

Impact of AI on Quick Commerce Supply Chain Management

Prof. Dr. Jawale Dnyaneshwar Vinayakrao

Assistant Professor, Department of Commerce, Deogiri College, Chhatrapati Sambhajanagar, Maharashtra, India

ABSTRACT

With improvement in network technologies like 4G and 5G enhancing the speed of connection and familiarity of smartphones with the general public has made mobile commerce to boom in recent years. One such subset of m-commerce is e-commerce, which concentrate on delivering goods to public using ecommerce websites with few days from ordering. However urban people always prefer to have their goods delivered to their door step within the shortest duration of time due to their busy lifestyle. The Further improvement in technology (mobile banking) and introduction of Artificial Intelligence have paved way to a new commerce known as quick commerce, which operates with an objective to deliver goods with an hour from ordering by constructing local warehouses named as dark houses. Certain quick commerce websites include Zepto, blinkit, Swiggy insta-mart and bigbasket. The emergence of quick commerce and implementation of AI in its supply chain management will definitely have both positive and negative impacts. This paper mainly identifies such impact like increased efficiency, productivity and effectiveness, reduced cost, job losses and security concerns and it concludes that majority of the respondents are aware about quick commerce and implementation of AI in the process of supply chain optimisation. It also infers that implementation of AI has enhanced customer experience by proving their desired products; rendering customer service through AI powered chatbots and improving the efficiency of last mile delivery. This paper also discusses about the role of AI in optimizing q-commerce supply chain management.

How to cite this paper: Prof. Dr. Jawale Dnyaneshwar Vinayakrao "Impact of AI on Quick Commerce Supply Chain Management" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-9 | Issue-2, April 2025, pp.1196-1199, URL:



www.ijtsrd.com/papers/ijtsrd79683.pdf

Copyright © 2025 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



KEYWORDS: *Quick Commerce, Artificial Intelligence, Supply Chain Management, Consumer Perception*

INTRODUCTION

Quick commerce is a subset of e-commerce that focuses on delivering products within a shorter duration of time, often within minutes or hours. It is also known as on-demand delivery or e-grocery. Quick commerce originally started with pizza delivery and it has quickly expanded to other categories such as apparels, medicine delivery, delivery of gifts, grocery delivery etc. The Covid pandemic played a pivotal role in boosting quick commerce. This shift has also driven by changing consumer expectations, increasing urbanizations and improvement in technologies. Key aspects of quick commerce includes improving efficiency, reducing operational costs, ensures faster order processing and offering customers instant access to goods and services. The proper and efficient supply flow of quick commerce became possible by locating multiple dark stores closer to neighborhood.

Supply chain management is the process of planning, organising, and managing the flow of goods and services from suppliers' to customers. Supply chain management deals with the system of procurement, operations management, logistics and maintaining marketing channels. Key aspects of supply chain management are to leverage the strengths and capabilities of various partners involved to achieve greater efficiency and innovation, ultimately enhancing overall business performance. The success of supply chain management is ensured by measuring the effectiveness and efficiency of the movement of goods from the point of origin to the point of consumption.

Statement of the problem

The rise of Artificial Intelligence (AI) has significantly transformed various industries, and one area that has witnessed substantial growth is quick commerce (Q-commerce), particularly in the realm of

supply chain management. As competition intensifies in the Q-commerce industry, businesses are increasingly leveraging AI technologies to optimize their supply chain operations, improving inventory management, delivery speed, and customer service. However, the impact of AI implementation on the quick commerce supply chain is not fully understood, especially in terms of how familiar consumers are with Q-commerce and how their perceptions influence the adoption of AI solutions within these systems.

Objectives

To identify the reliability of using AI in Q-commerce.
To study the consumers perception of AI in Q-commerce.

Review of Literature

Dr. Elangovan N et al.(2025) examines how time constraints and physical effort impact women's purchasing decisions in the quick commerce grocery sector, with a focus on the mediating role of family dynamics. The study reveals that both time and pressure and physical effort significantly influence women's intentions to purchase groceries through the quick commerce platforms. Marketing strategies could emphasize timesaving and effort-reducing benefits to appeal to nuclear families, while

addressing the concerns of joint families through trust building measures and highlighting the quality of products. The research highlights the quality of products being a force influencing their purchasing behaviour.

Singh et al. (2022) presents a comparative analysis of Q-commerce adoption in emerging markets and developed markets, noting that in emerging economies like India, price sensitivity and the availability of low-cost delivery options are crucial for growth. Their work underscores the importance of pricing strategies and how companies offering discounts and promotional offers have driven customer acquisition and retention.

Bhatia & Gupta (2022) highlight the transformational role of Q-commerce in redefining last-mile delivery in India. The study emphasises on factors such as urbanization, rising internet penetration, and the millennial consumer's preference for convenience as key drivers of the sector's rapid growth. The research also emphasizes how the COVID-19 pandemic accelerated the adoption of online grocery shopping, increasing demand for ultra-fast delivery services, particularly for essentials like groceries, personal care items, and household goods.

Methodology

Area of study	The area of study covers Chhatrapati Sambhajinagar city
Sample design	Convenience sampling method was used for the purpose of primary data Collection.
Sources of Data	Primary data and secondary data are used for the study
Sample size	The data has been collected from 157 respondents, who have exposure on AI and quick commerce supply chain management.

Source: Primary data

Analysis and Discussion

Table 1 Demographic Variable of Respondents

Sr. No	Category	Percentage
1	Gender	
	Male	38.6
	Female	61.4
2	Age (years)	
	10-17	13.9
	18-25	50.6
	25-40	25.9
	Above 40	9.5

Source: Primary data

The above table represents that 61.4 percent of the respondents are women, which shows the acceptance of Q-commerce by them and its integration in their day to day life. The age variables represent that the Q-Commerce is highly acknowledgeable among the age group of 18-25, who are the high users of smart phones and latest technologies.

Table 2 Familiarity of Q-Commerce

Sr. No	Statement	Percentage
01	Are you familiar about the usage of AI in Q-commerce	
	YES	81.6
	NO	18.4
02	Respondents frequency of usage of Q-commerce	
	Daily	26.6
	Several times a week	36.7
	Once in a week	28.5
	Rarely	8.2

Source: Primary data

The table 2 depicts that 81.6 percent of the respondents' understand what AI is and what Q-Commerce is and how the integration of both benefits them, and 36.7 percent of the respondent's states that the frequency of usage of q-commerce in several times a week is relatively high

Table 3 Consumers Perception on AI Implementation

Sr. No	Statement	Percentage
01	Agreeability of respondents to use AI driven recommendations in improving shopping experience	
	Yes, I identify useful products	48.1
	Sometimes they aren't what I expect	44.9
	No errors	7
02	Opinion on Q-commerce delivery efficiency using AI	
	Increased delivery speed	81.6
	Sometimes late delivery	9.1
	Still the same as other e-commerce platforms	9.3
03	Opinion on AI collecting and analysing data for better service	
	Yes, I feel safe	44.9
	No, I posses threat	41.1
	Maybe, sometimes ok with it	13.9
04	Preference of human interaction in q-commerce instead of AI automation	
	Yes	56.3
	No	29.1
	Maybe	14.6
05	Opinion about no intervention of human in delivery and support	
	Strongly agree	56.3
	Agree	10.6
	Neutral	14.6
	Disagree	9.3
	Strongly disagree	9.2

Source: Primary data

Table 3, signifies that 48.1 percent of the respondents preferred to use AI- driven recommendations to improve shopping experience. 81.6 percent of the respondents opined that Q-commerce delivery efficiency has increased using AI. 44.9 percent of the respondents opined that they feel safe on AI collection and analysing customer data for better service. The study also states that 56.3 percent of the respondents have preferred for human interaction in Q-Commerce than AI automation. Furthermore, 66.9 percent of the respondents have positive opinion on AI delivery and support.

Table 4 Overall Perception of Ai in Q-Commerce

Sr. No	Statement	Percentage
1	Opinion about overall perception of AI in Q-commerce supply chain management	
	Positive, it enhances the experience	75.9
	No, I still prefer traditional methods	24.1

Source: Primary data

Table 4 shows that the overall perception of AI in quick commerce supply chain management has a positive impact on enhancing the experience using AI with 75.9% of approval from the respondents.

Conclusion

Q-commerce is one of the fastest growing industries in India. The implementation of AI in this field has gained widespread acceptance in the economy. Though it has certain limitation such as job displacement and lack of data security, its advantages such as increased efficiency, effectiveness and productivity has suppressed these limitations. Hence most of the consumers are willing to accept such modes of transformation as it enhance their shopping experience, enrich their satisfaction and ease their process of purchase. Hence every business should implement AI powered solutions in their operations to take advantage of the current situation and become competitive.

References

- [1] Dr. Elangovan N., Dr.Aishwarya Nagarathinam., and Dr. Aarth Chellasamy (2025). "The Influence of Time Pressure and Physical Effort "The Influence of Time Pressure and Physical Effort on Quick Commerce Grocery Purchases: Exploring the Effects of Family Dynamics in Purchase Decisions". Social Science Research Network on Quick Commerce Grocery Purchases: Exploring the Effects of Family Dynamics in Purchase Decisions". Social Science Research Network
- [2] Singh, A., & Sharma, P. (2022). "The Competitive Landscape of Quick Commerce in India: A Study of Blinkit, Zepto, and Swiggy Instamart." *Indian Journal of Business Research*, 10(4), 325-341.
- [3] Bhatia, S., & Gupta, P. (2022). "Changing Consumer Preferences and the Demand for Quick Commerce in Post-COVID-19India." *International Journal of Consumer Studies*, 45(3), 409-425
- [4] Ameen, N., Tarhini, A., Reppel, A., & Anand, A. (2021). Customer experiences in the age of artificial intelligence. *Computers in Human Behavior*, 114, 106548
- [5] Beauchamp, T. L., & Childress, J. F. (2013). *Principles of biomedical ethics* (7th ed.). New York: Oxford University Press.
- [6] Belk, R. (2020). Ethical issues in service robotics and artificial intelligence. *The Service Industries Journal*.
- [7] Belkhir, L., & Elmeligi, A. (2018) Assessing ICT global emissions footprint: Trends to 2040 & recommendations. *Journal of Cleaner Production*, 177, 448–463.
- [8] Bellis, E., & Johar, G. V. (2021). Autonomous shopping systems: Identifying and overcoming barriers to consumer adoption. *Journal of Retailing*, 96(1), 74–87
- [9] Bleier, A., Goldfarb, A., & Tucker, C. (2020). Consumer privacy and the future of data-based innovation and marketing. *International Journal of Research in Marketing*, 37(3), 466–480.
- [10] Bol, N., Strycharz, J., Helberger, N., van de Velde, B., & de Vreese, C. H. (2020). Vulnerability in a tracked society: Combining tracking and survey data to understand who gets targeted with what content. *New Media & Society*, 22(11), 1996–2017.
- [11] G. Baryannis, S. Validi, S. Dani, and G. Antoniou, "Supply chain risk management and artificial intelligence: state of the art and future research directions," *International Journal of Production Research*, vol. 57, no. 7, pp. 2179-2202.