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The Top 5 Structural Challenges Defining European Supply Chain Success by 2030

A Strategic Outlook for EU Supply Chain Leaders



Executive Overview

Across the EU and UK, five structural challenges will shape supply chain decision-making through to 2030:



**Cost
volatility**



**Sustainability and Scope 3
accountability**



**Expanding packaging regulation,
including PPWR and EPR**



**Automation and
future-readiness**



**Labour
shortages**

Individually, each challenge is significant. Their real impact lies in how they interact—placing increasing pressure on the infrastructure choices that determine cost, compliance, resilience and operational performance.

Packaging sits at the centre of this shift. Long treated as a tactical procurement category, it is increasingly becoming a strategic lever for managing volatility, meeting regulatory expectations and enabling more efficient, future-ready supply chains.

Increasingly, leading organisations are re-evaluating packaging not as a consumable, but as infrastructure—designed for reuse, standardisation and system-wide efficiency.

This paper explores these challenges and outlines how supply chain leaders can respond structurally, rather than reactively



Challenge 1

Cost Volatility and Commodity Exposure

The End of Predictable Input Costs

For decades, European supply chains operated in relatively stable cost environments.

Since 2020, organisations have faced sustained cost shocks driven by geopolitical, environmental and economic forces:

- Energy disruption following the war in Ukraine, with EU energy import costs peaking at €604 billion in 2022¹
- Ongoing raw material volatility across timber, polymers and metals²
- Currency fluctuations driven by economic divergence and geopolitical uncertainty³
- Inflationary wage pressures across EU markets⁴

Even as conditions stabilise in some areas, the shift is structural: cost predictability can no longer be assumed.

For packaging-intensive sectors—including food, beverage, pharmaceuticals and retail—this exposure is particularly acute.

Timber, Polymer and Energy Linkages

Single-use packaging is tightly linked to global commodity markets:



Corrugated cardboard tracks pulp and energy costs



Timber pallets are influenced by forestry supply and construction demand



Plastic packaging follows oil and gas pricing



Source:

¹ [Europa](#)

² [Fast Markets](#)

³ [Europa](#)

⁴ [Europa](#)

The Hidden Cost of Repetition

Single-use systems embed repetition into cost structures. Every shipment requires new material. In volatile markets, this repeated exposure amplifies risk.

Reusable packaging, especially when in a pooling system, allows assets to be shared across supply chains, rather than managed in isolation.

Reusable systems create:

- Reduced exposure to commodity markets
- More predictable cost per trip
- Lower dependency on short-term purchasing cycles

In inflationary environments, predictability becomes a strategic advantage.

Working Capital and Cash Flow Impact

Businesses often respond to cost volatility by:



**Increasing
safety stock**



**Accelerating
purchasing**



**Holding
material buffers**

These behaviours tie up capital.

Reusable packaging within pooling models, shift capital allocation away from inventory and towards operations - improving balance sheet flexibility and budget stability.

Resilience Over Reactivity

Today's environment rewards structural resilience.

Organisations reliant on single-use, commodity-linked inputs remain exposed. Those redesigning infrastructure to reduce repeated exposure can stabilise costs over time.



Why this matters now:

Cost shocks no longer feel exceptional; they have become part of the operating context. That makes structural resilience more valuable than short-term purchasing tactics.

The key question is no longer whether volatility will recur — but how exposed your supply chain is when it does.

Challenge 2

Regulatory Acceleration

A Shift Towards Intervention

The **Packaging and Packaging Waste Regulation (PPWR)** marks a transition from fragmented national approaches to harmonised EU-wide rules.

This aligns with broader EU objectives of:

- Waste
reduction
- Resource
efficiency
- Circular economy
development
- Carbon
reduction

The direction is clear:
reuse and prevention are
prioritised over recycling.



The PPWR sets reduction targets of 5% by 2030, 10% by 2035, and 15% by 2040. Reuse targets reach 40% by 2030 and 70% by 2040 across relevant packaging types.

Evolving EPR Models



Extended Producer Responsibility (EPR) schemes already require producers to fund waste collection and recycling. However, fee structures are becoming more differentiated.

- Eco-modulation links fees to environmental performance:**
- Harder-to-recycle packaging incurs higher costs
 - Lower-impact solutions benefit financially

In many markets, EPR is shifting from a marginal cost to a material line item.

Compliance as Capability

Regulation brings administrative burden.
Companies must track:

-  Packaging volumes
-  Material composition
-  Recycling outcomes
-  Waste recovery

For multinational businesses, this spans jurisdictions.

Centralised and managed reusable pooling models simplify compliance with digital traceability.

The Risk of Delay

A wait-and-see approach carries risk:

-  Compressed timelines
-  Material composition
-  Higher transition costs
-  Reputational exposure

Why this matters now:
Organisations that move only once rules are fully enforced may find themselves redesigning under pressure, with fewer options and greater cost. Early alignment reduces disruption.



Challenge 3

Labour Shortages and Operational Efficiency

Demographics as a Structural Constraint

Europe's workforce is shrinking and ageing⁵.

By 2050, working-age populations will decline across most EU countries, while older age groups grow significantly. Labour shortages in logistics and warehousing which are already difficult roles to fill are becoming structural.⁶

The Cost of Handling Intensity

Packaging directly influences labour demand. Single-use systems require:



Manual
assembly



Rebuilding of
loads



Frequent
disposal



Additional handling
for damaged products

Across high-volume operations, these tasks accumulate significantly. Reusable, standardised systems reduce handling steps, improve load stability and minimise inefficiency.



Health, Safety and Retention

Operational design impacts workforce sustainability.

Physically demanding processes increase injury risk, absenteeism and turnover — an issue already costing billions in European economies.⁸

**Standardised, durable
packaging supports:**



Improved
ergonomics



Reduced
strain



Less clean-up
and rework

In labour-constrained environments, retention becomes as critical as recruitment.

Efficiency Is No Longer Optional

Labour shortages magnify inefficiency.

Where disruption was previously absorbed, it now directly impacts throughput and service levels. Efficiency is no longer a performance lever — it is a baseline requirement.



Alignment with Automation

Automation depends on consistency.

Variable packaging introduces friction. Standardised, reusable assets and pooling systems enable smoother integration with automated workflows.

**Why this
matters now:**

Labour, packaging and automation can no longer be planned separately. Decisions in one area increasingly determine performance in the others.



Source:

⁵ [Bruegel, Demographic Inequalities Across Europe](#)

⁶ [Bruegel, Demographic Inequalities Across Europe](#)

⁷ [Uk and EU](#)

⁸ [Fortune](#)

Challenge 4

Sustainability, ESG and Scope 3 Accountability

From Voluntary to Mandatory

The Corporate Sustainability Reporting Directive (CSRD) significantly expands reporting requirements, mandating standardised, auditable disclosures.

Scope 3 emissions — often 60% to 90%⁹ of total impact — are now central.

Packaging as a Scope 3 Driver

Packaging contributes across the value chain:



Raw material
extraction



Manufacturing



Transport



End-of-life
processing

Reusable packaging systems distribute impact across multiple uses.

The outcome depends on lifecycle factors — making lifecycle assessment (LCA) the new baseline for decision-making.



Demand for Credible Data

Generic sustainability claims are no longer sufficient. Procurement teams now expect quantified data on:

- Carbon per trip
- Lifecycle impact
- Material usage
- End-of-life scenarios

Transparency is becoming mandatory — and greenwashing carries increasing risk.



Competitive Advantage Through Scope 3

Forward-looking organisations treat Scope 3 as a strategic lever. Reducing packaging-related emissions supports:

- Retailer alignment
- Investor confidence
- Brand trust
- Lower carbon intensity per unit

Why this matters now:

The organisations that can prove measurable impact will be better placed to protect supplier relationships, investor confidence and long-term credibility.

Sustainability is no longer just compliance - it is differentiation.

Source:
⁹ [Eur-Lex](#)

Challenge 5

Automation and Digital Future-Readiness

Automation as Structural Response



Labour shortages and rising demand are accelerating automation investment across Europe.

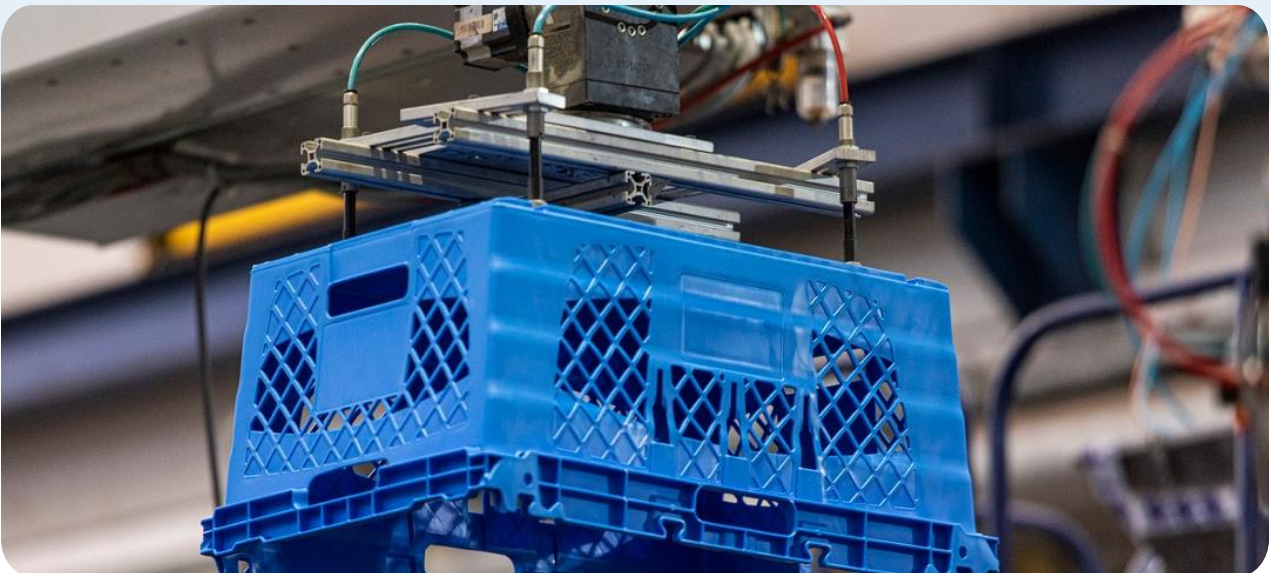
However, automation depends on compatible infrastructure.

Packaging as an Enabler (or Barrier)

Automated systems require consistency.

- System stoppages
- Handling errors
- Reduced throughput

Standardised reusable packaging assets reduce these risks — making it a critical part of automation return-on-investment.



Digital Visibility and Traceability

Data is becoming central to supply chain performance.

Technologies such as RFID and IoT enable:

- **Real-time tracking**
- **Improved inventory accuracy**
- **Better compliance reporting**
- **Enhanced ESG data capture**

Reusable systems, operating within closed loops, enable more accurate and centralised data collection.

Data as Risk Mitigation

Improved data visibility across supply chains enables:

- **More precise recalls**
- **Reduced inventory risk**
- **Lower asset loss**
- **Stronger sustainability reporting**

Why this matters now:

Future-readiness is not simply about installing new technology. It is about ensuring the surrounding infrastructure supports performance, visibility and scale. Packaging decisions increasingly influence whether digital and automation investments perform as intended.



A Structural Response **Emerging**

While these challenges are often addressed in isolation, a clear pattern is emerging.

Across cost, regulation, labour, sustainability and automation, organisations are moving towards standardised, reusable and service-based infrastructure models.

This reflects a broader shift — from transactional purchasing to system-level design.



Integrating the Structural Challenges

These forces reinforce one another:



Cost volatility increases pressure on efficiency



Regulation increases financial and reporting exposure



Labour shortages accelerate automation needs



Automation demands standardisation



ESG requires measurable performance

Packaging sits at the centre of this system. When treated as infrastructure, its strategic importance becomes clear.

The European Outlook to 2030

By 2030, supply chains are likely to be:

- More regulated
- More automated
- More transparent
- More carbon-accountable
- Less tolerant of inefficiency

Volatility will persist. The difference will lie in how systems are designed to withstand it. For supply chain leaders, that means moving beyond isolated improvements and thinking more holistically about infrastructure, data, compliance and resilience.

Infrastructure Defines Competitive Advantage

Reusable plastic packaging is not just a sustainability initiative — it is infrastructure. It enables organisations to:



Decouple costs from volatile commodity markets



Lower Scope 3 emissions per trip through reuse



Embed alignment with evolving regulation (PPWR, EPR)



Enable more consistent automation performance



Reduce labour dependency and handling intensity



Provide system-level data visibility and traceability

The structure of European supply chains has fundamentally changed. The organisations that succeed through 2030 will not be those making incremental adjustments—but those making structural decisions today. The strongest supply chains by 2030 will be those that treat infrastructure choices as strategic choices. Reusable, pooled packaging systems are increasingly emerging as a structural response to these challenges.

Ready to switch to reusable packaging? Visit

toscaltd.uk



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Discover the future of sustainable supply chains.

Learn how reusable packaging can help your business navigate the five structural challenges shaping European supply chain success by 2030.

Contact us today to start the conversation.

www.toscaltd.com/contact

