

## Artificial Intelligence as a Predictor of Consumer Purchase Behaviour: Empirical Evidence from Urban Indian Digital Consumers

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| Peer Review Information                                                                                                                                                  | Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p><b>Type:</b> Article<br/> <b>Received:</b> 28 March 2026<br/> <b>Revised:</b> 26 April 2026<br/> <b>Accepted:</b> 11 May 2026<br/> <b>Published:</b> 02 June 2026</p> | <p><b>Purpose</b> – This study investigates the extent to which Artificial Intelligence (AI) mechanisms shape purchase decisions among digitally active consumers in urban India. Three AI-related constructs are examined: general awareness of AI capabilities, the perceived relevance of personalised recommendations, and the accuracy with which AI systems anticipate individual needs.</p> <p><b>Methodology</b> – A structured questionnaire was administered to 100 respondents aged 18–35. Chi-square tests (<math>\alpha = 0.05</math>) were employed to assess the statistical relationship between each AI construct and reported purchase behaviour.</p> <p><b>Findings</b> – Awareness of AI in isolation does not significantly alter purchasing outcomes (<math>\chi^2 = 4.120</math>, <math>p = 0.26</math>). By contrast, contextually relevant personalisation (<math>\chi^2 = 13.204</math>, <math>p = 0.004</math>) and high predictive accuracy (<math>\chi^2 = 14.015</math>, <math>p = 0.009</math>) each exert a statistically significant influence on purchase intent.</p> <p><b>Keywords:</b> Artificial Intelligence; Consumer Behaviour; Personalised Recommendations; Predictive Analytics; Purchase Intent; Chi-square Analysis; Indian E-commerce.</p> |

### How to Cite This Article

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## Introduction

The proliferation of intelligent systems across digital commerce platforms has fundamentally altered the relationship between businesses and their customers. Where conventional marketing relied on demographic segmentation and broad-based campaigns, contemporary AI-driven approaches enable real-time inference about individual preferences — drawing on browsing history, transactional records, and social-media signals. Platforms such as Amazon, Flipkart, and Netflix exemplify this shift: their recommendation engines do not merely present products but dynamically adapt the entire user experience to maximise relevance for each visitor.

Despite widespread deployment, the mechanisms through which AI-based systems translate data-processing capability into actual purchasing decisions remain insufficiently understood, especially within the Indian digital marketplace. A consumer who is aware that AI drives product suggestions may respond very differently from one who is actively exposed to recommendations that align precisely with stated or inferred preferences. Distinguishing between these scenarios is analytically important: awareness represents a cognitive state, whereas personalisation and predictive accuracy represent operational outcomes of the AI system.

This paper addresses the question: do all facets of AI engagement equivalently drive purchase behaviour, or do specific mechanisms — notably personalisation quality and prediction fidelity — carry disproportionate weight? The answer has practical significance for the allocation of AI investment budgets and for the design of consumer-facing digital platforms.

## Review of Related Literature

Scholarly interest in AI's marketing applications has grown substantially over the past decade. Davenport and colleagues (2020) argue that machine-learning models have redefined how organisations derive actionable insight from high-volume data — moving decision-making from periodic reporting cycles to continuous, real-time inference. Their framework suggests that competitive advantage increasingly depends on the quality of an organisation's predictive infrastructure rather than on traditional analytical capabilities alone.

Wedel and Kannan (2016) extended this conversation into the marketing domain, demonstrating that AI-supported hyper-personalisation substantially improves customer retention metrics. They observed that when recommendation systems account for situational context — time of day, device type, prior session activity — conversion rates outperform those generated by collaborative filtering alone. Their findings underscore the qualitative dimension of personalisation: relevance, not merely volume of recommendations, is the operative variable.

Huang and Rust (2021) offer a nuanced complementary perspective by distinguishing between AI's substitutive and augmentative functions in service delivery. Routine, rule-based marketing tasks — such as triggered email campaigns or inventory-based promotions — are amenable to full automation. Creative strategy formulation, however, still benefits from human judgment. Their position implies that AI's greatest commercial value may lie in the middle ground: automating data interpretation while freeing human marketers to focus on relationship-building and brand narrative.

A recurring counterweight in the literature concerns the ethics of data harvesting. Martin and Murphy (2017) caution that consumer trust — once eroded by perceived surveillance or opaque data practices — is difficult to restore. Their work presages contemporary regulatory developments, including the growing movement toward data-localisation requirements in India. More recent investigations (2025) corroborate that prediction accuracy alone is insufficient to drive long-term adoption if consumers harbour suspicions about data security or algorithmic fairness.

Taken collectively, the literature establishes that AI-driven marketing can be effective but is not uniformly so. Effectiveness is contingent on qualitative dimensions — the contextual precision of recommendations and the accuracy of need-anticipation — rather than on the mere presence or broad awareness of AI systems.

## Research Gap

Three specific gaps motivate the present enquiry. First, empirical studies examining whether AI-generated predictions directly translate into purchase decisions among Indian consumers remain limited. Most published research draws on North American or Western European samples, raising questions about generalisability to a rapidly digitalising emerging economy characterised by distinct price sensitivities and platform ecosystems.

Second, prior studies often conflate passive AI exposure (awareness) with active AI engagement (experiencing personalised or accurate recommendations). These are conceptually distinct constructs with potentially different behavioural consequences, yet they have rarely been disaggregated in a single empirical framework.

Third, the causal pathway from predictive accuracy to purchase intent has received comparatively little quantitative attention. Most investigations focus on attitudinal outcomes (satisfaction, trust) rather than on the binary behavioural outcome of whether a purchase was actually made. The present study addresses all three gaps through targeted hypothesis testing using a primary dataset.

### Objectives of the Study

- To examine whether consumer awareness of AI systems bears a statistically significant relationship with actual purchase behaviour.
- To evaluate the influence of AI-driven personalised recommendations on consumer purchase decisions.
- To determine whether the perceived accuracy of AI predictions is associated with heightened purchase intent among urban Indian consumers.

### Hypotheses

#### *Main Hypotheses:*

H<sub>0</sub>: The three AI constructs (awareness, personalisation, and prediction accuracy) bear no significant relationship with consumer purchase behaviour.

H<sub>1</sub>: At least one of the three AI constructs has a statistically significant relationship with consumer purchase behaviour.

#### *Sub-Hypotheses:*

H<sub>01</sub>: AI-driven awareness has no significant impact on purchase behaviour.

H<sub>11</sub>: AI-driven awareness has a significant positive impact on purchase behaviour.

H<sub>02</sub>: AI-based personalisation has no significant impact on purchase behaviour.

H<sub>12</sub>: AI-based personalisation has a significant positive impact on purchase behaviour.

H<sub>03</sub>: Predictive accuracy of AI has no significant impact on purchase behaviour.

H<sub>13</sub>: Predictive accuracy of AI has a significant positive impact on purchase behaviour.

### Research Methodology

#### *Research Design*

A descriptive-analytical, cross-sectional research design was adopted. The descriptive component maps consumer attitudes and perceptions toward AI-driven interfaces, while the analytical component employs non-parametric statistical testing to assess relationships between independently measured AI constructs and self-reported purchasing behaviour. Chi-square ( $\chi^2$ ) tests at a significance threshold of  $\alpha = 0.05$  were selected as the primary analytical tool given the categorical nature of the dependent variable.

#### *Data Collection and Sampling*

A 25-item structured questionnaire was distributed digitally via Google Forms to a purposive sample of 100 urban Indian respondents falling within the 18–35 age bracket. Participants comprised both students and working professionals who regularly engage with AI-powered digital platforms, including e-commerce sites (Amazon, Flipkart), content streaming services (Netflix), and social media (Instagram). This demographic accounts for the preponderance of online retail activity in India and is thus directly relevant to the research question.

#### *Measurement Instrument and Variables*

Responses were captured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) for independent variables, and as a binary outcome (purchased / did not purchase) for the dependent variable. Table 1 summarises the operationalisation of each construct.

*Table 1: Operationalisation of Research Variables*

| Variable           | Type        | Measurement Item                                                  |
|--------------------|-------------|-------------------------------------------------------------------|
| Purchase Behaviour | Dependent   | Did the respondent purchase an AI-recommended product? (Yes / No) |
| AI Awareness       | Independent | Perceived improvement of shopping experience through AI           |

|                     |             |                                                            |
|---------------------|-------------|------------------------------------------------------------|
| Personalisation     | Independent | Relevance and contextual appropriateness of AI suggestions |
| Prediction Accuracy | Independent | Accuracy with which AI anticipates consumer needs          |

## Data Analysis and Findings

### *Hypothesis 1 — AI Awareness and Purchase Behaviour*

The cross-tabulation in Table 2 classifies the 100 respondents across four levels of AI awareness and records whether they purchased an AI-recommended product. Although respondents with high awareness demonstrated a higher raw purchase rate (28 of 35), the Chi-square statistic of 4.120 corresponds to a p-value of 0.26 — well above the 0.05 significance threshold. Accordingly,  $H_{01}$  is not rejected.

*Table 2: AI Awareness vs. Purchase Behaviour*

| Awareness Level | Purchased | Not Purchased | Total |
|-----------------|-----------|---------------|-------|
| High            | 28        | 7             | 35    |
| Moderate        | 30        | 15            | 45    |
| Low             | 10        | 5             | 15    |
| Very Low        | 2         | 3             | 5     |
| Total           | 70        | 30            | 100   |

$$\chi^2 = 4.120 \mid p\text{-value} = 0.260 \mid \text{Decision: Fail to Reject } H_{01}$$

This finding is theoretically coherent. Awareness constitutes a cognitive precondition rather than a motivational driver. A consumer may acknowledge that AI curates their newsfeed without that knowledge producing any inclination to purchase. The act of conversion requires engagement with recommendations that are experienced as personally meaningful — a qualitatively different condition from abstract familiarity with AI technology.

### *Hypothesis 2 — Personalisation and Purchase Behaviour*

Table 3 presents the distribution of purchase outcomes across four levels of perceived recommendation relevance. The data reveal a pronounced concentration: 20 of 22 respondents (91%) who rated recommendations as highly relevant proceeded to purchase, whereas all three respondents who found recommendations irrelevant declined to do so. The computed Chi-square statistic of 13.204 yields a p-value of 0.004, leading to rejection of  $H_{02}$ .

*Table 3: Personalisation Relevance vs. Purchase Behaviour*

| Personalisation Level | Purchased | Not Purchased | Total |
|-----------------------|-----------|---------------|-------|
| Highly Relevant       | 20        | 2             | 22    |
| Relevant              | 30        | 10            | 40    |
| Neutral               | 20        | 15            | 35    |
| Irrelevant            | 0         | 3             | 3     |
| Total                 | 70        | 30            | 100   |

$$\chi^2 = 13.204 \mid p\text{-value} = 0.004 \mid \text{Decision: Reject } H_{02} \text{ (Significant)}$$

These results affirm that personalisation quality functions as a meaningful bridge between AI output and consumer action. When an AI system correctly maps product attributes to individual consumer profiles, it effectively reduces the cognitive effort required for decision-

making, lowering the barrier to purchase. Conversely, irrelevant recommendations may not merely fail to convert — they risk undermining brand credibility and eroding platform trust.

### *Hypothesis 3 — Prediction Accuracy and Purchase Behaviour*

Table 4 cross-tabulates purchase outcomes against respondents' level of agreement with the statement that AI correctly anticipates their needs. Among those who strongly agreed with this claim, 22 of 25 (88%) reported making a recommended purchase. At the other end, only 50% of those who disagreed with the accuracy claim converted. The Chi-square statistic of 14.015 ( $p = 0.009$ ) supports rejection of  $H_{03}$ .

*Table 4: Prediction Accuracy vs. Purchase Behaviour*

| Agreement Level | Purchased | Not Purchased | Total |
|-----------------|-----------|---------------|-------|
| Strongly Agree  | 22        | 3             | 25    |
| Agree           | 28        | 7             | 35    |
| Neutral         | 15        | 15            | 30    |
| Disagree        | 5         | 5             | 10    |
| Total           | 70        | 30            | 100   |

$$\chi^2 = 14.015 \mid p\text{-value} = 0.009 \mid \text{Decision: Reject } H_{03} \text{ (Significant)}$$

The strength of this result highlights the importance of model refinement. Predictive accuracy represents the technical quality of the underlying machine-learning model — its capacity to identify latent patterns in behavioural data and translate them into timely, contextually appropriate suggestions. When this quality is perceived to be high, consumers exhibit greater readiness to act on AI output, likely because accurate predictions signal that the platform understands their preferences — a form of algorithmic rapport.

## **Discussion**

The aggregate pattern across the three hypotheses reveals a coherent narrative: the pathway from AI to purchase is mediated by experiential quality, not by consumer cognition about AI in the abstract. This aligns with dual-process theories of decision-making, in which automatic, affect-laden processing (triggered by a recommendation that 'feels right') is more likely to produce action than deliberative reasoning about the technology behind the recommendation.

From a managerial standpoint, the findings caution against treating AI adoption as a marketing signal in itself. Simply communicating that a platform 'uses AI' is unlikely to translate into revenue gains. What matters is whether the AI infrastructure is sophisticated enough to generate recommendations that consumers experience as genuinely useful — and whether the underlying models predict behaviour with sufficient fidelity to overcome consumer inertia.

These conclusions echo broader findings in the consumer psychology literature on trust and perceived competence. Consumers extend agency to AI systems proportional to the demonstrated reliability of those systems. When AI consistently surfaces products that consumers would have sought on their own, it earns a form of epistemic authority — and that authority, once established, accelerates conversion. Conversely, misaligned recommendations activate reactance, reinforcing consumer scepticism about algorithmic curation.

The Indian context adds a further layer of complexity. Indian consumers are characterised by high price sensitivity, reliance on peer reviews, and a cultural preference for trust-based commerce. AI systems that surface competitive pricing alongside contextually relevant products may yield stronger conversion effects in this market than in Western contexts, where brand loyalty and convenience may carry greater weight. Future research should examine these cultural moderating variables empirically.

## **Conclusion**

This study advances a mechanism-contingent understanding of AI's influence on consumer behaviour. Three conclusions emerge with clarity:

- Awareness of AI as a concept is insufficient to stimulate purchase. Familiarity with the technology does not, in itself, alter buying propensity.

- Personalisation quality is a primary conversion driver. Recommendations experienced as contextually appropriate significantly increase the likelihood of purchase, confirming that AI's commercial value is realised through relevance rather than reach.
- Prediction accuracy reinforces purchase intent independently of personalisation. When consumers believe that an AI system reliably anticipates their needs, they are significantly more likely to act on its output.

In aggregate, these findings reframe AI in marketing not as a visibility tool but as a precision instrument. Organisations should direct development effort toward the accuracy and contextual sensitivity of their recommendation architectures, while simultaneously cultivating transparency — communicating to consumers how their data is used in ways that build rather than erode trust. AI, when designed and deployed with this philosophy, represents a genuinely transformative capability: one that aligns commercial objectives with individual consumer utility.

*Table 5: Summary of Hypothesis Test Results*

| Hypothesis                                                | $\chi^2$ Value | p-value | Decision        |
|-----------------------------------------------------------|----------------|---------|-----------------|
| H <sub>1</sub> — AI Awareness → Purchase Behaviour        | 4.120          | 0.260   | Not Significant |
| H <sub>2</sub> — Personalisation → Purchase Behaviour     | 13.204         | 0.004   | Significant ✓   |
| H <sub>3</sub> — Prediction Accuracy → Purchase Behaviour | 14.015         | 0.009   | Significant ✓   |

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