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Impact of Artificial Intelligence-Driven Marketing on Enhancement of Brand Loyalty: An Empirical Study of the FMCG Sector

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Abstract: - Over time, AI has transformed marketing, offering customers personalized experiences and support, assisting decision-making processes, and contributing to overall customer loyalty. The benefits of AI capabilities such as recommendation systems, predictive modelling, chatbots and customer engagement platforms are already reshaping consumer behaviour and deepening connections for fast moving consumer goods (FMCG) companies. AI-powered tools like recommender systems, forecasting models, and chatbots and engagement platforms are becoming more common among companies in the FMCG sector to shape consumer behavior and improve loyalty. While the relevance and adoption of AI in marketing have increased, there are limited studies that investigate how AI-driven marketing influences customer behavior and brand loyalty within the realm of customers of FMCG products particularly in emerging markets like India. Five dimensions of AI in marketing predicted to impact FMCG consumers' brand loyalty are explored: AI personalization, AI customer engagement, AI customer service, Predictive analytics and AI recommendations. A quantitative design was used and primary data was gathered using 200 FMCG consumers in Bengaluru using a structured questionnaire on a 5 point Likert scale. The respondents were selected by purposive and convenience sampling technique because of their experience in using advertising campaigns based on artificial intelligence. The data were analysed descriptively using SPSS 29 software, reliability test, Pearson correlation and simple and multiple regression. The five dimensions of AI were all positively correlated with the brand loyalty, and were able to explain between 46.1% and 56.6% of the variance in brand loyalty when examined individually, and 64.8% of the variance ($R^2 = 0.648$) when examined together. All the individual predictors were significant except for customer service chat bots using AI and predictive analytics. The findings supplement those of previous studies on AI in marketing and provide actionable recommendations for how FMCG businesses can leverage AI to create customer-centric marketing strategies and stay competitive in the future.AI is transforming FMCG marketing, and the insights derived from AI driven marketing will be crucial in shaping customer behaviour, brand loyalty and consumer experience.

1. INTRODUCTION

Artificial Intelligence (AI) has become one of the most prominent technologies revolutionising the marketing landscape. AI enables the analysis of vast amounts of customer information, driving personalization, predictive customer analytics, customer service chatbots and recommendation systems to enhance the customer experience (Davenport et al., 2020; Huang & Rust, 2021a). The

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fast-moving consumer goods (FMCG) sector experiences low involvement purchases, changing consumer preferences and high level of competition. In such a setting, AI-powered marketing allows companies to better grasp customers' needs, provide tailored advertising and offers, build a smooth omnichannel experience and shape the purchasing decisions. The practices are expected to impact customer behaviour in a positive way and will enhance the brand loyalty of the customers. Yet despite the growing use of AI in the FMCG industry, little research explains how AI-based marketing affects consumer behaviour and brand loyalty, particularly in India. This paper is a step forward to fill the void, and it explores how AI marketing impacts the brand loyalty of FMCG customers in the Indian context of Bengaluru. This paper offers a value-added study to researchers and marketers, by exploring the impact of AI marketing on the brand loyalty of FMCG customers in the Indian context (Bengaluru).

2. REVIEW OF LITERATURE

The classic FMCG loyalty story begins with some product images – a man, a wall of 20 of the same products; or a woman, a wall of 50 – and a decision. This overview explores the entry of AI into that space, how it impacts customers, and where it doesn't. It's told in five chapters: The arrival of AI in marketing, its homecoming in personalisation, its first steps into customer conversations, how experience creates loyalty and the conflicts that lie in the story.

2.2 The applications of AI in marketing are explored. The use of AI in marketing is examined.

The story begins before the age of today's crop of chatbots. Rust and Huang (2014) claimed that the economies and the move towards services, and the wealth of customer data, were changing the way marketing was marketed, and the science of marketing was changing, too. When information was abundant the concern was whether or not companies could see their customers, rather than whether or not they could interpret what they saw. To this end, Davenport et al. (2020) explained how AI is expected to influence the future of marketing – both in terms of strategies that companies will employ and the ways that customers will interact with brands. Huang and Rust (2021a) then provided a strategic roadmap that spans AI in the marketing research, strategy and action functions, and in which the intelligence applied can be mechanical, thinking or feeling.

Ever since, the reviewers have had the opportunity to follow the development of the field. Verma et al. (2021) conducted a review of 1,580 papers between 1982 and 2020 for a mapping of the themes and structure of the field of AI in marketing, while Chintalapati and Pandey (2022) performed a systematic literature review to outline the existing literature and identify gaps. Dwivedi et al (2021) and Krishen et al (2021) placed AI in the broader context of digital, social and interactive marketing, emphasising that AI is not an add-on but a part of marketing communication. Chapter 1 of the story is one of arrival – AI is at the centre of marketing practice.

2.2 Learning to personalize

The next chapters are about the individual customer; if the first chapters were about possibility. According to Kumar et al (2019), AI enables marketers to create, craft and present products to particular customers, narrowing down a multitude of choices to the relevant one for each. This principle has been applied by Guha et al. (2021) to retail, demonstrating the impact of AI on the relationship between stores, platforms and shoppers. The FMCG (frequent low involvement) setting is a natural setting where such ideas can be aimed at and Wagh and Ramesh (2024) studied just that. They explained hyper-personalization as the use of AI, machine learning, real-time data and behavioural data in marketing. They gave the main fields in which AI is impacting FMCG marketing:

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personalised product recommendations, chatbots and virtual assistants, customer support, customer need anticipation and customer loyalty programs.

The most obvious aspect of this personalisation is the recommendation engine, and there's a whole job field dedicated to questioning the effect of the recommendation engine on customers. Aimed at enhancing the statistical modelling of preferences in hybrid recommender systems, Ansari et al. (2018) proposed a new approach, which fuses product and user information to predict their preferences. Adomavicius et al. (2018) discovered that not only does the recommender direct consumers, but also affects their willingness to pay. Lee and Hosanagar (2019) analyzed the impact of recommender systems on the diversity of products in the purchases made by consumers, through a randomized field experiment, and found that this effect varies by product category. Combined, these studies indicate that recommendations and predictions are not neutral conveniences—they impact what customers buy and so what they end up liking.

2.4 Learning to communicate with customers

The one side of the dialogue is the personalization; the other side is the dialogue. With the aid of AI, companies are shifting their focus of service engagement from mechanical and analytical to intuitive and empathetic (Huang & Rust, 2021b). The picture isn't so black and white for the evidence on chatbots, however. Luo et al. (2019) conducted a field trial where they compared the performance of an anonymous chatbot against a "proficient human sales worker" and found that revealing the bot took a significant impact on reducing purchases. Pizzi et al. (2021) went on to explain that the reactance observed in the case of humanless digital assistants that were activated by the computer, was greater than for those activated by the consumer. Assumptions about the quality of the interaction enabled by AI is not valid, i.e., a good interaction is not guaranteed.

Such encounters are evaluated based on customer experience. Lemon and Verhoef (2016) explained customer experience as a journey or process that starts before customers purchase the product and continues after purchase, whereas Hollebeek et al. (2014) categorised consumer brand engagement on social media into cognitive, emotional and behavioural. Research into AI specific experience was then done.Post that, research on AI specific experience was undertaken. According to Ameen et al. (2021), a beauty brand that provided AI-based service had 434 customers who were surveyed, and they suggested that trust and perceived sacrifice were mediators between the convenience, personalization and AI-based service quality dimensions and customer experience. Wang et al. (2024) created and tested a scale that captures customer experience of AI products, and Moore et al. (2022) reminded us that customer experiences also shape their shopping experiences within their wider social context. The customer at this point is not an advertising marketing target anymore, but of a conversation with the brand from here on, and depending on data for that conversation.

2.4 From experience to loyalty.

Experience, however, is not loyalty; and once the story gets into the loyalty zone, it's a marketing story. According to Oliver (1999), consumer loyalty is characterised as an intense desire to rebuy or continue patronising a product in the future despite situational influences and/or marketing activities that could induce switching. Chaudhuri and Holbrook (2001) proved that loyalty, both purchase and attitudinal, is a result of brand trust and brand affect, and that both purchase and attitudinal loyalty lead to brand performance. This chain is connected with the relationship management wherein Wali et al. (2015) reported brand commitment and brand loyalty as a result of customer relationship management and Nyadzayo and Khajehzadeh (2016) found that the quality of customer relationship management is a determinant of customer loyalty. Singh and Saini (2016) conducted a survey of 600

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consumers of health, retail and wellness services and discovered that commitment was the only one of the three (satisfaction, trust and commitment) that leads to true loyalty in the Indian context. Together these research studies convey the message to marketers that loyalty is not necessarily achieved by convenience, but rather by trust and affect / commitment.

It is only recently that researchers have started to link the AI thread onto the loyalty thread. The study by Long et al. (2024) focused on the FMCG category and involved 416 consumers in Vietnam, with the aim of examining the relationship between social media marketing and a customer's sense of attachment to a brand, the influence of customer engagement on their loyalty to the brand, and the role of an AI experience in enhancing brand loyalty. While their work is the most similar to the present study, it considers AI as a moderator of social media engagement, not looking at specific AI marketing tools, and took place in a different market.

2.5 The shadow of the story:

There are always conflicts in any tale about AI in marketing. Personalization relies on personal data, and Kim and Kim (2018) studied what factors would influence consumers' willingness to give their personal data to get personalized recommendations. Regulatory perspective, the tension is similar with Taylor (2019) referring to AI, personalisation, privacy and GDPR. However, algorithms employed in marketing can also be biased (as Akter et al. 2022 warned) and consumers are less likely to accept algorithms for subjective tasks (as Castelo et al. 2019 found). Puntoni et al. (2021) highlighted the above-mentioned paradox by identifying four consumer experiences of AI, each with its own combination of benefit and unease, including data capture, classification, delegation and social interaction. Any actions that appear to be paying attention can also, when overdone, appear to intrude on a brand's image for brand loyalty purposes.

3. RESEARCH GAP

When read as a whole, the story's missing chapter is. Though there is a significant amount of work done on AI in marketing, research on brand loyalty is more advanced, and few studies have considered the intersection of the two, and even fewer studies have focused on the Indian FMCG context. In particular: AI in marketing has been a hot topic of study, but there is limited research focusing on the consumer behaviour in the FMCG industry. There are very few studies that integrate consumer behaviour and brand loyalty; most of the studies are based on purchase intention instead of brand loyalty. There is limited evidence in the industry about the application of AI throughout the FMCG value chain, and only a few studies, such as those by Wagh and Ramesh (2024) and Long et al. (2024), have been conducted. Hardly any studies have looked at how the different AI tools used in FMCG, namely personalization, engagement, customer service, predictive analytics and recommendation systems, foster brand loyalty and retention among Indian FMCG customers. To fill the gap, this study aims to test the impact of each of the five AI dimensions on brand loyalty among FMCG consumers in Bengaluru.

4. STATEMENT OF THE PROBLEM

The use of AI is on the rise, and it is making a significant impact on the marketing strategies of FMCG companies.AI is becoming more popular, and it’s changing the way FMCG businesses approach marketing. Despite this, not much is known in the empirical sense about the impact of AI marketing tools on consumer behaviour and loyalty in this sector. The paucity of such evidence limits

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marketers' ability to create successful AI-based marketing strategies. Hence, the study aims to examine the impact of AI-driven marketing on the customer behaviour and brand loyalty of fast-moving consumer goods (FMCG) consumers.

5. RESEARCH OBJECTIVES

To examine the effect of AI personalisation on brand loyalty in the FMCG industry. To evaluate how AI-powered customer interactions influence customer loyalty in the FMCG sector. To explore how AI-driven customer service affects customer loyalty in the FMCG sector. To gauge how predictive analytics influences brand loyalty in FMCG. To analyse how AI-based recommendation systems affect brand loyalty in the FMCG sector.

6. CONCEPTUAL FRAMEWORK.

This paper seeks to conceptualize how AI marketing relates to brand loyalty in the FMCG industry. AI-driven marketing comprises five aspects – AI based personalization, AI product recommendations, chatbots and virtual assistants for customer service, predictive analysis and AI customer engagement. AI-driven marketing improves the customer experience through tailored content, well-timed recommendations and fast service. Brand loyalty is the dependent variable and is measured by customer preference for a product/service, customer willingness to purchase again, customer word of mouth and customer retention and emotional attachment. The model claims that using AI marketing enhances brand loyalty through greater credibility, customer satisfaction and retention.

7. RESEARCH HYPOTHESES

Table 1: Dimension-wise null and alternative hypotheses

Null Hypothesis	Alternative Hypothesis
• **H_{01}:** there is no discernible correlation between AI-based customisation and brand loyalty.	• **H_1:** AI-based customisation has a strong beneficial influence on brand loyalty in the FMCG sector.
• **H_{02}:** In the FMCG industry, brand loyalty and AI-driven consumer interaction are not significantly correlated.	• **H_1:** In the FMCG industry, AI-driven customer involvement significantly increases brand loyalty.
• **H_{03}:** In the FMCG industry, brand loyalty and AI-powered customer care are not significantly correlated.	• **H_1:** In the FMCG industry, AI-powered customer service significantly improves brand loyalty.
• **H_{04}:** In the FMCG Industry there is no significant relation between the Predictive Analytics and Brand Loyalty.	• **H_1:** Predictive analytics and brand loyalty have a substantial relationship in the FMCG sector.

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Null Hypothesis	Alternative Hypothesis
• **H_{05}:** In the FMCG Brand loyalty is not much impacted by AI recommendation systems.	• **H1:** AI recommendation systems significantly improve brand loyalty in the FMCG industry.

8. RESEARCH METHODOLOGY

8.1 Research Design

For the purpose of the present study, a quantitative method with primary data collected by using a structured survey has been used. It explores the relationship between five independent variables (AI-driven aspects of marketing) and a dependent variable (brand loyalty) in customers of FMCG.

8.2 Population, Sample and Sampling

The respondents are the FMCG consumers who have had experience of AI-based advertising campaigns in Bengaluru. This experience was selected and the respondents were purposively and convenience selected. The last sample size is 200 respondents (Table 2).

8.3 Instrument and Measures

A structured questionnaire with scale of 1-5 was used to gather data. The questionnaire collected the demographic information of the respondents (gender, age, education, occupation, income, shopping preference and shopping frequency), perception of the five dimensions of AI marketing (AI-based personalization, AI customer engagement, AI-powered customer service, predictive analytics, AI recommendation systems) and the brand loyalty of the customers (shopping preference, willingness to buy again, positive word of mouth, retention, emotional attachment).

8.4 Tools of Analysis

The analysis was done in SPSS 29. Descriptive statistics (min, max, mean, s.d., skewness, and kurtosis) are used to summarise the variables, Cronbach's alpha is used to establish the reliability of each variable, Pearson correlation is used to gauge how strong the association is between each AI dimension and brand loyalty, while simple linear regression is used to test each of the 5 hypotheses, and multiple regression is used to assess the combined effect of the 5 dimensions. The alpha level of significance used for all the hypotheses was 5% ($\alpha = 0.05$).

8.5 Ethical Considerations

The ethical principles were upheld in this study. The use of questionnaire and participation was voluntary, and the respondents were informed before filling the questionnaire about the purpose of the research and the way it will be carried out. Informed consent was obtained and there were no negative consequences for participation or withdrawal. Confidentiality and anonymity: No personal data

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were collected or given by the participants and the answers were not treated individually but as a whole. The necessary precautions were taken, given that the respondents did not want to be exposed to unnecessary risk or discomfort during the sharing of their experiences with advertising based on AI. Responses were objectively recorded, analysed and reported (no manipulation and misrepresentation), and the statistical results have been reported with appropriate level of significance and interpretation to maintain data integrity. The study also considers ethical issues with AI including data protection of consumers, transparency and responsible use of information.

9. DATA ANALYSIS AND INTERPRETATION

Table 2: Respondent demographic profile

Gender Distribution of Respondents				
Gender Category	**Respondent Count (N)**	**Percentage (%)**	**Valid Percentage (%)**	**Cumulative Percentage (%)**
Women Respondent	73	36.50	36.50%	36.50%
Men Respondent	127	63.50	63.50%	100.0%
Total Respondent	**200**	**100.0**	**100.0%**	
Age Profile of Respondents				
Age Group	**Respondent Count (N)**	**Percentage (%)**	**Valid Percentage (%)**	**Cumulative Percentage (%)**
18 to 25 years	46	23.0	23.0	23.0
26 to 35 years	30	15.0	15.0	38.0
36 to 45 years	42	21.0	21.0	59.0
46-55	33	16.5	16.5	75.5
Above55	49	24.5	24.5	100.0
Sub-Total	200	100.00%	100.0%	
Education Profile of Samples				
Educational Qualification	**Observed Frequency**	**Relative Percentage**	**Valid Response Percentage**	**CF**
Doctorate	46	23.0	23.0	23.0
PG	52	26.0	26.0	49.0
PUC/Diploma	43	21.5	21.5	70.5
UG	59	29.5	29.5	100.0
Overall Total	200	100.00%	100.00%	
Respondents Occupation				
	Respondent Count	**Proportion (%)**	**Valid Proportion (%)**	**CF**
Business	46	23.0	23.0	23.0
Government	29	14.5	14.5	37.5
Homemaker	39	19.5	19.5	57.0
Private	41	20.5	20.5	77.5
Student	45	22.5	22.5	100.0
Grand Total	200	100%	100%	
Level of the Income of the sample respondents				

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	Respondent Count	Proportion (%)	Valid Proportion (%)	CF
10000 to 25,000	78	39.0	39.0	39.0
25,001 to 50,000	40	20.0	20.0	59.0
50,001 to 75,000	47	23.5	23.5	82.5
75,001 to 1,00,000	35	17.5	17.5	100.0
Combined Total	200	100.00%	100.00%	
Respondents Shopping Convenience				
	Observed Frequency	**Relative Percentage**	**Valid Response Percentage**	**CF**
Both	79	39.5	39.5	39.5
Offline	65	32.5	32.5	72.0
Online	56	28.0	28.0	100.0
Total Sample	200	100.00%	100.0%	
Purchase Frequency of the Samples				
	Respondent Count	**Proportion (%)**	**Valid Proportion (%)**	**CF**
Monthly	62	31.00%	31%	31.00%
Seasonally	70	35.00%	35%	66.0%
Weekly	68	34.00%	34%	100.0%
Aggregate Total	200	100.0%	100.0%	

Source: SPSS analysis of primary data.

Interpretation: Demographic profile revealed that the sample consisted mainly of males (63.5%). The largest age group is above 55 years (24.5%), followed by 18 to 25 years (23.0%). The biggest educational group is undergraduates (29.5%) and the biggest occupational group is business (23.0%). The largest income group earns ₹10,000 to ₹25,000 per month (39.0%). The most common shopping patterns are both on-line and off-line (39.5%), and even though seasonal (35.0%), weekly (34.0%) and monthly (31.0%) purchases are almost equal, the second most common shopping method is seasonal.

Table 3: Descriptive statistics of the study variables

Variables	Low	Maxi	Mean	Std. D	Skewness	Kurtosis
	Value	Value	Score	Statistic	Value	Value
AI_Based_Personalization	1.80	5.00	3.6220	0.63871	-0.209	-0.196
AI_Customer_Engagement	1.80	5.00	3.6620	0.63226	-0.184	-0.094
AI_Powered_CustomerService	1.40	5.00	3.6550	0.64065	-0.338	0.272
Predictive_Analytics	2.00	5.00	3.6920	0.62666	-0.260	-0.475
AI_Recommendation	1.40	5.00	3.6490	0.63261	-0.250	0.130

Source: SPSS analysis of primary data.

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Interpretation: All five AI dimensions have mean values between 3.62 and 3.69 on a five-point scale, indicating a high degree of agreement among respondents. The highest mean scores are for Predictive Analytics (3.6920), AI Customer Engagement (3.6620), AI-Powered Customer Service (3.6550), AI Recommendation (3.6490) and AI Based Personalization (3.6220). The standard deviations are close together, 0.62666 to 0.64065, indicating that there is little variation in responses. The skewness (−0.338 to −0.184) and the kurtosis (−0.475 to 0.272) in all samples are within the normal range of ±1, meaning the distributions are approximately normal and hence appropriate for parametric testing.

Table 4: Reliability test results (Cronbach's alpha)

Total Item explained	Aggregate value of Cronbach's Alpha
5	0.935

Source: SPSS analysis of primary data.

Interpretation: Cronbach's alpha for the five items is 0.935, which is very good internal consistency of the measurement scale. Since alpha is in the range of more than 0.70, which is the recommended level, the scale can be used with confidence for further statistical analysis.

Table 5: Pearson correlation of AI dimensions with brand loyalty

AI dimension (with Brand Loyalty)	Pearson r	R^2	Sig. (p)
AI-Based Personalization	0.685	0.470	< 0.001
AI Customer Engagement	0.679	0.461	< 0.001
AI-Powered Customer Service	0.736	0.541	< 0.001
Predictive Analytics	0.753	0.566	< 0.001
AI Recommendation	0.689	0.474	< 0.001

Source: SPSS analysis of primary data. Pearson r equals the multiple R of the corresponding simple regression.

Interpretation: The brand loyalty was all positively and highly correlated with all the AI dimensions ($r = 0.679$ to 0.753, $p < 0.001$). The number of relationships found is strongest with Predictive Analytics ($r = 0.753$), followed by AI-Powered Customer Service ($r = 0.736$), AI Recommendation ($r = 0.689$), AI Based Personalization ($r = 0.685$) and AI Customer Engagement ($r = 0.679$). The statistics for simple regression are identical to the model summaries shown below except that the multiple R is equal to the absolute value of Pearson's r.

Hypothesis 1: Examining how AI-based personalization influences brand loyalty

Table 6: Model fit statistics for AI-based personalization and brand loyalty

Regression Model Summary									
					Change Statistics				
Analytical Model	Multiple R	R^2	Adjusted R^2	SEE	ΔR^2	F Change	df1	df2	p-value

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1	.685[a]	0.470	0.467	0.54552	0.470	175.355	1	198	0.000
a. Predictors: (Constant), AI_Based_Personalization									

The model summary reveals a positive association between AI-based personalization and brand loyalty (R = 0.685). An R^2 of 0.470 means that AI-based personalization accounts for 47.0% of the variation in brand loyalty, while an adjusted R^2 of 0.467 confirms satisfactory explanatory power after adjustment.

Table 7: ANOVA results: AI-based personalization versus brand loyalty

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.184	1	52.184	175.355	.000[b]
	Residual	58.923	198	0.298		
	Total	111.108	199			
a. Dependent Variable: Brand_Loyalty						
b. Predictors: (Constant), AI_Based_Personalization						

The ANOVA output indicates that the regression model is statistically significant, with $F(1, 198) = 175.355$ and $p < 0.001$; AI-based personalization is therefore a significant predictor of brand loyalty. Since the p-value is below 0.05, H_{01} is rejected and H_{11} is accepted.

Hypothesis 2: Examining how AI-driven customer engagement influences brand loyalty

Table 8: Model fit statistics for AI-driven customer engagement and brand loyalty

Regression Model Summary									
					Change Statistics				
Analytical Model	Multiple R	R^2	Adjusted R^2	SEE	ΔR^2	F Change	df1	df2	P value
1	.679[a]	0.461	0.459	0.54980	0.461	169.563	1	198	0.000
a. Predictors: (Constant), AI_Customer_Engagement									

The model summary reveals a positive association between AI-driven customer engagement and brand loyalty (R = 0.679). An R^2 of 0.461 means that AI customer engagement accounts for 46.1% of the variation in brand loyalty, while an adjusted R^2 of 0.459 shows a good fit.

Table 9: ANOVA results: AI-driven customer engagement versus brand loyalty

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.256	1	51.256	169.563	.000[b]
	Residual	59.852	198	0.302		
	Total	111.108	199			

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a. Dependent Variable: Brand_Loyalty
b. Predictors: (Constant), AI_Customer_Engagement

The regression model is statistically significant ($F(1, (198)) = 169.563$, $p< 0.001$), which indicates that AI customer engagement is a significant predictor of brand loyalty. The regression sum of squares is 51.256, while the residual is 59.852, many of the variations are not accounted for by this one factor. As the p-value is less than 0.05, we reject H_{02} and accept H_{12}.

Hypothesis 3: Examining how AI-powered customer service influences brand loyalty

Table 10: Model fit statistics for AI-powered customer service and brand loyalty

Regression Model Summary									
Analytical Model	Multiple R	R^2	Adjusted R^2	SEE	Change Statistics				
					ΔR^2	F Change	df1	df2	P value
1	.736[a]	0.541	0.539	0.50748	0.541	233.424	1	198	0.000
a. Predictors: (Constant), **AI_Powered_CustomerService**									

The model summary shows that there is a positive relationship between AI-powered customer service and brand loyalty (with $R = 0.736$). The R^2 value is 0.541, which indicates that 54.1% of the variation in brand loyalty can be explained by AI-powered customer service, and the adjusted R^2 value confirms the explanatory power of AI-powered customer service.

Table 11: ANOVA results: AI-powered customer service versus brand loyalty

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60.115	1	60.115	233.424	.000[b]
	Residual	50.992	198	0.258		
	Total	111.108	199			
a. DV: Brand Loyalty						
b. Predictors: (Constant), **AI_Powered_CustomerService**						

The regression model proves statistically significant, with $F(1, 198) = 233.424$ and $p < 0.001$. The sum of squares attributable to the regression is 60.115, whereas the residual stands at 50.992, so AI-powered customer service is a reliable predictor of brand loyalty. Since the p-value is below 0.05, H_{03} is rejected and H_{13} is accepted.

Hypothesis 4: Examining how predictive analytics influences brand loyalty

Table 12: Model fit statistics for predictive analytics and brand loyalty

Model Summary									
Analytical Model	Multiple R	R^2	Adjusted R^2	SEE	Change Statistics				
					ΔR^2	F Change	df1	df2	Sig. F Change
1	.753[a]	0.566	0.564	0.49325	0.566	258.679	1	198	0.000

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a. Predictors: (Constant), Predictive_Analytics

The model summary reveals a substantial positive association between predictive analytics and brand loyalty (R = 0.753). An R^2 of 0.566 means that predictive analytics accounts for 56.6% of the variation in brand loyalty, while an adjusted R^2 of 0.564 confirms consistent explanatory power. This is the highest explanatory power among the five dimensions.

Table 13: ANOVA results: predictive analytics versus brand loyalty

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	62.935	1	62.935	258.679	.000[b]
	Residual	48.172	198	0.243		
	Total	111.108	199			
a. Dependent Variable: Brand_Loyalty						
b. Predictors: (Constant), Predictive_Analytics						

The regression model proves statistically significant, with $F(1, 198) = 258.679$ and $p < 0.001$. The sum of squares attributable to the regression is 62.935, whereas the residual stands at 48.172. Since the p-value is below 0.05, H_{04} is rejected and H_{14} is accepted.

Hypothesis 5: Examining how AI recommendation systems influences brand loyalty

Table 14: Model fit statistics for AI recommendation systems and brand loyalty

Model Summary									
					Change Statistics				
Analytical Model	Multiple R	R^2	Adjusted R^2	SEE	ΔR^2	F Change	df1	df2	Sig. F Change
1	.689[a]	0.474	0.472	0.54309	0.474	178.701	1	198	0.000
a. Predictors: (Constant), AI_Recommendation									

The model summary reveals a significant positive association between AI recommendation systems and brand loyalty (R = 0.689). An R^2 of 0.474 means that AI recommendation systems accounts for 47.4% of the variation in brand loyalty, while an adjusted R^2 of 0.472 confirms consistent explanatory power.

Table 15: ANOVA results: AI recommendation systems versus brand loyalty

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.708	1	52.708	178.701	.000[b]
	Residual	58.400	198	0.295		
	Total	111.108	199			
a. Dependent Variable: Brand_Loyalty						
b. Predictors: (Constant), AI_Recommendation						

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The regression model proves statistically significant, with $F(1, 198) = 178.701$ and $p < 0.001$. The sum of squares attributable to the regression is 52.708, whereas the residual stands at 58.400, so AI recommendation systems are a significant predictor of brand loyalty. Since the p-value is below 0.05, H_{05} is rejected and H_{15} is accepted.

Table 16: Summary of hypothesis testing and decisions

Hypothesis	Null Hypothesis	Alternative Hypothesis	Significance Value (p)	Decision at 5% Level	Conclusion
H_{01} / H_{11}	No significant association exists between AI-based personalization and brand loyalty within the FMCG sector.	AI-based personalization has a statistically significant positive effect on brand loyalty within the FMCG sector.	**< 0.001**	**Reject H_{01}**	**H_{11} accepted**
H_{02} / H_{12}	No significant association exists between AI-driven customer engagement and brand loyalty within the FMCG sector.	AI-driven customer engagement has a statistically significant positive effect on brand loyalty within the FMCG sector.	**< 0.001**	**Reject H_{02}**	**H_{12} accepted**
H_{03} / H_{13}	No significant association exists between AI-powered customer service and brand loyalty within the FMCG sector.	AI-powered customer service has a statistically significant positive effect on brand loyalty within the FMCG sector.	**< 0.001**	**Reject H_{03}**	**H_{13} accepted**
H_{04} / H_{14}	No significant association exists between predictive analytics and brand loyalty within the FMCG sector.	Predictive analytics has a statistically significant positive effect on brand loyalty within the FMCG sector.	**< 0.001**	**Reject H_{04}**	**H_{14} accepted**
H_{05} / H_{15}	No significant association exists between AI recommendation	AI recommendation systems have a statistically significant positive	**< 0.001**	**Reject H_{05}**	**H_{15} accepted**

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	systems and brand loyalty within the FMCG sector.	effect on brand loyalty within the FMCG sector.			

Overall Interpretation: At the 5% level of significance ($\alpha = 0.05$), all five hypotheses have significance values of $p < 0.001$, which are lower than 0.05. Hence, there is rejection of the null hypotheses H_{01} – H_{05}. The results do support the related alternative hypotheses H_{11}–H_{15} which indicate that each dimension of AI in marketing is significantly and positively related to brand loyalty. (SPSS reports 0.000, which is written here as $p < 0.001$.)

The combination of all 5 AI dimensions (multiple regression)

The model of multiple regression based on the five dimensions is statistically significant, $F(5, 194) = 71.527$, $p < 0.001$, accounting for 64.8% of the variance in brand loyalty ($R^2 = 0.648$). However, among individual predictors, predictive analytics and AI customer service are significant ($\beta = 0.292$; $p < 0.001$ and $\beta = 0.339$; $p < 0.001$, respectively), whereas the rest of the predictors discussed above (AI personalization, AI customer engagement and AI recommendation systems) appear to be insignificant in the combined model.

10. DISCUSSION

The results are consistent. The result is consistent with the literature that indicates that AI marketing can increase customer loyalty and repurchase intentions (Huang & Rust, 2021a; Kumar et al., 2019; Davenport et al., 2020), where all five components of AI marketing are positively and significantly related to brand loyalty. All the five dimensions were rated moderately high (3.62 to 3.69) indicating that AI based marketing is there and playing a significant role for the Consumers of FMCG in Bengaluru.

Not all of the sizes were the same. Both predictive analytics ($R^2 = 0.566$) and AI-driven customer service ($R^2 = 0.541$) were the biggest individual contributors towards brand loyalty, while AI recommendation systems ($R^2 = 0.474$), AI-based personalization ($R^2 = 0.470$), and AI customer engagement ($R^2 = 0.461$) were not far behind. These two dimensions were the only ones to be significant in the overall model. This is in line with the findings of Wagh and Ramesh (2024) who identified some of the major areas of AI in FMCG marketing as predictive help for future needs and improved customer support, and the fact that the quality of interactions with AI influences customer experience and trust (Ameen et al., 2021; Luo et al., 2019; Pizzi et al., 2021). Needs anticipation and resolution – as well as speed of problem solving – seem to be the most important factors in FMCG products, which are purchased repeatedly.

The results of all three dimensions being not significant while each one is significant suggest that there is overlap between these three as well as overlap between these three and other dimensions that are also important to customer loyalty, e.g., predictive commitment (Chaudhuri & Holbrook, 2001; Long et al., 2024; Singh & Saini, 2016). This explanation needs to be further verified, such as by using collinearity diagnostics or structural equation modelling.

11. MANAGERIAL IMPLICATIONS

- Prioritize predictive analytics. Predictive Analytics came out on top in predicting brand loyalty. Purchase-history and behavioural data can predict the replenishment requirement and time offers and communication for FMCG businesses.analytics and

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customer service. This is possible, as the size is conceptually relevant, delivered via the same platforms and is expected to be delivered during the same experiences, and because engagement and experience lead to brand loyalty through trust and

- Make an investment in AI-powered Customer support. The second big predictor was chatbots and virtual assistants that can assist customers with prompt and correct answer to their queries. They should be well crafted by the firm, as the literature shows that how they are introduced of AI interaction can have an impact on customer responses (Luo et al., 2019; Pizzi et al., 2021).

Seamlessly incorporate AI tools, not as standalone solutions. Individual use of personalization, engagement and recommendation tools were significantly correlated with loyalty but must be combined with predictive analytics and customer service as a customer-centric approach.

- Use data responsibly. Transparency and responsible data usage are fundamental to gaining trust when using personalisation which relies on customer data (Kim & Kim, 2018; Taylor, 2019).

12. RESTRICTIONS AND FURTHER STUDIES

The study is limited in some respects that are identified and suggestions are given for future study. The respondents of 200 were chosen from one city (Bengaluru) by purposive sampling and convenience sampling, thus the results obtained cannot be generalized to all the FMCG consumers in India. Data is self-reported and collected at a single time and is used to suggest statistical relationships only, and not causation. Larger and probability-based samples in multiple cities, mediators and moderators like trust, satisfaction, privacy concern and brand attachment, use of structural equation modelling, and a combination of survey data and behavioural data of real repeat purchases could be used for future studies.

13. CONCLUSION

The study was an exploratory study that aimed to gain insights into the impact of Artificial Intelligence on the FMCG brand loyalty of consumers in Bengaluru. These findings demonstrate the positive relationship between AI-based marketing and brand loyalty, as all five of the dimensions (AI-based personalization, AI customer engagement, AI-powered customer service, predictive analytics and AI recommendation systems) have a significant positive impact, as highlighted by the regression analysis with $p < 0.001$ in all of them. In all of the individual models, the size accounted for between 46.1% and 56.6% of the variance in brand loyalty.

The multiple regression showed that the five dimensions accounted for 64.8% of the variance of brand loyalty ($F = 71.527$, $R2 = 0.648$, $p < 0.001$). The dimension of predictive analytics and AI customer service is the most important single predictor, and AI personalization, AI customer engagement and AI recommendation system don't make the grade when looked at individually in isolation. Overall, the results suggest that AI-powered marketing is now a critical component of contemporary FMCG marketing strategies, with customer service and prediction proving to be the most impactful areas in which AI can help enhance brand loyalty.

REFERENCES

[1] Adomavicius, G., Bockstedt, J. C., Curley, S. P., & Zhang, J. (2018). Effects of online recommendations on consumers' willingness to pay. *Information Systems Research, 29*(1), 84–102. https://doi.org/10.1287/isre.2017.0703
[2] Akter, S., Dwivedi, Y. K., Sajib, S., Biswas, K., Bandara, R. J., & Michael, K. (2022). Algorithmic bias in machine learning-based marketing models. *Journal of Business Research, 144*, 201–216. https://doi.org/10.1016/j.jbusres.2022.01.083
[3] Ameen, N., Tarhini, A., Reppel, A., & Anand, A. (2021). Customer experiences in the age of artificial intelligence. *Computers in Human Behavior, 114*, 106548. https://doi.org/10.1016/j.chb.2020.106548
[4] Ansari, A., Li, Y., & Zhang, J. Z. (2018). Probabilistic topic model for hybrid recommender systems: A stochastic variational Bayesian approach. *Marketing Science, 37*(6), 987–1008. https://doi.org/10.1287/mksc.2018.1113
[5] Castelo, N., Bos, M. W., & Lehmann, D. R. (2019). Task-dependent algorithm aversion. *Journal of Marketing Research, 56*(5), 809–825. https://doi.org/10.1177/0022243719851788

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ISSN: 2278-0181
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[6] Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing, 65*(2), 81–93.

[7] Chintalapati, S., & Pandey, S. K. (2022). Artificial intelligence in marketing: A systematic literature review. *International Journal of Market Research, 64*(1), 38–68. https://doi.org/10.1177/14707853211018428

[8] Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science, 48*(1), 24–42. https://doi.org/10.1007/s11747-019-00696-0

[9] Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management, 59*, 102168. https://doi.org/10.1016/j.ijinfomgt.2020.102168

[10] Guha, A., Grewal, D., Kopalle, P. K., Haenlein, M., Schneider, M. J., Jung, H., Moustafa, R., Hegde, D. R., & Hawkins, G. (2021). How artificial intelligence will affect the future of retailing. *Journal of Retailing, 97*(1), 28–41. https://doi.org/10.1016/j.jretai.2021.01.005

[11] Hollebeek, L. D., Glynn, M. S., & Brodie, R. J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of Interactive Marketing, 28*(2), 149–165. https://doi.org/10.1016/j.intmar.2013.12.002

[12] Huang, M.-H., & Rust, R. T. (2021a). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science, 49*(1), 30–50. https://doi.org/10.1007/s11747-020-00749-9

[13] Huang, M.-H., & Rust, R. T. (2021b). Engaged to a robot? The role of AI in service. *Journal of Service Research, 24*(1), 30–41. https://doi.org/10.1177/1094670520902266

[14] Kim, M. S., & Kim, S. (2018). Factors influencing willingness to provide personal information for personalized recommendations. *Computers in Human Behavior, 88*, 143–152. https://doi.org/10.1016/j.chb.2018.06.031

[15] Krishen, A. S., Dwivedi, Y. K., Bindu, N., & Kumar, K. S. (2021). A broad overview of interactive digital marketing: A bibliometric network analysis. *Journal of Business Research, 131*, 183–195. https://doi.org/10.1016/j.jbusres.2021.03.061

[16] Kumar, V., Rajan, B., Venkatesan, R., & Lecinski, J. (2019). Understanding the role of artificial intelligence in personalized engagement marketing. *California Management Review, 61*(4), 135–155. https://doi.org/10.1177/0008125619859317

[17] Lee, D., & Hosanagar, K. (2019). How do recommender systems affect sales diversity? A cross-category investigation via randomized field experiment. *Information Systems Research, 30*(1), 239–259. https://doi.org/10.1287/isre.2018.0800

[18] Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing, 80*(6), 69–96.

[19] Long, H. C., Quan, P. N. A., Tra, N. H. X., Pham, T.-D., Linh, N. T., & Doan, N. H. K. (2024). Factors affecting customer engagement and brand loyalty in Vietnam FMCG: The moderation of artificial intelligence. *Cogent Business & Management, 11*(1), 2428778. https://doi.org/10.1080/23311975.2024.2428778

[20] Luo, X., Tong, S., Fang, Z., & Qu, Z. (2019). Frontiers: Machines vs. humans: The impact of artificial intelligence chatbot disclosure on customer purchases. *Marketing Science, 38*(6), 937–947. https://doi.org/10.1287/mksc.2019.1192

[21] Moore, S., Bulmer, S., & Elms, J. (2022). The social significance of AI in retail on customer experience and shopping practices. *Journal of Retailing and Consumer Services, 64*, 102755. https://doi.org/10.1016/j.jretconser.2021.102755

[22] Nyadzayo, M. W., & Khajehzadeh, S. (2016). The antecedents of customer loyalty: A moderated mediation model of customer relationship management quality and brand image. *Journal of Retailing and Consumer Services, 30*, 262–270. https://doi.org/10.1016/j.jretconser.2016.02.002

[23] Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing, 63*(Special Issue), 33–44.

[24] Pizzi, G., Scarpi, D., & Pantano, E. (2021). Artificial intelligence and the new forms of interaction: Who has the control when interacting with a chatbot? *Journal of Business Research, 129*, 878–890. https://doi.org/10.1016/j.jbusres.2020.11.006

[25] Puntoni, S., Reczek, R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An experiential perspective. *Journal of Marketing, 85*(1), 131–151. https://doi.org/10.1177/0022242920953847

[26] Rust, R. T., & Huang, M.-H. (2014). The service revolution and the transformation of marketing science. *Marketing Science, 33*(2), 206–221. https://doi.org/10.1287/mksc.2013.0836

[27] Singh, J., & Saini, S. (2016). Managing consumer loyalty through acquisition, retention and experience efforts: An empirical study on service consumers in India. *Vision, 20*(2), 121–134. https://doi.org/10.1177/0972262916637264

[28] Taylor, C. R. (2019). Editorial: Artificial intelligence, customized communications, privacy, and the General Data Protection Regulation (GDPR). *International Journal of Advertising, 38*(5), 649–650. https://doi.org/10.1080/02650487.2019.1618032

[29] Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. *International Journal of Information Management Data Insights, 1*(1), 100002. https://doi.org/10.1016/j.jjimei.2020.100002

[30] Wagh, V., & Ramesh, G. (2024). A study on the role of AI in hyper-personalization marketing of FMCG products. *Economic Sciences, 20*(2), 267–278. https://doi.org/10.69889/kpr5pr58

[31] Wali, A. F., Wright, L., & Uduma, I. A. (2015). Customer relationship management for brand commitment and brand loyalty. *British Journal of Marketing Studies, 3*(4), 45–58.

[32] Wang, P., Li, K., Du, Q., & Wang, J. (2024). Customer experience in AI-enabled products: Scale development and validation. *Journal of Retailing and Consumer Services, 76*, 103578. https://doi.org/10.1016/j.jretconser.2023.103578

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