WHITEPAPER | PROCUREMENT & ENGINEERING

Whitepaper

The Unit Price Deceives

Total Cost of Ownership in connection technology – why the cheapest line item is rarely the cheapest solution

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Table of Contents

01 The Iceberg
02 Hidden Cost Drivers
03 Designing for Cost Efficiency
04 Avoiding Downstream Costs
05 Tooling Costs as a Lever
06 Questions for Procurement
07 Conclusion

01 The Iceberg

Every quotation contains one figure that everyone understands: the unit price. It is tempting, because it can be compared directly. And it is misleading, because it reflects only a fraction of the actual costs. Anyone who selects a connection component on unit price alone optimises the visible tip – and pays for it elsewhere. This whitepaper reveals what lies beneath.

One simple image captures the cost reality in connection technology perfectly: the iceberg. The part price is the tip above the waterline – the only thing visible in the initial quotation. Experienced buyers know, however, that around two thirds of the costs lie below the surface, in factors that carry no price tag: manufacturing technology, material choice, surface finish, packaging and logistics, plus tooling, rework and scrap.

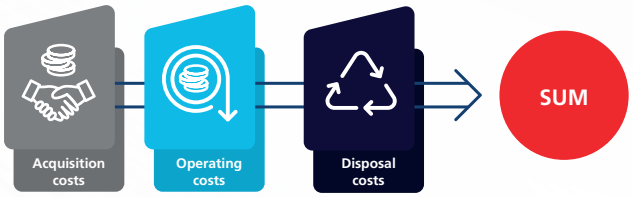


Fig. 1 caption: Alongside acquisition costs, the classic TCO model also considers costs that arise during use and at end of life. For connection elements, it is above all tooling, processing, quality and downstream costs – defined at the start of a development project – that matter for the overall economic assessment.

These hidden shares determine the overall cost – the Total Cost of Ownership (TCO). Reducing the unit price alone often merely pushes costs downward, where they continue to act unseen. Considering the entire chain, by contrast, reduces the total cost, not just the individual price.



Visible costs **20 - 30 %**

Unit price

Hidden costs **70 - 80 %**

Manufacturing technology
Design, forming steps, process effort

Material & surface
Base material, plating, corrosion protection, whisker risk

Packaging & logistics
Delivery form, packaging, transport, handling

Tooling
Tooling costs, modifications, setup effort

Rework & scrap
Tolerances, distortion, defects, scrap rate

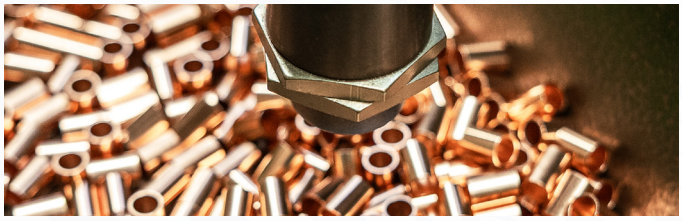
Downstream costs in the field
Field effects, failures, complaints, warranty, reputation

Fig. 2 caption: The TCO iceberg. The unit price is only the tip. Around two thirds of the total cost arise unseen below the waterline.

02 Hidden Cost Drivers

Manufacturing technology:

A part poorly designed for series production creates additional effort with every single piece.



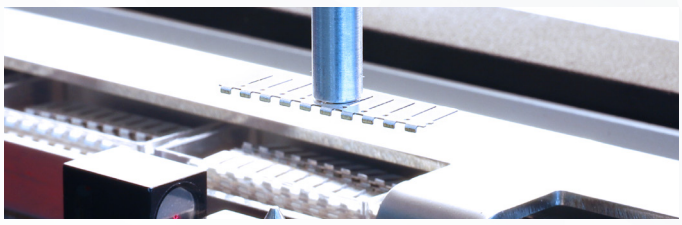
Packaging & logistics:

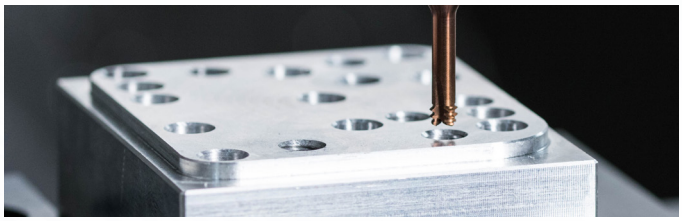
The form of delivery – loose, taped or in a blister – directly influences the processing effort at the customer's end.



Rework & scrap:

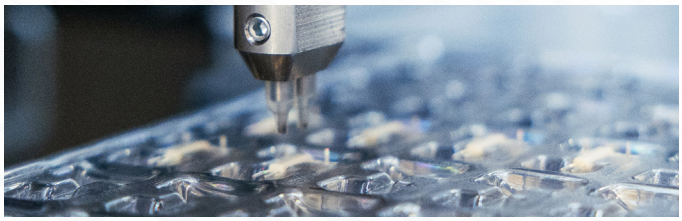
Tolerances, distortion and handling translate into a scrap rate that never appears in the unit price.





Material & surface:

The wrong plating saves a few centimes at purchase and costs many times more later on.



Tooling:

Tooling costs are not a fixed block but a lever that can be adjusted deliberately.



Downstream costs in the field:

A defect that only surfaces at the customer brings failures, complaints and warranty claims in its wake and damages reputation, without ever appearing in the unit price.

03 Designing for Cost Efficiency

A standard article is inexpensive because it runs in series of millions – the tooling and setup costs spread across a vast quantity. This very logic breaks down as soon as only a few thousand pieces are needed. When small quantities are produced as a customer-specific version, development, tooling and setup costs spread across far fewer parts.

At the same time, component design also determines how economical a solution is. Even small design adjustments – for example to geometry, tolerances or material – can allow existing tooling to be used, simplify manufacturing processes and significantly reduce production costs.

For procurement this means: the question is not only "What does the part cost?" but "Does the procurement logic match the quantity and the technical design?" Regardless of the production volume, it pays to look closely at how a component is designed and manufactured – because that is often exactly where the greatest cost savings lie.

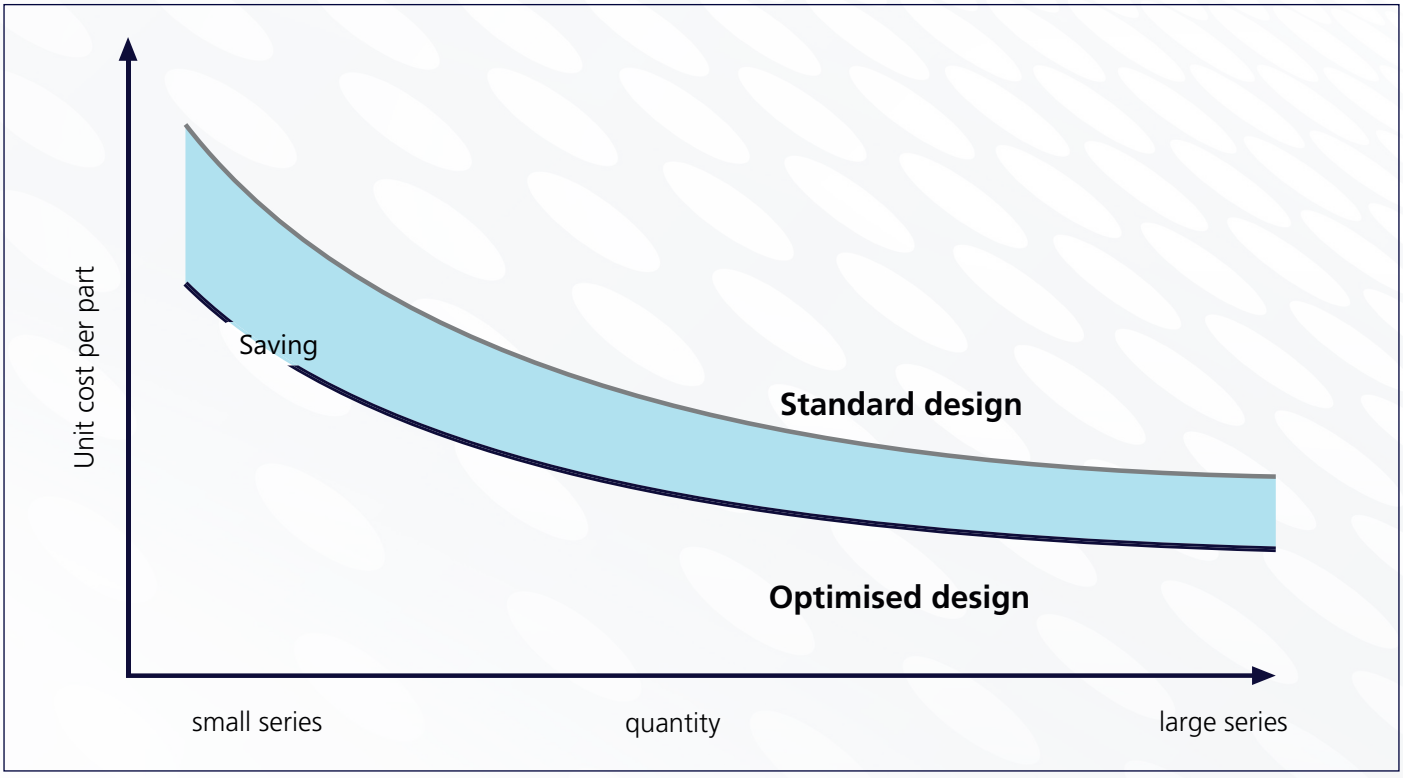


Fig. 3 caption: Quantity alone does not determine cost. A well-considered design noticeably lowers unit costs, particularly for small series.

04 Avoiding Downstream Costs

Even small design or manufacturing decisions can significantly influence the total cost across the entire product life cycle.

Two examples show how a well-considered decision at the outset prevents downstream costs elsewhere.

Material and surface selection
The choice of base material and of a suitable surface and barrier layer affects corrosion resistance, solderability and long-term reliability.

The additional effort for a technically suitable plating is often small, yet it can prevent corrosion and contact problems, reduce the risk of tin whiskers and thereby avert costly field failures.

Automation through suitable packaging
With SMD tab terminals, it is not only the component itself that determines cost-effectiveness, but also how it is presented for automated placement.

Applying an assembly aid creates a defined pick-up surface for the vacuum nozzles of pick-and-place systems. Combined with matched blister packaging, the component can be fed and placed automatically with reliable process control. This additional manufacturing step at the supplier permanently reduces the automation and handling effort at the customer.

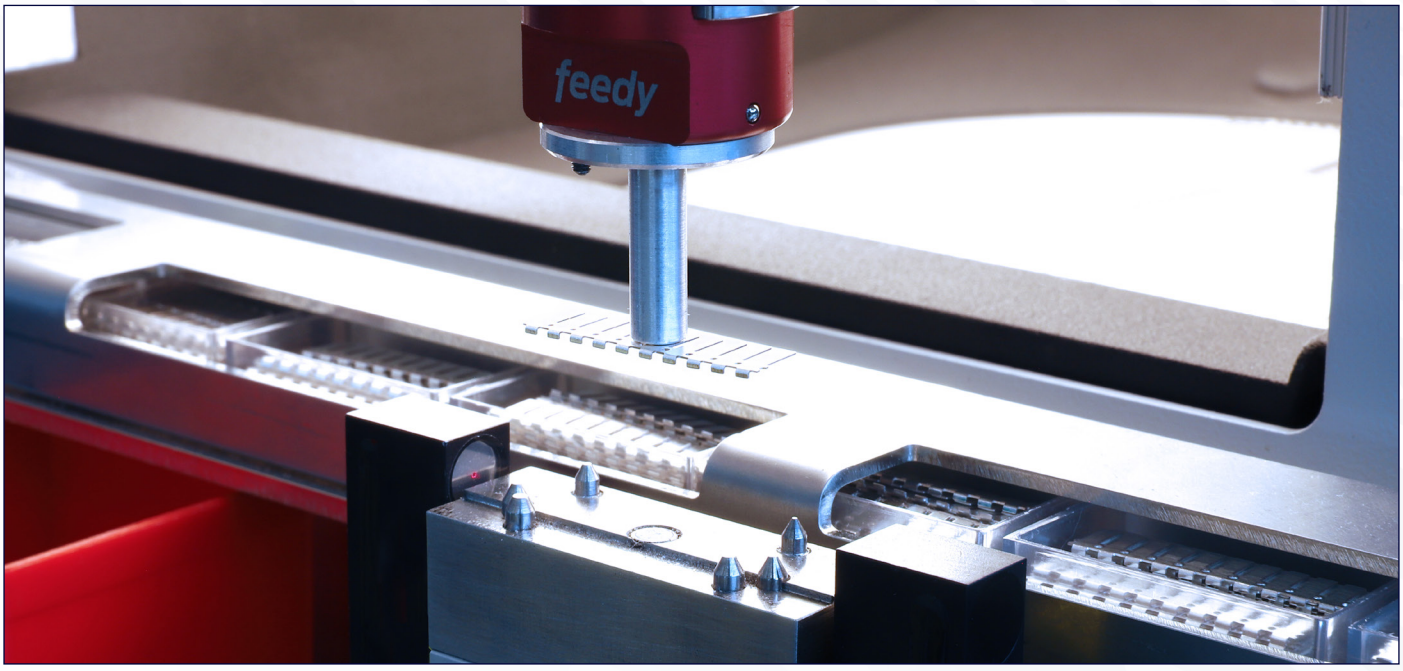


Fig. 4 caption: Automated placement with pick-and-place. An assembly aid creates the defined pick-up surface for the vacuum nozzle and makes the component reliably feedable.

05 Tooling Costs as a Lever

The difference between developing a completely new tool and making a targeted tool modification is often several thousand francs. Whether an existing tool can be reused depends on how far the required geometry, tolerances and technical requirements can be reconciled with the existing manufacturing concept.

A practical example shows the potential: for the small series of a stamped and formed part, an existing stamping tool could continue to be used with a minor modification to the cutting punch. A new tool was not required.

As a result, the tooling costs fell to under 1,000 francs, instead of the several thousand francs a new tool would have cost.

The real cost lever therefore lies not in the tool itself, but in the early analysis of the technical requirements and the available manufacturing options.

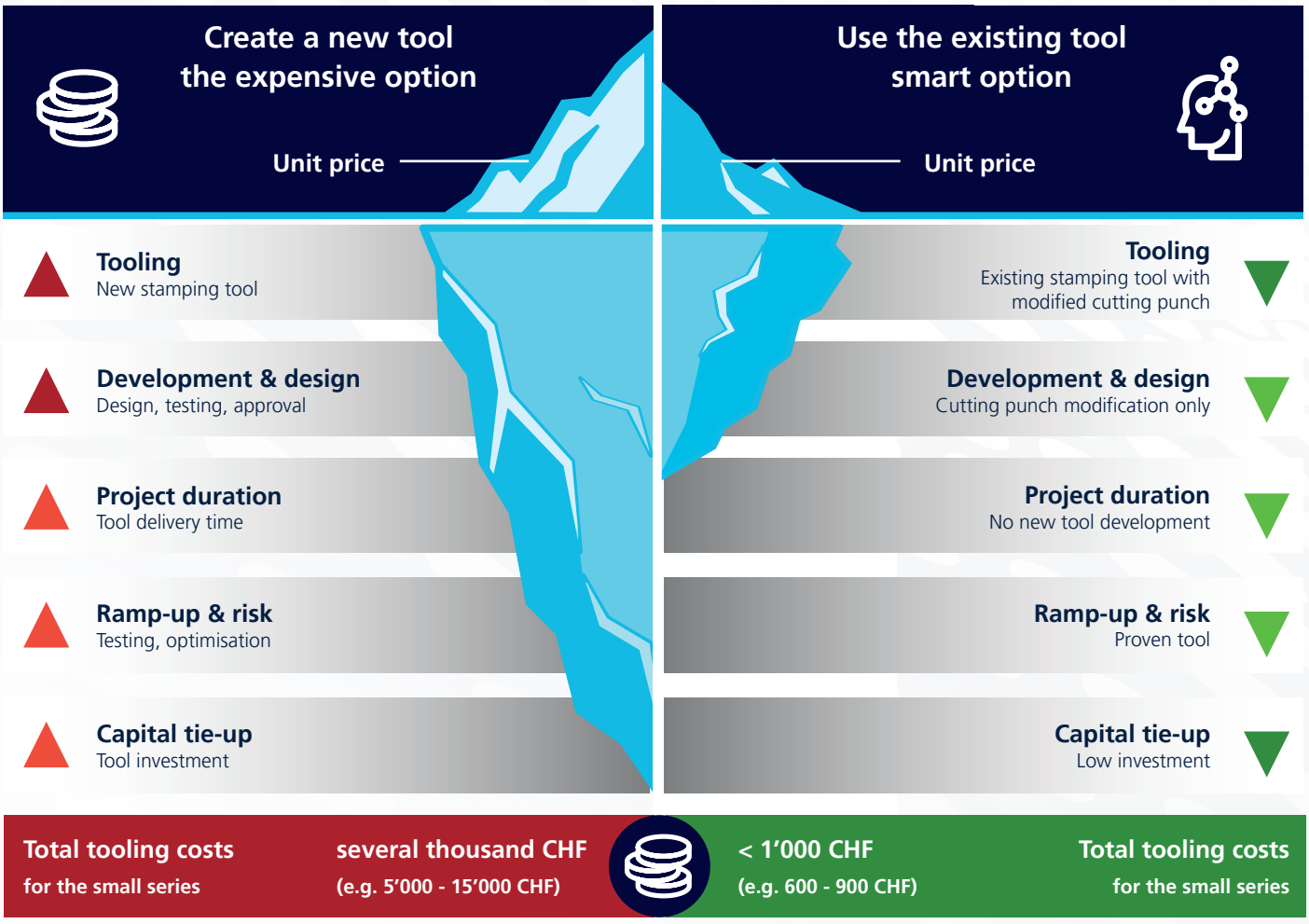
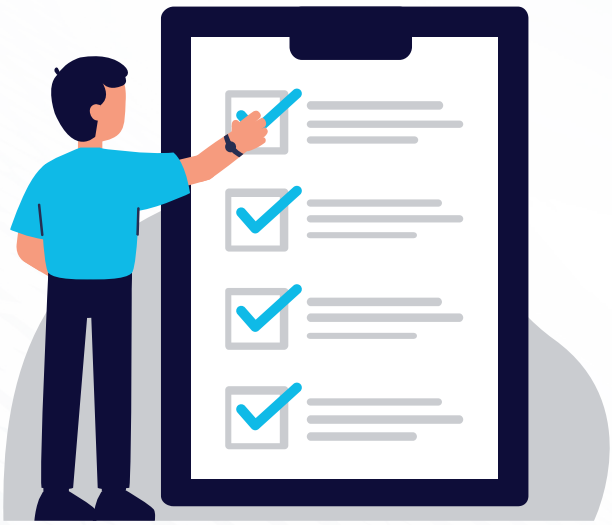


Fig. 5 caption: Similar part price, very different total costs. A new stamping tool ties up several thousand francs; the smart option uses an existing tool at a fraction of that.

06 Questions for Procurement

These questions help to assess a line item not only by unit price but by total cost:



- ☐ Is the manufacturing concept matched to the planned quantity?
- ☐ Can a standard article or an existing manufacturing concept be used?
- ☐ Is a new tool really necessary?
- ☐ Are material and surface finish optimally matched to the application?
- ☐ Does the packaging suit the automation?
- ☐ What costs arise across the entire product life cycle?

07 Conclusion

The unit price is only the tip of the iceberg. Besides the unit price, a substantial part of the total cost can arise from manufacturing, material, surface finish, packaging, logistics and later downstream costs. Considering these factors together from the outset leads to better decisions and lastingly lowers the total cost.

After all, the greatest savings usually come not from price negotiation but from early technical decisions – the sooner purchasing, development and supplier work together, the greater the scope for economical solutions.

Let us do the maths together: bring your application, quantity and requirements – and we will show you where the total costs really lie in your case.

Vogt AG Verbindungstechnik
Electromechanical connection technology from Switzerland since 1962. Around 120 employees, four production sites and a range of some 10,000 articles in stamped, tube, wire and plastic parts – complemented by in-house toolmaking, a 3D measuring laboratory and customer-specific development.