

DECODING INDIA'S MULTIMODAL SHIFT:

Can 2025 be the turning point for seamless freight movement?

India's logistics sector stands at a crossroads in 2025, poised for a multimodal revolution that could redefine freight movement. With ambitious infrastructure projects like Dedicated Freight Corridors (DFCs), Multimodal Logistics Parks (MMLPs), and the Unified Logistics Interface Platform (ULIP) gaining traction, the nation is betting big on integrating road, rail, air, and waterways. Technology—AI, IoT, and blockchain—is driving efficiency, while public-private partnerships (PPPs) promise to accelerate progress. Yet, challenges like regulatory fragmentation, data silos, and legacy systems persist. This feature unpacks the data, expert insights, and global lessons to explore whether 2025 could mark the inflection point for seamless, cost-effective freight movement in India—or if the journey demands more time.

» Sandhya Jha

Imagine a single freight train in India hauling enough cargo to fill 300 trucks—yet the nation's railways carry just 18% of its goods, dwarfed by road's 65% dominance. This quirky imbalance defines India's logistics saga, where inefficiency costs \$200 billion yearly, outpacing peers like Germany or Japan. But change is rumbling down the tracks. With the National Logistics Policy eyeing an 8% GDP cost target by 2030, multimodal integration is the new buzzword—blending highways, rails, ports, and rivers into a fluid network. As 2025 looms, India's freight future hangs on a bold question: can it finally sync its sprawling systems?

A Multimodal Dream in Motion

India's logistics landscape is an intricate and evolving network of highways, rail corridors, ports, and waterways, each playing a distinct yet interconnected role in shaping the movement of goods. For decades, road transport has remained the dominant mode, accounting for nearly 65% of total freight movement, while rail and waterways have significantly lagged behind at 18% and 2%, respectively. This over-reliance on road transport has resulted in higher logistics costs, inefficiencies, and environmental concerns. However, a paradigm shift is underway, fueled by ambitious government policies and



large-scale infrastructure investments aimed at enhancing multimodal connectivity.

The National Logistics Policy (NLP), launched in 2022, aims to reduce India's logistics costs from the current 13-14% of GDP to around 8% by 2030, with multimodal integration at its core. The government's focus on Dedicated Freight Corridors (DFCs), Gati Shakti, and Multi-Modal Logistics Parks (MMLPs) signals a transformation that could reach a critical milestone by 2025. Industry leaders, policymakers, and analysts are closely monitoring this shift, as data underscores both the scale of opportunity and the challenges

ahead. The question remains—will 2025 be the year that India truly embraces multimodal logistics as the backbone of its freight ecosystem, or will it serve as just another stepping stone in a long journey toward seamless transportation?

The magnitude of India's freight movement is staggering. In FY 2024, the country transported approximately 1,600 million tonnes of cargo. With the operationalization of the DFCs in 2021, rail freight capacity has increased, handling an impressive 120 million tonnes annually across its eastern and western corridors. Meanwhile, India's port throughput reached 820 million



ARUN KUMAR
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"Pinpointing a single turning point for multimodal integration is unrealistic. DFCs, MMLPs, and ULIP are progress markers, but full-scale transformation takes time. We will see substantial post-2025 gains, but regulatory alignment and infrastructure readiness remain critical hurdles to overcome."

tonnes in FY 2024, reflecting a 7% increase from the previous year, thanks to modernization efforts under the Sagarmala initiative. Yet, inefficiencies persist—trucks move slowly, rail turnarounds take time, and port delays add up. The multimodal push is about tackling these pain points head-on.

Technology: The Digital Backbone of Multimodal Freight

The role of technology in enabling seamless multimodal freight movement cannot be overstated. Aditya Shah, Executive Director of V-Trans India Ltd. and CEO of V-Xpress, puts it plainly, "Technology is the backbone of seamless multimodal freight movement. The adoption of AI-driven route optimization, IoT-enabled real-time tracking, and blockchain-powered

smart contracts has enhanced visibility, reduced transit delays, and improved cost efficiency." He breaks it down, "AI optimizes routes, predicts maintenance needs, and reduces delays, cutting logistics costs by 15-20%. IoT provides real-time shipment tracking, ensuring better coordination and minimizing losses. Blockchain ensures secure, transparent documentation, reducing paperwork, preventing fraud, and accelerating customs clearance." Aditya Shah adds, "This integration results in 25-30% efficiency gains and stronger supply chain resilience, making logistics smarter, faster, and more cost-effective."

Capt. Sunny Williams, Senior Vice President at Allcargo Terminals Ltd., doubles down, "Multimodal freight transport combines various transportation modes to create an interconnected logistics ecosystem. Given the growth of e-commerce and increasing demand for time-sensitive deliveries, new-age technologies are increasingly playing a crucial role in building a robust and resilient multimodal supply chain, strengthening efficiency, agility and reliability." He highlights Allcargo's approach, "In Allcargo we have 'ECU360' an inhouse global operating system, where we give customers faster and economical freights, tailor made solutions, last mile & first mile, real time tracking etc. This is the need of the hour." Sunny Williams notes a shift, "The technology adoption in the logistics industry was slow in the pre-pandemic time in India. However, in the post-pandemic phase, the industry has witnessed a significant shift, as there has been a steady growth in the adoption of the data-driven new-age technologies such as AI, IoT and blockchain."

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CAPT. SUNNY WILLIAMS
Senior Vice
President, Allcargo
Terminals Ltd.

"In an e-commerce-driven market demanding 'cheaper, faster, better,' technology is non-negotiable. AI, IoT, and blockchain are transforming logistics, ensuring resilience and scalability. Platforms like ECU360 provide real-time tracking and tailored solutions, critical for optimizing multimodal freight movement."



VINAYAK GUPTA
Vice President,
AVG Logistics

"AI, IoT, and blockchain hold immense potential, but their penetration in multimodal logistics remains limited. Interoperability and standardized platforms are lacking, creating inefficiencies in road-rail coordination. A tech-driven communication framework is essential to bridge this gap and unlock cost-saving opportunities."

Vinayak Gupta, Vice President at AVG Logistics, offers a cautious take, "Technology support is one of the key enablers in ensuring seamless multimodal movements, providing real time tracking and infallible coordination. In India adoption of AI, IoT and blockchain is still not prominently visible in multimodal (road cum rail) operations." He sees potential, though, "These technologies offer transparency and can help contain waste / losses." The contrast is clear—tech's transformative power is undeniable, but its reach varies across India's vast logistics terrain.

The Interoperability Conundrum

One of the biggest hurdles to achieving seamless multimodal logistics in India is the issue of interoperability. Aditya Shah addresses it head-on: "Yes, fragmented data ecosystems continue to challenge seamless integration across different transport modes. The key lies in integrated digital platforms that enable real-time data exchange between road, rail, air, and sea freight, the exact need that ULIP under NLP caters to." He's optimistic, "Strengthening public-private collaboration on digital interoperability will further drive India's multimodal shift, making 2025 a potential turning point for truly integrated logistics. At V-Xpress, we leverage API-based connectivity for visibility of the shipment throughout its journey and AI-driven analytics to ensure smooth transitions between modes."

Sunny Williams agrees it's a work in progress, "Technology integration has at times been uneven or inconsistent among the multimodal supply chain players and the companies are using different data platforms and formats. The scenario sometimes leads to data silos, overlapping efforts, and lag in information flow." His solution? "As digitalisation is gaining momentum, we will witness a greater adoption of new-age applications such as blockchain, data virtualisation and IoT authentication to ensure superior data interoperability. Notably, by offering



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a synchronised dashboard of supply chain data, data virtualisation enables data interoperability and better decision-making."

Vinayak Gupta keeps it real, "Yes, achieving infallible and seamless coordination between operations and modes remains a challenge in multimodal mode specially in road cum rail modal. Interoperability is not very perceptively

visible as of now but could be a vital contributor in a seamless supply chain using multimodal option." He adds, "Technology can make real time tracking possible and offer improved communication and coordination." Together, these voices paint a picture of a bottleneck ripe for a tech-driven breakthrough.

2025: Inflection Point or Stepping Stone?

As India stands at the cusp of a multimodal revolution, industry stakeholders remain divided. Arun Kumar, President, AMTOI is measured, "Challenges are an inherent part of the multimodal logistics ecosystem, and pinpointing a single inflection point would be unrealistic. In a large and democratic nation like India, regulatory evolution is often gradual and complex, requiring time to align policies, stakeholders, and operational frameworks." He elaborates, "While physical infrastructure development—such as Dedicated Freight Corridors (DFCs), multimodal logistics parks (MMLPs), and improved port connectivity—is advancing rapidly, regulatory integration remains a slower process." Still, he sees hope, "With sustained efforts in policy reforms, digital integration (ULIP), and multimodal connectivity, we can expect substantial progress post-2025, even if a complete transformation takes longer."

Sunny Williams says "The government's continued focus on building rail transport networks and freight carrying capacity has put railways firmly on track to increase its freight traffic share. National



Logistics Policy measures like National Rail Plan 2030 and infrastructure development initiatives like Dedicated Freight Corridors, GATI-SHAKTI Terminals and Multimodal logistics park will boost freight share of rail, thus reducing transit time and cost, boosting overall freight transport efficiency and driving environmental sustainability." He advises, "In line with National Rail Plan 2030, the government should continue focussing on developing freight terminals and logistics parks to scale capacity to attract larger freight share."

Vinayak Gupta straddles both views and shares, "The Government of India is very optimistic and National Rail Plan - Vision 2030 is one such move in achieving the target. One of the key result areas of the plan is improved rail efficiency. Reduction in rail freight and improved infrastructure will immensely help in achieving the desired target and building a solid supply chain modal." He cautions, "We need more aggressive reforms." The DFCs, with only partial stretches operational by March 2025, hint at progress—but also at how much road lies ahead.

Rail vs. Road: A Tough Matchup

Arun Kumar digs into rail's woes and says, "Indian Railways is responsible for transporting both passengers and goods. However, as a government entity, its primary focus is the welfare of citizens, often prioritizing passenger services over cargo movement. Expecting it to be competitive in freight, especially when freight revenues are used to subsidize passenger fares, is unrealistic at this stage." He continues, "Despite being a costlier and less environmentally efficient mode of transport, road freight continues to outperform rail in cargo movement. The Dedicated Freight Corridor (DFC), though part of the Indian Railways ecosystem, offers lower operational costs for freight. However, the final cost to customers will remain high unless passenger fares are significantly increased—an unlikely scenario in India, at least for now." His takeaway? "As logisticians, our expectation is simple: instead of blaming the logistics sector for high transportation costs, the government should acknowledge that these costs are largely driven by its commitment to public welfare."

Arun Kumar champions collaboration, "Public-Private

India's Multimodal Pulse: 5 Key Beats for 2025

DFC Status

As of March 2025, 40% of the Eastern Dedicated Freight Corridor (1,500 km) and 60% of the Western DFC (1,337 km) are operational, handling over 241 freight trains daily.

MMLP Target

35 Multimodal Logistics Parks are planned by 2030 under the PM Gati Shakti scheme, with 5-7 expected to be functional by late 2025.

Rail Freight Volume

In FY 2024, rail moved 290 million tonnes of cargo, aiming for a 45% freight share (rail + waterways) by 2030.

ULIP Reach

The Unified Logistics Interface Platform, launched in 2022, integrates 30+ systems for real-time data across modes, targeting full rollout by 2025.

Tech Investment

India's logistics tech market hit \$2.5 billion in 2024, with an 18% annual growth rate projected through 2025, driven by AI and IoT adoption.



Partnerships (PPPs) are the most effective way to drive infrastructure growth and multimodal logistics adoption, with the government acting as a facilitator while private players manage operations for greater efficiency.” He outlines the hurdles, “To maximize the impact of PPPs, the government must focus on eliminating regulatory bottlenecks such as land acquisition delays, complex departmental clearances, and inconsistent policies.” His vision includes, “Enabling existing CFSs and ICDs to also function as AFSs will optimize infrastructure utilization and streamline cargo movement. Prioritizing rail and road links to major airports, seaports, and logistics hubs will enhance efficiency and reduce logistics costs. Encouraging Private-Led Innovation: Private operators should be empowered to implement cutting-edge technologies, automation, and AI-driven process improvements to boost productivity.”

Global Lessons, Indian Paths

Arun Kumar looks abroad: “India can draw inspiration from global leaders in multimodal logistics while recognizing that its geographical, political, and economic landscape is unique.

Rather than blindly replicating global models, India must innovate and adapt solutions that align with its specific needs and challenges.” He suggests, “Identify Contextual Challenges: Address unique constraints such as land acquisition complexities, fragmented regulatory policies, and infrastructural gaps. Adapt Global Innovations: Integrate successful elements of digital freight corridors, efficient port-rail-road linkages, and automated logistics hubs with localized solutions. Develop India-Specific Models, Encourage indigenous policy frameworks that support multimodal connectivity while ensuring cost-efficiency, sustainability, and ease of doing business.”

India’s shift toward a multimodal logistics framework is a long-term endeavor that requires consistent efforts across policy, infrastructure, and technology. The year 2025 may well be an important milestone, but the true test lies in execution, collaboration, and innovation. With an estimated \$1 trillion earmarked for infrastructure development by 2030, the building blocks are in place. Whether India can leverage them effectively to become a global logistics powerhouse remains to be seen. 📦