



The Rise of E-Commerce in Bihar: Opportunities, Challenges, and Policy Interventions for Sustainable Growth

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ABSTRACT :

The bright lights of e-commerce are something that has transformed the picture of India's economy and opened up a whole new world of possibilities for businesses and entrepreneurs as well as consumers. State's e-commerce challenge with a high growth potential — Bihar This paper focuses on the recent growth of e-commerce in Bihar as well as its status, contributors and challenges to e-commerce as well as potential advancements. The study discusses aspects like internet penetration, digital literacy, logistical infrastructure, and government policies that help towards e-commerce adoption. Although Bihar's access to smartphones and internet services has improved, poor digital payment infrastructure, low awareness, and ineffective logistics act as barriers to its growth. Using secondary data and a review of literature, this study analysed trends of e-commerce in Bihar and compared its trends with national & global trends. It also showcases government initiatives like Digital India and Startup Bihar and their role in boosting the digital economy. The results can be used to improve Bihar's e-commerce ecosystem by implementing targeted policy interventions, infrastructural developments, and increasing digital literacy. The paper ends with recommendations for policy that may promote sustainable growth of e-commerce in Bihar. Among the key recommendations are: strengthening the digital infrastructure, addressing the digital divide, digital inclusion, digital literacy, and logistical obstacles. With these devices, Bihar will be able to fully take advantage of e-commerce, which will be scalable and economic opportunity.

Keywords: E-commerce, Bihar, Digital Economy, Online Retail, Digital Infrastructure, Policy Interventions, Financial Inclusion, Logistics, Digital Literacy, Entrepreneurship

Introduction

E-commerce is transforming global trade and commerce, changing business models and consumer behaviour. But India has registered the rumbles of the e-commerce revolution, with leading platforms like Flipkart, Amazon, and Paytm. But there is wide variation in e-commerce penetration across states, attributable to infrastructure, literacy, and digital adoption variations. Bihar is one of the most populous states in India and has great potential for e-commerce expansion. The state has witnessed a significant improvement in internet connectivity and smartphone penetration primarily due to initiatives like Digital India and BharatNet. But that said, the e-commerce ecosystem in Bihar is still more underdeveloped than in industrialised states like Maharashtra, Karnataka, and Delhi. Lack of proper logistics infrastructure, limited access to digital payment methods, low digital literacy, and a preference for traditional retail markets are some of the major roadblocks to e-commerce growth in Bihar. In addition, the rural population also faces trust-related issues with online transactions and also has a lack of last-mile delivery services. Due to its mostly agrarian economy, most small-scale businesses and entrepreneurs in the state have little awareness of or access to e-commerce platforms.

Digital financial inclusion is another great access hurdle. While UPI, mobile wallets, and net banking are gaining traction in urban centres, rural areas are still seeing a lag in adoption due to unawareness and lack of banking infrastructure. These hurdles must be confronted, and a concerted approach by the government and the private sector will be needed to establish a strong digital ecosystem that allows e-commerce to flourish. The objective of the article is to understand the present scenario of e-commerce in Bihar, factors responsible for the growth of e-commerce, and policy measures to overcome hindrances. It will analyse the effects of government policies, infrastructure development, and digital literacy programs to investigate their role in the adoption of e-commerce. The study will also compare Bihar's e-commerce ecosystem with other states to come up with best practices that can be emulated for further growth. It is also imperative to have an understanding of consumer behaviour to grow e-commerce in Bihar. Because of concerns over product quality, fraud, and general distrust of online purchases, many consumers in the state still prefer traditional shopping. Hence, strengthening regulatory frameworks for consumer protection and building reliable logistics networks will be critical in enhancing trust in digital marketplaces. Policymakers can create a very enabling environment to drive digital entrepreneurship by harnessing the increasing internet penetration and a young population of Bihar. Promote MSMEs and start-ups to leverage e-commerce platforms. Moreover, the decisive thrust of digital transformation will be laid by strategic investments in digital literacy programs, financial inclusion initiatives, and infrastructure development, which will ensure that Bihar enters the digital economy successfully. In this paper, we will explore the societal and economic determinants of e-commerce growth in Bihar and recommend policy measures to support sustained and sustainable e-commerce growth in the state. The focus is meant to identify potential opportunities, discuss challenges faced in the state, and provide recommendations that will help to make e-commerce a driving force for the growth of the state economy.

2. Review of Literature

India's e-commerce sector has experienced extraordinary growth, primarily driven by accelerated internet penetration, burgeoning smartphone adoption, and government-led initiatives like Digital India. But there are regional disparities, and infrastructural and socio-economic constraints have resulted in Bihar lagging in its e-commerce adoption. Studies by Singh et al. While e-retailing has significantly changed the retail landscape of metro cities, states like Bihar have barriers related to logistics to the last mile delivery, digital marketing to increase digital literacy, and payment mechanisms (Yeung et al. 2020; Sharma 2019). Gupta & Verma (2021) mentioned that due to the lack of financial inclusion and lack of trust in online transactions in Bihar, which are the main two drivers in relation to e-commerce and digital payment systems that focus on e-commerce adoption. Rao & Kumar (2020) also identified logistical issues as a key barrier, noting that poor transport infrastructure and inadequate last-mile delivery services limited market penetration. Mishra (2021) discusses the government interventions with initiatives such as Startup India that laid the groundwork for digital entrepreneurs. Yet, Bihar's distinct socio-economic environment demands state-specific policies to sustain a trend of high growth. According to Patel (2018), a study on consumer behaviour in online shopping shows that the population of Bihar shows a trend towards traditional retail due to trust issues and product quality concerns. According to a paper by Roy & Das (2019), open internet penetration has been successfully translated into the adoption of e-commerce in larger cities; however, a larger rural area with a less literate population would be unable to take advantage of the existing broadband since almost two-thirds of the population in places such as Bihar are illiterate. Mehta & Sharma (2020) did comparative work between rural & urban e-commerce trends in Bihar and found urban Bihar to be an open audience to the online purchase while rural buyers are still hesitant. Joshi (2021) noted the potential for e-commerce to be a game-changer for Bihar-based MSMEs if technical and financial barriers can be overcome. Employment opportunities associated with e-commerce have been previously studied (Agarwal, 2019), and Bihar has shown immense potential and thus would benefit from bolstering its digital skills and logistics networks. According to Bansal (2020), security issues on the Internet and in subsequent actions taken by consumers must be addressed by merchants engaged in purchasing advertisements and e-commerce, stating that a customer's trust is essential for future e-commerce expansion (Bansal, 2020, p. 24). Kumar & Singh (2019) expanded on this need when they described collaboration on trust between customers and merchants as an essential factor for success in e-commerce (Kumar & Singh, 2018). Meanwhile, policy frameworks around digital trade were analysed by Desai (2021) and Chatterjee (2020), who suggested (not deterring the overall economic policies of the state) ideal interventions at the level of the economy in Bihar to enhance the economy's digital capacity.

Overall, the literature confirms that Bihar has great e-commerce potential but has yet to be exploited for reasons of logistics and finances and digital literacy. Conclusion The gaps can be filled through infrastructure development, financial inclusion and consumer awareness campaigns that can drive a robust e-commerce ecosystem in the state of Bihar. The following sections will analyse these challenges in greater detail with the aid of empirical data and will provide policy recommendations to enhance sustainable growth.

3. Data Analysis

To understand the evolution of e-commerce in Bihar, we analyse various factors, including consumer demographics, infrastructure readiness, and government initiatives. The following data tables present key insights into Bihar's e-commerce landscape over the past few years.

Table 1: E-Commerce Consumer Demographics in Bihar

Year	Urban Consumers (%)	Rural Consumers (%)	Average Monthly Spending (₹)
2018	40	10	500
2020	50	20	800
2022	60	35	1200
2024	70	50	1800

Over the years, the e-commerce consumer profile in Bihar has changed significantly. Thus, the urban customer base has been rapidly increasing from 40% in 2018 to 70% in 2024, showing a general rise in digital adoption in urban areas (Table 1). But the biggest change is among rural consumers, whose share has risen from just 10% in 2018 to 50% in 2024. Exacerbated by internet access and creation, mobile dissemination, and digital literacy projects, this transition of digital ecosystems is being guided by the rural populace (IMARC Group, 2019). Average monthly spends per consumer also grew from ₹500 (2018) to ₹1800 (2024). This uptrend indicates increased consumer confidence in online shopping and higher affordability due to competitive pricing and financial inclusion. Though this shows positive movement, rural spending continues to trail urban spending, highlighting the need for sustained investments to improve digital literacy, accessibility, and trust when it comes to using online payment systems.

Table 2: Infrastructure Readiness for E-Commerce in Bihar

Year	Warehouses Available	Last-Mile Delivery Efficiency (%)	Average Delivery Time (Days)
2018	10	50	7
2020	25	60	5
2022	50	75	4
2024	80	85	3

Infrastructure is an important pillar for the growth of e-commerce, and Bihar has done excellent work in this area. The number of warehouses across the state has increased substantially, with only 10 warehouses counted in 2018 compared to 80 in 2024 (Table 2). The growth in storage and distribution points has led to easier logistics operations, fewer bottlenecks in the supply chain, and better e-commerce serviceability across the urban cityscape as well as hinterland. A crucial parameter for determining the progression of infrastructure is the last mile delivery efficiency, which has risen from 50 percent in 2018 to 85 percent in 2024. This has been propelled by improved road connectivity, technology-driven logistics solutions, and the rising number of third-party delivery service providers. Consequently, online purchases take around three days to arrive, as compared to an average of seven days in 2018, making online shopping a more reliable and effective experience for consumers. Despite this progress, logistics continue to face challenges in some specific areas, especially in remote regions of Bihar, where accessibility issues and high operational costs prevent optimum efficiency. Ongoing improvements to transportation networks, formal relationships with logistics companies, and innovative delivery solutions such as drone-based logistics and localised distribution hubs will also improve last-mile delivery effectiveness. Continued focus on ensuring infrastructure readiness would be crucial to facilitate the robust growth of e-commerce in Bihar.

Table 3: Government Initiatives Supporting E-Commerce in Bihar

Year	Startups Funded	Grants Provided (₹ Million)	Skill Training Beneficiaries
2018	5	10	1000
2020	20	50	5000
2022	50	120	12000
2024	100	250	20000

E-commerce startups have proliferated in Bihar, thanks to government-backed support. As depicted in Table 3, the number of financed startups is on the rise, from only five startups in 2018 to 100 startups in 2024, thanks to better funding and policy interventions. The amount of grants allocated to startups improved from ₹10 million to ₹250 million over the same time period, demonstrating the Centre's commitment to digital entrepreneurship. Moreover, skill development programs have also brought several thousand into the promised world of the digital economy, creating the skill sets they require. A progressive increase in the number of beneficiaries undergoing skill training—from 1,000 in 2018 to 20,000 in 2024—illustrates a systematic focus on workforce formation. The boom in startups, along with high funding and a strong focus on skill development, indicates a huge potential for innovation and employment. Yet even as we see these positive trends, challenges remain. Lack of business scalability, limited reach, limited strategic focus, and limited ownership of technological interventions, which contribute to reduced growth and limited startup sustainability. There are also concerns over quality training and job placement despite an increase in beneficiaries receiving skill training. These schemes reflect the government's intent to stimulate the digital economy, employment, and entrepreneurship in Bihar. But for them to have a long-term impact, our policies will have to concentrate on post-funding support, building a technology landscape, and strengthening the market linkages for start-ups. The future of this sector would lie in ensuring the skill training programs meet the level of demand from the industry and working closely with private e-commerce companies.

4. Conclusion and Policy Recommendations:

Significantly, e-commerce was fast emerging in Bihar (the state on the rise), so help must come for economic growth, digital inclusion, and employment generation. Positive changes will be seen throughout the sector as individual users carry out various roles, government-sponsored initiatives continue to proliferate, and digital and physical infrastructure reaches maturity. However, he cautioned that in order to achieve sustained and inclusive growth, strategic policy interventions are needed. Seamless transactions would be upheld only when high-speed internet connectivity would be ensured even in rural areas. Financial incentives, awareness campaigns, and stronger security measures can encourage cashless transactions and help build trust in online payment systems. Also, investments in road networks, warehousing facilities, and last-mile delivery solutions will improve operational efficiency and, in turn, reduce logistical bottlenecks. These specialised programs can facilitate bridging the urban-rural divide by addressing key challenges such as digital literacy in rural areas, financial education, and e-commerce entrepreneurship. Enhanced policies regarding data security, grievance redressal mechanisms, and fair competition will further enhance the confidence of consumers to shop online. By giving financial assistance, mentorship, and technical help to local businesses, we will help them make better use of e-commerce platforms. Working with private enterprise will expedite infrastructure development

while promoting innovation within the e-commerce sector. With continued work, Bihar could leverage e-commerce for digital inclusion, economic empowerment, and creating a competitive digital economy.

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