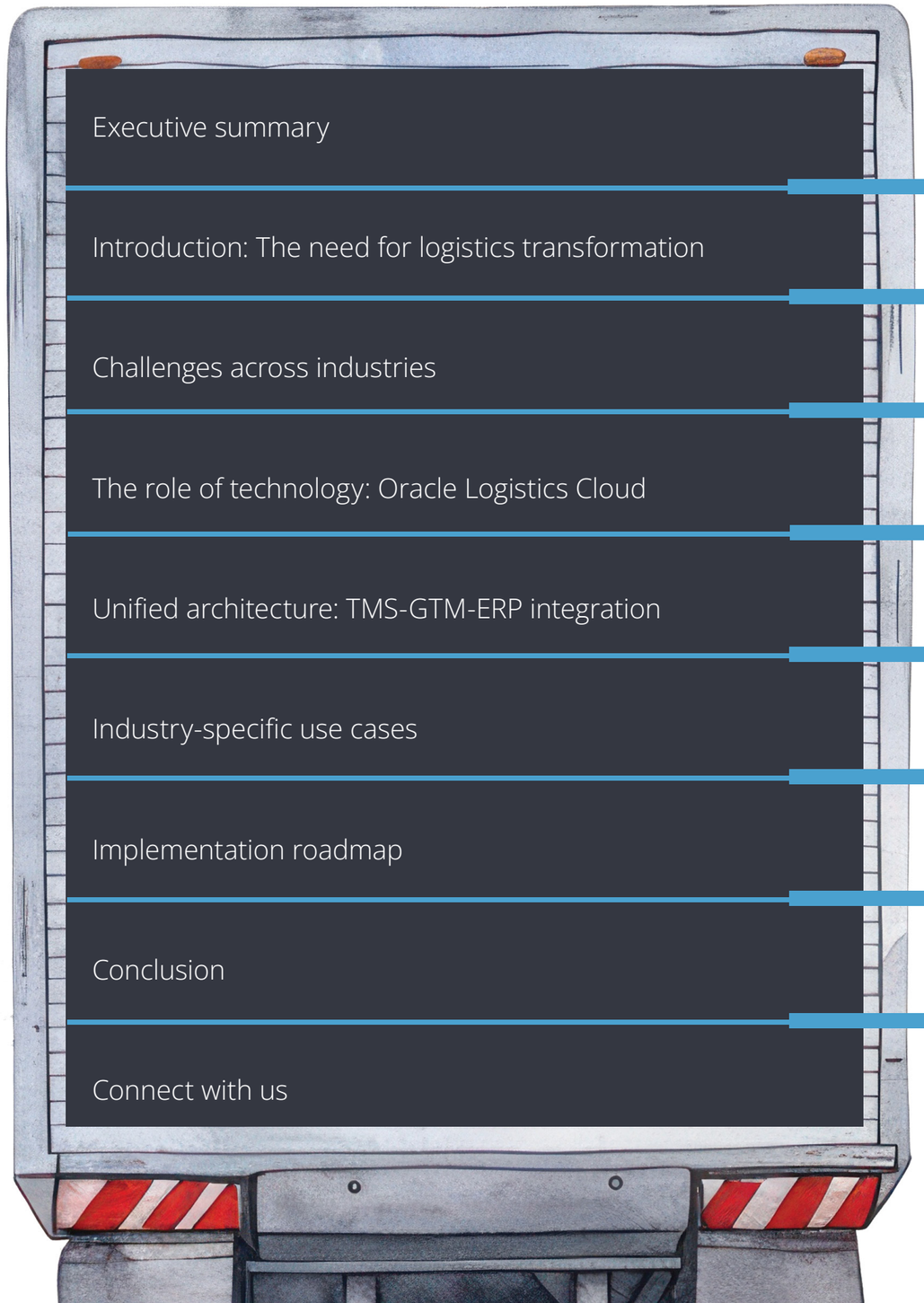
Deloitte.

Logistics reinvented
Technology-driven transformation in India and beyond

June 2025

Logistics reinvented Technology-driven transformation in India and beyond

Table of contents



Logistics reinvented Technology-driven transformation in India and beyond

Executive summary

Efficient logistics is essential for competitive advantage in a rapidly evolving global economy. However, Indian companies face significant challenges in optimising supply chains, which affect businesses, the economy and the environment. **NITI Aayog** estimates that India's logistics costs account for 14 percent of GDP, far higher than the global average of 8–10 percent, hindering competitiveness in global trade. India's transportation sector is highly fragmented, with 80 percent of truck operators owning fewer than five trucks, leading to inefficiencies and higher costs. In India, trucks travel an average of 400 to 490 kilometres per day, which is significantly lower than the distances covered in developed countries. This disparity is primarily due to better infrastructure and more streamlined processes globally. This fragmentation also affects shipment tracking, with limited adoption of standardised systems across operators, resulting in delays and cost escalations.

These inefficiencies contribute to higher fuel consumption, increased greenhouse gas emissions and customer dissatisfaction due to delays.

Key issues faced by companies

- **Fragmented logistics ecosystems:** Many organisations rely on outdated and siloed systems that lack integration, resulting in inefficiencies.
- **Lack of visibility:** Limited end-to-end visibility across the supply chain leads to delays, increased costs and poor customer experiences.
- **Regulatory challenges:** Navigating complex trade compliance requirements across multiple geographies remains a significant hurdle.
- **Demand volatility:** Adapting to consumer expectations for faster, reliable deliveries poses operational challenges.
- **Sustainability concerns:** Inefficient logistics contribute to higher carbon emissions, affecting environmental goals.

Why these issues matter

- **Business competitiveness**
  - Fragmented supply chains determine a company's ability to differentiate itself through superior service.
  - Limited visibility and inefficiencies erode profitability and diminish customer satisfaction.
- **Impact on economic growth**
  - The high logistics cost limits India's competitiveness in manufacturing and exports, directly affecting GDP growth.
  - Inefficient supply chains prevent industries from reaching their full potential, stalling innovation and investments.
- **Environmental impact**
  - Poor route optimisation and redundant processes lead to excessive fuel consumption and greenhouse gas emissions.
  - Addressing logistics inefficiencies is critical for India to achieve its sustainability goals, including commitments under the Paris Agreement.

The bigger picture

In India, adopting advanced logistics technologies such as Transaction Management System (TMS) drives economic transformation by:

- Reducing logistics costs, boosting export competitiveness
- Accelerating goods movement, fuelling economic growth
- Aligning operations with sustainability goals

The path to logistics excellence lies in adopting technologies that unify and optimise supply chain processes.

This white paper explores why and how logistics transformation can benefit both global and India-centric organisations by addressing challenges and driving sustainability, compliance and differentiation.

Logistics reinvented Technology-driven transformation in India and beyond

01

Introduction: The need for logistics transformation

India’s burgeoning economy demands a robust logistics framework to sustain growth across industries. However, the inefficiencies highlighted in the **Executive Summary** (fragmentation, high costs and lack of visibility) hinder this progress. In the context of the **National Logistics Policy (2022)** and India's aspirations to reduce logistics costs to single digits, advanced tools such as TMS and Global Trade Management (GTM) have become critical.

Modern solutions such as Oracle Logistics Cloud, integrating TMS and GTM, provide the flexibility, visibility and efficiency required to transform logistics into a competitive advantage. By using these solutions, organisations can start small and scale as their business grows, ensuring seamless alignment with both current and future needs.

02

Challenges across industries

In an increasingly interconnected global economy, each industry faces unique logistical challenges. These challenges are compounded by technological shifts, evolving consumer expectations and geopolitical uncertainties. Let's explore the critical logistics hurdles across key sectors and their impacts.

Logistics reinvented Technology-driven transformation in India and beyond

Pharma

- **Regulatory complexity:** Navigating compliance with stringent global, federal and regional regulatory frameworks such as the FDA, EMA and CDSCO. Adapting to evolving audit policies, licensing requirements and trade restrictions presents constant challenges.
- **Cold chain logistics:** Ensuring the integrity of temperature-sensitive products such as vaccines and biologics requires robust cold chain monitoring and quick responses to deviations.
- **Risk of shortages:** Delayed deliveries of essential drugs and medical devices directly affect patient outcomes and healthcare efficacy.

E-commerce and retail

- **Demand volatility:** Seasonal spikes, flash sales and promotional events create unpredictability in demand and strain fulfilment capabilities.
- **Omnichannel complexity:** Managing inventory and logistics across multiple sales channels (online, offline and hybrid) requires synchronisation and flexibility.
- **Last-mile delivery costs:** Representing a significant portion of total shipping expenses, ranging from 28 to 53 percent, last-mile logistics remains a critical area for optimisation.
- **Customer expectations:** Digitally empowered consumers demand real-time tracking and faster delivery times as baseline expectations

Hi-Tech

- **Component sourcing:** Shortages of critical components, such as semiconductors, demand precise transportation planning and supplier coordination.
- **High-value shipments:** Require secure transport solutions, including GPS tracking and blockchain for real-time transparency.
- **Regulatory complexity:** Adhering to global trade laws while navigating geopolitical uncertainties, such as tariffs and sanctions, necessitates advanced compliance capabilities.

Consumer goods

- **Fragmented supply chain:** Tertiary and last-mile distribution in fragmented markets such, as India, relies on unorganised transporters and market trucks. This makes achieving real-time visibility a persistent challenge.
- **Stock-Keeping Units (SKU) proliferation**: Managing inventory for thousands of product variations across regions adds complexity.
- **Sustainability:** Balancing operational efficiency with the need to reduce carbon footprints is critical.

Manufacturing

- **Just-in-time systems:** Delays in raw material shipments disrupt production schedules, causing downtime and over-reliance on buffer inventories.
- **Data-driven negotiation:** Underused logistics data leads to suboptimal sourcing negotiations with liners, transporters and air carriers.
- **Global trade complexity:** Managing duties, tariffs and compliance requirements across multiple geographies adds to operational costs.

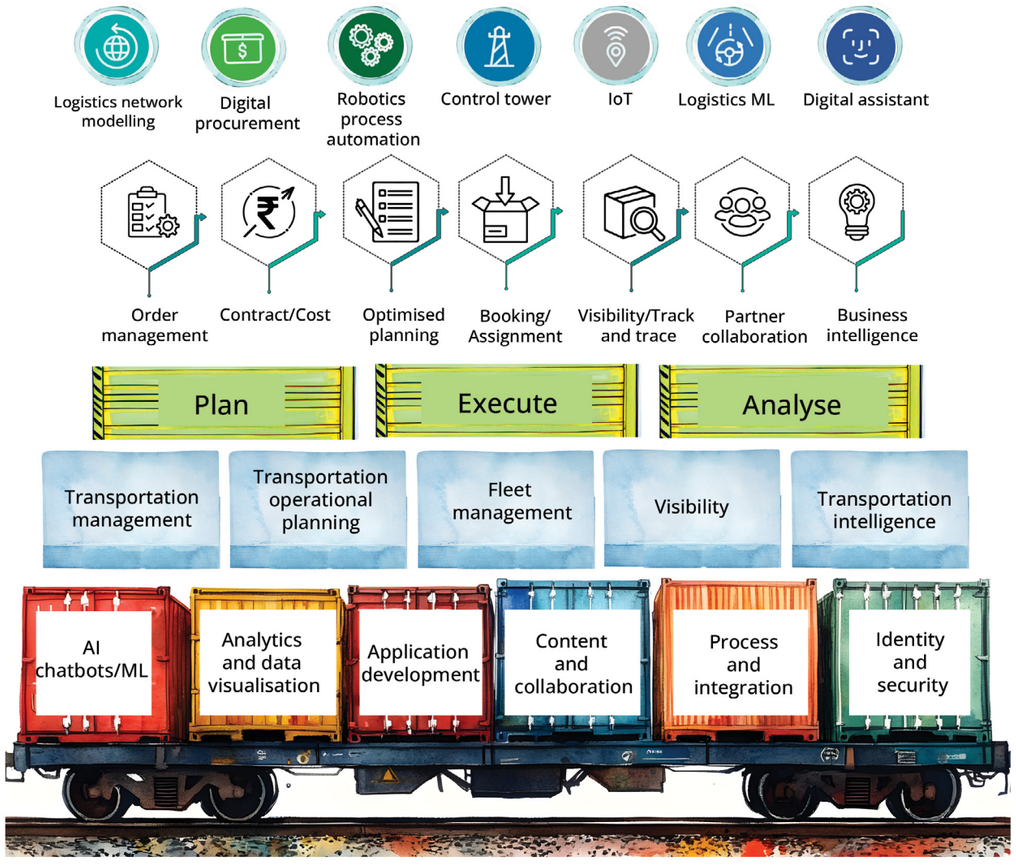
03

The role of technology: Oracle Logistics Cloud

Oracle's TMS and GTM, part of the Oracle Logistics Cloud, enable companies to address these challenges effectively. Let us dive deeper into their functionality.

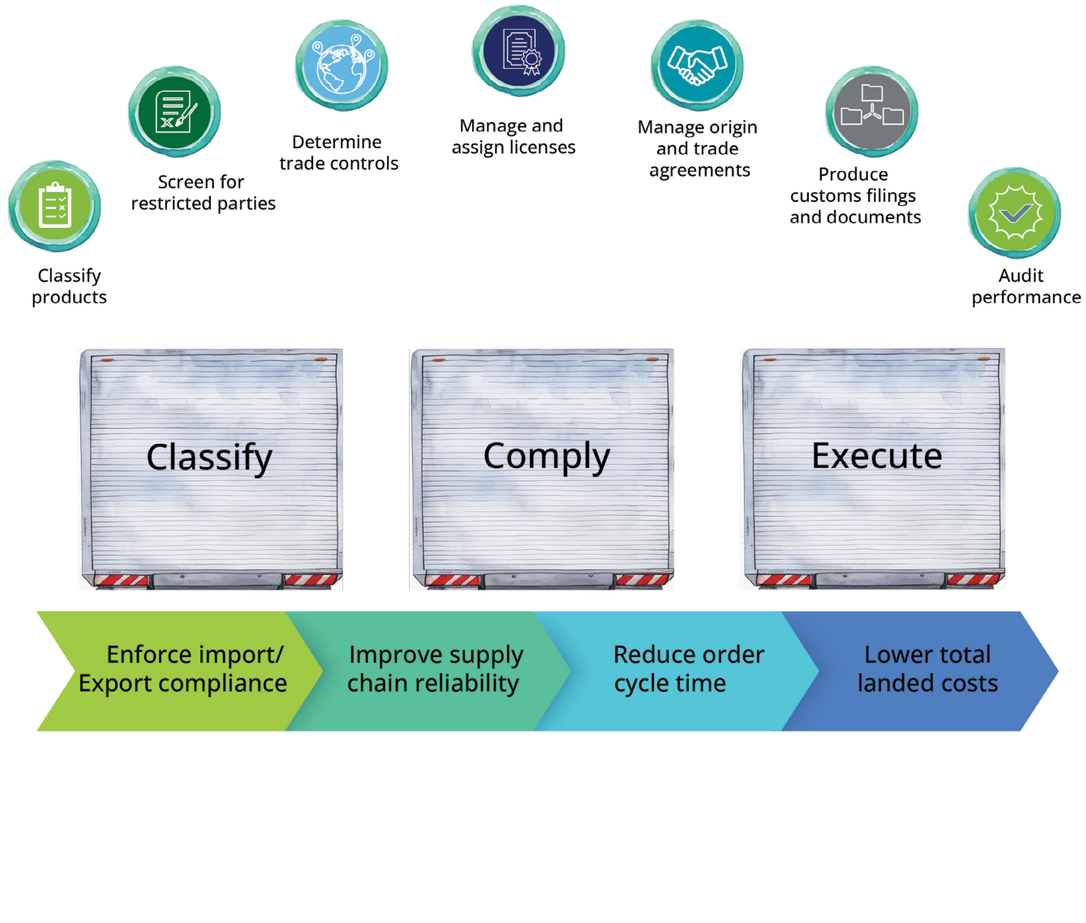
3.1: TMS

- **Planning and execution:** Automates route optimisation, carrier selection and shipment consolidation to enhance efficiency and reduce costs.
- **IoT integration:** Enables real-time shipment tracking, predicting potential delays and enabling proactive interventions to minimise disruptions.
- **Freight settlement:** Eliminates cost leakages through automated auditing and payment processes, ensuring accurate and timely financial transactions.
- **Logistics network modelling:** Simulates transportation scenarios to optimise network design and improve decision-making.
- **Transportation sourcing:** Facilitates competitive sourcing of carriers, enhancing cost efficiency and service quality.
- **Transportation intelligence:** Uses advanced analytics to provide actionable insights into transportation performance, cost trends and network optimisation opportunities.



3.2: GTM

- **Compliance automation:** Ensures adherence to regulatory requirements with features such as restricted party screening, trade documentation and customs filing.
- **Landed cost analysis:** Simulates total landed costs, including duties, taxes and freight, to optimise sourcing and procurement strategies.
- **Customs collaboration:** Streamlines data exchange with brokers and freight forwarders to expedite customs clearance and minimise delays.
- **Transportation intelligence:** Provides comprehensive insights into trade-related transportation costs, compliance trends and performance metrics, enabling data-driven decision-making.



04

Unified architecture: TMS-GTM-ERP integration

Oracle Logistics Cloud demonstrates exceptional flexibility in integrating with Enterprise Resource Planning (ERP) systems, enabling the creation of a unified logistics ecosystem. While Oracle Transportation Management (OTM) is part of Oracle's ERP offerings, its origins as an acquired product make it **ERP-agnostic.** This flexibility allows OTM to seamlessly integrate with ERP systems, such as SAP, Microsoft Dynamics, Salesforce and Oracle ERP. OTM is widely used by **more SAP ERP clients than Oracle ERP clients**, showcasing its proven architecture and robust integration capabilities.

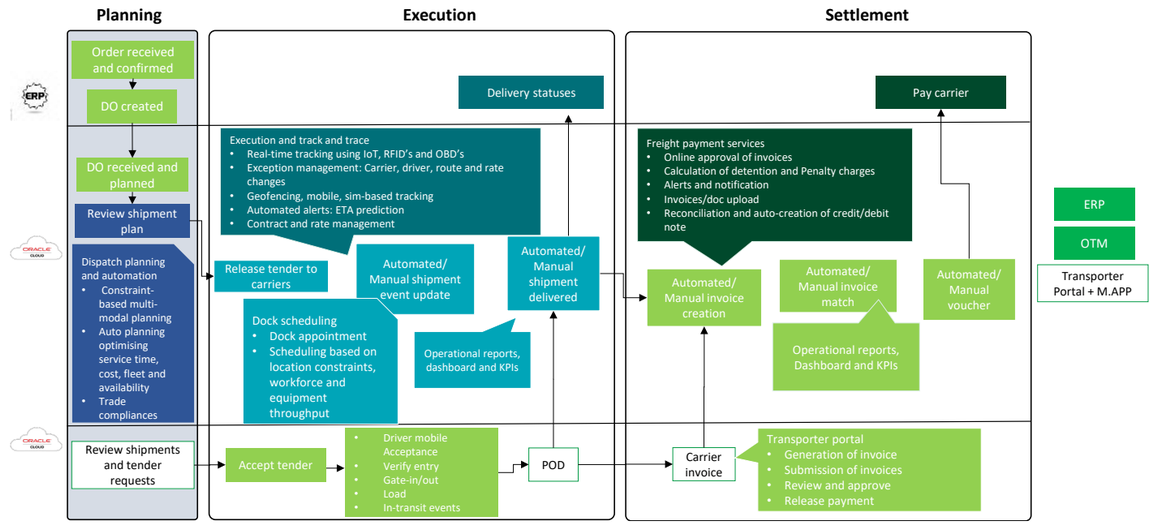
4.1 Key components

- **Transportation management system:** Manages shipment planning, execution, carrier contracts and freight settlement processes.
- **GTM:** Streamlines compliance, trade regulations and customs documentation processes.
- **ERP system:** Acts as the centralised hub for financials, procurement, order management and inventory management.

4.2 Workflow example

- **Order entry in ERP**
  - A **Sales Order** (outbound logistics) or **Purchase Order** (inbound logistics) is created in the ERP system, such as Oracle ERP Cloud or SAP ERP.
- **TMS optimisation**
  - TMS evaluates constraints such as service time windows, fleet availability, capacity and past carrier performance to plan the optimal shipment route, mode and carrier.
- **GTM compliance check**
  - Screens trading parties for restricted or sanctioned entities.
  - Validates licenses and compliance with trade regulations.
  - Calculates duties, taxes and other trade costs.
  - Prepares customs documentation for seamless cross-border shipments.
- **Execution feedback**
  - Real-time shipment tracking data from TMS is sent back to the ERP system.
  - Billing, invoicing and reporting processes in the ERP system are updated with actual transportation and trade costs.

4.3 Architectural diagram



05

Industry-specific use cases

Logistics reinvented Technology-driven transformation in India and beyond

Pharma: Cold chain excellence

A pharmaceutical company uses OTM to track temperature-controlled shipments. IoT-enabled alerts ensure vaccine integrity, while GTM handles export documentation, reducing customs delays by **30 percent.**

E-commerce and retail: Last-mile optimisation

An online retailer implemented OTM for route optimisation, reducing last-mile costs by **20 percent.** GTM enabled faster customs clearance for cross-border shipments during peak sales seasons.

Hi-Tech: Sourcing precision

An energy equipment manufacturer integrated TMS with ERP to streamline inbound logistics. GTM ensured compliance with trade agreements, reducing duties by **12 percent.**

Consumer goods: Sustainability in logistics

A consumer goods company used OTM to consolidate shipments, cutting fuel consumption by **15 percent.** GTM used trade agreements to lower tariffs, aligning with sustainability goals.

Manufacturing: Production alignment

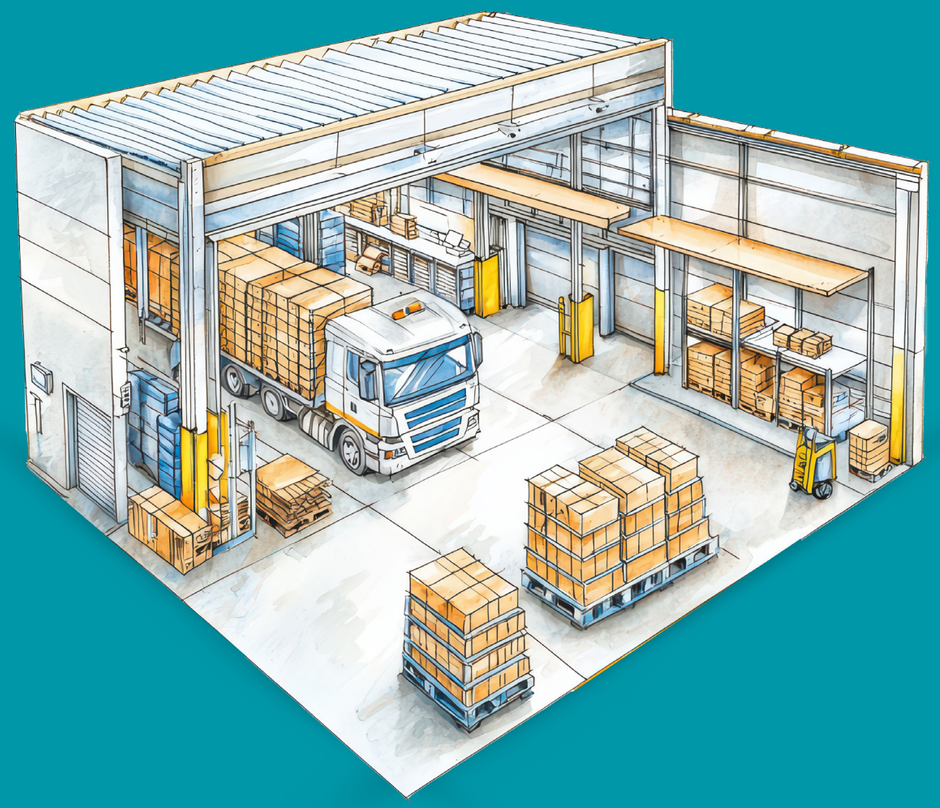
A global manufacturer optimised raw material deliveries using TMS, reducing production downtime. GTM automated compliance checks, ensuring seamless operations across multiple geographies.

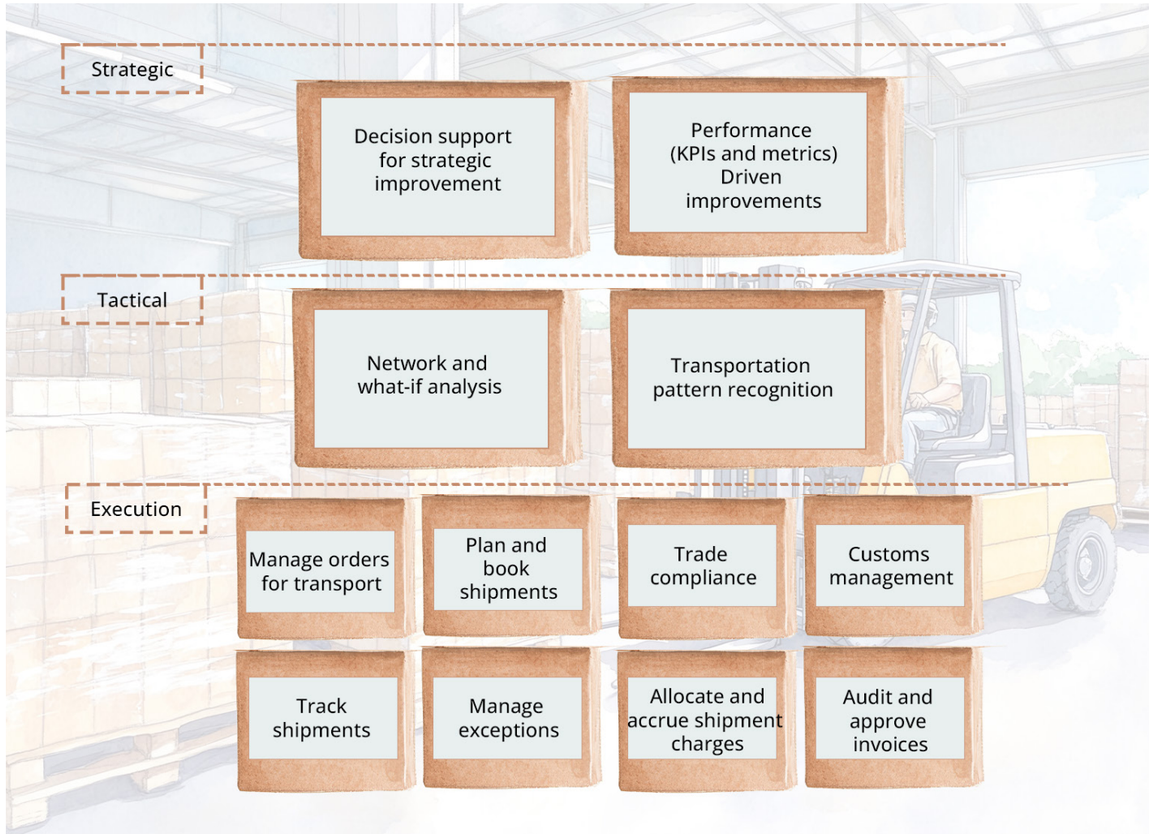
06

Implementation roadmap

A staggered, phased approach ensures seamless adoption of Oracle TMS and GTM while driving continuous improvement.

Depending on the organisation's size, scale and objectives, implementation typically takes between 4 and 18 months. The Return on Investment (ROI) from this implementation can begin to be realised within 6 to 8 weeks after deployment.





Below is the streamlined implementation plan:

Phase 1: Assess

- **Logistics maturity analysis:** Benchmark operations using tools such as the **Deloitte Logistics maturity model** to identify gaps and improvement areas.
- **Gap identification:** Highlight inefficiencies in transportation workflows, trade compliance and regional challenges.

Phase 2: Create a roadmap

- **Staggered implementation:** Define phased goals to ensure smooth adoption with feedback loops for process refinement.
- **Define goals:** Establish clear objectives for efficiency, cost savings, compliance and scalability.

Phase 3: Design

- **Integrated architecture:** Align TMS, GTM and ERP systems using Oracle Integration Cloud for seamless workflows.
- **Business KPIs:** Set measurable success factors in cost reduction, operational efficiency and compliance.

Phase 4: Deploy

- **Global template:** Standardise processes while addressing regional compliance through a scalable global template.
- **Rapid rollout:** Prioritise high-impact geographies and ensure local nuances are addressed.

Phase 5: Train

- **User workshops:** Deliver modular, role-based training for planners, compliance officers and logistics managers.
- **Comprehensive documentation:** Provide quick-reference guides for ongoing support.

Phase 6: Continuous improvement

- **Quarterly SaaS updates:** Use Oracle's 100+ annual feature releases to stay ahead of the curve.
- **Data-driven refinement:** Use analytics to monitor KPIs, optimise workflows and predict future challenges.

Logistics reinvented Technology-driven transformation in India and beyond

Conclusion

India's logistics sector is poised for transformation. With OTM and GTM solutions, businesses can:

- Reduce costs and improve efficiency
- Enhance customer satisfaction with agile and responsive supply chains
- Align operations with sustainability and compliance goals

By adopting Oracle Logistics Cloud, companies can unlock the full potential of their supply chains and position themselves as leaders in an increasingly competitive and environmentally conscious market.

Connect with us

Arvind Girotra
Partner, Deloitte India
arvindgirotra@deloitte.com

Arvind Bharatwaj
Partner, Deloitte India
abharatwaj@deloitte.com

Ashlesh Garate
Director, Deloitte India
agarate@deloitte.com

Acknowledgements

Neha Kumari

Shreeti Nair

Sharanya Dhingra

Deloitte.