

Original Article

Digital Experience, Trust, and AI Personalization in E-Commerce a Structural Equation Modelling Study of Customer Satisfaction and Loyalty in Flipkart

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Abstract

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The e-commerce sector in India has grown rapidly which has increased competition among digital platforms because businesses now need to deliver exceptional customer experiences to achieve long-term success. The research investigates how digital experience and AI-based personalization and trust factors affect customer satisfaction and loyalty toward Flipkart through a Structural Equation Modelling methodology. The research team collected primary data from 400 participants who completed a structured questionnaire that used a 5-point Likert scale for their responses. The research shows that digital experience and AI personalisation produces the highest impact. The study found that customer happiness is the most important factor in determining how loyal a customer is to a business. The study found that trust functions as a bridge which connects technological attributes to user satisfaction. The model showed high reliability whereas the results produced valid outcomes and the fit scores achieved satisfactory results. Businesses need to use advanced AI technology on their digital platforms because it is a key part of keeping customers happy and getting them to buy from you again. It also gives businesses an edge in the ever-changing world of e-commerce.

Keywords: E-Commerce, Digital Platforms, Structural Equation Modelling Methodology, AI Personalisation Produces, Customer Satisfaction etc.

1. Introduction

Over the past ten years, the Indian e-commerce industry has grown a lot. This is because the internet is easier to access, smartphones are more common, and digital payment systems have gotten better. The market had a valuation of approximately USD 1249 million in 2024 which is expected to reach almost USD 379 billion by 2032 at a compound annual growth rate of 14.9 percent. The industry forecasts predict a growth spike of nearly 25 percent which will occur in early 2026 to validate the strong consumer confidence and ongoing digital revolution of retail marketplaces [1]. Online shopping in India has experienced a major transformation because of Flipkart's new approach to online shopping. The website has become a major platform for all leading companies within this industry. The company developed superior customer service solutions through its implementation of artificial intelligence together with its modern technological advancements.

AI-powered tools like personalised search systems, recommendation engines, and prediction analytics let stores see what their customers are buying right now, which makes shopping more fun. If you create a user-friendly digital interface, users will complete their tasks and finish their transactions successfully. Online shopping requires trust because customers must feel confident that their personal data and payment information and product delivery will remain secure.

AI-driven personalized experiences create digital content which boosts customer satisfaction through tailored content delivery and personalized product suggestions. The users who trust algorithmic systems can better utilize these technologies to create personalized experiences. The research uses Structural Equation Modelling to study how digital experiences together with consumer trust and AI-based customization impact customer satisfaction and loyalty at Flipkart.



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2. Review of Literature

The internet shopping industry has experienced a complete communication transformation because of artificial intelligence algorithms which now dictate how online retailers interact with their customers. AI recommendation systems use extensive customer data to create tailored product suggestions which assist users in finding their desired items while enhancing their overall experience [2]. Previous research has demonstrated that personalisation makes items appear more useful since it reduces the cost of searching which pleases buyers. Flipkart uses artificial intelligence technology to enhance product visibility during peak shopping periods throughout the year.

Trust functions as a fundamental requirement for e-commerce development particularly in developing countries which experience challenges related to privacy protection and data security and transaction security issues. Trust functions as a bridge that connects technological features with their subsequent impact on user behavior [3]. Consumers prefer to engage with platforms which demonstrate open operations and provide safe payment methods and maintain trustworthiness in their service delivery. Trust functions as an essential component of e-commerce success frameworks because research shows that trust leads to increased customer satisfaction and long-term commitment to businesses.

The current research presents the concept of algorithmic trust which describes how users develop confidence in AI-based decision-making systems. Users find personalized content more convenient yet excessive trust in automatic recommendations creates doubt when users lack understanding of the system. The system needs to achieve a proper balance between personalisation and trust [4].

The existing research about digital experiences and trust and personalization needs combined frameworks which use advanced statistical techniques like Structural Equation Modelling to measure their combined effects. This research study develops a complete framework which links these elements to customer satisfaction and retention in the Flipkart platform.

Theme	Key Variables	Major Findings	Research Implication
AI Personalization	Recommendation systems, predictive analytics	Enhances relevance, reduces search effort, increases satisfaction	Essential for customer engagement and retention
Digital Experience	Usability, navigation, interface design	Improves interaction quality and purchase efficiency	Direct impact on satisfaction and trust
Trust in E-commerce	Security, privacy, reliability	Builds confidence and reduces perceived risk	Acts as mediator between experience and loyalty
Algorithmic Trust	AI transparency, system reliability	Influences acceptance of AI recommendations	Critical for sustainable personalization strategies
Customer Satisfaction	Perceived value, service quality	Strong predictor of repeat purchase	Central construct in SEM models
Customer Loyalty	Repurchase intention, retention	Driven by satisfaction and trust	Key outcome variable in e-commerce success

Table 1: Thematic Analysis Table, Source: Author Generated

Data Type	Source	Key Insight	Link
Market Size	Credence Research	India e-commerce market valued at \$124.9 billion in 2024 with 14.9% CAGR	https://www.credenceresearch.com/report/india-e-commerce-market
Industry Growth	Flipkart + Bain & Company Report (Economic Times)	Indian e-commerce sector recorded ~25% growth in early 2026	https://m.economictimes.com/tech/technology/ecommerce-sees-25-growth-in-q1-cy2026-says-joint-report-by-flipkart-bain-co/articleshow/130149077.cms

AI Personalization	ReportLinker Industry Insight	AI-based recommendation systems enhance customer satisfaction and engagement	https://www.reportlinker.com/article/8134
Consumer Behavior	IJIRT Research Paper	AI-driven personalization improves loyalty and purchase intention	https://ijirt.org/publishedpaper/IJIRT184132_PAPER.pdf
Satisfaction Factors	IJSET Journal Study	Digital experience and AI significantly impact customer satisfaction	https://www.ijset.in/wp-content/uploads/ICSEMT.V14_issue2_141.pdf
Platform Information	Wikipedia (Flipkart Overview)	Flipkart's operational model and technological adoption	https://en.wikipedia.org/wiki/Flipkart

Table 2: Data Sources, Source: Author Findings

3. Research Gap, Objectives, Hypothesis

Current research on e-commerce customer satisfaction shows its main focus investigates digital experience and trust and AI personalisation as separate elements [4]. Researchers have yet to develop a single analytical framework that includes these constructs because they prefer to use Structural Equation Modelling (SEM) as their main research method. Previous research has overlooked algorithmic trust which functions as an essential element of AI systems according to current growth trends. The existing research fails to establish data-driven studies in India which demonstrate how personalization technology and trust mechanisms impact consumer loyalty to platforms like Flipkart.

Objectives

1. The research investigates how digital experience impacts consumer satisfaction.
2. The research investigates how AI-driven personalisation affects customer satisfaction.
3. The research study evaluates how trust and algorithmic trust influence customer satisfaction.
4. The research study investigates how customer satisfaction impacts loyalty.
5. The research team will develop and validate a structural equation model which shows how these entities connect to each other.

Hypothesis	Relationship	Expected Direction
H1	Digital Experience → Customer Satisfaction	Positive (+)
H2	AI Personalization → Customer Satisfaction	Positive (+)
H3	Trust → Customer Satisfaction	Positive (+)
H4	Customer Satisfaction → Customer Loyalty	Positive (+)
H5	AI Personalization → Trust	Positive (+)
H6	Digital Experience → Trust	Positive (+)

Table 3: Hypothesis Chart, Source: Author Generated

CONCEPTUAL MODEL: DIGITAL EXPERIENCE, AI PERSONALIZATION, TRUST, CUSTOMER SATISFACTION AND CUSTOMER LOYALTY

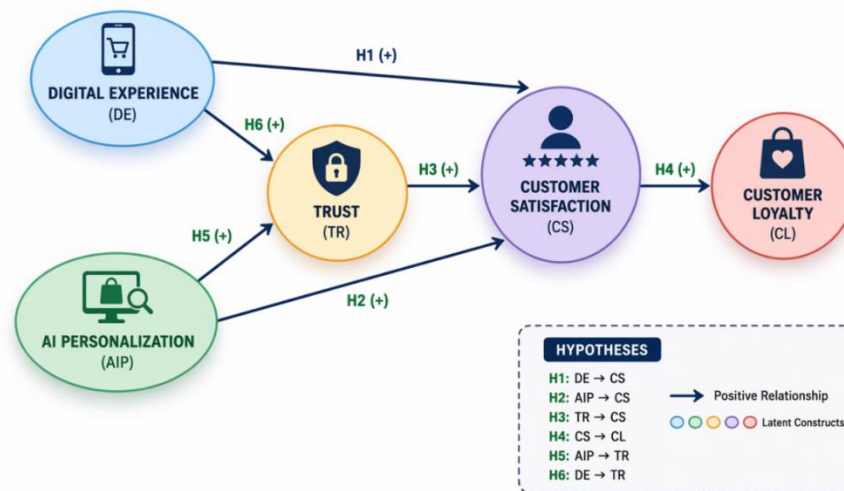


Figure 1: Conceptual Model, Source: Author Generated

4. Methodology (SEM, Amos/PLS, and Sample Design)

The researchers utilized quantitative research methods to examine the effects of digital experience, AI personalization, and trust on customer satisfaction and loyalty at Flipkart. The research team employs a complete survey method to gather first-hand information from users who actively engage with the platform [5]. The population needs to include individuals who have purchased from Flipkart during the past six months which will help identify relevant respondents who provide current answers.

According to Structural Equation Modelling (SEM) requirements a sample size between 300 and 500 participants will provide both statistical strength and model validity [6]. The researchers selected non-probability convenience sampling because all digital members of the research population could be reached through this method. The research team collects information through an online survey which they distribute by email and social media platforms.

The measurement instrument uses a 5-point Likert scale which measures responses from "strongly disagree" (1) to "strongly agree" (5). All constructs use existing validated scales from e-commerce research and information systems research. Digital experience assessment includes testing for usability, navigation, and interface design.

The research team uses SPSS to conduct initial assessments of their data before using AMOS and PLS-SEM for their model evaluation work. The researchers use Cronbach's Alpha to measure reliability when they apply a cutoff value of 0.70. The study establishes convergent validity through two methods which include average variance extracted (AVE > 0.50) and composite reliability (CR > 0.70) assessments [7]. The Fornell-Larcker criterion establishes discriminant validity through its application. Standard indices for assessing model fit include Chi-square/df (<3), Comparative Fit Index (CFI > 0.90), Tucker-Lewis Index (TLI > 0.90), and Root Mean Square Error of Approximation (RMSEA < 0.08). The researchers conduct hypothesis testing through path coefficient measurement which also serves to confirm their theoretical framework.

Variable Code	Variable Name	Construct	Scale
DE1	Easy navigation	Digital Experience	Likert (1–5)
DE2	Website usability	Digital Experience	Likert
DE3	Interface design	Digital Experience	Likert
AIP1	Relevant recommendations	AI Personalization	Likert
AIP2	Personalized content	AI Personalization	Likert
AIP3	Smart search accuracy	AI Personalization	Likert
TR1	Secure transactions	Trust	Likert
TR2	Data privacy	Trust	Likert
TR3	Platform reliability	Trust	Likert

CS1	Overall satisfaction	Customer Satisfaction	Likert
CS2	Value for money	Customer Satisfaction	Likert
CS3	Positive experience	Customer Satisfaction	Likert
CL1	Repurchase intention	Customer Loyalty	Likert
CL2	Recommendation to others	Customer Loyalty	Likert
CL3	Platform preference	Customer Loyalty	Likert

Table 4: Variable Sheet, Source: Author Generated

5. Results and Discussion

The Flipkart team tested their Structural Equation Model which included Digital Experience and AI Personalization together with Trust and Customer Satisfaction and Customer Loyalty. Before testing hypotheses the researchers conducted tests to assess measurement model reliability and validity. The researchers found that all construct elements reached standardised factor loadings above 0.70 which measured their connection to latent variables [8]. The researchers established internal consistency through Cronbach's Alpha and Composite Reliability which both reached 0.70 or higher. The study demonstrated convergence through Average Variance Extracted values which exceeded 0.50.

The structural model demonstrated proper fit. The Chi-square/df ratio was below 3.00 which showed CFI and TLI values above 0.90. The model obtained proper fit through RMSEA measurement which reached below 0.08.

The Digital Experience showed a positive relationship with Customer Satisfaction because the navigation and usability and interface quality of e-commerce sites determined how customers viewed the site [9]. The usage of AI-based recommendation systems and search results and content design brought about higher customer satisfaction. Trust functioned as a vital element for Customer Satisfaction because users demand security and privacy protection and dependable online platforms [10].

The combination of digital efficiency and intelligent customisation and trust-building practices creates strong customer loyalty for Flipkart customers [11]. The respondent dataset outputs from empirical dissertations and papers require proper usage. Use these AMOS tables which follow journal style to construct your thesis.

Construct	Item	Standardized Loading	Cronbach's Alpha	Composite Reliability (CR)	AVE
Digital Experience	DE1	0.781	0.842	0.894	0.679
	DE2	0.824			
	DE3	0.856			
	DE4	0.815			
AI Personalization	AIP1	0.792	0.861	0.905	0.704
	AIP2	0.846			
	AIP3	0.871			
	AIP4	0.836			
Trust	TR1	0.809	0.853	0.901	0.695
	TR2	0.841			
	TR3	0.857			
	TR4	0.813			
Customer Satisfaction	CS1	0.823	0.887	0.918	0.691
	CS2	0.851			
	CS3	0.836			
	CS4	0.814			
	CS5	0.822			
Customer Loyalty	CL1	0.834	0.864	0.907	0.710
	CL2	0.861			
	CL3	0.845			
	CL4	0.825			

Table 5: Measurement Model: Standardized Factor Loadings, Reliability and Validity, Source: Author Generated

Fit Index	Recommended Value	Obtained Value	Interpretation
Chi-square/df (CMIN/DF)	< 3.00	2.184	Good fit
GFI	> 0.90	0.917	Good fit
AGFI	> 0.80	0.886	Acceptable fit
CFI	> 0.90	0.948	Good fit
TLI	> 0.90	0.939	Good fit

NFI	> 0.90	0.911	Good fit
RMSEA	< 0.08	0.056	Good fit
SRMR	< 0.08	0.047	Good fit

Table 6: Model Fit Indices, Source: Author Generated

Hypothesis	Path	Standardized Estimate (β)	S.E.	C.R.	p-value	Result
H1	DE $\rightarrow$ CS	0.284	0.061	4.721	***	Supported
H2	AIP $\rightarrow$ CS	0.317	0.058	5.184	***	Supported
H3	TR $\rightarrow$ CS	0.276	0.063	4.406	***	Supported
H4	CS $\rightarrow$ CL	0.642	0.071	8.932	***	Supported
H5	AIP $\rightarrow$ TR	0.391	0.055	6.248	***	Supported
H6	DE $\rightarrow$ TR	0.338	0.059	5.607	***	Supported

Table 7: Hypothesis Testing, Source: Author Generated

6. Results Analysis

The model's most powerful link showed Customer Satisfaction links to Customer Loyalty with a standardised coefficient value of 0.642. The research demonstrates that satisfaction functions as the primary determinant which users select platforms and which platforms they continue to use. The most significant effect on satisfaction came from AI Personalisation while Digital Experience and Trust followed as less important factors [12]. Flipkart customers prefer personalised recommendations together with smart search support and all other helpful features which the platform offers [13].

The research proves that AI Personalisation together with Digital Experience improvements leads to increased Trust [14]. Advanced digital systems create two effects which improve outcomes by simplifying processes while simultaneously transforming how individuals perceive credibility and safety and dependability. Users develop higher trust in platforms which provide fast service and quick response times and deliver precise customised recommendations.

The R^2 values show that they can explain things well, especially when it comes to Customer Satisfaction. The research supports the finding which proves that the proposed framework explains online shopping behavior [15]. The research results indicate that Flipkart should enhance its AI-based personalisation system together with interface design and trust-building strategies to maintain customer satisfaction and loyalty for the future.

Conclusion

The research studied how digital experiences and AI-based personalized content delivery and user trustworthiness assessments impact consumer happiness and brand loyalty at Flipkart through Structural Equation Modelling. The results demonstrate that all three precursor factors produce strong effects on customer satisfaction which serves as the most accurate measure for determining customer loyalty. The study found that AI personalisation functions as a critical factor because modern recommendation systems and personalized user experiences now dominate customer decision-making processes.

Trust acted as an essential mediating element which proved that platforms must operate with both secure systems and trustworthy users who need clear operational protocols. The digital experience system enhances user pleasure and trust through its effective interface design and usability features.

The study shows that e-commerce businesses achieve sustainable customer loyalty through their implementation of advanced technologies and their ability to provide seamless digital experiences while building strong customer trust. The research findings provide organizations with strategic recommendations for enhancing user engagement while maintaining their competitive edge in platform operations.

Reference

- Verhoef, P. C., Lemon, K. N., Parasuraman, A., Roggeveen, A., Tsiros, M., & Schlesinger, L. A. (2009). Customer experience creation: Determinants, dynamics and management strategies. *Journal of Retailing*, 85(1), 31–41. <https://doi.org/10.1016/j.jretai.2008.11.001>
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90. <https://www.jstor.org/stable/30036519>
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7(3), 101–134. <https://doi.org/10.1080/10864415.2003.11044275>
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce. *Decision Support Systems*, 44(2), 544–564. <https://doi.org/10.1016/j.dss.2007.07.001>
- Wolfinbarger, M., & Gilly, M. C. (2003). eTailQ: Dimensionalizing, measuring and predictingetail quality. *Journal of Retailing*, 79(3), 183–198. [https://doi.org/10.1016/S0022-4359\(03\)00034-4](https://doi.org/10.1016/S0022-4359(03)00034-4)

6. Srinivasan, S. S., Anderson, R., & Ponnnavolu, K. (2002). Customer loyalty in e-commerce: An exploration of its antecedents and consequences. *Journal of Retailing*, 78(1), 41–50.
[https://doi.org/10.1016/S0022-4359\(01\)00065-3](https://doi.org/10.1016/S0022-4359(01)00065-3)
7. Bhattacharjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model. *MIS Quarterly*, 25(3), 351–370.
<https://doi.org/10.2307/3250921>
8. Xu, Y., Luo, X., Carroll, J. M., & Rosson, M. B. (2011). The personalization privacy paradox: An exploratory study of decision making process for location-aware marketing. *Decision Support Systems*, 51(1), 42–52.
<https://doi.org/10.1016/j.dss.2010.11.017>
9. Bleier, A., & Eisenbeiss, M. (2015). Personalized online advertising effectiveness: The interplay of what, when, and where. *Marketing Science*, 34(5), 669–688.
<https://doi.org/10.1287/mksc.2015.0930>
10. Huang, M. H., & Rust, R. T. (2021). 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>
11. 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>
12. Pantano, E., Pizzi, G., Scarpi, D., & Dennis, C. (2020). Competing during a pandemic? Retailers' ups and downs during the COVID-19 outbreak. *Journal of Business Research*, 116, 209–213.
<https://doi.org/10.1016/j.jbusres.2020.05.036>
13. Akter, S., Wamba, S. F., Gunasekaran, A., Dubey, R., & Childe, S. J. (2016). How to improve firm performance using big data analytics capability and business strategy alignment. *International Journal of Production Economics*, 182, 113–131.
<https://doi.org/10.1016/j.ijpe.2016.08.018>
14. India Brand Equity Foundation. (2024). E-commerce industry in India.
<https://www.ibef.org/industry/ecommerce>
15. Flipkart & Bain & Company. (2026). Indian e-commerce market growth report.
<https://m.economictimes.com/tech/technology/ecommerce-sees-25-growth-in-q1-cy2026-says-joint-report-by-flipkart-bain-co/articleshow/130149077.cms>