Navigating Crosswinds: A Strategic Roadmap for India's Paints and Coatings Industry

Economic

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25th September 2025

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Contents

Abbreviations

- **ADD** – Anti-Dumping Duty
- **AI** – Artificial Intelligence
- **ASEAN** – Association of Southeast Asian Nations
- **BBB** – Investment Grade Rating (Standard & Poor's)
- **BIS** – Bureau of Indian Standards
- **BOM** – Bill of Materials
- **BRICS** – Brazil, Russia, India, China, South Africa
- **BTIA** – Broad-based Trade and Investment Agreement (India–EU)
- **CAGR** – Compound Annual Growth Rate
- **CBAM** – Carbon Border Adjustment Mechanism
- **CBIC** – Central Board of Indirect Taxes and Customs
- **CEPA** – Comprehensive Economic Partnership Agreement (India–UAE)
- **CETA** – Comprehensive Economic and Trade Agreement (India–UK)
- **CII** – Confederation of Indian Industry
- **COO** – Certificate of Origin
- **CPI** – Consumer Price Index
- **CSIR** – Council of Scientific and Industrial Research
- **CTC** – Change in Tariff Classification
- **CTSH** – Change in Tariff Subheading
- **DFAT** – Department of Foreign Affairs and Trade (Australia)
- **DGTR** – Directorate General of Trade Remedies
- **DIY** – Do It Yourself
- **ECGC** – Export Credit Guarantee Corporation of India
- **ECTA** – Economic Cooperation and Trade Agreement (India–Australia)
- **EFTA** – European Free Trade Association
- **EPA** – Economic Partnership Agreement
- **EPCG** – Export Promotion Capital Goods (Scheme)
- **ERP** – Enterprise Resource Planning
- **ESG** – Environmental, Social, and Governance
- **EU** – European Union
- **FDI** – Foreign Direct Investment
- **FIEO** – Federation of Indian Export Organisations
- **FII** – Foreign Institutional Investors
- **FOA** – Formulation Origin Audit
- **FPI** – Foreign Portfolio Investment
- **FTA** – Free Trade Agreement
- **FX** – Foreign Exchange
- **FY** – Financial Year
- **GCC** – Gulf Cooperation Council
- **GDP** – Gross Domestic Product
- **GST** – Goods and Services Tax
- **HDPE** – High-Density Polyethene
- **HS** – Harmonised System (of Tariff Codes)
- **IBM** – International Business Machines (context: blockchain pilot)
- **IIIT** – Indian Institute of Information Technology
- **IIM** – Indian Institute of Management
- **IIT** – Indian Institute of Technology
- **IMEC** – India–Middle East–Europe Economic Corridor
- **INR** – Indian Rupee
- **IPA** – Indian Paint Association
- **IPA-ART** – Indian Paint Association – AI-Ready Scenario Tool

- **IPEF** – Indo-Pacific Economic Framework
- **JV** – Joint Venture
- **MENA** – Middle East and North Africa
- **MFN** – Most Favoured Nation
- **MOOWR** – Manufacturing and Other Operations in Warehouse Regulations
- **MSCI** – Morgan Stanley Capital International (Index)
- **MSME** – Micro, Small and Medium Enterprises
- **MT** – Metric Tonnes
- **NABARD** – National Bank for Agriculture and Rural Development
- **NPA** – Non-Performing Asset
- **OECD** – Organisation for Economic Co-operation and Development
- **OEM** – Original Equipment Manufacturer
- **PIB** – Press Information Bureau
- **PLI** – Production Linked Incentive (Scheme)
- **PU** – Polyurethane
- **QUAD** – Quadrilateral Security Dialogue (India, Japan, Australia, US)
- **RCEP** – Regional Comprehensive Economic Partnership
- **REACH** – Registration, Evaluation, Authorisation and Restriction of Chemicals (EU)
- **REER** – Real Effective Exchange Rate
- **ROCE** – Return on Capital Employed
- **ROO** – Rules of Origin
- **RVC** – Regional Value Content
- **SAARC** – South Asian Association for Regional Cooperation
- **SAFTA** – South Asia Free Trade Agreement
- **SCO** – Shanghai Cooperation Organisation
- **SCRI** – Supply Chain Resilience Initiative (India–Japan–Australia)
- **SIDBI** – Small Industries Development Bank of India
- **SKU** – Stock Keeping Unit
- **SVHC** – Substances of Very High Concern
- **TiO_2** – Titanium Dioxide
- **TPII** – Trade Policy and Industry Impact (report annex reference)
- **UAE** – United Arab Emirates
- **UK** – United Kingdom
- **UN** – United Nations
- **US / USA** – United States of America
- **USD** – United States Dollar
- **USMCA** – United States–Mexico–Canada Agreement
- **VOC** – Volatile Organic Compounds
- **WC** – Working Capital
- **WITS** – World Integrated Trade Solution (World Bank database)
- **WTO** – World Trade Organization
- **₹ / INR** – Indian Rupee / Crore (10 million INR)
- **EUR** – Euro

Executive Summary

India's paints and coatings industry is navigating a decisive moment. Global turbulence, marked by tariff escalations, supply chain disruptions, and tightening compliance requirements, exerts pressure on margins and liquidity. Yet, this turbulence coincides with unprecedented opportunities created by free trade agreements, India's macroeconomic strength, and advances in formulation science and digital technologies. Together, these dynamics present a dual mandate: to safeguard resilience in the face of volatility while simultaneously building competitiveness for a global role.

The vulnerabilities of the sector are clear. With over sixty per cent of titanium dioxide and most resin requirements imported, companies remain highly exposed to anti-dumping duties, currency swings, and freight spikes. Recent U.S. tariff measures, which pushed duties on Indian paint exports above fifty per cent, have already triggered volume contractions of up to half in specific categories. At the same time, the domestic financial backbone has come under strain. Once, around ninety days, working capital cycles now extend to one hundred and twenty days, driven by higher landed costs, extended inventories, and slower receivables. For mid-sized players, this liquidity stress is acute and threatens long-term sustainability.

Yet the opportunities are equally compelling. New FTAs with the UK, UAE, and Australia provide duty-free or preferential access to markets and inputs, laying the groundwork for a corridor-based trade strategy. By establishing finishing hubs in the UK, re-export platforms in the UAE, feedstock linkages with Australia, and indirect entry into the U.S. via Mexico, Indian firms can reconfigure supply chains to capture cost and compliance advantages. Simultaneously, innovation offers a pathway out of raw material dependence. Proprietary TiO_2-lite systems, hybrid binders, and VOC-compliant coatings can reduce import intensity while securing premium export markets. Digitalisation further strengthens this agenda. AI-enabled decision engines, tariff scanners, and risk dashboards allow companies to anticipate shocks, simulate scenarios, and act decisively rather than reactively.

Financial re-engineering is the final pillar of competitiveness. Treasury must evolve from a support role to a strategic function, employing duty-deferral instruments, commodity hedging, and dynamic inventory financing as proactive resilience tools. Coupled with funding ESG-linked and improved governance, firms can transform financial discipline into a competitive advantage rather than a constraint.

For this transformation to succeed, execution must be anchored in strong governance. Boards should require quarterly reporting on FTA utilisation, dual sourcing of critical inputs, innovation pipelines, working capital discipline, and sustainability compliance. Linking executive compensation to these indicators will ensure that strategic intent translates into measurable performance. At the sector level, institutions such as the Indian Paint Association have a critical role in establishing risk observatories, publishing FTA dashboards, and enabling collective access to predictive modelling tools for MSMEs.

The road ahead is uncertain. A base case of continued tariff pressure could slow growth to seven to eight per cent, while an optimistic easing of trade tensions could accelerate exports and lift growth above nine per cent. A pessimistic scenario of additional restrictions and a global slowdown could compress margins sharply and reduce utilisation rates. In all cases, adaptability, foresight, and discipline will define survival and leadership.

The conclusion is unambiguous. The Indian paints and coatings industry cannot wait for stability; it must build resilience into its foundations and competitiveness into its strategies. By embracing corridor-based trade, achieving formulation sovereignty, digitising supply chains, re-engineering finance, and embedding governance discipline, the sector can move decisively from a demand-driven domestic model to a globally recognised supplier of compliant, sustainable, and innovative systems. The world needs what India can produce, and the industry's mandate is clear: **organise, adapt, and deliver.**

Chapter 1: Free Trade Agreements and Rules of Origin: From Opportunity to Execution

The Indian paint and coatings industry today is caught in a vortex of changing trade winds, as Free Trade Agreements (FTAs) reshape tariff regimes and redraw the global supply map. No longer peripheral documents signed in diplomatic ceremony, FTAs now sit at the heart of strategic enterprise decisions—altering landed costs, determining factory siting, and even shaping R&D allocations. For the Indian paints industry, the imperative is not merely to comply with emerging rules of origin (ROO) norms and preferential tariff schedules, but to harness them proactively—leveraging corridor design, regulatory arbitrage, and geopolitical alignment to reposition India as a serious node in the global value chain.

India's Recent FTA Engagement and Market Access

Over the past five years, India has accelerated its free trade agreement (FTA) engagement, moving beyond early frameworks such as the India–ASEAN FTA (2009) and the South Asia Free Trade Agreement (SAFTA) to conclude a series of landmark pacts that mark a decisive geo-economic shift. The **India–UAE Comprehensive Economic Partnership Agreement (CEPA, May 2022)**, the I**ndia–Australia Economic Cooperation and Trade Agreement (ECTA, December 2022)**, and the **UK–India Comprehensive Economic and Trade Agreement (CETA, July 2025)**, along with ongoing negotiations for an India–EU FTA, are reshaping market access by reducing duties and opening premium markets in Europe, the Gulf, and the Asia-Pacific. For paints and coatings, which operate under HS codes 3208–3212, the tariff preference margin under these treaties can determine whether exports remain competitive or slip into losses. The UAE CEPA eliminates customs duties on nearly 90% of Indian exports by value, including several key raw materials and packaging inputs for paint manufacturers. Similarly, the India–Australia ECTA provides zero-duty access on over 96% of Indian exports and reduces Australian import duties on titanium dioxide (TiO_2), acrylic polymers, and other critical inputs. Importantly, both agreements also introduce cumulation benefits, allowing Indian firms to combine raw materials from partner nations such as Japan or Korea with Indian resins and still qualify for preferential treatment in export markets—making these treaties tariff-reduction tools and strategic enablers of value-added trade.

Rules of Origin (ROO): Determinants of Market Access

The critical determinant of market access under FTAs is the **Rules of Origin (ROO)**, which most agreements enforce through three tests:

- **Regional Value Content (RVC):** Products must meet a minimum percentage of value added in India (typically 40%).
- **Change in Tariff Classification (CTC):** Certain inputs must undergo defined processing.
- **Process rules:** Specified manufacturing steps must take place domestically.

For paints, this poses a unique challenge, as key inputs such as titanium dioxide (TiO_2, HS 2823) and epoxy resins (HS 390730) are largely imported, with 60% and 63% dependency respectively—significantly reducing RVC scores. Unless offset by localized binders, extenders, or packaging, many export SKUs risk failing ROO thresholds. Beyond these structural constraints, compliance itself is becoming increasingly demanding: FTAs now require complete documentation of input origin, proof of value addition, and accurate compliance declarations. Indian paint exporters, particularly SMEs, often struggle due to the absence of digital traceability systems, harmonized invoice trails, and automated customs declaration formats. Consequently, exporters frequently fail to claim the benefit even when products technically qualify for duty-free access. Globally, the World Bank estimates that over 35% of available tariff preferences under FTAs remain unutilized because of ROO complexity. For the Indian paint sector, this challenge goes far beyond paperwork—it directly translates into lost margins and diminished competitiveness.

Formulation Origin Audits (FOA) as a Solution

A practical response is the **Formulation Origin Audit (FOA)**. This maps each SKU's Bill of Materials to HS codes, tags the country of origin, and computes RVC under multiple FTAs. It provides three outputs: certification of ROO readiness, remediation plans (substitution, local sourcing, JV partnerships), and cost–margin simulations under preferential tariffs. The IPA recommends that its members conduct FOAs for their top 50 export SKUs within 90 days.

Under the CETA, exporters may also apply the **cumulation principle**, meaning value added in both India and the UK can be combined to meet ROO thresholds. This provision further improves compliance feasibility for Indian paints and coatings.

Table 1: UK Tariff Eliminations on Indian Paint Exports (CETA 2025–2035)

Product Category	Current Tariff	Year 1	Year 5	Year 10
Decorative Paints	6.5%	3.2%	1.5%	0%
Industrial Coatings	8.0%	4.0%	2.0%	0%
Pigments & Dyes	4.5%	2.2%	0%	0%
Chemical Intermediates	5.5%	2.8%	0%	0%

Source: UK–India CETA Agreement, July 2025

From Table 1, these phased eliminations provide Indian exporters with a clear 10-year roadmap, where successful ROO compliance will steadily improve price competitiveness in the UK market.

Beyond audits, corridor-based strategies are essential. The UAE hub at Jebel Ali offers bonded storage and re-export to MENA; the UK can serve as a finishing and certification node; Australia provides feedstock and access to mining coatings markets; and Mexico offers indirect U.S. access under USMCA. Each corridor must be run as a business unit with P&L, bonded facilities, and compliance audits.

At the same time, India's FTAs also open up opportunities for cheaper inputs. Tariff reductions on UK-origin resins, pigments, and coating equipment lower input costs for Indian manufacturers, provided that companies actively engage with customs facilitation processes.

Table 2: Indian Tariff Reductions on UK Exports to India (CETA 2025–2035)

Raw Material	Current Tariff	Year 1	Year 5	Year 10
Specialty Resins	10%	7.5%	5%	2.5%
Advanced Pigments	10%	8%	6%	3%
Coating Equipment	7.5%	6%	4%	0%
R&D Chemicals	5%	3%	1%	0%

These reductions make UK inputs progressively more cost-effective, supporting localisation and product innovation in India. **Annexure B** provides full schedules for the India–Australia Economic Cooperation and Trade Agreement (ECTA).

Operationalising FOAs for Readiness

Effective utilisation of India's recent FTAs will not happen automatically; it requires operational rigour, supply chain redesign, and policy facilitation. Beyond audits, companies must align with these treaties' specific tariff elimination schedules. For example, under the UK–India CETA (2025), duties on decorative paints (6.5%) will reduce to zero over ten years, while industrial coatings (8%) and pigments (4.5%) will also phase out to zero. On India's side, tariffs on UK resins, dyes, and coating equipment will progressively fall, improving input availability at lower cost. Compliance with the Rules of Origin (ROO) is mandatory to access these preferences. Most paint products require **40% Regional Value Content (RVC)** and a **Change in Tariff Subheading (CTSH)**. Certificates of Origin must be issued by authorised bodies such as FIEO, supported by invoices, packing lists, and processing certificates, with customs authorities empowered to conduct post-clearance audits.

In this context, a robust **Formulation Origin Audit (FOA)** process becomes critical, requiring firms to:

1. Map the Bill of Materials (BOM) to HS codes.
2. Identify each input's source country.
3. Compute RVC under target FTAs.
4. Develop remediation plans (substitution, local sourcing, finishing nodes).
5. Simulate margins under preferential vs. MFN tariffs

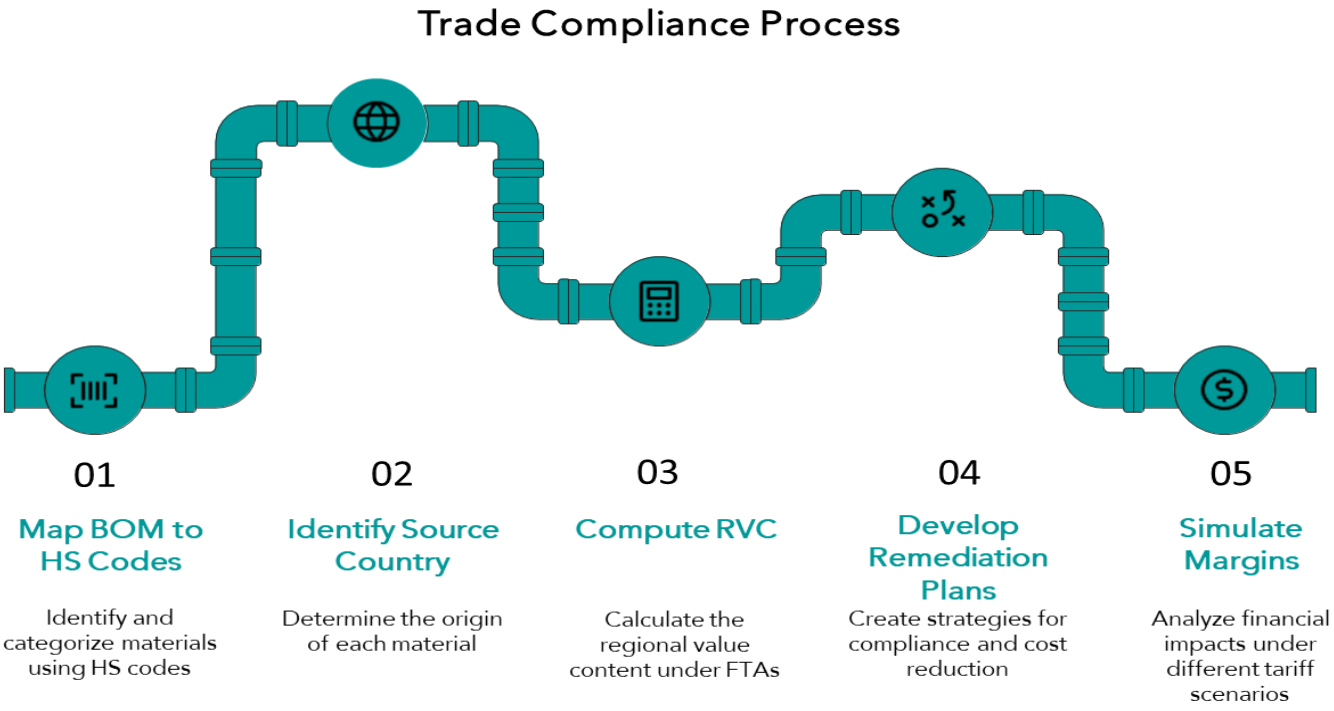


Figure 1: Trade Compliance Process

Such a structured approach ensures operational readiness and positions Indian exporters to capture new trade corridor opportunities fully.

The Boardroom Agenda

What must Indian boards now do? The first task is to embed FTA intelligence into enterprise strategy—not as a narrow compliance issue but as a value chain redesign opportunity. Most Indian firms still treat FTAs as customs department matters, disconnected from boardroom vision or financial modelling. That mindset must change. Best-in-class global peers such as AkzoNobel and Nippon Paint have established FTA war rooms that bring together legal, procurement, R&D, and strategy teams to co-create corridor simulations. These simulations track tariff reductions while modelling total cost implications, factoring in freight shifts, ROO penalties, packaging substitution, and energy-linked origin differentials. Indian firms, particularly those with strong regional presence, must now develop internal capabilities in **geographic margin arbitrage**—the ability to optimise across markets based on evolving trade rules without breaching compliance.

The second agenda is digital. Without supply chain traceability, ROO compliance will remain elusive. Blockchain-led pilots—such as those launched by Maersk and IBM in pharmaceuticals—offer a replicable model. Paint companies could collaborate with TiO_2 suppliers in Malaysia or South Korea to create shared ledger platforms tracking origin and transformation. Even if full-scale blockchain adoption is premature, ERP-integrated ROO dashboards linked to HS codes and FTA schedules can safeguard margins against slippages.

Finally, corridor design must incorporate geopolitical hedging. The EU's Carbon Border Adjustment Mechanism (CBAM), set to impose carbon tariffs on emissions-intensive goods from 2026, already covers some raw materials critical for paints. Similarly, the US Section 301 tariffs on China and preferential treatment under the Indo-Pacific Economic

Framework (IPEF) highlight how foreign policy priorities increasingly shape trade policy. For Indian paint manufacturers, corridor planning must account for logistics, cost, political reliability, and treaty resilience.

In sum, the FTA era is not merely about customs reduction—it is a platform for **strategic redesign**. The Indian paint industry now stands at an inflexion point. By leveraging ROO norms, tariff timelines, and corridor structures, the sector can reposition itself from being a net importer of inputs to becoming a credible export hub within Indo-Pacific and trans-Eurasian value chains. That journey begins by shifting from tariff reactivity to treaty-led strategy.

Chapter 2: India's Economic Context and Industry Resilience

A Cushion Against Global Turbulence

India's macroeconomic landscape provides both a cushion against global turbulence and a platform for industrial expansion. In Q1 FY2025–26, GDP growth stood at **7.8%**, underpinned by strong housing, infrastructure, and manufacturing activity. In August 2025, S&P Global upgraded India's sovereign rating to **BBB**, lowering the risk premium and enabling cheaper long-term borrowing which is critical for resin plants, pigment facilities, and logistics hubs. Foreign Direct Investment (FDI) inflows reached **USD 81.04 billion in FY2024–25**, reflecting continued global confidence in India's industrial potential. Yet the capital account also revealed vulnerabilities: in September 2025, foreign portfolio investors withdrew **₹12,257 crore** from equities, triggering volatility and underscoring the fickleness of short-term flows.

At the same time, the broader economic environment reflects both structural resilience and externally induced turbulence. The Reserve Bank of India projects GDP growth at 7.2% for FY2025, but net exports remain a drag, and manufacturing margins are under pressure from tariff escalations and FX-linked input costs. Chemicals and intermediate goods are directly feeding into the coatings value chain and face sluggish export realisations due to price undercutting by ASEAN and Chinese players, while import compression in high-duty items such as TiO_2 is causing cost-push inflation in paints. India's global competitiveness has moderately improved, yet a **mildly appreciated trade-weighted real effective exchange rate (REER)** has hurt export viability for standardised formulations.

Implications for the Paints Sector

For the paints sector, the implications are clear. Decorative demand will track the housing cycle, while industrial coatings will follow infrastructure and manufacturing investment with a lag. Strategic capex in resins and TiO_2 substitutes is now more financially viable, but treasuries must remain disciplined. Committed credit lines, hedging frameworks, and cash buffers are essential to navigate volatility. The INR's mild depreciation has supported exporters but also increased the landed cost of imported inputs. Mid-cap firms, especially in the ₹1,000–3,000 crore turnover band, report a **15–20% increase in working capital cycles**, driven by higher stocking needs and extended client payment timelines. Yet only 3 out of 10 firms deploy formal FX hedging tools, highlighting the urgent need for treasury upskilling and financial engineering.

Table 3: Paints Industry Size and Segmentation (2025)

Segment	Market Share	Growth Rate
Decorative	77.56%	9.76%
Industrial	22.44%	8.85%
Automotive	8.5%	12.2%
Protective	7.2%	10.8%
Marine	3.8%	11.5%

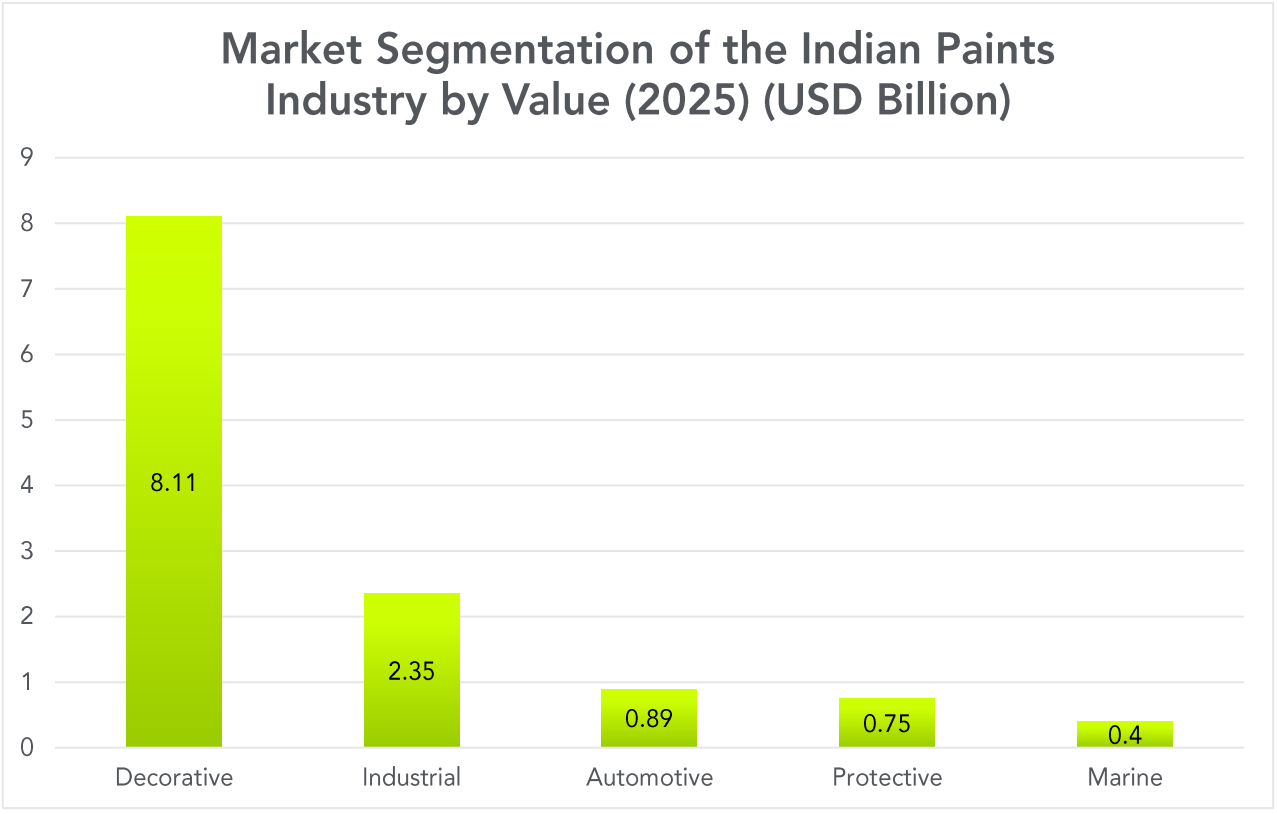


Figure 2: Graph showing Market Segmentation of the Indian Paints Industry by Value (2025)

Based on Table 3 and Figure 2, India's paints and coatings industry is valued at **USD 10.46 billion in 2025**, with production volumes around **4.5 million MT**. It is projected to grow at a **CAGR of 9.38%**, reaching nearly **USD 16.38 billion by 2030**. Growth remains led by the decorative segment (77.6% share; USD 8.1 bn, CAGR 9.8%), followed by industrial coatings (22.4%), automotive (8.5%, fastest growing at 12.2%), protective (7.2%), and marine (3.8%). These numbers reinforce that India's macroeconomic strength is mirrored in the paints industry, but resilience will depend on reducing raw material vulnerabilities and aligning financing with long-term innovation.

Investor Sentiment and Financial Stability

International investor sentiment remains robust. FDI inflows stood at USD 29.7 billion in H1 FY2025, a 5.2% year-on-year increase, with speciality chemicals, construction materials, and green manufacturing leading the growth. FII flows also became favourable after the MSCI rebalancing, particularly in paints, adhesives, infrastructure, and durables. Meanwhile, India's debt-to-GDP ratio is stable at 82.5%, and CPI inflation moderated to 4.7% in August 2025 on the back of monetary tightening and easing food prices. These fundamentals provide a stable base for long-term capex in resins, pigments, and logistics hubs, though short-term volatility remains risky.

Trade and Policy Signals

Trade and policy signals also matter. The India–UAE CEPA has already boosted exports of construction inputs and polymer-based paints to the Gulf. The RoDTEP and PLI schemes have been extended to niche coating formulations such as water-borne and low-VOC paints, offering targeted benefits. The GST Council is considering lower rates for sustainable coatings and thermal insulating paints, signalling policy support for green transitions. At the same time, challenges persist: high non-tariff barriers in the EU and East Asia, continued reliance on TiO_2 imports from China and Australia, and the absence of a national formulation park policy like those in Malaysia and Vietnam.

Table 4: Macroeconomic Indicators and Strategic Implications (2025)

Indicator	Latest Value	Relevance	Action for Paint Industry

GDP Growth (Q1 FY25-26)	7.8%	Supports demand	Plan export & capex timing
S&P Rating (Aug 2025)	BBB	Lower cost of capital	Lock long-term debt for capacity expansion
FDI Inflows (FY24-25)	USD 81.0 Bn	Investor confidence	Lobby for targeted incentives for resin & pigment projects
FPI Flows (Sept 2025)	-₹12,257 Cr (outflow)	Market volatility	Hedge FX & diversify investor base
FDI Inflows (H1 FY25)	USD 29.7 Bn (+5.2% YoY)	Sectoral inflows in chemicals, infra	Build JVs in speciality chemicals, coatings
CPI Inflation (Aug 2025)	4.7%	Eases input cost pressures	Expand affordable product portfolio
Debt-to-GDP Ratio (2025)	82.5%	Fiscal stability	Leverage bond markets for capex financing
INR vs USD (Sept 2025)	83.9	Mild depreciation	Use selective hedging for import contracts
SME Paints Working Capital	~102 days	Rising cycle	Strengthen treasury systems, credit buffers

From Table 4, these indicators show strong fundamentals but short-term volatility. For the paints sector, the strategy is to expand capacity during periods of favourable capital access, while maintaining hedges and buffers to ride out volatility.

India's economic momentum strengthens the case for localisation and innovation. Yet resilience depends on aligning capital deployment with treasury discipline: pursuing resin and pigment JVs while embedding hedging frameworks. Growth provides the cover, but only a strategy ensures competitiveness. The paints sector, though valued at ₹62,000 crore (USD 7.5 billion) domestically, remains under-indexed in global trade with exports of just USD 290 million. As India negotiates new trade pacts with the EU and EFTA, the industry must push for inclusion of HS codes 3208–3215 in tariff rationalisation schedules and pre-empt ESG-linked barriers by embedding formulation traceability and carbon scoring in product design.

Chapter 3: Geopolitics: Trade Policy as an Instrument of Statecraft

Trade is no longer a neutral economic exercise; it has become a frontline tool of geopolitics. For India's paints and coatings industry, this means that market access, input costs, and compliance standards are increasingly shaped by diplomatic alignments and international rivalries rather than by economics alone.

U.S. Tariff Escalation and Its Ripple Effects

The **U.S. tariff tranche of 2025** illustrates the point vividly. These duties were not aimed directly at paints but targeted industries such as automobiles, textiles, and seafood- key downstream coatings users. The ripple effect was immediate: demand for primers, cathodic e-coat lines, and refinish paints slowed as car exports contracted. For a sector that depends on the health of multiple end-use industries, geopolitical trade moves can trigger cascading demand shocks.

In parallel, direct tariff escalation on paints and coatings has been severe. The U.S. raised effective duties on most Indian paint exports to nearly **50%** in 2025, made up of:

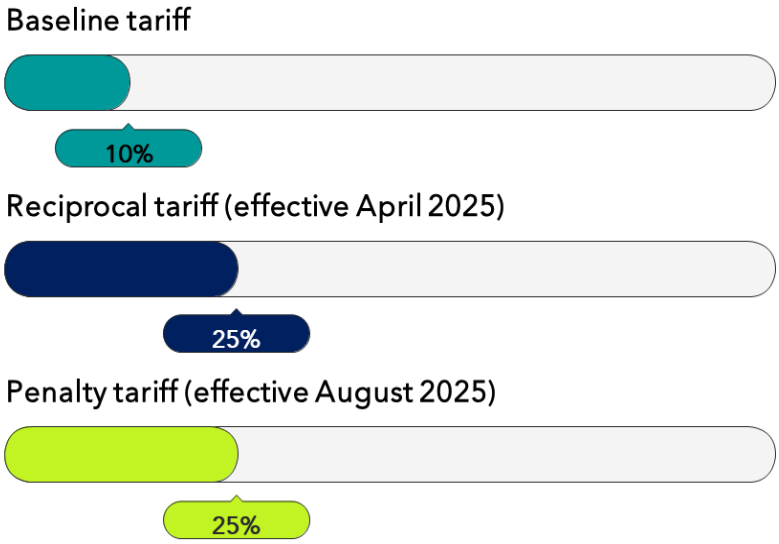


Figure 3: U.S. Tariff Structure

This has led to estimated 30–50% export volume contractions **across paints, pigments, and driers**. India's chemical inputs also face disadvantages: organic chemicals show an **8.6% tariff gap**, while inorganic chemicals face a **6.2% tariff gap** versus competitors. These measures highlight how second-order geopolitical shifts can create direct commercial shocks, reinforcing the need for diversification into alternative export destinations.

Table 5: U.S. Tariff Impact on Indian Paint Exports (2025)

Product	HS Code (US)	Pre-2025 Rate	Current Rate	Volume Impact Est.
Paints & Coatings	3208.10	3.7%	53.7%	-40% to -50%
Pigments	3212.90	3.1%	53.1%	-35% to -45%
Prepared Driers	3211.00	5.1%	55.1%	-30% to -40%

Based on Table 5, these duties highlight how geopolitical disputes spill over into unrelated industries like paints, underscoring the need for diversified export markets.

Enterprise Risk Management and Demand Shock Preparedness

Boards must therefore bring geopolitics into the centre of enterprise risk management. A **demand-shock library**, mapping how 10–20% swings in export-exposed verticals translate into order flows, production planning, and inventory cycles, is a practical instrument. This goes beyond monitoring tariffs; it requires rehearsed contingency responses that can be activated when shocks occur.

Compliance as a Geopolitical Frontier

Compliance is another geopolitical frontier. Regulatory norms such as **VOC (Volatile Organic Compounds) limits in the EU** and **Substances of Very High Concern (SVHC) restrictions under REACH** are increasingly tied to market entry. Early compliance does more than avoid penalties, which creates a first-mover advantage. A paint system already aligned with EU standards has an immediate edge in capturing export orders once FTAs open duty-free access.

Diversification as a Strategic Necessity

Diversification is the third pillar. Building a matrix of suppliers and markets across the UK, UAE, Australia, Southeast Asia, Africa, and select OECD partners reduces exposure to single-country risks. Regional groupings such as BRICS, SCO, and Indo-Pacific trade corridors also offer opportunities to broaden export destinations and sourcing networks.

India's Multi-Aligned Geopolitical Posture

At a broader level, India's geopolitical posture is increasingly shaping these opportunities and risks. The country has adopted a "multi-aligned" approach, participating in the **SCO, BRICS, QUAD, and IPEF** while negotiating key FTAs. For the paints sector, this influences:

- **Access to speciality chemicals and inputs** (e.g., Japan, Germany).
- **Trade route stability** (via IMEC vs. Red Sea chokepoints).
- **Tariff exposure** (e.g., exclusion from RCEP vs. opportunities under Australia ECTA).

India's decision not to join **RCEP** limited competitive access to ASEAN resin and pigment hubs, but alternative corridors are emerging. The **India–Australia ECTA** (2022) reduced duties on titanium ores, carbon blacks, and packaging materials, while ongoing **India–EU FTA talks** may recognise BIS standards for coatings, easing re-testing burdens. Meanwhile, **IMEC (India–Middle East–Europe Economic Corridor)** promises to de-risk supply chains by bypassing high-risk routes like the Red Sea.

Minilateral Initiatives and Strategic Corridors

Minilateral initiatives such as I2U2 (India–UAE—**Israel—US)** and the **India–Japan–Australia SCRI** are also directly relevant to the sector. They focus on logistics harmonisation and reducing China's dependency on critical inputs.

For paints, the geo-strategic implications are tangible:

- **Mineral security** (access to TiO_2 ores and speciality chemicals now under strategic controls).
- **Trade costs** (shipping insurance and credit lines increasingly linked to geopolitical alignment).
- **Carbon-linked trade regimes** (such as EU CBAM) evolving into geopolitical tools.

India's climate diplomacy, including the International Solar Alliance and Mission LiFE, allows paints to position low-VOC, thermally insulating, and green-labelled systems as part of India's export narrative.

Geopolitical winds will continue to shift unpredictably. Companies that treat them as external noise risk sudden shocks; those that internalise them into supply-chain, compliance, and corridor planning will turn volatility into resilience.

Chapter 4: The Global Paints Industry: Competitive Structures and Country Cases

The Indian industry cannot chart its path in isolation. Understanding the strategies of global leaders, how they structure supply chains, build resilience, and capture value is essential for defining India's role in the next decade. The global paints and coatings industry has evolved from being a domestic utility product sector into a cross-border, high-value industrial platform spanning construction, mobility, defence, and ESG-linked surfaces.

Global Competitive Landscape

Mature producers such as Germany, Italy, the United States, Japan, and Belgium dominate global exports, yet they also import specialised coatings for niche applications. Their competitive edge lies not in self-sufficiency but in orchestration: leveraging formulation IP, local-for-local production, and deep integration with customer industries.

Table 6: The Five Hubs That Shape Global Paint Trade (2024 est.)

Country	Global Role	Annual Paint Production	Imports	Exports	Self-Sufficiency
China	Dominant producer, innovation hub	~13M tonnes	Low (speciality imports)	High (~1.4M tonnes; Asia, Africa)	~95%
USA	Tech innovator, exporter	~5.2M tonnes	High in resins, TiO_2	High (~2.1M tonnes)	~85–90%
Germany	EU coatings & raw materials leader	~2.1M tonnes	Moderate (feedstocks)	High (EU, MEA)	~88%
Japan	Specialty leader (marine, auto, anti-corrosive)	~1.2M tonnes	Low	Moderate (~450K tonnes)	~90%
India	Fastest growing, import dependent	~1.4M tonnes	High (resins, TiO_2, additives)	Moderate (~380K tonnes)	~72%

Source: Global Coatings Market 2024 (Axalta, Sherwin-Williams data), WTO trade reports, Industry databases

India may be the youngest country on this list, but it is also the most dynamic. It is growing at a **9.5% CAGR** and aspiring to become the third-largest market by 2030. Yet this growth rests on an import-heavy foundation, making the industry vulnerable to supply shocks, forex volatility, and tariffs.

Global Case Studies

Mature producers such as **Germany, Italy, the United States, Japan, and Belgium** dominate global exports, yet they also import specialised coatings for niche applications. Their competitive edge lies not in self-sufficiency but in orchestration: leveraging formulation IP, local-for-local production, and deep integration with customer industries.

- **Sherwin-Williams (USA).** The company has built a resilient business model by largely sourcing and selling within the U.S. This "tariff shield" strategy limited exposure to cross-border volatility during tariff escalations. For Indian firms, the lesson is not market closure but the importance of balancing domestic value capture with selective export orientation.

- **AkzoNobel (Netherlands).** Akzo has embraced a "local-for-local" philosophy, investing in factories and finishing hubs close to demand centres. This reduces tariff leakages, shortens time-to-market, and ensures compliance with local regulatory regimes. Such distributed value chains highlight how corridor-based strategies can mitigate both cost and compliance risks.
- **Nippon Paint (India operations).** In response to global supply shocks, Nippon diversified away from single-country suppliers, strengthened domestic procurement, and expanded automotive refinish exports to Southeast Asia and Australia. This illustrates how supply resilience can be built through diversification and selective export growth.

Global leaders demonstrate that resilience is built through orchestration. Even as they export at scale, countries like Germany, Italy, and the U.S. continue to import specialised coatings, showing that self-sufficiency is neither possible nor desirable. Instead, competitive strength comes from formulation IP, localised finishing hubs, and integration with customer industries.

Global Trade Architecture

Export leaders include the U.S. (protective, DIY paints), Germany (industrial coatings), China (architectural paints for Asia/Africa), South Korea (marine, speciality), and Italy/France (design-led luxury coatings). Import hotspots include India (resins, TiO_2, additives), Brazil and Mexico (formulation inputs), Southeast Asia (both intermediates and final paints), and the Middle East (construction-driven demand).

These flows show that trade is not unidirectional but circular, and leaders export high-value segments while importing niche inputs, reinforcing that value lies in orchestration, not isolation.

Innovation and Trends

The global sector is advancing rapidly into sustainability-driven, technology-enabled products:

- **Earth-Tinting Technology:** AkzoNobel and Kansai Paints are reducing TiO_2 dependency by 25% through bio-based pigments.
- **Smart Coatings:** The U.S. and South Korea are developing conductive and antimicrobial paints for healthcare and electronics.
- **Circular Chemistry:** EU producers pivoting to water-based, solvent-free systems under REACH and ESG mandates.
- **Packaging Efficiency:** European standardisation of low-leach HDPE barrels cut raw material transport damage by 14%.

These developments indicate a future where compliance, technology, and sustainability converge as competitive levers.

Policy Pressure Points

Global policy regimes are reshaping trade flows:

- **Carbon Border Adjustment Mechanism (CBAM):** From 2026, the EU will impose tariffs on carbon-intensive intermediates like TiO_2 and alkyds, penalising non-green exports.
- **Rules of Origin (RoO):** Canada and the UK now strictly enforce RoO in FTAs, disqualifying goods with imported intermediates from China or Vietnam.
- **Environmental Labelling:** Singapore's Green Label, US EPA's Safer Choice, and EU VOC declarations make certification readiness a market-entry requirement.

Lessons for Indian Firms

India's paints industry must adopt deliberate strategies to move from a cost-led to a compliance- and innovation-led model as provided in Table 7.

Table 7: Global Benchmarks vs. India

Strategic Capability	India Today	Global Benchmark	Call to Action
Backward Integration	Weak	Japan, Germany	Strategic JVs, buyer alliances
FTA Utilisation (RoO)	Poor	South Korea, Vietnam	Pre-certify inputs, restructure sourcing
AI-Driven Production	Nascent	US, South Korea	Invest in scenario tools, WMS
ESG Trade Readiness	Moderate	EU, Singapore	Build lifecycle data, carbon passports
Innovation Clusters & R&D	Scattered	Germany, South Korea	Anchor clusters in hubs (e.g., Gujarat)

India's Opportunity

For India, the opportunity lies in specialising in **climate-resilient and regulation-compliant systems**:

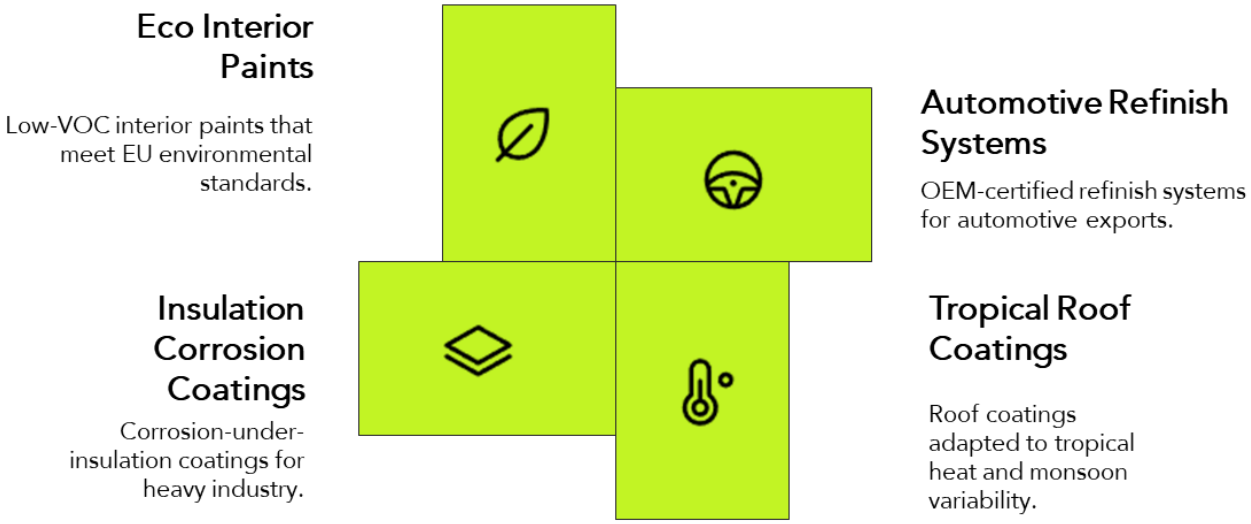


Figure 4: India's Opportunity in climate-resilient and regulation-compliant systems

The lesson from global leaders is clear: **resilience is constructed, not inherited**. By embedding corridor strategies, backward integration, ESG compliance, and innovation, Indian companies can move beyond cost-based competition to become trusted global suppliers. This will secure domestic leadership and open doors to becoming a trusted global supplier.

Chapter 5: India's Paints: Imports, Exports, and Component Dynamics

India's paints industry remains structurally dependent on imported raw materials, making component-level analysis essential for strategy. Titanium Dioxide (TiO_2), resins, solvents, extenders, pigments, and packaging together form the backbone of paint production. Their availability, cost, and compliance status shape competitiveness and export readiness under Free Trade Agreements.

Titanium Dioxide: The Critical Pigment

Titanium Dioxide (TiO_2) remains the most strategic input for decorative and industrial coatings. India imports more than **60% of its requirement**. Dependency was measured at **61.1% in FY 2024–25**, with major supplies coming from China (61% share), the **UAE, Saudi Arabia, South Korea, and Germany**.

The Directorate General of Trade Remedies (DGTR) imposed **anti-dumping duties on Chinese grades in May 2025** through **CBIC Notification 12/2025-Customs**, with duty bands ranging from **USD 460 to 681 per MT**. While this raised landed costs and lengthened cash cycles, it also created an opportunity for domestic processors.

Mitigation options include:

- Multi-sourcing from non-China suppliers such as Germany, South Korea, and Mexico.
- Securing multi-year offtake contracts with domestic producers.
- Accelerating TiO_2-saving R&D, including Titan-Lite blends, iron oxide substitution, and nano-extender systems.
- Investing in high-opacity dispersions that reduce pigment intensity requirements.

Table 8: Titanium Dioxide Imports (2024–25)

Source Country	Volume (MT)	Avg. Price ($/MT)
China	516,670	2,450
UAE	93,230	2,680
Saudi Arabia	67,760	2,590
South Korea	59,290	2,720
Others	110,050	2,650

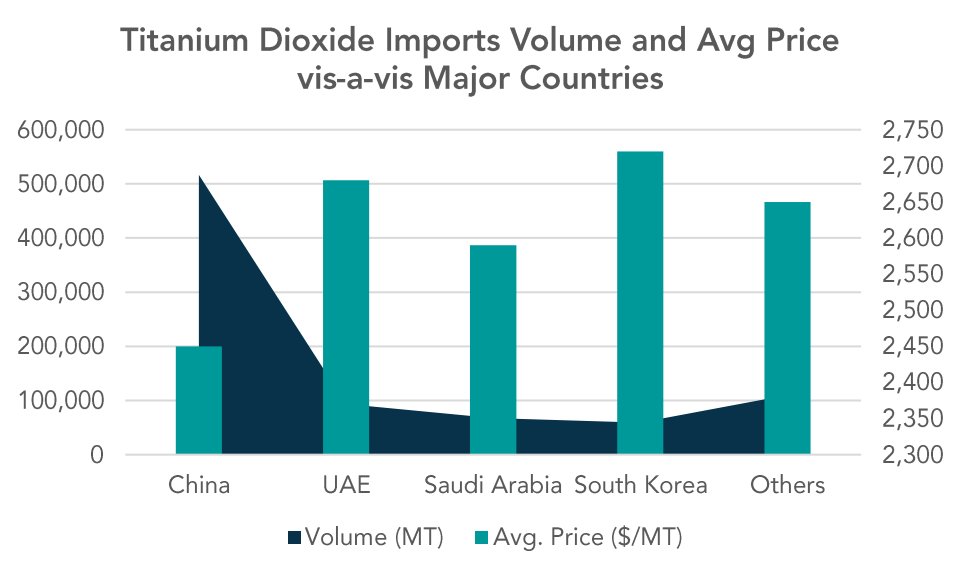


Figure 5: Titanium Dioxide Imports – Volume and Average Price Comparison by Major Source Countries

Source Country	Share
China	61.0%
UAE	11.0%
Saudi Arabia	8.0%
South Korea	7.0%
Others	13.0%

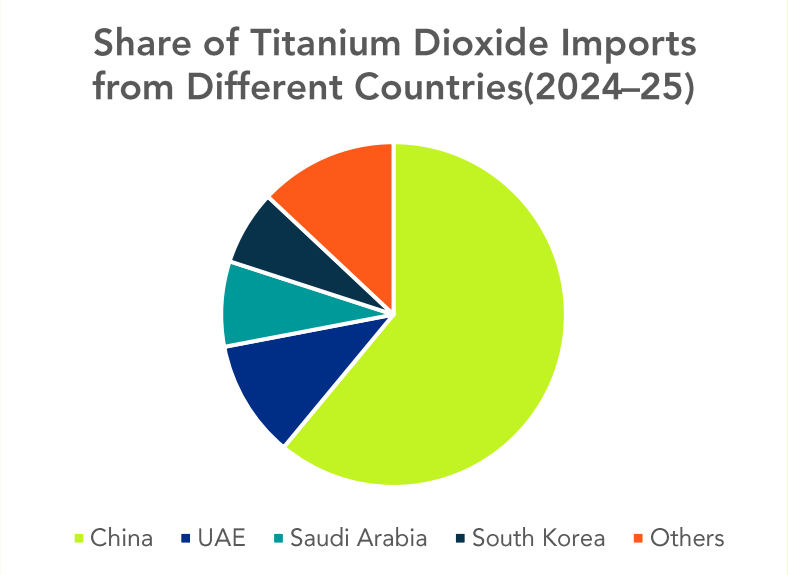


Figure 6: Titanium Dioxide Imports – Share Comparison by Major Source Countries

Resins: Binders and Performance Backbone

Resins determine paint durability, gloss, and resistance. India imported **63.7% of epoxy resins** and **42.4% of acrylic resins** in 2024–25, mainly from South Korea, China, Taiwan, Japan, and the EU.

Strategic measures include:

- Incentivising domestic resin capacity through concessional finance and PLI-type subsidies.
- Entering joint ventures or licensing agreements with global resin manufacturers.
- Redesigning formulations using hybrid binder systems such as modified alkyd-acrylic blends.

Solvents, Extenders, Pigments, and Packaging

Solvents remain tied to volatile petrochemical cycles, though the shift to water-borne systems offers long-term relief. Extenders like calcium carbonate show **25–30 per cent import dependency**, which can be reduced through scaling up local grinding and coating facilities.

Pigments are an area of relative strength. India's iron oxides have scope for higher-chroma blends, which can reduce TiO_2 requirements in select applications. Packaging, however, shows about **40 per cent import reliance**. Returnable drum schemes and localising packaging production represent immediate areas for cost reduction and resilience.

Table 9: Import Dependency by Component and Strategic Responses (2024–25)

Component	Import Dependence (%)	Main Suppliers	Immediate Risk	Mitigation Options
Titanium Dioxide (TiO_2)	~60%	China, South Korea, Germany	ADD duties; price spikes	Multi-source; TiO_2-lite R&D; domestic offtakes
Epoxy Resins	~63%	Korea, China, Taiwan	Supply concentration	JV/licensing; dual sourcing

Acrylic Resins	~42%	Taiwan, EU, China	FX exposure	Local capacity; hybrid binders
Extenders ($CaCO_3$)	~25–30%	Vietnam, Egypt, Malaysia	Freight & quality variance	Domestic grinding/coating
Solvents	~15–20%	GCC, China, Korea	Petrochemical cycle	Forward purchase; water-borne conversion
Packaging	~40%	Multiple	Import reliance	Localisation; reuse/return programs

Export and Product Structure

India's paint exports reached USD 487.3 million in FY 2024–25, up 16.2% YoY. Major destinations: UAE (USD 145.7m, +18.5%), Nepal (USD 89.2m, +22.1%), Bangladesh (USD 76.8m, +15.8%), Sri Lanka (USD 45.3m, +12.4%), and the UK (USD 34.6m, +8.9%).

Table 10: Indian Paint Exports (FY 2024-25)

Destination	Value (USD Million)	Growth YoY	Key Products
UAE	145.7	+18.5%	Decorative, Industrial
Nepal	89.2	+22.1%	Decorative
Bangladesh	76.8	+15.8%	Industrial
Sri Lanka	45.3	+12.4%	Decorative
UK	34.6	+8.9%	Specialty
Total	**487.3**	**+16.2%**	-

Exports remain concentrated in architectural coatings, with scope to expand into industrial, automotive refinish, and niche high-performance systems.

Tariff and Regulatory Architecture

The GST regime continues to tax paints at **18 per cent**, covering **HS codes 3208 to 3212**, which has implications for cost structure and compliance competitiveness.

Table 11: HS Codes of major paint categories and GST rates

Product Category	HS Code	Description	Current GST Rate
Paints & Varnishes	3208	Paints & varnishes (including enamels & lacquers) based on synthetic polymers	18%
Other Paints	3209	Paints & varnishes based on synthetic or chemically modified natural polymers	18%
Other Paints/Coating	3210	Other paints and varnishes; prepared water pigments	18%
Prepared Driers	3211	Prepared driers	18%

Pigments	3212	Pigments dispersed in non-aqueous media; stamping foils	18%

GST and anti-dumping duty references are summarized here, with full schedules in Annexure C.

Critical Raw Materials: HS Codes and Duties

A clear understanding of the critical raw materials used in paints and coatings is essential, as their import duties and trade actions directly influence costs and supply stability. The following tables outline the key HS codes for **titanium dioxide, resins and polymers, key solvents and chemicals,** and their current duty structures and regulatory status. Detailed HS codes are included in **Annexure B.**

Table 12: Titanium Dioxide

HS Code	Description	Current Import Duty	Anti-Dumping Status
2823.00.10	Titanium dioxide (anatase)	10%	ADD: $460-681/MT from China
2823.00.20	Titanium dioxide (rutile)	10%	ADD: $460-681/MT from China
2823.00.90	Other titanium oxides	10%	Under investigation

Table 13: Resins & Polymers:

HS Code	Description	Import Duty	Trade Action Status
3907.30	Epoxy resins	7.5%	US ADD investigations ongoing
3906.10	Acrylic polymers in primary forms	7.5%	No action
3907.20	Other polyethers in primary forms	7.5%	Under monitoring
3901.10	Polyethylene (PE)	7.5%	No action

Table 14: Solvents & Chemicals

HS Code	Description	Import Duty	Notes
2905.11	Methanol	2.5%	Petrochemical derivative
2914.11	Acetone	2.5%	Volatile pricing
2902.30	Toluene	2.5%	Benzene derivative
2902.20	Benzene	2.5%	Basic petrochemical

Extended data are provided in Annexure D.

From the above tables, India's paints and coatings industry is positioned for steady growth, backed by strong domestic demand and expanding export opportunities. However, its **heavy reliance on imported raw materials** such as TiO_2, resins, and speciality pigments exposes the sector to global supply and pricing risks. The mapping of HS codes and trade classifications highlights how tariffs, duties, and anti-dumping measures shape cost structures and competitiveness.

India's export footprint is strengthening but remains shallow. Despite growth at an 11% CAGR since 2019, exports are still concentrated in low—to mid-value formulations. India's absence in premium global coatings is a structural gap.

The industry remains exposed to imports: nearly **40–55% of inputs** are sourced externally. Its high reliance on TiO_2, resins, and additives makes cost structures vulnerable to tariffs and exchange volatility.

Tariff stress points are significant. While finished paints face modest global tariffs (5–15%), input tariffs are fragmented, with compound duties on resins and TiO_2. Rules of Origin (RoO) often limit FTA benefits. Indian firms lose margin where global peers optimise by consolidating sourcing zones within FTAs.

Currency volatility compounds these risks. With INR/USD fluctuating between 82 and 84 in FY2024, input landed costs varied by up to 9%. Yet most mid-sized firms lack advanced hedging, leaving their balance sheets exposed.

Strategically, India's near-term export opportunity lies in two directions:

- **South–South markets** (Africa, SAARC, Southeast Asia), where demand is booming but local paint capacity is limited. Here, Indian firms can expand via franchise formats, white-label bulk exports, and collaborative blending hubs.
- **ESG-driven developed markets** (EU, US), where low-VOC water-based systems, bio-resins, and lead-free primers are gaining traction. Capturing this will require REACH-ready certification, RoO-compliant sourcing, and lifecycle audit compatibility

Thus, India's component profile clarifies that supply risk and trade compliance are inseparable. The subsequent growth phase will require deliberate balancing: reducing dependency on critical imports while enhancing export readiness through localisation and innovation.

Chapter 6: Designing Global Value Chains: Corridors and Nodes

Global value chains in paints are no longer linear flows of inputs and outputs. They are dynamic networks shaped by trade agreements, compliance rules, and geopolitical risk. For Indian manufacturers, the challenge is to embed themselves in these networks not as commodity suppliers but as trusted, compliant, and strategically placed partners. The execution of FTA benefits and input strategies must be anchored in well-designed value chain corridors. In an era where tariffs, compliance, and logistics determine competitiveness, corridor strategies serve as the operational translation of policy opportunities.

Corridor Architecture

Four corridors stand out as strategic for India's paints industry:

- **United Kingdom:** A beachhead for premium architectural and specialty SKUs. Finishing and packaging operations here can qualify products under origin rules while reducing lead times to Europe.
- **United Arab Emirates (Jebel Ali):** A bonded logistics hub that enables re-export to GCC, Africa, and South Asia, supported by CEPA preferences. Facilities must include bonded storage, testing labs, and compliance officers to ensure smooth trans-shipment.
- **Australia:** A mineral feedstock partner and an entry point into mining and industrial coatings. Tariff concessions under ECTA reinforce this role. Supplies TiO_2 ore, mineral pigments, and mining-related coatings while acting as a staging ground for Asia-Pacific exports.
- **Mexico:** An indirect access route to the United States under USMCA rules, enabled by finishing-node strategies that alter origin classification.

Each corridor must be run as a profit-and-loss unit, with defined targets, compliance audits, and sustainability protocols.

Table 15: Corridor Strategy Framework

Corridor	Primary Role	Key Features	Risks	Strategic Levers
UAE	Re-export hub	Bonded warehousing, testing labs	Compliance lapses	Dedicated officers; digital COO tracking
UK	Finishing & compliance	Labeling, repackaging, small-batch	Rising non-tariff barriers	Invest in certification facilities
Australia	Resource partner	TiO_2 ore, pigments, mining coatings	Shipping disruptions	Long-term supply contracts, co-investment
Mexico	Indirect U.S. entry	USMCA advantage, packaging nodes	Regulatory complexity	JV with Mexican distributors

Operational and Governance Design

Merely locating warehouses abroad is insufficient. Corridor success depends on disciplined customs and compliance procedures:

1. **Certificate of Origin (COO):** Must be issued by an authorised body (e.g., FIEO) for every FTA shipment. Valid for 12 months, backed by invoice, packing list, and processing certificate.
2. **Customs Clearance:** COO must be submitted at port of entry; preferential tariffs claimed; documents verified.
3. **Post-Clearance Audits:** Customs authorities may randomly inspect shipments and validate COO claims. Companies must retain audit-ready documentation.
4. **FOA Integration:** Each corridor must integrate Formulation Origin Audits into its workflows, ensuring SKUs shipped from hubs are ROO-compliant.

Corridor execution requires legal, tax, and customs engineering. Cross-functional teams involving trade lawyers, customs experts, and supply-chain managers must design each node's model, covering bonded storage, local certification, transfer pricing policies, and audited ROO compliance. Each corridor should be treated as a micro-business with defined P&L, compliance dashboards, and measurable utilisation rates of FTA benefits.

Digital Enablement of Corridors

Digital systems will strengthen corridor execution:

- **AI-driven Decision Twin**: Simulates tariff shifts, freight rates, supplier reliability, and ROO compliance in real time.
- **Blockchain-based COO registry**: Ensures traceability and reduces fraudulent claims.
- **Integrated risk dashboards**: Track lead times, landed costs, and compliance failures across corridors.

Import Substitution and Strategic Sourcing

Corridors alone cannot address vulnerabilities if India remains over-reliant on imported inputs. The industry must combine corridor strategies with import substitution and strategic sourcing:

- **Strategic Import Exposure:** India still imports ~55% of key raw materials, including ~85% of TiO_2, ~65% of acrylic resins, and ~60% of PU/epoxy resins. Tariff-weighted landed costs have risen sharply due to anti-dumping duties and freight inflation.

- **Four-Axis Framework for Response:**

    1. **Reverse Engineering + JVs**: Collaborations with Malaysia/Vietnam for TiO_2 finishing tech, or resin precursors.
    2. **FTA-Based Alternate Sourcing**: Use ECTA (Australia) and CEPA (UAE) to secure tariff-free input access.
    3. **Inventory Buffering**: Build rolling 3-month buffers for volatile inputs, hedged with forward contracts.
    4. **Indigenous Capability Incubation**: Leverage PLI and CSIR/BIRAC programmes to foster bio-resins and polymer R&D.

- **Supply Chain Modelling Under Tariff Stress:** AI-powered scenario planning (e.g., ADD on TiO_2), split-country sourcing to maintain ROO compliance, and circular logistics (e.g., solvent reuse, container pooling).

Policy and Industry Role

Industry associations like IPA and CII can support by publishing corridor-specific ROO exemplars and certification guides. Policymakers can facilitate customs fast-tracking and provide incentives for establishing bonded hubs and pilot shipments. At the same time, a **National Import Map** for the top 10 raw materials and an **Import Substitution Consortium** linking IITs, CSIR, and MSMEs can drive localisation.

Corridors are not just logistics strategies; they are **strategic nodes of competitiveness**. By embedding corridor hubs into a broader framework of import substitution, FTA sourcing, AI-enabled planning, and ESG compliance, India's paints industry can convert FTAs from paper commitments into commercial advantage. Global paint leaders demonstrate that supply chains are competitive assets; India must now treat them as such to secure resilience and growth.

Chapter 7: Innovation Agenda: Formulation Sovereignty and AI

Innovation is the industry's most durable hedge against tariff shocks, supply disruptions, and regulatory tightening. The paints and coatings sector globally has evolved through capacity, formulation science, application engineering, and increasingly digital tools. For India, achieving **formulation sovereignty** is central to moving from cost competition to value leadership. India's paints industry must invest in formulation sovereignty, R&D collaborations, and digital supply chains to reduce structural vulnerabilities and build long-term competitiveness.

Formulation Sovereignty

India's dependency on imported TiO_2 and resins underscores the need for domestic innovation. Reducing TiO_2 intensity through micro-extenders, hollow-sphere polymers, and nano-dispersants can cut costs while enhancing sustainability and ROO compliance. Hybrid binder systems blending alkyd and acrylic chemistries offer performance at reduced import reliance.

The R&D agenda should also prioritise the next five years:

- Roof and exterior coatings engineered for tropical climates, balancing heat reflection and moisture resistance.
- Advances in colour science and AI-driven tinting that cut waste and improve precision.
- TiO_2-Lite Systems: Reduce pigment intensity by 10–20% using opaque polymers, nano-extenders, dispersant optimisation, and iron oxide blends.
- Hybrid Binders: Develop blends (alkyd-acrylic, PU-acrylic) that cut resin dependency while maintaining performance.
- Low-VOC High-Solids Packages: Target compliance with EU and U.S. markets, where VOC restrictions are tightening.
- Fast-Cure Automotive Refinish Systems: Designed for OEM-certified refinish exports.
- Circularity Initiatives: Recycling extenders, reusing packaging, and closed-loop waste recovery.

Institutional Collaboration

Collaboration is essential. Individual firms cannot bear the full cost of innovation. An industry–academia consortium anchored by IPA, IITs, and CSIR can pool pre-competitive research, share pilot plants, and align with global colour science and sustainability labs.

An **IPA–IIT–CSIR consortium** should be established to:

- Pool pre-competitive research (e.g., TiO_2-lite formulations, nano-extenders).
- Share pilot plant facilities.
- Coordinate with international labs on colour science and sustainability.
- Competition would remain at the scale-up and commercialisation stage, ensuring shared progress without diluting market rivalry.

AI and Digital Supply Chains

Supply chains are no longer forecast-driven but decision-driven. A new paradigm is emerging, based on **AI-enabled decision twins** and **Digital Control Towers** that integrate tariffs, freight indices, exchange rates, port congestion data, and supplier reliability into real-time planning.

Key tools and models are shown in Figure 7:

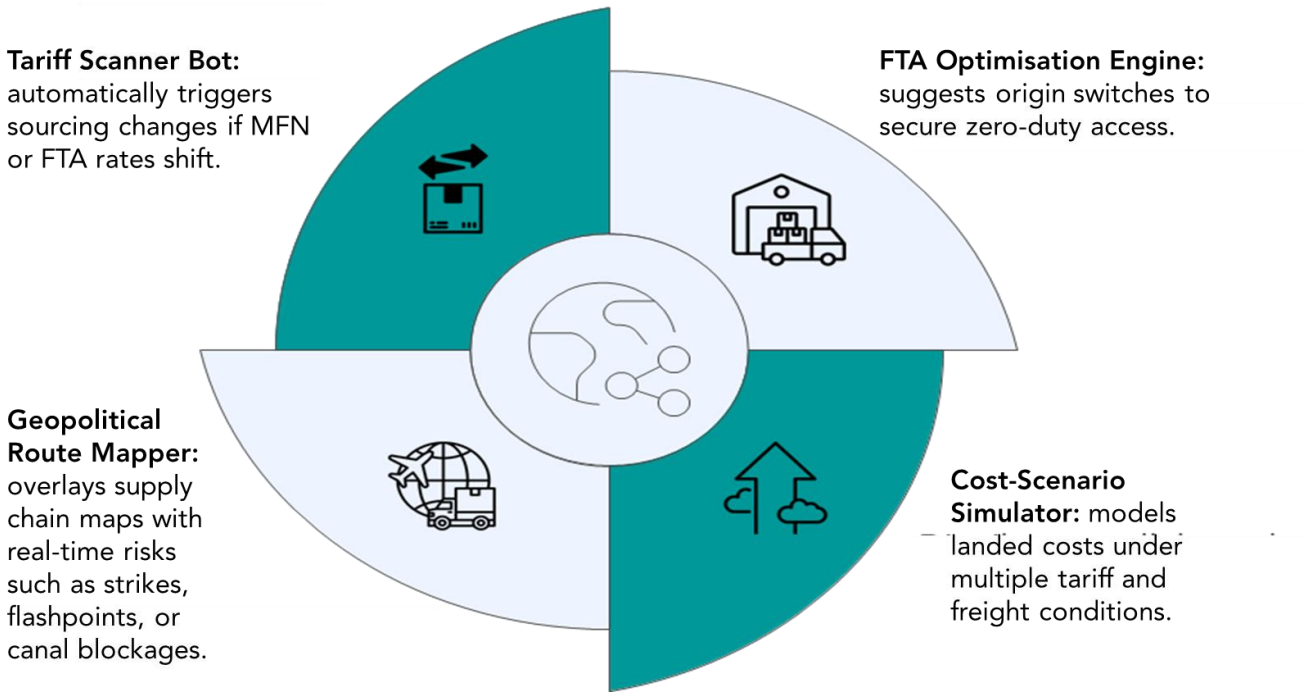


Figure 7: AI Tools for Trade Decision-Making

Unlike static forecasting, these systems enable procurement teams to pivot within 48 hours of external shocks. The twin outputs **concrete operational actions**, such as:

- Automated reorder points and bonded stock allocation,
- Real-time ROO alerts when formulations shift,
- Alternative logistics routing during disruptions,
- Stress-test scenarios for demand shocks.

From Static Contracts to Dynamic Trade Models

Standard 6- or 12-month procurement contracts are inadequate in today's environment. The industry must adopt rolling contracts with:

- Clause-triggered rate revisions linked to Brent crude or FX indices.
- "If–Then" sourcing pivots tied to FTA activations or anti-dumping rulings.
- Digital twin simulations of landed costs across alternate corridors.

Financial engineering is equally vital. Beyond basic forwards, firms should adopt:

- **Cross-currency swaps** (Euro–INR, USD–INR) for corridor inputs.
- **Basket hedging** for resin blends tied to chemical index futures.
- **Freight options** linked to the Baltic Dry Index to manage shipping volatility.

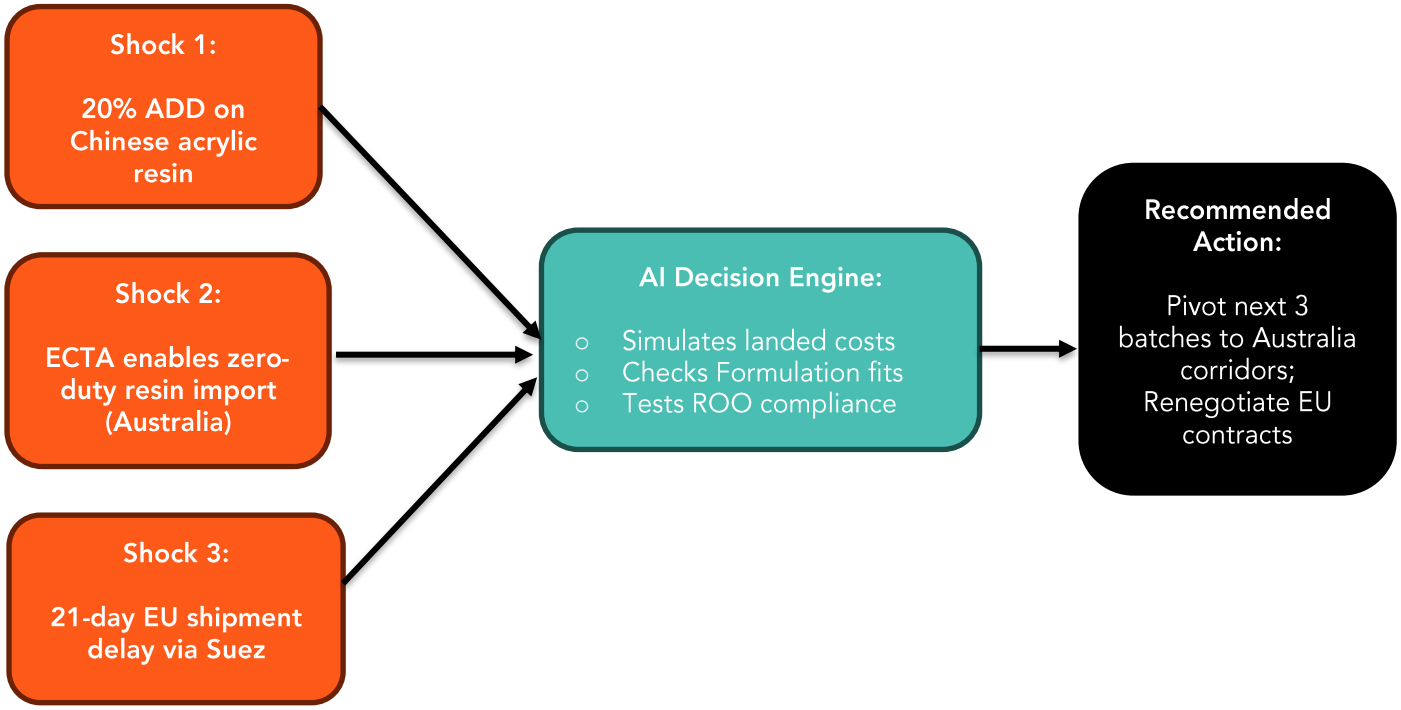
Illustrative Use Case: AI-Aided Trade Decision

Consider a scenario where the industry is suddenly confronted with three simultaneous disruptions. First, an anti-dumping duty of 20% is imposed on Chinese-origin acrylic resins, sharply raising the landed cost of a critical binder. At the same time, tariff concessions under the India–Australia ECTA open the possibility of importing the same resin duty-free from Victoria, Australia. To compound matters, shipments from the EU are delayed by 21 days due to congestion along the Suez Canal.

An AI-enabled decision system processes these developments in real time. It simulates the net landed costs across all available corridors, cross-checks the compatibility of alternative inputs with existing formulations, and stress-tests their impact on Rules of Origin compliance. Based on this analysis, the system recommends pivoting supply for the next three batches to the Australian corridor, taking advantage of the zero-duty window while simultaneously flagging the need to renegotiate delayed EU contracts.

In this way, AI provides data and delivers actionable trade decisions, enabling firms to pivot quickly and safeguard both cost efficiency and compliance under volatile conditions.

Figure 8: Illustrative Use Case of an AI-Aided Trade Decision



Governance is crucial. AI must support, not replace, human decision-making, with planners able to override recommendations under audit trails. A **pilot deployment on the UAE corridor with TiO_2 and resin families** could validate the model before industry-wide scaling. This controlled environment will demonstrate functionality before scaling to other corridors.

From Supply Chain to Strategic Risk Engine

The industry's future lies not in incremental optimisation of supply chains but in creating a **Strategic Risk Engine** - an integrated system that continuously processes geopolitical, financial, and regulatory signals. Such a console would track ongoing FTA negotiations, including the India–EU BTIA, GCC CEPA, and Canada agreements, while simultaneously monitoring currency volatility, inflation forecasts, and the rising cost of insurance linked to war-risk cargoes in areas such as the South China Sea. The engine would ensure that operational choices are efficient and strategically aligned with long-term competitiveness by linking procurement, treasury, and compliance into one decision-making framework.

Industry-Level Recommendations

To support this transition, the industry must collaborate. The Indian Paint Association can play a central role by developing an **AI-Ready Scenario Tool (IPA-ART)** that allows member companies to model sourcing pivots under tariff shifts, trade route disruptions, or crisis scenarios. The IPA could also publish a **bi-monthly FTA dashboard**, mapping new Rules of Origin and duty changes to help companies prepare in advance. Partnerships with institutions such as IIIT Hyderabad and IIM Ahmedabad would bring advanced predictive modelling into industry practice, benefiting MSMEs

lacking in-house analytical capacity. Finally, lobbying for **PLI incentives** that cover digital and AI adoption in supply-chain management would accelerate technology uptake and strengthen the sector's resilience.

India's innovation path is twofold: first, building proprietary formulations like TiO_2-lite systems, hybrid binders, and VOC-compliant coatings to reduce import intensity and win premium markets; second, embedding AI-driven agility into supply chains to turn volatility into opportunity. Together, these form the twin foundation of resilience. Firms that combine **formulation sovereignty** with **AI-enabled agility** will defend margins and capture leadership in an increasingly competitive global landscape.

Chapter 8: Financial Re-engineering: Treasury, Hedging and Working Capital

Tariffs, duties, and supply disruptions have tested the financial backbone of the paints industry. Tariffs, duties, and supply shocks do not just raise input costs; they disrupt cash cycles, stretch working capital, and pressure margins. Working capital cycles have lengthened from approximately 90 to 110–120 days, driven by higher landed costs, extended inventories, and slower receivables. This stresses liquidity, especially for mid-sized firms. Boards must view finance not as back-office accounting but as a strategic function to ensure continuity of supply, liquidity, and competitiveness.

Cost Structure of Paint Production

In a typical decorative emulsion formulation:

- **TiO_2 (22–25% by weight; 35–40% by value)** is the single most significant cost driver.
- **Binders (15–18% by weight; 25–30% by value)** also carry high-cost sensitivity.
- **Fillers/Extenders (35–40% by weight; 8–12% by value)** are lower cost but critical for balancing formulations.
- **Packaging (5–7% of value)** has become significant under sustainability norms.

Table 16: Components of Paint Cost Dynamics

Component	Share by Weight	Share by Value	Cost Impact Factor
Titanium Dioxide (TiO_2)	22–25%	35–40%	Very High
Binder (Acrylic)	15–18%	25–30%	High
Fillers/Extenders	35–40%	8–12%	Low
Water	20–25%	1–2%	Minimal
Additives	3–5%	8–10%	Medium
Packaging	–	5–7%	Medium

From Table 16, Titanium dioxide stands out as the most cost-sensitive input, representing up to 40% of value in a paint formulation. Even modest changes in its landed cost can significantly affect margins.

Impact of Tariffs and Duties

- **Anti-dumping duties on TiO_2 from China (USD 460–681/MT)** increased landed costs by 12–18%.
- This raised emulsion paint costs by **₹2.5–3.75 per litre**, compressing margins by **8–12% for economy products**.
- Premium products absorbed the shock better, with **60–70% pass-through** to consumers.

The DGTR has also initiated an **anti-dumping investigation into epoxy resins** (imports from China, Korea, Taiwan, Thailand, and Saudi Arabia). Preliminary findings confirmed injury to domestic producers; final determination is pending. If duties are imposed, resin costs may rise significantly, adding pressure on industrial and protective coatings.

Structural Imbalances in Finance

India's paint sector sources over 60–70% of its critical raw materials (TiO_2, resins, additives, pigments) from global markets. Most are invoiced in USD/EUR, priced with crude-linked clauses, and subject to port delays. Yet finished

goods are sold in INR, with receivables averaging 25–35 days. This mismatch creates vulnerabilities: resin prices rose 22% in one quarter (Q4 FY24), INR fell from ₹82.1 to ₹84.7/USD, and sea freight from China spiked by over 50% due to the conflict. Together, these magnify cash-flow asymmetry.

Working Capital Pressures

Industry surveys show that the cash conversion cycle has extended from about 90 days to 110–120 days. Longer inventory cycles, delayed receivables, and higher payables drive this.

Table 17: Working Capital Cycle

Measure	Pre-2025 (Days)	Current (Days)	Change
Raw Material Inventory	45	65	+20
Finished Goods Inventory	30	35	+5
Receivables	60	65	+5
Payables	45	45	0
Net Working Capital	**90**	**120**	**+30**

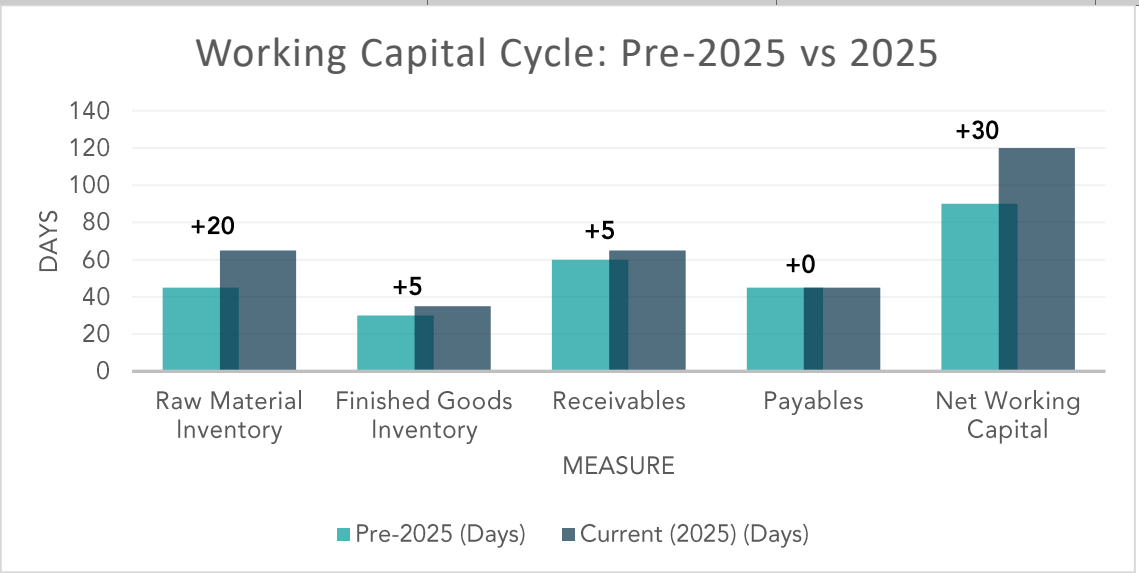


Figure 9: Graph showing Working Capital Cycle Extension in the Indian Paints Industry (Pre-2025 vs. 2025)

Stress-test models show how quickly WC blocks can escalate. A 15–20% rise in global input costs, FX depreciation, and freight spikes can increase WC lock-up by more than 40%, making it unaffordable for MSME manufacturers.

Strategic Use of Trade Schemes

To manage these stresses, boards must institutionalise financial engineering tools:

- Duty deferral instruments such as **MOOWR (Manufacturing and Other Operations in Warehouse Regulations)** and **Advance Authorisation** allow firms to delay customs payments for export inputs. **EPCG**

schemes can secure concessional financing for capital goods. These must be treated not as compliance checklists but as active treasury tools.

- **Hedging and Risk Management**: Commodity hedging for TiO_2 and solvents (3–9-month forwards) and FX collars for dollar exposures should be standard practice. Proxy instruments such as freight indices can mitigate volatility where direct hedges are unavailable.
- **Liquidity Engineering**: Banks can be engaged for **dynamic inventory financing**, where bonded warehouse stockpiles serve as rotating collateral. This aligns credit with supply realities. Revolving credit facilities tied to inventory movements provide flexibility without overstretching balance sheets.

From Passive Hedging to Dynamic Buffering

Legacy treasury models rely on annual hedging rituals. The new environment demands dynamic buffers:

- **Rolling hedging windows** updated monthly.
- **Basket hedging** of blended inputs via a composite paint-input index (TPII).
- **Freight risk instruments** using Baltic Dry Index options and co-loading contracts.
- **Trade credit insurance** is linked to geopolitical risk profiles, supported by ECGC covers.

Policy and Consortium Financing

De-risking the financial backbone of the paints industry will require not just firm-level initiatives but also collective action at the industry and policy level. The Indian Paint Association (IPA) is well placed to lead this effort by championing specialised financing mechanisms and knowledge-sharing platforms. One proposal is the creation of a dedicated **Paint Sector Working Capital Line** under SIDBI and NABARD, designed to give manufacturers access to short-term liquidity during input price spikes or freight disruptions. In addition, the sector could benefit from a **20 per cent interest subvention** on foreign-exchange–exposed imports that are channelled through FTA corridors, ensuring that volatile funding costs do not offset tariff-linked opportunities.

Regulatory flexibility will also be essential. The IPA can work with the Reserve Bank of India to **relax NPA norms for MSMEs** affected by sudden currency swings or shipping shocks, preventing temporary disruptions from becoming long-term credit impairments. Finally, a **Treasury Best Practices Circle**, anchored by the IPA, would enable members to share real-time dashboards, FX forecasts, and freight benchmarks — giving the industry the collective intelligence it needs to make faster and more informed financial decisions.

Governance at the Board Level

Finance is not about smoothing quarterly earnings but ensuring uninterrupted supply, protecting margins, and enabling growth despite volatility.

Boards must require **quarterly treasury stress tests**, linking tariff shocks, freight spikes, and supplier outages to liquidity impacts**. Integrated hedging policies** should be presented alongside compliance dashboards on duty-deferral scheme utilisation. Treasury must be recognised not as a support function but as a **strategic lever of competitiveness**.

With capital access improving after India's sovereign rating upgrade, financial discipline will determine which firms can seize opportunities in resin capacity and R&D investment. Those who embed resilience into treasury will be positioned to lead.

Painting the Future: Credit and ESG Financing

As the industry pivots to water-based paints, automation, and green supply chains, capex will accelerate. Yet ratings agencies still assess many firms on outdated models. To unlock credit and upgrade ratings:

- Link hedging policies to disclosures.
- Quantify risk-adjusted ROCE under corridor stress scenarios.
- Tap ESG-linked loans for bio-based pigments and sustainable R&D, accessing preferential rates.

The paints sector must embed resilience into treasury design. Dynamic hedging, WC buffers, policy support, and ESG financing will separate leaders from laggards. With India's sovereign rating upgrade improving capital access, those who professionalize treasury and integrate it with strategic planning will seize growth opportunities, even amid volatility.

Conclusion: A Strategic Mandate for Transformation

The Indian paints and coatings industry stands at a pivotal crossroads. Global turbulence, tariff shocks, and regulatory tightening pose significant risks, while free trade agreements (FTAs), macroeconomic resilience, and rapid technological advances create unprecedented opportunities. To navigate this landscape, the industry must adopt a strategic and disciplined approach that balances resilience with competitiveness.

The Strategic Priorities

The transformation ahead requires coordinated action across five critical fronts:

1. **Harness FTAs effectively** through ROO-ready formulations and corridor-based execution, supported by compliance dashboards and origin audits.
2. **Reduce import dependency** by accelerating localisation and building formulation sovereignty in TiO_2, resins, and pigments.
3. **Invest in compliance-ready, climate-resilient systems** that meet EU, U.S., and Asia-Pacific regulatory standards.
4. **Digitise supply chains with AI-driven decision engines**, transforming volatility into advantage through predictive planning and stress-tested scenario models.
5. **Re-engineer finance** so that treasury, hedging, and working capital management become strategic levers of competitiveness rather than support functions.

Board Accountability and KPIs

Execution must be anchored in measurable outcomes. Boards should require quarterly reporting across five domains, linking executive compensation directly to delivery:

1. **ROO Utilisation**
   - % of export SKUs certified under one or more FTAs.
   - Margin of safety built into RVC compliance.
2. **Supply Resilience**
   - Dual sourcing of critical inputs (TiO_2, epoxy resins).
   - Corridor inventories covering a minimum defined days of supply.
3. **Innovation Pipeline**
   - Share of revenue from TiO_2-lite or hybrid binder systems launched in the last 3 years.
   - Number of VOC-compliant systems certified for EU/US standards.
4. **Financial Discipline**
   - Cash conversion cycle (target ≤ 100 days).
   - Hedging compliance ratios.
   - Duty deferral and bonded credit utilisation.
5. **Sustainability & Compliance**
   - VOC conformity (domestic + export markets).
   - REACH/SVHC alignment for EU.
   - Packaging recovery/reuse rates.

Executive compensation must be explicitly tied to these KPIs to ensure strategic intent translates into measurable outcomes.

Scenario Planning: Preparing for Multiple Futures

Trade dynamics, tariff regimes, and raw material availability will shape the industry's future. Three scenarios highlight the possible trajectories:

Table 18: Scenario Comparison Matrix

Scenario	Probability	Key Assumptions	Industry Impact
Base Case	60%	• U.S. tariffs remain at 50% through 2026 • China TiO_2 ADD continues full 5-year term • India–UK FTA proceeds as scheduled • Global freight costs stabilise	• Market growth slows to 7–8% CAGR • Margin compression of 200–300 bps • Consolidation among smaller players • Import substitution investments increase
Optimistic	25%	• U.S.–India trade tensions ease by end-2025 • Alternative TiO_2 sources scaled up • India–UK FTA boosts exports • Domestic TiO_2 capacity expansion succeeds	• Market growth returns to 9–10% CAGR • Margins recover to pre-2024 levels • Export revenue doubles by 2027 • Technology investments accelerate
Pessimistic	15%	• Additional U.S. trade restrictions • ADD investigations expand to more raw materials • FTA benefits delayed • Global recession hits demand	• Market growth slows to 4–5% CAGR • Margin compression of 400–500 bps • Capacity utilisation drops below 70% • Significant job losses in manufacturing

This matrix underscores the necessity of adaptability, planning, and hedging against tariff and macroeconomic risks.

Recommendations Matrix: Strategic Horizons

To convert vulnerability into strength, actions must be sequenced across time horizons:

Table 19: Strategic Horizons for India's Paints Industry

Horizon	Industry Actions	Board/KMP Mandates	Policy Asks
0–6 months	Formulation Origin Audits; FTA pilot shipments; secure TiO_2 offtakes; treasury hedges	Authorise FOAs; approve capex pipeline	Customs fast-track for COO; MOOWR facilitation
6–24 months	Scale resin JV; pilot TiO_2-lite production; establish UAE hub	Approve JV; R&D budget	PLI for resin/pigments; duty credits for R&D
24–60 months	Full corridor operations (UK/UAE/Australia/Mexico); industry R&D consortium	Global M&A & partnership mandate	Capex support; trade diplomacy for smoother ROO rules

This horizon view links immediate tactical measures with medium- and long-term transformation, ensuring continuity and competitiveness.

Institutional Role and Policy Enablers

Industry associations and policymakers must strengthen the enabling environment:

- **IPA Risk Observatory**: Real-time monitor tariffs, FTAs, and freight risks.
- **Geo-Economic Paint Index**: track competitiveness across corridors.
- **Treasury Best Practices Circle**: share dashboards on FX, freight, and hedging.
- **Policy alignment**: expand PLI incentives to resin and pigment R&D; support ESG-linked financing; and fast-track customs for compliant exporters.

Such institutions can reduce transaction costs and accelerate collective resilience, especially for MSMEs.

Closing Perspective

The winds of geopolitics, tariffs, and regulation will not calm; they will only shift. India's paints and coatings industry must not resist these winds but set its sails with discipline and foresight.

By embedding ROO-ready formulations, executing trade corridors, building AI-enabled supply chains, enforcing disciplined treasury practices, and aligning leadership incentives with measurable outcomes, India can reposition its paints and coatings sector from a demand-driven domestic market to a globally competitive, export-ready ecosystem.

The world needs what India can produce. The mandate now is clear: **organise, adapt, and deliver.**

Annexure

Annexure A: HS Codes Relevant to Paints and Inputs

Table A1: HS Codes for Paints and Coatings

Product Category	HS Code	Description
Paints & Varnishes	3208	Paints & varnishes (including enamels & lacquers) based on synthetic polymers
Other Paints	3209	Paints & varnishes based on synthetic or chemically modified natural polymers
Other Paints/Coating	3210	Other paints and varnishes; prepared water pigments
Prepared Driers	3211	Prepared driers
Pigments	3212	Pigments dispersed in non-aqueous media; stamping foils

Table A2: HS Codes for Raw Materials

Raw Material	HS Code
Titanium Dioxide	**2823**
Epoxy Resins	**390730**
Acrylic Resins	**390690**
Specialty Pigments	**320417**
Other Additives	**3824**

Table B3: HS Codes for Packaging Materials

Material	HS Code
Plastic Packaging	3923
Metal Drums	7310

Annexure B: Tariff Schedules under FTAs

India–Australia Economic Cooperation and Trade Agreement (ECTA)

Effective: December 29, 2022 | Expansion: Negotiations ongoing

Table B1: Key Provisions for the Paint Industry

Australian Export to India	Pre-ECTA Tariff	Current Tariff	Potential Volume Impact
Mineral-based Pigments	10%	5%	+25% expected
Specialty Chemicals	7.5%	3.5%	+40% expected
Titanium Ore	5%	0%	Strategic importance
Equipment & Technology	15%	7.5%	Modernization driver

Annexure C: GST & Duty Structures

Table C1: GST Rates for Paints and Inputs

Category	HSN Code	GST Rate	Input Tax Credit
Paints	3208, 3209	18%	Available
Varnishes	3208	18%	Available
Primers	3208	18%	Available
Putty	3214	18%	Available

Table C2: Raw Materials GST Rates

Material	HSN	Old Rate	New Rate (Sept 2025)	Impact
TiO2	2823	18%	18%	No change
Resins	3907	18%	18%	No change
Solvents	2905-2914	18%	18%	No change
Pigments	3204-3206	18%	18%	No change

Table C3: Anti-Dumping Duties and Notifications

Input	Duty / Notification	Status
Titanium Dioxide	USD 460–681/MT (Notification 12/2025-Customs)	In effect
Epoxy Resins	DGTR Anti-Dumping Investigation	Pending final determination

Annexure D: Extended Import Data

Table D1: Import Dependency Ratios (2024-25) of Critical Raw Materials

Material	Total Consumption (MT)	Import Volume (MT)	Import Dependency
TiO2	1,387,000	847,000	61.1%
Epoxy Resins	245,000	156,000	63.7%
Acrylic Resins	892,000	378,000	42.4%
Specialty Pigments	67,000	45,000	67.2%

Annexure E: Sources & References

- DGTR Notification No.12/2025-Customs (TiO_2 ADD): https://www.cbic.gov.in/
- UN Comtrade trade database: https://comtrade.un.org/
- World Bank WITS database: https://wits.worldbank.org/
- Press Information Bureau (PIB) – India GDP, S&P rating, FDI flows: https://www.pib.gov.in/
- Reuters – India Q1 GDP 7.8%: https://www.reuters.com
- Economic Times – FPI outflows September 2025: https://economictimes.indiatimes.com
- UK Government – India–UK CETA texts (2025): https://www.gov.uk/
- DFAT – Australia–India ECTA: https://www.dfat.gov.au/
- Ministry of Commerce & Industry trade statistics: https://commerce.gov.in/