

1.1 Example of TCO calculation

Exercise assignment:

Let's assume a company that wants to buy a new ERP system. For the newly purchased software, it is necessary to purchase the appropriate hardware and provide the interested employees with training and certification.

The seller company has stipulated in its terms and conditions that it provides support to the implemented system only if it is properly upgraded to the latest available version. This is a paid upgrade. Part of the upgrade is the necessary training and certification of all interested employees.

The price of the purchased software includes also its implementation, which is carried out by the employees of the supplier company as part of the ERP delivery and, therefore, does not constitute an additional cost for the buyer company.

We want to determine the total costs of the purchase and operation of the system for a period of 4 years. During this time, we assume inflation, that is, a reduction in the value of money, which we project into the exercise through the discount factor. The determination of the time value is possible, e.g., through the procedure referred to in Chapter 13.2.

The method of expressing the TCO is presented in the following table.

Years	200x	200x+1	200x+2	200x+3	Total
Discount factor	1	0,91130	0,80910	0,69930	
Direct costs					15 485 770
Purchase of hardware	1 300 000				1 300 000
Purchase of software	4 200 000				4 200 000
Initial training and certification	1 700 000				1 700 000
Required software upgrade		2 300 000	2 300 000	600 000	4 376 500
Required additional training and certification		500 000	300 000	500 000	1 048 030
System maintenance and service		1 000 000	1 200 000	1 400 000	2 861 240
Indirect costs					2 636 771
Help desk	520 000	340 000	430 000	400 000	1 457 475
Technical support	420 000	310 000	330 000	300 000	1 179 296
Total costs	8 140 000	4 450 000	4 560 000	3 200 000	18 122 541

Table 1 TCO calculation

In the table above, we have presented and found the following:

- the first column identifies all the factors that affect the cost of acquisition and operation of the new ERP,
- the other columns contain the amounts that will be paid to the software supplier (everything is contractually stipulated, i.e. the amounts are unchanged for all four years),
- the "Discount factor" row contains the estimated depreciation of money that should be applied to the amounts that are stated for the individual cost factors,
- the "Total" column contains the calculated sum of the costs for the entire duration of the contractual relationship between the seller and the buyer of the information system.

The calculations made it clear that the initial costs associated with the purchase of HW, SW and staff training and certification amount to CZK 7.200.000. The system operation (including the required upgrade, training and certification) over the next three years totals CZK 8.285.770, which is more than the initial investment costs. Total direct costs are estimated at CZK 15.485.770.

Indirect costs are estimated in the first year at CZK 940 000 and in subsequent years at CZK 1 696 771. Total indirect costs amount to CZK 2 636 771.

The ascertained ratio between direct and indirect costs is not very common in practice because usually indirect costs are higher than direct costs. In this case, the finding can be justified by a significant simplification of the example, while maintaining the basic principles of TCO determination.

This approach was focused, in particular, on the time value and, except for the last two rows in the table, does not contain the proportion of indirect costs on which the TCO models are focused according to Gartner.