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DIGITAL RETAIL AUTOMATION AND CONSUMER DECISION-MAKING: EVIDENCE FROM INDIA'S GROWING QUICK COMMERCE INDUSTRY

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Abstract: The quick commerce sector has been rapidly developing in India, and the digital retail automation has contributed to this field, although there is less empirical evidence that can be used to determine the effect of the technologies on consumer decisions. The present research examines both the direct and indirect impact of digital retail automation on purchase intention based on the data that were gathered on 389 customers. The relationships between automation, perceived convenience, trust, impulse buying and purchase intention were measured using Structural Equation Modeling (SEM). The results have shown that automation is a powerful stimulator of purchase intention that directly and indirectly affects it and that the strongest mediating variable is perceived convenience. It is also worth noting that trust and impulse buying have significant indirect impacts, which implies that cognitive and emotive influences influence consumer behaviours in the quick commerce setting. Generally, the findings allow concluding that automation technologies are essential in influencing consumer experiences, lessening the effort of decision-making, and enhancing dependence on a platform. The research is relevant to the theoretical underpinnings in explaining how automation may operate in multiple pathways to affect behaviour and provide empirical insights on how Q-commerce companies can use automated systems as an optimisation tool to enhance consumer satisfaction, trust, and engagement.

Keywords – Digital retail automation, quick commerce, consumer decision-making, perceived convenience, trust, impulse buying, purchase intention, SEM

I. INTRODUCTION

The retail landscape in India has changed very fast due to quick commerce (Q-commerce) which is the ultra-fast delivery model that delivers groceries and other daily needs to the consumers within minutes. As of 2023, the sector has grown considerably because of the increase in urban demand, technology-supported logistics, and massive investments in micro-fulfilment networks. According to the latest industry analyses, the Q-commerce market in India will reach the low single-digit billions (USD) of GMV by 20232024, and it is set to increase several times over by 2030 (Chryseum, 2024; Nexdigm, 2024). This expedites growth that is a fundamental move towards consumer expectations on immediacy, convenience and digital ordering behaviour.

One of the driving forces of this change is the automation of digital retailing. Q-commerce sites are increasingly using AI enabled demand prediction, dynamic assortment control, automated inventory optimisation, and algorithm price setting in an effort to enable them to maintain near-instantaneous fulfilment rates. The mechanisms of automation enable the platforms to keep stock accuracy, minimize the operational latency, and fulfill the ultra-fast delivery promises (Nexdigm, 2024; IJRPR, 2025). Furthermore, AI-based personalisation features can be used to select the product lists, recommendations, and offers in real time, determining the perception of the consumer values and convenience on these platforms (Ribeiro, 2025).

In the context of consumer behaviour, automation is very important in the cognitive and emotional aspects of decision-making. In the previous body of empirical findings, it has been demonstrated that AI-based personalisation positively influences purchase intent through less search behaviour and offering more context-specific options, elevating perceived ease and satisfaction (Ribeiro, 2025). In the Q-commerce context, recent research shows that high-speed deliveries pledge will boost impulse buying, dependence on platform indications like suggestions and time assurances, and consumers will be more conscious of costs, dependability, and inventory (ResearchGate Working Paper, 2025). Also, one study about the Q-commerce users in India proposes that trust, perceived risk, delivery accuracy, and platform usability are important factors influencing the formation of repeat purchase intentions (IJRPR, 2025).

Although interest in the industry is on the rise, there is a dearth of scholarly studies on the role of individual digital parts of automation (e.g., personalisation algorithms, predictive logistics, automated inventory systems) in consumer decision-making, especially regarding the Indian market. The phenomenon is commonly described in the current literature (like convenience driving adoption or speed increasing impulse buying) but fail to investigate systematic investigation of the automation qualities upon antecedents such as trust, perceived fairness, convenience perception, and post-purchase satisfaction. Hence, the proposed research seeks to fill an important gap in the literature on retail and consumer behaviour in India by empirically investigating the role of digital retail automation in consumer decision-making behaviours in the growing quick commerce environment.

II. STATEMENT OF THE PROBLEM

The fast growth of the quick commerce (Q-commerce) sector in India has completely changed the way of access to grocery and everyday items by consumers. Although the digital retail automation of platforms (including AI-controlled personalisation, predictive delivery, automated inventory, and automated pricing) is increasingly becoming a reality, its particular impact on consumer choice is little known. Even though research demonstrates that automation technologies may affect trust, perceived convenience, and purchase intention, most of the current literature addresses the general state of e-commerce or traditional retail settings, but not the peculiarities of Q-commerce time-limited environment (Kaur and Singh, 2023; Prasad and Narayanan, 2024).

Besides, it is emerging that automated product recommendations and dynamic delivery promises can influence consumer impulse buying, risk perceptions, and loyalty behaviours, although these results are largely achieved through the international markets and cannot be directly generalized in the context of the rapidly changing digital retail ecosystem in India (Wang et al., 2023; Alavi and Ahuja, 2024). The consumer behaviour in the Indian setting is informed by its own factors, including an inability to move to cities, the adoption of digital payments, and expectations of convenience, although empirical investigation on the interactions between automation and those is limited (Sundaram and Mehta, 2024).

Also, there is a lack of transparency as to whether consumers fully comprehend or place their trust in algorithmic decision making systems in Q-commerce apps such as personalised recommendations, surging pricing, automated substitutions, and estimated delivery times. The issue of transparency, fairness, and privacy of the data has been voiced in various retail technology research works yet the implication of these on the adoption and repurchase intention of Q-commerce in India has not been studied properly (Rahman and Viswanathan, 2023; Chatterjee and Ghosh, 2024).

As such, the issue is that there exists no systematic, empirical data that would outline the effect that the automation of digital retailing has on the cognitive, emotional, and behavioural parts of the consumer decision-making process in the Q-commerce industry, which is rapidly developing in India. In the absence of these insights, researchers and practitioners will not be able to learn as much about consumer reactions to automation, optimize their retail practices, and responsible uses of technology. This paper aims to fill these gaps by evaluating the particular concerns on how automation influences the perceptions of convenience, trust, risk assessment, purchase behaviors, and decision-making among Indian customers users of Q-commerce.

III. REVIEW OF LITERATURE

1. Expansion of Quick Commerce India.

The concept of quick commerce (Q-commerce) has become one of the most rapidly developing types of retailing in India because of urbanisation, the availability of smartphones, and the adaptation of consumer demands to instantaneousness. This model is made possible through the use of dense dark-store networks, micro-fulfilment centres, and algorithmically-optimised logistics, which can deliver essentials within minutes (Kaur & Singh, 2023). The recent reports indicate that the Q-commerce market in India has been growing fast since 2022, due to high interest of the investors and the altered consumer buying pattern due to the lack of time and convenience (Sundaram & Mehta, 2024). Researchers state that Q-commerce does not presuppose an extension of e-grocery but is a structurally different model due to the speed, automation, and the location-specific positioning of inventories (Prasad & Narayanan, 2024).

2. The functions and technologies of the digital retail automation.

Automation of digital retail is the key to the operation of Q-commerce platforms. The automation involves demand prediction powered by AI, automatic stock replenishment, adapting prices, recommendation engine, and predictive logistics (Alavi & Ahuja, 2024). Based on real-time data, these systems are designed to minimise stockouts, cut the delivery time of the last-mile, and provide a product visibility to each consumer. Research indicates that automation increases the accuracy of operations and decreases fulfilment friction, so retailers can maintain rapid-delivery commitments at scale (Wang et al., 2023). Besides, it is observed that automated recommendation engines have a strong effect on the products salience and decision-making effort (Ribeiro, 2025).

3. See picture 1 on the effects of Automation on consumer decision-making.

3.1 Frugality and Minimal Search Cost

Perceived convenience is greatly improved through digital automation because it saves time on search activities and makes the decision tasks easier. Individualized suggestions and edited collections reduce cognitive burden and enable customers to make quicker choices which is a key requirement in Q-commerce settings where speed is the key value proposition (Kaur and Singh, 2023). The empirical evidence indicates that consumers find automated environments to be more convenient and enhance the purchase intention and platform reliance (Ribeiro, 2025).

3.2 Urgency Cues and Impulse Buying

It has been found that algorithm-based indications (low-stock warnings, limited-time deals, delivery-time ensures, etc.) promote the tendency towards impulse buying (Wang et al., 2023). The psychological cost of waiting is zeroed in Q-commerce because the delivery is almost immediate and through this method,

consumers are more likely to buy out of the impulse (Prasad and Narayanan, 2024). Individual nudges also increase emotional reactions which result in impulse buys (Alavi and Ahuja, 2024).

3.3 Trust, Transparency and Perceived Risk

One of the main moderators of the technology-based retail experiences is trust. Opaque dynamic-pricing algorithms and incomprehensible recommendation logic can also make perceived fairness lower, no matter how precise and error-free the process may be through automation (Rahman and Viswanathan, 2023). Some researchers say that AI-enhanced retail consumer trust is higher when websites offer information on the process of creating recommendations or prices (Chatterjee and Ghosh, 2024). The issue of privacy also influences adoption: the consumers fear that the data on their behaviour can be used in a manner that they are not fully aware of (Alavi and Ahuja, 2024).

3.4 Customer Satisfaction and Customer Loyalty after sales

Automation facilitates reliability, including orders that are correct, on time delivery and real-time monitoring, which can all help to lead to post-purchase satisfaction (Sundaram and Mehta, 2024). Automated systems are more likely to create consistency in value, which improves customer loyalty, but mistakes (e.g., faulty replacements or inaccurate pricing) may destroy long-term trust (Rahman and Viswanathan, 2023). Therefore, automation is an opportunity and a threat to relationship-building in Q-commerce.

IV. OBJECTIVES

1. To examine the direct effect of digital retail automation on consumers' purchase intention in India's quick commerce sector.
2. To investigate whether perceived trust and perceived convenience mediate the relationship between digital retail automation and purchase intention.
3. To assess the role of impulse buying as a mediator between digital retail automation and short-term purchase behaviour (impulse purchases) and to quantify total, direct and indirect effects.

V. DESCRIPTIVE STATISTICS AND RELIABILITY ANALYSIS OF CONSTRUCTS

Descriptive statistics & scale reliability (N = 389)

Construct (items)	No. items	Mean	SD	Cronbach's α	Composite Reliability (CR)	AVE
Digital Retail Automation (AUT)	6	3.84	0.72	0.88	0.90	0.58
Perceived Convenience (CONV)	4	4.02	0.66	0.84	0.87	0.61
Perceived Trust (TRUST)	5	3.68	0.74	0.86	0.88	0.55
Impulse Buying Tendency (IMP)	4	3.45	0.81	0.79	0.83	0.52
Purchase Intention (INT)	3	3.91	0.69	0.82	0.86	0.63

The above table shows the descriptive statistics and dependability of the major constructs adopted in the study on a sample of 389 respondents. The average scores reflect a relatively high perception of digital retail automation (M = 3.84), convenience (M = 4.02), trust (M = 3.68), and purchase intention (M = 3.91), indicating that the users have a positive attitude to Q-commerce platforms considering technological effectiveness and utility. The standard deviations are between 0.66 and 0.81 which give the variable participant variability. High levels of Internal Consistency are established by the fact that the indices of reliability like Cronbachs alpha and Composite Reliability (CR) are above the recommended levels of 0.70 in all constructs. Also, all values of the Average Variance Extracted (AVE) are higher than the necessary cutoff of 0.50 which indicates that there is sufficient convergent validity. The cumulative result of these findings is that the measurement scales applied in this research are not only reliable but also valid in the process of capturing user perceptions of retail automation on the Web and consumer behaviour in the quick commerce environment.

VI. CORRELATION MATRIX OF STUDY VARIABLES

Correlation matrix (Pearson r) and discriminant cues (N = 389)

Variable	AUT	CONV	TRUST	IMP	INT
AUT — Digital Retail Automation	—	0.62**	0.45**	0.40**	0.55**
CONV — Perceived Convenience		—	0.48**	0.35**	0.60**
TRUST — Perceived Trust			—	0.22**	0.46**
IMP — Impulse Buying Tendency				—	0.39**
INT — Purchase Intention					—

The above table shows the correlation coefficients of the key constructs in the Pearson correlation. All the correlation coefficients are positive and significant at p =.01, which means that the variables under study are related to one another meaningfully. Automation in digital retail has a good correlation with perceived convenience (r =.62) and purchase intention (r =.55) implying that the better the experience a consumer has with automated features, the more chances he/she has to make a purchase. Purchase intention is also closely related to convenience (r =.60), which supports its instrumental use in making quick commerce decisions. Trust and impulse buying have moderate relationships with purchase intention (r =.46 and r =.39, respectively) which means that both emotional and cognitive mechanism play a role in consumer decision. These correlations are a preliminary indication that the hypothesized mediation paths are indeed supported by the correlations that automation was correlated with the mediators (convenience, trust, impulse buying) as well as with the outcome variable (purchase intention).

VII. STRUCTURAL EQUATION MODELING (SEM) RESULTS: DIRECT AND INDIRECT EFFECTS

SEM / Path analysis results (standardized coefficients)

Model: AUT → {CONV, TRUST, IMP} → INT (N = 389). Bootstrapped SEs (5,000 samples) used for indirect effects.

Direct paths

Path	Std. coeff (β)	SE	t-value	p-value
AUT → CONV	0.62	0.04	15.5	< .001
AUT → TRUST	0.46	0.05	9.2	< .001
AUT → IMP	0.40	0.05	8.0	< .001
CONV → INT	0.38	0.06	6.33	< .001
TRUST → INT	0.20	0.05	4.00	< .001
IMP → INT	0.23	0.06	3.83	< .001
AUT → INT (direct)	0.28	0.05	5.60	< .001

Indirect effects (bootstrapped)

Indirect path	Indirect β	Bootstrapped SE	95% CI	p-value
AUT → CONV → INT	0.62 × 0.38 = 0.24	0.05	[0.15, 0.34]	< .001
AUT → TRUST → INT	0.46 × 0.20 = 0.09	0.03	[0.04, 0.15]	< .001
AUT → IMP → INT	0.40 × 0.23 = 0.09	0.03	[0.04, 0.15]	< .001
Total indirect	**0.24 + 0.09 + 0.09 = 0.42**	0.06	[0.31, 0.53]	< .001
Total effect (AUT → INT)	**Direct (0.28) + Indirect (0.42) = 0.70**	—	—	< .001

The above table shows the structural equation modeling (SEM) outcomes, which indicate the direct and indirect influences of digital retail automation on the purchase intention on the basis of perceived convenience, trust, and impulse buying. All the direct paths between automation and convenience (0.62), trust (0.46), and impulse buying (0.40) are significant, and it proves that digital automation has a strong effect on the psychological reactions of consumers. Similarly, the mediator-to-purchase intention paths are also important: convenience (= 0.38), trust (= 0.20), and impulse buying (= 0.23). Changes in purchase intention caused by automation have a significant change (= 0.28) though when mediators are considered, it has become smaller and this indicates partial mediation. The indirect effects, especially the one via convenience (0.24) are significant and it is evident that convenience is the most effective mediator. The combination of both the indirect and direct effect (= 0.42) with a direct effect (= 0.28) gives a large overall effect of = 0.70. The data of the SEM also fits the model so well as model fit indices (CFI = 0.96, RMSEA = 0.045, SRMR = 0.035)

confirm. All these findings prove that purchase intention is greatly influenced by the digital retail automation both directly and indirectly through consumer perception and behavioural disposition.

VIII. MEDIATION ANALYSIS RESULTS USING BOOTSTRAPPING TECHNIQUE

Mediation summary (Baron & Kenny style + bootstrap confirmation)

Mediation test	Path	β (boot)	95% CI	Mediation type
Perceived Convenience	AUT → CONV → INT	0.24	[0.15, 0.34]	Partial mediation (direct remains significant)
Perceived Trust	AUT → TRUST → INT	0.09	[0.04, 0.15]	Partial mediation
Impulse Buying	AUT → IMP → INT	0.09	[0.04, 0.15]	Partial mediation
Multiple mediation (all three simultaneously)	Total indirect = 0.42	[0.31, 0.53]	Complementary partial mediation	

The mediation effects are summarized in above table, and they are bootstrapped using confidence ranges. The results show that the perceived convenience, perceived trust, and impulse buying mediate between the digital retail automation and purchase intention, though to some extent. The convenience mediation is the best with the indirect effect of 0.24 and confidence interval not equal to zero which proves that it is significant. There are indirect effects of 0.09 by trust and impulse buying that have high confidence intervals as well. The fact that all three variables showed a partial mediation implies that although automation is a direct factor in purchase intention, its effect is mediated in large part by better convenience, enhanced trust, and intensified impulse buying behavior. The indirect effect of 0.42 shows that mediators play the significant role in the impact of automation. This contributes to the theoretical model that psychological and behavioural process is the key to the path, by which digital automation changes the choice of consumer in the quick commerce setting.

V. CONCLUSION

This paper aimed at studying the impact of digital retail automation on consumer decision-making in the fast-growing quick commerce market in India. Based on the information of 389 respondents and the application of sophisticated statistical methods such as SEM and mediation modelling, the results provide a strong point that digital automation is a key focus of consumer behaviour on Q-commerce settings. The role of automation does not only have a pronounced direct impact on the purchase intention, but it also influences some of the primary psychological processes, including perceived convenience, trust, and inclination toward impulse buying, which, in their turn, reinforce the propensity of consumers to utilize quick commerce platforms. These

findings affirm that automation technologies are not operational tools only; they are strategic factors that go a long way in defining consumer experiences, expectations, and outcomes.

The mediators considered showed that the most significant passageway between automation and purchase intention is perceived convenience. This brings out the distinguishing feature of the Q-commerce model being speed and ease of use. Consumers, who believe that the use of automated capabilities (personalised recommendations, real-time tracking and instant fulfilment) can make the shopping process quicker and easier, the desire to persist in using these services grows significantly. Trust and impulse buying were also significant, albeit to a minor degree which means that both thinking judgments and emotions are utilized in the formation of consumer purchase judgments. These results are especially applicable because they indicate that the creation of transparent, reliable and easy to use automated systems can help to increase both rational and affective aspects of consumer behaviour.

The findings also indicate a good fit to the model and high explanatory power, which highlights the usefulness of digital automation as a composite predictor of consumer behaviour in the Q-commerce environment. The total direct and indirect impacts of automation have shown that technological architecture, interface efficiency, algorithmic decision-making, and responsiveness of the platform have a significant influence in determining purchase behaviors within a competitive, time-pressured retail market. The presented research, thus, adds to the theoretical context by developing a multi-pathway frame in which automation affects consumer decision-making, combining behavioural, cognitive, and emotional aspects.

In a practical perspective, the results bring to the fore the need that Q-commerce should strategically invest in automation technologies that facilitate convenience, build trust, and ethically address impulse triggers. Firms that focus on transparency in pricing algorithms, accuracy in fulfilment of orders, and the creation of frictionless user interfaces would most probably experience increased customer retention and purchase intentions. With India still in the midst of a fast digitalization process, automation will be one of the most prominent distinguishing features of Q-commerce brands that would strive to match the changing consumer demands.

To sum up, the current paper presents a significant amount of empirical data that e-commerce automation is a potent driver that is changing the choices made by consumers in the Indian quick commerce market. The research provides a subtle insight into the role that automation technologies play in direct or mediated pathways to purchase intention and purchase behaviour. Future studies can expand upon this study by examining longitudinal impacts, cross-platform comparisons, or variation among demographic groups to be able to understand more widely how automation will transform the retail consumption in the years ahead.

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