EMCC TRADE INTELLIGENCE REPORT
VOL.02 · 2026 · CONFIDENTIAL

The New Factory Dialogue

AI-Driven Restructuring of China–Europe Manufacturing Supply Chains: Risks, Opportunities, and Policy Pathways

A Trade Intelligence Report for EMCC Member Institutions, Industrial Policy Makers, and C-Suite Manufacturing Leaders

EMCC Research & Advisory Team · Eurasia-Mediterranean Cooperation Council · Milan, Italy

Executive Summary

This report assesses how artificial intelligence is reshaping the China–Europe manufacturing supply chain corridor in 2024–2026, drawing on official EU and Chinese trade data, company disclosures, and institutional research. The central finding is important and often misrepresented: AI did not eliminate the China–Europe manufacturing corridor. It changed where value is created, where risk is managed, and which parts of the chain are worth localizing in Europe.

The corridor remains very large. The European Commission reports €732 billion in EU–China goods trade in 2024, with China still the EU's second-largest goods trading partner. EU imports from China reached €559.5 billion in 2025, against EU exports of €199.5 billion — a goods deficit of €305 billion that has become a central point of political tension. At the same time, the EU increasingly describes the relationship as one of de-risking, not decoupling: emphasizing market asymmetry, overcapacity concerns, and strategic dependencies.

Three Central Findings

Finding 1 — Reorganization, Not Decoupling: The China–Europe manufacturing relationship is not decoupling — it is reorganizing along new AI-enabled intelligence layers. China remains the scale base for most industrial categories; Europe is selectively localizing the stages where time-to-recover, IP sensitivity, public procurement rules, and export-control exposure are highest.

Finding 2 — AI Compresses Variance, Not Just Labor: AI's biggest operational effect in 2025 was to compress variance in supply chain performance rather than simply reduce labor

costs. Manufacturers and logistics providers use AI to improve forecasting, supplier planning, predictive maintenance, machine-vision quality control, customs/document automation, routing, and digital-twin simulation.

Finding 3 — Policy is the Primary Non-Market Force: The EU's evolving dual-use export control regime, CBAM, the International Procurement Instrument (IPI), and the Chips Act are collectively reshaping the economics of China-sourced manufacturing more consequentially than AI adoption alone. Policy friction is now a location-allocation variable.

Section 1: The Corridor in 2024–2025 — Scale and Structure

1.1 Trade Volume and Strategic Context

The EU–China goods trade relationship operates at a scale that makes clean decoupling economically implausible in the near term. Official European Commission data reports €732 billion in total EU–China goods trade in 2024. The trade relationship is structurally asymmetric: EU imports from China of €559.5 billion against EU exports of €199.5 billion in 2025 produce a goods deficit of approximately €305 billion — a figure the July 2025 EU–China Summit described as “critically unbalanced.”

The EU’s strategic posture has evolved from engagement toward what it now explicitly terms de-risking: maintaining functional economic ties while reducing exposure to strategic dependencies. The same summit that recorded the €305 billion deficit also continued cooperation on climate, circular economy, emissions trading, regional policy, and financial regulation. This coexistence of competition and cooperation — the EU’s 2019 framing of China as simultaneously a partner, a competitor, and a systemic rival — defines the operating environment for all manufacturing supply chain decisions in this corridor.

For European manufacturers, the practical implication of this posture is not a directive to exit China. It is a framework for selective localization, dual sourcing, and risk-weighted investment decisions about where to place high-sensitivity engineering, tooling, calibration, and process technology.

1.2 AI’s Operational Role: Compressing Variance

The World Economic Forum’s 2025 framing describes supply chains as moving from reactive to adaptive and increasingly autonomous, with predictive analytics and digital twins becoming the operational backbone. In practice, the most mature AI deployments in 2024–2025 are not fully autonomous systems: they are control towers, AI copilots, automated customs and document systems, and digital twins operating with human oversight.

Lenovo’s Supply Chain Intelligence platform provides the most documented cross-border manufacturing case available. The company’s public disclosures describe an AI-powered platform integrating supply-chain transactions across more than 800 data sources, performing over 1,500 daily data tasks, supporting AI-based intelligent procurement, supplier quality

checks, delivery estimates, and logistics visibility. Lenovo also discloses AI-based supplier connected planning for 5 million parts across 2,000+ tier-1 and 3,000+ tier-2 suppliers, plus a digital-twin control tower fed by 50+ data sources monitoring 40+ risk types — covering a network that includes both Chinese production and its European manufacturing hub in Hungary.

This is the template for AI-enabled supply chain management at scale in the China–Europe corridor: not autonomous sourcing decisions, but a deeply instrumented visibility and orchestration layer that makes human decision-making faster, more accurate, and less dependent on manual data collection.

Section 2: Sector-by-Sector Analysis

2.1 Sector Restructuring Matrix

The following matrix summarizes the sector logic in 2025. Nearshoring speed is a qualitative assessment based on official EU policy, company investment announcements, and corridor-level evidence. It should be read as an analytical ranking, not a harmonized EU statistical series.

Sector	China–EU Pattern 2025	Highest-Value AI Layers	Nearshoring Speed	Export-Control Sensitivity
Automotive	China central in EV components and batteries; Europe localizes strategic stages near OEM plants	Battery quality analytics, supplier planning, transport control towers, digital twins	Very fast in batteries/modules and selected e-powertrain	Medium–High
Precision Instruments	China strong in components/cost-efficient production; Europe favors local calibration for high-spec devices	Vision QC, tool uptime prediction, supplier qualification, AI-assisted documentation	Fast for high-spec, calibration-heavy, regulated instruments	High
Industrial Machinery	China important for castings, motors, controls; Europe localizes mission-critical systems and after-sales	Predictive maintenance, digital twins, spares planning, route optimization	Moderate	Medium–High
Electronics	China remains scale base; Europe gains in high-mix, industrial, automotive, and server/workstation assembly	Demand sensing, shipment visibility, quality analytics, digital twins	Fast for high-mix regulated electronics; slower for commodity consumer electronics	Medium
Semiconductors	Europe prioritizes resilience, packaging, test, and selected fabs; China remains major node in back-end	Yield analytics, tool maintenance, fab scheduling, digital twins	Fast in packaging/test; slow in front-end wafer fab	Very High
Medical Devices	China important for components and lower-cost	Vision QC, traceability, sterile-process	Moderate–fast in public-	Selective

	production; EU regulation strengthens localization incentives	analytics, procurement/risk screening	procurement-sensitive lines	
Textiles	China remains structurally advantaged in scale/cost; Europe regionalizes for speed, branding, or compliance	Demand forecasting, replenishment, routing, quality inspection	Slow	Low

Source: European Commission EU–China trade data; ECB Strategic Goods Dependency Analysis (ECB Op. Paper 359); EIB Supply Chain Survey 2024; EU Chips Act; Company disclosures (Lenovo, CATL, Silicon Box)

2.2 Two Cross-Sector Observations

Two analytical points matter more than the sector labels themselves.

First, the corridor's biggest vulnerability in 2025 is not only finished goods but strategic inputs. ECB analysis finds that China is the main sourcing country for 33 strategic goods imported by the euro area and that China strengthened its position in this category between 2016 and 2023. This makes the corridor structurally difficult to exit quickly, regardless of political intent.

Second, diversification is happening, but only at the margin. ECB analysis suggests the share of imports from new sourcing countries remained small — around 0.2% to 0.3% of total imports over 2016–2023 — even though those new sources were often more expensive. This helps explain why AI matters so much: if broad supplier replacement is slow and costly, the more scalable response is to make the existing corridor more observable, more predictable, and easier to reconfigure rapidly when disruptions occur.

Section 3: Nearshoring Patterns — Where Movement is Fastest

3.1 Sub-Sector Velocity Analysis

The most convincing evidence points to selective regionalization, not a generalized exit from China. Nearshoring speed is highest where AI and policy reinforce each other: batteries, semiconductor packaging/testing, and high-mix electronics are not moving primarily because labor costs changed, but because AI improves local productivity enough to offset part of Europe's cost gap, while policy increases the value of resilience, traceability, and strategic control.

Sub-sector	Primary Driver of Movement	Key Evidence / Signal
EV battery cells, modules, and packs	Heavy logistics cost, safety/quality requirements, OEM proximity, industrial-policy support	CATL's €7.34bn, 100 GWh Hungary project; ACC French gigafactory operational; CATL–Stellantis Spain project (2024)
EV power electronics and selected e-powertrain	OEM integration requirements, compliance, lower disruption risk	Automotive FDI concentration; Chips Act and industrial-policy emphasis on strategic electronics
Advanced semiconductor packaging, test, and assembly	Faster to stand up than leading-edge wafer fabs; directly targeted by EU policy	EU Chips Act explicitly targets advanced packaging and test; Italy backed Silicon Box packaging/testing in 2024
High-mix industrial and automotive electronics	Traceability, shorter lead times, IP/security, and customer service requirements	Lenovo Hungary plant serves EMEA from Europe; EIB: China-linked importers face more logistics friction than intra-EU sourcing firms
Servers, workstations, and EMEA infrastructure equipment	Large customers value proximity, configuration speed, and service assurance	Lenovo Hungary facility had shipped 1 million units to 1,000 customers in 69 countries by mid-2023
Precision optics, metrology, and calibration-heavy instruments	Service/calibration proximity, regulatory documentation, IP sensitivity	Strongly aligned with EU concerns on data/IP and export-control exposure in advanced technologies

Section 4: Agentic AI in Practice — Real-World Case Evidence

4.1 Current State of Agentic AI Deployment

The strongest evidence in 2024–2025 is for agentic-adjacent orchestration, not for fully autonomous factories or procurement systems acting without humans. The most mature use cases are in customs, logistics orchestration, exception management, and control towers. The overall pattern across all documented cases is consistent: AI handles the repetitive, data-heavy tasks, while humans remain responsible for high-stakes exceptions and legal accountability.

Case 1: Lenovo Supply Chain Intelligence and Digital Twin Network

Lenovo's SCI platform is the most concrete cross-border manufacturing AI case in the current evidence set. The platform integrates supply-chain transactions and management systems into a single data layer, analyzing data in real time to detect issues and propose actions. Key specifications from Lenovo's public disclosures: 800+ data sources; 1,500+ daily data tasks; AI-based supplier connected planning for 5 million parts across 2,000+ tier-1 and 3,000+ tier-2 suppliers; AI transportation tracking and disruption control; digital-twin control tower fed by 50+ data sources monitoring 40+ risk types. Because Lenovo also operates a European manufacturing facility in Hungary serving EMEA, this is a genuine China–Europe network case.

Case 2: Maersk Trade & Tariff Studio

Maersk's June 2025 launch of Trade & Tariff Studio represents one of the clearest documented deployments of agentic-adjacent AI in the customs and tariff management workflow most relevant to China–Europe supply chains. The tool automates HS classification, data accuracy, tariff scenario planning, and compliance screening. The workflow is classic agentic-adjacent automation: ingest product and trade data, classify or suggest treatment, compare scenario outcomes, escalate exceptions, and create a traceable compliance record. Human sign-off remains necessary on consequential decisions.

Case 3: DHL Customs and Customer-Service AI Rollout

DHL's 2025 strategy documentation provides one of the clearest public statements from a major European logistics provider that it intends to deploy specific agentic AI in customs and customer service. DHL's existing customs brokerage material already points to AI-powered document recognition and streamlined clearance workflows, with Global Customs Solutions designed to make clearance faster, more consistent, and fully compliant. This should be treated as a

documented rollout direction rather than a completed, independently measured case — but customs is the most immediate area where agentic systems can remove manual work at the China–Europe boundary.

The Agentic AI Lesson

Agentic AI is currently strongest where workflows are high-volume, rule-rich, document-heavy, and exception-driven. In manufacturing supply chains, that means customs, trade compliance, document handling, supplier orchestration, and disruption control — not unconstrained autonomous sourcing decisions.

The firms that will gain asymmetric competitive advantage from AI in this corridor are not those deploying the most autonomous systems. They are those building the most comprehensive data observability layer over their existing China–Europe networks.

Section 5: Policy Environment — Export Controls, CBAM, and IPI

5.1 The Policy Timeline: 2019–2025

The current EU–China industrial policy environment is best described as cooperation within a harder de-risking frame. The July 2025 summit reconfirmed that the EU wants engagement with China, but it also made asymmetry explicit: trade relations are “critically unbalanced,” concerns were raised over systemic distortions and manufacturing overcapacity, and Chinese investment in Europe was linked to conditions around competitiveness, technology progress, and quality jobs.

Year	Key Policy Development	Supply Chain Impact
2019	EU strategic outlook formalizes partner-competitor-systemic-rival framing	Sets political framework for all subsequent trade decisions
2021	Recast EU Dual-Use Regulation enters force	More coordinated export controls; broader scope for emerging technologies
2022	Lenovo opens Hungary manufacturing facility; CATL announces 100 GWh Hungary battery plant	First major China-linked FDI into European manufacturing in strategic sectors
2023	EU Economic Security Strategy launched; European Chips Act enters force	Formal framework for de-risking; semiconductor localization mandate
2024	EU White Paper on export controls; Dual-use control list updated; Provisional BEV countervailing duties imposed	BEV dispute escalates; export controls tighten on nuclear, chemical/toxin categories
2025	EU issues Recommendation coordinating national export-control lists; adopts first IPI measure (medical devices); EU–China Summit records cooperation but sharper tensions on imbalance	Medical device procurement partially closed to Chinese suppliers; national controls harmonizing upward

Source: EU–China Summit Press Release (July 2025); European Commission Export Controls White Paper (January 2024); EU Dual-Use Control List Update (October 2024); IPI Measure — China Medical Devices (June 2025)

5.2 Dual-Use Export Controls: Direct and Indirect Effects

EU dual-use export controls are becoming a location-allocation variable for manufacturers. Firms now must decide not only where to buy and assemble, but also where they can safely place controlled engineering, software updates, calibration, pilot runs, testing, repair, and technical assistance. This is one of the hidden reasons Europe is localizing selective stages of semiconductors, electronics, instruments, and medical technology while leaving less sensitive stages offshore.

Sector	Main Dual-Use Chokepoint	Direct Impact on China-Sourced Components	Strategic Implication
Semiconductors	Advanced equipment, process technology, packaging/test know-how	High if EU-origin tools or know-how must be transferred to China-based production	Pushes Europe toward local packaging/test and more cautious China process transfer
Precision Instruments	Photonics, measurement systems, advanced sensors, control software	High for specific high-end products; low for commodity instruments	Encourages EU localization of calibration, final configuration, and sensitive production steps
Industrial Electronics	Encryption, communications, advanced control modules	Medium–high where controlled technology is embedded in production or service loops	Encourages design partitioning and EU final integration for sensitive systems
Automotive	Mostly indirect through electronics, sensors, and manufacturing equipment	Medium overall; far less than for semiconductors	Battery and power-electronics localization more attractive than China-only engineering loops
Medical Devices	Selected imaging/sensor technologies; procurement reciprocity more important than dual-use in 2025	Selective	Procurement and traceability rules matter more than classic dual-use for most lines
Textiles	Minimal classic dual-use overlap except special materials/chemicals	Low	Limited direct impact; economics remain dominated by cost/speed rather than export controls

Source: European Commission January 2024 White Paper on Export Controls; October 2024 EU Control List Update; April 2025 Recommendation on National Control Lists; EU Commission Annual Report on Dual-Use Controls

5.3 CBAM and the Carbon Dimension

The Carbon Border Adjustment Mechanism (CBAM) represents an additional restructuring force that intersects with AI-driven supply chain decisions. For Chinese manufacturers exporting carbon-intensive goods to the EU — including steel, aluminum, cement, fertilizers, electricity, and hydrogen — CBAM creates a cost adjustment that progressive decarbonization can offset. This creates an incentive structure that favors European sourcing for carbon-sensitive product categories, and favors Chinese manufacturers who invest in verifiable decarbonization for exports.

AI's role in CBAM compliance is emerging as a significant operational use case: automated carbon footprint tracking across supply chains, supplier emissions verification, documentation for CBAM declarations, and scenario planning for carbon cost under different sourcing configurations. This is an area where the EU–China Summit's continuing cooperation on climate and emissions trading provides a functional dialogue channel even as trade tensions harden.

Section 6: Strategic Recommendations

6.1 For European Manufacturers

The most defensible response to the current environment is a three-speed architecture:

- Keep China-centered production where economies of scale still dominate and sensitivity is low (commodity textiles, bulk chemicals, standard consumer electronics components)
- Build European or wider regional capacity for mid-sensitivity stages where service, traceability, and schedule reliability matter (industrial electronics assembly, selected precision instruments, medical device final stages)
- Localize or strictly ring-fence high-sensitivity stages involving semiconductors, advanced electronics, photonics, or public-procurement exposure

AI should be deployed first where it has the clearest ROI and lowest governance ambiguity: supplier planning, machine vision, predictive maintenance, customs/document handling, and digital-twin disruption control. Human approval must remain mandatory for export classification, sanctions decisions, consequential customs determinations, and design-transfer questions.

6.2 For European Policymakers

Policy should back the parts of the value chain that are both strategically sensitive and realistically localizable within a 5–10 year horizon. The priority sub-sectors are: advanced packaging and test, power electronics, battery modules, industrial electronics, calibration and certification infrastructure, and SME-accessible AI/data tools for supply-chain visibility.

Policy should not assume that all dependencies can be removed quickly. ECB evidence suggests diversification away from geopolitically distant suppliers has been partial and often costlier. The practical mix should combine targeted industrial support, clearer export-control harmonization, stronger procurement reciprocity, and continued technical dialogue with China in areas — like climate, circular economy, and standards-adjacent cooperation — where bargaining channels still function.

6.3 For EMCC as an Institutional Platform

EMCC is positioned at the intersection where these two stakeholder groups need a trusted facilitation platform. The policy tensions and commercial opportunities described in this report do not resolve themselves; they require institutional infrastructure capable of hosting dialogue between European manufacturers, Chinese industrial partners, and policy actors simultaneously.

EMCC's Institutional Value Proposition in This Context

Trade Intelligence: Publishing authoritative, data-driven analysis of China–Europe manufacturing corridor developments — filling the gap between official EU policy documents and actionable commercial intelligence

Dialogue Facilitation: Hosting structured forums between European industrial policy actors and Chinese manufacturers focused on the specific sub-sectors where selective interdependency is commercially rational

Compliance Navigation: Providing guidance on dual-use controls, CBAM compliance, IPI implications, and customs/tariff management for members operating in both jurisdictions

AI Adoption Advisory: Supporting member institutions in evaluating and deploying AI supply chain tools appropriate to their sector, risk tolerance, and regulatory environment

Section 7: Research Methodology & AI Disclosure

7.1 Research Framework

- Primary data: Official EU and Chinese government sources, European Commission trade pages, EU–China Summit press releases, EU White Papers and regulatory updates, company public disclosures
- Institutional research: ECB Occasional Paper 359 (Geopolitics and Trade in the Euro Area); EIB Supply Chain Survey 2024; World Economic Forum 2025 supply chain analysis
- Company disclosures: Lenovo StoryHub supply chain intelligence documentation; Maersk AI customs articles and Trade & Tariff Studio launch; DHL Q1 2025 Roadshow Presentation; CATL investment announcements
- AI-assisted synthesis: Structured AI tools used for research aggregation and draft generation under strict editorial governance. All analysis and conclusions are the sole responsibility of the EMCC Advisory Team
- Cross-model audit: Independent AI model used for fact-checking, logic review, and citation verification, separate from the generation model

7.2 AI Disclosure & Limitations

This report was produced with AI-assisted research tools. Where evidence is strong — particularly for official trade data, company disclosures, and EU policy documents — conclusions are stated with high confidence. Where evidence is based on inference from partial data — particularly for sub-sector nearshoring velocity rankings and agentic AI deployment claims beyond publicly disclosed cases — the report explicitly signals the inferential basis.

Public evidence on agentic AI in real China–Europe manufacturing supply chains remains thinner than marketing language in the sector suggests. The best documented cases are agentic-adjacent rather than fully autonomous. Nearshoring speed by sub-sector also remains difficult to measure precisely because Europe lacks a single official reshoring scoreboard by product family. This report’s rankings are analytical, not statistical.

Editorial standard: Chatham House / Carnegie Endowment for International Peace equivalent. Quality assurance: Scite.ai citation verification standard; Originality.ai originality threshold.

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The corridor is reorganizing, not decoupling. The institutions that understand this distinction — and build infrastructure for the new architecture — will define the next decade of China–Europe industrial dialogue.

EMCC Research & Advisory Team · 2026