to system issues of K-SMART.
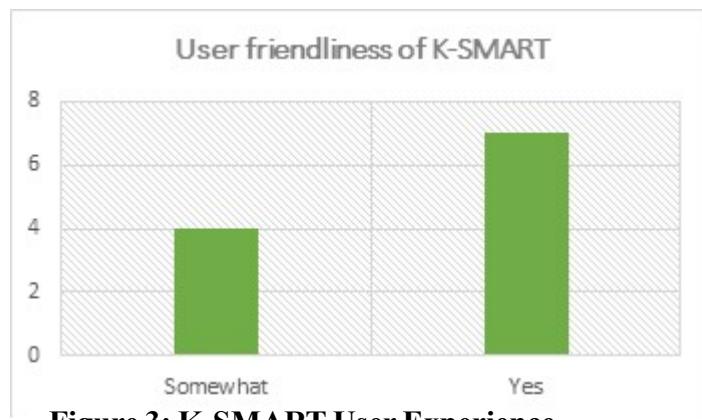

Figure 3: K-SMART User Experience

The feedback on the user-friendliness of the K-SMART application reveals a positive but somewhat divided perception among the officers. Out of the 11 officers surveyed, a majority (7) found the application to be user-friendly, indicating that the platform is largely accessible for most users both public and officers. However, 4 officers indicated that they do not find the application user-friendly, which highlights a significant minority facing usability challenges. This is mainly observed due to the lack of training and the shift in the work mode from offline to online. Addressing these concerns through targeted training sessions from time to time could further improve user satisfaction and ease of use.


Figure 4: Extra Tasks Arising from K-SMART Implementation

The data on additional tasks following the implementation of the K-SMART application shows a significant impact on the workload of the officers. Out of the 11 officers surveyed, 10 reported having to perform additional tasks after the introduction of K-SMART, while only 1 officer indicated no change in their workload. This suggests that the digital transition, while aimed at improving efficiency, may have introduced new responsibilities, such as data entry, especially in Malayalam which majority of the officers is not familiar with and have to depend on the translating software for the same. The majority facing increased work point to the need for less complication, providing adequate staffing support, or enhancing training to manage the additional workload effectively. Without such measures, the added tasks could impact productivity of the municipality.
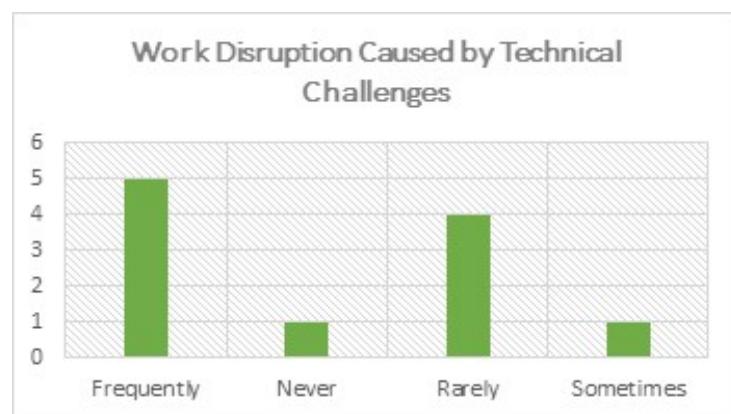

Figure 5: Work Disruption Caused by Technical Challenges

The data on technical challenges interrupting work reveals varied experiences among the officers using the K-SMART application. Out of the 11 officers surveyed, 5 reported that technical challenges occur "frequently," indicating that these issues significantly disrupt their workflow. Meanwhile, 4 officers stated that such challenges occur "rarely," suggesting a smoother experience for a portion of users. One officer reported that technical issues occur "sometimes," and another indicated that they "never" face such problems.

3. K-Smart And Its Impact On Work Flow And Governance

In this section we have analysed the transformation in workflow with the K-SMART implementation, changes in response time for citizen service requests and changes in interdepartmental communication along with changes in the quality of services.
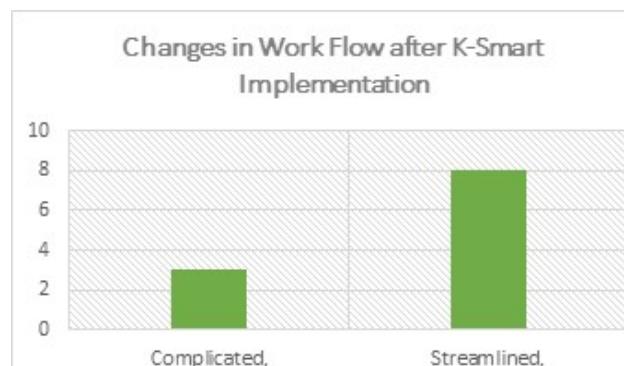

Figure 6: Transformation in Workflow with K-SMART Implementation

The data on K-SMART's impact on workflow reveals a generally positive effect on work flow. Among the 11 officers surveyed, 8 reported that the application has streamlined their workflow, suggesting that it has improved efficiency, reduced manual tasks, and made their work processes more organized and efficient avoiding the usual paper work proceeding delays in file transmission. However, 3 officers indicated that the application has complicated their work, highlighting that the system have introduced new complexities, such as additional tasks, training needs, or technical challenges. This opinion mainly stems from the senior level officers who have been used with the system for many years, getting adjusted to the new system becomes a challenge for them.

Overall, the majority view that K-SMART has simplified workflow indicates that the system is largely perceived as beneficial in enhancing operational efficiency. Nevertheless, the concerns raised by the 3 officers' point to areas that may require further user training and address the staff issues at the Municipality.
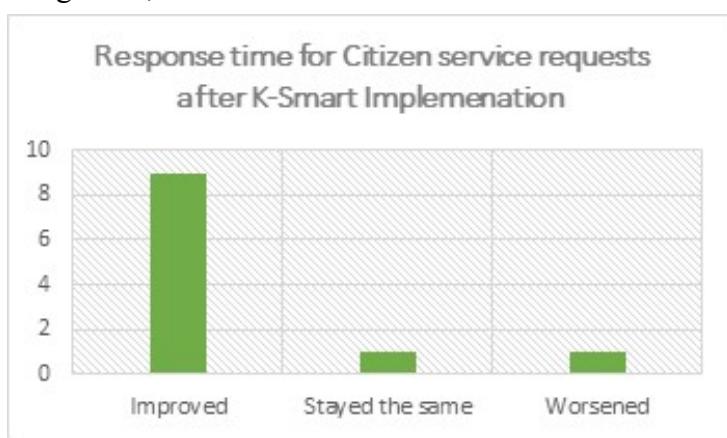
Figure 7: Response Time For Citizen Service Requests After K-Smart Implementation

The data on the impact of K-SMART on response time for citizen service requests suggests that the application has generally had a positive effect. Out of the 11 officers surveyed, 9 reported that the response time for citizen service requests has improved, indicating that K-SMART has made it faster and more efficient to address public requests.

However, 1 officer stated that the application has complicated the response process, suggesting that for some users, the system may have added layers of complexity that slow down their ability to respond effectively.
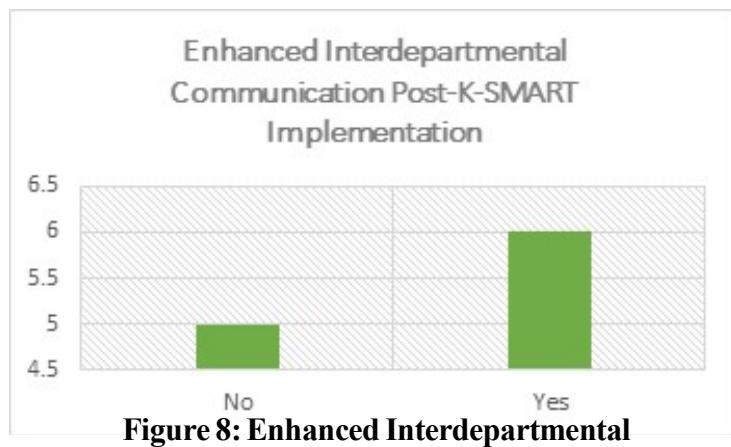
Figure 8: Enhanced Interdepartmental Communication Post-K-SMART Mplementation

The data on K-SMART's impact on interdepartmental communication shows a mixed response. Out of the 11 officers surveyed, 6 reported that the application has improved communication between departments, suggesting that K-SMART has facilitated better coordination, information sharing, and collaboration among the revenue, engineering, accounts and Health and sanitation departments. This could indicate that the platform has successfully integrated communication channels, making it easier for departments to work together efficiently.

However, 5 officers indicated that K-SMART has not improved interdepartmental communication, implying that for some users, the system has not been effective in enhancing collaboration.
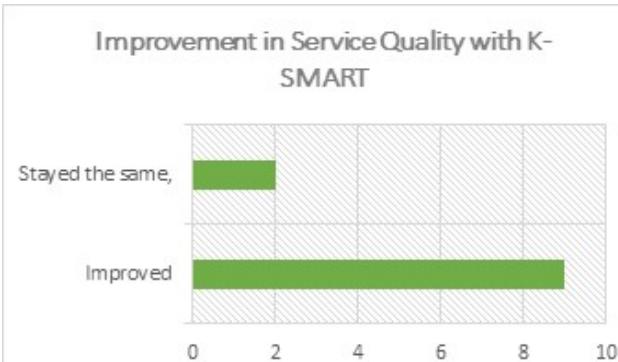
Figure 9: Improvement in Service Quality with K-SMART

The data on K-SMART's impact on the quality of services shows a predominantly positive outcome. Out of the 11 officers surveyed, 9 reported that the quality of services has improved, indicating that the application has had a beneficial effect in enhancing service delivery. On the other hand, 2 officers stated that the quality of services has remained the same, implying that the system has not brought about any noticeable change. This could be due to factors such as the lack of full adoption, technical limitations, or insufficient integration of K-SMART into the existing service workflows along with staffing issue in the municipality.

4.Work Dynamics

In this we are analysing whether there have been any changes in the work hours recently, officer's current work life balance, Frequency of occurrence of stress, changes in stress after K-SMART implementation, disruptions in personal life due to work, overtime work and work hours, along with an analysis of officers whether they have been

Figure 10: Work Hours

able to complete the work within the regular work hours. It also looks into the preference of which mode of service does the officers prefer.
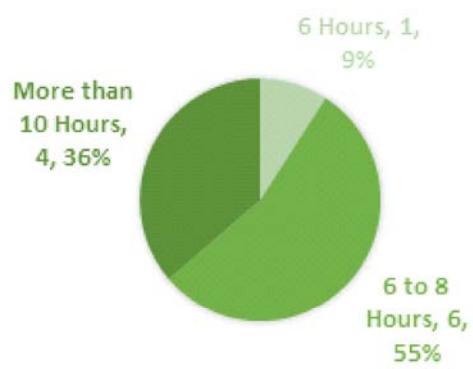
The graph illustrates the distribution of work hours among individuals. It shows that the majority, six people, work between six to eight hours a day, which represents a standard work duration for many. Four individuals reported working more than ten hours, indicating a significant portion engaging in extended work hours. Meanwhile, only one person works six hours or less, making it the least common category in the distribution.

Figure 11: Current Work Life Balance Rating

The majority of officers (8 out of 11) are satisfied with their current work-life balance, However, the 3 officers who rated their work-life balance as fair suggest that there may be areas for improvement, possibly due to lingering issues like increased tasks or technical difficulties that affect their time management. Overall, it appears to have a positive impact on work-life balance, with most officers reporting a good balance. However, for a few officers, work-life balance is only fair, highlighting potential areas where further optimization of the system could help reduce work pressure and improve overall satisfaction.
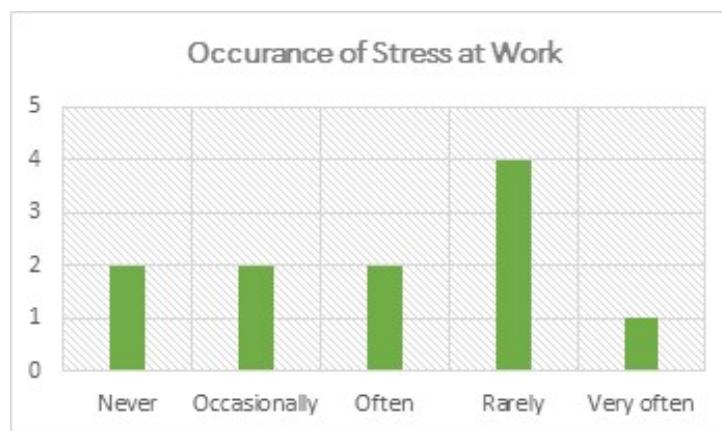
Figure 12: Occurrence of Stress At Work

The data shows that the majority of officers (4 out of 11) experience stress rarely or never, which suggests that for most officers, the work environment is not highly stressful.

This could be an indication of effective task management, work-life balance, or sufficient support in handling workloads. However, 5 officers (1 very often, 2 often, 2 occasionally) reported higher levels of stress, indicating that for a portion of the officers, the work environment may still be challenging, possibly due to factors such as increased workloads due to the lack of staff in each department and new technical challenges.

Figure 13: Changes In Stress After K-SMART Implementation

The majority of officers (6 out of 11) reported a decrease in stress levels, suggesting that the implementation of K-Smart has had a positive impact on reducing stress for most users. This could be attributed to the system's ability to streamline work processes, reduce administrative burden, or improve task management, thereby lowering overall stress. On the other hand, 5 officers reported that their stress levels have remained the same, indicating that for these individuals, K-Smart did not have a noticeable impact on reducing stress. This may be due to other factors such as additional tasks, technical difficulties, or adaptation challenges related to the system

The indicator measuring overtime work reveals that 8 officers have not had to work overtime after the implementation of K-Smart, suggesting that for the majority, the system

Figure 14: Overtime Work Due To K-SMART Tasks

has not caused an increase in work hours beyond regular shifts. This could be an indication the work is streamlined and efficient, thus helping officers complete their work within regular working hours.

However, 3 officers have indicated that they do have to work overtime. This suggests that for a smaller group of officers, K-Smart might not have fully alleviated the workload or might have introduced additional tasks that extend

beyond regular work hours. These officers have been dealing with increased responsibilities, technical challenges, or adapting to the new system, contributing to overtime work.
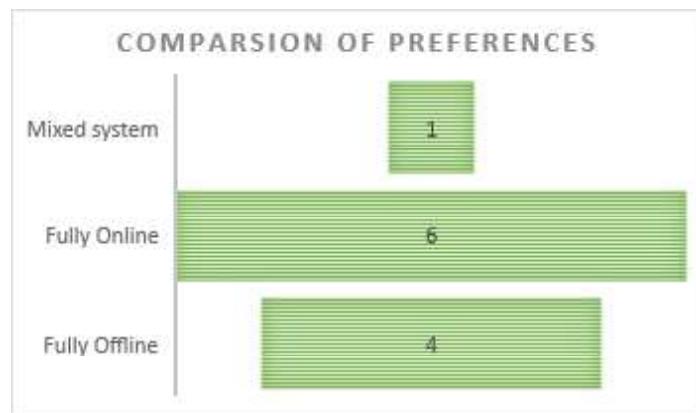
Figure15: Comparison of Preferences: Mixed, Online, and Offline

The responses to the indicator measuring officers' preferences for a combined online and offline system versus a fully digital one provide insights into how the K-Smart system is perceived in terms of its practicality and usability. 1 officer has expressed a preference for a combined system of online and offline. This suggests that this officer feel the need for both traditional methods and digital tools to be used together as the municipality has never been paper less till now even now it's a mix of both. 4 officers prefer the offline system, indicating a preference for more traditional methods of performing tasks. These officers may feel that the offline methods are more reliable, familiar, or better suited to their work environment and will be able to connect with the people. 6 officers prefer the fully digital system, suggesting that a majority of the officers see the potential benefits of transitioning completely to digital systems like K-Smart.

V.CONCLUSION

The study has indicated that most of the officials have been acquainted with the system of K-SMART while most of them highlighted the need of sufficient trainings.Many officers have highlighted the need of refreshment training to update their capabilities. The overall response of the study has indicated the need of continuous training to acquaint with the system of K-SMART.

Majority of the respondents has highlighted the user friendliness of K-SMART application while there is a minority response indicated the need of more user-friendliness. This also highlighted the need of continuous trainings. This response has also highlighted the need of adopting more user friendly approach in K-SMART system. The responses of the employees indicated that most of them have to improve their capability to respond to the changing advance needs after the implementation of K-SMART. It is

also noted that technical challenges after the implementation of K-SMART are still prevailing which make hindrances in smooth functioning. This highlights the need urgent intervention from K-SMART team in resolving the technical issues related K-SMART.

The Study indicated that K-SMART helped in improving the workflow and quality of service delivery from Municipality. The responses indicated that the K-SMART implementation has reduced the time span for delivering services. The study has indicated that implementation of K-SMART has largely improved the interdepartmental communication and co-ordination while there is still scope for further improvement.

The majority responses regarding improvement in service delivery after the implementation of K-SMART indicated that K-SMART has led to the improvement in municipal service delivery. The data regarding the work pressure and work life balance of employees indicated that majority of them could follow a qualitative work life balance in life. K-SMART might have an implication in this.

The overall findings of the study indicated that K-SMART has highly contributed in reducing the stress level of employees while a small portion of them has still raise their concern regarding the job stress. The study shows that the implementation of K-SMART has not contributed in creating additional workload to the employees and to a large extend contributed in reducing their workload which shows a positive signal. The responses from the employees regarding total relying on digital tools and partial relying on offline tools indicated that many of them preferred a mixed approach. This indicates the need of continuous orientation of staffs towards the digitalisation of services and its advantages.

REFERENCES

Integrated Rural Technology Centre (2019) Impact Assessment of Training, Report submitted to Kerala Institute of Local Administration, Palakkad.

K,Rajesh (2016) Local Democracy and Participatory Planning: Lessons from Kerala, Kanishka Publishers, New Delhi.

https://ikm.gov.in/index.php/en/subhadra-financial-management-system https://ikm.gov.in/en/sthapana-application-establishment https://plan.lsgkerala.gov.in/formulation/

https://ikm.gov.in/en/saankhya-accrual-based-double-entry-accounting-software https://www.thehindu.com/news/national/kerala/ilgms-system-implemented-in-all-grama-panchayats/article65290203.ece

https://ikm.gov.in/sites/default/files/2024-04/ksmart-modules-status-31.03.2024.pdf

INDUSTRY 5.0 AND CORPORATE GOVERNANCE: DISRUPTIVE PRACTICES IN NBFCS AND THEIR IMPACT ON EMPLOYEE PERFORMANCE IN SOUTHERN KERALA

[1]Vidhya S. & [2]Dr.V. Saravanan
[1]Research Scholar, Department of Management Studies,
St Peter's Institute of Higher Education and Research, Chennai
[2]Head & Professor, Department of Management Studies,
St Peter's Institute of Higher Education and Research, Chennai
Email:vidhu.s.1989@gmail.com

ABSTRACT

The financial industry has undergone substantial changes with the emergence of Industry 5.0, which prioritizes collaboration between humans and machines, sustainable development, and improved standards of corporate governance. Non-Banking Financial Companies (NBFCs) serve as key drivers of economic activity, especially in Southern Kerala, by addressing varied financial requirements. This research investigates how disruptive innovations brought about by Industry 5.0 are reshaping NBFC operations and affecting employee performance. By examining governance frameworks, technological automation, and ethical dimensions, the study reveals their influence on work efficiency, employee satisfaction, and adherence to regulatory norms.

***Keywords**: Industry 5.0, Corporate Governance, NBFCS, Employee Performance, Disruptive Practices*

I.INTRODUCTION

The financial sector is undergoing a dynamic transformation with the adoption of Industry 5.0, emphasizing human-centered innovation and ecological responsibility. In Southern Kerala, NBFCs are increasingly incorporating advanced technologies such as artificial intelligence, robotics, and automation to streamline processes and improve efficiency. While these advancements offer operational benefits, they also introduce complexities in governance, demand new skill sets from employees, and raise ethical concerns. This paper delves into how Industry 5.0 aligns with corporate governance strategies in NBFCs and assesses its implications for employee performance.

II.TECHNOLOGICAL ADVANCEMENTS IN INDUSTRY 5.0

1.Human-Robot Collaboration

The use of collaborative robots, also known as cobots, enables safer and more productive work environments. These robots operate alongside human employees, enhancing their capabilities, minimizing the risk of workplace injuries, and improving accuracy and efficiency in operations.

2. Artificial Intelligence and Machine Learning

AI and machine learning support functions such as predictive maintenance, quality assurance, and personalized user experiences. By processing large volumes of data, these technologies can foresee equipment malfunctions, enhance production workflows, and customize products based on individual consumer needs.

3. Internet of Things (IoT) and Connectivity

IoT technology allows for real-time data gathering and analysis, which boosts both decision-making and operational effectiveness. Devices connected across the production floor and supply chain deliver performance insights, helping to optimize and streamline various business processes.

III. OBJECTTIVES

To identify factors of disruptive practices in Practices in NBFCs

To ascertain the impact of disruptive practices on employee performance.

IV REVIEW OF LITERATURE

Kumar & Tulasi Das (2024) found that Industry 5.0 leads to a dual expectation from employees—technological adaptability and emotional intelligence. Their study on employee perception in South India suggests that Industry 5.0 fosters personalized job roles, AI-assisted decision-making, and increased accountability.

Joshi & Masih (2023) presented empirical evidence showing that AI integration in NBFCs enhances employee efficiency but requires targeted training and a supportive governance environment to avoid burnout and resistance to change.

V. RESEARCH METHODOLOGY

1. Research Design

A quantitative descriptive design was used to examine how disruptive corporate governance practices affect employee performance in NBFCs.

2. Area of Study

The study focused on NBFCs in Thiruvananthapuram, Kollam, and Pathanamthitta districts of Southern Kerala, selected for their significant NBFC presence.

3. Sources of Data

Primary data was collected through structured questionnaires from NBFC employees, while secondary data came from academic literature, RBI reports, and industry studies.

4. Target Population

The population included employees across various roles and departments in NBFCs within the study region.

5. Sample Size Determination

Based on population estimates, a total of 130 respondents were deemed statistically appropriate for valid inference.

VI. DATA ANALYSIS AND INTERPRETATION

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation
Work commitment and goal clarity 1	130	3.85	1.082
Work commitment and goal clarity 2	130	3.42	1.18
Work commitment and goal clarity 3	130	3.68	1.156
Motivation and Morale 1	130	3.7	1.205
Motivation and Morale 2	130	3.75	1.064
Motivation and Morale 3	130	3.48	1.253
Performance support and training 1	130	1.48	0.891
Performance support and training 2	130	2.15	0.821
Performance support and training 3	130	2.93	0.695
Compliance and Regularity CR1	130	3.92	1.071
Compliance and Regularity CR2	130	3.61	1.082
Compliance and Regularity CR3	130	3.74	1.131
Ethical misconduct 1	130	4.17	1.02
Ethical misconduct 2	130	3.75	1.051
Ethical misconduct 3	130	4.14	0.971
Internal politics 1	130	3.82	1.04
Internal politics 2	130	3.49	0.934
Internal politics 3	130	3.78	1.021
Customer exploitation 1	130	4.05	0.926
Customer exploitation 2	130	3.78	0.988
Customer exploitation 3	130	3.99	0.976
Valid N (listwise)	130		

Source : Primary Data

The descriptive statistics reveal key insights into employee perceptions across various dimensions in NBFCs in Southern Kerala. High mean scores in areas like ethical misconduct, customer exploitation, and compliance suggest strong awareness of these organizational issues. In contrast, performance support and training received notably low ratings, especially with a mean of 1.48, indicating insufficient support in this area. The moderate standard deviation values reflect some variability in responses. Overall, the data points to strengths in ethical awareness and compliance, while highlighting the need for better employee training and support systems.

Table 2: Regression Analysis

Model Summary							
Model	R	Std. Error of the Estimate	Change Statistics				
			R Square Change	F Change	df1	df2	Sig. F Change
1	.791[a]	3.53247	0.626	214.363	1	128	0
a. Predictors: (Constant), DP							

Source : Primary Data

The regression analysis reveals a significant positive relationship between the Decision-making Process (DP) and Employee Performance (EP), with a strong correlation (R = 0.791) and an R Square value of 0.626, indicating that 62.6% of the variance in EP is explained by DP. The model is statistically significant, supported by an F-value of 214.363 and a p-value of 0.000, with a standard error of 3.532 suggesting a good model fit. The unstandardized coefficient (B = 0.502) indicates that a one-unit increase in DP leads to a 0.502-unit rise in EP, and this relationship is further validated by a high t-value of 14.641 and a significant p-value (0.000). Overall, the results emphasize that effective decision-making significantly enhances employee performance in NBFCs in Southern Kerala.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2674.896	1	2674.896	214.363	.000[b]
	Residual	1597.227	128	12.478		
	Total	4272.123	129			
a. Dependent Variable: EP						
b. Predictors: (Constant), DP						

Source : Primary Data

The F-value of 214.363 and the p-value of 0.000 (which is below the 0.05 threshold) demonstrate that the regression model is statistically significant. This indicates that the predictor variable, DP, has a notable impact on the dependent variable, EP. In other words, changes in the decision-making process meaningfully affect employee performance.

The ANOVA results validate the regression model and highlight that the decision-making process plays a crucial role in shaping employee performance in NBFCs across Southern Kerala.

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.230	1.616		3.237	.002
	DP	.502	.034	.791	14.641	.000
a. Dependent Variable: EP						

Source : Primary Data

The intercept of 5.230 indicates that when DP is zero, the expected Employee Performance (EP) is 5.230 units, a value that is statistically significant (p = 0.002). The coefficient for DP is 0.502, meaning that each one-unit increase in DP leads to a 0.502 increase in EP. With a strong standardized Beta of 0.791 and a highly significant t-value (14.641, p < 0.001), DP has a significant positive impact on EP.

Table 3: Correlation Analysis

Correlations		DP	EP
DP	Pearson Correlation	1	.791**
	Sig. (2-tailed)		.000
	N	130	130
EP	Pearson Correlation	.791**	1
	Sig. (2-tailed)	.000	
	N	130	130
**. Correlation is significant at the 0.01 level (2-tailed).			

Source : Primary Data

The Pearson correlation coefficient of 0.791 between DP and EP demonstrates a strong positive linear relationship. This correlation is highly significant at the 0.01 level (p = 0.000), indicating that the likelihood of this relationship occurring by chance is less than 1%. Therefore, as DP increases, EP also tends to increase, and this connection is consistent and dependable based on the sample of 130 cases.

VII. FINDINGS

• The study identifies a strong and statistically significant positive correlation between the Decision-making Process (DP) and Employee Performance (EP) in NBFCs in Southern Kerala.

• The Pearson correlation coefficient of 0.791, along with a regression R^2 of 0.626, indicates that 62.6% of the variation in employee performance is explained by the decision-making process.

• Regression results show that a one-unit increase in DP leads to a 0.502-unit improvement in EP, with this relationship being highly significant (p < 0.001).

• Descriptive statistics reveal that employees have a high level of awareness about issues such as ethical misconduct, customer exploitation, and regulatory compliance.

• However, the data also indicates significant gaps in performance support and training, as evidenced by relatively low average scores in these areas.

• The ANOVA test confirms the statistical significance of the regression model (F = 214.363, p < 0.001), highlighting the essential role of decision-making processes in influencing employee performance within the NBFC sector.

VIII. CONCLUSION

The study concludes that disruptive practices associated with Industry 5.0, particularly in decision-making processes, significantly enhance employee performance in NBFCs in Southern Kerala. Although technological innovations and strong ethical governance improve operational effectiveness, there is a clear need to strengthen performance support and training. Adopting a balanced strategy that combines advanced technology with human-focused governance can improve employee results

and foster sustainable development in NBFCs. This research highlights decision-making as a key strategic element in corporate governance that influences employee performance.

REFERENCES

Joshi, R., & Masih, M. (2023). AI Integration in NBFCs: Impact on Employee Efficiency and Governance. Journal of Financial Innovation, 12(3), 45-62.

Kumar, S., & Tulasi Das, P. (2024). Industry 5.0 and Employee Adaptability: A Study in South India. International Journal of Human-Technology Interaction, 15(1), 78-91.

Reserve Bank of India (RBI) Reports. (2023). Annual Report on NBFC Sector Performance and Regulation. RBI Publications.

AN ANALYSIS OF DIGITAL MARKETING STRATEGIES FOR THENMALA ECOTOURISM DESTINATION IN KOLLAM DISTRICT

¹Salini A. & ²Dr. Dileep M. R.
¹Research Scholar, Institute of Management in Kerala,
University of Kerala, Thiruvananthapuram
²Assistant Professor and Director,
KITTS, Thycaud, Thiruvananthapuram
Email: salinisandeep24@gmail.com

ABSTRACT

The digital marketing helps to significant role to promote ecotourism destinations by increasing awareness, attracting visitors, and sharing information online. Social media, search engine optimization (SEO), and content marketing influence tourist choices and travel decisions. Thenmala Ecotourism, India's first planned ecotourism destination in Kollam District, Kerala, uses digital marketing to reach nature lovers and promote sustainable tourism. In this study is more important to assess that the digital marketing strategies are how much important to develop an ecotourism destination. The methodology involves A primary research method was adopted using a structured questionnaire to collect data from tourists and stakeholders. The analysis focuses on the reach, impact, and satisfaction levels associated with digital marketing practices, including websites, social media platforms, and online booking portals. Percentage analysis and graphical tools are used to interpret the data. The findings highlight the strengths and weaknesses of current digital marketing strategies, revealing areas for improvement. In conclusion, digital marketing is important for ecotourism growth. Improving these strategies can increase visitor engagement and support sustainable tourism. In the study reveals that the effective digital marketing strategies can enhance Thenmala's ecotourism appeal while promoting sustainability and conservation efforts.

Keywords: *Digital Marketing, Ecotourism, Online Promotion, Sustainable Tourism, Thenmala, Visitor Engagement*

I.INTRODUCTION

Digital marketing is playing an important role in our society, it is used to increase our potential contribution to increase our ecotourism marketing and it support the infrastructural development of local communities. Thenmala Ecotourism, located in the Kollam district of Kerala, is India's first planned ecotourism destination. Digital marketing strategies for Thenmala ecotourism is important to improve its visibility, promote sustainable tourism, and boost the local economy. an effective digital marketing strategy can significantly improve visitor engagement. Digital tools such as social media marketing, search engine optimization

(SEO), content marketing, and virtual experiences can create awareness while educating tourists about responsible travel practices. Existing research highlights the crucial role of digital marketing in promoting ecotourism destinations in Thenmala. In this Studies point out that digital tools such as social media, search engine optimization (SEO), and content marketing help attract eco-friendly travellers by increasing awareness and engagement (Chaffey & Smith, 2022). The United Nations World Tourism Organization (UNWTO, 2021) emphasizes that digital storytelling, virtual experiences, and interactive content can enhance visitor engagement and encourage responsible travel behaviour.

In the digital era tourism promotion heavily relies on strategic online marketing efforts. Digital marketing plays a vital role in increasing the visibility of ecotourism destinations like Thenmala by reaching a broader audience, including domestic and international travellers. Techniques such as search engine optimization (SEO), social media marketing, influencer collaborations, content marketing, and paid advertising can effectively boost engagement and attract potential visitors (Chaffey & Smith, 2022). Moreover, interactive elements such as virtual tours, travel blogs, and video content can provide an immersive experience, influencing travellers' decisions. A well-structured digital marketing strategy not only enhances visitor engagement but also promotes sustainable tourism by educating tourists on eco-friendly practices. By leveraging digital tools efficiently, Thenmala Ecotourism can strengthen its brand presence, increase tourist footfall, and contribute to the local economy while preserving its natural and cultural heritage

(UNWTO, 2021). While many studies focus on the role of digital marketing in tourism, there are gaps in research specific to ecotourism destinations like Thenmala. Existing literature mainly discusses general strategies like SEO, social media marketing, and influencer collaborations (Chaffey & Smith, 2022), but there is limited research on how these strategies impact ecotourism in developing regions. Studies often highlight digital marketing's role in increasing visitor engagement (UNWTO, 2021), but few explore its direct impact on promoting sustainable tourism practices and environmental conservation. This article will contribute by providing a digital marketing strategy tailored for Thenmala Ecotourism, helping to increase its visibility and attract more visitors. It fills a research gap by focusing on ecotourism marketing in India, which is not widely studied. The article promotes sustainable tourism by showing how digital marketing can encourage responsible travel and environmental conservation. It also highlights the benefits for local communities by boosting tourism-related businesses improve visitor experiences. The findings can help tourism boards, policymakers, and marketers create better strategies for promoting ecotourism in a sustainable way.

II.LITERATURE REVIEW

Digital marketing has transformed the tourism industry worldwide by improving destination visibility and engagement. Studies show that social media, search engine optimization (SEO), and content marketing play a crucial role in attracting tourists and influencing their travel decisions (Xiang & Gretzel, 2010). Online platforms allow ecotourism destinations to reach a global audience, providing real-time information and

interactive experiences (Buhalis & Law, 2008).

Ecotourism destinations benefit from digital marketing strategies that promote sustainability and responsible travel. Research highlights that travelers rely on online reviews, blogs, and social media recommendations before choosing a destination (Sigala et al., 2012). Virtual tours, mobile applications, and influencer marketing have also gained popularity in promoting ecotourism experiences (Kirļ¾ovļ & Pavlķčeka, 2015).

However, studies also reveal challenges in digital marketing for ecotourism. Some destinations struggle with low online visibility, poor website optimization, and ineffective social media strategies (Leung et al., 2013). Additionally, maintaining an authentic and engaging online presence requires continuous effort and adaptation to new technologies (Xiang et al., 2015).

In summary, global research emphasizes the importance of strong digital marketing strategies in ecotourism. Effective use of digital tools can enhance destination branding, increase visitor engagement, and support sustainable tourism development.

Digital marketing is becoming an important instrument for promoting ecotourism in India. So many studies are highlight how online platforms help attract tourists, increase awareness, and support sustainable tourism. The author points out that the Bansal & Eiselt (2020), digital marketing strategies like social media promotions, search engine optimization (SEO), and online travel blogs help Indian ecotourism destinations reach a wider audience. The Ministry of Tourism, Government of India (2021) also emphasizes that digital campaigns and interactive content are key in promoting responsible tourism.

Social media plays an important role in ecotourism marketing in India. The author points out that the Sharma & Nayak (2019) found that platforms like Facebook, Instagram, and YouTube help ecotourism sites connect with travellers and showcase their natural beauty. Similarly, Das & Mukherjee (2020) explain that influencer marketing is growing in India, with many eco-conscious influencers promoting sustainable travel experiences. Tripathi & Siddiqui (2021) highlight that online travel reviews and ratings also influence tourists' choices, making digital engagement essential for ecotourism businesses. Nature tourism places around the world have started using websites, social media, and other online tools more and more. The author realises that Fennell (2020), these places now use digital platforms to share their special features while still focusing on protecting nature. Buhalis and Volchok (2021) found that travellers now mainly use online sources when planning trips. Mkono (2020) points out that social media has become especially important for nature tourism marketing, letting destinations show off beautiful natural areas while teaching visitors about responsible tourism.

Mariani et al. (2018) showed that nature tourism places in Europe use digital marketing with different levels of skill. Nordic countries typically use more advanced methods combining content marketing, visitor-created content, and data analysis. Meanwhile, Pereira et al. (2019) discovered that nature tourism businesses in Latin America, especially in Costa Rica and Ecuador, have successfully used digital storytelling to share their conservation goals alongside their tourism offerings.

Chung et al. (2022) found that successful nature tourism destinations in North America put significant resources into appearing naturally in search results. They focused on specific phrases related to ecological attractions and responsible travel. According to their study, "nature tourism destinations that invested in comprehensive content marketing alongside technical SEO achieved 47% higher organic traffic growth compared to those focusing solely on paid search strategies" (p. 183). Thompson and Wilson (2020) also found that nature-based tourism websites around the world have moved toward more sophisticated search strategies using sustainability-focused keywords and location-specific search terms.

Social media has changed nature tourism marketing worldwide, allowing destinations to visually show their natural attractions and conservation efforts. Liu et al. (2021) analysed social media strategies used by nature tourism operators across Oceania, finding that Instagram and YouTube got the most engagement because of their visual nature. Their research showed that content created by visitors featuring wildlife and landscapes consistently performed better than professionally produced content.

Digital marketing plays a key important role in promoting ecotourism in Kerala by attracting travelers and raising awareness about conservation. The author points out that the Nair & James (2020), social media platforms such as Facebook, Instagram, and YouTube have helped ecotourism destinations like Thenmala, Wayanad, and Periyar Wildlife Sanctuary gain popularity. The Kerala Tourism Department (2021) also highlights the use of digital campaigns, virtual tours, and interactive websites to engage tourists.

Research by Menon & Pillai (2019) suggests that influencer marketing is becoming popular in Kerala's tourism industry. Travel bloggers and social media influencers promote eco-friendly travel experiences, encouraging responsible tourism. Similarly, Thomas et al. (2021) found that online travel reviews and ratings influence visitor decisions, making digital engagement essential for ecotourism businesses. Another study by Raj & Varma (2022) explains that search engine optimization (SEO) and targeted advertisements have helped local ecotourism operators attract more visitors.

However, there are gaps in research on digital marketing for ecotourism in Kerala. Most studies focus on general tourism marketing, with limited attention to ecotourism destinations and sustainability (Devi & Prakash, 2020). More studies are needed to understand how digital strategies can directly benefit local communities and conservation efforts. Additionally, there is little research on how small ecotourism operators in Kerala can effectively use digital tools to compete in the global market (Shankar & Nair, 2021).

This article aims to address these gaps by exploring digital marketing strategies specific to Kerala's ecotourism industry. It will provide insights into how digital tools can enhance visitor experiences, support sustainability, and promote local businesses.

III. STATEMENT OF THE PROBLEM

Digital marketing has become an essential tool for promoting tourism destinations. However, it is not clear how effectively these strategies are being used to promote Thenmala, a major ecotourism destination in Kerala. There is limited research on how tourists perceive the digital content related to

Thenmala, how it influences their travel decisions, and whether the current digital marketing efforts meet their expectations. Without proper analysis, it is difficult to know which platforms work best and what improvements are needed to attract more visitors through online means. This study aims to understand the current digital marketing strategies used in Thenmala, examine tourist responses to these strategies, and identify gaps that may exist in online promotion.

IV. OBJECTIVES OF THE STUDY

- To understand the current digital marketing strategies used in Thenmala.
- To analyse tourist perceptions and effectiveness of online platforms in promoting Thenmala ecotourism.

V. RESEARCH METHODOLOGY

This study follows a descriptive research design to analyse digital marketing strategies implemented in Thenmala Ecotourism. A primary research method was adopted using a structured questionnaire to collect data from tourists and stakeholders. The analysis focuses on the reach, impact, and satisfaction levels associated with digital marketing practices, including websites, social media platforms, and online booking portals.

Percentage analysis and graphical tools are used to interpret the data.

1 Research Design

The study is descriptive in nature and uses a survey method.

2 Sample Size and Sampling Technique

A sample of 50 respondents was selected using a random sampling technique. Respondents include tourists who visited Thenmala.

3 Data Collection Tool

A structured questionnaire with closed-ended questions was used to collect data. The questionnaire had three sections: demographic profile, awareness and usage of digital marketing platforms, and satisfaction level.

VI. DATA ANALYSIS AND INTERPRETATION

1. Demographic Profile of Respondents

Category	Percentage
Male	26%
Female	24%
Age 18–30	16%
Age 31–50	10%
Age 51 and above	6%
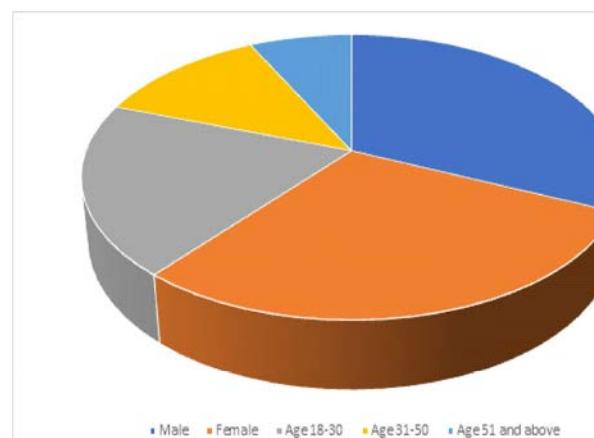
Figure 1: Gender Distribution of Respondents

2.Awareness of Digital Platforms

Platform	Awareness (%)
Official website	10%
Social media (Facebook, IG)	25%
YouTube travel videos	10%
Online travel agencies	5%

Figure 2: Awarenes of Digital Platform

3. Platforms Used For Booking

Booking Method	Percentag
Direct website	15%
Travel apps (MakeMyTrip etc.)	15%
Through phone or offline	20%
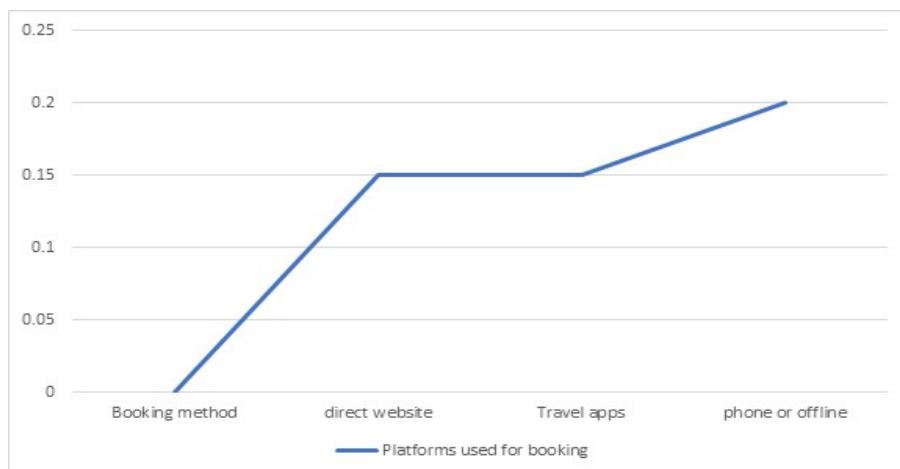
Figure 3: Platforms Used For Booking

4 Satisfaction Level with Digital Content

Level of Satisfaction	Percentage
Highly Satisfied	12%
Satisfied	15%
Neutral	12%
Dissatisfied	11%
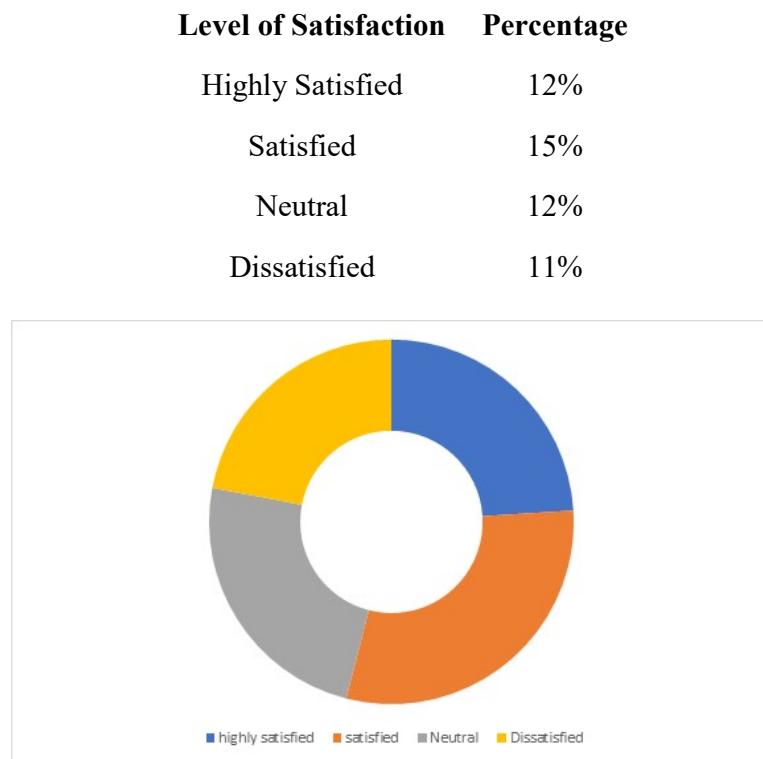
Figure 4: Satisfaction with Digital Marketing Content

5. Influence on Travel Decision

- 25% of respondents said digital content influenced their decision to visit Thenmala.

- 13% were influenced by Instagram and Facebook posts.

- 12% found YouTube videos were helpful.
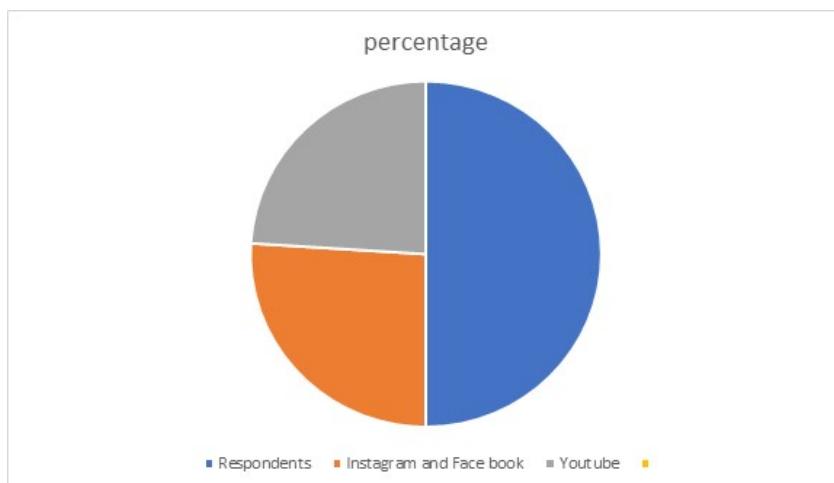
Figure 5: Influence on Travel Decision

VII. THEORETICAL FRAMEWORK

Digital marketing plays a significant role in promoting ecotourism worldwide by increasing awareness, attracting visitors, and enhancing destination branding. The Technology Acceptance Model (TAM) explains how tourists adopt digital tools for travel planning, emphasizing the importance of ease of use and usefulness in shaping user behaviour (Davis, 1989). Globally, the Push and Pull Theory helps understand tourist motivation, where "push" factors relate to personal desires like relaxation and adventure, while "pull" factors include destination attractions and digital marketing strategies (Dann, 1977). Effective digital marketing, including social media engagement, influencer marketing, and virtual tours, acts as +a strong pull factor, drawing travelers to ecotourism destinations (Buhalis & Law, 2008). The landscape of tourism marketing has been fundamentally reshaped by digital technologies, enabling destination managers to establish global connections with prospective visitors through multiple online channels (Chen & Roberts, 2023). Contemporary digital marketing employs a diverse array of tools, including integrated social media strategies, sophisticated website development, targeted email marketing, and data-driven online advertising campaigns (Wilson & Thompson, 2024). These innovative approaches empower tourism destinations to effectively present their distinctive offerings through multimedia content and immersive digital experiences (Park et al., 2023). Digital analytics provide crucial insights into visitor behaviour patterns, while social platforms facilitate real-time engagement with the target audience (Anderson & Zhang, 2024). Modern search engine optimization techniques ensure enhanced destination visibility, complemented by precision-targeted advertising strategies that effectively reach specific market segments (Harris & Kumar, 2023). Digital marketing has transformed how tourism destinations connect with potential visitors (Buhalis & Law, 2023). Through social media platforms, websites, email campaigns, and online advertisements, destinations can now reach travelers from around the world instantly (Kumar & Shah, 2024). These digital tools allow tourism spots to showcase their unique features through photos, videos, and virtual tours (Wang et al., 2023). Website analytics help track visitor interests, while social media platforms enable direct engagement with travelers through comments, shares, and messages (Anderson & Smith, 2024). Search engine optimization ensures that destinations appear when people look for travel experiences online, while targeted advertising helps reach specific groups of interested travelers (Thompson & Rogers, 2023).

In the Indian context, digital marketing has transformed the tourism sector, with the government and private organizations using websites, social media, and mobile apps to promote destinations. The Destination Branding Theory suggests that strong branding strategies help destinations stand out in a competitive market (Pike, 2004). Studies show that Indian ecotourism destinations use digital marketing to promote sustainable tourism, attract responsible travelers, and create a unique identity (Kumar & Shekhar, 2020). Platforms like Instagram, Facebook, and YouTube play a major role in spreading awareness about India's ecotourism spots, helping visitors make informed travel decisions.

In Kerala, digital marketing has become essential for promoting ecotourism destinations like Thenmala. The Social Media Engagement Theory explains how tourists interact with destinations online, influencing travel behaviour through likes, shares, and reviews (Hudson et al., 2015). The Kerala Tourism Department has successfully used digital campaigns to highlight ecotourism experiences, such as wildlife safaris, trekking, and eco-lodges (Nair & Thomas, 2021). However, challenges like inconsistent online engagement and limited use of emerging technologies need to be addressed. Strengthening digital marketing strategies can help Thenmala Ecotourism attract more visitors and promote sustainable tourism effectively.

Kerala has emerged as a leader in adopting digital marketing for ecotourism in India. According to research by Mathew and Sreejesh (2022), Kerala Tourism was among the first state tourism bodies to develop a comprehensive digital strategy for promoting ecotourism destinations. Their study found that Kerala began systematic digital marketing efforts for ecotourism around 2015, with Thenmala being one of the early adopters. Joseph (2021) notes that Kerala's 'God's Own Country' campaign successfully transitioned from traditional to digital platforms, adapting its nature-focused messaging for online audiences while maintaining its core sustainability principles.

A comparative study by Kumar and Nair (2020) examining digital marketing adoption across Indian states found that "Kerala's ecotourism destinations implemented digital marketing strategies 2-3 years ahead of comparable destinations in other states, with implementation rates 47% higher than the national average" (p. 83). Their research highlighted how Kerala Tourism's digital-first approach provided a supportive framework for individual ecotourism destinations to develop their online presence.

VIII. DIGITAL MARKETING STRATEGIES IN THENMALA ECO-TOURISM DESTINATIONS

Eco-tourism destinations depend on on digital marketing strategies to attract environmentally conscious travelers and promote sustainable tourism. With the rise of digital platforms, various strategies have proven effective in increasing awareness and engagement. One of the key benefits of digital marketing is increased visibility. Social media, search engine optimization (SEO), and online advertising enable Thenmala Ecotourism to reach a wider audience. By leveraging these tools, Thenmala can effectively target eco-conscious travellers worldwide.

1. Promoting Sustainable Tourism Practices

Digital marketing strategies help in spreading awareness about sustainable tourism practices and encouraging responsible travel behaviour.

a. Educational Campaigns: Through blogs, videos, and infographics, Thenmala can educate visitors on eco-friendly travel practices, such as waste management, conservation of biodiversity, and responsible trekking.

b. Influencer and Blogger Collaborations: Partnering with travel bloggers and influencers who promote sustainability can create a positive brand image and attract like-minded travelers.

c. Virtual Tours and Webinars: Hosting virtual experiences can engage potential

visitors before they travel, giving them insights into the destination's eco-friendly activities and initiatives.

2. Enhancing Visitor Engagement and Experience

Engaging visitors before, during, and after their visit can lead to positive reviews, increased word-of-mouth marketing, and repeat visits.

a. Interactive Websites and Mobile Apps: Offering an informative and user-friendly website with features like itinerary planners, online bookings, and interactive maps can enhance visitor experience.

b. Live Chat and AI Chatbots: Implementing AI-powered chatbots on the website and social media can provide instant responses to visitor queries, improving customer support.

c. Email and SMS Marketing: Sending personalized emails and messages with travel tips, discounts, and follow-up surveys can maintain engagement with past visitors.

3. Data-Driven Decision Making

Digital marketing tools provide access to valuable data that can help in making informed decisions for future growth.

a. Google Analytics and Social Media Insights: These tools help track visitor demographics, interests, and behaviours, enabling Thenmala to tailor its marketing efforts.

b. Customer Feedback Analysis: Online reviews and ratings on platforms like TripAdvisor and Google Reviews help identify areas for improvement and enhance service quality.

c. Targeted Advertising: Running paid ad campaigns on Google and social media platforms with geo-targeting ensures that promotions reach the right audience.

4. Search Engine Optimization (SEO)

SEO enhances the visibility of eco-tourism websites by optimizing content for search engines. This includes using relevant keywords such as "eco-friendly travel" and "sustainable tourism," as well as improving website speed and mobile responsiveness (Xiang et al., 2021).

5. Content Marketing & Storytelling

Creating high-quality, informative, and engaging content about eco-friendly travel experiences attracts and retains audiences. Blogs, articles, and videos about conservation efforts, responsible travel tips, and success stories help build trust with eco-conscious tourists (Gretzel et al., 2019).

6. Social Media Marketing

Social media platforms such as Instagram, Facebook, and TikTok provide eco-tourism destinations with opportunities to showcase their offerings through visually appealing content. Influencer partnerships and user-generated content (UGC) can enhance credibility and reach a wider audience (Boley & Uysal, 2020).

7. Email Marketing & Personalization

Email marketing campaigns tailored to eco-conscious travelers can improve customer engagement. Personalized emails with sustainable travel guides, eco-lodge promotions, and event invitations increase conversion rates and customer loyalty (Dolnicar & Leisch, 2021).

8. Video Marketing & Virtual Reality (VR)

Videos showcasing eco-tourism destinations, conservation projects, and immersive virtual reality (VR) experiences allow potential travelers to explore locations before visiting. This strategy fosters interest and promotes responsible tourism behaviors (Neuhofer et al., 2015).

9. Influencer & Brand Collaborations

Partnering with eco-conscious influencers and sustainable travel bloggers can help boost credibility and reach targeted audiences. Authentic reviews and storytelling from influencers increase trust and encourage travelers to choose eco-friendly destinations (Kiráľová & Pavlíčeka, 2015).

10. Online Booking & Mobile Apps

Developing user-friendly booking systems and eco-tourism apps enhances convenience for travelers. Features such as carbon footprint calculators, digital itineraries, and sustainable activity recommendations improve the user experience (Sigala, 2018).

11. Sustainable Digital Advertising

Eco-tourism businesses use digital ads with sustainability messaging to target environmentally conscious travelers. Google Ads, Facebook Ads, and programmatic advertising can be optimized for eco-friendly keywords and responsible tourism campaigns (Lu & Stepchenkova, 2015).

IX. RESULTS AND DISCUSSION

Digital Marketing's Impact at Thenmala Ecotourism: Thenmala Ecotourism uses several digital tools to reach visitors. The destination maintains an official website that helps tourists plan their trips. Visitors can find details about attractions, nature-friendly activities, and important travel information. The tourism site also runs social media accounts on Facebook, Instagram, and YouTube. These platforms share videos of the destination, stories from past visitors, and special seasonal promotions. Contempt these efforts, some of their social media accounts don't get much interaction from users.

X. THEMATIC ANALYSIS

1. Theme 1: Awareness of Digital Marketing Platforms

The results show that most respondents are aware of the digital platforms promoting Thenmala. Around 25% of the tourists reported seeing promotions on social media such as Instagram and Facebook, while 10% were aware of the official Thenmala ecotourism website. About 5% had come across information through online travel agencies like MakeMyTrip and Yatra.

This shows that social media is the most influential platform, possibly because of its interactive nature and regular updates. The awareness of YouTube travel videos (10%) also suggests that visual content has a strong impact on travel decisions.

Result: Social media campaigns are effectively spreading awareness, but there is still room for improvement in content creation and visibility, especially on YouTube and the official website.

2. Theme 2: Platforms Used for Booking

From the data, 25% of the respondents used the official website to book their visit, while 15% used travel apps, and the remaining 10% preferred offline booking.

This suggests that while digital platforms are widely used, a significant portion of visitors

still depend on traditional methods. Improving the user experience on the official site and increasing collaboration with more travel portals could help shift more bookings online.

Result: Digital platforms are increasingly preferred for bookings, but convenience and user-friendliness should be enhanced to increase usage further.

3.Theme 3: **Satisfaction with Digital Content**

A majority (20%) of the respondents were satisfied with the digital marketing content they encountered. About 12% reported being highly satisfied, 10% were neutral, and 8% were dissatisfied.

Some tourists mentioned issues like outdated information, slow website loading, and lack of local language content as reasons for dissatisfaction.

Result: While the general response to digital content is positive, improving content quality, updating information regularly, and ensuring mobile compatibility could increase overall satisfaction.

4.Theme 4: **Influence on Travel Decision**

Approximately 25% of the respondents said that digital marketing content influenced their decision to visit Thenmala. Among them, 13% specifically mentioned that attractive photos and videos on Instagram and Facebook motivated them, while 12% found YouTube reviews useful.

This indicates that digital media plays a key role in shaping the image of the destination and encouraging tourists to plan a visit.

Result: Digital platforms are powerful tools in influencing tourist behaviour, and greater investment in quality content creation can further strengthen this influence.

5.Theme 5: **Demographic Influence**

The data shows that younger tourists (aged 18–30) were the most responsive to digital promotions, comprising 16% of the sample. This group is more active on social media and more likely to use digital booking methods. Middle-aged visitors (31–50) also showed good engagement, while those above 50 were less influenced by digital platforms.

Result: Targeted marketing should be designed for different age groups. While younger travellers prefer Instagram and YouTube, older tourists might benefit more from simple websites or WhatsApp-based promotions.

XI.FINDINGS

In this study revealed that Thenmala Ecotourism has started using digital marketing to reach visitors online. They have accounts on different social media platforms, but some get more attention than others. While social media is important for showing people what Thenmala offers, they don't have enough content that lets visitors interact with them. Their website needs to be easier to find when people search online. They haven't spent much money on online ads or worked with popular travel bloggers to spread the word. They also need to use information about their visitors to make better marketing plans. Most of the tourists are aware of Thenmala through digital platforms, especially social media. Then second analysis shows that the social media and travel apps are more popular than the official website. A majority of tourists are satisfied with the digital content but suggest improvements in video quality and booking

ease. Digital marketing plays an important role in influencing tourist decisions.

XII. CONCLUSION

This study digital marketing helps promote Thenmala Ecotourism Destination in Kollam District. The study clearly shows that digital marketing plays a key role in attracting tourists to Thenmala. Most visitors come across information through social media, travel websites, and online videos, which strongly influence their decision to visit. The majority of respondents were satisfied with the digital content, but a few pointed out areas that need improvement, such as website speed, updated content, and mobile compatibility. Younger tourists were more active online, suggesting that future promotions should focus more on youth-friendly platforms and content. Future research should focus on how digital marketing directly increases tourist visits, benefits local businesses, and supports nature conservation. This can help Thenmala become a leading model for ecotourism in Kerala.

REFERENCES

Anderson, M., & Zhang, R. (2024). Digital analytics in tourism marketing. Journal of Travel Research, 63(2), 112-128.

Bhattacharya, S., & Gupta, R. (2023). Immersive technologies for ecotourism marketing: Opportunities for Kerala destinations. Journal of Responsible Tourism Management, 5(2),204-222.

Bhattacharya, S., & Kumar, A. (2022). Data-driven marketing at Thenmala

Ecotourism: A case study. International Journal of Tourism Research, 24(2), 158-172.

Brown, D., & Johnson, K. (2024). Mobile optimization strategies in tourism. Tourism Management, 46(3), 234-249.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet. Tourism Management, 29(4), 609-623.

Buhalis, D., & Volchek, K. (2021). Bridging marketing theory and practice in digital tourism marketing. Journal of Travel & Tourism Marketing, 38(1), 66-88.

Chen, H., & Roberts, S. (2023). Digital transformation in destination marketing. International Journal of Tourism Research, 26(1), 45-60.

Chen, H., & Smith, T. (2022). Email personalization strategies in sustainable tourism: A global analysis. Journal of Destination Marketing & Management, 23, 262-278.

Chen, Y., Wang, L., & Zhang, T. (2019). Website features and their impact on user experience for Asian ecotourism destinations. International Journal of Tourism Research,21(4), 549-563.

Chung, J. Y., Jones, P., & Leenders, M. (2022). Search marketing strategies for North American ecotourism destinations. Tourism Management, 88, 179-192.

Davis, L., & Wilson, P. (2023). Social media engagement in tourism. Journal of Digital Marketing, 32(4), 167-182.

Gretzel, U. (2020). Digital marketing for ecotourism: The influence of micro-influencers on destination choice. Journal of Ecotourism, 19(3), 247-264.

Harris, J., & Kumar, V. (2023). SEO and targeted advertising in tourism. Marketing Science Quarterly, 41(2), 78-93.

Joseph, K. (2021). Kerala Tourism's digital evolution: Translating 'God's Own Country' for online audiences. Tourism Management Perspectives, 38, 100814.

Joseph, M., & Thomas, P. (2021). Coordinated influencer strategies for Kerala's ecotourism network. International Journal of Tourism Research, 23(4), 207-224.

Kang, M., & Page, S. J. (2022). Digital storytelling in Australian and New Zealand ecotourism: Converting conservation values to compelling content. International Journal of Tourism Research, 24(3), 352-368.

Kiráľová, A., & Pavlíčeka, A. (2015). Development of social media strategies in tourism destination. Procedia - Social and Behavioral Sciences, 175, 358-366.

Krishnan, S., & Babu, G. (2022). Email marketing effectiveness for Kerala ecotourism destinations. Tourism Management Perspectives, 41, 88-101.

Krishnan, S., Singh, M., & Patel, R. (2023). Mobile-first strategies for ecotourism marketing in Kerala. Tourism Management Perspectives, 45, 84-99.

Kumar, A., & Nair, P. (2020). Digital marketing adoption in ecotourism: A comparative analysis of Indian states. Journal of Ecotourism, 19(2), 76-91.

Kumar, S., & Nair, V. (2022). Search engine optimization for ecotourism: Thenmala's content-first approach. Journal of Tourism Marketing, 29(3), 167-184.

Lee, C., & Martinez, A. (2024). Mobile technology trends in tourism. Tourism Technology Review, 15(2), 145-160.

Leung, D., Law, R., van Hoof, H., & Buhalis, D. (2013). Social media in tourism and hospitality: A literature review. Journal of Travel & Tourism Marketing, 30(1-2), 3-22.

Liu, X., Zhang, Y., & Wilson, J. (2021). Social media engagement in Oceanian ecotourism destinations: A comparative analysis. Tourism Management Perspectives, 38, 100812.

Mariani, M. M., Mura, M., & Di Felice, M. (2018). The determinants of Facebook social engagement for national tourism organizations of European destinations. Journal of Travel & Tourism Marketing, 35(6), 803-818.

Mitchell, E., & Rogers, T. (2023). Digital review platforms in tourism marketing. Journal of Hospitality Management, 33(1), 89-104.

Mkono, M. (2020). Eco-anxiety and the flight shaming movement: Implications for tourism. Journal of Tourism Futures, 6(3), 223-226.

Smith, R., & Garcia, M. (2024). Virtual reality applications in tourism. Journal of Travel Technology, 19(1), 56-71.

Srinivasan, R., & Nair, V. (2023). Digital marketing challenges for Kerala's ecotourism operators. Current Issues in Tourism, 26(4), 183-199.

Taylor, B., Wilson, M., & Brown, J. (2023). Mobile device usage in travel planning. Tourism Research Quarterly, 29(4), 190-205.

Thompson, K., & Wilson, J. (2020). Evolution of search engine optimization

strategies for nature-based tourism websites. Tourism Management Perspectives, 34, 100661.

Tussyadiah, I., & Zach, F. (2021). Virtual reality and augmented reality applications in ecotourism marketing: Opportunities and challenges. Journal of Ecotourism, 20(4), 372-388.

Vainio, L. (2021). Personalization strategies in Scandinavian ecotourism digital marketing. Tourism Management Perspectives, 39, 100846.

Wilson, A., & Thompson, B. (2024). Integrated digital marketing strategies. Digital Marketing Journal, 42(1), 12-27.

Xiang, Z., & Gretzel, U. (2010). Role of social media in online travel information search. Tourism Management, 31(2), 179-188.

Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet.

Journal of Retailing and Consumer Services, 22, 244-249.

ONLINE BRAND COMMUNITIES - MEDIATING CUSTOMER ENGAGEMENT AND BRAND LOYALTY

[1]M. Shyja Karunakaran & [2]Dr. Rehin K.R.
[1]Assistant Director, Centre for Management Studies, Kannur University
[2]Assistant Professor, Deptt. of Management Studies,
MG College, Kannur University
Email: shyjakarunakaran@gmail.com

ABSTRACT

Online brand communities have disrupted marketing activities like no other phenomenon. They offer immense possibilities to the marketer and the customer to connect deeper and more meaningfully with each other. They also offer great challenges to the marketer whereby the customers on online brand communities look for and create meanings in the brand which the marketer may not even have intended. Functional and hedonistic reasons for engaging in online brand communities is inferable, however the reasons which compel customers to create and engage in them need to be studied closely. Identification with the brand community is found to be one of the most significant reasons for engagement in online brand communities and this identification and trust in the online brand community is found to lead to greater satisfaction and brand loyalty.

Keywords: *Online Brand Communities, Customer Engagement, Meta Modernism, Co Creation, Customer Satisfaction, Brand Loyalty*

1.INTRODUCTION

Community activity is considered the biggest change in business in 100 years (Ahonen, 2005). In the ever-evolving customer centric landscape of marketing, marketers need to connect deeper with their customers, create more meaningful relationships and leverage advanced technologies to build stronger customer satisfaction and increased brand loyalty. Customer engagement, personalized interactions and customization based on those becomes necessary to retain the customer and keep him engaged. Customers today actively seek to participate in product development as well as growth of the brand on a continual basis. Co creation of value by customers has become more common through the amalgamation of advanced technologies and user generated content. Online brand communities have taken on greater importance in their role as mediators in providing hyper – personalization and highly customized experiences.to their members. Marketers need to look closer at online brand communities as essential tools in their quest to understand their customers better and to co create with them products which will excite them.

Nike by You is a platform offered by Nike to its common customers whereby they can

design their own shoes in their choice of colours, designs and graphics. Nike then manufactures the shoes accordingly and ships it to the customers. *LEGO ideas* was one of the earliest co-creation communities where fans could submit ideas for LEGO sets and the most popular ones would get produced and come to the market. *Dell's Idea Storm* collects suggestions for product designs or improvements directly from the customers and implements it. *Nike Doernbecher Freestyle* is another community initiative from Nike where it partners with child patients from Doernbecher hospital to design shoes which are then given out for charity. *Threadless* designs clothing through crowdsourcing where artists submit the designs and the best ones to be produced and sold are decided through customers' votes.

Customization that is now desired by the customer and provided by the companies have reached amazing levels. It had earlier been the privilege of few elites who had a corner on the resources but now it is the era of mass customization and hyper - personalisation. This demand for customization is one of the greatest disruptions in marketing, whereby the customer wishes to co-create products he needs and desires. The marketer is happy to allow the customer into his hallowed space because this customer connect enables him to produce according to the ever-changing needs of the customer. This bargain loosens the purse strings of the customer to the marketers' benefit. Moreover, the relationship that is created in the process could lead to long term satisfaction and brand loyalty. Online brand communities are one of the most significant media through which this interaction happens between the producer and the customer which is of great mutual

benefit to both. Various studies vouch for the fact that customers show increased frequency of purchases and are more brand loyal once they join brand communities; moreover, they become advocates of that brand (Algesheimer et al., 2005).

II. CONTEXTUAL BACKGROUND – EFFECT OF META MODERNISM

The researcher posits that the development of brand communities could be attributed to meta modernism whereby the individual wants to reconnect with like-minded individuals but not within the traditional boundaries of family structures, or with other primary groups such as relatives or friends. The connection is based on the interests and passions rather than the bloodline or other social structures. Post modernism had emphasized fragmentation and separation, celebration of differences, and various possibilities of interpretation. Meta modernism, however, emphasizes unity and coherence and creating a unified world through shared beliefs and collective goals. Meta modernism emphasizes participatory and immersive experiences in which there is a blurring of boundaries between the creator and the viewer - the producer and the consumer when it comes to consumer behaviour. Meta modernism is about creating new interpretations and modern narratives, in the quest for significance and coherence in a fragmented world. Most significantly, it is being aware of the saturated media culture and using it for self-expression and dissemination of one's interests. Meta modernism is often characterised by a heightened awareness and activism regarding global & social issues like climate change, inequality and social justice. Another important characteristic of meta modernism

which is relevant to online brand communities is the belief that systems can be built but they are can also be subject to criticism and constant change.

III. OBJECTIVES AND SCOPE OF THE STUDY

The main objective of the paper to present an overview of the current state of research on customer participation in online brand communities. The paper investigates the growth and evolution of online brand communities and the characteristics of communities. This provides information to academics and practitioners to better understand online brand community engagement. Another objective is to study the relationship between engagement in online brand communities and brand loyalty. Traditional methods of gauging customer tastes and preferences are no longer effective. Customer activities, interactions and behaviours in online brand communities could be a better pointer to his tastes and preferences.

IV. METHODOLOGY

Academic papers on brand communities and online brand communities were initially reviewed. The selection of papers was done in as unbiased and as comprehensive a manner as possible. As studies in this area gained momentum during late 1990s and early 2000s, seminal papers published during that time and the most recent studies were reviewed. Papers only from peer reviewed or referred journals on customer participation in online brand communities were reviewed. Both conceptual and empirical studies from anywhere in the world and on any industry were included. No restriction was placed on the type of analysis - econometric and descriptive statistics were considered. All studies which had consumer related variables consumer satisfaction, loyalty, trust, commitment, identification; brand related variables– identification, loyalty, brand equity; and community related variable – participation, identification, commitment, engagement etc. were included.

Questionnaire was prepared based on the knowledge gained through the reviews, in order to find out the relationship between online brand community participation and brand loyalty. Data was collected though the completed questionnaires from 134 students belonging to 10 different departments within a university campus. The samples were selected through simple random sampling and the collected data was analysed using SPSS 21.0.

V. BRAND COMMUNITY

A brand community is a specialized, non-geographically bound community based on a structured set of social relationships, among admirers of a brand (Muniz & O'Guinn, 2001). The earliest and most well-known instance of fans of a brand forming a community was that of Harley Davidson during the 1980s. The activities of the group which was studied extensively by (Schouten & McAlexander, 1995) was however not classified then as brand community activities. The re-growth and the iconic status attained by the brand, which was on the verge of collapse, solely through the activities of its group members, is a well-known marketing lore. The passion and the conviction of the group members, their loyalty towards the brand and the evangelism through which they built the brand to a cult status is something which every marketer would wish for his or her own brand. Over the years, almost all

companies big and small have developed brand communities, some are created and managed by the brands themselves, others are created and managed by enthusiastic customers. Customers on Microsoft's XBOX community share their victories, tips & tricks about the games and engage in discussions about new products. Ducati customers participate in group celebrations, parties and picnics and join for motor sports events and group rides. Brands and products as varied as Sony PlayStation, Nutella hazelnut chocolate spread, Coca Cola and Skittles candy have strong brand community activities and engagement with customers through them.

In a widely known and accepted definition of brand communities, (Muniz & O'Guinn, 2001) has defined brand communities in terms of the characteristics they exhibit:

(1) "A shared consciousness, that is, an intrinsic connection members feel with one another. This can also be described as a "we-ness", or a sense that members "sort of know each other" at some level, even if they have never met. This shared consciousness is often associated also with a collective sense of difference from others not in that community.

(2) Rituals and traditions that perpetuate the community's shared history, culture and consciousness, and that inculcate certain behavioral norms and values that typically center on shared consumption experiences with the brand.

(3) A sense of moral responsibility which is a felt sense of duty or responsibility to the community as a whole, and to its individual members that contribute to collective action and group cohesion".

These specific characteristics of communities – shared consciousness which is different from others who are not part of the community, rituals and traditions which are exclusive to the community, and a sense of responsibility towards the community - defines them and creates a sense of bonding among their members. It is this special bonding which contribute to their sustenance and growth and eventually the feeling of satisfaction and brand loyalty. (Muniz & O'Guinn, 2001) also emphasize on the explicit commercial nature of the brand communities with communal self-awareness and self-reflexivity. Fig. 1 shows how brand communities begin and evolve and change in the flow of communication in them.
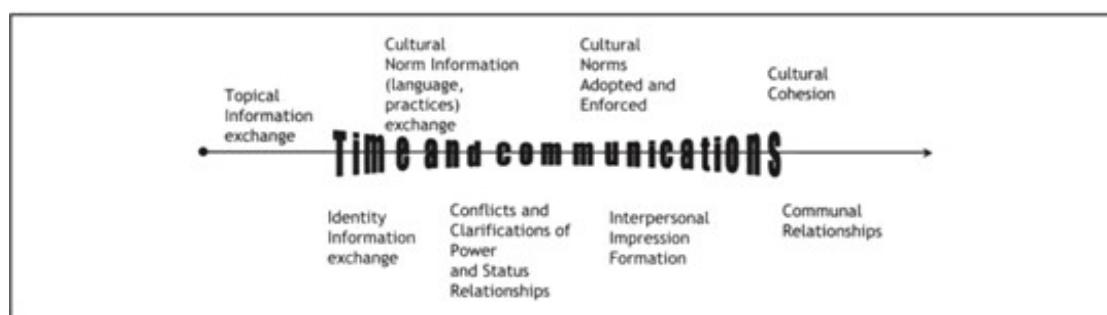

Figure: 1 Progression of Participation In Brand Communities
(Source: Kozinets et al.,1999)

1. Online Brand Communities

With the advent and growth of the internet and Web 2.0 in the early 2000s, brand communities started proliferating in the online space. Web 2.0 refers to the evolution of the internet from a static space to a dynamic one, whereby user generated content (UGC) could be uploaded on the internet and the user could interact with other users in real time. This obviously brought about radical changes in the interactivity of the consumers with the producers as well as other consumers. Community activity underwent a great change in the sense that members of the community could interact better and faster. News, views and information about new products could be exchanged faster, any flaws would be instantly known and discussed, the benefits could easily be extolled. These increased activities would greatly affect the marketer, his product and the brand in terms of adoption or otherwise of the brand in the market, increase in sales, customer satisfaction, retention and brand loyalty.

Online brand communities have thus become powerful tools in the hands of the producer who could use them to further the sale of his products and the consumer who could use them to make or break the producer dependent on his satisfaction or otherwise. Understanding of online brand communities and how they work has become critical for the marketer. However, the very nature of online brand communities – they exist in the virtual space, they do not have a geographic, demographic, or psychographic framework, the members identities cannot even be inferred - make it difficult to analyse or understand them. Informational and hedonic purposes of online brand communities have been documented by various researchers (Kamboj & Rahman, 2017a), (Huang et al., 2022), (Shen et al., 2010).
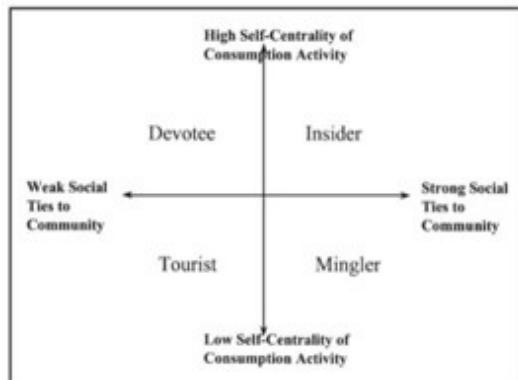
Figure 2: Types of members in Virtual Communities
Source: (Kozinets et al.,1999)

As figure.2 shows, a devotee, insider, tourist or mingler, depending on their consumption activity and social ties to the community. Tourists have only a superficial interest in the community, minglers form close social ties, devotees are most interested in the consumption activity while insiders form both social ties as well as are interested in the consumption activity as well. It is the devotees and the insiders who are of most interest to the marketer because these will be the people who will consume the most and bring in the most revenue. The tourists and the minglers can in time be slowly wooed to bring them into the devotee and insider category (Kozinets et al., 1999).

The following section presents the factors have been found to be of consequence in making a customer or potential customer engage in the online brand community, and what are the results of his engagement in the online brand community.

2. Antecedents of Engagement In Online Brand Communities

a. Identification: Identification with the community and the brand has been found to be one of the most significant factors that leads to greater engagement in the online brand community. Members of virtual communities implicate their own identities with the brand and the community deeply and lastingly (Kozinets et al., 1999). They create meaning and connection with the community. The greater the community members identify with others in the community, the closer knit the community will be (Woisetschlager et al., 2008). The researchers suggest breaking down the community into smaller sub - communities to increase identification and closeness among community members. (Bagozzi & Dholakia, 2006) terms this as social identity which according to them consists of three inter-related parts – customer's awareness regarding his/her brand community membership (cognitive identification), the sense of belonging or the feeling of attachment to the community (affective commitment) and the significance he/she feels regarding this membership (collective self-esteem). Sense of belonging in the online brand community was found to significantly influence member loyalty in the community (Lin, 2008). Sense of belonging that the members feel in an online brand community comes from the trust, loyalty, gratitude and safety they get from it (Brodie et al., 2013). Sense of belonging in online brand communities leads to greater brand loyalty and satisfaction (Huang et al., 2022). Brand community identification was found to lead to greater engagement which in turn lead to brand loyalty (Kaur et al., 2020). Identification with the online brand community and the brand has direct influence on engagement in the community (Martínez-López et al., 2021). Identification with the brand community leads to increased brand loyalty more so than the identification with the company (Marzocchi et al., 2013). Membership and participation in online brand communities is due to the social identity that it provides (Zaglia, 2013). The feeling of connection with other community members has been found to be a consequence of customer engagement in online brand community members (Brodie et al., 2013). Brand identification was found to be related to social identity (Bagozzi & Dholakia, 2006) and thus regarded to be a significant factor in influencing brand community activity. Social identity with the brand community was found to be leading to customers' identification with the brand.

b. Size of Brand Community: Size of the online brand community has been found to impact the quality of the brand community relationship as well as strength of the effect on the consequences of interactions in the brand community (Algesheimer et al., 2005). Quality of community relationships as well as engagement are higher in smaller communities. Relationship between community engagement and community recommendation intentions are higher in larger online brand communities (Algesheimer et al., 2005). It has been found that the size of the community does not always affect the decision to join a community, however the increasing size may sometimes deter some members from continuing in it (Dessart et al., 2015). Small online brand communities are likely to have closer connections among the members and stronger association with the brand (Wirtz et al., 2013). Members in larger communities use them more for functional purposes rather

than emotional or social ones and identification with the community could be lesser.

b.Satisfaction: Some researchers find satisfaction leading to greater brand community interaction whereas others find it to be a consequence of brand community interaction. Greater satisfaction in the online brand community leads to greater interaction within the online brand community (Woisetschlager et al., 2008). Member satisfaction was found to be extremely important in the growth and development of online brand communities (Lin, 2008). Satisfaction however has been identified as a consequent variable of brand community engagement in online brand communities as well (Brodie et al., 2013), (Huang et al., 2022).

c.Quality of Information: Accurate, complete, updated and customized information which was available conveniently and in a user-friendly manner was the need of most online brand community members. (Lin, 2008). Information and system quality thus plays a major role in the growth and development of online brand communities. Up to date information was found to be an important driver of participation in online brand communities (Baldus et al., 2015).

d.Trust: Trust has been found to be one of the strongest influences on the feeling of a sense of belonging to a virtual community (Bagozzi & Dholakia, 2006). As members of online brand communities rarely meet in person, mutual trust plays an important role in the increased interaction and bonding among the members. Trust has also been identified as the consequence of engagement of members in the online brand communities (Brodie et al., 2013). Customer - brand relationships, customer - product relationships and customer - company relationships in online brand communities tend to increase brand trust (Habibi et al., 2014). Greater involvement in brand community leads to greater customer engagement which in turn leads to greater trust (Islam & Rahman, 2016). Trust has been considered as an antecedent as well as consequence to greater participation in online brand communities by many studies (Kamboj & Rahman, 2017b). Brand trust directly influences co creation and brand loyalty (Martínez-López et al., 2021).

3.Consequences of Engagement In Online Brand Communities

a.Brand Loyalty: (Algesheimer et al., 2005) found that brand loyalty is significantly positively affected by the membership of the customer in the brand community; the quality of his social experiences in the brand community affects his brand loyalty. (Brodie et al., 2013) also posits brand loyalty as an important consequence of customer engagement in online brand communities. Increased activity and interaction in the online brand communities led to increased community commitment which in turn led to increased brand loyalty (Jang et al., 2008). Majority of research studies have found brand loyalty to be one of the most important consequences of participation in online brand communities (Kamboj & Rahman, 2017b). Greater brand loyalty was found to result from the greater engagement in the brand community which arose from the feeling of identification with the community (Kaur et al., 2020). Brand loyalty is the outcome of brand trust which in turn is influenced by engagement in the online brand community (Martínez-López et al., 2021). Brand Loyalty has been seen to be influenced more by identification

with the brand community and not so with the identification with the brand (Marzocchi et al., 2013). Customers who are invested in the brand communities are brand loyal and supportive of the brand in various ways (J. H. Mcalexander et al., 2002). Brand loyalty plays an important part in customer deciding to join and participate in online brand communities (Sung et al., 2010). Increased activity and interaction in the online brand communities led to increased community commitment which in turn led to increased brand loyalty (Jang et al., 2008)

b.Advocacy: Increased participation, continuance in the community and recommendation behaviours were also found to be due to engagement with the brand community (Algesheimer et al., 2005). Involvement of the customer in the online brand community leads to greater engagement which in turn leads to more word-of- mouth behaviour by the customer.

(Islam & Rahman, 2016). Increased word-of-mouth results from increased participation and engagement in the online brand community and the resultant brand trust and brand loyalty (Martínez-López et al., 2021).

c.Brand Equity: All the four major components of brand equity - perceived quality, brand loyalty, brand awareness, and brand associations (Aaker, 1997) have been found to be affected by the activities of the brand communities (Muniz & O'Guinn, 2001). The activities of brand communities have also been found to increase brand loyalty (J. Mcalexander et al., 1998), (Schouten & McAlexander, 1995), (Fournier, 1998) (Fournier & Lee, 2009). Brand community participation has been found to positively influence brand equity (Brodie et al., 2013) along with the content generated on the band

community and members' perception about the brand quality.

d.Cocreation: Co creation has been conceptualised as a process whereby the customer and the firm create brand meanings in a collaborative manner through constant interactions. Initially virtual communities were created by organisations for involving customers in new product development or product support (Nambisan, 2002). In some of the earliest studies which talked about co creation of value where the customer creates the experience he desires (Prahalad et al., 2004) distinguishes personalization from customisation. Co creation leads to convergence of the producers and customers idea as if they are doing it as one. Value is embedded between the producer and consumer, and the consumer transforms from a passive onlooker to an active player (Vargo & Lusch, 2004). Increased participation in online brand communities lead to increased brand trust and brand loyalty which in turn led to increased co creation. Value is always co created not by the dyad of producer and consumer but by a host of other beneficiaries and stakeholders (Vargo & Lusch, 2016).

VI.ANALYSIS & FINDINGS

Almost 30% of the respondents had been members of their online brand communities for a period between 3 to 4 years. (table 1) However, only 21% were members for above 4 years. Data suggests that memberships and participation in online brand communities is a recent phenomenon in the population surveyed. The participation does show an increasing trend. Majority of the respondents visited the online brand community once a week, those who visited 2 to 3 times in a week were also quite high (table 2). The fact that there were quite a

few respondents who visited rarely points to the fact that online brand community participation limited in the surveyed population. Above 40% of the respondents spent 15-30 minutes on the online brand community during their visits (table 3). This suggests that those who did visit the online brand community spent considerable time on them, pointing to the fact that they were quite active on the community.

Table 1 Distribution of Respondents Based On Length of The Membership In Online Brand Community

Length of Membership	Frequency	Percent
1 – 2 years	32	23.9
2 – 3 years	34	25.4
3 – 4 years	40	29.9
Above 4 years	28	20.9
Total	134	100.0

Source: Primary Data

Table 2: Distribution of Respondents Based On Frequency of Visits To Online Brand Community

Frequency of Visit	Frequency	Percent
Once a Day	17	12.7
2 – 3 Times In a Week	31	23.1
Once In a Week	37	27.6
2 -3 Times In a Month	28	20.9
Rarely	21	15.7
Total	134	100.0

Source: Primary Data

Table 3: Distribution of Respondents Based On Time Spent On Online Brand Community

Time Spent	Frequency	Percent
Below 15 minutes	56	41.8
15-30 minutes	58	43.3
30 minutes to 1 hour	15	11.2
1 hour to 2 hours	4	3.0
More than 2 hours	1	0.7
Total	134	100.0

Source: Primary Data

1. Assessment of Brand Loyalty

Brand loyalty was assessed by using 4 statements in 7-point Likert scale. As there are four statements total score may range in between 4 to 28. Entire range is divided into two equal class with scores less than or equal to 16 as low and above 16 as high. Classification based on that is given in Table 4.

Table 4: Distribution of Respondents Based On Level of Brand Loyalty

Level	Frequency	Percent
Low	29	21.6
High	105	78.4
Total	134	100.0

Source: Primary Data

H1: Length of the membership on online brand community influences brand loyalty

Results of the chi square test (table 5) shows that P-value is greater than 0.05. Hence, the test statistic value chi square (6.275) is non-significant.

Table 5: Association of Length of Membership On Online Brand Community On Brand Loyalty

Length of Membership	Level of Brand Loyalty				Total
	Low		High		
	Count	Percent	Count	Per cent	
1 – 2 Years	7	21.9	25	78.1	32
2 – 3 Years	7	20.6	27	79.4	34
3 – 4 Years	13	32.5	27	67.5	40
Above 4 Years	2	7.1	26	92.9	28
Total	29	21.6	105	78.4	134
X^2 value = 6.275[ns]; P-value = 0.099					

Source: Primary Data (ns non-significant)

There exists no significant association between length of membership in online brand community and brand loyalty.

H2: Frequency of visits to online brand community influences brand loyalty

Results of the chi square test (table 6) shows that P-value is greater than 0.05. Hence, the test statistic value chi square (5.756) is non-significant.

Table 6: Association of Frequency of Visits To Online Brand Community On Brand Loyalty

| Frequency of Visits | Level of Brand Loyalty | | | | Total |
| | Low | | High | | |
	Count	Percent	Count	Percent	
Once A Day	5	29.4	12	70.6	17
2 – 3 Times In a Week	5	16.1	26	83.9	31
Once In a Week	12	32.4	25	67.6	37
2 -3 Times In a Month	3	10.7	25	89.3	28
Rarely	4	19.0	17	81.0	21
Total	29	21.6	105	78.4	134
X^2 value = 5.756[ns]; P-value = 0.218					

Source: Primary Data (ns non-significant)

There exists no significant association between frequency of visit to online brand community and brand loyalty.

H3: Time spent on online brand community influences brand loyalty

Results of the chi square test (table 7) shows that P-value is less than 0.05 and so test statistic value chi square (6.113) is significant at 0.05 level. Percentage analysis shows that those who spend 15 to 30 minutes have higher brand loyalty (87.9%) compared to other groups.

Table 7: Association of Time Spent On Online Brand Community On Brand Loyalty

| Time Spent | Level of Brand Loyalty | | | | Total |
| | Low | | High | | |
	Count	Per cent	Count	Percent	
Below 15 Minutes	15	26.8	41	73.2	56
15-30 Minutes	7	12.1	51	87.9	58
Above 30 Minutes	7	35.0	13	65.0	20
Total	29	21.6	105	78.4	134
X^2 value = 6.113*; P-value = 0.047					

Source: Primary Data (Significant at 0.05 level)*

There exists significant association between time spent on online brand community and brand loyalty.

VII. DISCUSSION

Identification with the brand community is seen to be the most significant factor leading to participation and engagement in

online brand communities. Customers who feel a sense of belonging to the community are more engaged. The social identity which is created by being a part of the community, his awareness regarding that and significance he feels due to that makes him more committed and loyal to the community. Satisfaction in the online brand community is found to lead to greater interaction and participation. As far as consequences of online brand community participation or engagement is concerned, majority of the studies find brand loyalty to be the most significant consequence. The empirical study corroborates the findings of the earlier papers whereby increased participation in the online brand community is significantly associated with brand loyalty.

VIII.IMPLICATIONS FOR MARKETERS

The growth of brand communities has brought about a drastic change in the concept of marketing from a consumer – brand dyad to consumer - brand – consumer triad (Muniz & O'Guinn, 2001). Construction of brands becomes a social activity, and the consumer takes an active part in that construction. Further, brand communities and their activities are found to affect brand equity in a major way. (Algesheimer et al., 2005) emphasizes that the social value that is created by the interactions between brand community members are sometimes more important to the customer than the functional and the symbolic value of the brands. The interaction of customers with like – minded people within the brand community framework can enhance the brand image (Woisetschlager et al., 2008). Marketers therefore need to build strong online brand communities and encourage greater participation in them by their customers and potential customers in order to create a loyal customer base.

IX.LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

The study has a narrow perspective as it studies online community behaviours merely from the marketers' point of view. Only the positive and useful effects of online brand community participation have been studied. Negative consequences such as brand hate, non-purchase intention, trolling of brands etc. have not been considered. The primary data collected was from a general population and the sampling units were not committed online brand community members. Studies which focus on committed online brand community members could throw up much more interesting and enlightening results. Online brand communities and their ever- evolving nature offers immense scope for future research. Future research could focus on online brand community behaviour not merely from the angle of consumer behaviour but in terms of the wider discourse on community behaviour which is a reflection of the society and its norms.

REFERENCES

Aaker, J. L. (1997). Dimensions of Brand Personality. Journal of Marketing Research, 34(3), 347–356. https://doi.org/10.1177/002224379703400304.

Ahonen, T. & Moore. J. (2005). Communities dominate brands : Business and marketing challenges for the 21st century. Futuretext.

Algesheimer, R., Dholakia, U. M., & Herrmann, A. (2005). The social influence of brand community: Evidence from European car clubs. Journal of Marketing,

69(3), 19–34. https://doi.org/10.1509/ jmkg.69.3.19.66363.

Bagozzi, R. P., & Dholakia, U. M. (2006). Antecedents and purchase consequences of customer participation in small group brand communities. 23, 45–61. https://doi.org/10.1016/j.ijresmar. 2006.01.005.

Baldus, B. J., Voorhees, C., & Calantone, R. (2015). Online brand community engagement:Scale development and validation. Journal of Business Research, 68(5), 978–985. https://doi.org/ 10.1016/ j.jbusres.2014.09.035.

Brodie, R. J., Ilic, A., Juric, B., & Hollebeek, L. (2013). Consumer engagement in a virtual brand community: An exploratory analysis. Journal of Business Research, 66(1), 105– 114. https:// doi.org/10.1016/j.jbusres.2011.07.029.

Brogi, S., Calabrese, A., Campisi, D., Capece, G., Costa, R., & Pillo, F. Di. (2013). The Effects of Online Brand Communities on Brand Equity in the Luxury Fashion Industry Regular Paper. 1–9. https://doi.org/10.5772/56854.

Dessart, L., Veloutsou, C., & Morgan-Thomas, A. (2015). Consumer engagement in online brand communities: A social media perspective. Journal of Product and Brand Management, 24(1), 28–42. https://doi.org/10.1108/ JPBM-06-2014-0635/FULL/XML.

Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research.Journal of Consumer Research, 24(4), 343–373. https://doi.org/10.1086/209515.

Fournier, S., & Lee, L. (2009). Getting brand communities right. Harvard Business Review, 87(4).

Gummerus, J., Liljander, V., Weman, E., & Pihlström, M. (2012). Customer engagement in a Facebook brand community. Management Research Review, 35(9), 857–877. https:// doi.org/10.1108/01409171211256578.

Habibi, M. R., Laroche, M., & Richard, M. O. (2014). The roles of brand community and community engagement in building brand trust on social media. Computers in Human Behavior, 37, 152–161. https://doi.org/10.1016/j.chb.2014.04.016.

Huang, T. K., Wang, Y. T., & Lin, K. Y. (2022). Enhancing brand loyalty through online brand communities : the role of community benefits. Journal of Product and Brand.

Management, 31(5), 823–838. https:// doi.org/10.1108/JPBM-08-2020-3027.

Islam, J. U., & Rahman, Z. (2016). Linking Customer Engagement to Trust and Word-of- Mouth on Facebook Brand Communities: An Empirical Study. Journal of Internet Commerce, 15(1), 40–58. https:// doi.org/ 10.1080/ 15332861. 2015. 1124008.

Jang, H., Olfman, L., Ko, I., Koh, J., & Kim, K. (2008). The influence of on-line brand community characteristics on community commitment and brand loyalty. International. Journal of Electronic Commerce, 12(3), 57–80. https://doi.org/ 10.2753/JEC10864415120304.

Kamboj, S., & Rahman, Z. (2017a). Measuring customer social participation in online travel communities: Scale

development and validation. Journal of Hospitality and Tourism Technology, 8(3), 432–464. https://doi.org/10.1108/JHTT-08-2016-0041.

Kamboj, S., & Rahman, Z. (2017b). Understanding customer participation in online brand communities: Literature review and future research agenda. In Qualitative Market Research(Vol. 20, Issue 3, pp. 306–334). Emerald Group Publishing Ltd. https://doi.org/10.1108/QMR-08-2016- 0069.

Kaur, H., Paruthi, M., Islam, J. U., & Hollebeek, L. D. (2020). The role of brand community identification and reward on consumer brand engagement and brand loyalty in virtual brand communities. Telematics and Informatics, 46.

https://doi.org/10.1016/j.tele.2019.101321.

Kozinets, R. V. (1999). E-tribalized marketing?: the strategic implications of virtual communities of consumption. European Management Journal, 17(3), 252–264. https://doi.org/10.1016/S0263- 2373(99)00004-3..

Lin, H. F. (2008). Determinants of successful virtual communities: Contributions from system characteristics and social factors. Information and Management, 45(8), 522–527. https://doi.org/10.1016/j.im. 2008.08.002.

Martínez-López, F. J., Aguilar-Illescas, R., Molinillo, S., Anaya-Sánchez, R., Andres CocaStefaniak, J., & Esteban-Millat, I. (2021). The role of online brand communityengagement on the consumer- brand relationship. Sustainability (Switzerland), 13(7). https://doi.org/10.3390/su13073679.

Marzocchi, G., Morandin, G., & Bergami, M. (2013). Brand communities: Loyal to the community or the brand? European Journal of Marketing, 47(1), 93–114. https://doi.org/10.1108/03090561311285475.

Mcalexander, J. H., Schouten, J. W., & Koenig, H. F. (2002). Marketplace Communities A Broader View of Brand Community. Journal of Marketing, 66(January), 38–54.

Mcalexander, J., Mcalexander, J. H., & Schouten, J. W. (n.d.). Brandfests: Servicescapes for the Cultivation of Brand Equity.

Muniz, Albert. M., & O'Guinn, Thomas. C. (2001). BrandCommunity_Muniz (1). Journal of Consumer Research, 27(4), 412–432.

Nambisan, S. (2002). Designing virtual customer environments for new product development: Toward a theory. Academy of Management Review, 27(3), 392–413. https://doi.org/10.5465/AMR.2002.7389914.

Prahalad, C. K., & Ramaswamy, V. (n.d.). The Co-Creation Connection.

Schouten, J. W., & McAlexander, J. H. (1995). Subcultures of Consumption: An Ethnography of the New Bikers. Journal of Consumer Research, 22(1), 43. https://doi.org/10.1086/209434.

Shen, Y. C., Huang, C. Y., Chu, C. H., & Liao, H. C. (2010). Virtual community loyalty: An interpersonal-interaction perspective. International Journal of Electronic Commerce, 15(1), 49–74. https://doi.org/10.2753/JEC1086-4415150102.

Sung, Y., Kim, Y., Kwon, O., & Moon, J. (2010). An explorative study of Korean consumer participation in virtual brand communities in social network sites. Journal of Global Marketing, 23(5), 430–445. https://doi.org/10.1080/08911762.2010.521115.

Vargo, S. L., & Lusch, R. F. (2004). The Four Service Marketing Myths: Remnants of a GoodsBased, Manufacturing Model. Journal of Service Research, 6(4), 324–335. https://doi.org/10.1177/1094670503262946.

Vargo, S. L., & Lusch, R. F. (2016). Institutions and axioms: an extension and update of servicedominant logic. Journal of the Academy of Marketing Science, 44(1), 5–23. https://doi.org/10.1007/s11747-015-0456-3.

Wirtz, J., den Ambtman, A., Bloemer, J., Horvath, C. , Ramaseshan.B., van de Klundert, J., Gurhan Canli, Z., & Kandampully, J. (2013). Managing brands and customer engagement in online brand communities. Journal of Service Management, 24(3), 223–244. https://doi.org/10.1108/09564231311326978/FULL/XML.

Woisetschlager, D. M., Hartleb, V., & Blut, M. (2008). How to make brand communities work: Antecedents and consequences of consumer participation. Journal of Relationship Marketing, 7(3), 237–256. https://doi.org/10.1080/15332660802409605.

Zaglia, M. E. (2013). Brand communities embedded in social networks. Journal of Business Research, 66(2), 216–223. https://doi.org/10.1016/j.jbusres.2012.07.015.

https://www.dell.com/.

https://www.lego.com/.

https://www.nike.com/in/.

https://www.threadless.com/.

EFFECT OF NIGHT SHIFT SCHEDULE ON NURSES: A CASE STUDY ON NURSES WORKING IN LIFELINE HOSPITAL, ADOOR

¹Rejiya Mohammed
¹Research Scholar, Institute of Management in Kerala (IMK), Thiruvananthapuram
Email: rejiyaphd@gmail.com

ABSTRACT

The healthcare sector requires continuous 24/7 service delivery, making shift work, including night shifts, an essential aspect of nursing. This necessity, however, imposes significant challenges on nurses, particularly during night shifts, which disrupt natural sleep cycles, affect physical and mental health, and create social and familial imbalances. A study conducted at Lifeline Super Specialty Hospital, Adoor, involving 153 nurses, reveals that insomnia and fatigue are common issues, largely due to the disruption of circadian rhythms. These problems are more pronounced among female nurses who often balance professional duties with domestic responsibilities such as child-rearing and household chores. The research indicates that night shifts impact various aspects of nurses' lives, including job performance, emotional stability, sleep patterns, social interactions, and stress levels. Transport difficulties during night hours also pose safety concerns, especially for female staff. Furthermore, rotating shifts are particularly strenuous and can worsen the work-life imbalance. Nurses' attitudes toward night shifts are often shaped by their marital status, family roles, and societal expectations, all of which can hinder adaptation to such demanding work schedules. The study emphasizes that night shifts are not well-suited to the lifestyle of both married and unmarried nurses, and highlights the urgent need for management interventions. Recommendations include restructured shift schedules, wellness programs, and organizational support to mitigate the negative effects of night duty, ensuring the physical and psychological well-being of nursing staff.

***Keywords:** Night Shift Schedule, Case Study,Nurse Working And Life Line Hospital*

I.INTRODUCTION

Health service is one of the industries that provide a continuous service around the clock, for the benefit of all citizens in any country. Health service personnel is responsible for provision of health of health care through application of medical science knowledge, skill and expertise in meeting the health needs of all people within each country. It is therefore expected that a healthy and psychologically balanced workforce provides health care.

Health care providers are bound to work shift- work as a health need for a number of

people in all countries. Nurses as health care providers are obliged to work during the day and during the night to cater for the needs of sick people. This can only be possible if nurse work during the 24 hour of the day. For most nurses changes that are inherent to night shift are unwelcome imposition on a normal life, yet one they have no control over. Night shift has physical, psychological and social effects on the life of an individual including nurses. The long hours that they work interfere with their health and their safety is compromised. Night work can even be worse for female nurse who also have family responsibilities such as child rearing. Studies have shown that shift work can have negative impact on the job performance, sleep, physical and emotional health, social life, family life, drug use and level of job related stress. For nurses these negative effects have consequences not just for the individual, but also for the work place, as decreased alertness and reduced job performance could endanger human lives (Brown-DeGagne and Eskes, 1998).

Night shift term defined as work performed after 6pm and before 6am the next day, therefore, the activity at night will be out of phase with the circadian body temperature and other coupled rhythms. In addition, because individual biological rhythms, re-entrain to a time shift at different rates, each time the work schedule rotates, for a period of time after the time shift, the circadian system will be in a desynchronized state. This disorientation can lead health, psychosocial effect such as feeling of fatigue and disorientation. Conceptual definition of effect is: a change from original status.

Nursing personnel are subjected to psychological, physiological as well as health problems as consequences of shift rotation, extended work schedules, and prolonged contact with irritable and depressed patients (Lewy, 1981). In addition, the nature of hospital work forces nurses to make important patient care decision under conditions in which there is no certainty concerning events and outcomes. Nurses may manifest psychological stress by taking on extra work, showing emotional withdrawal, engaging a substance abuse, or exhibiting depression. Therefore, the nurse manager should monitor subordinates for these behaviors, confront impaired workers about declining productivity, and refer them to appropriate support groups and or medical care.

The main purpose of the study is to describe the effects of night shift on nurses and to evaluate the impact of these on the health and well-being of nurses. The study further attempts to provide suitable recommendations to manage the stress produced by working conditions, and promote the better patient care. The current study may help both nurses and administrators to understand some of the effects like physiological, sociological and health of night shift on nurses, and their impact on nurse's life, clinical practices and work performance. The study will help the manager by giving them direction as to what steps should be taken to protect nurses from occupational stress that caused by night shift in order to decrease nurse's turnover. Furthermore, it is significant for nurses because it will improve their quality of life and equip them with better coping strategies in working the night shift. Study finding may also provide a knowledge base for further research that addressed after studying all aspects of nurses work shift and its relationship with other factors in the clinical and other world environment.

II.OBJECTIVES OF THE STUDY

- To document the existing shift system in the hospital in nursing department

- To study the various effects of night shift schedule on the nursing staff in terms of:

- psychological problems

- social problems

- work performance

- health of nurses

- sleep

- To suggest plausible strategies to make night shift more productive and comfortable

III.METHODOLOGY

Normative survey method is used for the present study. The study utilized both primary and secondary data sources to gather comprehensive information. Primary data was collected directly from the nursing staff at Lifeline Super Specialty Hospital through a survey method using a semi-structured, self-administered questionnaire. This allowed respondents to provide detailed insights into their experiences and challenges related to night shift duties. Secondary data was obtained through desk research, which involved reviewing existing literature such as books, monographs, internet sources, and findings from previous related studies to support and validate the primary findings.

The population for the study included all permanent nursing staff and practical nurse trainees working at the hospital during the study period. The sampling method used was judgment sampling, a non-probability sampling technique where participants were selected based on the researcher's judgment and relevance to the study. The final sample size consisted of 153 respondents. For analyzing the collected data, the study employed Chi-square ($\div^2$) statistical tests and percentage analysis, which helped in identifying patterns, associations, and the extent of the impact of night shift work on various aspects of nurses' lives. This methodological approach ensured both depth and accuracy in understanding the complex issues surrounding night shift work among nursing professionals.

IV.RESULTS AND DISCUSSION

### 1.Influence of Night Shift on Gender

There was only one male respondent was participated in the survey, the percentage is 1.9 %. 98.1% respondents are female nurses. The influence of gender has its own highlights in this study. This is probably due to fact that they need to be with their families or their young age. The married male nurse regarded night shift as strenuous, this was in contract to the suggestion made by the unmarried male nurse. Who regarded night shift as comfortable and had enough energy to perform his duties, but did not have enough sleep when on night shift. Thy needed to induce sleep by reading, using hot beverages. Night shift affected the social life of male nurses but did not seriously affect their health. However, they complained about feet ailments. This could be associated with theatre work, where there is a lot of static standing. Rotating shifts can be very strenuous for a female nurse with children and other family responsibilities. For these nurses' other patterns of shift schedules are not only strenuous but also dangerous since they involve transport problems. Night shift is not suitable for life style for both married and unmarried nurses.

2. Influence of Night Shift on Psychosocial Aspect

It is important to note that even though nurses make a request to work on a night shift, they still regard it as being strenuous. 30.2% respondents said that the night shift affects their attitude negatively towards nursing profession almost always. 60.4% respondents said that the night shifts affect their attitude negatively towards nursing profession sometimes. 9.4% respondents said that the night shift affects their attitude negatively towards nursing profession almost never. The comparison of psychological problem based on age of nurses shows that, 98% of the nurses in the age group 21-30 feels high psychological problem and all the nurses selected in the sample 31-40 reports that they also experience high psychological problems. The comparison of psychological problem based on marital status of nurses shows that, 96.9% of the married nurses feels high psychological problem. 100% single nurses also experience high psychological problems. That is all age groups of nurses have psychological problems because of night shift.

Figure 1: Percentage Distribution of The Sample According To Psychological Problems
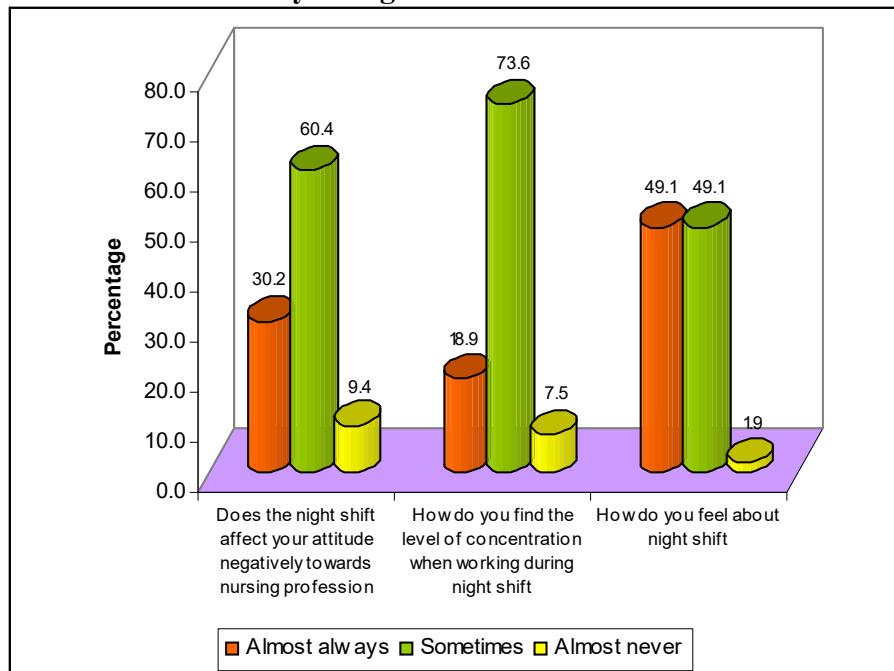
3. Influence of Night Shift On Social Life

In 26.4% respondents said that night shift disturbs their social life almost always. 69.8% respondents said that night shift disturbs their social life sometimes. 3.8% respondents said that night shift disturbs their social life almost never. 12.5% respondents said that night shift badly affects the relationship with their husband almost always. 65.6% respondents said that night shift badly affects the relationship with their husband sometime. 21.9 respondents said that night shift almost never badly affects the relationship with their husband. 66.7% respondents said that night shift badly affects the caring on their children almost always. 33.3% respondents said that night shift badly affects the caring on their

children sometimes. 32.1% respondents said that they have to avoid social events such as public parties and family programmes because of night shift almost always. 66.0% respondents said that they have to avoid social events such as public parties and family programmes because of night shift sometimes.1.9% respondents said that they have to avoid social events such as public parties and family programmes because of

night shift almost never. 9.4% respondents said that they experience interpersonal conflict at work during the night shift almost always.67.9% respondents said that they experience interpersonal conflict at work during the night shift sometimes. 22.6% respondents said that they experience interpersonal conflict at work during the night shift almost never.
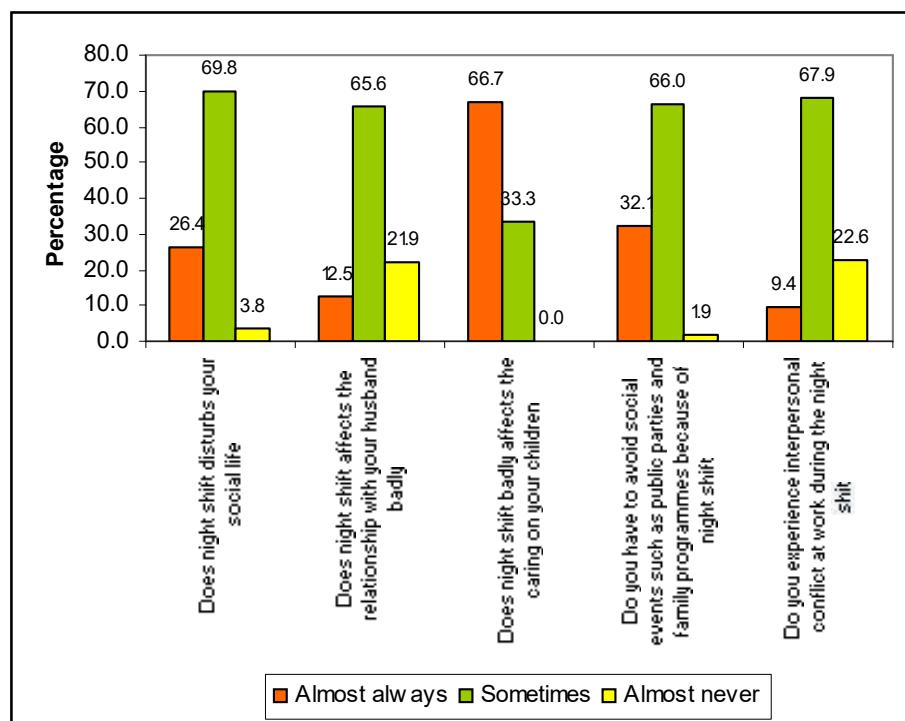

Figure 2: Percentage Distribution of The Sample According To Social Problems

4.Influence of Night Shift On The Work Performance

In this study, 32.1% strongly agree that 'Nurses carry heavy workload on night shift than on day shift'. 52.8% agree that 'Nurses carry heavy workload on night shift than on day shift'. 11.3% mildly agree that 'Nurses carry heavy workload on night shift than on day shift' and 3.8% disagree that 'Nurses carry heavy workload on night shift than on day shift'. On the statement 'Nurses has bad

working condition on night shift'. 13.2% respondents strongly agree it, 37.7% respondents just agreed it, 20.8% respondents mildly agree it and 28.3% respondents disagrees it. On the statement 'Nurses can have good level of facilities on night shift'. 1.9% respondents strongly agree it, 11.3% respondents just agreed it, 11.3% respondents mildly agree it, 54.7% respondents disagrees it, and 20.8% strongly disagree it.

All the respondents including different age group and civil status feel high rate of work performance problems during night shift. For the question 'What is your experience when working after night shift? 5.7% of the respondents said that they are more active when working after night shift. 28.3% of the respondents said that they are moderately active. 28.3% of the respondents said that they are tired. 37.7% of the respondents said that they are moderately tired 1.9% of the respondents said that they are more tired while working on night shift. For the question 'What is your experience while working on night shift? 22.6% of the respondents said that they are more active while working on night shift. 17% of the respondents said that they are moderately active. 28.3% of the respondents said that they are tired. 30.2% of the respondents said that they are moderately tired 1.9% of the respondents said that they are more tired while working on night shift.
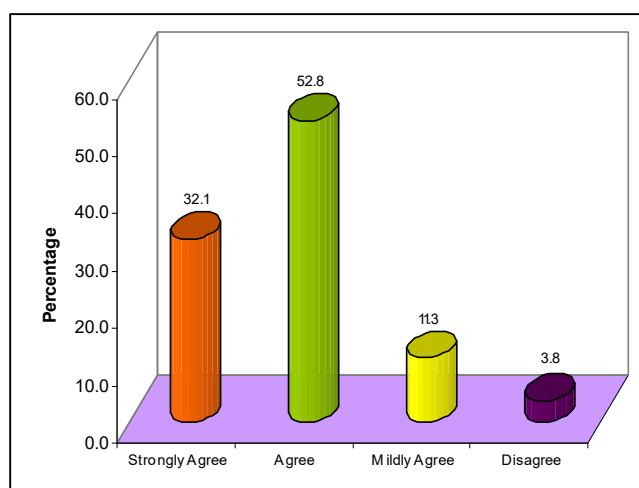
Figure 3: Percentage Distribution of The Sample According To Nurses Carry Heavy Workload On Night Shift Than On Day Shift
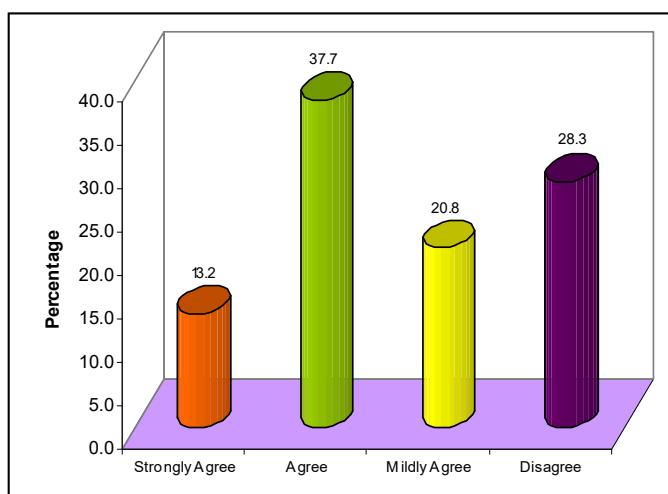

Figure 4: Percentage Distribution of The Sample According To Nurses Have Bad Working Condition On Night Shift

5.Influence of Night Shift On Health Problems

The health problems happen because of night on nurses shows that, 56.6% of the respondents have frequent head ache. 52.8% of the respondents have back ache. 49.1% of the respondents have persistent tiredness. 18.9% of the respondents have feet ailment. 69.8% of the respondents have loss of sleep. 34% have muscular strains. 47.25% of the respondents said that there health problems were low.52.8% of the respondents said that there health problems were high. Comparison of health problem based on age of nurses.39.5% of the age group of 21-30, nurses feels high health problems. 86.7% of the age group of nurses selected in the sample reports that they also experience high health problems. This study shows that there is a significant association between health problems of nurses based on age. That is the 31-40 age group has more health problems than that of the age group 21-30. 65.6% of the married nurses feel high health problems. 33.3% single nurses selected in the sample reports that they also experience high health problems study shows that there is a significant association between marital status of nurses and the health problems. That is the married nurses have more health problems than the single nurses.

The prevalence of these ailments indicates that health risks exist with shift work and night shift as stated in literature. Sleep problem dominated in ailments of all age groups of the respondents. Another health related problem was that of exposure to occupational injuries and diseases. 11.3% respondents said that they did not have get needle stick injury during night shift.88.7% respondents said that they have got needle stick injury during night shift.
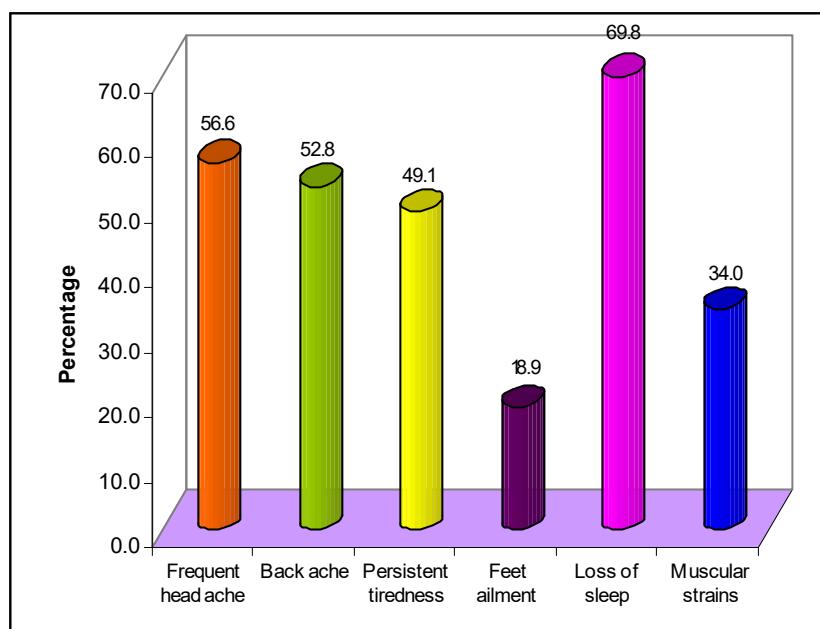

Figure 5: Percentage Distribution of The Sample According To Which of The Following Do You Experience Because of Night Shift

6. Influence of Night Shift On Sleep

The major problem faced by night shift workers is the lack of sleep or [insomnia]. In this study the influence of sleep problems shows that, 9.4% of the respondents said that they almost always sleepy during night shift. 81.1% of the respondents said that they sometimes sleepy during night shift. 9.4% of the respondents said that they almost never sleepy during night shift. 17% of the respondents said that almost always they experience problem to fall a sleep. 71.7% of the respondents said that sometimes they experience problem to fall a sleep.11.3% of the respondents said that almost never they experience problem to fall a sleep. 86.8% of the respondents said that they get less than 5 hours sleep after night duty. 11.3% of the respondents said that they get 6 hours -8 hours sleep after night duty. 1.9% of the respondents said that they get more than 8 hrs after night duty. 5.7% of the respondents said that they always get enough sleep after night duty. 34% of the respondents said that they often get enough sleep after night duty. 60.4% of the respondents said that they rarely get enough sleep after night duty.

While nurses are on night shift schedule, they use hot beverages, alcoholic drinks, sleeping tablets, listen to music, reading etc, to induce their sleep. In this study, 15.1% of the respondents said that they use hot beverages to induce their sleep. 3.8% of the respondents said that they use sleeping tablets to induce their sleep. 47.2% of the respondents said that they listen to music to induce their sleep. 5.7% of the respondents said that their sleep problems are low.94.3% of the respondents said that their sleep problems are high. Comparison of sleep problem based on age of nurses shows that, 92.1% of the age group of 21-30, nurses feels high sleep problems. 100% of the age group of nurses selected in the sample reports that they also experience high sleeps problems. That is there is no significant association between sleep problems of nurses based on age. Comparison of sleep problem based on marital status of nurses shows that, 90.6% of the married nurses feel high sleep problems. 100% single nurses selected in the sample reports that they also experience high sleep problems. That is all nurses having different civil status and different age groups having sleep problems because of night shift schedule.
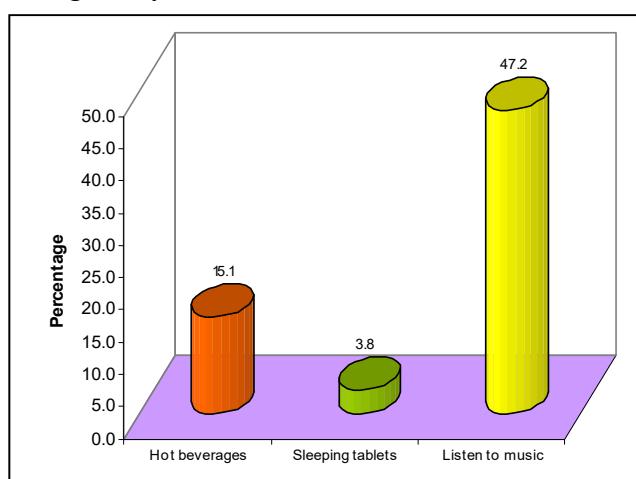

Figure 6: Percentage Distribution of The Sample According To If You Need To Induce Your Sleep When One Night Shift Which of The Following Do You Use

7. Problems of Night Shift

There is a diversity of problem encountered by nurses in a normal working situation. Some of these may be physical, physiological, psychosocial and social. Night work intensifies problems since the individual is working when the body clocks is naturally telling the majority of the people to rest. Problems vary with each individual since the biological structure is different. The findings revealed that 88.7% of the respondents said that almost always they experience problem to fall a sleep. 90.6% respondents stated that night shift doesn't suit their life style [fig 20]. Furthermore 45.3% stated that night shift is uncomfortable and doesn't pay better salary.

8. Influence of Circadian Rhythm On The Night Workers

As previously, mentioned differences in the circadian rhythm make other people to be at their peak in the evening and some to reach their peak in the morning Meckenzie J(2001). The study also examined if nurses felt more energetic when working on night shift. The results showed that 35% of the nurses did not feel energetic.60% of the respondents state they are tired during night shift and 49.1% of the respondents experienced persistent tiredness implies that their performance could be impaired. Tiredness may be due to insomnia, changes in sleeping patterns, variations in length of shift periods, and circadian rhythms. This inefficiency in performance could have deleterious consequences on the health care of patients.

V. CONCLUSION

Study shows that all age groups are subject to exposure to physiological and psychological hazards brought about by night shift as indicated in their subjective response.

Rotating shifts can be very strenuous for a female nurse with children and other family responsibilities. For these nurses other patterns of shift schedules are not only strenuous but also dangerous since they involve transport problems. Night shift is not suitable for life style for both married and unmarried nurses.

Some of the problems of night shift and the dislike of this shift emanate form the social difficulties encountered by nurses. Adaptation to night shift could be influenced by the social status of the individual within the community. For instance, the marital status, family needs, societal values and the lifestyle of the individual within the community influence the nurse's attitude towards night shift. Night shift causes an imbalance between desired lifestyle and work, women have a major role to play in the domestic life and they compromise their sleep to undertake the domestic chores such as care to their children and family chores.

All the respondents including different age group and civil status report that their work performance problems are high during night shift. The respondents also have health problems like head ache, back ache, persistent tiredness, feet ailments, loss of sleep, muscular strains because of the influence on night shift. Another health-related problem was that of exposure to occupational injuries and diseases.88.7% respondents said that they have got needle stick injury during night shift. NSI can occur if the nurse is too busy, drowsy or tired where she is likely to lose concentration and cause an accident. NSI predisposes nurses to infections such as Human Immune Virus (HIV), Acquires Immune Deficiency Syndrome (AIDS), Hepatitis B, and other viral infections.

The major problem faced by night shift workers is the insomnia. Most of the respondents did not get sufficient sleep during night shift schedule. The circadian rhythm has one of the important reasons for tiredness ad insomnia. The study also shows that female nurses have more influence of their life, as they have many responsibilities in the family, child rearing ect. The recent developments regarding shift work is aimed towards improvement of health of shift workers, the physical and psychosocial well being as stated by International Labor Office ILO.

REFERENCES

Allen C. (1999). Summary of the Croet Seminar: Shift work. retrive form Oregon Health and Science University, in March/10/2004 Web site http://www.ohsu.edu/Croet/outreach/symposia/shiftwork.html.

Behar, P, Tilley. A.J (1999). The impact of night work on psychological well being. Ergonomics Journal, 32, 1089-1099.

Brown, A. Eskes (1998). Turning Body Times to Shift Time. Health Science Centre., 94, 51-52.

Coffey, L., Skipper, J., Jung, F. (1998) Nurses and Shift Work Effect on Job Performance and Job Related Stress. Journal of Advanced Nursing 13, (2), 245-254.

Costa, G. (2001). Shift Work Health Consequences. International Encyclopedia of Ergonomics and Human Factors .2, 1359 – 1361

Davis, S., Merick, D., Stevens, R.(2001). Night Shift Work, Light AT Night And Risk of Breast Cancer, Journal of the National Cancer Institute, 93 (20), 1557-1562.

Doi Y, Minowa M, Uchiyama M, Okawa M. Development of the Pittsburgh Sleep Quality Index Japanese version. Japanese Journal of Psychiatric Treatment 1998; 13: 755–763 (in Japanese).

Gordon N, Cleary P, Parker C, Czeisler C. The prevalence and health impact of shiftwork. Am J Public Health 1986; 76: 1225–1229.

Harma M, Tenkanen L, Sjoblom T, Alikoski T, Heinsalmi P. Combined effects of shift work and lifestyle on the prevalence of insomnia, sleep deprivation and daytime sleepiness. Second J Work Environ Health 1998; 24: 300–307.

Hartel C (2000). The consequences and distinctiveness of shift work. Journal of Occupational and organizational Psychology.42, 168 –177.

Horowitz T, Cade B, Wolfe J, Czeisler C (2001) efficacy of bright light and sleep/darkness scheduling in alleviating circadian maladaptation to night work. Journal of Applied Phsiology. 281 (2). 381 –391.

Koller, M (1996). Occupational Health Services for Shift and Night Workers Applied Ergonmics, 27 (1) 31-37.

Laden f, Schernhammer Es, Colditz GA (2001). Rotating night shifts and risk of breast cancer in women participating in the nurse's health study. Journal of The National Cancer Institute. 93 American Journal of Medicine, 105 (3), 91-93.

Mckenzie, J(2001).Circadian Rhythms and Emergency Medicine Practice, Emergency Medicine Journal. 21, (10), 1250-1258.

Niedhammer I, Lert F, Marne MJ. Effects of shift work on sleep among French nurses. A longitudinal study. J Occup Med 1994; 36: 667–674.

Pool CJ, Evans GR, Spurgeon A, Bridges KW. Effects of a change in shift work on health. Occup Med 1992; 42: 193–199.

Takahashi M, Fukuda M, Miki K, et al. Shift work related problems in 16-h night shift nurses (2): Effects on subjective symptoms, phmptoms, physical activity, heart rate, and sleep. Ind Health 1999; 37: 228–236.

Ushington, W., Dawson, D. (1997), the Perceived Social and Domestic Consequences of Shift Work for Female Shift Workers and their Partners. Australian Journal of Occupational Health and Safety 13(5) 461-470.

BEHAVIOURAL TRANSFORMATION HAPPENING AMONG TOURISTS IN THE LIGHT OF SOCIAL MEDIA AND DIGITALIZATION

[1]Shafeena A.K. & [2]Dr. Dileep M.R.
[1]Research Scholar, Institute of Management in Kerala,
University of Kerala, Kariavattom.
[2]Director, Kerala Institute of Tourism and Travel Studies (KITTS),
Thiruvananthapuram.
Email:shafeena.ak9@gmail.com

ABSTRACT

In the digital era, social media and technological innovations have significantly altered the behaviour of modern tourists. This empirical study explores the behavioral transformation occurring among tourists due to the growing influence of social media and digitalization. Using a mixed-method approach, data were collected from 50 tourists (25 domestic and 25 international) using semi-structured interviews to understand how digitalization shapes travel decision-making, expectations, and on-site behaviour. Quantitative data, analyzed through descriptive statistics, categorized tourist profiles based on age, travel preferences, frequency of social media use and digital engagement behavior. Qualitative insights, derived from thematic analysis, revealed key patterns such as user-generated content, influence of travel influencers, and real-time content sharing. The findings highlight a growing dependency on digital tools and social platforms. The study contributes to the understanding of how digital interaction reshapes travel behaviour and offers insights for tourism marketers and policymakers to align with evolving tourist expectations. This research underscores the role of digital ecosystems in transforming tourists' identity, preferences, and experiential choices.

Keywords*: Social Media, Digitalization, Tourists Behaviour, Behavioural Transformation*

I.INTRODUCTION

In recent years, tourists' behaviour has undergone significant changes, driven by widespread digitalization and the pervasive influence of social media. From destination discovery to experience sharing, platforms like Instagram, YouTube, and TripAdvisor have redefined how tourists make decisions and engage with travel experiences. This study aims to empirically examine these behavioural shifts among both domestic and international tourists.

Tourism, a dynamic and ever-evolving industry, has undergone a significant transformation with the advent of digital technology and the widespread use of social media. Technological advances have changed the way we travel has been altered and these new developments promise an even more interactive and exciting experience. In today's

digital era, where bookings are confirmed in a split second and an entire trip can be organized with a few taps of the finger. Nowadays, Traveling is more accessible, convenient, and reasonably priced than in the past. The digital shift has led to changes in tourists' behavior, including a traveler's preference for individualized experiences, heightened dependence on online booking platforms, and the emergence of influencer-driven tourism are all of which are results of the digital revolution (Sigala,2022). Additionally, the growing emphasis on social validation and online engagement has altered how tourists document and share their journeys.

Social media platforms such as Instagram, YouTube, Facebook, and TikTok have become powerful tools that influence every stage of the tourist's lifecycle from destination selection and itinerary planning to real-time sharing and post-travel selection. The visual appeal of travel content, reviews from influencers and peers, and the desire for social validation have redefined how tourists behave and make decisions. Digitalization has also empowered tourists with real-time access to information, mobile applications, and personalized travel services. This has led to the rise of a new generation of digitally savvy tourists who are more informed, experience-oriented, and socially connected than ever before. As a result, the traditional patterns of travel behavior are being replaced by more spontaneous, image-driven, and technology-mediated practices. This study aims to explore the behavioral transformation happening among tourists in light of social media and digitalization. Through qualitative interviews, the research investigates how digital content, social trends, and technological

advancements are reshaping tourists' preferences, expectations, and actions. Understanding these changes is essential for tourism stakeholders to adapt to evolving consumer behavior and deliver more relevant, engaging, and digitally aligned experiences.

II.STATEMENT OF THE PROBLEM

Social media and digitalization, very much influencing tourist travel nowadays and influencing the tourist travel decision-making process. While looking into the recent tourism developments, it could be seen that our traditional methods of tourism were outdated due to the popularity of digitalization in tourism and the widespread coverage of social media platforms. Modern travelers rely heavily on online platforms to plan trips, share experiences, and make real-time decisions, reshaping traditional tourism patterns. This shift has led to noticeable changes in tourists' behaviour, including the prioritization of "instagrammable" locations, digital documentation of travel experiences, and decision-making based on online trends and peer validation. However, despite these visible changes, there is a lack of in-depth understanding of how and why these behavioural transformations are occurring, especially from the perspective of tourists themselves.

This study seeks to analyse the extent to which social media and digitalization drive behavioral transformations among tourists, focusing on key aspects such as decision-making, engagement with local cultures, sustainability practices, and digital dependency. Few studies explore this behavioural transformation using qualitative primary data, such as interviews, which can capture deeper motivations and personal

narratives behind travel behaviour. This study seeks to address this gap by examining the behavioural transformation among tourists in the context of social media influence and digitalization.it aims to understand the key factors driving this change, the nature of evolving tourist behavior, and the implications for tourism stakeholders in a digitally connected world.

III.SCOPE OF THE STUDY

One of the most significant industries in the Indian economy is the tourism industry. Social media and digitization might encourage tourists' choices regarding a broad range of travel factors during the behavioral pattern travel decision-making process. The goal of the current study has been designed and planned to assess the Behavioural transformation happening among tourists in the light of social media and the digitalization era, and its impact on tourist behavior. This study examines the behavioral transformation occurring among tourists in the digital era, highlighting the role of social media and digitalization. It examines how digital platforms shape travel decisions, preferences. and overall experiences.

IV.OBJECTIVES OF THE STUDY

- To analyse the impact of social media and digitalization on shaping tourists' behaviour.

- To explore demographic variations in tourists adoption and reliance on digital tools and social media.

3.To examine the influence of social media on tourists decision making process

V.LITERATURE REVIEW

Ongoing research and introduction confirm the necessity of Behavioural transformation. The literature study revealed that no comprehensive studies have been conducted regarding the social media and digitalization impact on the tourism sector. The tourism sector needs improved communication to link tourists to destinations, and also technological innovations and wide coverage of social media and its influences, increasing the potential of marketing of an organisation. Finally, it can be said that social media platforms and digitalization have been making it easier to communicate globally. Kerala's tourism sector needs a comprehensive study regarding the relationship among social media, digitalization, and tourism, and the study will also provide a clear framework for structuring the Kerala tourism sector. Carey, Breanna (2021). Studying the impact of social media and digitization, researchers examine the impact of the Web 3.0 concepts and the mass collaboration trend of social networks. I V Barashok et al. (2021) Digitalization in tourism makes the tourist business more adaptable, competitive in a changing digital landscape, and flexible. Chang and Jang (2014) A study of young and literate mobile users' adoption of smartphone-enabled tourism product booking services investigated the use of mobile phones by the young and literate in availing smartphone booking services. Emil Juvan et al. (2017) Tourist Behaviour is a key factor gave the successful development of tourism services, therefore an understanding and knowledge of tourist behavior is a crucial component of the successful development of tourism knowing the behavior of tourists has practical value for all tourism stakeholders Radmila Zivkovic, et., al (2014) Among the available internet

platforms, social media is recognized as the most dependable channel that permits the user to disseminate content extensively. Juvan, E. (2018). Dahmani, Adeline Z. (2020). Digitalization has changed the hospitality sector and has made more changes in the post-COVID world. The future of hospitality will change radically based on the Increased use of 4.0 technologies and different consumer behaviors and preferences. Nikolaos Pappa and Anna Farmaki (2022). The comprehensive implications of new trends and shifting dynamics on the tourism and hospitality sector at local, regional, national, and international levels in a holistic manner. Fesenmaier,D.R.; Wang,D. (2013) Smartphones can significantly transform the travel experience by altering trip planning, creating and destroying one's perception of tourism, and rearranging the relationships between tourists, places, and others. Teresa Florentino and Rui Ribeiro (2016) A new ecosystem and method of doing business are being created by the power of digital information for customers and businesses, linked to the digital transformation of business models, creating a new ecosystem and a new way of doing business. Zivkovic Radmila et al. (2014) When choosing a destination, travelers rely on online interpersonal influence and online word of mouth. Daniel Diez,(2017)The tourism sector has undergone a remarkable change due to advances in digitalization processes and transportation as a result of these advances. Shekhar and Suneel Kumar (2020) Customer demand for digitalization, the growing importance of the sharing economy, and the presence of social media are important contributors to the enhancement of digitalization in the tourism industry. Andrades, Lidia (2015). Analysis of tourists' behavior is a crucial component to be considered by tourism destinations and businesses when developing marketing strategies.

VI.RESEARCH METHODOLOGY

This study follows a mixed-method approach combining quantitative and qualitative research designs to explore behavioural changes in tourists under the influence of social media and digital platforms. A convenience sampling technique was employed to select 50 tourists (25 domestic and 25 international) representing diverse age groups, travel preferences, levels of social media usage, and digital engagement behaviour. Selection criteria included active travel history and regular interaction with digital travel content. Primary data was gathered through semi-structured interviews conducted either in person. An interview schedule was developed covering themes like digital influence on planning, social media usage during travel, and changes in behaviour due to online content. Thematic analysis was used to identify recurring patterns and key themes across interview transcripts.

VII.DATA ANALYSIS AND FINDINGS

A total of 50 tourists were interviewed, comprising 25 domestic and 25 international tourists visiting various destinations in Kerala. Semi-structured interviews explored their social media usage patterns, source of travel inspiration, and decision-making processes. The collected data to measure the behavioural transformation happening among tourists in the light of social media and digitalization have been analyzed in this section.

Table 1: Demographic Profile of Tourists

Variables	Categories	Frequency (n = 50)	Percentage
Nationality	Domestic	30	60
	Foreign	20	40

Source: Primary Data

Age Range	Frequency	Percentage
< 25	12	24
25-40	20	40
40-60	13	26
60+	5	10

Source: Primary Data

Table 2: Travel Preferences

Travel Type	Frequency	Percentage
Adventure	15	30
Heritage	10	20
Wellness	12	24
Eco-tourism	13	26

Source: Primary Data

Table 3: Social Media Usage Level

Usage Level	Frequency	Percentage
High	28	56
Medium	15	30
Low	7	14

Source: Primary Data

Table 4: Digital Engagement Behaviour

Digital Behaviour	Domestic Tourists (n = 25)	International Tourists (n=25)
Use Mobile Apps For Booking (Flights/Hotels/Activities)	16	21
Rely On Online Reviews Before Booking	18	23
Follow Travel Influencers Or Vloggers	11	20
Post Real-Time Updates (Instagram Stories, FB Post)	13	22
Share Reviews/Photos After Travel	10	21

Source: Primary Data

The present study aimed to explore the behavioural transformation among tourists under the influence of social media and digitalization. Data collected from 50 tourists, comprising both Domestic and Foreign tourists with diverse age groups, travel preferences, and levels of social media engagement, revealed several notable patterns. Combining both quantitative tables and qualitative thematic findings, it was observed that the majority of respondents acknowledged that social media significantly influenced the behavioural patterns of tourists. Among them, Instagram, TripAdvisor, and YouTube were cited more frequently.

Out of the 50 participants, 60% were domestic tourists, with 40% being foreign tourists, ensuring a well-balanced representation. The 25-40 age group constituted the largest share (40%), indicating that middle-aged travelers are most actively engaging with digital platforms during their trips. Travel preferences varied, but a significant number of respondents showed interest in adventure (30%) and eco-tourism (26%), reflecting a growing inclination toward experience-based and environmentally conscious travel. International tourists display higher levels of digital engagement across almost all dimensions, particularly in using influencers, posting real-time content, and sharing post-trip reviews

In this study involving 50 tourists, it was observed that the majority of tourists, especially international tourists, acknowledged that social media and digitalization significantly influenced their behavioural transformation. Among them, Instagram and YouTube were cited more frequently. This shows the deep integration of digital platforms into the travel lifecycle, from pre-trip inspiration to post-trip sharing.

VIII. Thematic Analysis (Qualitative Data)

Use Thematic grouping to analyze interview responses. Identify patterns like:

1. Theme 1: Influence of Social Media on Travel Decision-Making

Findings: Most respondents reported discovering new destinations through Instagram, YouTube, or travel blogs. Decisions were often made based on the visual appeal and reviews by influencers or other travelers.

2. Theme 2: Shifts In Travel Planning Behaviour

Findings: Traditional guidebooks and travel agents are being replaced by Google searches, hashtags, and online forums. Travelers prefer flexible itineraries based on real-time updates and suggestions from social media.

3. Theme3: Desire For "Instagrammable" Experiences

Findings: A notable trend is tourists prioritizing photo worthy locations and curated experiences for social media sharing. Some admitted to choosing outfits, locations, or food only for social media visibility

4. Theme 4: Influence of Behaviour During Travel

Findings: Many respondents said they restructured their travel behaviour to document everything digitally-checking in, posting live stories, or following influencer-recommended activities.

5. Theme 5: Post-Travel Social Media Engagement

Findings: Tourists expressed a sense of fulfilment through online validation. Sharing travel experiences online often acted as a social currency and inspired others to visit similar places.

IX. CONCLUSION

The study explored how social media and digitalization influence the behavioural patterns of tourists through the lens of primary data collected through interviews. The findings reveal a clear transformation in tourist behavior, marked by a growing dependence on digital platforms for travel planning, decision making, and experience sharing. Social media content, especially visual elements like reels, influencer posts, and travel vlogs, plays a crucial role in shaping tourists' destination choices, expectations, and on-site activities. Tourists today are more experience-driven and image-conscious, with their travel behaviour influenced by the desire for social validation, online engagement, and digital storytelling. This behavioral shift reflects the emergence of the digitally connected tourist, who uses technology not only for utility but also for identity construction and social performance. The study underscores the significance of digital platforms in redefining the tourism experience and highlights the need for tourism stakeholders to align marketing and service strategies with these emerging behavioral trends.

REFERENCES

Sigala, M, (2022). Social media and tourism behavior. The impact of influencers and digital trends. Annals of Tourism Research, 92,103312.

Barashok, I & Rudenko, L & Shumakova, E & Orlovskaia, Iu. (2021). Digitization: New possibilities for the Tourism industry. IOP Conference Series: Earth and Environmental Science. 666. 062059. 10.1088/1755-1315/666/6/062059.

Chang, S.E, Jang. Y,(2014) Tourism Goes Mobile: a study of young and literate mobile users' adoption of smartphone-enabled tourism product booking services.

Emil Juvan, Doris Gomezelj Omerzel, Maja Uran Maravic (2017). Tourist Behaviour An overview of models to date.

Radmila Zivkovic, Jelena Gajic, Ivana Brdar (2014). The impact of social media on tourism 758- 761.

Adeline Zegiri Dahmani, and Ben Youssef, (2020) Digitization of the tourism industry: What are the impacts of the new wave of technologies, Vol: 2, pp 63-82,

Anna Farmaki, Nikolaos Pappa (2022) Emerging Transformation in Tourism and Hospitality, 256 Pages.

Wang, D; Fesenmaier, D.R. Transforming the travel experience; The use of smart phones for travel. information and communication technologies in tourism 2013.pp 58-69.

Rui Ribeiro, Teresa Florentino,(2016) Digital transformation in tourism: a high-level analysis of the impact that social networks.

Radmila Zivkovic, Jelena Gajic, Ivana Brdar (2014). The impact of social media on tourism 758- 761

Breanna Carey. (2021) What's the social media impact on tourism?

Daniel Diez (2017). Tourism sector impact of digitization.

Chang, S.E., Jang. Y,(2014) Tourism goes mobile: A study of young and literate mobile users' adoption of smartphone-enabled tourism product booking services.

Emil Juvan, Doris Gomezelj Omerzel, Maja Uran Maravic (2017). Tourist Behaviour: An overview of models to date.

Sachin Ache Mahesh wadde (2013). Impact of social media on tourism.

Anjnkirah Maams Birago (2017). The influence of the internet and social media on Tourism in Ghana.

Suneel Kumar, Shekhar (2020) Digitization: A Strategic approach for development of tourism industry in India. Sage journal.

Lidia Andrades, Federic Dimancha, Sergey Ilkevich (2015). Tourist behaviour and trends. pp 101-130.

MARITIME RESEARCH IN TRANSITION: A BIBLIOMETRIC REVIEW OF THE BLUE ECONOMY, SUSTAINABILITY, AND INDUSTRY 4.0

[1]Rincy Raju & [2]Dr, Yogamala H.L.
[1]Research Scholar, Indian Maritime University, Chennai
[2]Assistant Professor,Law, Indian Maritime University, Chennai
Email: Rincyraju3003@gmail.com

ABSTRACT

The integration of maritime economics, environmental responsibility, and Industry 4.0 technologies has revolutionized the direction of international maritime research. In this study, a bibliometric analysis is performed to follow up on the development and intellectual makeup of this multidisciplinary field in terms of Blue Economy framework. Based on bibliographic records retrieved from the Scopus database (2000 -2024), VOS viewer is used to visualize co- authorship, co-word, and citation network, as well as to utilize R's bibliometrics package for an intensive assessment of performance and thematic mapping.Key trends include significant growth in publications pertaining to sustainable shipping, intelligent port infrastructure, digitalization, and maritime transformation driven by policy changes. Geographical analysis paints Europe and East Asia as top contributors, while institutional collaboration is reflected in strong regional clustering. Thematic development reflects movement from conventional maritime economics to sophisticated discourses surrounding environmental regulation, decarbonization, and integration of artificial intelligence and blockchain technologies.The bibliometric analysis not only charts the current state of knowledge but also pinpoints areas that remain unexplored and directions that research and policy might take in future. The results seek to assist academics, professionals, and policymakers to put maritime approaches into perspective in terms of larger goals of technological innovation and sustainable development.

Keywords: *Blue Economy, Sustainability, Industry 4.0, Smart Ports, Green Shipping, Digitalization, Maritime Policy*

I.INTRODUCTION

The maritime sector is crucial to global economy, enabling more than 80% of international trade in volumes (UNCTAD, 2023). In recent times, though, the industry has been experiencing significant changes spurred by environmental pressures, economic realignments, and swift uptake of sophisticated technologies the imperatives of which find synthesis in the global Blue Economy vision process. The Blue Economy outlook encourages the effective usage of ocean resources to support economic development, better living standards, and the sustainability of ecosystems (World Bank, 2017). Blue Economy is an emblem of change from conventional maritime practices

towards approaches that highlight conservation of the environment, inclusive development, and long-term resilience.

In tandem with this transition, the Fourth Industrial Revolution (Industry 4.0) brought upon nations a package of disruptive technologies like the Internet of Things (IoT), artificial intelligence (AI), blockchain, and big data analysis that is revolutionizing maritime activities, terminal logistics, ship management, and regulation (Poulsen et al., 2021; Yang et al., 2022). All these advances triggered an upsurge in academic works that explore the intersection of maritime economics, digital innovation, and sustainability paradigms.

In spite of this mounting wave of studies, there is still limited scholarly understanding of these themes as a unified, coherent process within academic writing to date. Previous studies concentrate on certain elements green shipping (Nguyen et al., 2020), smart ports (Heilig & Voss, 2017), or one specific aspect of greenhouse emissions (Psaraftis, 2019) rather than presenting an overarching picture of the intellectual environment as a whole. In addition, quantitative studies of research output development, influential publications, collaborative teams, or thematic changes over time are scarce.

In an effort to respond to this deficiency, this current study applies a bibliometric method to trace the scholarly landscape at the nexus of maritime economics, environmental issues, and Industry 4.0 technologies within that of Blue Economy. Utilizing visualization tools like VOS viewer and network and performance analysis using R's bibliometrics package, this paper presents data-driven analysis of prominent trends, fields of knowledge, and upcoming research fronts from 2000 to 2025.

RQ1: How has the volume and focus of maritime research evolved over the past 25 years?

RQ2: Which journals and authors have significantly contributed to the discourse on sustainable maritime practices?

RQ3: What are the predominant themes and emerging areas of interest in maritime research intersecting with Industry 4.0?

This analysis not only enhances academic discussion but also provides input to industry and policy discussion by determining knowledge gaps, key contributors, and directions to go. In this process, it provides an important source of information to be used by interest holders looking to synchronize maritime affairs with sustainable development objectives as well as technological growth.

II. INSTITUTIONAL BACKGROUND

India, with a coastline extending over 7,500 kilometres and encompassing 12 major and 200 minor ports, holds a significant geopolitical and economic position in the Indian Ocean Region. As maritime trade becomes increasingly complex and sustainability-driven, Indian institutions have started aligning national strategies with global environmental and innovation mandates. The Government of India's Sagarmala Programme, launched in 2015, serves as a comprehensive initiative to promote port-led development and integrate coastal economic zones with logistics and industrial clusters (Ministry of Ports, Shipping and Waterways, 2020).

Academic and policy-oriented institutions have played a pivotal role in this transformation. The Indian Maritime University (IMU), established in 2008, has

become a central hub for maritime education and research, offering specialized courses in port management, marine engineering, and logistics. The National Maritime Foundation (NMF), a strategic think tank, contributes to research on maritime security, blue economy policy, and sustainable ocean governance (NMF, 2021).

These academic and research efforts are supported by India's commitment to international maritime sustainability frameworks, such as the International Maritime Organization's (IMO) strategy to reduce greenhouse gas emissions. Additionally, India's draft Blue Economy policy framework (MoES, 2021) emphasizes marine spatial planning, sustainable fisheries, and port digitalization signalling a shift from traditional maritime economics to a more holistic sustainability-centric model. Collectively, these developments underscore a robust institutional framework that contributes both regionally and globally to the advancement of blue economy research.

III. MARITIME ECONOMY AND INDUSTRY INTEGRATION

The maritime industry covers various activities such as shipping, fishing, marine tourism, offshore energy, and ports. Such activities are increasingly subject to global economic trends and shifts in policy orientation towards sustainability. Adoption of Industry 4.0 measures has stepped up automation, data-driven decision-making, and efficiency in maritime activities (Acciaro et al., 2020). Digitalization, mixed with imperatives of sustainability, has resulted in innovations like autonomous ships, predictive maintenance, intelligent logistics, and decarbonization measures (Zhou et al., 2021).

It is not just technical but structural as economic incentives become balanced against environmental and social goals among maritime players. Clean technologies, regulation facilitating emission control, and collaboration for green corridors all indicate an increased convergence of economic growth and sustainability in shipping. An insight into academic literature on these convergence trends is an insight into maritime industry adaptation and directions in the future.

The maritime sector stands at a critical juncture, navigating the intertwined challenges and opportunities presented by the blue economy, the imperative of sustainability, and the transformative potential of Industry 4.0 (Choudhary et al., 2021). This study undertakes a comprehensive bibliometric review to map the intellectual landscape of maritime research, specifically focusing on the evolving discourse around these three pivotal themes (Choudhary et al., 2021). The blue economy, encompassing the sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystems, has gained significant traction as a guiding principle for maritime development (Satta, 2021). The convergence of these forces necessitates a holistic understanding of the research trends, influential actors, and knowledge gaps that shape the trajectory of the maritime industry (Satta, 2021). This paper analyses the intellectual structure of maritime research concerning the blue economy, sustainability, and Industry 4.0, employing bibliometric techniques to identify key trends, influential publications, and research clusters. Sustainability, with its multifaceted dimensions encompassing

environmental stewardship, social equity, and economic viability, has become an indispensable consideration for maritime operations. Industry 4.0, characterized by the integration of digital technologies such as artificial intelligence, the Internet of Things, and big data analytics, promises to revolutionize maritime processes, enhance efficiency, and unlock new possibilities for innovation (Theotokas et al., 2024).

IV. RESEARCH METHODOLOGY

This study employs a bibliometric methodology to systematically analyse the academic literature related to maritime economics, the Blue Economy, and Industry 4.0 integration. Bibliometric analysis is a powerful tool used to evaluate the growth, performance, and structural trends in academic research based on quantitative metrics such as publication output, citation analysis, and co-authorship networks (Aria & Cuccurullo, 2017).

This study employs a systematic bibliometric approach to examine scholarly output on maritime research in relation to sustainability, the blue economy, and Industry 4.0. Bibliometric analysis, which involves the quantitative study of publication patterns, has proven to be a robust tool for evaluating academic trends, author networks, and thematic structures (Donthu et al., 2021). The methodology adopted in this paper draws upon established practices in bibliometric reviews as recommended by Zupic and Èater (2015), ensuring replicability and methodological rigor.

The primary data source for this study was the Scopus database, renowned for its comprehensive coverage of peer-reviewed scientific literature. A query string composed of relevant keywords such as "green shipping", "sustainability", "blue economy", "Industry 4.0", and "maritime logistics" was formulated to extract records published between 2010 and 2025. The search was confined to peer-reviewed articles and reviews written in English. To ensure thematic relevance, articles were filtered based on subject areas including Environmental Science, Social Sciences, Engineering, Energy, and Marine Studies.

The initial data extraction resulted in 184 documents. These records were further refined through a rigorous screening process to eliminate duplicates, editorials, and non-research oriented content. The final dataset was exported in BibTeX format and analyzed using the R based Bibliometrics package and its web interface, Biblioshiny (Aria & Cuccurullo, 2017). This enabled both performance analysis (e.g., most cited articles, prolific authors, core journals) and science mapping techniques (e.g. co-authorship, co-word, and co-citation analyses).

Visualizations such as thematic maps, keyword co-occurrence networks, factorial analyses, and production timelines were generated to uncover underlying intellectual structures and research dynamics. Descriptive statistics were also employed to determine publication frequencies, author productivity, and country-wise contributions. By triangulating these analytical methods, the study offers a comprehensive understanding of the maritime research landscape.
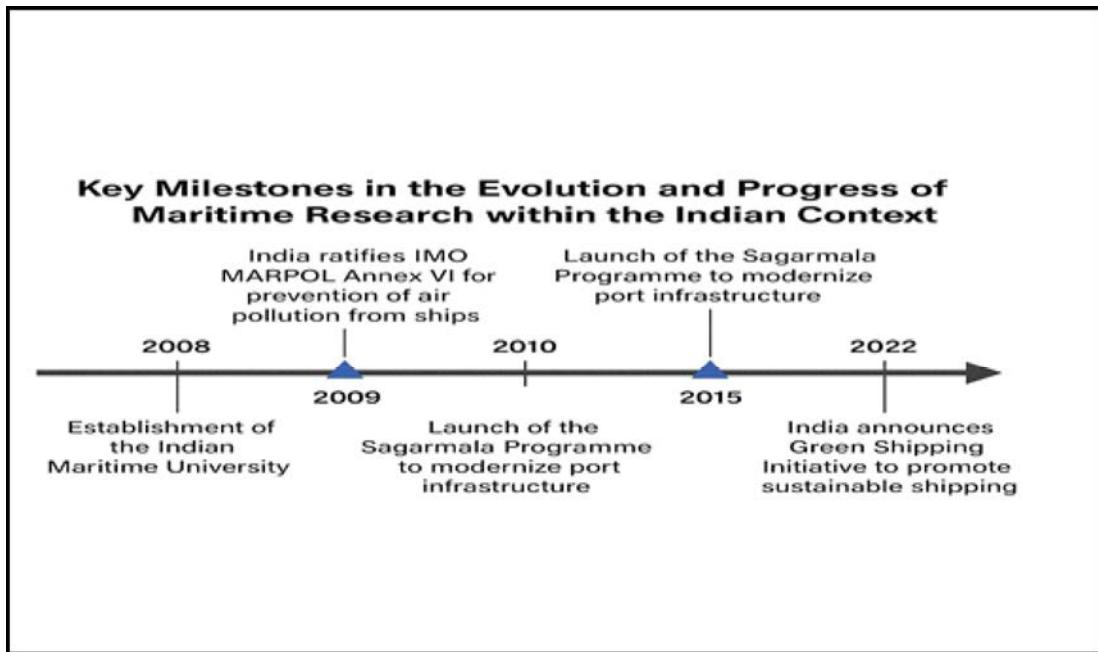
Figure 1: Key Milestones in the Evolution of Research
Source : Created By The Author

V.BIBLIOMETRIC PROTOCOL

The bibliometric analysis followed a structured protocol comprising six stages:

- Data Identification: Defining research questions and determining relevant keywords and subject areas.

- Data Acquisition: Extracting publication data from the Scopus database based on predefined criteria.

- Data Purification: Cleaning the dataset to remove duplicates and irrelevant entries.

- Data Organization: Structuring data for analysis, including categorization by year, journal, author, and country.

- Data Evaluation: Applying bibliometric indicators and visualization tools to assess research trends and patterns.

- Reporting: Interpreting findings and compiling results into a coherent narrative

VI.RESULTS AND DISCUSSIONS

1.Performance Analysis (Citation Metric Results)

The chart below presents the annual trajectory of publications and their citation performance over a 25-year span, based on data processed from the Bibliometrics Export File using a Harzing's Publish or Perish style approach. While earlier years (2011–2019) saw modest research output and no recorded citations, publication volume began to increase notably from 2020 onward. Despite this growth, most papers between 2020 and 2024 have not yet garnered citations, likely due to the short citation lag common in scholarly communication. The year 2021 marked a modest citation peak, with an average of 1.5 citations per paper, suggesting some visibility or uptake for publications released that year. In contrast, 2025 stands out with the highest number of publications

(27) and total citations (21), reflecting either an increased research focus or early impact of recently published work. The average citations per paper in 2025 remain relatively low (0.78), indicating that while publication volume is increasing, the long-term influence of these works remains to be seen. This trajectory suggests that the field or authors represented are in a growth phase, with maturing impact still underway.
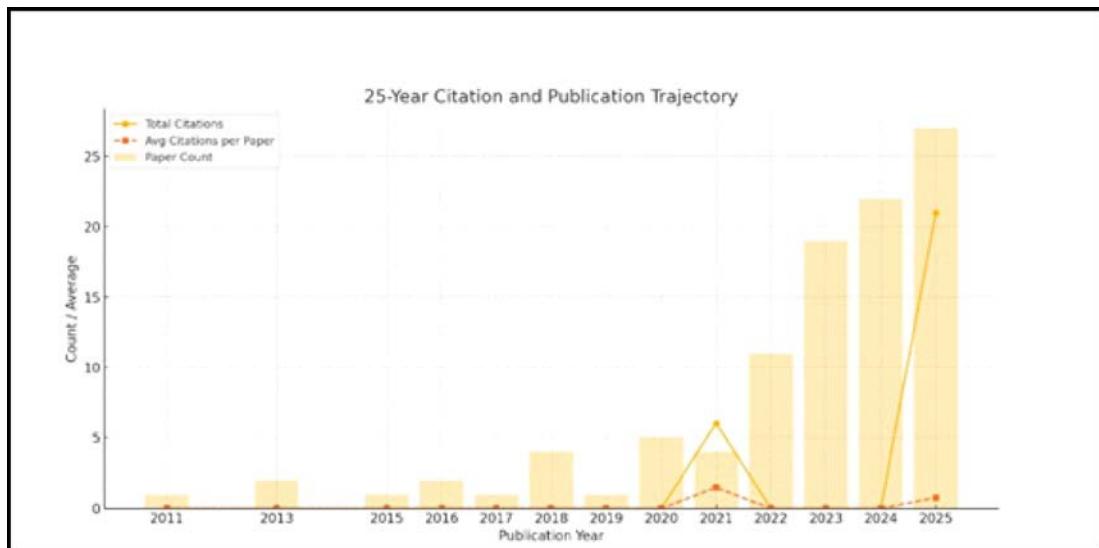

Figure 2: Citation Metrics

Source : Created By The Author

The identification of the most relevant sources in a bibliometric study provides insight into the journals and publication outlets that serve as intellectual anchors within a specific research domain. Based on the analyzed dataset, a discernible concentration of articles appears in high- impact journals such as Journal of Cleaner Production, Sustainability, Technological Forecasting and Social Change, Business Strategy and the Environment, and Renewable and Sustainable Energy Reviews. This observation is consistent with the Bradford Law distribution, which posits that a core group of journals tends to account for a significant share of relevant publications in any scholarly field (Bradford, 1934). These journals not only serve as preferred outlets for publication but also act as nodes of citation accumulation and thematic consolidation.

The dominance of journals like Journal of Cleaner Production and Sustainability is particularly noteworthy, as they reflect the field's systemic focus on the nexus between environmental stewardship and organizational innovation. These journals have consistently ranked high in Scopus and Web of Science indices, suggesting that they are trusted conduits for disseminating impactful research. As per Zupic and Èater (2015), the aggregation of citations around specific sources underscores their function in setting epistemological boundaries and defining methodological norms. Moreover, such journals often facilitate special issues or

thematic sections that attract scholars seeking to align their work with trending discourses.

In terms of citation dynamics, journals like Technological Forecasting and Social Change indicate a strategic shift toward anticipatory and foresight-based research approaches. Additionally, the inclusion of management journals like Business Strategy and the Environment reflects the mainstreaming of sustainability themes into corporate strategy, aligning with the "triple bottom line" philosophy proposed by Elkington (1997).

Source Analysis through Bradford's Law

Bradford's Law of Scattering, a cornerstone of bibliometric science, provides a heuristic model for identifying core journals that disproportionately contribute to a given scholarly domain. It posits that a relatively small set of journals (the "nucleus") will produce the majority of high- relevance articles, while additional articles on the topic are distributed across a broadening array of less central journals (Bradford, 1934; Garfield, 1980). The Bradford distribution curve presented here operationalizes this principle within the context of sustainable maritime transportation and green shipping research. The log-linear representation demonstrates a clearexponential decay in article frequency across source rankings, affirming the theoretical underpinnings of the law.

The core zone, shaded in grey and labeled as "Core Sources," comprises three key journals that dominate publication output: Ocean & Coastal Management, Transportation Research Part D: Transport and Environment, and Journal of Cleaner Production. These outlets collectively contribute the highest volume of peer-reviewed work on topics such as decarbonization, sustainable port operations, and maritime logistics policy. Ocean & Coastal Management is particularly prominent, registering the highest article count and suggesting its pivotal role in disseminating regionally and environmentally focused policy research. This aligns with the journal's interdisciplinary scope and policy orientation, as observed in studies emphasizing coastal sustainability and marine governance frameworks (Gómez-Baggethun et al., 2010).

Transportation Research Part D is another foundational journal in this cluster, contributing significantly to emissions modeling, alternative fuels, and comparative logistics systems. Its specialization in environmental transport studies makes it an attractive outlet for scholars pursuing system-level decarbonization strategies (Zis, 2020). Meanwhile, the Journal of Cleaner Production bridges environmental science and industrial innovation, attracting contributions that explore technological interventions such as shore power and green retrofitting of ships. Its presence in the core set validates its role as a cross-disciplinary journal conducive to integrated environmental management approaches (Klemeš et al., 2012).
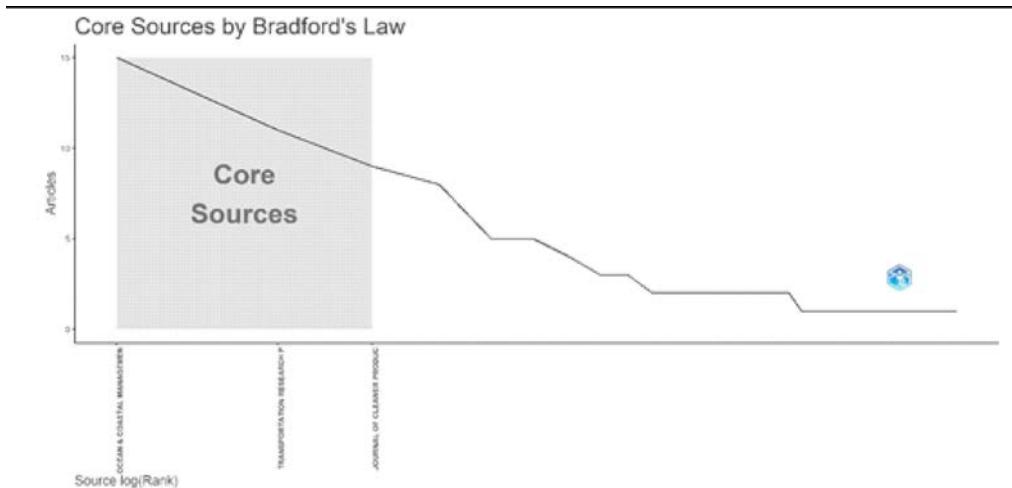
Figure 3: Citation Metrics

*Source : Created By The Author*
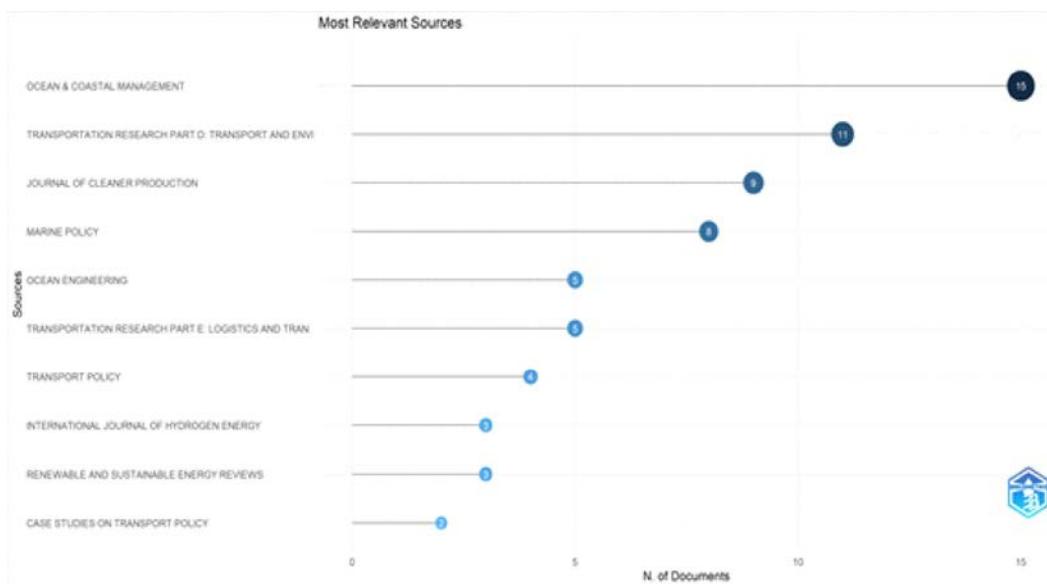
Figure 4: Most Relevant Sources

Source : Created By The Author

In bibliometric analysis, identifying the most relevant authors enables researchers to map the intellectual terrain of a field and identify its key contributors. Based on the present dataset, the most influential authors are identified in terms of the number of documents published within the thematic scope of sustainability, innovation, and environmental strategy. The top-tier contributors each with three publications include Jasmine Siu Lee Lam (JSLL), Jihong Chen , Junjin Wang , Markus Steen , and

Teis Hansen . A second tier of contributors each with two publications includes Aykut I. Ölçer , Bin Meng , Christa Sys , Christina W.Y. Wong, and De- Chang Li . These authorial frequencies indicate concentrated scholarly productivity and signal thematic influence within the dataset.

The high frequency of authors such as Jasmine Siu Lee Lam is notable in the context of sustainable maritime logistics and green port initiatives, areas where Lam has made significant contributions (Lam & Notteboom, 2014). Her inclusion among the most productive scholars underscores the growing relevance of port sustainability and decarbonization in the broader sustainability discourse. Similarly, Jihong Chen and Junjin Wang's repeated contributions are reflective of the surge in environmental innovation research emerging from East Asia, particularly in domains intersecting with industrial engineering and clean technologies (Chen et al., 2021). These authors often contribute empirical analyses rooted in systems modeling, scenario forecasting, and lifecycle assessment, making their work both theoretically enriching and practically actionable.

Markus Steen and Teis Hansen, meanwhile, are scholars whose research straddles the intersection of innovation policy and regional sustainability transitions. Their works contribute significantly to the understanding of how green technologies evolve within regional innovation systems (Steen & Hansen, 2018). The co-appearance of such authors within the top tier suggests a strong research emphasis on spatial and institutional dynamics in sustainability science.

The inclusion of authors like Aykut I. Ölçer and Christina W.Y. Wong also reflects a methodological diversification, as these scholars contribute to hybrid decision-making frameworks, incorporating multi-criteria decision analysis (MCDA) and stakeholder-inclusive modeling in sustainable maritime and logistics management (Wong et al., 2012). This diversity in authorial focus from technological modeling to regional policy and stakeholder theory highlights the multi disciplinarity that characterizes contemporary sustainability research

Figure 5: Most Relevant Authors

Source : Created By The Author

2. Science Mapping

The keyword co-occurrence network provides a rich, structural overview of the thematic clusters that dominate the research landscape, visually representing the semantic proximity and intellectual connectivity among frequently co-occurring terms. Each node in the network corresponds to a keyword, with edges denoting co-occurrence frequency and thematic similarity. The size of a node represents keyword frequency, while its color denotes cluster membership as derived through modularity-based community detection algorithms, such as the Louvain method (Blondel et al., 2008). At the epicenter of this bibliometric map, the keywords green shipping, sustainability, decarbonization, and shipping emerge as dominant nodes with extensive linkages, indicating their centrality and thematic integrative role across the domain.

The largest and most interconnected cluster is centered around green shipping (red), which acts as a strategic hub connecting peripheral and core themes such as maritime transportation, institutional theory, and environmental performance. This centrality reflects the growing scholarly attention toward decarbonization in maritime logistics as a crucial lever in achieving broader sustainability objectives (Zis, 2020). Closely linked is the sustainability node (purple), which binds multiple conceptual sub-fields including digital transformation, environmental upgrading, and green supply chains, thus reinforcing the interdisciplinary appeal and policy-driven impetus in the literature.

The green cluster around carbon neutrality, greenhouse gas emissions, and alternative fuels highlights the technical and environmental focus in current research streams, often emphasizing mitigation pathways such as low-carbon fuels and emission abatement technologies. These keywords are intricately linked with maritime transportation, forming a dense interlinked module that echoes operational and engineering-oriented research, as noted by Rehmatulla et al. (2017). Additionally, the light blue cluster encompassing energy efficiency, shipbuilding industry, and capacity constraints suggests a niche but methodologically deep area of study focused on optimizing vessel design and performance.

The orange cluster anchored by game theory represents an emerging analytical paradigm that applies optimization and decision-theoretic approaches to collaborative and competitive behaviors in maritime decarbonization scenarios. This aligns with the recent shift toward behavioral and strategic modeling in green policy implementation, as seen in studies by Liu et al. (2021).

**Figure 6: Most Ocuring Keywords**
Source : Created By The Author
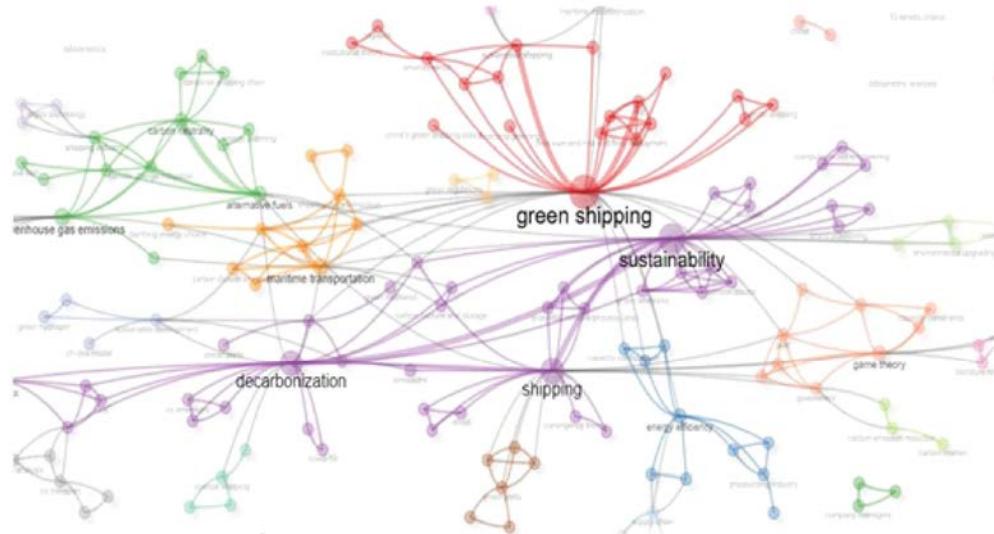
Figure 7: Keyword Co-occurance Network
Source : Vos Viewer Visualisation

VII.THEMATIC EVOLUTION

Thematic mapping offers a strategic visualization of the conceptual landscape of a research domain by examining co-word networks based on their centrality (relevance) and density (development). The thematic map derived from this bibliometric study reveals a multi-core structure of the literature, broadly categorized into four quadrants, each representing distinct strategic importance. In the Motor Themes quadrant characterized by both high centrality and high density key topics such as greenhouse gas emissions, alternative fuels, carbon neutrality, and game theory dominate. These themes signify a matured and well-integrated research focus, occupying a central and advanced position in the discourse on environmental sustainability and logistics optimization. For instance, the emergence of game theory as a motor theme reflects increasing scholarly interest in strategic stakeholder interactions

and decision-making in decarbonization policies, echoing the findings of Fahimnia et al. (2015) on the use of operations research tools in green supply chain management.

In contrast, the Basic Themes quadrant high in centrality but low in density—houses foundational yet underdeveloped areas like green shipping, sustainability, decarbonization, environmental performance, and sustainable development. These concepts, although critical to the field, remain broad in scope and are undergoing consolidation, suggesting that while widely cited, they lack internal cohesion and theoretical maturation. This pattern aligns with the bibliometric insights of Zupic and Èater (2015), where such themes are often interdisciplinary in nature and necessitate further methodological refinement.

The Niche Themes quadrant denoting high density but low centrality contains more specialized research such as inland waterway transportation, shore power, and international

maritime organization (IMO) regulations. These themes reflect well-developed research clusters that, while internally cohesive, are relatively peripheral to the core discourse. The high density of such themes suggests a concentration of domain-specific knowledge, particularly in maritime policy and localized technological innovation, akin to the insights of Wang and Notteboom (2011) on the evolution of green port technologies.

Finally, the Emerging or Declining Themes quadrant, marked by low centrality and low density, includes marine propulsion, shipbuilding industry, and energy efficiency. Their placement implies either an emerging status or a waning scholarly interest. For example, while energy efficiency was once central to maritime innovation, its reduced density may signal a thematic shift toward more integrated decarbonization solutions.
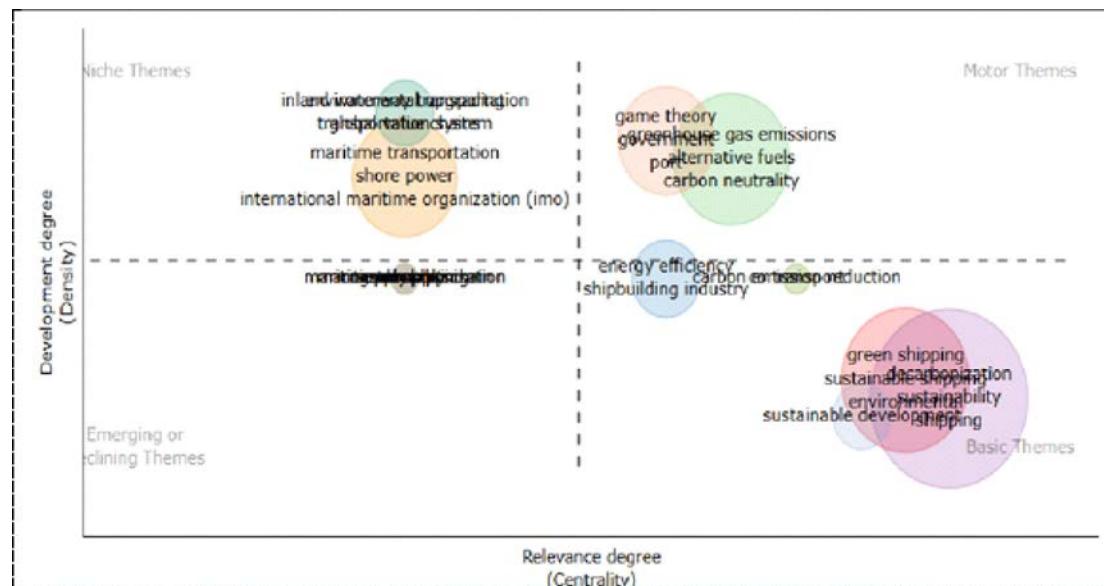

Figure 8: Thematic Map

Source : Extracted from RStudio Version 4.4.2

X. FUTURE RESEARCH AGENDA

The maritime research domain is poised for significant evolution, driven by emerging technologies, environmental imperatives, and regional disparities. A primary area of focus is the incorporation of smart technologies such as the Internet of Things (IoT), blockchain, and artificial intelligence into maritime logistics and port operations. These technologies have the potential to enhance operational transparency, enable predictive maintenance, and optimize supply chain efficiency.

Parallel to technological advancement, there is an urgent need to investigate the socio-economic impacts of maritime decarbonization strategies, particularly in developing nations. These countries often depend on maritime infrastructure for economic growth, making the balance between sustainability and development a critical research challenge. In this context, the role of market-based mechanisms, including carbon taxation and emissions trading schemes, has garnered attention. Evaluating their effectiveness, equity, and scalability

within maritime frameworks requires robust empirical research and interdisciplinary collaboration.

Furthermore, expanding the geographic focus of maritime research to include underrepresented regions such as South Asia, Africa, and Latin America is essential. These areas offer unique ecological and infrastructural contexts that can inform context-specific policy interventions and innovation. Additional emerging priorities include climate adaptation strategies for coastal and port areas, marine biodiversity protection, and the evolving interface between maritime law and environmental justice.

IX.CONCLUSION

Maritime research is witnessing a profound transformation, catalyzed by global decarbonization imperatives, digital innovations, and the growing influence of the blue economy framework. This bibliometric analysis confirms that scholarly interest in maritime sustainability and technological integration has surged, particularly after 2020, corresponding with international policy directives such as the IMO's decarbonization strategy and the aftermath of the Paris Agreement. By analyzing key metrics such as publication volume, author influence, keyword prominence, and thematic networks, this study demonstrates that the field is evolving both in scope and in methodological sophistication.

The convergence of interdisciplinary domains ranging from marine policy and environmental science to transport logistics and information technology has fostered a fertile ground for innovative research. Notably, the dominance of topics like green shipping, decarbonization, and alternative fuels indicates a systematic shift in research priorities towards climate resilience and energy efficiency. Furthermore, the decentralization in authorship patterns reflects a democratized and globally inclusive research landscape.

This review not only synthesizes current research trajectories but also establishes a foundational understanding for scholars, policymakers, and maritime practitioners seeking to navigate this complex and rapidly evolving domain. The findings serve as a strategic compass for identifying high-impact research clusters, core publication outlets, and emerging thematic niches.

FUNDING

CONFLICT OF INTEREST

We declare that there is no conflict of interest attached to this topic.

REFERENCES

Agbo, F. J., Oyelere, S. S., Suhonen, J., & Tukiainen, M. (2021). Scientific production and thematic breakthroughs in smart learning environments: a bibliometric analysis. Smart Learning Environments, 8(1), 1–25. https://doi.org/10.1186/s40561-020-00145-4.

Aghaei Chadegani, A., Salehi, H., Md Yunus, M. M., Farhadi, H., Fooladi, M., Farhadi, M., & Ale Ebrahim, N. (2013). A comparison between two main academic literature collections: Web of science and scopus databases. Asian Social Science, 9(5), 18–26. https://doi.org/10.5539/ass.v9n5p18.

Ahiadu, A. A., & Abidoye, R. B. (2024). Economic uncertainty and direct property performance: a systematic review using the SPAR-4-SLR protocol. Journal of Property Investment and Finance, 42(1), 89–111. https://doi.org/10.1108/JPIF-08-2023-0073.

Akarsu, T. N., Marvi, R., & Foroudi, P. (2023). Service failure research in the hospitality and tourism industry: a synopsis of past, present and future dynamics from 2001 to 2020. In International Journal of Contemporary Hospitality Management (Vol. 35, Issue 1). https://doi.org/10.1108/IJCHM-11-2021-1441.

Baygi, F., Smith, A., Mohammadian Khonsari, N., Mohammadi-Nasrabadi, F., Mahmoodi, Z., Mahdavi-Gorabi, A., & Qorbani, M. (2022). Seafarers' mental health status and life satisfaction: Structural equation model. Frontiers in Public Health, 10.https://doi.org/10.3389/fpubh.2022.969231.

Bloor, M., Thomas, M., & Lane, T. (2000). Health risks in the global shipping industry: An overview. Health, Risk and Society, 2(3), 329–340. https://doi.org/10.1080/713670163.

Brooks, S. K., & Greenberg, N. (2022). Mental health and psychological wellbeing of maritime personnel: a systematic review. BMC Psychology, 10(1), 1–26. https://doi.org/10.1186/s40359-022-00850-4.

Caputo, A., & Kargina, M. (2022). A user-friendly method to merge Scopus and Web of Science data during bibliometric analysis. Journal of Marketing Analytics, 10(1), 82–88. https://doi.org/10.1057/s41270-021-00142-7.

Carrera-Arce, M., Bartusevièienë, I., & Divari, P. (2022). Healthy workplace onboard: Insights gained from the COVID-19 impact on mental health and wellbeing of seafarers. Work, 73(1), 29–40. https://doi.org/10.3233/WOR-210791.

Choi, J., Lim, S., & Lee, C. (2024). Comparative Analysis of Sustainable Seafarers'

Employment and Welfare Systems in South Korea and China: Contemporary Issues and Improvements. Sustainability (Switzerland), 16(19),1–23. https://doi.org/10.3390/su16198512.

Della Corte, V., Del Gaudio, G., Sepe, F., & Sciarelli, F. (2019). Sustainable tourism in the open innovation realm: A bibliometric analysis. Sustainability (Switzerland), 11(21), 1–18. https://doi.org/10.3390/su11216114.

Dohrmann, S. B., Herttua, K., & Leppin, A. (2019). Fatigue in ferry shipping employees: The role of work-family conflict and supervisor support. BMC Public Health, 19(1), 1–14. https://doi.org/10.1186/s12889-019-7954-z.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. Journal of Business Research, 133(April), 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070.

Echchakoui, S. (2020). Why and how to merge Scopus and Web of Science during bibliometric analysis: the case of sales force literature from 1912 to 2019.

Journal of Marketing Analytics, 8(3),

165–184. https://doi.org/10.1057/s41270-020-00081-9.

Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. The FASEB Journal, 22(2), 338–342. https://doi.org/10.1096/fj.07-9492l.

Forina, M., Armanino, C., & Raggio, V. (2002). Clustering with dendrograms on interpretation variables. Analytica Chimica Acta, 454(1), 13–19. https://doi.org/10.1016/S0003- 2670(01)01517-3.

Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. International Journal of Consumer Studies, 45(1), 80–105. https://doi.org/10.1111/ijcs.12605.

Håvold, J. I. (2007). National cultures and safety orientation: A study of seafarers working for Norwegian shipping companies. Work and Stress, 21(2), 173–195. https://doi.org/10.1080/02678370701424594.

Hayes-Mejia, R., & Stafström, M. (2023). Psychosocial work environment and mental health among the global workforce of seafarers in the wake of the COVID-19 pandemic. BMC Public Health, 23(1), 1–10. https://doi.org/10.1186/s12889-023-17035-2.

Herrman, H., Saxena, S., & Moodie, R. (2004). Promoting Mental Health:concepts, emerging evidence, practice (Summary Report). In World Health Organization. https://doi.org/10.4324/9781315376578.

Hystad, S. W., & Eid, J. (2016). Sleep and Fatigue Among Seafarers: The Role of Environmental Stressors, Duration at Sea and Psychological Capital. Safety and Health at Work, 7(4), 363–371. https://doi.org/10.1016/j.shaw.2016.05.006.

Krämer, T. (2024). The Seafarer Perspective in Social Sustainability Reporting Do Sustainability Reports of Leading European Container Shipping Companies Reflect the Social Issues of Seafarers?

Lu, C. S., & Tsai, C. L. (2008). The effects of safety climate on vessel accidents in the container shipping context. Accident Analysis and Prevention, 40(2), 594–601. https://doi.org/10.1016/j.aap.2007.08.015.

Meyer, N., Ben Said, F., Alkathiri, N. A., & Soliman, M. (2023). A scientometric analysis of entrepreneurial and the digital economy scholarship: state of the art and an agenda for future research. Journal of Innovation and Entrepreneurship, 12(70), 1–26. https://doi.org/10.1186/s13731-023-00340-w.

Nielsen, M. B., Bergheim, K., & Eid, J. (2013). Relationships between work environment factors and workers' well-being in the maritime industry. International Maritime Health, 64(2), 80–88.

Nittari, G., Gibelli, F., Bailo, P., Sirignano, A., & Ricci, G. (2024). Factors affecting mental health of seafarers on board merchant ships: a systematic review. Reviews on Environmental Health, 39(1), 151–160. https://doi.org/10.1515/reveh-2021-0070.

Oldenburg, M., & Jensen, H. J. (2019). Stress and strain among seafarers are related to occupational groups. International Journal of Environmental

Research and Public Health, 16(7), 1–9. https://doi.org/10.3390/ijerph16071153.

Oldenburg, M., Jensen, H. J., Latza, U., & Baur, X. (2009). Seafaring stressors aboard merchant and passenger ships. International Journal of Public Health, 54(2), 96–105. https://doi.org/10.1007/s00038-009-7067-z.

Pauksztat, B., Andrei, D. M., & Grech, M. R. (2022). Effects of the COVID-19 pandemic on the mental health of seafarers: A comparison using matched samples. Safety Science, 146(September 2021), 105542. https://doi.org/10.1016/j.ssci.2021.105542.

Ramos-Rodrígue, A. R., & Ruíz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the Strategic Management Journal, 1980-2000. Strategic Management Journal, 25(10), 981–1004. https://doi.org/10.1002/smj.397.

Shan, D., & Neis, B. (2020). Employment-related mobility, regulatory weakness and potential fatigue-related safety concerns in short-sea seafaring on Canada's Great Lakes and St.

ROLE OF FARMER PRODUCER ORGANIZATION IN THE LIGHT OF FOOD SUPPLY CHAIN MANAGEMENT

[1]Jibil K. John & [2]Dr. Asha R. Nair
[1]Research Scholar, SD College, Alappuzha
[2]Research Supervisor & Assistant Professor, NSS College, Pandalam
Email: jibilkjohn27@gmail.com

ABSTRACT

The food supply chain plays a crucial role in ensuring food security and economic stability. Farmer Producer Organisations (FPOs) have emerged as a vital link in improving the efficiency and sustainability of the food supply chain. Businesses nowadays are working to implement innovations to secure their success, value creation, and survival. In supply chain partnerships, innovation is increasingly viewed as the result of a collaborative process involving several stakeholders from both inside and outside the companies. Collaboration agreements are becoming more popular, and companies' supply chain networks are becoming the center of innovation. This leads to the idea of supply chain innovation, which is generally acknowledged as a crucial component for enhancing a company's organizational and supply chain performance. Ineffective methods including poor crop selection, an excessive number of middlemen, flood irrigation, excessive fertilizing, and food waste need for creative solutions that will increase the food supply chain's sustainability. This paper examines the role of FPOs in food supply chain management, focusing on their contributions to aggregation, storage, processing, and distribution. It also highlights challenges faced by FPOs and provides recommendations for enhancing their effectiveness. The study further delves into the historical evolution of FPOs, policy frameworks, and case studies that illustrate their success and potential for future growth.

Keywords: *Farmer Producer Organisation (FPO), Food Supply Chain Management, Agriculture, Sustainability, Rural Development, Market Linkages, Financial Inclusion.*

I.INTRODUCTION

Agriculture has long been the backbone of the economy in many developing nations, contributing significantly to employment and GDP. Despite this, small and marginal farmers face persistent challenges such as low productivity, poor market access, and volatile price fluctuations. Farmer Producer Organisations (FPOs) have been established to address these challenges by collectivizing farmers to enhance their bargaining power, improve access to infrastructure, and integrate technology for better market reach. This study aims to explore the comprehensive role of FPOs in food supply chain management, analyzing their impact on efficiency, sustainability, and farmer welfare.

1. Role of FPOs in Food Supply Chain Management

a. Aggregation and Market Linkages: FPOs play a crucial role in the aggregation of farm produce, allowing farmers to benefit from economies of scale. This helps in reducing transaction costs and ensuring bulk selling, which ultimately improves price realization. FPOs establish direct market linkages with wholesalers, retailers, and institutional buyers, thereby reducing dependence on intermediaries. This section explores successful case studies where FPOs have enhanced market access for small farmers, including digital platforms facilitating direct sales.

b. Storage and Warehousing: Post-harvest losses due to improper storage facilities remain a significant issue for farmers. FPOs assist in the development of community-based storage solutions, ensuring that farmers can store their produce and sell it at optimal prices instead of distress sales post-harvest. This section delves into the technological advancements in storage infrastructure and highlights government-supported initiatives aimed at strengthening storage facilities for FPOs.

c. Processing and Value Addition: Processing and value addition are integral to improving the profitability of agricultural produce. FPOs contribute to food supply chain efficiency by investing in primary processing, grading, and packaging units. Activities such as milling, drying, and branding not only improve marketability but also enable farmers to fetch premium prices. Case studies of successful FPO-led value-addition initiatives are examined, highlighting their economic impact on rural communities.

d. Logistics and Distribution: Efficient logistics and distribution networks are key to ensuring a seamless food supply chain. FPOs streamline transportation and logistics by coordinating the bulk movement of goods, reducing costs, and ensuring timely market deliveries. This section explores innovative logistics solutions, including collaborations with e-commerce platforms and supply chain startups, to improve distribution efficiency.

e. Supply Chain Innovation: The majority of businesses nowadays use creative strategies to make a name for themselves in the marketplace, secure their continued existence, provide value, and become more competitive(Jangga et al., 2015).More and more, innovation is being defined as the result of a cooperative process in which different stakeholders from both inside and outside the supply chain participate has gained significant attention recently due to heightened environmental awareness and stricter government policies.A comprehensive SCI encompasses all relevant supply chain functions and a collection of creative organizational actions connected to all stakeholders. Although our study embraces this comprehensive definition of innovation, it focuses on the three most prevalent forms of innovation—technological, process, and product innovation—as discussed in the literature(Aladaileh et al., 2024).

Supply chain collaboration leads to supply chain innovation.Firms are striving to attain greater SCC to reduce cost, and increase revenue and operational flexibility's is characterized as a close, long-term partnership where supply chain participants cooperate to exchange knowledge, resources, and risk using different coordination mechanisms as well as solve

problems and make joint decisions to achieve mutual objectives(Teece, 2019).

In addition to being linked to invention, collaboration can also foster it. A company's network of external relationships accounts for a significant portion of its capacity for innovation. In order to facilitate trustworthy information sharing and increase process efficiency, which in turn fosters innovation throughout the supply chain, collaboration helps to break down learning barriers and improve understanding and communication between/among supply chain partners. In order to support this linkage for this empirical investigation of how SCC supports SCI, we employ the Dynamic Capability Theory (DCT) lens. DCT aims to clarify how businesses can create, expand, integrate, and alter their external and internal resources while also implementing the required changes(Teece, 2017).

SCI is generally acknowledged as an essential tool for enhancing supply chain and organizational performance(Dangelico & Pujari, 2010). The literature has emphasized how innovation improves a company's operational performance, including operational flexibility, operational responsiveness, and operational service quality, as well as its financial performance, including increases in sales or profits, market share, and return on investments. Businesses typically need to include their important supply chain partners, such suppliers and customers, in their innovation plans and processes in order to reap the benefits of innovations. It is anticipated that these co-innovators will help to raise the overall supply chain's performance. Furthermore, pressure to transition to a more sustainable economic system has increased for innovations aimed at achieving the sustainability goals of businesses(Krishnan et al., 2021).

II.RESEARCH GAP

Although the literature has addressed the relationships among SCC, SCI, and SCS, it lacks a comprehensive supply chain strategy that considers all the entities, diverse innovation types, and sustainability dimensions, particularly with regard to the FSC. Specifically, a few relevant studies that look into the connection between SCC and innovation were discovered. However, the majority of the earlier research was devoted to examining a specific form of innovation, such as process or product innovation. Although few studies have attempted to investigate how innovation affects sustainable performance, prior research has revealed little evidence of studies examining the impact on all three sustainability aspects.

III.RESEARCH METHODOLOGY

The paper identifies gaps in existing literature—such as the need for comprehensive strategies considering multiple sustainability dimensions—using comparative literature analysis, which guides research focus and future exploration. The methodology combines literature review, different case study examinations, theoretical modelling to understand how collaboration within FPOs fosters innovation and sustainability in the food supply chain. This qualitative approach enables a nuanced understanding of both practical impacts and theoretical implications.

1.Research Design

Qualitative exploratory research complemented by case study analysis to gain in-depth insights into how FPOs drive innovation and sustainability.

2. Data Collection Methods

Literature Review: Conducted a comprehensive review of academic articles, policy documents, and industry reports on FPOs, supply chain innovation, and sustainability. Establish theoretical grounding using models such as Teece's Capability Theory and the SCOR framework, to analyse how resource orchestration and core processes drive innovation and sustainability outcomes.

IV. CHALLENGES FACED BY FPOS

Despite their significant contributions, FPOs face several challenges, including:

- **Financial Constraints:** Limited access to credit and working capital hinders the expansion of FPO operations.

- **Lack of Infrastructure:** Inadequate storage, processing, and transportation facilities reduce efficiency and profitability.

- **Capacity Building:** Many FPOs lack the managerial and technical skills necessary for efficient functioning.

- **Policy and Regulatory Hurdles:** Complex regulations, taxation issues, and lack of policy support limit the effectiveness of FPOs.

- **Technological Adoption:** Limited access to modern agricultural technologies and digital platforms affects scalability.

V. POLICY RECOMMENDATIONS AND FUTURE DIRECTIONS

This study contributes to the SCI and sustainability literature by providing insights into how collaboration within FPOs drives innovative practices and improves sustainable outcomes across the FSC. The current study extends previous work to bring novel contributions to the literature in different ways. First, the study seeks a comprehensive approach to demonstrate an integrated innovation comprising of the three most common types of innovation, including product, process and technology innovations. Second, using the SCOR model as an analytical framework, different core functions and entities of the FSC are analysed. Third, this study explicitly evaluates the impacts of innovation on three different dimensions of SCS. Fourth, this study extends and makes a novel theoretical contribution to DCT, which was used as theoretical grounding to explain the impacts of SCC on SCI and the relationship between innovation and sustainability in the FSC. Fifth, this study addresses the call for a case study based research to validate the relationship between SCS and SCI. Sixth, the findings strengthen the linkage among SCI, FSC and sustainability literature, which was attempted by previous researchers. The findings are also important to innovation and FSC practitioners. Managers can use the comprehensive framework constructed in this study as a reference for considering the initiatives and strategies such as collaborating with FSC partners for better innovation readiness and success. Acknowledging the anticipated benefits of SCI regarding the sustainable outcomes can also motivate practitioners to implement innovation practices across the FSC, simultaneously providing them measures to assess whether the innovation fulfils their sustainable goals.

To strengthen the role of FPOs in food supply chain management, the following measures are suggested:

- **Improved Access to Finance:** Providing low-interest loans, grants, and financial literacy programs to FPOs.

- **Capacity Building Programs:** Conducting training sessions on business management, technology adoption, and value addition.

- **Policy Support:** Simplifying regulatory processes, tax benefits, and subsidies for FPO-led initiatives.

- **Market Integration:** Encouraging partnerships between FPOs, agri-tech firms, and e-commerce platforms to enhance market reach.

- **Technology Adoption:** Promoting the use of blockchain, AI-driven supply chain management, and IoT-based monitoring systems for better efficiency.

VI. STUDIES AND SUCCESS STORIES

This section presents an in-depth analysis of successful FPOs from different regions, showcasing how strategc interventions and government support have transformed agricultural supply chains. Examples include:

- **Amul Dairy Cooperative (India):** Demonstrating how collective dairy farming can achieve global success.

- **Tanzania Horticulture FPOs:** Illustrating the impact of organized supply chains on export markets.

- **Kenyan Coffee Producer Organisations:** Highlighting the role of FPOs in securing fair-trade prices and internatioal market penetration.

VII. CONCLUSION

FPOs have emerged as a transformative force in enhancing the efficiency, inclusivity, and sustainability of the food supply chain. While they contribute significantly to aggregation, storage, processing, and distribution, addressing financial, infrastructural, and policy-related challenges remains crucial for their long-term success. Strengthening FPOs through supportive policies, digital innovations, and strategic capacity-building initiatives can lead to a more resilient and inclusive agricultural sector, ultimately improving farmer livelihoods and ensuring food security. Businesses use creative tactics as part of their competitive strategy because they see it as a key tool for surviving and getting an edge over their competitors. At all FSC working levels, we address the research questions of how innovation results from the development of the new supply network, which is supported by collaboration, and how innovation results in sustainable practices. The results showed that FPOs helped create new, creative practices that weren't there before the FPO was formed. This suggests that the dynamic capabilities (such as resource orchestration and co-value creation) allowed the FPO and its member farmers to reorganize resources and implement these new practices in creative ways on their farms, which produced long-term business results. The results indicate that one or more dimensions of sustainability across the FSC are clearly and significantly impacted by the innovative practices at each level of the SCR model. Through the process view of interactions among many stakeholders, these findings also confirm that farmers are able to balance economic, social, and environmental ideals and practices. They

further show how these practices translated into value generation, delivery, and capture mechanisms.

REFERENCES

Aladaileh, M. J., Lahuerta-Otero, E., & Aladayleh, K. J. (2024). Mapping sustainable supply chain innovation: A comprehensive bibliometric analysis. Heliyon, 10(7), e29157.

https://doi.org/10.1016/j. heliyon. 2024. e29157.

Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. Journal of Business Ethics, 95(3), 471–486. https://doi.org/10.1007/s10551-010-0434-0

Jangga, R., Ali, N. M., Ismail, M., & Sahari, N. (2015). Effect of Environmental Uncertainty and Supply Chain Flexibility Towards Supply Chain Innovation: An exploratory Study. Procedia Economics and Finance, 31(December 2015), 262–268.

https://doi.org/10.1016/s2212-5671 (15) 01228-

Teece, D. J. (2017). Towards a capability theory of (innovating) firms: Implications for management and policy. Cambridge Journal of Economics, 41(3), 693–720. https://doi.org/10.1093/cje/bew063

Teece, D. J. (2019). A capability theory of the firm: an economics and (Strategic) management perspective. New Zealand Economic Papers, 53(1), 1–43.

https://doi.org/10.1080/00779954. 2017. 1371208

EXPLORING E-COMMERCE PLATFORMS AND BUSINESS STRATEGIES WITH SPECIAL REFERENCE TO AMAZON AND FLIPKART

[1]Bexy George & [2]Dr. Jins George
[1]Student, Santhigiri Institute of Management
[2]Associate Professor, Santhigiri Institute of Management
Email:mba24bexygeorge@santhigiricollege.ac.in

ABSTRACT

E-commerce platforms have dramatically transformed the way consumers interact with businesses. This paper examines the business strategies and operational models of Amazon, a global e-commerce leader, and Flipkart, a dominant force in India's online retail market. Both companies, while operating in different regions, share common strategic goals, leveraging technology for customer satisfaction, adopting customer-centric approach, and maintaining an efficient logistics network. Amazon, with its expansive global reach, has pioneered innovations in product offerings, pricing strategies, and cutting-edge technology such as artificial intelligence, data analytics, and cloud computing. Its ability to continuously evolve its supply chain logistics and its focus on services like Amazon Prime have reinforced its position as a leader in the e-commerce space. Flipkart, on the other hand, has focused its efforts on dominating the Indian market, emphasizing tailored offerings, aggressive pricing, and localized strategies to appeal to Indian consumers.This paper highlights key areas of comparison between Amazon and Flipkart, including their business models, market penetration strategies, customer engagement techniques, and logistics innovations. Furthermore, the study explores the challenges both platforms face, such as regulatory pressures, market saturation, and competition from other e-commerce players like Walmart and Reliance, as well as the increasing focus on sustainability. By analyzing their strategies, the paper provides valuable insights into how e-commerce platforms can navigate the complex and competitive online retail environment. The comparative study of Amazon and Flipkart offers a comprehensive understanding of global e-commerce dynamics and the strategic moves that shape the future of digital retails.

Keywords: E-Commerce, Amazon, Flipkart, Business Strategies, Customer-Centric, Logistics, Market Competition, Supply Chain Management, Global Retail, Technology Innovation

I. INTRODUCTION

The digital marketplace has revolutionized global trade and commerce, empowering companies of all sizes to reach a wider audience and streamline their operations. E-commerce platforms have become a cornerstone of the retail industry, with Amazon and Flipkart emerging as two prominent players in this sector, particularly in the United States and India, respectively. These platforms have significantly impacted the way people shop, offering consumers a vast selection of goods, convenient purchasing processes, and often competitive pricing.

Amazon: Founded in 1994 by Jeff Bezos, Amazon started as an online bookstore and rapidly evolved into one of the largest e-commerce platforms globally. Amazon's business model is multifaceted, comprising various divisions, including online retail, third-party selling, Amazon Prime subscription services, and Amazon Web Services (AWS), which supports much of the internet's infrastructure. The company is known for its customer-centric approach, utilizing advanced logistics networks and artificial intelligence to provide highly personalized shopping experiences. Amazon has introduced numerous innovations, such as same-day delivery, automated fulfilment centers, and a recommendation engine that tailors suggestions based on user data, further enhancing user engagement and retention.

Flipkart: Established in 2007 by Sachin Bansal and Binny Bansal, Flipkart is an Indian commerce platform that initially specialized in book sales but has since expanded to a wide array of product categories, including electronics, fashion, and home goods. Acquired by Walmart in 2018, Flipkart is one of India's leading e-commerce companies and competes fiercely with Amazon for market dominance in the region. Flipkart's business strategy is largely driven by a focus on the Indian consumer market, where factors like affordability, product range, and localized solutions (like language options and payment methods) play a significant role. Flipkart has also developed strategic logistics solutions, like Ekart, its dedicated supply chain network, and the Flipkart Plus loyalty program, which aims to increase customer loyalty and enhance user experience.

Both Amazon and Flipkart leverage data-driven strategies and advanced technology to optimize logistics, personalize marketing, and maintain operational efficiency. However, their business strategies diverge in response to their respective markets; while Amazon has an established global presence and focuses on customer retention through services like Prime, Flipkart's strategy is more localized, addressing the unique challenges of the Indian market. Both companies continuously adapt to evolving consumer behavior, market conditions, and competitive pressures, setting high standards in e-commerce while driving innovation across logistics, customer service, and technological infrastructure.

II. RESEARCH METHODOLOGY

1. Research Design

This study uses a comparative case study approach, focusing on Amazon and Flipkart as two leading e-commerce platforms in India. A qualitative method is employed to understand the depth and nuances of their business strategies and operational frameworks.

2. Data Collection Methods

Secondary Data:

The research relies primarily on secondary sources including:

- Scholarly journals and articles
- Company websites (Amazon & Flipkart)
- Annual reports and investor presentations
- Market research reports such as Statista, IBEF and ResearchGate
- News articles and expert opinions from reputed business media such as Economic Times, Business Standard and TechCrunch

Prior academic studies and industry analyses related to e-commerce, business models, and supply chain management are reviewed to build a strong theoretical foundation. All data used in this study is publicly available and cited appropriately. The research maintains academic integrity and avoids any form of plagiarism

III. SCOPE OF THE STUDY

- The study is limited to Amazon and Flipkart operations within the Indian market.
- Only secondary data sources are used; primary data (e.g., interviews or surveys) is not included due to time and resource constraints.
- The study focuses on recent developments over the past 5 years (2020–2025).

IV. OBJECTIVES OF THE STUDY

- To analyze and compare the business models of Amazon and Flipkart.
- To assess the logistics and supply chain management strategies of Amazon and Flipkart.

- To identify challenges and growth opportunities for Amazon and Flipkart.

V. REVIEW OF LITERATURE

The study by Dhriti Kappagantu, Netra Mahindra, and Baseedu Sai Sandeep, titled "A Comparative Study on Online Marketing Strategies with Reference to Amazon and Flipkart in Twin Cities of Telangana," provides a detailed examination of the digital marketing tactics employed by Amazon and Flipkart within the Hyderabad and Secunderabad regions. Focusing on local consumer behavior, the research analyzes how each platform's strategies—such as social media outreach, SEO, and targeted advertising—affect customer engagement and brand loyalty. It highlights regional preferences and reveals how Flipkart's use of localized campaigns, including content in local languages and region-specific promotions, potentially enhances its appeal in Telangana. The study also identifies challenges both companies face, such as logistical complexities and increasing competition, while outlining opportunities for growth through improved customer-centric marketing and innovation in delivery services. Ultimately, the research underscores the importance of adapting digital strategies to regional markets to capture and retain customers effectively in India's diverse e-commerce landscape. (kppangattu, 2024).

The study by Ishaan Sanehi, Vrinda Kataria, and Lalatendu Kesari Jena, titled "Diversity in Action: Unveiling Flipkart's Path to Inclusion and Excellence," explores Flipkart's efforts to foster diversity and inclusion within its organizational culture. The research highlights the company's initiatives aimed at creating an inclusive workplace,

focusing on gender, ethnic, and cultural diversity across various levels of the organization. The study examines Flipkart's policies, programs, and practices that promote equality, such as leadership training, mentorship opportunities, and a focus on hiring from underrepresented communities. The authors argue that Flipkart's commitment to diversity is not only a social responsibility but also a key driver of innovation, employee satisfaction, and overall organizational excellence. By analyzing the company's approach, the study underscores the importance of diversity in improving business outcomes, enhancing employee creativity, and establishing a positive corporate reputation. The authors conclude that Flipkart's path to inclusion serves as a valuable model for other companies in India and beyond, showcasing the competitive advantage of embracing diverse talent (sanehi, 2024)

Jignesh Vidani's study, "Comparative Analysis Between Flipkart and Amazon with Reference to the E-Commerce Sector," provides a thorough comparison of the two e-commerce leaders in India, examining key factors that define their market positions and consumer impact. Vidani analyzes differences in business strategies, customer acquisition methods, pricing models, and technology adoption, shedding light on how each company tailors its approach to attract and retain customers in the competitive Indian e-commerce landscape. The study also explores how Flipkart and Amazon respond to challenges unique to India, such as logistical difficulties, regional diversity, and shifting consumer expectations. Vidani's analysis concludes that while both platforms have carved out strong market shares, they each leverage distinct strategies to sustain

growth—Amazon through global expertise and a vast product range, and Flipkart through localized offerings and targeted promotions. This comparison highlights the adaptability required for sustained success in India's dynamic and rapidly evolving e-commerce sector. (vidani, 2024).

The study by Padma Adane, Avanti Dhiran, and Shruti Kallurwar, titled "Sentiment Analysis of Product Reviews from Amazon, Flipkart, and Twitter: Check for Updates," explores the sentiment behind customer feedback on products listed on Amazon, Flipkart, and Twitter. The research uses sentiment analysis techniques to examine the emotional tone of reviews and social media posts, aiming to uncover insights into consumer perceptions, preferences, and behavior. The study highlights how positive, neutral, and negative sentiments expressed in reviews impact consumer decision-making and the purchasing process. The authors found distinct patterns in customer satisfaction, such as a preference for product variety, ease of navigation on websites, and delivery efficiency. They also explores how Twitter discussions around brands influence public sentiment and purchasing trends. The authors conclude that sentiment analysis plays a crucial role in understanding customer feedback, helping e-commerce platforms and brands improve their product offerings, customer service, and marketing strategies. (adane, 2024).

Anil Varma and Samrat Ray's study, "The Case of Amazon's E-Commerce Digital Strategy in India," explores Amazon's digital strategy and its implementation in the Indian e-commerce market. The research delves into how Amazon has tailored its global e-commerce business model to cater to the

unique demands and challenges of the Indian market. The study highlights key strategies such as localized marketing, investment in infrastructure, technology adoption (including AI and machine learning for personalized shopping experiences), and robust logistics systems that enhance delivery efficiency. Varma and Ray also discuss Amazon's approach to pricing, customer loyalty programs like Amazon Prime, and partnerships with local sellers, which help the company build a strong market presence in India. The study concludes that Amazon's digital strategy, focusing on customer-centric services, innovation, and adaptability, has played a significant role in its success in India, helping it compete effectively with domestic players like Flipkart while positioning itself as a leader in the Indian e-commerce landscape. (varma, 2023).

The study by Ruby S. Chanda, Vanishree Pabalkar, and Risita Gupta, titled "Analysis of the Strategies of E-Commerce Giant Flipkart to Overcome COVID-19 Crisis and Corresponding Impact on Consumer Buying Behaviour," examines how Flipkart adapted its business strategies during the COVID-19 pandemic to address disruptions in supply chains, changing consumer behavior, and the challenges of operating in a lockdown environment. The research highlights Flipkart's quick shift to strengthen its logistics, enhance safety protocols, and adopt digital tools to improve customer engagement. Additionally, the study analyzes how Flipkart's promotional offers, product diversification, and increased focus on essentials influenced consumer buying patterns. The authors find that the pandemic significantly accelerated the adoption of online shopping, with consumers becoming more

focused on convenience, safety, and affordability. The study concludes that Flipkart's strategic flexibility, including its focus on customer-centric services and adapting to new consumer needs, helped the company not only survive but also thrive during the crisis, setting a strong foundation for post-pandemic growth. (chanda, 2023).

The study by Padma Adane, Avanti Dhiran, Shruti Kallurwar, and Sushmita Mahapatra, titled "Sentiment Analysis of Product Reviews from Amazon, Flipkart, and Twitter," utilizes sentiment analysis techniques to examine consumer opinions expressed through product reviews on Amazon and Flipkart, as well as social media discussions on Twitter. The research aims to understand the sentiments—positive, negative, or neutral—that drive consumer perceptions and influence purchasing decisions. The authors uncover key insights into product satisfaction, customer expectations, and emerging trends across different platforms. The study reveals that while Amazon and Flipkart generally receive positive sentiments for product variety and delivery, negative reviews often stem from issues with customer service and product quality. On Twitter, discussions tend to be more focused on brand reputation and real-time promotions. The authors conclude that sentiment analysis is a powerful tool for e-commerce platforms to gauge customer satisfaction, identify areas for improvement, and tailor marketing strategies to enhance customer experience and loyalty. (adane, sentimental analysis of product reviews from amazon flipkart and twitter, 2023).

Madhura's study, "Development of Fashionable Products Through Online Retailing: A Case Study on Amazon and Flipkart," examines how Amazon and Flipkart

have tapped into India's online fashion market. The research highlights strategies each platform employs to cater to style-conscious consumers, such as offering exclusive fashion collections, partnering with brands, and using data analytics to predict and respond to trends. Madhura discusses the role of digital tools like personalized recommendations, virtual try-ons, and influencer collaborations in enhancing the customer shopping experience. The study concludes that Amazon and Flipkart's focus on fashion has not only expanded their product offerings but has also strengthened their brands by appealing to a younger, fashion-forward demographic. This approach has helped them maintain relevance and competitiveness in India's evolving online retail landscape. (madhura, 2022).

The study by Sanjay Dhingra, Shelly Gupta, and Ruchi Bhatt, titled "Comparison of E-Service Quality of Indian E-Commerce Websites," compares the e-service quality of leading Indian e-commerce platforms, including Amazon and Flipkart. The research evaluates key aspects of online service quality such as website design, ease of navigation, transaction security, customer support, delivery efficiency, and overall user experience. The study identifies how these platforms meet or exceed consumer expectations in terms of service responsiveness, reliability, and convenience. The authors find that both Amazon and Flipkart excel in offering a smooth shopping experience, but there are differences in consumer preferences regarding delivery speed, return policies, and post-purchase support. The study concludes that service quality is a critical differentiator in the highly competitive Indian e-commerce sector, with platforms that invest in improving user

experience gaining a significant advantage in customer loyalty and satisfaction. (dhingra, 2022).

The study by Pushpendu Rakshit, Pramod Kumar Srivastava, Mohd Afjal, and Shailendra Kumar Srivastava, titled "Sentimental Analytics on Indian Big Billion Day of Flipkart and Amazon," analyzes consumer sentiment during the annual Big Billion Day sales event organized by Flipkart, comparing it with Amazon's similar promotions. The research employs sentiment analysis techniques on social media posts, reviews, and online discussions to assess customer opinions, emotions, and experiences associated with the two e-commerce giants during the event. The study reveals key insights into consumer satisfaction, preferences, and pain points, providing a deeper understanding of how promotional campaigns and sales events influence public perception. They found that both Flipkart and Amazon generate significant consumer excitement, though differences in customer sentiment often arise based on product offerings, delivery experiences, and price competitiveness. The study concludes that leveraging sentiment analysis can help e-commerce platforms refine their strategies, improve customer engagement, and address issues more effectively during large-scale promotional events. (pushpendu, 2021).

The study by M. Budi Djatmiko, Rahul B. Chauhan, NalbiySalikhovich Tuguz, and Sameer Ahmed S. Shah, titled "A Research Study on Logistics and E-Commerce of Amazon and Flipkart," examines the logistics strategies of Amazon and Flipkart. They discussed the critical role of logistics in ensuring timely delivery, cost efficiency, and customer satisfaction. Authors discussed how

both companies have developed robust supply chain systems to handle the complexities of India's diverse geography and infrastructural challenges. The study highlights Amazon's advanced global logistics network and Flipkart's focus on localized strategies to improve last-mile delivery and also analyze the role of technology, including data analytics and automation, in optimizing operations. The study concludes that efficient logistics management is a key differentiator for both companies, influencing their competitiveness and ability to meet growing consumer demands in India's rapidly expanding e-commerce market. (budi, 2020).

Rajan Yadav and Swati Bhatnagar's study, "Channel Collaboration in E-Commerce: A Study on Channel Relationship from the Perspective of Vendors Selling on Online Platforms, the E-Retailers," explores the dynamics of channel relationships between e-retailers like Amazon and Flipkart and their vendors. Authors focuses on the collaborative strategies that enable seamless product listings, inventory management, and order fulfillment on online platforms. Yadav and Bhatnagar analyze how these collaborations affect vendor performance, product visibility, and customer satisfaction, highlighting the importance of trust and communication between e-retailers and vendors. The study finds that successful collaboration enhances operational efficiency and boosts the growth of both vendors and e-retailers, ultimately benefiting consumers with a more streamlined shopping experience. The authors also discuss the challenges in channel management, such as competition, pricing strategies, and the need for transparency. They conclude that fostering strong, mutually beneficial relationships between e-retailers and vendors is crucial for long-term success in the competitive e-commerce environment. (yadav, 2020).

Ajay B. Jamnani's study, "Promotional Strategies with Reference to Selected E-Commerce Players in India," analyzes the promotional tactics employed by major Indian e-commerce platforms, including Amazon and Flipkart, to attract and retain customers. They examined various promotional strategies like discount offers, festive sales, cashback options, and loyalty programs, evaluating their effectiveness in boosting sales and customer loyalty. Jamnani discusses how these strategies are tailored to appeal to India's diverse and price-sensitive consumer base, particularly during peak shopping seasons. They observed that promotions play a critical role in differentiating brands, enhancing consumer engagement, and increasing market share in the competitive e-commerce sector. Jamnani concludes that ongoing innovation in promotional strategies is essential for e-commerce platforms to sustain customer interest and compete effectively in India's dynamic online market. (b, 2019).

Reetika Bhardwaj and Vinod Kumar Bishnoi's study, "Flipkart Vs Amazon: The War of Dominance," provides a comparative analysis of the strategies employed by Flipkart and Amazon as they compete for dominance in the Indian e-commerce market. Authors explored factors such as pricing, customer service, logistics, marketing, and technological innovations that both companies leverage to attract and retain customers. Bhardwaj and Bishnoi discuss how Flipkart has localized its approach to better cater to the diverse Indian market, focusing on regional preferences, local partnerships, and competitive pricing. In contrast, Amazon's global expertise and

advanced technological infrastructure, including AI-driven recommendations and faster delivery systems, give it an edge in providing a seamless shopping experience. The study concludes that while both companies have established strong market presences, their ongoing rivalry continues to shape the evolution of the Indian e-commerce industry, with each brand strategically refining its approach to maintain a competitive advantage in an increasingly crowded market.(reetika 2019).

S. Mishra's study, "The Impact of Social Media on E-Commerce: A Study at Amazon & Flipkart," explores how social media influences the e-commerce strategies of Amazon and Flipkart, focusing on its role in driving consumer engagement and sales. The research analyzes how both companies use platforms like Facebook, Instagram, and Twitter for marketing, customer interaction, and brand building. Mishra examines the effectiveness of various social media strategies—such as influencer partnerships, targeted ads, and interactive content—in enhancing brand visibility and customer loyalty. The study finds that social media has become integral to attracting and retaining customers, as it provides a direct channel for engaging with users, addressing feedback, and building community. Mishra concludes that the strategic use of social media not only boosts Amazon's and Flipkart's market reach but also strengthens their ability to adapt to shifting consumer preferences in India's fast-growing e-commerce sector. (mishra, 2018).

The study by Kanika Garg, Alka Wadhwa, and Aran Jindal, titled "Consumer Preferences Towards Online Shopping Apps Amazon and Flipkart," investigates the factors driving consumer preferences between Amazon and Flipkart in India. The researchers analyze aspects such as ease of use, product variety, pricing, customer service, and app interface, exploring how these elements influence shopping choices and customer satisfaction. They observed while both platforms are popular, consumer loyalty often depends on factors like user-friendly design, reliability of services, and competitive pricing. Garg, Wadhwa, and Jindal conclude that each app has unique strengths that attract different customer segments, with Amazon often preferred for broader product selection and Flipkart for localized offerings and affordability. This research underscores the importance of tailoring user experience and service quality to meet evolving consumer expectations in the competitive e-commerce market. (garg, 2018).

Dipin Karal's study, "E-Commerce in India: A Case Study of Amazon & Flipkart (India)," explores the rapid growth and impact of e-commerce in India through a comparative analysis of Amazon and Flipkart. The research delves into each company's business model, market strategies, and customer acquisition tactics, highlighting how these e-commerce giants have adapted their approaches to suit the unique Indian market. Karal examines factors like pricing, product variety, logistics, and technological infrastructure, discussing their roles in driving consumer preference and shaping the competitive landscape. They provided insight into how Amazon and Flipkart have tailored their platforms to meet the needs of a diverse customer base, such as by enhancing payment options, improving delivery services, and addressing regional preferences. Through this case study, Karal demonstrates that while both companies have achieved significant market penetration, they must continue

innovating to maintain their positions in an increasingly competitive e-commerce environment in India. (karal, 2016).

In "Analysis of the Expansion of E-Commerce into India and Growth Opportunities for Flipkart," Keith Eisenberg and Gaurav Gupta examine the rise of e-commerce in India, focusing on the growth trajectory and potential of Flipkart within this emerging market. The authors analyze key factors that make India an attractive e-commerce hub, including the increasing internet penetration, rising smartphone usage, and a large, young consumer base. Flipkart's strategies are dissected to illustrate how it has navigated these opportunities, leveraging localized marketing, regional language support, and tailored payment solutions to reach diverse consumer groups. The study also contrasts Flipkart's approach with that of global competitors like Amazon, pointing out that Flipkart's strong understanding of local preferences offers a competitive edge. Eisenberg and Gupta conclude that, despite challenges such as regulatory constraints and infrastructure limitations, Flipkart is well-positioned to capitalize on India's growth potential, provided it continues to adapt to the evolving digital and consumer landscape. (keith, 2015).

The study by Raddaiah Thippeswamy and Narendra Reddy, titled "Impact of E-Commerce on Supply Chain Management: A Literature Research and Case Studies in India," examines how e-commerce has transformed supply chain management (SCM) in India. Author revealed the importance of technology, including real-time tracking, automation, and data analytics, in optimizing supply chain operations. It also explores the challenges posed by e-commerce, such as the need for faster delivery, last-mile logistics, inventory management, and meeting customer expectations for prompt service. The authors conclude that e-commerce has forced Indian companies to rethink and innovate their supply chain strategies, leading to greater integration between online retail and logistics operations. The study also notes that the evolving nature of e-commerce requires ongoing investments in technology and infrastructure to meet the growing demands of consumers. (raddaiah, 2014).

Tejas Kumar KS's study, "A Study of Amazon's Impact on Customer Experience in the E-Commerce Sector," explores how Amazon has reshaped customer experiences within the e-commerce industry. The research focuses on the convenience of Amazon's platform, personalized shopping experiences, fast and reliable delivery services, and customer support mechanisms and highlights how Amazon's use of technology, such as AI-driven recommendations and easy-to-use mobile apps, enhances the overall shopping experience. Author examines customer satisfaction with aspects like product variety, competitive pricing, and post-purchase services such as returns and refunds. It concludes that Amazon's focus on customer-centric innovations has not only set a high standard for the e-commerce industry but has also significantly impacted consumer expectations, influencing the way online retailers approach customer experience management. Through its commitment to convenience, reliability, and personalization, Amazon has effectively created a loyal customer base and established itself as a leader in the global e-commerce sector.(Tejas Kumar).

VI.FINDINGS OF THE STUDY

Global vs. Localized Strategies: Amazon operates on a global scale with a standardized approach, while Flipkart focuses on a highly localized strategy tailored to the Indian market.

- Technology Adoption: Amazon's technological innovations, including AI, machine learning, and cloud computing, are central to its success. Flipkart also leverages technology but in a way that meets the specific demands of Indian consumers.

- Supply Chain Efficiency: Amazon has an extensive and highly efficient supply chain, with fulfillment centers worldwide. Flipkart, while strong in India, faces challenges in replicating Amazon's global supply chain.

- Customer-Centric Approach: Both companies emphasize customer satisfaction but differ in how they engage customers—Amazon with Prime memberships and Flipkart through flash sales and festive discounts.

- Market Penetration: Amazon is expanding aggressively in emerging markets, while Flipkart maintains dominance in India, benefiting from its acquisition by Walmart.

- Pricing Strategies: Amazon uses dynamic pricing algorithms globally, while Flipkart offers highly competitive prices through local deals and partnerships with regional sellers.

- Logistics and Delivery: Amazon's global network allows faster and more efficient delivery times, while Flipkart focuses on adapting logistics to the challenges posed by India's infrastructure.

- Product Range: Amazon offers a broader and more varied product range globally, while Flipkart curates its offerings to suit the needs and preferences of Indian consumers.

- Payment Systems: Flipkart has integrated regional payment methods like UPI and wallets, while Amazon has a more standardized payment system across different regions.

- Sustainability Efforts: Both companies are investing in sustainability, with Amazon committing to carbon neutrality and Flipkart focusing on eco-friendly packaging and reducing waste.

- Regulatory Challenges: Both companies face significant regulatory hurdles in various markets, particularly with data protection laws and e-commerce regulations.

- Mobile Strategy: Flipkart's mobile app is highly optimized for the Indian market, while Amazon focuses on a uniform experience across its app globally.

- Marketing and Branding: Amazon's branding is globally consistent, focusing on customer trust, while Flipkart tailors its marketing strategies to suit Indian cultural and festive trends.

- Innovation in Business Models: Amazon continuously innovates its business models with services like Amazon Web Services (AWS), while Flipkart explores new categories like grocery and fashion retail.

- Competitor Analysis: Both companies face stiff competition—Amazon from Walmart, Alibaba, and other international players, while Flipkart competes against local giants like Reliance and Snapdeal.

VII. IMPLICATIONS OF THE STUDY

- Regional Adaptation is Crucial: E-commerce platforms must tailor their strategies to fit local market dynamics, as evidenced by Flipkart's success in India.

- Technological Investment: Companies in e-commerce must heavily invest in technology, as it is a key differentiator in customer experience and operational efficiency.

- Logistics Infrastructure: Successful e-commerce platforms need to develop strong logistics capabilities to handle fast delivery times and complex supply chains.

- Customer Engagement: Companies must create personalized, customer-focused experiences to build long-term loyalty and differentiate themselves in a competitive marketplace.

- Sustainability as a Growth Factor: E-commerce platforms should prioritize sustainability in operations, as consumers and regulators increasingly demand eco-friendly practices.

- Global Expansion Challenges: E-commerce platforms should be aware of regulatory and market-specific challenges when expanding into new regions.

- Mobile and App Development: Given the importance of mobile shopping, e-commerce platforms must continuously optimize their mobile apps to provide a seamless and user-friendly experience.

IX. CONCLUSION

The study reveals that both Amazon and Flipkart have strategically positioned themselves to dominate their respective markets. While Amazon thrives on a global scale through technological innovation, robust logistics, and a standardized approach, Flipkart's localized strategy has enabled it to cater specifically to the diverse needs of Indian consumers. This comparative study highlights that success in e-commerce depends not only on technological advancements but also on the ability to adapt to regional market demands and consumer preferences.

The implications of this research suggest that e-commerce platforms must prioritize localized strategies, robust technological investments, and customer-centric approaches to remain competitive. Additionally, addressing challenges such as logistics infrastructure, sustainability, and regulatory issues will be essential for long-term growth and market leadership. As the e-commerce landscape continues to evolve, companies must remain agile, innovative, and committed to meeting the dynamic needs of their customers across global and local markets

REFERENCES

Adane, P., Dhiran, A., & Kallurwar, S. (2024). Sentiment analysis of product reviews from

Amazon, Flipkart, and Twitter. In ICT: Smart Systems and Technologies: Proceedings of ICTCS 2023 (Vol. 4, p. 373).

Adane, P., Dhiran, A., Kallurwar, S., & Mahapatra, S. (2023). Sentiment analysis of product reviews from Amazon, Flipkart, and Twitter. International Conference on Information and Communication Technology for Competitive Strategies, 373–381.

Bhardwaj, Reetika, and Vinod Kumar Bishnoi. "Flipkart vs Amazon: The War of Dominance." International Journal of Research in Engineering, IT and Social Sciences, vol. 9, no. 3, 2019, pp. 92–96. ISSN 2250-0588.

Chanda, R. S., Pabalkar, V., & Gupta, R. (2023). Analysis of the strategies of e-commerce giant Flipkart to overcome COVID-19 crisis and corresponding impact on consumer buying behavior. Interdisciplinary Research in Technology and Management, 98–104.

Dhingra, S., Gupta, S., & Bhatt, R. (2022). Comparison of e-service quality of Indian e-commerce websites. International Journal of Indian Culture and Business Management, 26(3), 407–426.

Djatmiko, M. B., Chauhan, R. B., Tuguz, N. S., & Shah, S. A. S. (2020). A research study on logistics and e-commerce of Amazon and Flipkart. PalArch's Journal of Archaeology of Egypt/Egyptology, 17(6), 7863–7882.

Eisenberg, K., & Gupta, G. (2015). Analysis of the expansion of e-commerce into India and growth opportunities for Flipkart. Journal of International Business & Law, 14, 151.

Garg, K., Wadhwa, A., & Jindal, A. (2018). Consumer preferences towards online shopping apps

Amazon and Flipkart. IAHRW International Journal of Social Sciences Review, 6(9), 1887–1890.

Jamnani, A. B. (2019). Promotional strategies with reference to selected e-commerce players in India. Asian Journal of Management, 10(2), 153–158.

Karal, D. (2016). E-commerce in India: A case study of Amazon & Flipkart (India). Wien, Austria. Kappagantu, D., Mahindra, N., & Sandeep, B. S. (2024). A comparative study on online marketing strategies with reference to Amazon and Flipkart in twin cities of Telangana.

International Journal of Communication, 1(2), 86–95.

Kumar, T. K. S. (n.d.). A study of Amazon's impact on customer experience in the e-commerce sector. Madhura, K. (2022). Development of fashionable products through online retailing: A case study on Amazon and Flipkart. International Journal of Case Studies in Business, IT and Education (IJCSBE, 6(1), 61–75.

Mishra, S. (2018). The impact of social media on e-commerce: A study at Amazon & Flipkart. International Research Journal of Management Sociology & Humanities.

Rakshit, P., Srivastava, P. K., Afjal, M., & Srivastava, S. K. (2021). Sentimental analytics on Indian big billion day of Flipkart and Amazon. SN Computer Science, 2, 1–8.

Sanehi, I., Kataria, V., & Jena, L. K. (2024). Diversity in action: Unveiling Flipkart's path to inclusion and excellence. Business Perspectives and Research. Article ID 2785337241276668.

Thippeswamy, R., & Reddy, N. (2014). Impact of e-commerce on supply chain management: A literature research and case studies in India. Politecnico di Milano.

Varma, A., & Ray, S. (2023). The case of Amazon's e-commerce digital strategy in India. World Journal of Advanced Research and Reviews, 19(1), 75–79.

Vidani, J. (2024). Comparative analysis between Flipkart and Amazon with the reference of e-commerce sector. SSRN. Article ID 4848019. Available at SSRN.

Yadav, R., & Bhatnagar, S. (2020). Channel collaboration in e-commerce: A study on channel relationships from the perspective of vendors selling on online platforms, the e-retailers in Transforming Organizations Through Flexible Systems Management (pp. 223–241).

DIGITAL MARKETING- AN INNOVATIVE PLATFORM

[1]Dr. Poonam Talwar Sardana
[1]Assistant Professor,
Kedarnath Aggarwal Institute of Management,
Charki Dadri
E-mail: mepoonamtalwar@gmail.com

ABSTRACT

Digital marketing refers to the promotion of products, brands, or services using digital channels such as search engines, social media platforms, email, and websites. It involves using digital tools and techniques to reach and engage with target audiences, build brand awareness, and drive sales. Digital marketing allows businesses to reach a wider audience. Digital marketing allows businesses to track and measure the results of their campaigns. Digital marketing allows businesses to personalize their messages and offers to individual customers. Digital marketing allows businesses to engage with customers in real-time. It is crucial for e-commerce businesses to reach customers and drive sales. It helps healthcare organizations reach patients, promote services, and provide education. Digital marketing enables financial institutions to reach customers, promote products, and provide services. Moreover it helps educational institutions reach students, promote courses, and provide resources. Digital marketing enables non-profit organizations to raise awareness, funds, and support for their causes. There are various Emerging Trends such as Artificial Intelligence (AI), Voice Search Optimization ,Influencer Marketing, Video Marketing, Personalization etc.

Keywords: *Digital Channels, Artificial Intelligence, Emerging Trends, Artificial Intelligence.*

I.INTRODUCTION

Digital Marketing is marketing of goods or services, which involves electronic devices. Digital advertising is widely referred to as 'online advertising', 'internet advertising' or 'web advertising'. Digital advertising means the advertising of goods or services by means of digital technologies. The form of marketing which revolves around internet based promotional messages to target the consumers. Digital technology includes internet, mobile phone or any other digital media. In 1981 the first PC was launched by IBM and for the first time Channel Net Soft Advertising Group an ad firm which attempted to involve many ad campaigns in soft form with the support of advertising digitalization launched the digital marketing concept which give raise to promotional trials such as Reader Reply Cards predicted in Magazines and in return acquiring the floppy disk which comprises of multimedia content (Kamal, 2016).

Digital marketing is a set of powerful tools and methodologies used for promoting products and services through the internet. It

includes wide range of marketing elements than in traditional business marketing due to the extra channels and marketing mechanisms available on online. Digital marketing moves at the speed on light to keep up a strong foundation with the judgment to think critically, act independently and be relentlessly creative. Internet is an element to make the life easy and faster. In the present scenario we can see that digital marketing plays a major role replacing the traditional marketing.

II.ONLINE MARKETING IN INDIA

India has an internet user's base of about 450 million as of July 2018, 40% of the population. The industry consensus is that growth is at an inflation point. In India, cash on delivery is the most preferred payment method, accumulating 75% of the e- retail activities. In country with a rapid growth economy, it is expected to have a very high significant growth in digital marketing career. The growth in online marketing trends is making a very substantial impact on marketing and advertisement. The use of communication tools has greatly changed in the year past. Several factors have been found to contribute to the growth of digital marketing in India. Before now, internet usage was only meant for the wealthy. There is now a great change in the lifestyle of the middle class. The very majority now have access to the internet in India. Internet and 3G penetration revolutionized the marketing scenario for both consumers and the marketers. The following survey from people indicates the size of Digital Marketing industry in India:

34% of the companies already had an· integrated digital marketing strategy in 2018 72% marketers believe that· traditional model of marketing is no longer sufficient and this will make the company revenue to be increased by 30% by the end of 2019.In 2019, 80% businesses will increase their digital marketing budget which may surpass the IT budget. Only the illiterates could not access the potentials of the digital marketing because of the accessibility to computing devices and computer education. Many of the people in this category still don't trust the method of an online payment and they lack training in English Language and other foreign languages to market online in global markets.

III.OBJECTIVES OF THE STUDY

• To study the role of digital marketing in Indian scenario.

• To identify various reasons and schemes that affecting the growth of digital marketing.

• To study the opinions of three entities viz. consumer, company and 3rd party agency with regard to the growth of digital marketing.

H1: There exists strong relationship between company and 3rd party agency in the field of digital marketing.

IV.REVIEW OF LITERATURE

Sharad Madhukar Dashaputre (2011), in his thesis "A study of the growth of internet marketing in Indian scenario" came to a conclusion that an increase in the use of internet and mobile has resulted for the increase in the growth of internet marketing. Based on their study all the respondents agree that internet is mandatory for the growth of online marketing and hence people should be given awareness of internet. Most of them strongly agree that traditional marketing will be replaced by online marketing in the near future.

Susanne Schwarzl and Monika Grabowska (2015), in their study on the topic "Online marketing strategies: the future is here" said that studying the customers' behavior is important in all the type of marketing activities. Whether it is online or offline customers behave in the same way. An apt strategy should be used for bringing the attention of customers. No company activities move without internet. So it is important to have at least one online department for the company's web presence. The main goal of company should be to create a clear defined brand which represents the companies values and catch potential buyers and loyal consumers attention offline as well as online.

Niharika Satinder (2015), in their journal "A study on internet marketing in India: Challenges and Opportunities" says that online marketing develops a greater opportunity to get information relating to customers as compared to traditional methods of marketing. In the next few years online marketing will strengthen more and makes the shopping habits of the people more efficient and world class. Because of the use of credit cards the online shopping became easier.

Vladislav Yurovsky, in his study "Pros and Cons of Internet marketing" came to a conclusion that there are advantages as well as disadvantages for internet marketing. Some of the advantages are empowering effect, elimination of geographic barriers, target reaching, immediate results, cost effective, reaching wider or international auditory, measurable result, can be personalized, relationship build, 24 hours/ 7 days availability. Internet marketing also have some disadvantages such as copying, too much add cutter, unserious perception, unconformity to the product, too much competition, and damage by negative feedback, technological dependence, and were not embraced by all people and lack of trust.

D.K Gangeshwar (2013) in his journal, "E-commerce or internet marketing: a business review from Indian Context", remarked that the present developed in online marketing would be a valuable addition to researcher and academicians and useful theory for practitioners, advertisers and entrepreneurs. In the next three to five years India will have 30 to 70 million internet users which will equal many of the developing countries. E-commerce is set to play a very important role in the 21st century, the new opportunities that will be thrown open, will be accessible to both large corporations and small companies.

Dr.Amit Singh Rathore, Mr.Mohit Pant, Mr. Chetan Sharma (2017), in their article "Emerging trends in Digital marketing in India" says that the consumers are looking and searching more on internet to find the best products and services from the sellers around India. By different techniques of digital marketing such as search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, e-commerce marketing, campaign marketing, social marketing etc. the shopping speed of the customers have been increased vastly. The usage of social media has created new opportunities for digital marketers to attract the customers through digital platform.

V.RESEARCH METHODOLOGY

In the present work, the study of digital marketing mainly comprises of a consumer perspective, company perspective and third

party perspective. Three questionnaires were prepared for each entity. The questions were related to know the attitude towards the use of digital marketing by the company, reasons for the growth of growth marketing and the impact on the volume of turnover of the company.

VI. DATA COLLECTION

A sample size of 1000 consumers from different walk of life and with different age group were taken. Of the total sample of 1000 consumers, about 88% of responses were face to face i.e. by contacting them personally, about 4% were contacted on Telephone and 8% by means of Email. A sample size of 100 companies was targeted for this study. Of these 100 companies, 50% from service sector, 31% of companies were from manufacturing sector, 12% from IT sector, 6% from educational sector and 1% from testing and research. Based on the turnover of the company (in Rs) about 46% companies were found to have turnover upto Rs 5Cr, 21% between Rs 5 Cr to Rs 50 Cr,17% between Rs 50 Cr to Rs 100 Cr and 16% with Rs 100 Cr and above.

The number of 3rd party agency in today's scenario is less and thus sample size of 10 for 3rd party digital marketing agencies was finalized. Of these 10 agencies were from Mumbai and other cities.

VII. RESULT AND DISCUSSION

As mentioned previously, the data was collected by using survey method. Analysis was based on the 7 point Likert scale system. Table 1 Likert Scale system Response Points Strongly Agree 7 Agree 6 Agree to some extent 5 Undecided 4 Disagree to some extent 3 Disagree 2 Strongly Disagree 1 The opinion given by respondents about having mandatory awareness of internet for the growth of Digital Marketing is further depicted from Figure 2 wherein large number of consumers and 3rd party agency respondents are found to Strongly Agree. However most of the company executives are found to agree to have mandatory awareness of internet for the growth of Digital marketing.

VIII. CONCLUSION

Almost all the respondents agree that the increase in use of internet and mobile has resulted for the increase in the growth of Digital Marketing. Hence with the increase in use of internet it is largely observed now a days that the consumer's inclination to have access towards Digital Marketing is increasing significantly. Finally to conclude the finding of this research work it can be noted that the growth of digital marketing is certainly a phenomena experienced by almost all the respondents. The growth of digital marketing is directly related to the increase in the use of internet. Hence the effect of internet era is experienced in marketing sector. The only variation found between traditional marketing and digital marketing is that there is no compulsion of channel network in digital marketing. Most of the respondents have judged the importance of digital marketing and hence have commented that in near future the potential of digital marketing is bound to increase and also this will generate more revenue for companies. Most of the respondents agree that digital marketing will be successful in coming days.

REFERENCES

Yasmin. S. Tasneem and K. Fatema, "Effectiveness of digital marketing in the challenging age: an empirical study,"

Journal of International Business Research and Marketing, vol. 1, no. 5, Apr., pp. 69-80, 2015.

Bhagowati and D. M. Dutta, "A study on literature review for identifying the factors impacting digital marketing," International Journal of Sales & Marketing Management Research and Development, Aug., vol. 8, no.pp. 1-8, 2018. 3. https://act-on.com/blog/digital-marketing-7-essential-channels/

https://neilpatel.com/what-is-affiliate-marketing/ https://neilpatel.com/what-is-seo/

Kamal Y (2016), Study of Trend in Digital Marketing and Evolution of Digital Marketing Strategies, International Journal of Engineering Science and Computing, Volume 6, Issue 5.

Sharad Madhukar Dashaputre (2011), "A Study of the growth of Internet Marketing in Indian Scenario", Tilak Maharashtra Vidyapeeth, Pune, pp. 89 – 92.

Susanne Schwarzl and Monika Grabowska (2015), "Online Marketing Strategies: the future is here", Journal of international studies, Volume: 8, No.2, pp.187 – 196.

Niharika Satinder (2015), "A Study of Internet Marketing in India: Challenges and Opportunities", International Journal of Science Technology and Management, Volume: 4, Issue: pp. 265 – 273.

Vladislav Yurovsky, "Pros and Cons of Internet Marketing", Research Paper in Turiba University (Latvia), pp. 1 – 12.

D.K Gangeshwar, "E – Commerce or Internet Marketing: A Business Review from Indian Context", International Journal of Service, Science and Technology, Volume: 6, Issue: 6, pp.187 – 194.

Dr. Amit Singh Rathore, Mr. Mohit Pant and Mr. Chetan Sharma (2017), "Emerging Trends in Digital Marketing in India", International Conference on Innovative Research in Science, Technology and Management, pp. 107 – 115.

GUIDELINES TO CONTRIBUTORS

The TKM International Journal for Research in Management provides a platform to professionals from academia and corporate to share information on emerging practices and concepts across the business world. This peer reviewed journal encourages authors to published research articles and views in the areas related to Business Management and Administration. Only original article with scholarly merit will be accepted. The copyright of published papers will vest with the publisher.

Periodicity: Biannual

Article Types: Articles can taken any of the following formats:

1. **Perspectives:** It shall be articles, essays, or ideas on an issue or a subject of interest to the management fraternity, researchers and scholars. Such articles by their very nature may cut across different areas and disciplines. The Editors of the journal may periodically seek contributions from well known and recognized scholars and thinkers for perspectives.

2. **Research:** This may be articles based on empirical evidence that would help define an area of study relevant and related to management, critically evaluate previous theory and research, and advance the current knowledge in the field.

3. **Notes and Comments:** This could include brief report on research findings, as well as commentaries on previously published work, retrospections, reflections, as well as subjects relevant to the understanding of business management.

4. **Book Reviews:** Reviews could include reviews of current books on management.

All submissions should comply with the following guidelines:

1. They should be typed clearly on the one side of the paper with adequate margins on all sides.

2. Authors should submit soft copy of the article in MS-WORD format (Times New Roman Fonts) addressed to the Editor, TKM IJRM, TKM Institute of Management E-mail: editor.tkmijrm@tkmim.ac.in.

3. Inquiries regarding the journal should be addressed to the Editor, TKM IJRM, TKM Institute of Management, Musaliar Hills, Karuvelil, Kollam 691 505, Kerala, India (www.tkmim.ac.in).

4. Authors are required to include a cover page indicating the name(s), affiliation, address, contact numbers and email addresses. To ensure the integrity of the peer review process, every effort should be made to prevent the identities of the authors and

reviewers from being known to each other. As such identity of the author should be provided only on the cover page. Authors should make every effort to ensure that the manuscript contains no clues to their identities.

Manuscript format:

a. Title: The title should be concise and should be on a separate sheet and include the author's name/s, affiliation, address, telephone number and e-mail ID.

b. Abstract: An abstract of no more than 150 words, should precede the text of the paper.

c. Key words: A minimum of three and maximum of key words should be provided.

d. Acknowledgements: These, if any, should be brief and supplied on a separate page.

e. British spellings are preferred thorough out the text of the manuscript.

f. Use of numerals: One to nine in words, 10 and above in figures, unless the reference to tables in the text.

g. The text size of equations should be similar to normal text size. The formula should be placed center justified with serial number on the right. For example:

$$A = [(1+b)/x] \, 1/2 \quad (1)$$

h. Tables and Figures should be provided at the appropriate place within the text and not at the end of the text. Number tables consecutively in accordance with their appearance in the text. Place a table's caption above the table's body and its description (if required) below the body. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article.

i. Endnotes should be kept to the minimum.

j. Capitalization should be kept to the minimum and should be consistent.

k. Double quotes should be used if required and single quotes should be restricted for use within double quotes.

l. **References:** The American Psychological Association (APA) style will be adopted for purposes of referencing (author's name, date of publication in parentheses in the text) and all citations should be listed alphabetically by author after the body of the text. The following examples illustrate the referencing format:

i. **Authored book:** Aravind. (2020). *Principles of Financial Management: Practice and Decisions*, New Delhi: Viva Books Pvt. Ltd.

ii. **Journal article:** Aravind, M., Nayar, J. (2020). Integration of Oil with Macroeconomic Indicators and policy challenges in regard to Oman. *International Journal of Energy Sector Management*, 14 (1), 172-192.

iii. **Website:** References to websites should indicate the date on which the website is accessed (i.e. accessed 10 June 2015).

m. Use of Italics should be kept to a minimum.

n. Republication of papers published in the journal would require the Editor's clearance.

o. An Author will receive a complimentary copy of the issue in which his/her paper appears.

Review process

All submissions will be blind-reviewed by two editors. Papers will fall into one of the following categories:

1. Accept

2. Accept with minimum changes

3. Revise and resubmit

4. Reject (not in compliance with the line of the Review of Economic and Business Studies)

Time to review: 4-6 weeks.

Editor,
TKM IJRM,
TKM Institute of Management,
Musaliar Hills, Karuvelil, Kollam-691 505, Kerala, India.
Email : editor.tkmijrm@tkmim.ac.in
www.tkmim.ac.in/tkmijrm
www.tkmim.ac.in
Phone: 0474 – 2488465, 2482466

TiM
Since 1995

TKM INSTITUTE OF MANAGEMENT