



Analysis of Indian Logistics Industry

Pramod Lukose

M.Com , M.Ed., M.G. University

DOI : <https://doi.org/10.5281/zenodo.23100596>

ARTICLE DETAILS

Research Paper

Received: 16-07-2026

Accepted: 15-08-2026

Published: 25-09-2026

Keywords:

Indian logistics industry, supply chain management, multimodal transport, National Logistics Policy, PM GatiShakti, digital logistics, logistics performance

ABSTRACT

The Indian logistics industry is a critical component of economic activity because it connects producers, manufacturers, traders, service providers, exporters, and consumers through transportation, warehousing, inventory management, freight forwarding, distribution, and related digital services. This article analyses the structure, growth drivers, infrastructure, policy environment, technological transformation, major challenges, and future prospects of India's logistics industry. The study adopts a descriptive and analytical approach based primarily on secondary information from government publications, the World Bank, and policy documents. The analysis indicates that the sector is undergoing a structural transition from fragmented and transport-dominated operations toward integrated, multimodal, technology-enabled supply-chain management. The National Logistics Policy (NLP), PM GatiShakti National Master Plan, Unified Logistics Interface Platform (ULIP), Logistics Data Bank, dedicated freight corridors, port modernization, highway development, GST-enabled market integration, and the expansion of organized warehousing are important contributors to this transition. The Government of India reported that the latest scientifically derived assessment placed logistics costs at about 7.97% of GDP, substantially different from the older 13–14% estimates often cited in policy discussions. India also improved its World Bank Logistics Performance Index position to 38th among 139 economies in 2023.

Disclaimer: The opinions, interpretations, conclusions, recommendations, analyses, and statements expressed in this research article are solely those of the author(s) and do not reflect the views, policies, or positions of the Publisher, Chief Editor, Editors, Editorial Board, Reviewers, or their affiliated institutions. The author(s) are solely responsible for ensuring the originality, authenticity, and integrity of the manuscript and for ensuring that it is free from plagiarism, AI-generated content, copyright infringement, data falsification, and any other form of academic misconduct.

Nevertheless, the industry continues to face challenges involving fragmentation, uneven infrastructure quality, last-mile inefficiencies, skill shortages, urban congestion, regulatory coordination, environmental pressures, and the need for greater adoption of advanced technologies by small firms. The article concludes that India's logistics competitiveness will depend on multimodal integration, digital interoperability, green logistics, professional skill development, reliable infrastructure, and stronger collaboration between government and industry.

Introduction

Logistics is the process through which goods, information, and associated services move from the point of origin to the point of consumption. In a modern economy, logistics is not limited to transportation. It includes procurement, inventory management, warehousing, packaging, freight forwarding, customs procedures, distribution, order fulfilment, and increasingly the digital coordination of supply chains. The performance of logistics therefore affects the cost, speed, reliability, and competitiveness of virtually every productive sector.

In India, the importance of logistics has increased with economic growth, urbanisation, expansion of manufacturing, e-commerce, organised retail, agricultural commercialization, and the country's integration with global value chains. The geographical scale of India, diversity of production centres, large consumer markets, and differences in transport infrastructure across regions make efficient logistics especially important. An effective logistics system can reduce inventory requirements, improve delivery reliability, increase market access, support exports, and strengthen the competitiveness of micro, small, and medium enterprises (MSMEs).

Policy attention to logistics has increased substantially during the last decade. PM GatiShakti seeks to improve integrated infrastructure planning and multimodal connectivity, while the National Logistics Policy (NLP), launched in September 2022, focuses on improving logistics services, processes, digitisation, skills, and institutional coordination. The Government's stated objective is to develop a technologically enabled, integrated, cost-efficient, resilient, sustainable, and trusted logistics ecosystem. The policy also established the ambition of bringing India's Logistics Performance Index ranking into the top 25 countries by 2030 (Prime Minister of India, 2022a).



Recent evidence suggests that the sector is moving toward greater efficiency. The Department for Promotion of Industry and Internal Trade (DPIIT), drawing on an NCAER assessment released in 2025, reported India's logistics cost at approximately 7.97% of GDP using a comprehensive hybrid methodology. This is important because earlier discussions frequently relied on estimates of 13–14% of GDP. The newer estimate provides a more systematic basis for assessing the sector and designing policy interventions (DPIIT, 2025).

Objectives of the Study

- To examine the structure and major components of the Indian logistics industry.
- To analyse the major factors influencing the growth and transformation of logistics in India.
- To assess the role of infrastructure, technology, and government policy in improving logistics performance.
- To identify major operational and structural challenges faced by the industry.
- To examine emerging opportunities and suggest measures for strengthening India's logistics competitiveness.

Methodology

The study is descriptive and analytical in nature and is based on secondary data and documentary evidence. Information was reviewed from Government of India publications, the Economic Survey, DPIIT logistics reports, official policy documents, and the World Bank's Logistics Performance Index. The analysis focuses on the structure of the industry, infrastructure, policy reforms, technology, performance indicators, challenges, and future prospects. No primary survey was conducted. Consequently, the conclusions are interpretive and intended to provide a broad assessment of the Indian logistics ecosystem rather than firm-level causal estimates.

Structure of the Indian Logistics Industry

The Indian logistics industry consists of multiple interconnected activities. Road freight is particularly important for domestic distribution because it offers flexibility and supports first- and last-mile connectivity. Railways are important for long-distance movement of bulk and containerised cargo, while ports are central to India's international trade. Inland waterways and coastal shipping have potential to



provide lower-cost alternatives for suitable cargo. Air cargo serves high-value, time-sensitive, and perishable products.

Warehousing has also become a major component of the logistics ecosystem. The traditional model of small, fragmented storage facilities is increasingly being complemented by modern warehouses, fulfilment centres, cold-chain facilities, distribution hubs, and logistics parks. E-commerce and organised retail have increased demand for strategically located warehouses capable of rapid order processing and inventory visibility.

Third-party logistics (3PL) and fourth-party logistics (4PL) providers are gaining importance as firms increasingly outsource transportation, warehousing, freight forwarding, and supply-chain management. Logistics service providers can consolidate shipments, improve vehicle utilisation, provide tracking, and help firms manage complex distribution requirements. The development of specialised logistics service providers is therefore contributing to professionalisation of the industry.

Major Drivers of Industry Growth

Economic Growth and Manufacturing

Expansion of manufacturing and domestic consumption creates sustained demand for freight movement and warehousing. Initiatives associated with manufacturing, industrial corridors, export promotion, and production-linked incentives can increase the volume and complexity of supply chains. As manufacturing becomes more geographically distributed, the need for dependable multimodal connectivity and regional distribution networks becomes stronger.

E-Commerce and Digital Consumption

The rapid growth of e-commerce has changed consumer expectations regarding delivery speed, order visibility, and returns management. Logistics companies have responded by establishing fulfilment centres, urban delivery networks, automated sorting systems, and technology-enabled last-mile operations. The expansion of digital payments and online commerce has further supported this transformation.

GST and Market Integration

The introduction of the Goods and Services Tax helped simplify the indirect tax structure and reduced some of the incentives for maintaining warehouses primarily for tax reasons. A more integrated national market can enable firms to reconsider distribution networks based on logistics efficiency rather than

state-level tax considerations. However, physical infrastructure and local operating conditions continue to influence the effectiveness of such network redesign.

Infrastructure Development

Investment in highways, rail freight, ports, dedicated freight corridors, logistics parks, inland waterways, and urban infrastructure is essential for lowering transit times and improving reliability. PM GatiShakti is particularly important because it seeks to coordinate infrastructure planning across ministries and sectors rather than treating individual projects as isolated investments.

Government Initiatives and Policy Framework

The National Logistics Policy represents an important shift from viewing logistics as a collection of individual transport modes toward treating it as an integrated national ecosystem. The policy complements PM GatiShakti: the latter emphasises integrated infrastructure planning, while NLP focuses more strongly on services, processes, digitalisation, skills, and institutional coordination. The policy seeks to reduce logistics costs toward global benchmarks, improve India's international logistics performance, and create data-driven decision-making systems (Prime Minister of India, 2022b).

One of the most significant digital initiatives is the Unified Logistics Interface Platform (ULIP), which seeks to connect logistics-related digital systems and make relevant data and services accessible through a common interface. The Economic Survey 2023–24 reported that the platform integrated 36 logistics-related digital systems across eight ministries and provided real-time information across a large number of data fields. The Logistics Data Bank also supports tracking of containerised export-import cargo through technologies such as RFID and IoT (Ministry of Finance, 2024).

Other important initiatives include Dedicated Freight Corridors, Bharatmala Pariyojana, Sagarmala, logistics parks, integrated check posts, warehouse modernisation, and digital trade facilitation. Collectively, these measures are intended to reduce bottlenecks and increase the reliability of freight movement. The policy approach also recognises that infrastructure alone is insufficient: standardisation, skills, regulatory coordination, and technology adoption are equally important.

Logistics Performance of India

The World Bank's Logistics Performance Index (LPI) provides an international benchmark based on dimensions including customs, infrastructure, international shipments, logistics competence, tracking and tracing, and timeliness. India ranked 38th among 139 countries in the 2023 LPI, improving from 54th in

2014. The Government of India has highlighted this improvement as evidence of progress in both physical and soft logistics infrastructure (Press Information Bureau, 2024).

India's performance has also been notable in international shipments and port turnaround. Government reporting based on the LPI 2023 indicated that India ranked 22nd in the international shipments category and that the average port turnaround time cited for Indian ports was 0.9 days, comparing favourably with several major logistics economies (Press Information Bureau, 2025). These indicators suggest that reforms in customs, port operations, digital systems, and infrastructure are contributing to greater efficiency.

Table 1

Selected Indicators of India's Logistics Transformation

Indicator	Reported position/value	Significance
Logistics cost	About 7.97% of GDP (2023–24 assessment)	Provides a newer evidence-based national estimate
LPI overall rank	38th of 139 (2023)	Shows improvement in international logistics performance
International shipments	22nd (LPI 2023)	Indicates improving ability to arrange international shipments
Port turnaround	0.9 days (reported for LPI 2023)	Reflects efficiency of port operations
NLP target	Top 25 LPI ranking by 2030	Provides a medium-term policy benchmark

Note. Compiled from DPIIT (2025), Press Information Bureau (2024, 2025), and Prime Minister of India (2022b).

Technology and Digital Transformation

Technology is changing logistics from a largely asset-based activity into a data-driven service. GPS-based fleet tracking, warehouse management systems, transport management systems, electronic documentation, digital freight platforms, RFID, IoT sensors, cloud computing, artificial intelligence,



machine learning, and predictive analytics can improve visibility and decision-making. Real-time tracking can reduce uncertainty, while data analytics can help firms forecast demand and optimise routes.

Automation is increasingly relevant in warehouses and distribution centres. Automated storage and retrieval systems, conveyor systems, barcode and RFID scanning, robotics, and algorithmic order allocation can improve productivity where volumes justify investment. However, the adoption rate is uneven. Large organised firms generally have greater capacity to invest in digital systems, whereas small transport operators and warehouses may face financial, technical, and skill-related barriers.

Digital interoperability is therefore a central issue. If shippers, carriers, ports, customs agencies, warehouses, and regulators use disconnected systems, the benefits of individual technologies remain limited. Platforms such as ULIP seek to address this problem by improving data connectivity across logistics-related government systems. The long-term goal should be secure, standardised, interoperable logistics data that can support both public policy and private business decisions.

Multimodal Logistics and Infrastructure

India has historically depended heavily on road transport for domestic freight. Roads provide important flexibility, but long-distance road dependence can increase fuel consumption, congestion, and emissions. Multimodal logistics seeks to combine road, rail, ports, coastal shipping, and inland waterways according to the characteristics of the cargo and the required delivery time.

Dedicated Freight Corridors can improve rail freight capacity and reliability by separating freight movement from passenger-dominated routes. Port connectivity and coastal shipping can provide alternatives for suitable cargo. Similarly, inland waterways can be valuable for bulk commodities where navigability, terminal infrastructure, and reliability permit commercial use. Multimodal logistics parks can facilitate transfer between modes and reduce handling inefficiencies.

The challenge is not merely building individual infrastructure assets. The entire chain must function as a connected system. A modern port is less useful if cargo faces severe congestion on connecting roads or railways. Similarly, a freight corridor produces greater benefits when terminals, warehouses, customs systems, and last-mile networks are efficient. Integrated planning is therefore fundamental to logistics competitiveness.



Major Challenges

Fragmentation of the Industry

A large part of India's road freight ecosystem consists of small operators and fragmented fleets. Fragmentation can make coordination difficult, limit access to capital and technology, and reduce the bargaining power and managerial capacity of individual operators. Consolidation and professionalisation may improve efficiency, but policies must also ensure that small enterprises are not excluded from the benefits of digitalisation.

Last-Mile and Urban Logistics

Urban freight faces congestion, parking constraints, restrictive delivery windows, narrow roads, and increasing consumer expectations. The last mile can account for a disproportionate share of delivery complexity and cost. Solutions may include urban consolidation centres, route optimisation, electric delivery vehicles, parcel lockers, better curb management, and coordinated city logistics policies.

Skill Gaps

Modern logistics requires professionals who understand transportation, inventory, data analytics, warehouse management, customs, digital systems, sustainability, and supply-chain risk. Skill shortages can limit the ability of firms to use new technologies effectively. The National Logistics Policy therefore places emphasis on human-resource development and skill formation.

Sustainability and Environmental Pressure

Logistics contributes to fuel consumption, greenhouse-gas emissions, air pollution, noise, packaging waste, and land use. The transition toward sustainable logistics requires greater use of rail and waterways where feasible, cleaner vehicles, electric mobility, renewable energy in warehouses, efficient route planning, reverse logistics, and environmentally responsible packaging. Green logistics should increasingly be considered an efficiency strategy rather than merely a compliance requirement.

Regulatory and Institutional Coordination

Logistics crosses multiple jurisdictions and government agencies. Differences in standards, approvals, local rules, and operating procedures can increase transaction costs. Digital integration can reduce some friction, but institutional coordination must continue at central, state, and local levels.



Consistent implementation is particularly important because logistics networks operate across administrative boundaries.

Opportunities and Future Prospects

India's logistics industry has substantial growth potential because of the scale of domestic consumption, expanding manufacturing, e-commerce, exports, infrastructure investment, and digitalisation. The country's ambition to become a more important manufacturing and trading hub increases the strategic importance of reliable logistics. The combination of PM GatiShakti, NLP, infrastructure expansion, and digital platforms creates an institutional foundation for long-term improvement.

Artificial intelligence and advanced analytics are likely to play a larger role in demand forecasting, route planning, predictive maintenance, fraud detection, warehouse optimisation, and dynamic capacity allocation. Internet of Things devices can improve shipment visibility and condition monitoring, particularly for pharmaceuticals, food, and other temperature-sensitive goods. Drones may have niche applications in difficult-to-reach locations and specialised deliveries, although regulatory, safety, and economic constraints will determine their scale.

Green logistics is another major opportunity. Electrification of last-mile fleets, alternative fuels, energy-efficient warehouses, renewable power, modal shifts, packaging optimization, and circular supply chains can reduce environmental impact while potentially lowering operating costs. India's large market gives logistics companies an opportunity to develop scalable solutions suited to local conditions.

India can also strengthen its position as a global logistics hub by improving port connectivity, trade facilitation, customs efficiency, multimodal corridors, logistics parks, and integration with global value chains. A competitive logistics ecosystem can support MSMEs by lowering market-access barriers and enabling smaller producers to participate in national and international supply chains.

Discussion

The analysis demonstrates that the Indian logistics industry is experiencing a transition from fragmented, mode-specific operations toward an integrated logistics ecosystem. Improvements in the LPI, infrastructure investment, digital platforms, and policy reforms indicate meaningful progress. At the same time, the sector's performance cannot be judged only by national averages. Logistics conditions differ substantially by geography, commodity, firm size, and transport mode. The challenge is therefore to ensure



that improvements at major ports and corridors translate into better service quality throughout the wider supply chain.

The updated logistics-cost assessment is particularly important. The 7.97% estimate reported by DPIIT/NCAER should not be directly treated as a simple continuation of earlier 13–14% estimates because the methodologies differ. Instead, it provides a stronger baseline for future measurement and benchmarking. Consistent measurement will allow policymakers to identify where costs arise and determine whether investments actually produce measurable improvements.

Another important finding is that infrastructure and digitalisation are complementary rather than competing priorities. Digital systems cannot compensate for inadequate roads, rail connectivity, ports, or warehouses. Conversely, physical infrastructure cannot deliver its full potential when information flows are slow, fragmented, or unreliable. The future of Indian logistics therefore depends on combining hard infrastructure, soft infrastructure, digital interoperability, human skills, and effective institutions.

Recommendations

1. Strengthen multimodal connectivity by coordinating roads, railways, ports, inland waterways, logistics parks, and last-mile networks.
2. Expand digital interoperability so that logistics data can move securely across government agencies and private-sector participants.
3. Support small transporters and logistics firms through affordable digital tools, training, financing, and technology adoption programmes.
4. Develop specialised logistics skills in data analytics, warehouse management, multimodal transport, customs, digital platforms, and sustainability.
5. Promote green logistics through electric mobility, modal shifts, energy-efficient warehouses, renewable energy, and circular supply-chain practices.
6. Improve urban freight planning through dedicated delivery zones, consolidation systems, smart routing, and coordination between local governments and logistics providers.
7. Maintain transparent and consistent logistics-cost measurement so that policy outcomes can be evaluated using comparable data over time.



8. Strengthen India's international logistics competitiveness through faster customs, better port connectivity, reliable tracking, and integration with global value chains.

Conclusion

The Indian logistics industry is strategically important to economic growth, manufacturing competitiveness, trade, employment, and consumer welfare. The sector is undergoing substantial transformation through infrastructure development, multimodal planning, digitalisation, organised warehousing, and policy reforms. The National Logistics Policy and PM GatiShakti provide a coordinated framework for improving both physical and service-level aspects of the logistics ecosystem.

India has made measurable progress, including an improved Logistics Performance Index position and the development of digital systems such as ULIP and the Logistics Data Bank. The newer national logistics-cost assessment also provides a more robust basis for understanding the economic burden of logistics. Nevertheless, fragmentation, last-mile inefficiencies, skill shortages, environmental pressures, uneven infrastructure, and coordination challenges remain.

Going forward, India's objective should not simply be to move goods faster, but to build a logistics system that is reliable, affordable, digitally connected, environmentally sustainable, and resilient. Greater integration of transport modes, technology, skilled human resources, data-driven policy, and public-private collaboration can enable the logistics industry to become a stronger foundation for India's domestic economic development and global competitiveness.

References

DPIIT. (2025, September 20). Assessment of logistics cost in India: Strengthening data-driven logistics planning. Ministry of Commerce & Industry, Government of India. <https://www.dpiit.gov.in/>

Donald J, Bowers ox & David J. Closs (2007) "Logistics Management" TataMcGraw-Hill Publication: pp 3 to 20

Ministry of Finance. (2024). Economic Survey 2023–24. Government of India. <https://www.indiabudget.gov.in/>

Press Information Bureau. (2024, February 7). India ranks 38 out of 139 countries on World Bank's Logistics Performance Index Report 2023. Government of India. <https://www.pib.gov.in/>



Press Information Bureau. (2025, February 11). Logistics Performance Index. Ministry of Ports, Shipping and Waterways, Government of India. <https://www.pib.gov.in/>

Prime Minister of India. (2022a, September 17). PM launches National Logistics Policy. Government of India. <https://www.pmindia.gov.in/>

Prime Minister of India. (2022b, September 21). Policy introduces Unified Logistics Interface Platform, standardization, monitoring framework and skill development for greater efficiency in logistics services. Government of India. <https://www.pmindia.gov.in/>

Vinod V. Sople (2007) ""Logistics Management" Pearson Publication; pp 2 to 13.

World Bank. (2023). Connecting to compete 2023: Trade logistics in an uncertain global economy—The Logistics Performance Index and its indicators. World Bank. <https://lpi.worldbank.org/>