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CASE STUDY

2025

steel-a-thon
Prove your Metal
Season XII 2025

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Case Title

From Idle Hours to Intelligent Miles: Leveraging Technology to Reduce Road Logistics Costs at Tata Steel

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Tata Steel, one of the world's most geographically diversified steel producers, moves millions of tonnes of finished products every year across India. A significant portion of this movement happens via road logistics, which remains a critical link in the supply chain. Road transportation, however, is also one of the costliest elements in logistics—driven by fluctuating fuel prices, inefficient truck utilization and high turnaround times. There are also invisible delays (higher waiting to running times, driver inadequacy, waiting for return cargo, etc.) which have hidden costs and ripple effects on the supply chain, customer service, and carbon footprint.
With India's infrastructure and digital ecosystem rapidly evolving, Tata Steel is exploring how technology-driven solutions—from AI, IoT, and blockchain to digital freight platforms and automation—can transform its logistics model and significantly lower costs, while maintaining safety, sustainability, and service reliability.

The Challenge: We invite you to reimagine Tata Steel's Road logistics strategy—a smarter, safer, and more sustainable system. Your task is to design a technology-enabled roadmap that addresses cost reduction opportunities across the end-to-end logistics chain and creates value for all stakeholders. Your case study should explore each element of road logistics to remove the invisible delays, including but not limited to:

1. Fleet Optimization

• Reducing empty miles (backhauling, route optimization). End-to-end shipment tracking using IoT/telematics.
• Improving truck utilization and load consolidation and use of AI-driven scheduling.

2. Digital Freight & New Contracting Models

• Digital freight exchanges for competitive vendor sourcing.
• New Contracting Models for cost reduction.

3. Turnaround Time & Process Automation

• Smart gates-based entry-exit systems.
• Integration with port/rail interfaces for multimodal efficiency.

4. Driver Management

• Incentive models to improve compliance and retention.
• Leveraging government initiatives like Gati Shakti and ONDC for logistics.

Deliverables: Participants must present a comprehensive case solution covering:
• Problem Diagnosis: Key cost drivers in road logistics for a steel company like Tata Steel.
• Technology Interventions: Innovative, feasible, and scalable solutions for each element.
• Implementation Roadmap: A stepwise adoption plan (short, medium, and long term).
• Business Case: Potential cost savings, ROI, and value-add for Tata Steel's supply chain.

Case Background Dataset – Tata Steel Road Logistics

Current Logistics Snapshot (Illustrative)
• Total Steel Sales Volume (India): ~24 million tonnes per year
• Mode Share of Logistics:
• Rail: 57%
• Road: 41%
• Waterways & Coastal: 2%

Annual Road Logistics 1st leg Volume: ~10.5 million tonnes (excluding all last mile deliveries which are also via road).
Annual Final Leg Volumes (last mile connect) : 13 million tonnes
Cost Structure of Road Logistics
• Average Road Transport Cost (1st leg || 2nd leg) : Rs 3 per tonne-km || 3.3 per tonne – km
• Average Lead Distance (road) (1st leg || 2nd leg): 800 km || 225 km
• Annual Road Logistics Spend (1st leg || 2nd leg): ~Rs 2000 crore || 800 Crore
• Cost Breakdown:
·Fuel: 35%
·Toll & Taxes: 12%
·Vehicle Cost :18%
·Driver Costs: 12%
·Empty Returns/Idle Time: 13%
·Others (maintenance, admin, leakage, etc.): 10%
Operational Metrics: All road Contracts are typically 2-3 years duration with fixed share of business and performance KPI's on Placement, lifting and transit compliances.
Lifting Compliance : Compliance of Lifting of material within 24 hours of order confirmation (T+1 day)
Transit Compliance : Compliance of delivery material within contracted transit duration (250 Km/day)

• Average Truck Utilization for return trips : 30% (70% empty return ratio)
• Truck Turnaround Time at Plant: 10.5 hours (target: <8 hours)
• Loading/Unloading Efficiency: Manual/semi-mechanized in most sites
• On-time Delivery Performance: 90~% (target: >98%)
Pain Points: High Empty Miles: Lack of backhaul coordination leads to 70% empty return. Driver Shortages: due to High attrition, low morale, and safety incidents linked to fatigue.