dun & bradstreet

Building Future-Ready Supply Chains - 2025

TABLE OF CONTENTS

dun & bradstreet

Dun & Bradstreet Knowledge Platforms and Learning Solutions

Dun & Bradstreet India has been tracking the Indian economy for more than two decades. Through our knowledge platforms and publications, we place the success stories of Indian Companies on a global platform. Our platforms are designed to help you position your brand in front of potential customers, investors, suppliers, government bodies, regulators and other stakeholders. We also provide a suite of professional training, educational courses and innovative knowledge forums & conferences.

SOLUTIONS

- Awards & Publications
- Conferences – Online & On-ground
- Training & Certification

Contact us at - +91 22 4941 6666 | india@dnb.com 8657943769 www.dnb.co.in

@DunandBradstreetIndia @DNB_India @Dun&BradstreetIndia

Resilience - The Strategic Imperative for Modern Supply Chains

The global supply chain ecosystem is at an inflection point. Once designed for efficiency and cost optimization, supply chains today are being rewired to navigate the VUCA world. Over the past five years, a series of systemic shocks have exposed the fragility of traditional, linear models—underscoring the need for resilience.

The COVID-19 pandemic was the first major stress test. Global shipping costs surged up to seven times higher than pre-pandemic levels, while port congestion extended vessel wait times from hours to two–three days, triggering cascading delays.
As businesses were still recovering from these disruptions, new layers of complexity emerged. Geopolitical tensions fragmented trade routes. For example, the Red Sea crisis, triggered by the Iran-Israel proxy war, disrupted the Suez Canal—responsible for 30% of global container trade—raising transit times by 30%. Protectionist measures, including the recent U.S. tariffs, have amplified complexity, forcing businesses to diversify sourcing and accelerate reshoring. Climate imperatives have added another layer of disruption: extreme weather events now occur every three weeks globally, compared to every four months four decades ago. Regulatory pressures such as the EU's Carbon Border Adjustment Mechanism are compelling companies to embed sustainability into procurement decisions.

Technology is emerging as both a catalyst and a disruptor. Robotics and automation are transforming warehouses, cutting fulfillment times by up to 70%, while autonomous vehicles and drones are reshaping last-mile delivery. Generative AI is driving dynamic pricing, supplier risk analysis, and automated procurement workflows. Yet vulnerabilities persist—the global chip shortage crippled production across industries, with semiconductor lead times jumping from 12.2 weeks to 22.2 weeks, forcing automotive manufacturers to halt production.

India's supply chain landscape reflects these global dynamics while presenting distinct opportunities for transformation. Historically constrained by high logistics costs and fragmented infrastructure, India is now leveraging policy reforms and technology to build resilience. Initiatives such as PM Gati Shakti and the National Logistics Policy have reduced logistics costs from 13–14% of GDP to an estimated 7.8–8.9%, signaling progress toward global benchmarks. Export performance reinforces this momentum—India recorded a 5.19% growth in combined merchandise and services exports during April–August 2025 compared to the same period in 2024, and aims to achieve US$2 trillion in exports by 2030, led by electronics, pharmaceuticals, and engineering goods.

In this dynamic landscape, resilience is no longer optional. The future belongs to supply chains that are proactive, predictive, and purposeful—anticipating risks, leveraging technology for agility, and embedding sustainability at their core.

Avinash Gupta

Managing Director & CEO – India
Dun & Bradstreet

SBI
The banker to every Indian

SOLID BANK SOLID BACKING

MORE EFFICIENCY WITH FASTER, DIGITISED BANKING SOLUTIONS

Apply for MSME Loan online

SBI MSME DIGITAL LOANS

- Loans up to ₹5 crore
- Instant digital sanction for loans upto ₹50 lakh
- Tenure: Upto 10 years
- Attractive interest rates
- NIL collateral for loans covered by Credit Guarantee

T&C Apply

For loans up to ₹10 lakh
Visit: www.jansamarth.in/apply/sbi
or scan QR code

For loans above ₹10 lakh to ₹5 crore
Visit: www.sbiloansin59minutes.com/home
or scan QR code

For assistance, call **1800 1234** | **1800 2100** or visit: bank.sbi

Follow us on

Locus

How Locus Helped India's Largest Online Grocery Platform Deliver 99.5% On-Time Performance for 10M+ Customers

OVERVIEW

As e-commerce demand accelerates, manual last-mile processes risk lowering efficiency and increasing fulfilment costs. A leading online grocery platform in India with 15,000+ products, operations across 25+ cities, and over 10 million customers partnered with Locus to strengthen SLA adherence and elevate customer fulfilment.

THE CHALLENGE

Customers today expect multiple fulfilment options - express, next-day, and precise time-slot deliveries. Meeting these promises has become critical as expectations rise.

Perishable inventory further increases operational complexity, and a single failed delivery carries a high business cost. In an increasingly competitive grocery market, customer satisfaction and product quality are the only true differentiators. With extremely short order-to-delivery windows, manual planning of routes and shipments becomes nearly impossible to manage at scale.

LOCUS SOLUTION

Locus deployed a comprehensive route optimization and real-time tracking solution for the e-grocery platform. The AI-powered algorithmic route optimization engine, generated delivery routes enabling riders to deliver more in less time, improving efficiency and ensuring stronger SLA compliance. Live tracking, operational insights, and analytics enabled the teams to continuously improve their planning.

Optimal Delivery Route Generation
Locus Dispatcher uses a proprietary geocoding engine to generate optimized, data-driven routes that consistently meet customer SLAs and delivery expectations. It also builds dynamic clusters with minimal overlap and recommends the most efficient fleet mix by factoring in traffic patterns, weight and volume limits, time-slot preferences, and other constraints. These optimizations led to a significant uplift in on-time performance, achieving 99.5% SLA adherence and improving overall customer experience.

Real-time ETAs
Live re-routing and dynamic ETA calculations were delivered through an interactive, intuitive operations dashboard, enabling teams to respond quickly to on-ground realities.

Tracking and Analytics
Live monitoring enabled teams to compare planned vs. actual routes and track compliance in real time. Management reports highlighted top-performing and lagging units, giving senior leaders clear performance metrics to drive corrective actions.

Customers could now track their orders live on their devices, while senior management gained a hawk-eye view of on-ground operations through a custom dashboard that enabled real-time monitoring of fleet and workforce performance.

THE IMPACT

Locus delivered measurable operational improvements across the e-grocery platform's high-volume fulfilment network:

- **14.28% reduction in distance travelled,** dropping from 863 km to 741 km through optimized routing.
- **99.5% SLA adherence,** ensuring consistently on-time delivery for 10 million+ customers.
- **Higher delivery productivity,** with a clear increase in the average number of orders fulfilled per rider.
- **Improved vehicle space utilization,** enabling better capacity planning and more efficient fleet deployment.
- **Digitized and streamlined delivery operations,** strengthening planner efficiency, decision-making, and real-time visibility across the network.

dun & bradstreet

Dun & Bradstreet Economic Research

Comprehensive economic research using quantitative and qualitative methods, supported by econometric modeling, forecasting, and analytics. Our expertise spans macro and micro studies, policy analysis, and impact evaluations across sectors like real economy, public finance, external trade, infrastructure, and social development, with deep insights on India and global trends.

SOLUTIONS

- Macroeconomic Analysis & Forecasting
- Thematic Research & Strategic Insights
- Scheme & Program Impact Evaluations
- City Vitality Index
- Industry & Sector Risk Assessment
- Policy Research & Advisory
- Thought Leadership & Strategic Partnerships

Contact us at - +91 22 4941 6666 | india@dnb.com 8657943769 www.dnb.co.in

@DunandBradstreetIndia @DNB_India @Dun&BradstreetIndia

State of Supply Chain: Global Trends and India's Emerging Edge

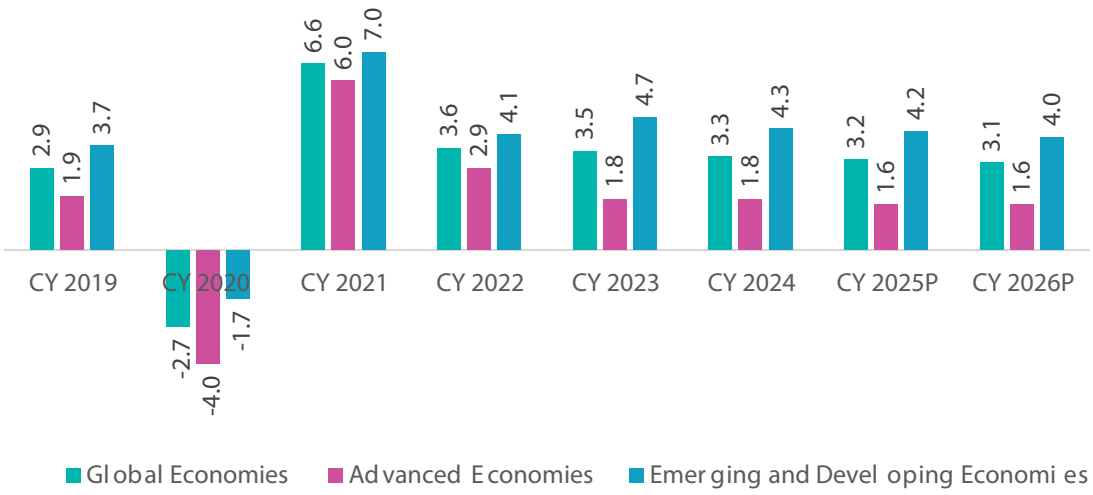
Global Economic Outlook

The global economy is cautiously moving into a transitional phase, characterized by resilience amid uncertainty. Growth remains generally positive but varies across regions, influenced by changes in consumer demand, trade policy, and monetary and fiscal conditions. In advanced economies, household consumption and services continue to support activity, while manufacturing and export-driven sectors face challenges due to a weaker external environment.

Latin American economies, such as Chile, are benefiting from improved commodity terms of trade, especially after raising copper price forecasts.

Global businesses are revising strategies as economic growth varies across regions and macro conditions shift. Multinationals are rebalancing geographic exposure—focusing on markets with strong domestic demand, stable policies, and clear regulations—while

Historial & Projected GDP Growth Trends (%)



Source – IMF Global GDP Forecast Release October 2025

The U.S. economy showed strong growth in Q2 2025 and is expected to benefit from lower interest rates starting in September. Australia also performed well, while Europe is dealing with stagnation. Canada's economy is slowing, and Germany's industrial sector remains under strain; Japan, however, is beginning to recover modestly. Among emerging markets, the Chinese Mainland maintains steady growth, supported by fiscal and credit stimulus, while India is accelerating due to strong domestic demand and investment inflows. Southeast Asian countries like Indonesia and Thailand, attractive for natural resources and semiconductors, are showing resilience amid supply chain diversifications. Several

reassessing operations in slower or volatile economies. Supply chain diversification, once a defensive move, is now a structural strategy to access new consumers and reduce single-market risks. Investment is flowing to regions with predictable trade rules, critical inputs, and proximity to end-markets; for example, Mexico has seen increased FDI due to its U.S. proximity and trade clarity. A subtle global shift is emerging despite ongoing risks, businesses are planning with the view that trade disruptions and tariff shocks may be managed through negotiation and gradual recalibration. Recent U.S.-Vietnam and EU-Indonesia trade talks emphasize phased tariff changes and cooperation over punitive actions. This tentative

shift suggests a move from high volatility toward a more predictable, data-driven environment.

Trade tensions continue to affect global growth, especially in export-driven economies. However, signs suggest a shift toward a more managed phase of trade policy. Recent product-specific tariffs have been scoped and calibrated, often targeting manufacturers not investing in the U.S. The average U.S. tariff rate declined from 28% in April to around 17% by late 2025 (According to The Budget Lab at Yale).

This reflects two developments:

1. A wave of new trade deal announcements in September that have facilitated a concessional reduction in tariffs from the U.S., for example, the establishment of the 'US-EU Framework on an Agreement on Reciprocal, Fair, and Balanced Trade', the U.S.- Japan trade framework, and a 'Technology Prosperity Deal' memorandum of understanding signed with the U.K.
2. Recalibration by the U.S. of the products subject to tariffs as referred to in Annex II. In early September, the U.S. adjusted its trade framework, linking tariff exemptions more explicitly to security partnerships. Critical minerals were added to Annex II, granting them exemption from tariffs, while materials such as silicone and aluminum hydroxide lost exemption status. A new mechanism allows zero tariffs for countries signing both trade and security agreements with the U.S.

Businesses look increasingly willing to accept that tariffs are unlikely to be rolled back quickly. Instead, they are adapting their strategies – from diversifying sourcing to reconfiguring supply chains – to absorb, manage, or negotiate the impact of tariffs. We expect businesses operating in jurisdictions with clear trade frameworks and supportive domestic policies to begin showing stronger sentiment and investment intentions than those in more uncertain environments. Businesses are increasingly relying on domestic demand to counter tariff-driven export challenges.

Effective September 1, Canada removed many tariffs on U.S. goods imports that are compliant under the U.S.-Mexico-Canada Agreement (USMCA). Bilateral tariffs on autos, aluminum, and steel remain in place, though they are subject to ongoing discussions. The Canadian government has shown willingness to support sectors under pressure from the U.S., providing CAD1.2bn in loans and guarantees to the softwood and lumber industry (currently facing 32.5% U.S. tariffs). Asia Pacific countries are expanding trade partnerships beyond the U.S. Indonesia signed a landmark FTA with the EU, expected to double bilateral trade and eliminate tariffs on 98% of goods. India concluded a major trade deal with the U.K. and is in advanced negotiations with the EU.

Eastern Europe enters Q4 2025 in a fragile but stabilizing economic state. Poland and the Baltic states expect modest growth, supported by resilient consumption and easing inflation. Romania remains an outlier, facing the EU's highest inflation amid fiscal austerity. Regional exports are subdued due to weak German demand and global trade tensions. Ukraine shows resilience through reconstruction and aid, while Russia and Belarus face slowing growth under sanctions.

In Central Asia, Uzbekistan and Kazakhstan continue steady expansion through industrial diversification and regional trade. Kazakhstan's expansionary fiscal stance is backed by oil revenues and reform plans. The Kyrgyz Republic and Tajikistan lead in growth, driven by remittances and domestic demand, though inflation persists. Turkmenistan's outlook remains muted due to hydrocarbon dependence.

Middle East & North Africa enters Q4 2025 with optimism as non-oil sector growth supports sustainable prospects. Governments focus on technology, tourism, manufacturing, financial services, and renewable energy. The UAE grew 3.9% y/y in Q1 2025, with non-oil contribution at 77%. Egypt launched its Narrative for Economic Development, a five-year plan for tourism, ICT, energy, and manufacturing. OPEC+ continues raising oil output to regain market share, but

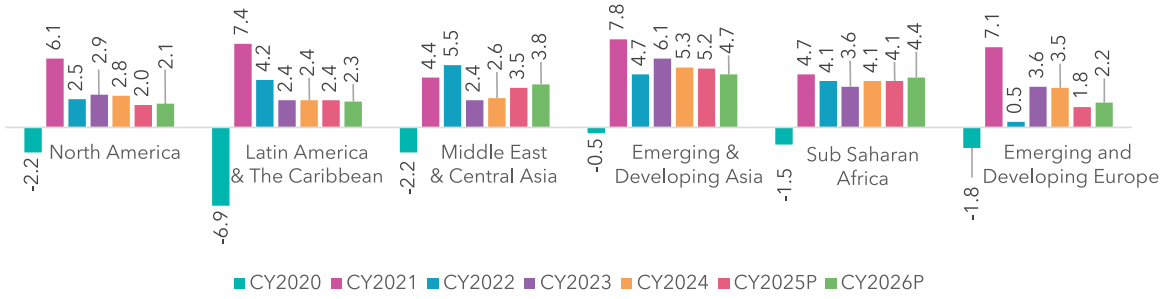
supply is expected to dip to 137,000 barrels/day in October. A cautious approach may firm crude prices, though subdued global demand remains a downside risk.

Global Growth Projection Across Major Regions

At broader level, the global economy is expected to experience a slowdown in 2025, with GDP growth projected to decline to 3.2%, down from 3.3% in 2024. This deceleration reflects persistent inflationary pressure, geopolitical uncertainties and tightened monetary policies. However, a sightly recovery is anticipated in 2026, with growth projected to

revision is more pronounced and partly reflects the stabilization of inflation expectations above target, due to fiscal policy credibility challenges in the previous year, although currency appreciation is expected to provide relief in late 2025 and 2026. For Mexico, the upward revision is driven by volatile categories such as food and more persistent-than-expected services inflation. For several other economies, inflation forecasts are revised downward compared with the October 2024 WEO. In much of emerging and developing Asia, this is the case. The revision largely reflects lower-than-expected outturns, with food, energy, and administrative prices playing a significant role—particularly in China, India, and Thailand.

Historical & Projected GDP Growth Across Major Regions (%)



Source-IMF World Economic Outlook October 2025 update

headline inflation, which began rising in 2024, is improve to 3.1%. In the United Kingdom, expected to continue increasing in 2025, partly due to changes in regulated prices. This rise is projected to be temporary, with a loosening labor market and moderating wage growth helping inflation return to target by end-2026. In the United States, inflation is expected to rise in the second half of 2025, as the impact of tariffs is no longer absorbed within supply chains and is instead passed on to consumers. Inflation is then expected to return to the Federal Reserve's 2 percent target in 2027. This forecast assumes modest second-round effects, implying upside risks to U.S. inflation and downside risks to employment.

Among emerging market and developing economies, inflation forecasts for Brazil and Mexico are revised upward. For Brazil, the

In the United States, growth is projected to slow to 2.0 percent in 2025 and remain steady at 2.1 percent in 2026, broadly consistent with July projections and improved from April due to lower effective tariff rates, a fiscal boost from the OBBBA, and easing financial conditions. This reflects a significant slowdown from 2024 and a cumulative downward revision of 0.1 percentage point from the October 2024 WEO and 0.7 percentage point from the January 2025 WEO Update. The revision is primarily driven by greater policy uncertainty, higher trade barriers, and slower labor force and employment growth.

Growth in the euro area is expected to increase modestly to 1.2 percent in 2025 and to 1.1 percent in 2026. While this marks an improvement from April and July, it represents a cumulative downward revision of 0.4 percentage

point compared to the October 2024 WEO. The main contributing factors are elevated uncertainty and higher tariffs. Recovering private consumption from higher real wages and fiscal easing in Germany in 2026 provide only a partial offset, while strong performance in Ireland supports growth in 2025. The euro area economy is expected to grow at potential in 2026.

For emerging market and developing economies, growth is projected to moderate from 4.3 percent in 2024 to 4.2 percent in 2025, and further to 4.0 percent in 2026. This is virtually unchanged from the July WEO Update and reflects a cumulative upward revision of 0.6 percentage point from the April 2025 WEO, but remains 0.2 percentage point lower than the October 2024 forecast, with low-income developing countries facing a larger downward revision than middle-income economies.

Growth in emerging and developing Asia is expected to decline from 5.3 percent in 2024 to 5.2 percent in 2025, and further to 4.7 percent in 2026. In several countries—particularly in ASEAN, among the most affected—growth forecasts closely followed changes in effective tariff rates. In China, the 2025 GDP growth forecast was revised downward by 0.6 percentage point in the April 2025 WEO due to escalating trade tensions with the United States and then revised upward by 0.8 percentage point in the July WEO Update following the pause on higher tariffs in May.

In Latin America and the Caribbean, growth is projected to remain stable at 2.4 percent in 2025 and decline slightly to 2.3 percent in 2026. The 2025 forecast is revised upward by 0.4 percentage point relative to April, driven by lower tariff rates for most countries in the region and stronger-than-expected incoming data. The revision is largely attributed to Mexico, which is expected to grow at 1.0 percent in 2025, 1.3 percentage points higher than forecast in the April 2025 WEO. For Brazil, the 2025 projection is revised upward, while the 2026 forecast is revised downward, partly due to the higher tariff rate on exports to the United States. For the region overall, the 2025–2026 forecast is cumulatively 0.5 percentage point lower than the October 2024 WEO, reflecting trade policy changes and uncertainty.

In emerging and developing Europe, growth is projected to decline significantly from 3.5 percent in 2024 to 1.8 percent in 2025, followed by a modest recovery to 2.2 percent in 2026. This decline is primarily driven by a sharp drop in Russia's growth forecast, from 4.3 percent in 2024 to 0.6 percent in 2025, and 1.0 percent in 2026. The 2025 growth forecast is 0.9 percentage point lower than in the April 2025 WEO, largely due to recent data showing a concentration of fiscal expenditures in Q4 2024, which raised the 2024 GDP estimate from 4.1 percent to 4.3 percent. The payback effect is reflected in the 2025 projection.

Global Supply Chains Under Strain Amidst Rising Vulnerabilities

Economic performance is increasingly intertwined with supply chain resilience, as disruptions can amplify inflationary pressures and constrain growth. Against this backdrop, the Dun & Bradstreet Global Business Supply Chain Continuity (GBSCC) Index offers critical insights into how businesses are coping with systemic vulnerabilities and evolving trade dynamics.

The Dun & Bradstreet Global Business Supply Chain Continuity (GBSCC) Index is a key subindex for the Global Business Optimism Index. It indicates the vulnerability of global businesses to supply side shock.

In Q1 2025, the GBSCS Index dropped sharply by 10.4% quarter-on-quarter driven by rising freight rates, container shortages, geopolitical disruptions, payment delays among others.

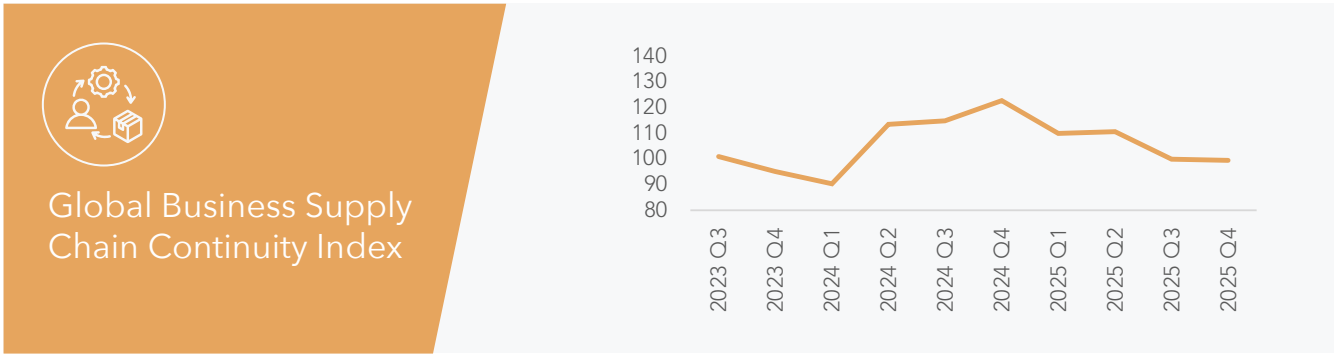
Q2 2025 saw only a marginal recovery of 0.7%, primarily supported by emerging economies with an 8.8% increase, while advanced economies continued to decline. This sluggish improvement reflects persistent challenges such as supply chain disruptions, labor shortages, evolving global trade dynamics, and heightened tensions around U.S. tariffs.

However, the momentum reversed in Q3 2025, with the index dropping by 9.7%, signaling widespread and systemic vulnerabilities in global supply chains.

On year-on-year basis, the index contracted by 19.0% underscoring a broad-based erosion of supply chain continuity and growing instability in global supply chains.

stood out maintaining a somewhat positive momentum by leveraging strong intra-EU trade relationships and domestic sourcing strategies.

Asia Pacific region experienced volatility throughout the year. India and Southeast Asia benefited from strong economic growth, supply chain diversification and nearshoring trends. However, elevated U.S. tariffs on key Asian economies in second half of the year dampened



Regional Divergence Shapes Global Supply Chain Outlook

Global supply chain optimism in 2025 has been uneven across regions, shaped by economic conditions, geopolitical tensions, and disruptions to critical trade routes.

The U.S. supply chain environment remained under sustained pressure throughout the year. Early disruptions were driven by stockpiling and local sourcing strategies in anticipation of tariffs, compounded by labor shortages and inflationary concerns. The latter half of the year saw renewed strain due to sweeping U.S. tariffs on imports from China, Mexico, and Canada.

Western Europe faced persistent challenges from port congestion, rising import costs linked to the EU's carbon border adjustment mechanism, and tariff uncertainty. While France, Germany, and the Netherlands demonstrated resilience through diversification and industrial strength, the U.K., Türkiye, and Poland struggled with economic slowdowns and trade disruptions. Hungary was particularly vulnerable due to energy supply constraints. The Nordic region

trade prospects and exporter confidence, reinforcing systemic fragility. Japan and South Korea faced persistent headwinds from high freight costs and semiconductor market fluctuations, while China's outlook was clouded by trade tensions despite temporary tariff pauses earlier in the year.

Supply chains in Latin America were disrupted by droughts, Panama Canal delays, and labor strikes, particularly in Brazil. Mexico emerged as a relative winner, supported by nearshoring trends and tariff clarity later in the year. Overall, the region ended the year slightly positive, buoyed by improved trade routes and deferred shipments following clearer U.S. tariff guidance.

Middle East & North Africa managed supply chain pressures amid shifting trade alliances. Saudi Arabia, the U.A.E., and Israel maintained relative stability, though geopolitical uncertainties and Red Sea disruptions added complexity to trade flows.

In Sub-Saharan Africa, supply chains were severely impacted by droughts, food and fuel shortages, and logistical bottlenecks in the Red

Sea and Suez Canal. Despite these challenges, optimism persisted in South Africa and Kenya, driven by regional trade integration and infrastructure development initiatives.

A key global disruptor was the Red Sea and Suez Canal crisis, which forced vessels to reroute around Africa, inflating shipping costs and causing delays—particularly impacting Europe and Asia. This disruption accelerated supply chain diversification efforts, fueling optimism in regions like India and Southeast Asia, while deepening pessimism in economies heavily reliant on these routes.

Overall, there has been structural shift in global supply chain strategies: businesses are prioritizing resilience over cost, diversifying supplier bases beyond traditional hubs such as the Chinese Mainland and the U.S., and increasingly factoring geopolitical risk into procurement decisions.

Key drivers of supply chain volatility

Trade Policy Volatility Drive Extreme Supply Chain Uncertainty

Global supply chains have entered an era of extreme unpredictability, shaped by geopolitical tensions, protectionist measures, and tariff hikes. At the center of this disruption is U.S. trade policy—universal duties of 10% and punitive tariffs up to 100% on Chinese goods prompted retaliatory measures from China exceeding 125%. Export controls on semiconductors, EV batteries, and rare minerals added another layer of complexity. Geopolitical conflicts, from U.S.–China rivalry to Russia sanctions and Middle East instability, have compounded these pressures, creating a volatile environment for global commerce.

The scale of uncertainty is evident in global indices. The UNCTAD World Trade Uncertainty Index surged from 461 in January 2024 to 27,299 in June 2025, while the World Policy Uncertainty Index jumped from 13,003 to 41,014 during the same period.

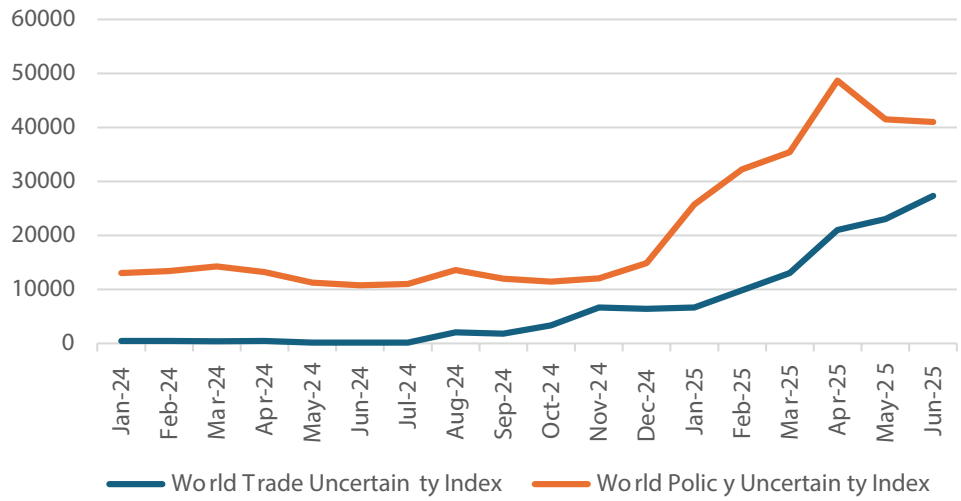
Uncertainty over the timing of policy measures often triggers pre-emptive actions. Firms often rush shipments before tariff deadlines (a practice known as front-loading) and switch to faster, more expensive means of transport. For instance, air shipments to the U.S. rose nearly 10% in the first quarter of 2025 compared to the same period a year earlier.

This unprecedented volatility has been forcing companies to rethink their strategies—holding excess inventory, redesigning supply networks, and delaying capital investments to hedge against risk.

Freight Rate Volatility and Container Shortages Disrupt Global Supply Chains

Oceans remain the backbone of global trade, carrying over 80% of goods worldwide,

World Trade Uncertainty Index and World Policy Uncertainty Index



Source: UNCTAD

according to the World Trade Organization (WTO). This makes ocean freight volatility a critical disruptor of supply chains. Over the past year, shipping costs have experienced extreme fluctuations, exposing the fragility of global logistics networks.

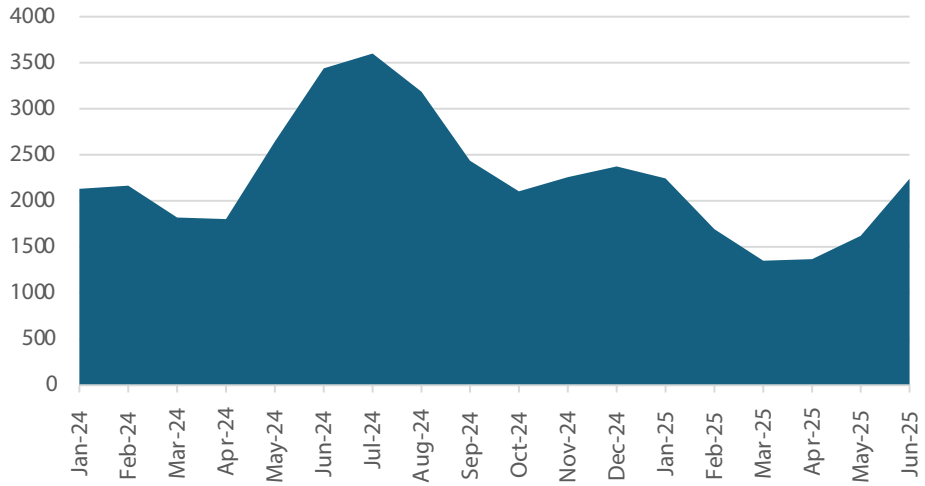
The first half of 2024 saw a sharp escalation in freight rates, with the Shanghai Containerized Freight Index (SCFI) rising from 2,130 in January to 3,438 by June. This surge was triggered by attacks on cargo vessels in the Red Sea[1], forcing carriers to reroute around Africa. Longer transit times, higher fuel consumption, and soaring insurance premiums inflated costs significantly. These disruptions not only increased shipping expenses but also delayed deliveries.

Beyond major trans-Pacific and Europe-bound routes, secondary lanes faced even steeper hikes. Between January and July 2024, the SCFI Shanghai–South America route more than doubled to $9,026 per TEU—the highest since September 2022. Similarly, Shanghai–South Africa rates nearly tripled to $5,426 per TEU, while Shanghai–West Africa jumped 137% to $5,563 per TEU. These spikes underscore how crises in chokepoints like the Red Sea, Suez Canal, and Panama Canal ripple across global trade corridors.

A critical consequence of rerouting is container shortages. Longer voyages tie up container capacity for extended periods, reducing availability and amplifying rate volatility. This scarcity forces shippers to compete for limited space, driving spot rates even higher and disrupting production schedules worldwide.

While the crisis-induced surge eased temporarily—rates fell to 1,351 in March 2025—volatility persisted. By June, SCFI rebounded to 2,240 as shippers scrambled to move goods ahead of impending U.S. tariffs. This pattern illustrates how freight rate instability and container scarcity distort planning and increase costs.

SCFI Comprehensive Container Freight Rate Index



Climate Risks: A Growing Threat to Global Supply Chains

Extreme weather events—droughts, floods, and storms—have become systemic disruptors of global supply chains, causing delays, escalating costs, and forcing businesses to redesign logistics networks. In 2024 alone, climate-related disasters inflicted over $200 billion in economic losses, underscoring the scale of the challenge.

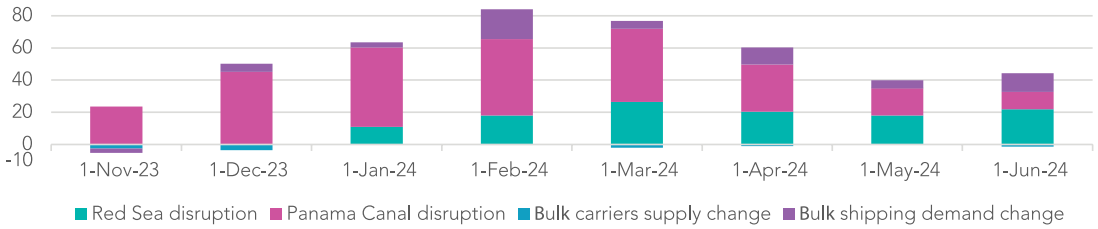
The operational impact is stark. Prolonged droughts lowered water levels in critical

[1] Impact of Red Sea disruption on Baltic Dry Index graphically shown later.

waterways such as the Mississippi, Rhine, and Yangtze, constraining vessel capacity and slowing cargo movement. The most severe case was the Panama Canal, which handles nearly 5% of global trade by volume.

restricted vessel transits in the Panama Canal increasing shipping costs.[2]

Impact of Panama Canal Disruption on Baltic Dry Index

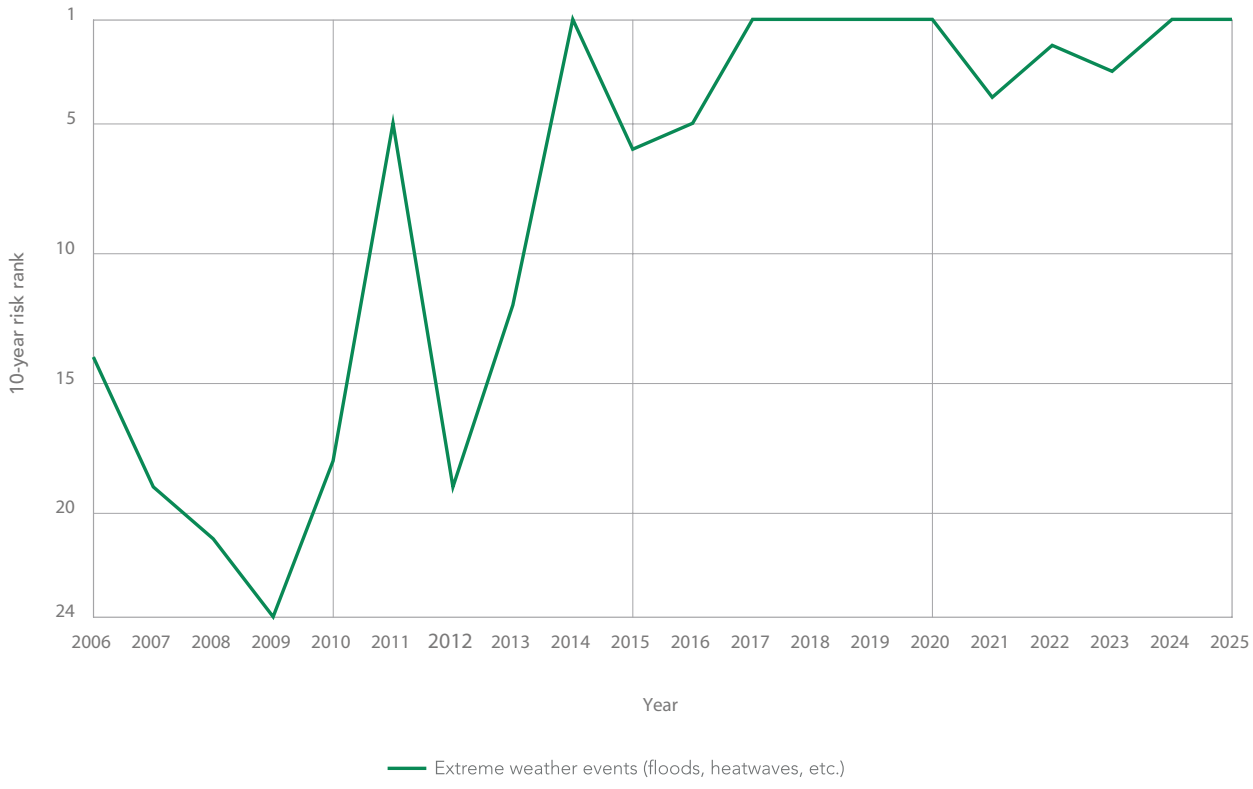


Source: UNCTAD

As evident from the above graph, the cumulative percentage change in Baltic Dry Index (BDI) from November 2023 to June 2024 has been essentially driven by Panama Canal disruption (shown in orange). Between December 2023 and March 2024, drought-induced low water levels

These disruptions are not isolated incidents but part of a worsening trend. According to the World Economic Forum's Global Risks Report 2025, extreme weather events have climbed from rank 14 in 2006 to rank 1 in 2024 and 2025, consistently appearing among the top six global risks since 2014.

Global Risks Report Ranking of Extreme Weather Events over the years



Source: Global Risks Report 2025, WEF

[2] Between January 2024 and June 2024, the impact Red Sea disruption on Baltic Dry Index increased

Extreme weather events are now projected as the most significant risk for the next decade, with their frequency and severity accelerating. The cost per event has surged nearly 77% (inflation-adjusted) over the last five decades, amplifying financial and operational strain on businesses.

Digital Transformation - A Double-Edged Sword for Global Supply Chains

Global supply chains are undergoing a seismic shift as digital technologies redefine how goods move, decisions are made, and risks are managed. What was once a linear, cost-focused system evolving into a connected, intelligent ecosystem powered by AI, IoT, blockchain, and cloud platforms. This transformation promises unprecedented efficiency and visibility, yet it also introduces systemic vulnerabilities that can paralyze operations.

The business case for digital adoption is clear. Successful implementation of AI-enabled supply-chain management has enabled early adopters to improve logistics costs by 15%, inventory levels by 35%, and service levels by 65%. [3]

However, the same technologies that enable agility can become sources of disruption when poorly executed or compromised.

One of the most striking examples is the global semiconductor shortage, a crisis born from the surge in digitalization and compounded by the COVID-19 pandemic. As industries embedded advanced electronics and IoT into products and processes, chip demand soared beyond supply capacity. At the same time, pandemic-related factory shutdowns and logistics bottlenecks disrupted production and distribution, creating a perfect storm. Lead times stretched from 12.2 weeks to 22.2 weeks, forcing automotive manufacturers to halt production and consumer electronics firms to delay launches.

This dependency extends to cloud infrastructure. In October 2025, an AWS outage disrupted a vast network of global operations—from e-commerce platforms and financial services to logistics and transportation infrastructure. Retailers faced online checkout failures, frozen inventory systems, and inaccessible customer support. Logistics ground to a halt as dashboards, tracking tools, and third-party integrations went offline. Airfreight carriers reported loading delays, port terminals struggled with container assignments, and trucking dispatch systems failed to communicate arrival updates.

Adding to these vulnerabilities, cyberattacks have emerged as a major threat to digitized supply chains. In September 2025, a ransomware strike on Jaguar Land Rover halted production for six weeks across four countries, costing $2.5 billion and rippling through thousands of suppliers. Manufacturing sector has now become a top ransomware target, with attacks surging 61% year-over-year, causing estimated global losses of $18 billion in 2025.

India's Positioning in Global Supply Chains

With the COVID-19 pandemic exposing the vulnerabilities of highly globalized supply chains coupled with ongoing global trade uncertainty arising from US tariff policies and Chinese export diversions, companies are increasingly diversifying their supply chains and nearshoring their operations. Against this backdrop, India is rapidly emerging as a critical player in global supply chains.

Key Factors Driving India's Rise in Global Supply Chains

Strategic Geographic Location: Positioned as the southward extension of Asia, India occupies a central location between East and West Asia, making it a natural bridge for commerce across continents. Its western coast maintains close connectivity with West Asia, Africa, and Europe, while its eastern seaboard links to Southeast and East Asia. This dual connectivity places India at the heart of major maritime routes, serving as a critical transit point for sea lanes that connect

[3] https://www.mckinsey.com/~/media/mckinsey/industries/metals%20and%20mining/our%20insights/succeeding%20in%20the%20ai%20supply%20chain%20revolution/succeeding-in-the-ai-supply-chain-revolution.pdf

Europe with East Asia. Trans-Indian Ocean routes connect Europe in the west with East Asia in the east, granting India a pivotal role in global shipping and logistics. The Indian Ocean Region (IOR) handles 30% of global containerized cargo and 42% of global crude oil shipments annually. Nearly 100,000 ships transit the Indian Ocean every year, making it one of the busiest maritime corridors globally.

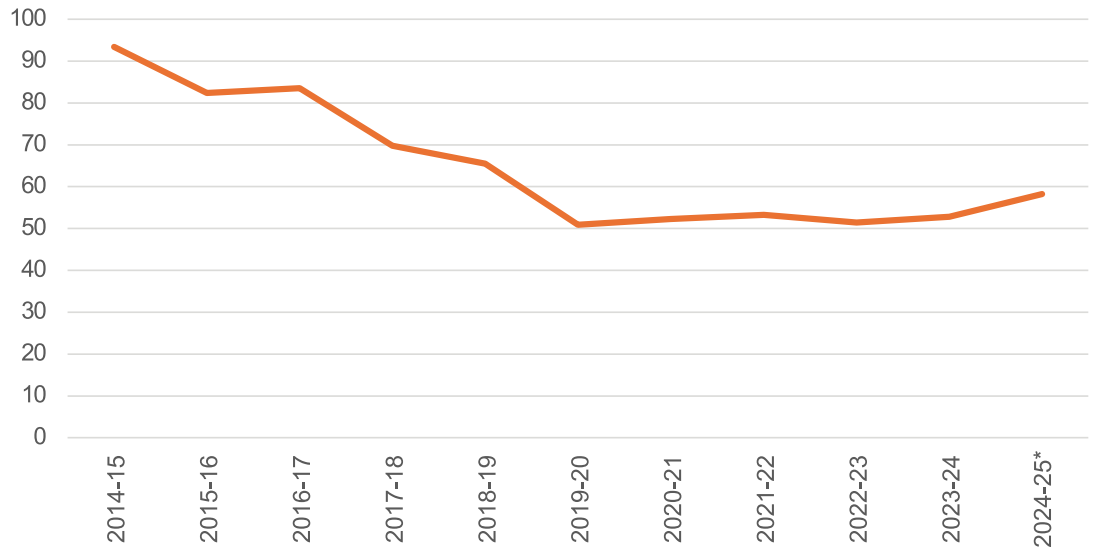
Increasing Port Efficiency: India's ports have undergone a remarkable transformation, becoming a cornerstone of its rise in global supply chains. The average turnaround time at major ports has dropped from 93.6 hours in 2014–15 to 58.2 hours in 2024–25—a 38% reduction.

utilization stands at 51%, signaling room for growth and modernization.

Container traffic—a key indicator of trade in manufactured goods—has shown robust growth. In FY 2024–25, containerized cargo rose 6.59% YoY, from 181.57 MT to 193.52 MT, while container handling in TEUs increased 9.99%, reaching 13.54 million units.

High-Value Manufacturing and Export Dynamism: India's manufacturing sector has witnessed sustained growth, ranking among the top five globally with an estimated output of $461 billion in 2025, compared to China's $4.66 trillion and the United States at $2.5 trillion.

Average Turn Around Time of Major Ports in India (In hours)



Source: Ministry of Ports, Shipping & Waterways

This improvement reflects significant investments in digitization, mechanization, and infrastructure upgrades under initiatives like Sagarmala and PM Gati Shakti, enabling faster vessel handling and reducing logistics costs.

Cargo handling capacity has expanded dramatically to meet growing trade volumes. From 172.59 million tonnes in 1993–94, capacity surged to 1,680.74 million tonnes by 2024–25, positioning India as a competitive maritime hub. Despite this expansion, current capacity

This scale reflects India's growing importance in global supply chains.

Top Countries by share in global manufacturing

Country	Share in global manufacturing (%)
China	31.6
US	15.9
Japan	6.5
Germany	4.8
India	2.9

Source: World Population Review

India's manufacturing sector continues to demonstrate remarkable resilience, as reflected in the HSBC India Manufacturing PMI, which averaged an impressive 57.4 in November 2025. This performance not only signals robust growth but also positions India as one of Asia's strongest economies. Among the world's top five manufacturing nations, India stands out with the highest PMI reading, underscoring its momentum and competitiveness in the global manufacturing landscape.

Manufacturing PMI: Top 5 Manufacturing Economies

Country	HSBC Manufacturing PMI	Time Reference
India	57.4	Nov-25
US	51.9	Nov-25
China	50.6	Oct-25
Japan	48.8	Nov-25
Germany	48.4	Nov-25

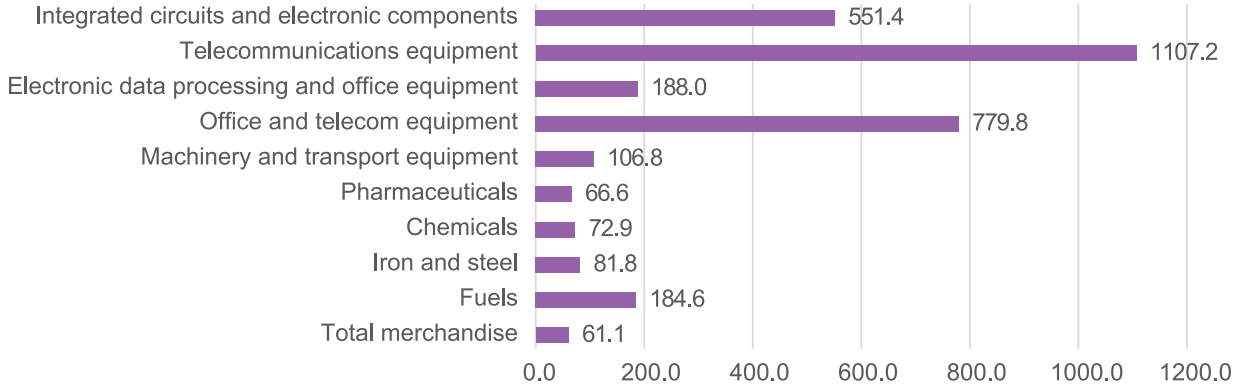
Source: Trading Economics

India's manufacturing strength is increasingly translating into export dynamism. Between 2015 and 2023, India's merchandise exports grew by 61.1%, signaling steady integration into global trade networks. However, the growth is far more pronounced in high-value, technology-intensive categories, underscoring India's evolving industrial capabilities.

The most striking gains are in telecommunications equipment, which surged by an extraordinary 1,107.2%, followed by office and telecom equipment (779.8%) and integrated circuits and electronic components (551.4%). These figures highlight India's rapid ascent in electronics manufacturing, supported by PLI schemes, component localization initiatives, and global supply chain diversification. Similarly, electronic data processing and office equipment grew by 188%, reinforcing India's positioning in digital hardware exports.

Traditional sectors also posted robust growth: fuels (184.6%), machinery and transport equipment (106.8%), and iron and steel (81.8%), indicating strong performance in core industrial goods. High-value segments such as chemicals (72.9%) and pharmaceuticals (66.6%) continue to strengthen India's global footprint, leveraging its established leadership in generics and specialty chemicals.

% Change in merchandise export by product category



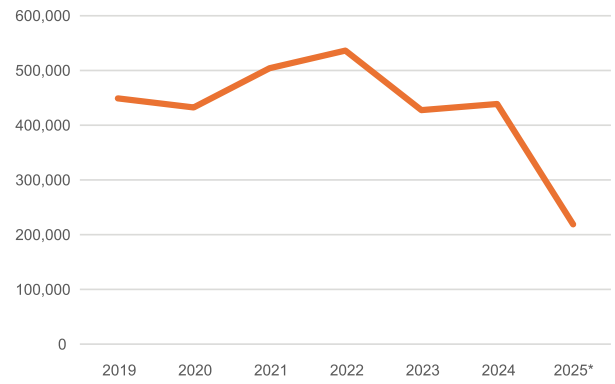
Source: World Trade Organization

China Plus One Strategy and Evolving Trade Dynamics: The China Plus One diversification strategy is a major tailwind for India. US tariffs on Chinese goods and rising geopolitical risks have prompted firms to nearshore and friend-shore operations. India's trade with the US reached $102.7 billion in goods in 2025, with exports of $29.3 billion and imports of $73.4 billion.

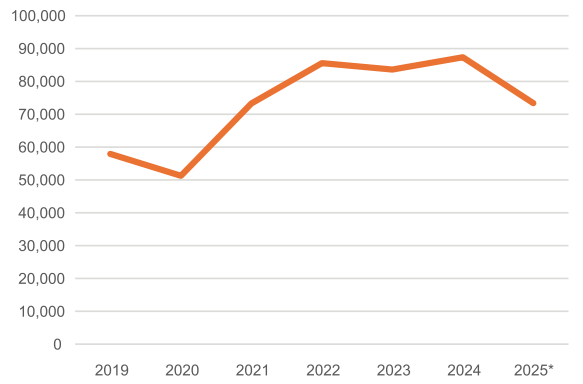
The divergence in import patterns highlights two critical dynamics:

- Erosion of China's dominance in US-bound supply chains.
- India capturing a larger share of US imports.

Merchandise Imports from China (USD Million)



Merchandise Imports from India (USD Million)



Source: U.S. Census Bureau

The China+1 strategy adopted by multinational corporations is reshaping global trade flows, and the US import data provides compelling evidence of this shift. Between 2019 and 2025, US merchandise imports from China declined sharply from $449 billion to $219 billion, a reduction of more than 50%, reflecting the impact of tariff realignments, geopolitical tensions, and supply chain diversification efforts. In contrast, imports from India increased from $57.9 billion in 2019 to $87.3 billion in 2024, before moderating to $73.3 billion in 2025. This trend underscores India's growing role as an alternative manufacturing hub for US companies seeking to reduce dependency on China.

This strategic realignment is not just visible in trade flows but also in corporate investment patterns. Leading global firms across electronics, automotive, industrial, and aerospace sectors are scaling up operations in India to diversify their supply chains. The table below highlights key examples of companies expanding their footprint in India under the China+1 strategy.

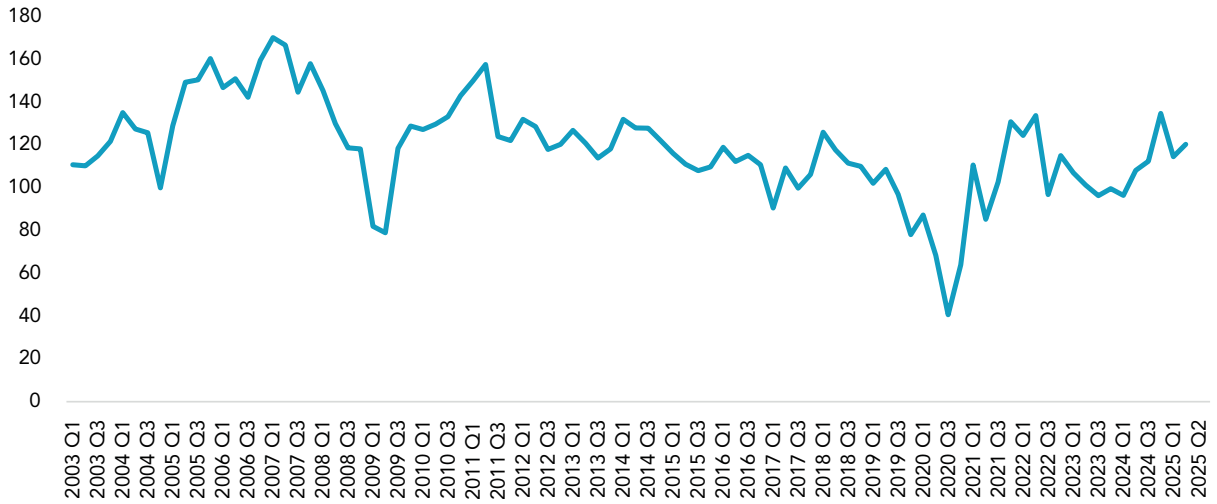
Global Companies Scaling Operations in India

Company	India Operations and Expansion
Apple	Increased assembling of iPhone in India worth $22 billion in FY2024-25, marking 60% YoY growth
Foxconn	India has become a critical part of Foxconn's global strategy, with the company expanding its manufacturing footprint with new factories near Hyderabad and in Karnataka. India contributed over $20 billion to Foxconn's revenue in the FY2024-25
Samsung	Operates one of the world's largest smartphone factories in Noida; It is expanding its manufacturing portfolio in India. At present, it is the second largest exporter of the handsets from the country after Apple.
Murata Manufacturing	In 2025, Murata established its first manufacturing facility in India, located at the One-Hub Chennai Industrial Park
TDK	Scaling operations under Electronics Component Manufacturing Scheme (ECMS); focusing on EV components, sensors, and energy-efficient modules. Opened lithium-ion plant in Haryana in September 2025
Schneider Electric	In 2025, it announced plans to expand manufacturing facilities in Kolkata, Ahmednagar and Hyderabad.
Siemens	Siemens invested INR 330 crore to expand its manufacturing operations in Goa to collaborate with local MSMEs to become a part of supply chain.
General Electric	GE Aerospace announced USD 14 million investment to expand capacity at the company's Pune manufacturing facility. GE Vernova announced plans to invest approximately USD 16 million in India to expand its electrification manufacturing and engineering footprint.
Airbus	Airbus is deepening its presence in India through a broad-based expansion spanning manufacturing, engineering, training, and supply chain development. It has recently joined forces with Tata Advanced Systems Limited (TASL) to produce the C295 military transport aircraft for the Indian Air Force.

State of Supply Chain in India - Resilient Amid Global Uncertainty

India's supply chain landscape in 2025 has been shaped by a delicate balance between domestic resilience and global uncertainty.

The Dun & Bradstreet Business Optimism Index (BOI) serves as a leading indicator of supply chain health in India, capturing shifts in demand, cost pressures, inventory strategies, domestic macroeconomic environment, global macroeconomic environment, among others. Fluctuations in BOI throughout 2025—from sharp declines in early quarters to cautious recovery later—mirror how businesses recalibrated sourcing and stock levels to navigate global trade disruptions and domestic demand swings.



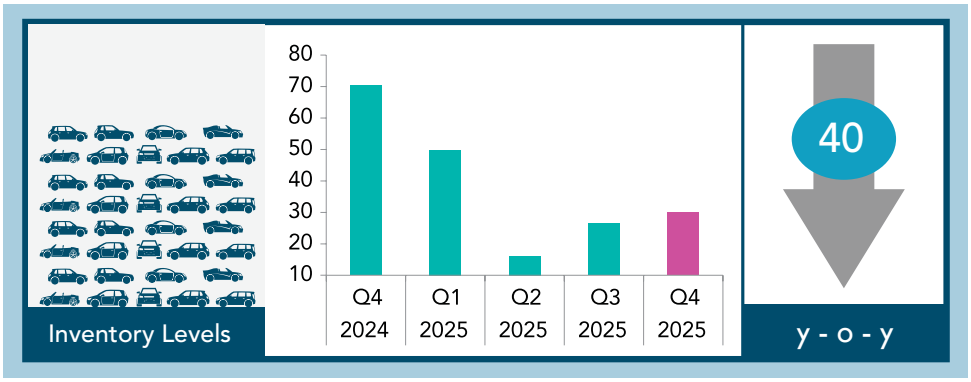
Source: Dun & Bradstreet

Business confidence fluctuated throughout the year, reflecting the interplay of strong local demand and external shocks. The year began with caution as optimism fell sharply, driven by weak export orders and softer domestic consumption. Companies responded by cutting inventories and delaying investments, signaling a shift toward leaner operations.

Mid-year brought a rebound in sentiment, supported by tax reforms, monetary easing, and improving consumption. However, this recovery was tempered by rising input costs and tariff-related risks, prompting businesses to frontload export orders and tighten cost controls. Inventory optimism collapsed during this period, as firms adopt leaner stockpiles to mitigate risks from policy unpredictability and supply chain volatility.

By the third quarter, optimism stabilized, with small businesses showing strong confidence and credit growth improving. Domestic orders gained traction as firms prioritized local markets over global expansion amid trade policy uncertainty. Yet, structural vulnerabilities persisted—input costs remained high due to oil price volatility and China's export restrictions on critical imports like rare earth magnets which are critical for India's EV and defense sectors.

As the year ends, India's supply chain demonstrates resilience despite global tariff shocks and order cancellations affecting MSMEs in export-heavy sectors like textiles and leather. Domestic demand remains a key buffer, with businesses leaning on localized sourcing. 36% of businesses now rely on domestic suppliers to reduce exposure to global disruptions.



Note: All y-o-y figures are in percentage points

Source: Dun & Bradstreet

Inventory levels have improved slightly but remain well below historical norms, reflecting cautious planning. Inventory sentiment improved slightly but remains 40 points lower YoY, indicating cautious stock management amid unpredictable trade flows. Input cost pressures are easing, yet risks from currency depreciation, oil price volatility, and geopolitical tensions persist. Policy support through GST revisions, falling NPAs, and employment schemes continue to strengthen the domestic backbone.

Overall, these trends underscore a critical shift businesses are prioritizing agility and cost control over scale, accelerating digital visibility tools, and diversifying sourcing to navigate tariff shocks and global demand swings. For supply chain leaders, the challenge lies in balancing domestic growth opportunities with external risks through adaptive planning and resilient network design.

Key Sectors Powering India's Supply Chain Integration

India's integration into global supply chains is being accelerated by targeted policy interventions, such as the Production Linked Incentive (PLI) scheme, infrastructure modernization, and liberalized FDI norms, positioning India as a preferred destination for diversified sourcing and manufacturing.

PLI Scheme: A Catalyst for Supply Chain Integration

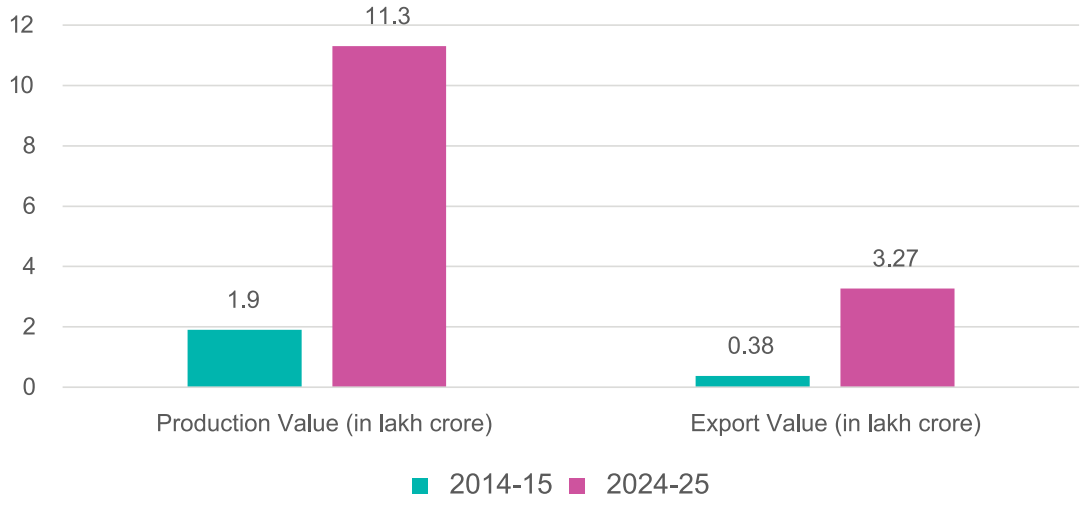
Designed to boost domestic production, attract global investments, and enhance export competitiveness, the PLI scheme spans 14 key sectors mentioned below. These sectors are not only driving industrial growth but also embedding India deeper into global value chains.

The scheme realized actual investments of INR 1.76 lakh crore by March-2025. Total sales by PLI participants exceeded INR 16.5 lakh crore and generating over 12 lakh direct and indirect employment opportunities, while simultaneously fostering additional ecosystem development across Tier-2 and Tier-3 cities.

Electronics and Semiconductors

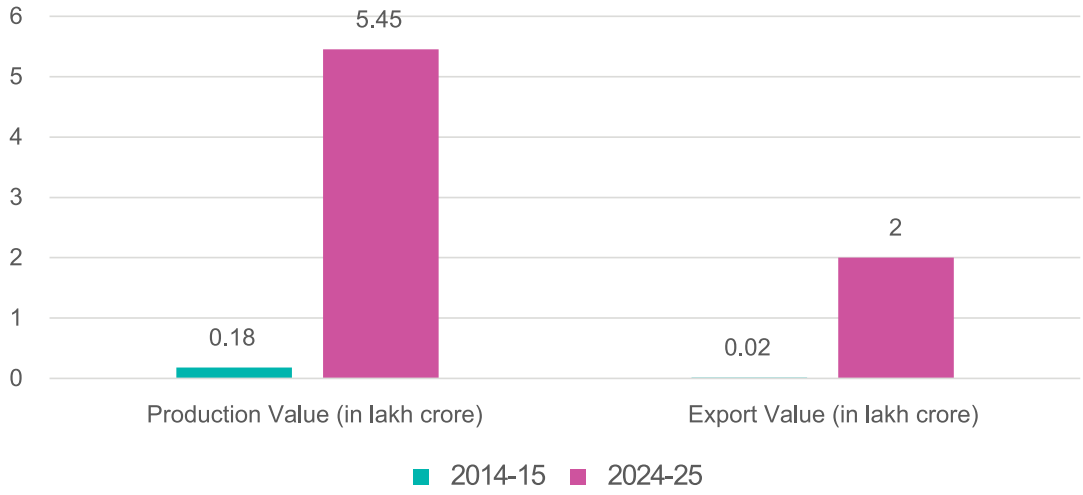
Electronics has emerged as a cornerstone of India's supply chain integration, driven by rapid growth in production and exports over the past decade. The sector's production value has increased nearly six-fold, rising from INR 1.9 lakh crore in 2014–15 to INR 11.3 lakh crore in 2024–25, while exports have grown eight times during the same period. The mobile phone segment has been the primary driver of this transformation, with production value surging from INR 18,000 crore in 2014–15 to INR 5.45 lakh crore in 2024–25—a remarkable 28-fold increase.

Growth of Electronics Production and Exports in India (in lakh crores)



Mobile phone exports have skyrocketed from INR 1,500 crore to INR 2 lakh crore, marking a 127-fold jump, while imports have dropped drastically from 75% of total demand in 2014–15 to just 0.02% in 2024–25, signaling near-complete self-reliance. Today, India manufactures 99% of domestic smartphone demand and hosts over 300 manufacturing units, positioning itself as a global hub for electronics production and exports.

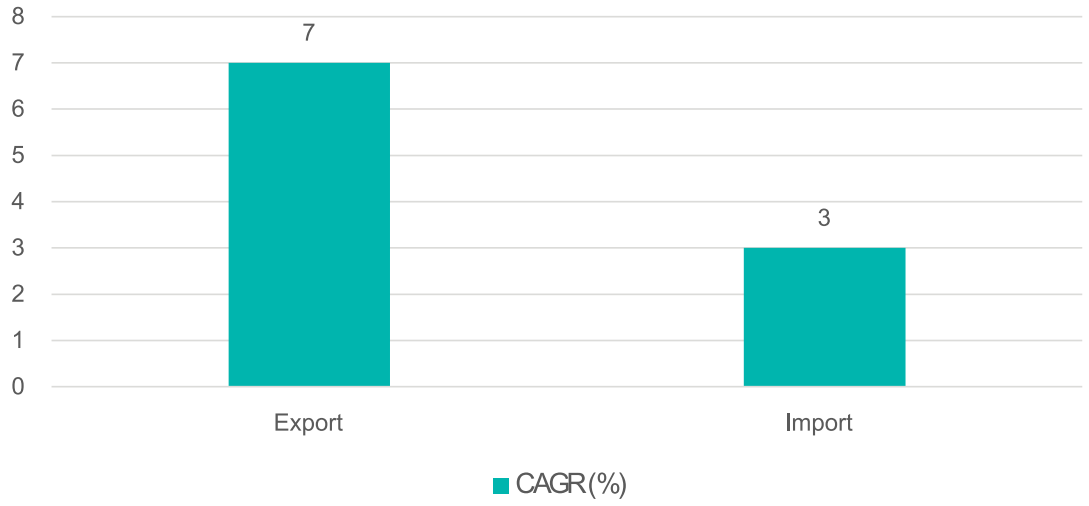
Growth of Mobile Production and Exports in India (in lakh crores)



Automotive and Electric Vehicles

The automotive industry is another critical driver, ranking 4th globally in vehicle production with 28 million units manufactured in 2023–24. It contributes 7.1% to India's GDP and nearly 49% of manufacturing GDP. India's auto component market is valued at USD 64 billion. India's current share in globally traded auto components is **approximately 3%** or **20 billion.** Since FY19, the country's exports have demonstrated a robust growth trajectory, expanding at a compound annual growth rate (CAGR) of approximately 7%. In contrast, imports have grown at a relatively slower pace, with a CAGR of around 3% during the same period. This divergence underscores India's improving trade competitiveness and its increasing integration into global value chains.

CAGR of Export and Import of Auto Components since 2019



Source: Niti Aayog

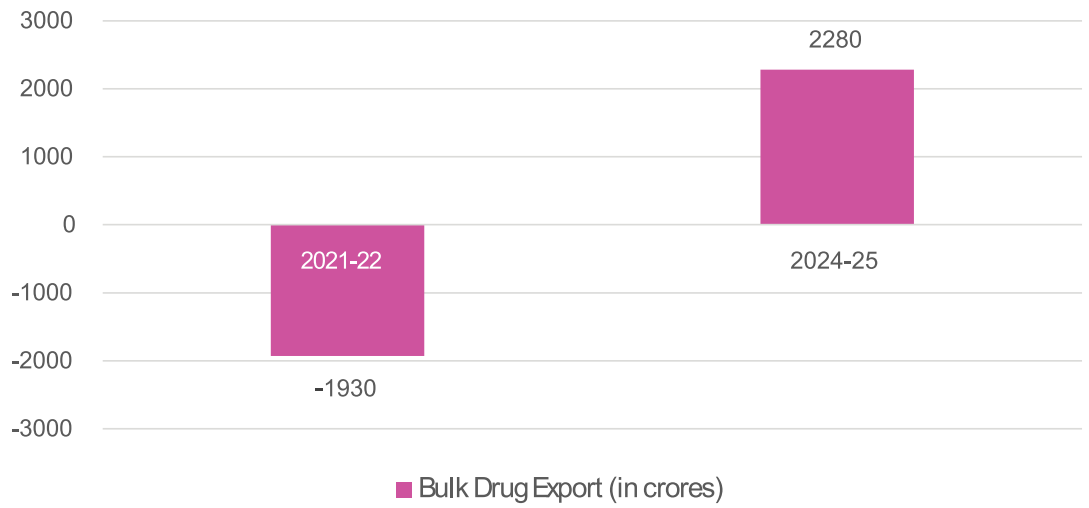
The share of critical components in the Indian export basket has been on an upswing with critical components (Engine and Transmission components) accounting for 65 % of the total export basket in FY24 compared with 55% in FY14.

The Vision 2030 roadmap targets USD 145 billion in component production and USD 60 billion in exports, aiming to raise India's global share to 8%.

Pharmaceuticals and Chemicals

India's pharmaceutical industry remains a global leader in generics and is increasingly moving into biologics and specialty chemicals. PLI schemes for APIs and medical devices have reduced import dependency and strengthened domestic value chains. The country transitioned from a net importer (INR 1,930 crore deficit in FY 2021-22) to a net exporter of bulk drugs (INR 2,280 crore surplus in FY 2024-25).

India transitioning from a Net Importer of Bulk Drugs to a Net Exporter



Source: PIB

In the first three years, pharma sales under PLI crossed INR 2.66 lakh crore, including exports worth INR 1.70 lakh crore. The overall Domestic Value Addition in the Sector has been 83.70% as of March 2025.

Textiles

India is the 6th largest exporter of Textiles & Apparel in the world, with a 4.1% share in Calendar year by 2024. The textile and apparel sector, including handicrafts, contributed 8.63% to India's total merchandise exports in 2024–25, valued at USD 37.7 billion.

Technical textiles and Man-Made Fibre (MMF) products are critical for global apparel and industrial applications, and PLI is positioning India as a competitive supplier in these segments. MMF exports rose to around INR 525 Crore in FY 2024–25 (from INR 499 Crore in FY 2023–24), while technical textile exports climbed to INR 294 Crore, up from INR 200 Crore the previous year.

Key Components of India's Domestic Supply Chain

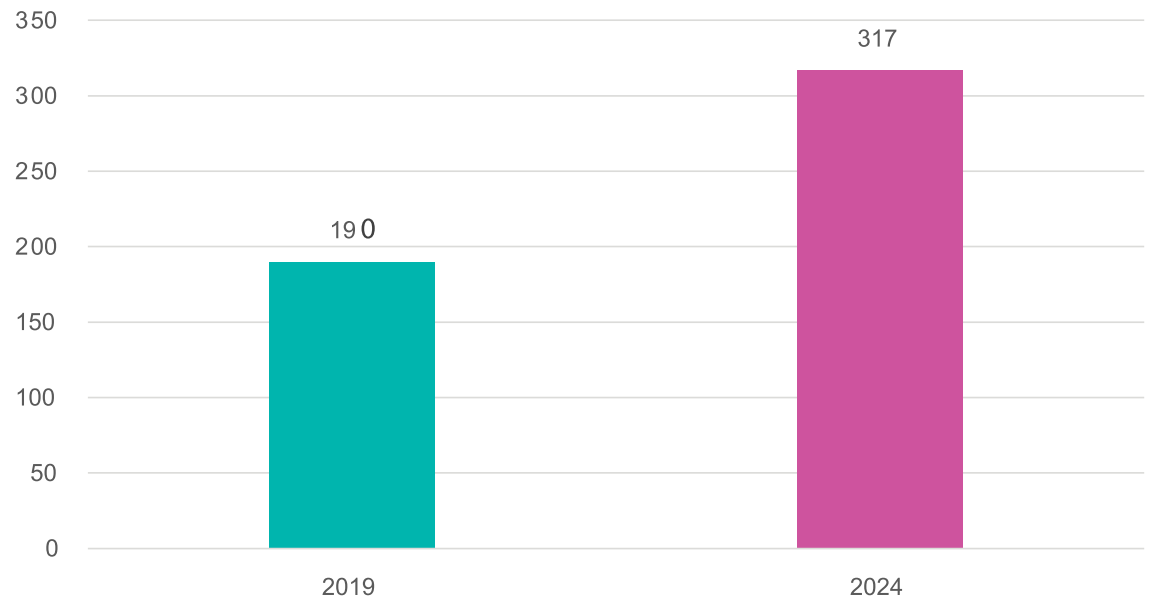
India's domestic supply chain ecosystem is evolving rapidly, driven by infrastructure modernization, policy reforms, and technology adoption. These components collectively form the backbone of a future-ready supply chain, enabling efficiency, resilience, and scalability.

Increasing Cost Competitiveness of India's Logistics Sector

India's logistics sector comprises multiple segments, including transportation, warehousing, freight forwarding, and third-party logistics (3PL) services. Economic reforms, globalization, and the rise of e-commerce have accelerated the demand for efficient logistics services, making the sector a critical component of India's infrastructure.

India's logistics market was valued at USD 317 Bn in 2024[4]. The sector contributes 5% to India's GDP. Logistic cost in India currently stands between 7.8-8.9% of GDP, intriguingly closer to a level seen in developed nations.

Market Size of Indian Logistic Market (USD Bn)



Source: D&B Desk Research

[4] logimat 2024

Until few years back owing to the inefficiencies in warehousing, transportation, and supply chain management, the logistics costs remain disproportionately elevated at 13-14% of GDP, against the international benchmark of 8-10%. However, proving to be aware of this challenge, the Government of India brought out the National Logistics Policy (NLP) in 2022 which is steadily helping to bring down the cost of logistics in India which currently measures 7.8-8.9% of GDP. The Unified Logistics Interface Platform (ULIP) is enabling real-time cargo tracking and integration across stakeholders, enhancing transparency and reducing costs. This steady effort to reduce the logistic cost is anticipated to increase the competitiveness of Indian industries and add a further 1.5-2% to GDP growth every year.

Manufacturing Clusters Powering Supply Chain Agility

India's manufacturing hubs are central to domestic supply chain strength. States like Tamil Nadu, Maharashtra, Gujarat, and Uttar Pradesh have emerged as industrial powerhouses, hosting clusters for automotive, electronics, textiles, and engineering goods. For instance, Uttar Pradesh alone attracted INR 1.9 lakh crore in manufacturing investments in 2024, positioning itself as a hub for electronics and EV production. Industrial corridors under the Delhi-Mumbai Industrial Corridor (DMIC) and Chennai-Bengaluru Industrial Corridor are creating integrated ecosystems with plug-and-play facilities, reducing lead times and improving supply chain agility.

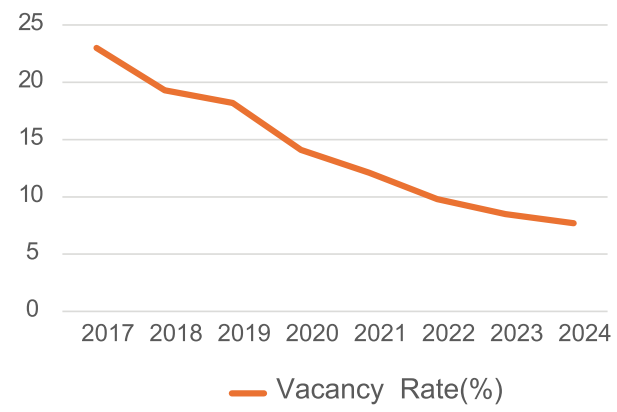
Rapid Growth of Grade A Warehousing Facilities

India's warehousing sector is emerging as a cornerstone of the country's domestic supply chain, undergoing a structural transformation driven by the rise of Grade A facilities and the rapid growth of e-commerce, third-party logistics (3PL), and organized retail.

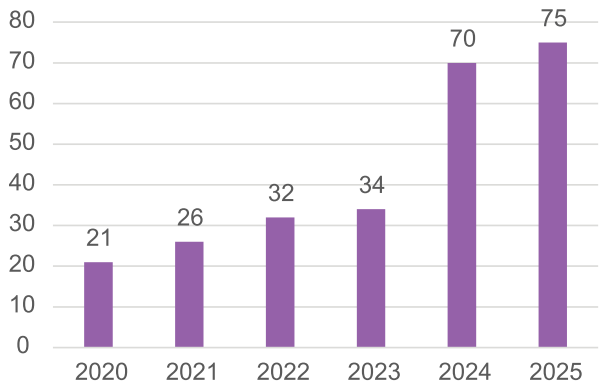
Between FY19 and FY24, Grade A warehouse stock in the eight primary markets grew at a CAGR of 21%, reaching 183 million sq. ft. This surge reflects a strong tenant preference for modern, ESG-compliant facilities that align with global supply chain standards. Demand remains robust, led by 3PL and manufacturing sectors, which together accounted for ~65% of total leased area as of March 2024, while e-commerce contributed 15%.

The impact on supply chain efficiency is evident: vacancy levels have consistently dropped over the years to about 8%, even as Grade A stock more than doubled between FY20 and FY24, with occupancy consistently near 90%.

Vacancy Rate(%)



Stock of Grade A Warehousing Assets (Million Square Feet)



Source: CareEdge Ratings

These modern warehouses are not just storage spaces, they are strategic hubs that enable faster, more efficient movement of goods across the nation.

Investments are increasingly flowing into automated storage systems, IoT-enabled inventory management, and multi-client facilities, ensuring scalability and operational efficiency. This technological shift is critical for supporting India's expanding consumption base and strengthening regional distribution networks.

Modernization Driving India's Cold Chain Infrastructure

Cold chain infrastructure is critical for agriculture, pharmaceuticals, and food processing. As of August 2024, India has over 8,689 cold storage facilities, with a total capacity of 39.6 million metric tonnes (MT). Uttar Pradesh has the largest share of cold storage capacity (around 38%) followed by West Bengal (15%) and Gujarat (10%). supported by investments in reefer trucks, cold storage warehouses, and integrated farm-to-fork solutions. These developments are enabling India to meet global standards for perishable goods handling, strengthening its role in agri-export supply chains.

India's cold chain infrastructure has evolved into a strategic enabler of the country's food and pharmaceutical supply chains.

The cold chain market in India was valued at INR 2.28 lakh crore (US$26.6 billion) in 2024 and is projected to grow at a CAGR of 10–11%, reaching INR 6.06 lakh crore (US$70.5 billion) by 2033 supported by investments in reefer trucks, cold storage warehouses, and integrated farm-to-fork solutions. These developments are enabling India to meet global standards for perishable goods handling, strengthening its role in agri-export supply chains.

Traditionally underdeveloped and fragmented, the sector is now witnessing rapid modernization, driven by rising consumer demand for fresh produce, processed foods, and life-saving medicines. Integrated cold storage systems are reducing wastage, extending shelf life, and enabling farmers to access distant markets, boosting incomes by 15–20%.

IoT-enabled monitoring, automated storage systems, and energy-efficient refrigeration are becoming mainstream. Innovations like solar-powered cold rooms and EV-based reefer trucks are addressing sustainability and cost challenges.

Along with this, policy push in the form of schemes such as Pradhan Mantri Kisan Sampada Yojana (PMKSY) and the Agriculture Infrastructure Fund have catalyzed investments in integrated cold chain facilities, creating millions of tonnes of storage capacity and thousands of jobs.

Digital Infrastructure

Digitalization is transforming supply chain operations through real-time visibility, predictive analytics, and blockchain-based traceability.

Component	Digitalization Initiatives	Impact
Logistics	AI-driven route optimization, IoT-enabled fleet tracking, predictive analytics	Reduction in transit times by 20–30%.
Warehousing	Automated inventory systems, robotics, real-time stock visibility,	40% reduction in inventory holding costs and 50% increases in warehouse throughput.
Cold Chain	Smart temperature monitoring, blockchain traceability	Digital cold chain solutions cut spoilage by up to 30%.
MSMEs	Cloud ERP, e-commerce integration, digital payments	Boost efficiency, reduce costs, and expand market reach through tools like e-commerce and digital payments

Policy and Regulatory Framework

Policy / Initiative	Key Features
Goods & Services Tax (GST)	Unified indirect tax system; eliminated interstate tax barriers; introduced **E-Way Bill** for digital compliance; enabled warehouse consolidation and faster movement of goods.
National Logistics Policy (NLP)	Targets logistics cost reduction to **8% of GDP by 2030;** introduces **Unified Logistics Interface Platform (ULIP), Logistics Data Bank,** and grievance redressal portal for digital integration.
PM GatiShakti Master Plan	INR 100 lakh crore infrastructure plan; integrates **1,300+ projects** via GIS mapping; focuses on multimodal connectivity (road, rail, air, waterways) for industrial hubs and logistics parks.
Bharatmala Pariyojana	Development of **83,677 km highways;** creation of freight corridors; improves road connectivity and last-mile delivery efficiency.
Sagarmala Project	Modernization of ports; promotion of coastal shipping and inland waterways; reduces dependence on road transport and lowers logistics costs.
Dedicated Freight Corridors (DFCs)	High-speed rail corridors for freight; integration with industrial hubs; reduces transit time and boosts efficiency for manufacturing and e-commerce.
100% FDI in Warehousing & Logistics	Liberalized norms for foreign investment in logistics parks, cold chain, and warehousing; attracts global players and modern infrastructure development.
State Logistics Policies	State-level frameworks under NLP; focus on multimodal hubs, digital integration, and support for MSMEs and Tier-2/3 city warehousing growth.

Transition to Future-Ready Supply Chains: Emerging Priorities

Global supply chains are entering a new era—one defined by resilience, intelligence, and responsibility. The shift from cost optimization to risk mitigation, digital agility, and sustainability is accelerating as businesses respond to geopolitical fragmentation, climate imperatives, and technological disruption. For India, this is a strategic moment: as global firms diversify beyond China, India's manufacturing scale, digital talent, and policy reforms position it as a critical node in the reconfigured global value chain.

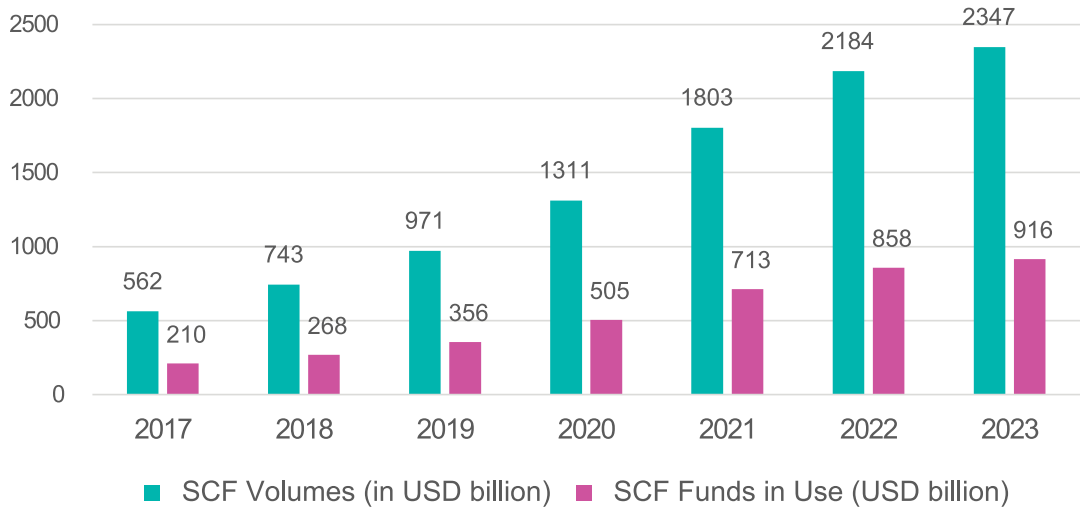
1. Building Resilience through Financial Strength and Risk Diversification

Global supply chains have faced unprecedented shocks—from pandemic-induced disruptions to geopolitical tensions and climate-related events. These challenges underscore the need for financial resilience and diversified sourcing strategies. Globally, companies are embedding Supply Chain Finance (SCF) and risk analytics to maintain liquidity and operational continuity.

In 2023, global SCF volumes rose by 7% (vis 2022) to USD 2,347 billion, while funds in use increased by 7% to USD 916 billion. Africa led with 29% growth in volume and 30% in funds in use, signaling strong momentum. Asia, too, maintained double-digit growth. This trend reflects the increasing reliance on SCF as a resilience tool amid economic uncertainty.

For India, the imperative is sharper. MSMEs are the backbone of India's supply ecosystem but remain credit constrained. Scaling digital SCF platforms, ESG-linked financing, and fintech partnerships can unlock working capital and strengthen resilience.

Supply Chain Finance: Global SCF Volumes and Funds in Use*



Source: World Supply Chain Finance Report[5]

Financial strength alone is not enough—organizations must spread operational risk across geographies, suppliers, and logistics networks. Global leaders are adopting China+1 strategies, nearshoring, and multi-supplier models to reduce dependency on single markets.

According to BCG, traditional sourcing models optimized for cost efficiency—often centered on China—are increasingly vulnerable due to rising labor costs, trade restrictions, and geopolitical tensions. To address this complexity, BCG outlines five strategic sourcing configurations beyond the conventional single-supplier model:

- Second Supplier in China for quick redundancy
- Backup Supplier Outside China for continuity during regional disruptions
- Specialized Supplier Outside China for niche compliance and agility
- Second Large-Scale Supplier Outside China for high-volume resilience

India exemplifies the strategic shift toward regional diversification. Apple's pivot to India, in partnership with Foxconn, demonstrates how global firms are realigning sourcing to enhance resilience while accessing new markets. India's manufacturing scale, policy incentives (PLI schemes), and digital infrastructure position it as a preferred hub for second large-scale suppliers and specialized production.

2. Driving Agility and Transparency through AI and Automation

The next frontier of supply chain performance lies in predictive intelligence. Globally, AI-driven forecasting and automation are enabling companies to anticipate disruptions, optimize inventory, and enhance service levels.

[5] Estimated

At present, the current level of adoption of technology in different aspects of the supply chain is given below

Technology in Supply Chains	Rate of Adoption
Digital warehouse management systems (WMS)	72
Digital labor management	15.9
systems (LMS)	55
Digital transportation management	4.8
software (TMS)	69
Business intelligence / analytics software	71
Robotics in warehousing	44
Predictive analytical / AI software	63

Source: DHL

Research studies estimate-

a. Predictive analytics can reduce inventory costs by up to 20% and improve the productivity of its planners by 20 to 30%.
b. Generative AI to impact 43% of supply chain work hours, automating 29% and augmenting 14%.

As global firms accelerate this transformation, India is emerging as a strategic enabler. Its digital talent pool and technology ecosystem are powering advanced supply chain solutions for multinational corporations. Global Capability Centers (GCCs) in India are already deploying AI for route optimization, predictive maintenance, and smart warehousing, positioning India as a hub for digital supply chain orchestration. For example, Maersk's Technology Centre in Bengaluru leverages data science and AI to provide real-time cargo visibility enabling proactive disruption management and enhancing customer experience.

This convergence of global technology adoption and India's execution capability positions the country as a hub for digital supply chain orchestration, offering both scale and sophistication to operationalize predictive supply chains.

3. Embedding Sustainability into Operations

Sustainability is no longer optional; it is a license to operate. Globally, over 70% of companies face mounting ESG compliance pressures, driven by regulations like

- EU CSRD (Corporate Sustainability Reporting Directive): Requires detailed ESG disclosures from any company doing business in the EU—even non-European firms.
- EU CSDDD (Corporate Sustainability Due Diligence Directive): Mandates human rights and environmental due diligence across entire value chains.
- U.S. SEC Climate Disclosure Rules: Include Scope 3 emissions reporting for publicly traded companies.

These regulations demand evidence-based compliance, not self-reported claims. ESG frameworks like GRI, SASB, and IFRS S2 set global standards for auditable, comparable sustainability reporting.

This regulatory tightening is not just about compliance, it is reshaping procurement models, supplier engagement, and risk frameworks. For instance, Scope 3 emissions, which account for 11.4 times more carbon impact than direct operations, have become a focal point for global brands which now prioritize suppliers with verified carbon reduction programs and ethical labor practices.

As global supply chains pivot toward sustainability, India is progressively aligning with global ESG norms through a mix of mandatory disclosures and sustainability-linked incentives:

- Business Responsibility and Sustainability Reporting (BRSR): Mandatory for the top 1,000 listed companies, requiring detailed ESG metrics.
- Extended Producer Responsibility (EPR): Enforces circular economy principles for plastics, batteries, and e-waste.
- PLI Schemes with Green Incentives: Encourage adoption of renewable energy and low-carbon technologies in manufacturing.

- Carbon Market Framework: India is operationalizing a compliance carbon market to meet its 45% emissions intensity reduction target by 2030.

Industry leaders such as Tata Steel, Mahindra, and ITC are embedding ESG principles into supply chains—from green steel production to carbon-neutral campuses. MSMEs, aided by government incentives and digital platforms, are embracing resource-efficient models, signaling a bottom-up sustainability shift.

Impact of Crude Oil Volatility on Logistics Cost Structures

An analysis of Crude Oil Prices impact on Overall Logistic industry and Post Covid impact of Crude oil Prices on Logistic sector

Average Crude Oil Prices

Crude oil prices play a pivotal role in shaping the logistics industry, as fuel costs directly impact transportation expenses for shipping, trucking, aviation, and rail. A surge in oil prices leads to increased freight rates, affecting supply chains, consumer prices, and overall business profitability. The data from 2019 to 2025 reveals significant fluctuations, with a sharp dip in 2020-21 due to COVID-19, followed by a steep rise in subsequent years. These price movements have forced logistics companies to adopt fuel-efficient technologies, optimize routes, and explore alternative energy sources to mitigate cost pressures.

The COVID-19 pandemic had a profound impact on crude oil prices, with an unprecedented collapse in demand during 2020-21, driving prices to record lows. This decline provided temporary relief for logistics firms but was overshadowed by global supply chain disruptions, labour shortages, and reduced consumer demand. However, the post-pandemic recovery saw a dramatic rebound in oil prices due to supply chain constraints, geopolitical tensions, and increased energy demand. The logistics industry faced higher operating costs, forcing companies to adjust freight pricing, implement fuel surcharges, and enhance supply chain resilience through digital transformation.

Looking ahead, while crude oil prices have shown signs of stabilization in 2024-25, they remain a key factor in logistics profitability and inflationary pressures. The transition towards sustainable logistics, including electric vehicles (EVs) and alternative fuels, is gaining traction to counter oil price volatility. Additionally, governments and businesses are focusing on energy efficiency and policy interventions to ensure cost-effective logistics operations. The long-term impact of fluctuating crude oil prices will continue to shape industry strategies, with an emphasis on sustainability, resilience, and cost optimization.

Future Outlook for India's Supply Chain

Trends and strategic priorities likely to shape the future of how goods move across the country and integrate with global markets.

1. Policy Reforms and Digital Integration
   - National Logistics Policy (NLP) aims to reduce logistics costs from 14–15% of GDP to 8% by 2030, leveraging digitization for real-time visibility and demand forecasting.
   - Platforms like ULIP, ELOG, and Logistics Data Bank are streamlining cargo tracking, customs clearance, and grievance redressal, reducing operational costs by 8–10% and improving clearance times by 20%.

2. Financing and Incentives
   - The expansion of Production Linked Incentive (PLI) schemes, Supply Chain Finance (SCF), and Deep Tier Financing will strengthen liquidity across the value chain, especially for MSMEs. These measures will foster resilience and encourage investments in advanced warehousing, cold chains, and automation.

3. Infrastructure Expansion
   - PM Gati Shakti Master Plan integrates 1,300+ projects worth INR 100 lakh crore for multimodal connectivity.
   - Sagarmala and Bharatmala programs are modernizing ports and highways, while Dedicated Freight Corridors (DFCs) will cut rail freight costs by 30% and reduce transit time.

4. Technology Adoption
   - The adoption of AI, IoT, blockchain, and predictive analytics will revolutionize supply chain visibility and risk management. Smart warehousing, automated guided vehicles (AGVs), and robotics will become mainstream, enabling faster order fulfillment and reducing operational costs.

5. Investment and Private Sector Participation
   - Liberalized FDI norms allow 100% foreign investment in logistics parks, warehousing, and cold chains, attracting global players like DP World and Amazon.
   - State-level incentives (e.g., Maharashtra, Gujarat, Karnataka) are accelerating the development of Multi-Modal Logistics Parks (MMLPs) and tech-driven hubs.

6. Sustainability and Coastal Shipping
   - Coastal shipping and inland waterways have seen significant growth over the last decade, reducing emissions and easing congestion.
   - Global trade increasingly demands ESG compliance. India's supply chain will see greater emphasis on solar-powered cold storage, electric vehicles, and green warehousing to reduce carbon footprints and align with international sustainability standards.

India's supply chain future is anchored in policy-driven reforms, infrastructure modernization, and technology-led innovation. However, achieving global competitiveness will require addressing persistent challenges such as high logistics costs, skill gaps, and sustainability compliance. With coordinated efforts from government and industry, India is poised to transform its supply chain into a strategic advantage—driving economic growth, attracting global investments, and emerging as a logistics powerhouse by 2030.

SBI
The banker to every Indian

SOLID BANK SOLID BACKING

MORE EFFICIENCY WITH FASTER, DIGITISED BANKING SOLUTIONS

Apply for MSME Loan online

SBI MSME DIGITAL LOANS

- Loans up to ₹5 crore
- Attractive interest rates
- Instant digital sanction for loans upto ₹50 lakh
- NIL collateral for loans covered by Credit Guarantee
- Tenure: Upto 10 years

T&C Apply

For loans up to ₹10 lakh
Visit: www.jansamarth.in/apply/sbi
or scan QR code

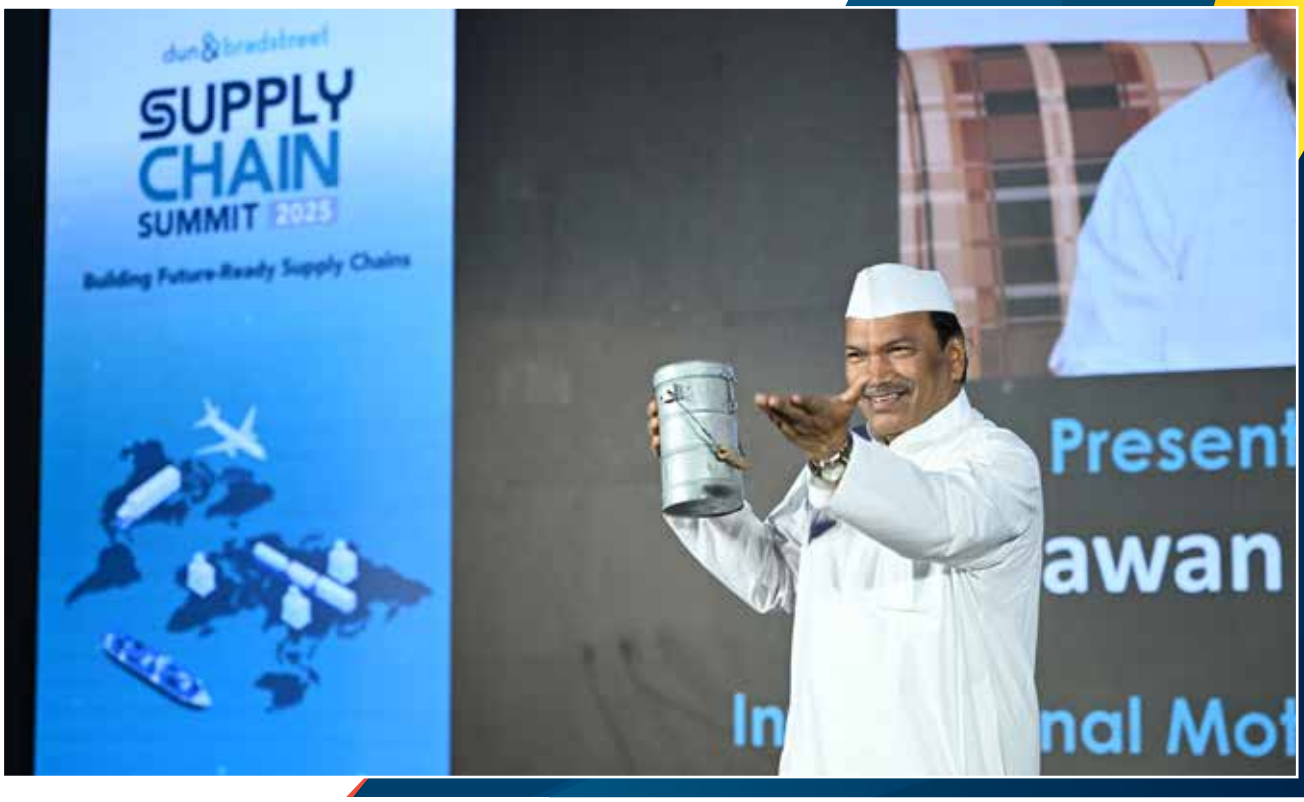
For loans above ₹10 lakh to ₹5 crore
Visit: www.sbiloansin59minutes.com/home
or scan QR code

For assistance, call **1800 1234** | **1800 2100** or visit: bank.sbi

Follow us on

Summit Highlights

Keynote Address by Dr. Pawan Agrawal, International Motivational Speaker, Ph.D. Mumbai Dabbawala on 'Time, Trust and Teamwork – The Unwritten Rules of Supply Chain Success'



Dr. Pawan Agrawal delivered an inspiring keynote at the Supply Chain Summit 2025, highlighting the extraordinary efficiency and values of Mumbai's Dabbawalas. For over 135 years, this network of 5,000 individuals has delivered 200,000 lunchboxes daily with near-perfect accuracy—achieving an error rate of one in 16 million transactions and earning Six Sigma certification without using technology.

Their success stems from passion, punctuality, and customer-centric principles: "Work is worship" and "Customer is God." Despite limited resources, they maintain 100% on-time delivery, never strike, and earn modest wages, driven by trust and dedication. Stories of honesty and value-added services—like delivering forgotten items or safeguarding salaries—illustrate their integrity.

Leadership within groups, through "Mukhadams," ensures accountability without formal authority. Global recognition followed visits from dignitaries like Prince Charles and Richard Branson, yet their focus remains unwavering on customer satisfaction.

Dr. Agrawal emphasized that consistent service builds trust so strong that customers see providers as indispensable. The Dabbawalas exemplify simplicity, resilience, and innovation, offering timeless lessons for modern supply chain management.

Panel Discussion: Proactive Strategies to Turn Supply Chain Risks into Readiness

(L-R: Mr. Yashpal Saimbi, Director & Head - Corporate Sales & Alliances, Dun & Bradstreet India | Mr. Gaurav Bhatia, Head – Supply Chain, Reliance Retail | Mr. Ashutosh Taparia, MD - Chief Operating Officer, Credable | Mr. Vinesh Vijaykumar Tejwani, Director, Worldspace Industrial & Logistics Park Mundra)

The panel, moderated by Mr. Yashpal Saimbi, explored proactive strategies to transform supply chain risks into readiness. Key risks identified include geopolitical tensions, tariff barriers, supply concentration (e.g., rare earths in China), infrastructure gaps, cybersecurity threats, climate impact, and workforce skill shortages. Panelists emphasized shifting from reactive to proactive approaches through data-driven planning, collaboration, and strategic sourcing.

Mr. Gaurav Bhatia highlighted categorizing risks into known (forecast inaccuracies, regulatory issues) and unknown (pandemics, global disruptions), advocating scientific inventory norms, multi-sourcing, and agility to mitigate risks. Mr. Ashutosh Taparia stressed the financial dimension, noting extended cash conversion cycles post-pandemic and the need for supply chain financing to inject liquidity and support SMEs. Mr. Vinesh Tejwani underscored supplier partnerships and investment for resilience. Strategies discussed included SNOP/SIOP integration, leveraging technology for visibility, vendor-managed inventory, and China-plus-one diversification.

The consensus: resilience requires diversification, strategic sourcing, and strong supplier collaboration, supported by financing and technology, to convert risks into opportunities for growth.

Panel Discussion: Reimagining Supply Chain Logistics & Infrastructure for a Resilient Future

(L-R: Mr. Govind Joshi, Vice President and Chief Operating Officer, Dun & Bradstreet India | Mr. Shubhankar Chatterji, Chief Supply Chain Officer, Cummins | Mr. Rajesh Bhogavalli, President - Supply Chain & Sustainability (Global), EPL Limited | Mr. Ajay Singh, Chief Supply Chain Officer, Hindustan Platinum Pvt. Ltd. | Mr. Jitendra Kore, Head Procurement India, Oetiker India Pvt. Ltd. | Mr. Dhaval Agarwal, Executive Director Strategy, Indospace)

The panel, moderated by Mr. Govind Joshi, discussed strategies to reimagine supply chain logistics and infrastructure for resilience. Panelists highlighted frequent global disruptions—COVID-19, Red Sea crisis, tariff barriers, and geopolitical tensions—alongside India's infrastructure challenges: 66% reliance on road transport, slow freight speeds, and high logistics costs (13–14% of GDP vs. 8% in Europe).

Mr. Shubhankar Chatterjee emphasized the growing unpredictability of disruptions and the need to shift from reactive responses to resilience planning. Mr. Dhawal Agarwal focused on interoperability—both physical (containerization, palletization) and digital—and the importance of multimodal connectivity and logistics clusters. Mr. Rajesh stressed redesigning supply chains from globalization to near-shoring, diversifying suppliers, moving from "Just-in-Time" to "Just-in-Case" inventory, and leveraging technology for visibility and predictive planning. Mr. Jitendra Khori and Mr. Ajay Singh highlighted technology's role—IoT, AI, ERP—and the need for robust processes and training. Sustainability emerged as a key theme, with green logistics, EV adoption, and circular supply chains gaining traction despite cost challenges.

The consensus: collaboration among industry, government, and technology providers is essential to build efficient, resilient, and future-ready supply chains.

Panel Discussion: Leveraging Tech & AI to Future-proof Supply Chain Operations

(L-R: Mr. Hitesh Sethi, Senior Director, Analytics and Business Advisory, Dun & Bradstreet India | Mr. Pritam Shimpi, Head of Global Supply Chain, ACG World | Mr. Mahesh Wade, SCM Cluster Head – South Asia, B. Braun Group | Ms. Shilpi Gupta, Head - Supply Chain India Med-Tech, Johnson & Johnson | Mr. Om Vijayvargiya, Head – SCM & Logistics, Schaeffler | Mr. Prashant Nayak, GM & Regional head-West, TCI Supply Chain Solutions)

The panel, moderated by Mr. Hitesh Sethi, explored how technology and AI can future-proof supply chain operations. Panelists highlighted challenges such as fragmented systems, lack of integration between ERP, WMS, and TMS, data reliability issues, and cybersecurity concerns.

Mr. Mahesh Wade emphasized that digital transformation requires robust data governance and proactive change management, noting that predictive analytics can optimize inventory and logistics costs. Mr. Om Vijayvargiya discussed integration hurdles due to legacy systems and IT security restrictions, stressing the need for scalable solutions and skilled talent. Ms. Shilpi Gupta underscored cultural readiness, advocating a five-step approach: identify core problems, streamline processes, clean data, pilot solutions, and empower teams. She warned against "falling in love with tools" without solving real business issues. Mr. Pritam Shimpi shared use cases of AI in price forecasting and supplier risk monitoring, while Mr. Prashant Nayak illustrated AI's role in warehouse efficiency and logistics automation.

The consensus: success lies in aligning technology with business objectives, building clean data ecosystems, and fostering collaboration and upskilling to leverage AI for resilience, agility, and sustainability.

Glimpses of the summit

Glimpses of the summit

dun & bradstreet

D&B ESG Intelligence

D&B ESG Intelligence delivers data and analytics built from the Dun & Bradstreet Data Cloud and established sustainability standards to help companies quantify and assess the impact of their business partners' sustainability rankings to their companies' performance. This true and trusted source of ESG data enables compliance and procurement teams to generate insights that help strengthen their ESG goals and policies, and streamline ESG assessment processes.

PLATFORMS

- D&B Risk Analytics ESG Module

SOLUTIONS

- ESG Self-Assessment
- ESG Registered Solutions
- ESG Advisory
- Economic and Social Impact Assessment (ESIA)

Contact us at - +91 22 4941 6666 | india@dnb.com 8657943769 www.dnb.co.in

@DunandBradstreetIndia @DNB_India @Dun&BradstreetIndia

Authors
Learning & Economic Insights Group

Editor

Naina Acharya
Associate Director
E-mail: acharyan@dnb.com

Sub-Editor

Mihir Shah
Head – Research
E-mail: shahmi@dnb.com

Editorial Team

Rohit Gadbail
E-mail: gadbailr@dnb.com

Surender Khalsa
E-mail: khalsas@dnb.com

Zinnia Banerjee
E-mail: banerjeez@dnb.com

Rohit Pawar
E-mail: pawarro@dnb.com

Designer

Mohan Chilvery

Bimbisar Kadam

dun & bradstreet

Sales & Marketing Solutions

Empowering sales, marketing, and operations teams to improve the impact of go-to-market strategies with better data, analytics, and solutions built on our data foundation

PLATFORMS

- D&B Hoovers
- D&B Direct for Sales & Marketing
- D&B Connect

SOLUTIONS

- Demand Generation
- Master Data Management
- D&B Analytics

Contact us at - +91 22 4941 6666 | india@dnb.com 8657943769 www.dnb.co.in

@DunandBradstreetIndia @DNB_India @Dun&BradstreetIndia

dun & bradstreet