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Leveraging AI to Elevate Customer Experience in Multi-Channel Marketing in Kannur District, Kerala

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ABSTRACT:

This study aims to investigate how companies in Kerala's Kannur District can use artificial intelligence (AI) to enhance the consumer experience in multi-channel marketing. It will explore the unique advantages and challenges that local businesses face when integrating AI technologies across various consumer touchpoints, including social media, websites, email, and physical stores. The goal is to identify the most effective strategies for utilizing AI to improve customer interactions, personalize marketing campaigns, and boost customer loyalty and satisfaction. By examining specific case studies and the market dynamics within Kannur District, the report seeks to provide practical insights for organizations looking to leverage AI to remain competitive and meet the evolving needs of their customers.

Keywords : Artificial intelligence, Multi-Channel Marketing, Customer Engagement

Introduction

In today's rapidly advancing digital landscape, businesses face the challenge of meeting customers' evolving expectations for fast, personalized, and seamless experiences across various platforms. Artificial Intelligence (AI) has emerged as a powerful tool to help meet these demands, especially in multi-channel marketing, where companies engage with consumers through various touchpoints, such as social media, websites, mobile apps, physical stores, and email. By integrating AI technologies into these channels, organizations can analyze customer behavior in real time, automate engagement, personalize content, and significantly enhance customer satisfaction. While the global adoption of AI in marketing is increasing, its impact at the local level—particularly among regional businesses—remains relatively underexplored. This study, titled "Leveraging AI to Elevate Customer Experience in Multi-Channel Marketing in Kannur District, Kerala," aims to fill this gap by examining how businesses in Kannur are using AI to improve customer experiences and the barriers and opportunities they encounter in the process. As Kerala increasingly embraces digitalization, understanding AI adoption in a district like Kannur provides valuable insights into how technology influences consumer engagement in semi-urban and emerging business environments. The study is guided by three primary objectives: to evaluate the application of AI in multi-channel marketing within Kannur District, to identify the challenges businesses face in adopting AI technologies, to explore future opportunities for AI to enhance customer experiences. To achieve these objectives, the research employs a mixed-methods approach, collecting both quantitative and qualitative data from 70 business individuals in Kannur District who actively use AI in their marketing strategies. Data was gathered through structured questionnaires and interviews, conducted either face-to-face or via online platforms, and analyzed using various statistical tools, including frequency analysis, mean and standard deviation, t-tests, regression analysis, cross-tabulation, and binary logistic regression. The findings of this study provide actionable insights into the sectors leading in AI adoption, the duration and depth of AI usage, levels of customer satisfaction, and the strategies businesses employ to address challenges such as technical expertise, costs, integration, and privacy concerns. This paper not only highlights the current state of AI-driven marketing in Kannur but also offers practical suggestions for businesses, policymakers, and researchers looking to promote AI-based innovation at the regional level. This paper is intended for academics, marketing professionals, business owners, and technology enthusiasts interested in understanding how AI is transforming customer experiences in real-world, local business contexts. It contributes to the broader discourse on AI in marketing by presenting a localized, data-driven perspective rooted in the experiences of businesses in Kerala.

Enhancing Customer Experience in Multi-Channel Marketing Through Artificial Intelligence

1. Unified Theory of Acceptance and Use of Technology (UTAUT): This model helps explain how businesses and customers adopt AI-driven marketing technologies. Factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions play a crucial role in the acceptance of AI in multi-channel marketing.

2. Customer Experience Theory : This theory emphasizes that customer satisfaction and loyalty are driven by personalized, seamless, and engaging experiences across multiple touchpoints. AI enhances these experiences by analyzing customer data, predicting behavior, and optimizing engagement strategies.

3. Multi-Channel Marketing Model : This model highlights the integration of various marketing channels both online (such as social media, websites, and emails) and offline (including retail stores and call centers) to create a cohesive brand experience. AI facilitates real-time personalization and consistency across these channels.

4. AI and Consumer Behavior Theory : Rooted in behavioral economics and psychology, this theory explains how AI influences consumer decision-making through predictive analytics, sentiment analysis, and automated recommendations. AI-powered insights enable brands to tailor their messaging and offerings based on customer preferences.

5. Resource-Based View (RBV) Theory: This theory suggests that AI is a strategic resource that offers a competitive advantage in multi-channel marketing. Businesses that leverage AI-driven insights, automation, and personalization are better positioned to enhance customer satisfaction and brand loyalty. By integrating these theories, this paper explores the role of AI in transforming customer experiences, ensuring seamless engagement, and driving marketing effectiveness in multi-channel environments. The findings provide valuable insights for businesses, marketers, and researchers seeking to leverage AI for improved customer interactions and competitive differentiation.

Statement of the Problem

In today's rapidly evolving digital landscape, businesses face the challenge of delivering seamless, personalized, and consistent customer experiences across multiple marketing channels. Traditional marketing strategies often struggle to integrate vast amounts of customer data, predict consumer behavior, and provide real-time engagement, resulting in fragmented and ineffective customer interactions. Artificial Intelligence (AI) has emerged as a transformative solution that enables businesses to analyze customer data, automate interactions, and enhance personalization across various touchpoints, including social media, websites, mobile apps, emails, and physical stores. However, despite its potential, many organizations encounter barriers to effectively adopting AI-driven marketing strategies. These challenges include issues related to data integration, technological limitations, privacy concerns, and the need to build customer trust. This paper aims to investigate how AI enhances customer experience in multi-channel marketing by addressing these challenges, optimizing customer engagement, and improving marketing efficiency. By examining AI's role in predictive analytics, automation, and real-time personalization, this study seeks to provide insights into best practices and future trends, offering valuable implications for businesses, marketers, and researchers interested in leveraging AI for superior customer experiences.

Review of Literature

Cevher, M. F. (2024). Digital Marketing and Customer Experience Strategy: Utilizing Digital Channels for Marketing and Engaging Customers. In Trends, Challenges, and Practices in Contemporary Strategic Management (pp. 149-167). IGI Global. This research highlights the significance of digital channels in enhancing marketing efforts and fostering customer loyalty by exploring digital marketing and customer experience strategies. The swift advancement of the digital era compels organizations to prioritize digital marketing techniques and formulate strategies aimed at improving the customer experience. The introductory section of the research provides a brief overview of digital marketing and customer experience issues, followed by an analysis of the current landscape. Following the introduction, prior research on the topic is reviewed under a literature review section. Subsequently, the paper clarifies the concept of digital marketing and outlines various digital marketing strategies. Next, it investigates the customer journey and customer experience, with a focus on the digital customer experience. In the concluding section, the study summarizes the digital marketing and customer experience strategy, emphasizing the crucial role of digital channels in fostering customer loyalty.

Rane, N et.al (2024). Artificial Intelligence in Sales and Marketing: Enhancing Customer Satisfaction, Experience and Loyalty. Experience and Loyalty (May 17, 2024). This research explores the various functions of AI in sales, focusing on AI-led personalization, customer relationship management (CRM), and the enhancement of customer experience and loyalty. Personalization powered by AI in sales employs advanced algorithms to examine customer data, allowing businesses to offer customized product suggestions and personalized interactions that resonate with individual customer preferences. The integration of AI into CRM systems enables organizations to automate repetitive tasks, forecast customer behavior, and refine customer engagement approaches, resulting in more streamlined and effective management of customer relationships. In addition, AI improves the customer experience by providing instantaneous assistance through chatbots and virtual assistants, creating seamless and intuitive engagements that align with the changing expectations of contemporary consumers. Moreover, AI promotes customer loyalty by ensuring reliable, high-quality service and fostering a deeper emotional bond between consumers and brands. This study thoroughly investigates these vital aspects, demonstrating how AI technologies are transforming sales tactics and facilitating sustainable competitive advantages. The results underscore the critical importance of AI in building lasting customer relationships, positioning companies for success in a progressively digital and customer-focused marketplace.

Babatunde et.al (2024). The influence of AI on marketing personalization: A theoretical investigation of consumer engagement strategies. International Journal of Management & Entrepreneurship Research, 6(3), 936-949. This study examines how Artificial Intelligence (AI) transforms marketing strategies through personalization. It addresses the theoretical foundations of consumer engagement and how AI can create targeted marketing experiences by tailoring messages to individual behaviors and demographics. The use of game mechanics can enhance user motivation and engagement through personalized gamified experiences. AI can analyze customer data to predict preferences, allowing for effective targeted advertising, product

recommendations, and content. Natural Language Processing (NLP) tools help brands understand customer sentiment and tailor communication. AI-driven chatbots offer real-time personalized support, improving brand interactions. Personalized marketing meets individual needs, leading to higher satisfaction and loyalty. By aligning content with specific consumer segments, brands enhance their relevance. Targeted campaigns can increase conversion rates, but it's vital to balance personalization with data privacy concerns, ensuring transparency and user control. Additionally, addressing biases in AI algorithms is crucial for fairness in marketing. Overall, AI is revolutionizing marketing personalization, helping brands forge deeper consumer connections and drive growth.

Nguyen, N. P., & Mogaji, E. (2023). Artificial intelligence for seamless experience across channels. In Artificial Intelligence in Customer Service: The Next Frontier for Personalized Engagement (pp. 181-203). Cham: Springer International Publishing. This chapter examines the application of AI to facilitate seamless interactions across various channels. The implementation of cohesive experiences across different retail avenues is essential, given the increased use of multiple retail channels. Moreover, with the rising volume of data and advancements in processing power, it is crucial to investigate how companies can combine artificial intelligence (AI) and machine learning (ML) with this data to improve their operations. This information would benefit business owners considering digital transformation strategies, AI developers creating various algorithms for enterprises, and policymakers working to foster a supportive environment for digital transformation. The chapter includes a literature review that summarizes key findings, which are later used to formulate managerial implications and policy suggestions. Key managerial implications highlight the importance for business leaders to invest in AI-driven value chains, assess AI deployment within their operations, and collaborate with AI specialists to enhance customer service initiatives discussed in the chapter. Additionally, the chapter provides policy suggestions focused on establishing regulations that promote consumer data protection, training, and talent acquisition in AI.

Nwachukwu, D., & Affen, M. P. (2023). Artificial intelligence marketing practices: The way forward to better customer experience management in Africa (Systematic Literature Review). International Academy Journal of Management, Marketing and Entrepreneurial Studies, 9(2), 44-62. The evolution of marketing has shifted towards utilizing digital and artificial intelligence technologies and programs to improve customer experiences in this digital age. Consequently, the emerging concept of Artificial Intelligence (AI) Marketing is becoming increasingly significant in academic discussions. Recently, the marketing field has been transformed by AI, as it allows marketers to produce, process, and analyze vast amounts of customer data, enabling them to provide customers with more tailored products and services, thereby enhancing their experience. Despite the significance of AI marketing and its integration in developed regions, many universities in Africa, particularly in Nigeria, have yet to incorporate AI marketing into their curricula to help marketing students grasp the concept, applications, and role of AI marketing in boosting marketing performance in today's digitally-driven global business landscape. Additionally, there is a lack of substantial literature on AI marketing within the Nigerian context, creating a gap that researchers and academic institutions should address. Therefore, this study conducted a systematic literature review to examine artificial intelligence marketing practices and their potential to improve customer experience management in Nigeria. The findings indicate that AI marketing could greatly enhance customer experience management in Nigeria, which has a population exceeding 200 million and a rapidly expanding digital economy; it also highlights a significant market opportunity for businesses that can deliver personalized and efficient customer experiences. The study suggests that the marketing field in Nigeria should raise awareness, invest in infrastructure, utilize existing data, create AI-powered chatbots, collaborate with AI providers, and address ethical and privacy challenges.

Alzaydi, Z. (2023). Investigating the role of multi-channel integration quality as a mediator in the connections between service quality, customer satisfaction, and customer loyalty within the Saudi banking industry. Management & Sustainability: An Arab Review, 3(2), 132-149. The findings indicated a significant statistical relationship between service quality and customer satisfaction in the Saudi banking sector. Service quality did not have a direct impact on customer loyalty. However, when the quality of multi-channel integration was moderate to high, service quality influenced customer loyalty through customer satisfaction. To attain service quality and customer loyalty in the Saudi banking industry, it is essential for customers to be satisfied, and furthermore, banks must carefully manage the quality of the integration channels offered to them, highlighting the importance of branding in fostering customer loyalty within this sector

Mustikasari et.al (2021). The Journal of Industrial Distribution & Business, 12(3), 7-19. This study aims to explore the connection between customer experience and repurchase intention in both online and offline retail environments, highlighting customer satisfaction as a mediating factor. The research employs a Regression Linear approach to analyze various elements of customer experience, which include product quality, customer service, staff interaction, shopping ambiance, and purchasing procedures, in relation to customer satisfaction. Additionally, the study assesses customer satisfaction as a mediating variable linking customer experience to repurchase intention using the Sobel Test. The findings indicate that nearly all hypotheses regarding customer experience significantly affect customer satisfaction, except for the shopping process experience within the online channel, which did not show significant results. The study also reveals that customer satisfaction can mediate the relationship between customer experience and repurchase intention. In conclusion, retailers seeking to enhance customer satisfaction should focus on improving product quality, ensuring customer service is readily accessible for resolving purchase issues, and developing staff skills in product knowledge, presentation, and customer communication, both online and offline. Furthermore, retailers should aim to create enjoyable shopping environments and provide a seamless shopping experience across both channels.

Research Gap

Research Gap Even though the adoption of AI in marketing is on the rise, there are few studies that specifically examine the degree of AI utilization in multi-channel marketing within Kannur District. Most existing literature focuses on global trends, leaving a significant lack of localized information regarding how businesses in this area are utilizing AI. Additionally, there is a shortage of thorough analysis concerning the specific obstacles that small

and medium-sized enterprises (SMEs) encounter when implementing AI-driven marketing strategies. This research intends to fill these voids by offering empirical findings on AI applications, their effects on customer experience, and potential growth prospects customized for the regional market.

Scope of the Study

This research centers on enterprises operating in the Kannur District of Kerala that actively engage in AI-driven marketing approaches. It investigates various sectors, including retail, e-commerce, hospitality, and service-oriented businesses, to analyze AI's influence on enhancing customer experiences. The study examines current trends in AI adoption, its effect on customer engagement, and the obstacles that companies encounter when implementing AI technologies. Furthermore, it looks into future innovations and trends in AI that could further optimize multi-channel marketing effectiveness and efficiency in the area. By offering localized insights, this research aims to support businesses, marketers, and policymakers in making well-informed choices regarding the integration of AI into marketing strategies.

Significance of the Study

This study holds importance as it offers valuable insights into how AI can enhance customer experience across multi-channel marketing. By examining the effectiveness of AI-driven strategies, businesses in Kannur District can improve their customer engagement and gain a competitive edge. The research aims to help marketers fine-tune AI applications to enhance personalized interactions and overall customer satisfaction. Furthermore, recognizing the barriers to AI adoption will assist companies in addressing implementation challenges, paving the way for more successful digital transformation. Policymakers and stakeholders can also leverage the findings to create guidelines that foster the integration of AI in marketing while ensuring these technologies are used ethically and efficiently.

Objectives

1) Evaluate the application of AI in multi-channel marketing within Kannur District

2) Identify the challenges to AI adoption by investigating the difficulties companies encounter when implementing AI technologies

3) Explore future opportunities for AI to enhance customer experience

Research Methodology

Primary Data Collection

Primary Data Gathering The primary data is gathered through direct interviews utilizing a structured questionnaire. The data collection method includes:

Structured Questionnaire: The questionnaire comprises both closed-ended (quantitative) and open-ended (qualitative) questions to obtain measurable insights as well as detailed responses.

Face-to-Face and Online Interviews: Based on availability, interviews are held either in person or through virtual platforms (such as Zoom, Google Meet, etc.).

Sample Design

The research utilizes a mixed-methods strategy, combining both quantitative and qualitative research techniques. The quantitative portion involves structured questionnaires to collect statistical data, while the qualitative segment includes detailed interviews to understand participants' views on AI integration in marketing.

Sample Size : Business individuals in Kannur District, Kerala, who are actively utilizing AI in their marketing strategies. 70 business individuals. 3. Sampling Technique The research employs a convenience sampling approach, selecting participants based on their accessibility and willingness to take part.

Hypothesis of the Study:

1) **Null Hypothesis (H_0):** There is no significant satisfaction among customers with the personalized experiences provided through AI (Mean satisfaction score = 5).
2) **Alternative Hypothesis (H_1):** There is significant satisfaction among customers with the personalized experiences provided through AI (Mean satisfaction score ≠ 5).
3) **Null Hypothesis (H_0):** There is no significant impact of customer retention or loyalty (due to AI-driven marketing) on customer satisfaction with personalized experiences
4) **Alternative Hypothesis (H_1):** There is a significant impact of customer retention or loyalty (due to AI-driven marketing) on customer satisfaction with personalized experiences.

5) **Null Hypothesis (H_0):** There is **no significant relationship** between respondents' intention to invest in AI technologies and their willingness to participate in future studies or discussions.

6) **Alternative Hypothesis (H_1):** There **is a significant relationship** between respondents' intention to invest in AI technologies and their willingness to participate in future studies or discussions.

Limitations of the study

1) This research focuses exclusively on Kannur District, Kerala, and may not comprehensively capture AI adoption and customer experiences in other areas.

2) The study uses a sample of 70 business individuals selected through convenience sampling, which may limit the applicability of the findings to all businesses within the district.

3) The research is based on responses from surveys and interviews, which may carry biases such as social desirability or inaccurate self-evaluation of AI utilization.

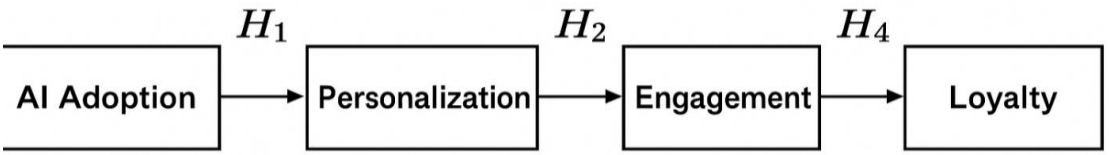

Figure 1: Conceptual SEM Model Showing Hypothesized Relationships (H1–H4)

Conceptual SEM Model Showing Hypothesized Relationships

Source: Developed by the author

DATA ANALYSIS AND INTERPRETATION

FREQUENCY ANALYSIS

Industry Sector Business Belongs to currently using any AI tools or platforms in your marketing efforts				
		Usage of AI		
		Yes	No	Total
Industry Sector Business Belongs To	Construction	11	2	13
	Interlock Paving Block Manufacturing Unit	3	0	3
	Cosmetics & Perfume	0	3	3
	Software	6	3	9
	Advertising	5	0	5
	Agriculture	2	0	2
	Entertainment	6	2	8
	Education	14	0	14
	Media & News	2	0	2
	Photography	2	0	2

	Product Development	2	0	2
	Textiles	2	0	2
	Gardening store	2	0	2
	Design Industry (Physical and Digital Product)	2	0	2
Total		59	10	69

Interpretation: The data shows that the Education sector leads in the adoption of AI tools, with 100% of its 14 respondents actively using AI. This indicates a strong commitment to integrating technology in teaching, learning, and administrative tasks. Several other sectors also demonstrate complete AI adoption among their participants, including Interlock Paving Block Manufacturing, Advertising, and a diverse range of industries such as Agriculture, Media & News, Photography, Product Development, Textiles, Gardening Stores, and the Design Industry, each reporting full adoption among 2 to 5 respondents. This trend suggests that even fields traditionally not focused on technology are recognizing AI's value in enhancing efficiency and innovation. In contrast, the Construction sector shows a high but incomplete adoption rate, with 84.6% (11 out of 13) respondents using AI tools. The Entertainment sector follows closely at 75% (6 out of 8). Interestingly, the Software sector, which typically expects to lead in AI usage, reports a lower adoption rate of 66.7%, with only 6 out of 9 respondents using AI tools. This variation may reflect differences in sub-domains or resource availability within the industry. On the opposite end of the spectrum, the Cosmetics & Perfume sector is notable because none of the respondents (3 individuals) reported using AI. This may suggest potential barriers such as a lack of awareness or perceived relevance. Additionally, both the Construction and Entertainment sectors have 2 non-users, while the Software sector has 3, highlighting areas of resistance or slower adoption even within generally technology-forward industries.

MEAN AND STANDARD DEVIATION

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
How long have you been using AI in your marketing strategy?	69	1	2	1.28	.450
Valid N (listwise)	69				

Interpretation: The analysis of AI usage duration among businesses shows that the adoption of AI in marketing is a relatively recent trend. Based on a sample of 69 valid responses, with no missing data, the findings are robust and representative. The minimum duration value of 1 indicates that some businesses have been using AI for less than one year, while a maximum value of 2 suggests usage between one and three years. The mean duration is 1.28, which is closer to the "less than one year" category, emphasizing that many businesses have only recently begun incorporating AI tools into their marketing strategies. Additionally, the standard deviation of 0.450 reflects low variability, suggesting a consistent trend in early-stage adoption across the sample. This clustering near the one-year mark indicates that AI integration in marketing is still in its early phases. As a result, many businesses are likely in the process of exploring and experimenting with AI's potential rather than being in advanced stages of implementation.

CORRELATION BETWEEN CUSTOMER SATISFACTION AND AI MARKETING EFFECTIVENESS

Null Hypothesis (H_0): There is no significant satisfaction among customers with the personalized experiences provided through AI (Mean satisfaction score = 5).

Alternative Hypothesis (H_1): There is significant satisfaction among customers with the personalized experiences provided through AI (Mean satisfaction score ≠ 5).

$$t = (\bar{x} - \mu_0) / (s / \sqrt{n})$$

$$t = (6.23 - 5) / (2.674 / \sqrt{69}) \approx 1.23 / 0.322 \approx 3.82$$

Variables	**Customer Satisfaction with Personalized Experiences through AI**	**Effectiveness of AI in Marketing Strategy**
Customer Satisfaction with Personalized Experiences through AI	1	.653**
Effectiveness of AI in Marketing Strategy	.653**	1
N	69	69

Component	**Details**
Null Hypothesis (H_0)	Mean satisfaction score = 5 (No significant satisfaction)
Alternative Hypothesis (H_1)	Mean satisfaction score ≠ 5 (Significant satisfaction exists)
Sample Mean (M)	6.23
Hypothesized Mean (μ_0)	5
Standard Deviation (SD)	2.674
Sample Size (N)	69
Standard Error (SE)	0.322
Calculated t-value	3.82
Degrees of Freedom (df)	68
Significance Level (α)	0.05 (two-tailed)
Critical t-value	±2.00
p-value	< 0.01
Decision	Reject the Null Hypothesis (H_0)
Interpretation	There is significant satisfaction among customers with AI-driven personalized experiences.

The calculated t-value of 3.82 is greater than the critical t-value of 2.00, which leads us to reject the null hypothesis. This indicates a significant level of customer satisfaction with the personalized experiences provided through AI. Furthermore, the mean satisfaction score of 6.23 is notably higher than the neutral value of 5, reflecting a positive customer perception of AI-driven personalization.

REGRESSION ANALYSIS

Null Hypothesis (H_0): There is no significant impact of customer retention or loyalty (due to AI-driven marketing) on customer satisfaction with personalized experiences.

Alternative Hypothesis (H_1): There is a significant impact of customer retention or loyalty (due to AI-driven marketing) on customer satisfaction with personalized experiences.

Table showing Regression Analysis Predicting Customer Satisfaction from AI-driven

ANOVA	**df**	**Sum of Squares**	**Mean Square**	**F**	**Sig.**
Regression	1	71.949	71.949	11.634	.001
Residual	67	414.341	6.184		
Total	68	486.290			

Retention/Loyalty

Model Summary	**Value**
R	.385
R Square	.148
Adjusted R Square	.135
Std. Error of the Estimate	2.487

Coefficients	**B (Unstandardized)**	**Std. Error**	**Beta (Standardized)**	**t**	**Sig.**
(Constant)	8.959	0.854	—	10.493	.000
AI-driven Retention/Loyalty	-1.665	0.488	-0.385	-3.411	.001

INTERPRETATION OF THE REGRESSION ANALYSIS

Aspect	**Details & Interpretation**
R Square	0.148 – About **14.8%** of the variance in customer satisfaction can be explained by improvements in customer retention or loyalty due to AI.
ANOVA (F-test)	F = 11.634, **p = .001** – The model is **statistically significant**, indicating a valid relationship.
Beta Coefficient	β = -0.385 – There is a **negative relationship** between observed improvements in retention/loyalty and satisfaction with AI experiences.
Significance (p-value)	p = .001 – This is **highly significant**, so the null hypothesis is **rejected**.
Constant (Intercept)	8.959 – When there is no perceived improvement in retention or loyalty, the satisfaction score is predicted to be around **8.96**.
Conclusion	There is a significant **negative** effect of customer retention/loyalty perception on satisfaction with personalized AI experiences. This could mean that even if retention seems improved, customers may **not feel highly satisfied** unless personalization is strong or genuine.

TABLE SHOWING CROSSTAB BETWEEN AI IMPLEMENTATION CHALLENGES AND OVERCOMING STRATEGIES

Challenge Faced	**Transparency**	**Continued Learning & Training**	**Collaboration with Experts**	**Ethical Concerns**	**Total**
Understanding and Trusting AI Outputs	6	4	4	0	14
Cost	5	7	4	0	16
Technical Expertise	0	19	0	0	19
Constraints Around Leveraging AI	2	0	0	0	2
Privacy and Compliance Concerns	0	8	0	2	10
Issues of Integration	0	6	2	0	8
Total	13	44	10	2	**69**

Interpretation: The cross-tabulation indicates that "Continued Learning & Training" is the most commonly adopted strategy, especially for addressing Technical Expertise (utilized in all 19 cases) and Privacy and Compliance Concerns (used in 8 out of 10 cases). For challenges such as Cost and Understanding AI Outputs, a more varied mix of strategies was employed, including Transparency and Collaboration with AI Experts. Notably, Collaboration was primarily used to address Integration Issues, while Transparency was more frequently employed when dealing with trust and cost-related challenges. These trends suggest that businesses prioritize skill development and internal capacity building as their main responses to AI-related marketing challenges.

BINARY LOGISTIC REGRESSION ANALYSIS: PREDICTING RESEARCH PARTICIPATION BASED ON AI INVESTMENT INTENTIONS

Null Hypothesis (H_0): There is **no significant relationship** between respondents' intention to invest in AI technologies and their willingness to participate in future studies or discussions.

Alternative Hypothesis (H_1): There **is a significant relationship** between respondents' intention to invest in AI technologies and their willingness to participate in future studies or discussions.

Dependent Variable: Willingness to participate in future studies or discussions (Yes = 0, No = 1)

Independent Variable: Planning to invest in AI technologies in the next 1–2 years

Omnibus Chi-Square (Model Significance): $\chi^2 = 18.727$, df = 1, p = .000

Constant-only model: B = -1.041, Exp(B) = 0.353, p = .000

Classification Accuracy: 73.9% (all predicted as "Yes" in Step 0)

Statistic	**Value**
Model Chi-Square (Omnibus)	18.727
Degrees of Freedom (df)	1
Significance (p-value)	.000 (**Significant**)
Constant (B)	-1.041
Exp(B) – Odds of Participation	0.353
Classification Accuracy (Overall)	73.9%
Dependent Variable	Willingness to Participate (Yes/No)
Independent Variable	AI Investment Plan (Yes/No)

Interpretation : A binary logistic regression analysis was conducted to determine whether respondents' intentions to invest more in AI technologies over the next 1-2 years could significantly predict their willingness to participate in further studies or discussions. In the initial stage of the logistic model (Block 0, constant-only), the model correctly classified 73.9% of the responses; however, it predicted all cases as "Yes," highlighting the limitation of not including any predictors. The constant in the model was significant (B = -1.041, p < .001), indicating a baseline log-odds of participation. When the predictor variable "Are you planning to invest more in AI technologies?" was added to the model, the Omnibus Test of Model Coefficients yielded a statistically significant result ($\chi^2 = 18.727$, df = 1, p = .000). This indicates that the model, with this predictor included, provides a significantly better fit than the null model. As a result, the null hypothesis was rejected, supporting the alternative hypothesis: there is a statistically significant relationship between intentions to invest in AI and willingness to participate in future studies. In other words, respondents who plan to invest in AI are more likely to express interest in future research participation, suggesting a proactive and engagement-oriented mindset among individuals or organizations focused on AI.

FINDINGS

The study titled "Leveraging AI to Elevate Customer Experience in Multi-Channel Marketing in Kannur District, Kerala" provides several important insights. Frequency analysis revealed that the Education sector leads in AI adoption, boasting a 100% usage rate. This is followed by niche sectors such as Advertising, Media, and Interlock Paving Blocks, which also demonstrated complete adoption of AI. Interestingly, traditionally tech-driven sectors like Software showed only a 66.7% adoption rate, while the Cosmetics and Perfume industries reported no use of AI at all. This indicates potential disparities in adoption rates and barriers to implementation across different sectors. The analysis of AI usage duration revealed an average of 1.28 years, suggesting that most businesses are still in the early stages of AI integration and have limited long-term experience. A one-sample t-test confirmed that customer satisfaction with AI-driven personalization is significantly above average, with a mean score of 6.23. This indicates a positive perception of AI in enhancing customer experiences. Regression analysis identified that continued learning and training is the most effective strategy for overcoming challenges related to AI implementation, particularly concerning technical expertise and privacy issues. Other strategies, such as promoting transparency and encouraging collaboration, help address cost and integration concerns. Finally, binary logistic regression indicated a significant relationship between respondents' intentions to invest in AI and their willingness to participate in future studies. This suggests that intentions to invest in AI are closely linked to a proactive mindset towards its adoption.

SUGGESTION

Based on the study findings, it is recommended that targeted awareness and training programs be introduced across various sectors, particularly in industries such as cosmetics, construction, and software, where AI adoption seems to be lagging. Many businesses are still in the early stages of implementing AI, highlighting the urgent need for skill development initiatives that focus on areas like technical expertise, integration challenges, and regulatory compliance. Institutions and industry bodies can play a crucial role by providing accessible AI upskilling programs and guidelines for ethical

and efficient usage. Moreover, organizations that have successfully integrated AI, such as those in the education and advertising sectors, should be encouraged to share their best practices, fostering a knowledge-sharing ecosystem. Establishing collaborative platforms and incubation environments will help emerging businesses test AI tools in low-risk settings. By creating a supportive infrastructure for learning, collaboration, and experimentation, businesses in Kannur can not only overcome current adoption challenges but also unlock the full potential of AI to enhance customer experience in multi-channel marketing.

DISCUSSION

The findings reveal a growing, albeit uneven, adoption of AI technologies across sectors in Kannur District. While the education and creative industries have fully embraced AI, traditionally advanced sectors like software are lagging slightly. This may be due to internal sub-sector constraints or integration challenges. The average duration of AI use among businesses is around one year, indicating that most firms are still in the exploratory phase rather than using AI in a strategic manner. Despite this, customer satisfaction is significantly high, particularly with AI-powered personalization, which demonstrates the immediate positive impact of AI on enhancing user experience. Nonetheless, challenges such as the need for technical expertise and compliance with privacy regulations remain. Most firms are addressing these challenges through internal upskilling rather than outsourcing, reflecting a long-term commitment to AI integration. Furthermore, there is a significant correlation between firms' intentions to invest in AI and their engagement in future research. This suggests that companies that are interested in scaling their AI adoption are also likely to collaborate on AI innovation and research initiatives.

CONCLUSION

The study concludes that the adoption of AI in multi-channel marketing is actively growing in Kannur. Some sectors are leading the way, while others are falling behind due to gaps in awareness or resources. Although many businesses are still in the early stages of adopting AI, the high levels of customer satisfaction indicate its immediate value in personalization. The primary barrier to adoption remains a lack of technical expertise, but firms are addressing this through ongoing learning and skill development. Notably, companies that plan to invest further in AI are more likely to engage in future innovation and research, reflecting a forward-looking and digitally mature business mindset. For AI to fully enhance customer experience in this region, collaborative efforts involving training, infrastructure improvements, and policy support are essential.

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