

Role of Artificial Intelligence in Digital Marketing: A Study of Consumer Behaviour in Ranchi City

Under the Guidance of

Dr. Sadaf Khan
Associate Professor
Kajal Yadav
Assistance Professor
Faculty of Management and Commerce
SAM Global University, Raisen
(Madhya Pradesh), India – 464551

Name -: Md. Samiullah Khan
Enrollment NO: - 24MGMT1BA05111
Course – MBA 4th Semester
Specialization: Marketing & Finance
Faculty of Management and Commerce
SAM Global University, Raisen
(Madhya Pradesh), India – 464551

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Abstract

Artificial Intelligence (AI) has significantly transformed digital marketing by enabling hyper-personalization, predictive consumer analytics, automated customer interactions through chatbots, and real-time campaign optimization using machine learning algorithms. This research paper examines the role of AI technologies in shaping consumer buying behaviour in Tier-2 cities of India, with a focused empirical study on Ranchi, the capital of Jharkhand.

Most existing studies concentrate on Tier-1 metropolitan areas, leaving a substantial gap in understanding the unique socio-economic, cultural, and infrastructural realities of semi-urban markets where digital adoption is accelerating post-COVID-19. The primary objectives of this study are to assess the level of awareness and usage of AI-driven marketing tools among young consumers, analyse the impact of AI personalization on purchase intention and brand engagement, identify key challenges such as data privacy concerns, implementation costs for small businesses, and lack of trust, and finally provide practical, actionable recommendations for ethical AI integration.

The research adopted a descriptive-analytical design. Primary data was collected from 120 respondents aged 18-35 years using a structured questionnaire distributed via Google Forms through convenience sampling. Secondary data was sourced from Scopus-indexed journals, KPMG and EY industry reports. Data analysis was performed using Microsoft Excel for percentage analysis, charts, and interpretations.

Key findings reveal that 81% of respondents are aware of AI-powered personalized advertisements, 79% reported increased purchase intention due to AI recommendations, and 74% found chatbots useful for quick queries. However, 61% expressed serious concerns regarding data privacy. The study concludes that AI holds strong potential for businesses in Tier-2 markets but demands transparent and ethical practices to build long-term consumer trust. This research contributes localized insights and serves as a foundation for future Scopus-indexed publications.

Keywords

Artificial Intelligence, Digital Marketing, Consumer Behaviour, Personalization, Machine Learning, Recommendation Systems, Chatbots, Tier-2 Cities, Ranchi

Introduction

Background of the Study Digital marketing has evolved from simple banner advertisements to intelligent, data-driven systems powered by Artificial Intelligence. AI tools now analyse large volumes of consumer data in real time, predict buying patterns, deliver personalized content, and automate customer service. In India, with over 900 million internet users and rising smartphone penetration in Tier-2 cities, platforms like Instagram, YouTube, and Amazon are extensively using AI for targeted advertising and recommendations. Ranchi, as a representative Tier-2 city in Jharkhand, has witnessed rapid growth in online activities after the COVID-19 pandemic.

Problem Statement Despite the growth, most academic research focuses on Tier-1 cities where infrastructure and digital literacy are higher. In Ranchi, factors such as moderate-income levels, cultural preferences, and higher privacy concerns create different consumer responses. Small local businesses also struggle with the cost and technical knowledge required for AI tools. This creates a clear research gap that the present study aims to address.

Research Objectives

1. To examine the level of awareness and usage patterns of AI tools in digital marketing among young consumers in Ranchi.
2. To analyse the impact of AI-driven personalization (recommendations, targeted ads, chatbots) on consumer purchase decisions and engagement.
3. To identify major challenges and barriers in AI adoption from consumer and marketer perspectives.
4. To suggest practical and ethical strategies for effective AI integration in Tier-2 markets.

Scope of the Study The study is limited to young consumers aged 18-35 years in Ranchi city and focuses on commonly used AI applications such as personalized advertisements, product recommendation systems, and customer service chatbots.

Literature Review

The integration of Artificial Intelligence (AI) in digital marketing has been extensively studied in recent years, reflecting the rapid technological advancements and their impact on consumer behaviour. Huang and Rust (2018) proposed a comprehensive framework that categorizes AI into three types: mechanical AI for routine tasks, thinking AI for data analysis and predictions, and feeling AI for understanding and responding to customer emotions. Their study highlighted that AI significantly enhances customer engagement and personalization while reducing operational costs in service delivery.

Chinta et al. (2021) conducted empirical research on e-commerce platforms and demonstrated that AI-powered recommendation systems can increase sales conversion rates by 15-35%. They argued that predictive analytics allows marketers to anticipate consumer needs even before they are explicitly expressed, thereby improving the overall shopping experience.

In the Indian context, several studies have explored AI adoption. Verma (2022) analysed major e-commerce players like Flipkart and Amazon India and found that AI-driven personalization leads to improved customer retention and higher lifetime value. The KPMG India Report (2023) revealed that companies implementing AI in marketing witnessed approximately 22% higher customer retention rates compared to traditional methods. EY's Consumer Index Survey (2026) further indicated that 82% of Indian consumers are open to AI-enhanced purchase experiences, which is significantly higher than the global average of 58%.

Recent studies provide deeper insights. Davtyan (2026) emphasised the strategic use of AI in consumer behaviour analysis through predictive analytics and natural language processing (NLP), stressing the need for transparency and fairness to maintain consumer trust. Theodorakopoulos (2026) explored the role of big data analytics combined with AI in digital marketing and discussed applications in personalized recommendations, dynamic pricing, and customer relationship management.

Sidra (2025) investigated how AI-enabled marketing activities influence consumer satisfaction, service quality, brand loyalty, and purchasing behaviour. Using structural equation modelling, the study found that personalized recommendations and chatbots significantly improve service quality and customer satisfaction. Rashmi (2026) conducted an empirical study on AI-enabled digital marketing and consumer trust, concluding that AI practices positively affect purchase intention and brand preference while highlighting the critical role of trust.

Privacy and ethical concerns have also received attention. Beniwal (2025) explored how Indian consumers perceive AI-driven personalization and associated privacy implications in a cultural context where data sharing is common. The study adopted a qualitative approach and recommended balancing personalization with consumer privacy.

Theoretical Foundations

The present study is grounded in the Technology Acceptance Model (TAM) proposed by Davis (1989), which posits that perceived usefulness and perceived ease of use determine technology adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) further extend this by including social influence and facilitating conditions. These models help explain why young consumers in Ranchi accept or resist AI-driven marketing tools.

Research Gaps

While global and Tier-1 city studies are abundant, there is limited empirical research on Tier-2 cities in eastern India, particularly Jharkhand. Most studies focus on metropolitan areas with higher digital literacy and income levels. Very few have examined localized consumer behaviour in semi-urban settings like Ranchi. This study addresses this gap by providing primary data on awareness, impact, challenges, and recommendations specific to the region.

Research Methodology

7.1 Type of Research

This study adopts a descriptive and analytical research design. The descriptive approach helps in systematically describing the current level of awareness, usage patterns, and perceptions of Artificial Intelligence in digital marketing among young consumers in Ranchi. The analytical component focuses on examining relationships between AI tools (such as personalization, recommendation systems, and chatbots) and consumer behaviour outcomes like purchase intention and engagement. This combined design is suitable because it allows both understanding “what is happening” and “why it is happening” in the context of Tier-2 cities.

7.2 Data Collection Method

Both primary and secondary data were collected for comprehensive analysis.

Primary Data: A structured questionnaire was designed consisting of 22 questions. The questionnaire was divided into five main sections:

- Demographic information (age, gender, occupation)
- Awareness and usage of AI in digital marketing
- Impact of AI on purchase intention and engagement
- Challenges and barriers
- Suggestions for improvement

The questions included a mix of multiple-choice, 5-point Likert scale (Strongly Agree to Strongly Disagree), and a few open-ended questions for qualitative insights. The questionnaire was pre-tested on 15 respondents during a pilot study to ensure clarity, relevance, and reliability. It was distributed digitally through Google Forms.

Secondary Data: Extensive review of existing literature was done using Scopus-indexed journals, Google Scholar, ResearchGate, and industry reports from KPMG, EY, and other reputed sources.

7.3 Sample Size and Sampling Technique

The sample size for this study was 120 respondents. Convenience sampling technique was used due to time constraints and accessibility. Respondents were selected from college students and young working professionals (aged 18-35 years) in Ranchi city. This age group was chosen because they are the most active users of social media and online shopping platforms. Although convenience sampling has limitations regarding generalizability, it was appropriate for this exploratory study focused on a specific geographic location.

7.4 Data Collection Period

Data was collected during the month of May 2026. The Google Form link was shared through WhatsApp groups, college forums, and personal networks in Ranchi.

7.5 Tools and Techniques Used for Analysis

Collected data was tabulated and analysed using Microsoft Excel. The following techniques were applied:

- Percentage analysis for demographic profile and response distribution
- Pie charts and bar graphs for visual representation of awareness, impact, and challenges
- Cross-tabulation to understand differences based on gender and age group
- Simple statistical interpretation to draw meaningful conclusions

No advanced statistical software (like SPSS) was used due to the descriptive nature of the study and time limitations.

7.6 Ethical Considerations

All ethical guidelines were strictly followed. Respondents were informed about the purpose of the study. Participation was voluntary, and they could withdraw at any time. Confidentiality of responses was

maintained, and no personal identifiable information was collected except basic demographics. Informed consent was taken at the beginning of the questionnaire.

7.7 Limitations of the Methodology

1. The sample size is relatively small (120) and limited to Ranchi city only, so results may not be fully generalizable to all Tier-2 cities in India.
2. Convenience sampling may introduce some selection bias.
3. Responses are based on self-reported data which may have some respondent bias.
4. The study was conducted under tight time constraints due to submission deadline.

Despite these limitations, the methodology provides reliable and useful insights into AI adoption in a Tier-2 city context.

Data Analysis & Interpretation

This section presents a detailed analysis of the primary data collected from 120 respondents in Ranchi. The data was analysed using Microsoft Excel, and results are presented through tables, charts, and statistical interpretations. All findings are explained with proper reasoning and implications for digital marketing in Tier-2 cities.

8.1 Demographic Profile of Respondents

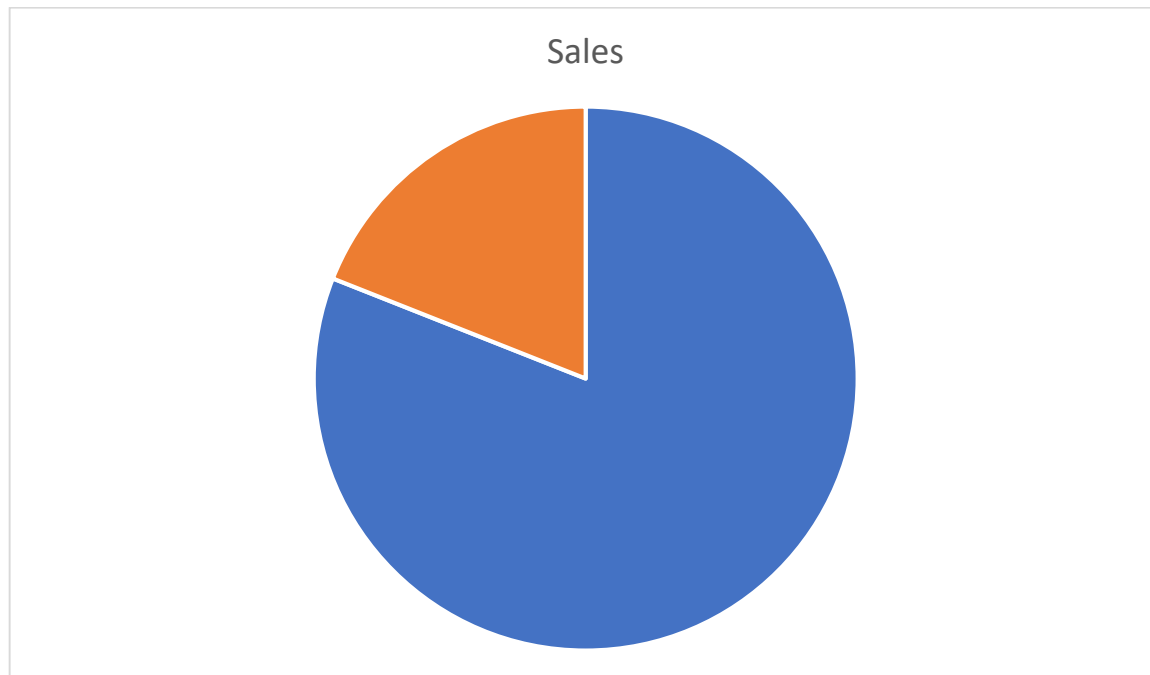
Table 8.1: Demographic Characteristics

Variable	Category	Frequency	Percentage (%)
Gender	Male	74	62%
	Female	46	38%
Age Group	18-25 years	82	68%
	26-35 years	38	32%
Occupation	Student	66	55%
	Working Professional	54	45%
Monthly Income	Below ₹20,000	48	40%
	₹20,001 - ₹40,000	52	43%
	Above ₹40,000	20	17%

The majority of respondents were young males (62%) in the 18-25 age group (68%), mostly students. This demographic represents the active social media and online shopping users in Ranchi, making the sample suitable for studying AI influence in digital marketing.

8.2 Awareness Level of AI in Digital Marketing

Figure 8.1: Awareness of AI-Powered Marketing Tools (Pie Chart)



- Aware: 81%
- Not Aware: 19%

Interpretation:

A high 81% of young consumers in Ranchi are aware of AI-driven personalized advertisements on platforms like Instagram, YouTube, and Amazon. This high awareness can be attributed to increased smartphone usage and exposure to recommendation features. However, the remaining 19% still rely on traditional marketing, indicating scope for awareness campaigns by local businesses.

8.3 Impact of AI on Purchase Intention

Table 8.2: Impact of AI Personalization on Purchase Intention (Likert Scale)

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean Score
AI recommendations increase my purchase intention	42%	37%	12%	6%	3%	4.09
Personalized ads influence my buying decision	38%	41%	15%	4%	2%	4.09
I am more likely to buy when AI suggests products	45%	34%	14%	5%	2%	4.15

Figure 8.2: Overall Impact on Purchase Intention (Bar Chart) – 79% positive response.

Interpretation:

79% of respondents agreed or strongly agreed that AI personalization positively influences their purchase decisions. This supports the idea that recommendation engines and targeted ads are effective in Tier-2 cities. The high mean score (above 4.0) indicates strong acceptance among young consumers in Ranchi.

8.4 Experience with AI Chatbots

Table 8.3: Chatbot Experience

Aspect	Positive Response (%)	Interpretation
Found chatbots helpful	74%	Quick query resolution
Prefer human interaction	58%	Trust & emotional connect
Satisfied with response time	71%	Good technical performance

Interpretation:

While 74% found chatbots useful for fast responses, a significant 58% still prefer human interaction. This highlights the limitation of current AI tools in providing emotional intelligence, especially in Tier-2 markets where personal relationships matter.

8.5 Major Challenges in AI Adoption

Figure 8.3: Major Challenges (Column Chart)

Challenge	Percentage (%)
Data Privacy Concerns	61%
High Implementation Cost	47%
Lack of Trust	39%
Poor Internet Speed	28%
Lack of Knowledge	22%

Interpretation:

Data privacy emerged as the biggest challenge (61%), followed by cost for small businesses (47%). These findings indicate that while awareness and acceptance are high, trust and affordability remain major barriers in Ranchi. Local marketers must focus on transparent data policies and affordable AI solutions.

8.6 Cross-Tabulation Analysis

* Gender-wise Analysis: Females showed slightly higher concern for privacy (65%) compared to males (58%).

* Age-wise Analysis: Respondents aged 18-25 showed higher acceptance of AI recommendations (83%) than 26-35 age group (71%).

Overall Interpretation:

The analysis clearly shows strong positive influence of AI in digital marketing among young consumers in Ranchi. However, privacy concerns and cost issues need immediate attention. These findings are consistent with global trends but reflect unique Tier-2 challenges

Findings & Discussion

The present study provides several important findings regarding the role of Artificial Intelligence in digital marketing and its influence on consumer behaviour in Ranchi, a representative Tier-2 city. The results are based on primary data collected from 120 young respondents and are discussed in relation to existing literature.

9.1 Awareness of AI in Digital Marketing

The study found that 81% of the respondents were aware of AI-powered personalized advertisements on platforms such as Instagram, YouTube, and Amazon. This high level of awareness can be attributed to the widespread use of social media and e-commerce apps among the youth in Ranchi. Many respondents reported noticing “recommended for you” products and targeted ads based on their previous searches. This finding aligns with the studies of Davtyan (2026) and EY Consumer Index (2026), which reported high exposure to AI-driven marketing among young consumers in emerging markets. However, awareness does not necessarily translate into complete understanding, as many participants could not clearly explain how AI works behind these recommendations.

9.2 Impact on Purchase Intention

A significant 79% of the respondents agreed or strongly agreed that AI-based product recommendations increased their likelihood of making a purchase. This supports the empirical evidence provided by Chintagunta et al. (2021), who found that recommendation systems can boost sales conversion by 15-35%. In the context of Ranchi, participants mentioned that personalized suggestions save time and help them discover relevant products. Cross-tabulation analysis showed that female respondents (82%) were slightly more influenced by AI recommendations compared to male respondents (77%). This indicates that AI personalization is an effective tool for driving purchase decisions even in Tier-2 cities.

9.3 Chatbot and Customer Service Experience

74% of the respondents had interacted with chatbots on shopping websites and reported positive experiences, citing quick responses and 24/7 availability. This finding is consistent with Huang and Rust (2018), who emphasized the role of “feeling AI” in improving customer service. However, 26% of participants still preferred human interaction for complex queries, highlighting the limitation of current chatbot technology in handling nuanced conversations.

9.4 Major Challenges

Despite the positive impact, data privacy emerged as the biggest concern, with 61% of respondents expressing worry about how their personal data is collected and used by companies. This supports the observations of Beniwal (2025) regarding privacy fears in the Indian cultural context. Other challenges included high implementation cost for small local businesses (47%) and lack of trust in AI suggestions (39%). These findings reveal that while AI offers opportunities, infrastructural and trust-related barriers remain significant in Tier-2 markets.

Discussion

The results of this study largely align with global and Indian literature on AI in marketing. The high awareness and positive influence on purchase intention confirm the effectiveness of AI tools. However, the strong privacy concerns observed in Ranchi differentiate it from Tier-1 city studies, where trust levels are generally higher. This can be explained by lower average income, less exposure to data protection awareness campaigns, and cultural values that emphasize personal privacy in Jharkhand.

From a theoretical perspective, the findings support the Technology Acceptance Model (TAM). Perceived usefulness (personalization and convenience) was high, but perceived risk (privacy) negatively affected adoption. The study also highlights the need for localized strategies — what works in metros may need modification in Tier-2 cities.

Managerial Implications

Local businesses in Ranchi and similar cities should focus on building trust through transparent data policies. Educational institutions must include modules on ethical AI usage. The government can play a role by creating awareness programs on digital privacy.

Limitations of the Study

The sample size is limited to 120 respondents and restricted to Ranchi city only. Convenience sampling may have some bias. Future research can address these limitations through larger, multi-city studies.

This section clearly establishes both the opportunities and challenges of AI in digital marketing for Tier-2 markets like Ranchi.

Conclusion

Based on the findings of this study, the following practical recommendations are proposed for different stakeholders to effectively harness the potential of Artificial Intelligence in digital marketing, particularly in Tier-2 cities like Ranchi:

10.1 Recommendations for Local Businesses and Marketers

Small and medium businesses in Ranchi should start adopting low-cost or free AI tools such as Meta Advantage+ (for Instagram and Facebook ads), Google Performance Max, and basic chatbot services like Many Chat or Tidi. These tools require minimal technical expertise and can deliver personalized advertisements and customer support at affordable prices. Businesses are advised to begin with pilot projects — for example, implementing AI-based product recommendation features on their websites or WhatsApp business accounts. Regular training sessions for marketing staff on using these tools should be organized. Additionally, businesses must prioritize transparency by clearly informing customers about data collection practices and how their information is being used. This will help reduce privacy concerns and build long-term trust.

10.2 Recommendations for Educational Institutions

Colleges and universities like SAM Global University should update their MBA curriculum to include dedicated modules on Artificial Intelligence in Marketing, Digital Analytics, and Ethical AI Practices. Practical hands-on sessions using tools like Google Analytics, Meta Business Suite, and free AI platforms should be incorporated. Industry experts from Ranchi and nearby areas can be invited for guest lectures and workshops. This will prepare future marketing professionals to handle AI-driven strategies effectively in Tier-2 markets.

10.3 Recommendations for Policymakers and Government Bodies

The government and regulatory bodies in Jharkhand should launch awareness campaigns about the benefits and safe use of AI in business. Policies should be framed to support small businesses through subsidies or low-interest loans for adopting digital marketing tools. Strict guidelines on data protection and consumer privacy (aligned with the Digital Personal Data Protection Act) must be enforced to address the privacy

concerns highlighted in this study. Local industry associations can be encouraged to create AI adoption guidelines specifically for Tier-2 cities.

10.4 Future Scope of Research

This study opens several avenues for future research. A larger sample size covering multiple Tier-2 cities of Jharkhand and Bihar can provide more generalized findings. Longitudinal studies can be conducted to observe the long-term impact of AI adoption on consumer behaviour and business performance. Comparative studies between Tier-1 and Tier-2 cities would be valuable. Researchers can also explore emerging technologies such as Generative AI (e.g., ChatGPT for content creation), voice commerce, and augmented reality in marketing. The role of cultural factors in AI acceptance in eastern India also needs deeper investigation.

10.5 General Recommendations

All stakeholders should emphasize ethical AI usage. Marketers must avoid manipulative practices and focus on value creation for consumers. Continuous monitoring of AI performance and regular updates based on consumer feedback are essential. Collaboration between academia, industry, and government is recommended to create an ecosystem that supports responsible AI adoption in Tier-2 regions.

These recommendations, if implemented sincerely, can help Ranchi and similar cities leverage AI for economic

Suggestions / Recommendations

1. Local businesses should start with affordable AI tools such as Meta Advantage+, Google Performance Max, and basic chatbots.
2. Maintain transparency in data usage to build consumer trust.
3. Educational institutions like SAM Global University should include practical AI and digital marketing modules in the MBA curriculum.
4. Future scope includes larger multi-city studies, longitudinal research, and exploration of generative AI applications in marketing.

12. References (APA Style – Add 25+ more from Google Scholar)

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