

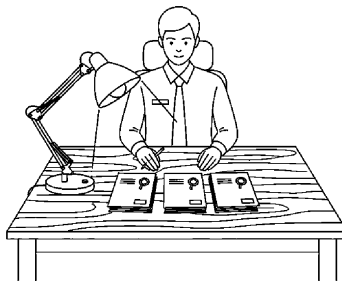
NICHE-SEARCH

WORKSHEET 4 OF 9

# TCO Comparison for Capital Equipment

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*For equipment or machinery purchases above \$1,500 where unit price comparisons alone are insufficient. Run once per purchase event.*



Complementary worksheet for  
*Procurement Best Practices*  
by Ibrahim Anwar

## What This Is For

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When three vendors quote on a packaging machine, a compressor, or a forklift, the price column tells you the least useful part of the story. What you actually pay over the asset's life includes installation, training, annual maintenance, consumables, downtime when it fails, and disposal. A vendor quoting \$8,200 with a three-year lifespan can cost \$4,000 more than a vendor quoting \$11,500 with a six-year lifespan and a \$200 annual service contract. The cheapest quote is often the most expensive purchase.

This worksheet exists for the moment before a capital purchase decision, when the temptation to pick the lowest quoted price is strongest. TCO does not require financial modeling software. It requires asking each vendor the same questions about lifespan, maintenance cost, and downtime consequences, then summing the answers over the same time horizon. That sum replaces the unit price as the comparison unit.

## Benefits

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What you get when you actually run this worksheet on a real situation:

- Makes the full cost of ownership visible before the purchase decision, when it still changes the decision rather than explaining it after.
- Forces vendors to commit to lifespan and maintenance claims in writing, which becomes the basis for warranty conversations if those claims prove false.
- Reveals which vendors cannot quantify their own product's performance — a vendor who cannot explain their lifespan estimate is providing marketing, not specification.
- Produces a defensible, documented basis for selecting a higher-priced vendor when TCO justifies it — essential for any business where procurement decisions face internal or external scrutiny.
- Builds the reference data for future procurements in the same category: what did the actual annual cost turn out to be versus the vendor's estimate?

# Framework To Use

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## — Seven-Element TCO Stack

*Every capital purchase has seven cost layers. Unit price is only the first. Summing all seven over the expected lifespan gives the true comparison unit.*

<u>LAYER 1 – ACQUISITION</u>	<u>LAYER 2 – OPERATION</u>	<u>LAYER 3 – FAILURE</u>
Unit price + delivery + installation + initial operator training	Annual maintenance contract + consumables per year + operator time cost per year	Estimated downtime events per year × cost per downtime event (lost production + emergency repair)

## How To Use

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Follow these steps in order. Each one builds on the previous.

- 1** Define the comparison horizon before contacting any vendor: the number of years over which you will compare costs. Use the shortest claimed lifespan among the vendors as the horizon, so all are compared on equal time.
- 2** Send each vendor the same seven-element cost request alongside the RFQ. Require written answers, not verbal. A vendor who cannot commit to maintenance and downtime estimates in writing is not providing a comparable quote.
- 3** Fill in each vendor's figures row by row in the worksheet. Do not accept 'depends on usage' as an answer — ask for the specific assumption the vendor is using and record that assumption in the Notes column.
- 4** For lifespan: ask what the basis is (hours of operation, cycles, material certification). A vendor stating five years based on similar applications in the same industry is providing verifiable data. A vendor stating five years with no basis is providing an opinion.
- 5** Calculate the downtime cost per event for your own operations before comparing vendors:  $\text{production output per day} \times \text{days lost per failure event} \times \text{margin per unit}$ . This figure is yours, not the vendor's.
- 6** Sum each vendor's seven elements over the comparison horizon. Divide by the horizon years to get the annual equivalent cost per vendor. That figure, not unit price, is the comparison unit.
- 7** Record the winning TCO calculation in the procurement file. If the asset's actual performance later differs from the vendor's estimate, this record is the basis for a warranty or performance conversation.

## Example Use

*A small food processor needs a commercial sealing machine. Two vendors respond to the RFQ: Vendor A at \$3,800 unit price; Vendor B at \$5,400. The owner has always bought from the cheapest vendor but decides to run a TCO comparison for the first time.*

Comparison horizon: 5 years (Vendor A claims 5-year lifespan; Vendor B claims 8 years, but the owner uses 5 to keep the comparison equal).

Vendor A (\$3,800 unit):

Delivery and installation: \$120

Annual maintenance (no contract; owner estimates 1 service call/year at \$180): \$900 over 5 years

Consumables (sealing film, blades): \$240/year = \$1,200 over 5 years

Downtime: vendor estimates 1 failure event per year; owner's downtime cost = \$90/event (half-day lost production). \$450 over 5 years.

Disposal: \$0 (sold as scrap)

Total TCO over 5 years:  $\$3,800 + \$120 + \$900 + \$1,200 + \$450 = \$6,470$

Annual equivalent: \$1,294/year

Vendor B (\$5,400 unit):

Delivery and installation: \$180

Annual maintenance contract: \$240/year = \$1,200 over 5 years

Consumables: \$190/year = \$950 over 5 years

Downtime: vendor estimates 0.3 failure events/year; \$135 over 5 years

Disposal: \$0

Total TCO over 5 years:  $\$5,400 + \$180 + \$1,200 + \$950 + \$135 = \$7,865$

Annual equivalent: \$1,573/year

Vendor A is cheaper on TCO over 5 years: \$1,294/year vs \$1,573/year. The owner selects Vendor A and documents the TCO comparison in the procurement file. Note: if Vendor B's claim of 8-year lifespan is accurate, its annual equivalent over 8 years drops to \$1,138/year — lower than Vendor A. The owner notes this but cannot verify the 8-year claim without a third-party certification, so the conservative 5-year horizon stands.



## Reflection Prompts

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*After filling in the worksheet on the previous page, work through these.*

1. Cost elements to include at minimum: unit purchase price, delivery and installation, operator training if required, estimated annual maintenance, consumables cost per year, estimated downtime cost per failure event over the horizon, and estimated disposal cost. Sum all elements over the comparison horizon. Then divide by the horizon to get annual equivalent cost per vendor.
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2. If one vendor's lifespan estimate is significantly shorter than others: ask for the basis. A vendor who cannot explain their lifespan estimate in measurable terms (hours of operation, cycles, material grade) is providing an unverifiable claim, not a specification.
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# Tips and Traps

## TIPS

- Set the comparison horizon to the shortest claimed lifespan among vendors, not the longest. Comparing on equal time is more defensible than extending to the longest claim.
- Calculate your own downtime cost per event before contacting vendors. This figure belongs to your operations, not theirs. Vendors who offer to estimate your downtime cost for you have a conflict of interest in that estimate.
- Ask vendors to provide the maintenance cost assumption in writing with a basis: 'one service call per year based on X hours of operation' rather than a bare dollar figure.
- File the completed TCO comparison with the purchase order. If the asset's actual maintenance cost turns out to be double the vendor's estimate, this document is what makes the warranty conversation possible.

## TRAPS

- Comparing vendors on unit price after one vendor provides full TCO data and the other does not. An incomplete comparison produces an invalid comparison. Return the incomplete quote for completion.
- Using vendor-provided downtime cost estimates without checking them against your actual production cost per lost day. The vendor has no knowledge of your margin structure.
- Letting the decision default to the lowest unit price when you did not complete the TCO worksheet. The worksheet exists precisely for this moment.

# Appendixes

## Appendix A – TCO Calculation Template

Comparison horizon: \_\_\_ years (use shortest claimed lifespan among vendors)

COST ELEMENT	VENDOR A	VENDOR B	VENDOR C
1. Unit purchase price	\$___	\$___	\$___
2. Delivery + installation	\$___	\$___	\$___
3. Initial training	\$___	\$___	\$___
4. Annual maintenance x horizon	\$___	\$___	\$___
5. Consumables/year x horizon	\$___	\$___	\$___
6. Downtime cost x horizon (events/year x cost/event x yrs)	\$___	\$___	\$___
7. Disposal cost (net)	\$___	\$___	\$___
<b>TOTAL TCO (sum 1-7)</b>	<b>\$___</b>	<b>\$___</b>	<b>\$___</b>
<b>Annual equivalent (total / yrs)</b>	<b>\$___</b>	<b>\$___</b>	<b>\$___</b>

Selected vendor: \_\_\_ Reason: \_\_\_

## Appendix B – Downtime Cost Calculation

Your downtime cost per event:

Daily production output (units or revenue): \$\_\_\_

Average days lost per failure event: \_\_\_

Gross margin per unit or % margin: \_\_\_%

Emergency repair cost (parts + labor): \$\_\_\_

Downtime cost per event =

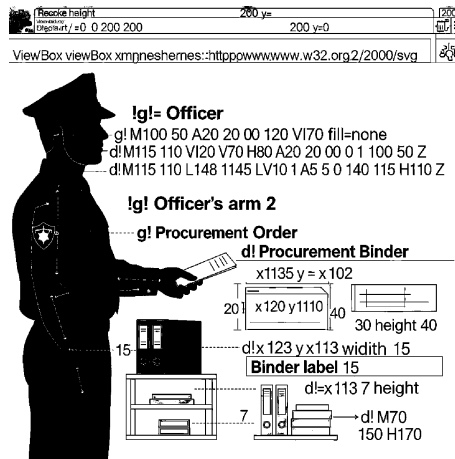
(Daily output x days lost x margin%) + emergency repair cost

Example:

Daily output \$1,200; 0.5 days lost; 35% margin; \$80 emergency repair

= (\$1,200 x 0.5 x 0.35) + \$80

= \$210 + \$80 = \$290 per failure event



WHERE THIS WORKSHEET COMES FROM

## Procurement Best Practices

*Every Rupiah Paid to a Vendor Starts With a Decision Before Signing*

by Ibrahim Anwar

This worksheet is one of nine in the *Procurement Best Practices* companion worksheet pack. The full pack is grouped into three categories: high-volume worksheets you can run weekly, niche-search worksheets for rare but high-value situations, and specific-case worksheets that walk you through a single concrete scenario.

Every framework, decision filter, and figure used in these worksheets is drawn from the chapters of the source book. The book sets the diagnosis, the worksheets give you the form to act on it.

Available on Google Play Books

[play.google.com/store/books](https://play.google.com/store/books)

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