

Transport Costs: Cost Factor and Cost Reduction Potential in Industrial Procurement

Transport costs refer to all costs incurred through the carriage of goods, materials and finished parts along the supply chain. In industrial procurement, they are among the logistical ancillary costs which – depending on product, transport route and delivery terms – account for a considerable share of procurement ancillary costs. Those who systematically record and evaluate transport costs and take them into account in negotiations and product calculations reduce total procurement costs sustainably and improve delivery reliability.

Key facts

- Transport costs comprise freight costs, handling costs, insurance, customs duties and, where applicable, costs for storage and return transport.
- Typically, they account for between 2 and 10 percent of procurement costs, depending on product category and distance.
- The delivery terms (Incoterms) determine from which point the buyer bears the transport costs and transport risk.
- KPIs such as transport cost share of procurement ancillary costs or costs per tonne/km make transport performance manageable.
- Levers for reduction include consolidation, modal shift (e.g. avoiding air freight in favour of sea freight), load optimisation and active freight management.
- Regulatory topics such as Product Carbon Footprint (PCF) and packaging rules (PPWR) increasingly have a direct impact on transport decisions.

Definition: Transport costs

Transport costs are the totality of all expenditure incurred for the physical movement of goods between suppliers, production sites and customers. They are a component of procurement ancillary costs and thus a key factor in landed costs (Total Landed Cost).

Cost components

In addition to the actual freight (road, rail, air, sea, inland waterway), transport costs include costs for handling and transshipment, packaging, transport insurance, customs duties and import charges as well as, where incurred, dangerous goods surcharges, express surcharges or customs clearance costs. In practice, internal factory transfers and return shipments (e.g. reusable packaging, containers) are often also included.

- Base freight per mode of transport and distance
- Surcharges (fuel, express, dangerous goods, night/weekend driving)
- Handling, packaging, loading
- Insurance, customs duties and levies

Distinction from logistics costs

Transport costs are a subcategory of logistics costs; the latter additionally comprise warehousing costs, order picking, inventory holding costs and administrative expenses. This distinction is important for procurement because delivery terms and contract structures (framework agreements in procurement) determine which of these costs lie with the buyer or seller and how they appear in product calculations.

Influencing factors and cost drivers

The level of transport costs is determined by several dimensions simultaneously. Only those who know the drivers can address them systematically in negotiation management and supplier selection.

Delivery terms and Incoterms

Incoterms such as EXW, FCA, DAP or DDP define the point of handover from which costs and risk pass to the buyer. When comparing quotations with different terms, procurement must always calculate on a Total Landed Cost basis, otherwise quoted prices are not comparable. DDP quotations can implicitly hide freight costs and close off negotiation leeway.

- EXW: buyer organises and pays for the entire transport
- FCA: handover at the place of dispatch, buyer bears the main freight
- DAP/DDP: seller bears the freight to the destination or incl. import duties

Mode of transport, distance and product characteristics

Weight, volume, load carrier use, dangerous goods class, value of the goods and urgency significantly determine the price. In practice, road transport is frequently the most cost-effective option for short to medium distances in Europe; from certain volumes, rail, intermodal transport or sea freight become attractive. Express and air freight are typically many times more expensive than standard methods and should remain the exception.

Market and seasonal effects

Freight rates follow cycles: fuel prices, driver shortages, capacity bottlenecks (e.g. before holidays) or geopolitical events change prices at short notice. Rolling contracts with index clauses or thresholds reduce volatility but require clear mechanisms in budgeting.

Methods and approach for cost recording and management

Effective transport cost management begins with transparency: only if freight costs are recorded by item, supplier, mode of transport and site can levers be derived and cost reductions be substantiated.

Cost transparency and data foundation

Systematic recording of freight costs per purchase order or per shipment is recommended, ideally with cost and time stamp. Shipping companies, forwarders and internal sites ideally feed in data via a supplier portal or EDI. This data foundation enables calculation rates per material number and creates the basis for target costing and product calculation.

- Record freight costs per shipment, item and supplier
- Store cost rates in the parts catalogue and calculation models
- Regularly compare actual data against calculation assumptions

Consolidation and modal shift

The most common reduction levers: consolidated deliveries instead of individual deliveries, optimisation of packing density, sequencing of orders and switching the mode of transport. Supplier consolidation reduces deliveries and thus freight costs, but also improves the negotiating position. Scheduling and time management must be harmonised to such an extent that consolidated transports are possible without jeopardising availability to deliver.

- Bundling deliveries (daily slots, consolidation points)
- Replace air freight with sea freight or intermodal transport where scheduling permits
- Agree load carrier and packing density optimisation with suppliers

Contract and pricing design

Contracts with forwarders and suppliers should contain clear freight rates per trade lane, surcharge mechanisms and cooperation obligations. Index clauses with defined reference values (e.g. fuel index) and thresholds create predictability. An important component of negotiation management: framework agreements in procurement with volume tiers and annual price reviews instead of individual order prices.

Key KPIs for transport cost management

Without metrics, transport cost management remains guesswork. A small number of practical, regularly collected KPIs that feed into procurement and, where applicable, supplier evaluation has proven effective.

Cost-related KPIs

Key metrics are the transport cost share of total procurement or procurement ancillary costs, freight costs per tonne or per pallet, and landed costs per material number. These KPIs are typically evaluated monthly or quarterly and used in budgeting and price negotiations.

- Transport cost share of procurement ancillary costs
- Freight costs per tonne / per unit / per shipment
- Total Landed Cost per material number

Efficiency and quality metrics

In addition, metrics such as utilisation rate (load factor), share of express shipments, delivery reliability (OTIF) and damage rate provide indications of optimisation potential. High express shares often indicate scheduling disruptions or weak suppliers; supplier development and the supplier rating build on this.

Risks and controls

Transport costs are not only a cost issue but also a risk and compliance issue. Without adequate controls, hidden costs, lack of comparability and violations of regulatory requirements threaten.

Risks at a glance

Typical risks include hidden freight surcharges, double billing, lack of cost transparency under DDP terms, express transports due to inadequate scheduling, customs and compliance issues in cross-border procurement, and supply failures with dependent modes of transport. Strikes, weather events or geopolitical disruptions also increase costs at short notice – this is where the value of supply

chain resilience management becomes apparent.

- Hidden freight and surcharge costs in sales prices
- Capacity and scheduling failures as a cost risk
- Compliance risks in customs and cross-border trade

Control and compliance mechanisms

Invoice audits (freight cost audits), comparison of planned and actual freight, defined approvals for express shipping and internal policies on delivery terms per material group are key controls. In cross-border procurement, customs tariffs, rules of origin and, where applicable, classification as dual-use goods must be checked; for products relevant to dangerous goods or material compliance, packaging and transport regulations must be observed. Legal details (e.g. customs and tax treatment) should be professionally reviewed on a case-by-case basis.

Current developments: sustainability, digitalisation, resilience

Transport costs are increasingly considered from a sustainability and resilience perspective. The buyer must evaluate not only costs but also CO2 data and supply chain stability.

Sustainability and Product Carbon Footprint

Mode of transport, utilisation and distance directly influence the Product Carbon Footprint (PCF) of procured parts. In practice, the PCF of transport is increasingly being integrated into supply contracts and procurement decisions, also because regulatory frameworks (e.g. packaging and producer responsibility rules such as the PPWR) drive up costs. Fewer shipments, better utilisation and more environmentally friendly modes usually reduce costs and emissions at the same time – a rare win-win.

Digitalisation and freight management

Tracking solutions, digital shipment data and integrated planning systems increase supply chain visibility and enable real-time cost transparency. Automated freight cost reconciliations, delivery and schedule control via a supplier portal and data-based modal decisions shorten response times and reduce sources of error.

Resilience instead of a pure cost focus

Following the disruptions of recent years (pandemic, Suez Canal congestion, geopolitical tensions), buyers are increasingly orienting the evaluation of transport terms towards robustness: reusable packaging concepts, dual sourcing, adequate buffers in scheduling and avoiding critical dependencies on individual modes of transport or corridors. Transport costs thus become a building block of supplier risk management.

Typical metrics

Transport cost share of procurement ancillary costs: typically 5–15 %

depending on product category and distance; important for landed cost comparisons

Freight costs per tonne / per unit: individual per trade lane

enables cost comparison between suppliers and transport modes

Share of express/air freight: frequently target value < 5 %

high shares indicate scheduling disruptions or supplier problems

Load factor / utilisation rate: target value typically > 85 %

higher utilisation reduces transport costs and CO2 at the same time

Delivery reliability (OTIF): > 98 %

reliable delivery dates avoid costly express transports

Practical example

A medium-sized mechanical engineering company with European and Asian suppliers found that the share of transport costs in procurement ancillary costs fluctuated considerably – caused by frequent express air freight, many small deliveries and inconsistent Incoterms. Following a structured analysis, freight costs per material number were made visible, critical parts were calculated in target costing on a landed cost basis, and a package of measures was launched.

- Supplier consolidation and bundling into two consolidated deliveries per week
- Negotiation management with forwarders and binding freight rates in framework agreements in procurement
- Express shipping only with defined approvals and root cause analysis
- Linking freight data to the supplier rating and supplier development

Conclusion

Transport costs are a multi-layered cost driver in industrial procurement that goes far beyond the freight itself. Those who record them systematically, evaluate them on a Total Landed Cost basis and actively address them in calculation, negotiation and supplier management unlock considerable savings potential. The most important prerequisites are data quality, clearly regulated delivery terms and close coordination between procurement, logistics and scheduling. In addition, sustainability and resilience are becoming evaluation dimensions of equal standing alongside price. Those who understand transport costs as a strategic lever also improve delivery reliability, CO2 balance and competitiveness.

Frequently asked questions

What counts as transport costs?

Transport costs include freight costs for all modes of transport, surcharges (e.g. fuel, express, dangerous goods), costs for packaging and handling, transport insurance as well as customs duties and import charges. Depending on the context, internal factory transfers and return shipments (e.g. reusable packaging) are also included. They form part of the procurement ancillary costs and therefore of the Total Landed Costs.

How high are transport costs in procurement typically?

In practice, transport costs typically account for between 2 and 10 percent of procurement costs, depending on product category, distance and mode of transport – and considerably more for bulky or urgent goods. The exact value depends on Incoterms, packing density and delivery frequency. An individual calculation per material group is therefore essential.

How can transport costs be reduced in procurement?

Proven levers include consolidating shipments, optimising packing density and load carriers, modal shift (e.g. avoiding air freight in favour of sea freight), better scheduling to avoid express shipping, and active negotiation management with freight rates anchored in framework agreements in procurement. Supplier

consolidation also reduces the number of shipments and costs.

What role do Incoterms play in transport costs?

Incoterms such as EXW, FCA, DAP or DDP determine from which point the buyer bears the costs and risk of transport. Without standardised delivery terms, quotations are not comparable, and freight costs can be 'hidden' in sales prices. A calculation on a Total Landed Cost basis with harmonised terms per material group is recommended.

Why are transport costs relevant for sustainability and PCF?

Mode of transport, distance and utilisation directly influence the Product Carbon Footprint (PCF) of procured parts. Fewer, better-utilised and more environmentally friendly transports usually reduce both costs and emissions. Regulatory requirements such as the PPWR (packaging) further increase the pressure to act in the transport area.

Which KPIs are suitable for managing transport costs?

Proven metrics are the transport cost share of procurement ancillary costs, freight costs per tonne or unit, Total Landed Cost per material number, supplemented by utilisation rate, express share and delivery reliability (OTIF). These KPIs are typically evaluated monthly and feed into budgeting, supplier rating and price negotiations.