

What is TCO optimization for industrial packaging?

TCO optimisation for industrial packaging goes beyond just looking at the purchase price. It encompasses all costs incurred throughout the entire life cycle of your packaging solution – from purchase and use to maintenance and waste disposal. By mapping out these total costs, you can make smarter decisions that are more cost-effective in the long term and often more sustainable as well. More and more companies are looking to this holistic approach to optimise their packaging processes.

What is TCO optimisation in industrial packaging?

TCO (Total Cost of Ownership) optimisation in industrial packaging is a strategic approach in which you identify and minimise **all costs throughout the life cycle** of a packaging solution. Unlike the traditional focus on purchase costs alone, TCO looks at the complete cost picture, including use, maintenance, transport, storage and waste disposal.

In industrial packaging, the difference between purchase price and total cost of ownership is often considerable. Packaging with a lower purchase price can ultimately be more expensive if, for example, it is more susceptible to damage, provides less protection (leading to product damage) or is not reusable.

Companies that apply TCO optimisation take a critical look at questions such as:

- How long will this packaging last?
- What are the maintenance costs?
- How efficient is the packaging process?
- What are the transport costs per unit?
- Is reuse possible and what are the benefits?

By taking this broader view, companies often discover that investing in higher-quality, more sustainable packaging solutions yields long-term cost savings, while also contributing to sustainability goals.

What costs are included in a TCO analysis for packaging?

A complete TCO analysis for industrial packaging includes various direct and indirect cost components that together form the total cost picture. It goes beyond just the purchase price and maps out **all costs during the life cycle**.

The most important cost components are:

- **Purchase costs:** The initial investment in the packaging, including design, engineering and production
- **Operational costs:** Costs related to the packaging process, such as labour, materials and energy
- **Transport costs:** Costs for transporting packaging, including fuel, freight costs and handling
- **Storage costs:** Costs for storing packaging and packaged products
- **Maintenance costs:** Costs for repair, cleaning and maintenance of reusable packaging
- **Waste disposal costs:** Costs for the disposal and processing of packaging waste
- **Damage costs:** Costs resulting from product damage due to insufficient protection

In addition, there are also hidden costs that are often overlooked:

- **Administrative costs:** Time and resources spent on managing packaging processes

- **Compliance costs:** Costs of complying with regulations and certifications
- **Environmental costs:** Potential costs due to environmental impact, including CO2 tax
- **Missed opportunities:** Costs due to inefficient processes that block other opportunities

By taking all these cost components into account, you get a realistic picture of what a packaging solution really costs, enabling you to make better decisions.

How do you calculate the TCO for your industrial packaging?

Calculating the Total Cost of Ownership for your industrial packaging involves a number of logical steps. By following this method, you will gain a **complete insight into the actual costs** and be able to compare different options objectively.

Follow this step-by-step approach:

1. **Define the service life:** Determine how long the packaging will be used (e.g. 3, 5 or 10 years)
2. **Identify all cost components:** Make a list of all relevant costs as described above
3. **Collect cost data:** Collect concrete figures for each cost component
4. **Calculate the annual costs:** Divide one-off costs over the lifespan and add up the annual costs
5. **Calculate the total costs:** Multiply the annual costs by the lifespan
6. **Divide by the number of usage cycles:** For reusable packaging, calculate the costs per use

The basic formula for calculating TCO is:

$$\text{TCO} = \text{Purchase cost} + (\text{Annual operating cost} \times \text{Lifespan}) + \text{Disposal cost} - \text{Residual value}$$

For reusable packaging, you can also calculate the cost per cycle:

$$\text{Cost per cycle} = \text{TCO} \div \text{Total number of usage cycles}$$

Let's illustrate this with an example: Suppose you are comparing two packaging options:

- **Option A:** Cheaper disposable packaging (€5 per item, single use)
- **Option B:** More expensive reusable packaging (€50 per item, 20 usage cycles, €2 maintenance costs per cycle)

$$\text{TCO Option A (for 20 cycles): } 20 \times \text{€5} = \text{€100}$$

$$\text{TCO Option B: } \text{€50} + (20 \times \text{€2}) = \text{€90}$$

In this example, option B is ultimately more cost-effective, despite the higher purchase price. This illustrates how TCO analysis helps you look beyond the initial costs.

Why is circular packaging an important aspect of TCO optimisation?

Circular packaging is an **essential pillar of TCO optimisation** because it directly contributes to long-term cost reduction while also delivering sustainability benefits. Circular packaging focuses on maximising value over multiple life cycles, rather than the single-use and disposable model.

The main ways in which circular packaging contributes to TCO optimisation are:

- **Reuse:** By using packaging multiple times, the initial production costs are spread over several usage cycles, which significantly reduces the cost per use.
- **Repair:** Repairing damaged packaging is often much cheaper than purchasing new packaging, which extends its lifespan and reduces the TCO.
- **Recycling:** At the end of its life, materials can be recovered and reused, reducing waste costs and potentially even creating residual value.

Practical example: A robust flight case designed for reuse may initially be more expensive than a traditional wooden crate, but if it can be used 20-30 times with minimal maintenance, the cost per usage cycle drops dramatically. In addition, it offers better protection, which reduces product damage.

Circular packaging solutions also offer indirect cost benefits:

- Reduced waste disposal costs due to less waste
- Lower compliance costs by meeting increasingly stringent environmental legislation
- Improved business reputation through more sustainable practices
- Future cost savings through reduced dependence on new raw materials

By integrating circular principles into your packaging strategy, you not only create a more sustainable solution, but also build a more economically advantageous model in the long term.

What are the advantages of TCO optimisation for your logistics processes?

TCO optimisation of industrial packaging delivers **significant operational and financial benefits** for your logistics processes. These benefits extend beyond cost savings and contribute to a more efficient, reliable and sustainable supply chain.

The main advantages are:

- **Improved protection and less damage:** Optimal packaging designed from a TCO perspective offers better protection, resulting in less product damage during transport and handling. This significantly reduces replacement and warranty costs.
- **More efficient transport processes:** TCO-optimised packaging is often lighter and more stackable, leading to lower transport costs through more efficient use of space and lower weight.
- **Streamlined handling and storage:** Standardised, user-friendly packaging solutions speed up loading and unloading processes and optimise storage space, reducing labour and storage costs.
- **Improved traceability:** Modern packaging solutions can be equipped with tracking technologies, leading to better visibility in the supply chain and fewer losses.
- **Increased sustainability:** TCO-optimised packaging is often reusable or recyclable, reducing waste and contributing to sustainability goals.

Practical example: For companies in the defence or medical sectors, a TCO-optimised packaging solution can mean the difference between damaged equipment and perfectly functioning equipment at critical moments. The initial investment in high-quality, customised packaging pays for itself through reduced downtime, longer service life and better operational performance.

By applying TCO optimisation to your packaging processes, you create a competitive advantage through:

- Lower total costs in the long term
- Improved customer satisfaction due to fewer damaged products
- Greater reliability in your supply chain
- Better alignment with sustainability objectives

TCO optimisation requires an initial investment in time and resources, but the results deliver a lasting return that significantly improves the operational efficiency and financial performance of your logistics processes.

At Faes, we understand that every packaging challenge is unique. As experts in customised industrial packaging, we are happy to help you optimise the TCO of your packaging processes. We look not only at the packaging itself, but at your entire supply chain to create a solution that perfectly matches your specific needs.