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Purchasing and supplier selection: calculating total landed cost

The purchasing process from need to order, supplier selection with weighted scoring, make or buy, the Kraljic matrix, and comparing quotes on total landed cost rather than price

Author: Özgür Konakcı · Level: Intermediate · Version: 11 November 2026

Online interactive version: **https://ozgurkonakci.com/en/guide/purchasing-supplier-selection/**

SHORT ANSWER

Total landed cost is the full cost of getting a product from the factory to your door: goods price + freight paid by the buyer + insurance + customs duties + other import charges + inland transport. The cost of capital tied up during the lead time can be added too. Supplier quotes should be compared on this total, not on unit price; a quote with a higher unit price can work out cheaper if its freight, duty and lead time are lower. For a VAT-registered buyer, import VAT is usually recoverable, so it is a cash-flow item rather than a cost.

The purchasing process: from need to order

Two related words describe the work. **Procurement** covers all the processes involved in obtaining goods and services: sourcing, negotiation and supplier selection. **Purchasing** is the more transactional part within it: turning requests into orders and following them up. The open textbook *Procurement in the Supply Chain World* describes the process in seven steps:

Step	What happens
1. Identify the need	The need usually comes from demand planning, sometimes from any department
2. Describe it	The purchase requisition states the item or service, quantity, date needed and the authorised requester; drawings are attached for complex parts
3. Search for suppliers	If there is no approved supplier, candidates are found through catalogues, websites, professional bodies and contacts
4. Evaluate and select	A cross-functional team, usually led by purchasing, looks at candidates' capabilities such as quality, management and capacity
5. Request a price or quote	A price is requested for simple, low-value items; a **request for quotation (RFQ)** asking for specifications, price and delivery details goes out for complex, expensive items
6. Place the order	Price, delivery and quality are negotiated if needed, then a purchase order (PO) is issued

Step	What happens
7. Evaluate performance	Deliveries are checked against the order; quality, on-time delivery, cost and responsiveness are tracked with scorecards

In practice, goods receipt, invoice checking and payment also sit between these steps. The risk of the payment method is a separate decision, covered in **Payment methods and letters of credit**.

For a small business that imports, the critical moment is step 5. Quotes arrive under different Incoterms rules, with different lead times and from different origins. Comparing prices before bringing them to a common basis is misleading. The rest of this page shows how to build that basis.

Supplier selection: criteria and weighted scoring

Price is not the only criterion. *Procurement in the Supply Chain World* lists 16 evaluation criteria and notes the list is not complete. They include location, cost structure, process and technology capability, quality capability, financial stability, environmental compliance, working conditions and the supplier's own supplier network.

The common way to turn criteria into a decision is **weighted scoring**:

1. Choose the criteria that matter.
2. Give each a weight so that the weights add up to 100%.
3. Score every supplier on every criterion on the same scale.
4. Multiply each score by its weight and add up. The highest total wins.

The scorecard is also a record of the decision: you can show later why the order went to that supplier.

Example: Three candidates scored on a 1–5 scale (5 is best). The cost criterion is scored on the **total landed cost** calculated below, not on unit price.

Criterion	Weight	A	B	C
Total landed cost	40%	4 → 1.60	5 → 2.00	3 → 1.20
Quality	25%	3 → 0.75	4 → 1.00	5 → 1.25
Delivery reliability and lead time	20%	3 → 0.60	4 → 0.80	5 → 1.00
Financial strength and risk	15%	4 → 0.60	3 → 0.45	4 → 0.60
Total	100%	**3.55**	**4.25**	**4.05**

With these weights B wins. Change the weights to cost 25%, quality 35%, delivery 25%, finance 15% and the result changes: A 3.40, B 4.10, C 4.35, and C moves ahead. The winner changes although the scores stay the same, which shows that the real decision is made when the weights are set. So set them with the departments involved before the quotes arrive. For sensitivity analysis in spreadsheet models see **Pricing and decision models**.

Make or buy

Should a part be made in-house or bought in? The OpenStax managerial accounting textbook recommends looking only at **relevant costs** in this decision, meaning the costs that differ between the two options:

- The **variable costs** of making the part (direct materials, direct labour, variable overhead) are relevant; they disappear if you buy.
- **Fixed costs** that continue either way are irrelevant and stay out of the comparison.
- **Fixed costs that disappear** if you buy are relevant and are added to the make side.
- Whether freed capacity can be used for other work also has to be considered.

Qualitative factors matter as much as the numbers. Is the supplier's quality good enough, is delivery reliable, can the supplier raise prices without a long-term agreement, can it keep producing the quantity you need? How would buying in affect staff and reputation? Once the answer is "buy", the cost of the outside supplier is its total landed cost, not its price.

The Kraljic matrix: not every item needs the same strategy

In "Purchasing Must Become Supply Management", published in *Harvard Business Review* in 1983, Peter Kraljic proposed classifying purchased items on two axes:

- **Profit impact:** purchase volume, share of total cost, effect on quality or growth.
- **Supply risk:** availability, number of suppliers, competing demand, make-or-buy options, storage risk and substitutability.

	Low supply risk	High supply risk
High profit impact	**Leverage items:** use your full purchasing power; supplier selection, substitution, targeted negotiation, the mix of contract and spot buying	**Strategic items:** long-term supply relationships, detailed market research, risk analysis and contingency planning
Low profit impact	**Non-critical items:** standardise products, optimise order volumes and inventory, process efficiently	**Bottleneck items:** secure volume, at extra cost if necessary, protect with inventory, keep a backup plan

The matrix also tells you how carefully to calculate landed cost. On leverage items a few percent means a lot of money, and quote comparison pays off most. On bottleneck and strategic items the cheapest quote may be the wrong choice if it raises supply risk.

Total cost of ownership and total landed cost

Total cost of ownership (TCO), in the words of Ellram's 1995 article, is both a method and a way of thinking that looks beyond price. *Procurement in the Supply Chain World* defines TCO as the purchase price plus the costs of acquiring, using, managing, maintaining and disposing of an item. Items such as inbound transport, inspection and testing, rework, storage, scrap, warranty, downtime and returns also belong in the calculation. According to the same book, on average at least a quarter of the unit cost savings from global purchasing can disappear once TCO is taken into account.

Total landed cost is the part of TCO up to the point the goods reach your door. A guide from the U.S. Commercial Service, part of the US Department of Commerce, defines it as everything it costs to bring a product from the factory to the customer's door. The calculation on this page is made up of these items:

> **Total landed cost = goods value + freight + insurance + customs duty + other import costs + inland transport + inventory carrying cost**

Item	Notes
Goods value	Unit price × quantity
Freight and insurance	Only the part paid by the buyer; depends on the Incoterms rule
Customs duty	Customs value × rate; the rate depends on the HS code and the country of origin
Other import costs	Customs broker, port and terminal local charges and similar
Inland transport	From the port or customs to your own warehouse
Inventory carrying cost	The cost of capital tied up during the lead time: goods value × annual rate × days ÷ 365

The carrying cost item is there so that quotes with different lead times can be compared fairly. A shipment that spends 45 days on the way ties up capital longer than one that arrives in 12. A long and uncertain lead time also calls for more safety stock; that calculation is in **Warehousing and inventory management**.

How the Incoterms rule enters the cost

If two quotes for the same product use different Incoterms rules, their prices cover different items. Roughly, this is what the buyer has to add to the price:

Rule in the quote	What the buyer adds
EXW	Loading, export clearance, main carriage, insurance, import charges and duties, inland transport
FCA, FAS, FOB	Main carriage, insurance, import charges and duties, inland transport
CPT, CFR	Insurance, charges at destination, import charges and duties, inland transport
CIP, CIF	Charges at destination, import charges and duties, inland transport (the seller provides minimum insurance cover)
DAP, DPU	Import charges and duties, remaining inland transport
DDP	The seller also takes on import clearance and duties; agree in the contract how VAT will be paid

The split of costs and risk under each rule is explained in **Incoterms® 2020**. To avoid missing surcharges and local charges in a freight quote, see **Freight quotations and surcharges**.

Customs duty and the logic of VAT

Customs duty is calculated on the **customs value** of the goods. In Türkiye the value is the price paid plus freight, insurance and the other items listed in the law up to the point of entry; in practice it sits at CIF level. Additional customs duty, excise and the import VAT base are covered, with their own calculator, in **How are import duties calculated in Türkiye?**; we do not repeat them here.

Two rules matter for VAT in Türkiye:

- **Base (VAT Law Art. 21):** The import VAT base is the value used for customs duty plus the taxes, fees and charges paid on import and other costs up to registration of the declaration. So VAT is also paid on the customs duty.
- **Deduction (VAT Law Art. 29/1-b):** VAT paid on imported goods and services can be deducted from the VAT the taxpayer charges. There are documentation and time-limit conditions; for imports the VAT must be shown separately on the customs receipt.

For a VAT-registered buyer, import VAT is therefore usually a **cash-flow** item that is paid first and offset later, not a cost. The calculator below also leaves VAT out on that assumption. If you have no right to deduct, or cannot deduct part of the VAT, add it to cost; confirm your position with your accountant.

Example: the quote with the higher unit price can cost less

The two quotes below are for 5,000 units of the same product. **All amounts and rates are examples, not real prices or real duty rates.** Amounts are in USD, with no exchange-rate effect. The duty rates differ only to show that origin can change the rate.

	Supplier A (FOB, distant origin)	Supplier B (FCA, nearby origin)
Unit price	8.00	8.60
Goods value (× 5,000)	40,000.00	43,000.00
Freight paid by the buyer	3,200.00	1,400.00
Insurance	150.00	90.00
Customs value (goods + freight + insurance)	43,350.00	44,490.00
Customs duty (example 6% and 3%)	2,601.00	1,334.70
Other import costs	600.00	500.00
Inland transport	450.00	450.00
Lead time	45 days	12 days
Inventory carrying cost (20% a year)	40,000 × 0.20 × 45 ÷ 365 = 986.30	43,000 × 0.20 × 12 ÷ 365 = 282.74
Total landed cost	**47,987.30**	**47,057.44**
Landed cost per unit	**9.60**	**9.41**

	Supplier A (FOB, distant origin)	Supplier B (FCA, nearby origin)
Share above price	19.97%	9.44%

B's unit price is 7.5% higher, but its total landed cost is **USD 929.86** lower (about USD 0.19 per unit). Freight, customs duty and the shorter lead time make the difference. That is why B scored 5 on cost in the weighted scoring example.

Item (USD)	Supplier A	Supplier B
Goods value	40,000.00	43,000.00
Customs value (CIF)	43,350.00	44,490.00
Customs duty	2,601.00	1,334.70
Carrying cost	986.30	282.74
Total landed cost	47,987.30	47,057.44
Unit landed cost	9.60	9.41

Calculator assumptions:

- The customs value is simplified to goods value + freight paid by the buyer + insurance. If other items such as commissions, packing or royalties must be added, the result will be too low.
- Under C and D rules the freight is in the seller's price; enter 0 for freight. The calculator does not split post-entry costs out of a DAP or DDP price.
- A single customs duty rate is used. If additional customs duty, excise or anti-dumping duty applies, combine the rate or add the amount to other import costs.
- VAT is excluded; import VAT is assumed to be recoverable.
- Inventory carrying cost covers only capital tied up during the lead time and is based on the goods value (assuming payment at order or shipment). Warehouse dwell, safety stock and ordering costs are not included.

Supplier risk and multiple sourcing

The lowest total landed cost means nothing if the goods do not arrive. The aim of supplier evaluation is to reduce the risk that a supplier cannot deliver consistent quality, quantity and cost over time. Risks to look at include the supplier's financial position, hidden risks in its own supplier network, and the extra lead time and inventory that long global chains bring. Good past performance does not guarantee good performance on a new product or contract.

Single source or multiple sources? The textbook *The Business Behind the Business* compares the two approaches:

	Single source	Multiple sources (2–3 suppliers)
When?	Items where you compete on innovation and need close cooperation	Items where you compete on price; when flexibility is needed
Advantage	All the volume with one supplier; a close relationship	Suppliers compete on price; if one fails, another steps in
Risk	The technology may lose its edge; in a dispute neither side has much room to manoeuvre	Each supplier gets less volume; prices or fixed costs may rise

Read together with the Kraljic matrix, a second approved source or safety stock for bottleneck and strategic items can be worth more than a small difference in landed cost. If you use several sources, compare every supplier's quote with the same calculation and track performance with a scorecard.

Sustainable procurement: ISO 20400:2017 is the standard that guides organisations of any size or sector on building sustainability into procurement; it draws on ISO 26000 and was reviewed and confirmed in 2023. As its title says, it is a guidance standard. For emissions reporting in the supply chain and CBAM see **CBAM and sustainable logistics**.

Where to go next in the guide

- Delivery rules and cost sharing: **Incoterms® 2020**
- Calculating the taxes: **How are import duties calculated in Türkiye?**, **HS codes and customs procedures in Türkiye**
- The freight itself: **Freight quotations and surcharges**, **FCL, LCL and freight calculation**
- Payment and insurance: **Payment methods and letters of credit**, **Carrier liability and cargo insurance**
- Inventory and lead time: **Warehousing and inventory management**
- The bigger picture: **Supply chain basics**, **Your first export or import: a step-by-step roadmap**

Where is this topic taught?

Purchasing and supplier management is taught as a separate course in many logistics and supply chain programmes in Türkiye and abroad, and professional certificates give it a module of its own. The examples below come from records we compiled from the programmes' official course pages.

- Aydın Adnan Menderes University (Türkiye) — International Logistics and Transportation (bachelor's) — Procurement Management (ULT423)
- İzmir University of Economics (Türkiye) — Logistics Management (bachelor's) — Procurement Management (LOG 405)
- İzmir University of Economics Vocational School (Türkiye) — Logistics (associate degree) — Purchasing Operations Practice (VSC 203)
- Chalmers University of Technology (Sweden) — MSc Supply Chain Management — Purchasing and supply management (TEK416)

- ASCM — CPIM certification — Module 5: External Supply and Key Support Functions

Test yourself

1. One supplier quotes EXW and another DAP. Can you compare their unit prices directly? *(Answer: No. You need to add loading, main carriage, insurance and import charges to the EXW price; the DAP price already includes most of these. Convert both to total landed cost first.)*
2. In the example, why is B's total landed cost lower even though its unit price is higher? *(Answer: Its freight, customs duty and lead time are lower, and together these outweigh the USD 3,000 price difference.)*
3. Why does a VAT-registered buyer usually leave import VAT out of total landed cost? *(Answer: Under Art. 29/1-b of the Turkish VAT Law, VAT paid on imports can be deducted; it is a cash-flow item, not a cost.)*
4. A part with few suppliers but little effect on your profit: which Kraljic group is it in, and what is the priority? *(Answer: A bottleneck item. The priority is to secure supply, at extra cost if necessary, and protect it with inventory and a backup plan.)*

Frequently asked questions

What does total landed cost include?

The goods price, the freight and insurance paid by the buyer, customs duties, other import costs such as customs broker and port charges, and inland transport to your own warehouse. When lead times are long, adding the cost of capital tied up in transit makes the comparison fairer.

What amount is customs duty calculated on?

On the customs value. In Türkiye it is the price paid plus freight, insurance and the other items listed in the Customs Law up to the point of entry into the country, so in practice it sits at CIF level. The calculator on this page simplifies it to goods value + freight + insurance. For the full calculation see How are import duties calculated in Türkiye?

Should import VAT be added to landed cost?

Usually not for a VAT-registered buyer. Article 29/1-b of the Turkish VAT Law allows VAT paid on imported goods and services to be deducted, so VAT is a cash-flow item that is paid and later offset rather than a cost. For a buyer without the right to deduct, VAT is a cost and should be added.

What is the Kraljic matrix?

A model Peter Kraljic proposed in Harvard Business Review in 1983. It sorts purchased items by profit impact and supply risk into four groups: strategic, bottleneck, leverage and non-critical, and suggests a different purchasing strategy for each.

Should I use one supplier or several?

It depends on the item. A single source brings volume advantages and close cooperation, but a problem at that supplier stops you directly. Splitting the business between two or three suppliers brings competition and backup; in return each supplier gets less volume, and prices or fixed costs may rise.

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