LEVERAGING TECHNOLOGY: IMPACT OF E-COMMERCE ON TRADITIONAL STORES

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ABSTRACT

*The purpose of this research is to analyse the rapid ascent of quick commerce (q-commerce) in India, marked by ultra-fast delivery of groceries and essentials within 10 minutes has disrupted the retail landscape, challenging traditional brick-and-mortar stores. Driven by urban consumers' demand for convenience, technological advancements, and post-pandemic shifts in shopping behavior, q-commerce platforms like Blinkit, Zepto, and Swiggy Instamart have captured over two-thirds of India's e-grocery orders and 10 percent of total e-retail spending by 2024. This sector's market value surged from $300 million in 2022 to $6–7 billion by 2024, with projections of 40 percent annual growth through 2030**. Traditional Kirana stores, once the backbone of India's retail ecosystem, are facing declining footfall as consumers prioritize speed, discounts, and app-based accessibility. The Confederation of All India Traders (CAIT) has raised concerns about the impact of commerce on small retailers, prompting regulatory scrutiny over unfair competition and market dominance. Meanwhile, q-commerce's expansion into Tier 3 cities and categories like electronics and fashion further intensify pressure on local stores*

***Keywords**: Quick commerce (q-commerce), kirana stores, digital transformation, consumer convenience*

INTRODUCTION

India's retail sector is undergoing a seismic transformation, driven by the meteoric rise of q-commerce a hyper-local delivery model promising groceries and essentials at unprecedented speeds. This disruption has cast a shadow over traditional brick-and-mortar stores, particularly the kirana stores, which have historically dominated India's $1.3 trillion retail market. Fuelled by rapid urbanization, smartphone penetration, and post-pandemic consumer preferences for convenience, q-commerce platforms, like Blinkit, Zepto, and Swiggy Instamart, have redefined retail expectations, capturing urban India's urge for instant gratification and prioritising 'apps'm based shopping experiences.

The shift marks a clash between legacy and innovation. While kirana stores, accounting for 80 percent of India's retail trade, struggle with declining footfall and operational inefficiencies, q-commerce leverages micro-warehouses, AI-driven logistics, and delivery staff to meet soaring demand. The pandemic acted as a catalyst, accelerating digital adoption and normalizing online grocery shopping, with q-commerce emerging as a lifeline during lockdowns. In 2024, the sector's market value went up to $6–7 billion up from $300 million in 2022, while traditional retailers struggle with problems of adaptability and survival.

This rapid growth of q-commerce is not without obstacles, like reliance on heavy discounts, risks associated with hyper-fast delivery, and regulatory debates over unfair competition. Meanwhile, small businesses deal with balancing

innovation with inclusivity, seeking strategies to preserve India's vast kirana ecosystem. This introduction explores the forces propelling q-commerce's ascent, its socio-economic ramifications, and the evolving battle for dominance in one of the world's most dynamic retail. The paper covers:

- A brief overview of the Indian e-commerce market and the emergence of quick commerce
- Different quick commerce business models in the grocery market
- The significance of warehousing in optimising the quick commerce supply chain
- The challenges that affect the sustainability of quick commerce in an ever-changing market environment.

The current state and trends in India's retail and e-commerce landscape as of 2024, based on recent industry reports, are mentioned as follows:

1. **E-commerce market size:** India's e-commerce market is projected to reach $200 billion by 2026 (IBEF, 2024). Its penetration in India's retail market was 8 percent in 2023, expected to rise to 13-15 percent by 2026 (Deloitte India).
2. **Growth rate:** Indian e-commerce is expected to grow at a 19–21 percent CAGR (Compound Annual Growth Rate) between 2021–2026 (RedSeer Strategy Consultants, 2024).
3. **Mobile-first market:** 79 percent of all online shopping in India is done through smartphones (Statista, 2024). Rural India is driving the growth in the q-commerce with easy access to smart phones. 60 percent of new e-commerce customers in 2024 came from Tier 3 and smaller cities (Bain & Company,2023). Since 2021, more than 60 percent of new seller base has emerged from Tier-2 and smaller cities, indicating that the seller landscape is also changing.
4. **Traditional retail (physical stores) share:** Traditional retail still holds around 85 percent of India's overall retail market (Technopak Advisors, 2024). Organized retail (like malls, branded outlets) accounts for 12–13 percent. E-commerce is gradually eating into this, especially in categories like fashion, electronics, and groceries.
5. **Kirana Stores (Local Shops):** India has over 12 million kirana stores (Retailers Association of India, 2024). Over 30 percent of such stores have adopted digital solutions like POS machines, WhatsApp ordering, UPI payments (NASSCOM).

India's retail landscape is evolving rapidly, with both online and offline formats playing crucial roles. Online retail offers high convenience, broader product choices, easy price comparison, and growing penetration. It thrives on various applications (apps) and supports various digital payment modes. However, it relies heavily on trust building through reviews and return and exchange policies. On the other hand, offline retail, dominated by traditional stores like kiranas and organized outlets, still accounts for the majority of retail sales. It offers immediate product access, personal interaction, and trust through physical presence but is limited by store hours and inventory space. While online channels are growing fast, especially in electronics and fashion, offline stores remain strong in groceries and daily essentials.

To sum up, online retail is convenience-driven and technology-enabled, while offline retail is experience-oriented and trust-based, with both formats increasingly integrating digital tools to meet changing consumer expectations.

GROWTH OF QUICK COMMERCE IN INDIA

The quick commerce market in India has experienced significant growth, expanding from $100 million in 2020 to an estimated $6 billion in 2024. Major players in this space include Blinkit, Swiggy Instamart, Zepto, and Big Basket have been expanding their operations and services to cater to the growing demand. They offer wide product ranges, doorstep delivery, and discounts that are

hard for physical stores to match. Younger consumers, especially in urban areas, prefer the convenience and speed of e-commerce.

At the heart of the growth of q-commerce lies a seismic shift in the lifestyle and preferences of the consumer. Today the consumer has an option to order just in time, circumventing planning of a purchase cycle and simply live by the day (if not hour!). Groceries, food to consume and even fashion products can be ordered at the click of a button and delivered in 10 minutes. No need of forward planning or any estimation required. Simply order and get fulfilment in minutes. Today's consumer has preferred and given a thumbs up to this model and we are seeing its immense adoption and acceptance. Business paradigms are being disrupted and the way the consumer is buying and consuming product is seeing a big change in the country. It's a case of consumer behaviour and choice fuelling this business service and conversely the availability of this q-commerce service in turn also making it a self-fulfilling prophecy. Simply said since this service exists, the consumer is wanting more and more of it in her daily living lifestyle which in turn is further supporting and giving growth to this service. Almost akin to being called the third wave in consumerism.

Groceries are fast becoming the number one category in this foray of q-commerce and convenience. Also clothing and footwear are the front runners in fast fashion with repetitive purchase cycles. The ease of portraying fashion through AI models, AI photography and influencer marketing bringing in a real time real person endorsement and touch is boosting this business. Companies have built their ecosystems around fast fashion offering by the hour delivery, virtual fitting rooms and app exclusive promotions. Skincare, beauty and personal care segments also have seen multi growth and favoured and benefitted from this revolution using virtual skin care consultants and various machine and AI tools. A lot of developments as seen in Table 1 are happening in this dynamic q-commerce industry and major players are innovating with high powered AI tools, drone services, conversational automated tools and advanced machine learnings.

Table 1: Recent developments in q-commerce

April 2025	Amazon announced the launch of its same-day drone delivery service in select suburbs of Tokyo and Los Angeles, cutting delivery time for Prime users to under two hours.
March 2025	Flipkart partnered with OpenAI to integrate ChatGPT into its shopping app for conversational product searches and personalized recommendations.
February 2025	Shopify introduced a built-in NFT marketplace for digital product creators and D2C brands, expanding the use of tokenized commerce.
January 2025	Shein surpassed Zara and H&M in global downloads and launched a resale platform to address sustainability concerns and increase circular fashion participation.
December 2024	Meta introduced "Live Shop Rooms" across Instagram and Facebook for group livestream shopping experiences, leveraging influencers and real-time discounts.

BACKGROUND AND DISCUSSION

India's retail sector is going through a major shift, with e-commerce growing rapidly and affecting traditional stores. Due to increasing smartphone use, cheap internet, and digital payment options like UPI, more people are shopping online. The COVID-19 pandemic also pushed many consumers and businesses towards digital platforms. At the same time, traditional retail, including local kirana stores and small shops, is facing challenges, with many reporting lower foot fall and reduced sales. Due to rising costs and limited reach, some are trying to go digital by joining platforms like open network for digital commerce or offering free home delivery on goods ordered through WhatsApp.

While e-commerce has created new jobs in delivery, warehousing, and customer service, it is also causing concern over job losses in small retail businesses and weakening of corner stores. There is a growing digital divide between urban and rural areas, with Tier-3 cities still catching up. Many traditional retailers are trying "omni channel" approaches, combining offline service with online sales and digital payments. The way forward may lie in integrating traditional stores into the digital ecosystem.

OPERATING MODEL OF THE QUICK COMMERCE INDUSTRY

This section discusses the operating model of the quick commerce industry. The model is dependent on the availability of internet to consumers. The company's app serves as the first point of contact between the customers and the sellers. Once the customer places an order, it is received by the order execution system and is routed to the distribution centre nearest to the consumer location. The delivery partner picks the goods as per the orders, packs them, and hands them over to the delivery agent, who thereafter delivers the order to the customer.

It is important to note that coordination between dark stores, distribution centres, and downstream delivery partners is crucial for the quick fulfilment of orders (within 10 minutes). As this model has been prevalent now for a while, a lot of data and consumer behaviour has been captured. Data mining and AI aided intelligence can tell with pinpoint accuracy the density of a certain type of consumer, where he resides and what he prefers. This Data driven approach and estimation models can help the Quick Commerce players decide on what product density and availability is needed where and in which warehouse. The model is working on the round the clock machine learning and can forecast demand and product requirement very accurately. Data-driven demand estimation models improve warehouse management efficiency. Without this the order fulfilment process can get delayed and become costly. Through historical customer data analysis and real-time data capturing, various parameters such as high-demand, order volumes, and order seasonality can be predicted in advance. Also, strategic locations for distribution centres are planned by leveraging advanced data management technology. Various parameters such as population density, road networks, and busy zones are considered while selecting the locations to ensure that delivery times are minimised. Many big players have also joined quick commerce by launching various innovative business models on online grocery platforms, BigBasket, Flipkart Minutes, Amazon Fresh, and Myntra M-Now are a few of the key players.

LONG-TERM SUSTAINABILITY CHALLENGES FOR QUICK COMMERCE COMPANIES

The growth of quick commerce has been fuelled by the pandemic, which not only made customers order most products online but also made finance to businesses available at a cheaper cost, with central banks engaging in monetary easing. The phenomenal growth has attracted multiple players in India and worldwide. This has also raised questions about the sustainability of quick-

commerce businesses. To assess the sustainability of the quick commerce industry, this paper has used the three pillars of sustainability provided by the World Conservation Union (IUCN, 2006). The model has put forth three overlapping dimensions namely, economic, social, and environmental, to analyse sustainability. It adopts an interdisciplinary approach to sustainability (Todorov and Marinova, 2009). The economic pillar explores the long-term financial viability of the industry. Here, it has been further divided into financial and market factors to comprehensively analyse the industry's economic sustainability. The social pillar explores the impact of quick commerce businesses on their employees, stakeholders, society, and the overall community. It includes factors like the safety and well-being of the employees at the workplace, philanthropic activities for society and the overall ethical conduct of the businesses involved in the sector. The environment pillar seeks to assess the impact of the industry's business activities on the environment via emissions, pollution, and ecological degradation, among others.

KEY CHALLENGES IN INDIA'S E-COMMERCE SECTOR (2024)

The e-commerce sector in India is growing rapidly, but it faces several critical challenges across operational, technological, financial, and customer-related domains:

i. Logistics and fulfilment require efficient last-mile delivery networks and dark stores, which are costly and complex to manage.

ii. Manpower dependence on gig workers creates issues around workforce stability and reliability. Delivery of the last mile and its service quality needs attention.

iii. Inventory management is challenged by real-time demand fluctuations, leading to stock outs or wastage.

iv. It also poses a challenge to the companies who are selling their product through quick commerce. As the pace increases, they need more robust and just in time estimation of demand models and need to rise to erratic demand spurts.

v. Tech infrastructure must support real-time tracking, dynamic routing, and robust backend systems, requiring significant investment.

vi. Regulatory risks stem from labour laws, data protection policies, and urban zoning restrictions.

vii. Environmental impact arises from excessive packaging and emissions due to frequent deliveries.

viii. Funding dependency highlights reliance on venture capital to absorb losses and scale operations. Sustainability in the short term is an issue and working capital and capex for building capacity is always a challenge.

ix. Market saturation in urban areas leads to price wars and unsustainable competition.

x. Poor unit economics due to high delivery costs and low average order values make profitability difficult. Although most players continue to feed the orders hoping that eventually scale will make it profitable.

xi. Customer retention is low, with high competition forcing deep discounts to retain buyers.

While e-commerce in India is expanding, overcoming these structural and strategic challenges is essential for long-term sustainability and profitability.

The AIDA model (Awareness Interest Desire Action) further illuminates the psychological journey consumers undertake that leads to the adoption of q-commerce over traditional shopping. Q-commerce platforms effectively capture attention through targeted digital marketing and the inherent appeal of rapid delivery. They generate interest by showcasing a wide product selection, user-friendly interfaces, and the promise of significant time savings. This interest evolves into desire as consumers recognize how q-commerce fulfils their need for convenience and immediate access to goods. Finally, the seamless ordering processes and

quick delivery options facilitate action, leading to increased purchases through q-commerce platforms.

As q-commerce becomes more mainstream, it captures the attention of a broader audience, further fuelling interest and desire. The ease of completing a purchase through q-commerce platforms, compared to the time and effort required for traditional shopping, solidifies the shift in consumer behavior. Consequently, traditional stores that haven't adapted by integrating similar convenience-focused strategies have faced increasing difficulty in attracting and retaining customers, particularly those who have embraced the speed and ease offered by the q-commerce model

CONCLUSION

The Indian retail landscape is undergoing a historic transformation, driven by the rapid rise of e-commerce. The study finds that e-commerce, growing at an annual rate of over 19 percent, is increasingly preferred by consumers for its convenience, wider product selection, and competitive pricing. Mobile penetration, digital payment systems like UPI, and aggressive expansion into Tier 3 cities have significantly accelerated this shift.

However, despite the impressive growth of online shopping, traditional retail continues to dominate, retaining approximately 85 percent of the market share as of 2024. Kirana stores and local retailers remain resilient by adopting digital tools such as online ordering systems, UPI payments, and local delivery services, thus blending traditional strengths with modern technologies.

The research concludes that the future of Indian retail will not be a complete replacement of physical stores but a hybrid model where online and offline retail coexist and complement each other. Traditional retailers who adapt digitally are likely to survive and thrive, while those unable to change risk losing relevance. Overall, consumer behaviour is increasingly digital-first, and businesses that prioritize Omni channel strategies, personalised experiences, and technological innovation will define the next era of retail in India.

REFERENCES

- Agarwal, N. (2021). Rise of Dark stores in India – your retail ncoach WhaTech. Retrieved August 18, 2022, from https://www.whatech.com/og/bpm/press-release/697477-rise-of-dark-stores-in-india-yourretailcoach
- Agarwal, A., & Singh, D. P. D. (2024). Dark Stores Case Study through Resource-Based View. *Available at SSRN 4953059*.
- Ariker, C. T. (2021). Do consumers punish retailers with poor working conditions during the COVID-19 crisis: An experimental study of q-commerce grocery retailers. *Pressacademia*, *8*(3), 140–153. https://doi.org/10.17261/pressacademia.2021.1453
- Cappa, F, Oriani, R., Peruffo, E., & McCarthy, I. (2021). Big Data for Creating and Capturing Value in the Digitalized Environment: Unpacking the Effects of V olume, Variety, and Veracity on Firm Performance*. *Journal of Product Innovation Management*, *38*(1), 49–67.
- D'Antonio, G. & Chiabert, P. (2019). Analytical models for cycle time and throughput evaluation of multi-shuttle deep-lane AVS/RS. The International Journal of Advanced Manufacturing Technology, 104, 1919-1936
- Das, D., & Yadav, C. (2021). A framework of hiring strategy for manpower hiring in a hyper-local food delivery organization. *Journal of Advances in Management Research*, *18*(1).
- Dey, A. (2022). Quick commerce: E-tail's great disruptor. *Fortune India, Retrieved from www. fortuneindia. com/long-reads/quick-commerce-e-tails-great-disruptor/107345*.
- Paul, S. (2023) Associate Professor, HNB

Government PG College, Prayagraj, Uttar Pradesh-Q-Commerce and role of technology in its growth; International Journal of Research in Management 2023; 5(2): 292-296, https://www.doi.org/10.33545/26648792.2023.v5.i2c.355

- Ranjekar, G., & Roy, D. (2023). Rise of quick commerce in India: Business models and infrastructure requirements. *Centre for Transportation and Logistics*
- Sahoo, S. R. (2016). From retail to E-tail: The transformation and future. *India: IJCMR*, *2*(9).
- Suresh, S., Rammohan, S. R., & Bharath, K. (Eds.). (2021). Impact of Smart Technologies and Artificial Intelligence (AI) Paving Path Towards Interdisciplinary Research in the Fields of Enginering, Arts, Humanities, Commerce, Economics, Social Sciences, Law and Management-Challenges and Opportunities.
- Eriksson, N., & Stenius, M. (2020). Changing behavioural patterns in grocery shopping in the initial phase of COVID-19 crisis—A qualitative study of news articles.; Open Journal of Business and Management DOI:10.4236/ojbm.2020.85119
- Kandula, S., Krishnamoorthy, S.& Roy, D. (2021)-A prescriptive analytics framework for efficient E-commerce order delivery; Decision Support Systems; Volume 147; ISSN 0167-9236 Indian Institute of Management Ahmedabad; https:// doi.org/10.1016/j.dss.2021.113584
- Bhanver, J., & Bhanver, K. (2017). CLICK!: The Amazing Story of India's E-commerce Boom and Where It's Headed. Hachette UK.
- https://www.bain.com/insights/how-india-shops-online-2023/
- https://www.thehindubusinessline.com/companies/quick-commerce-boom-6-7-b-market-set-for-40-annual-growth-flipkart-bain/article69381572.ece