

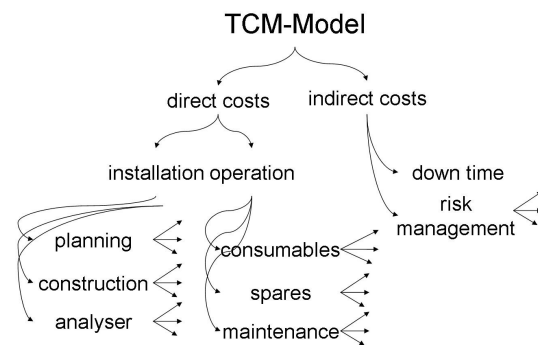
Total Cost of Measurement TCM. How to value online measurements.

The TCM-Model calculates the total costs of installation and operation based on a single measurement over 5 years life time.

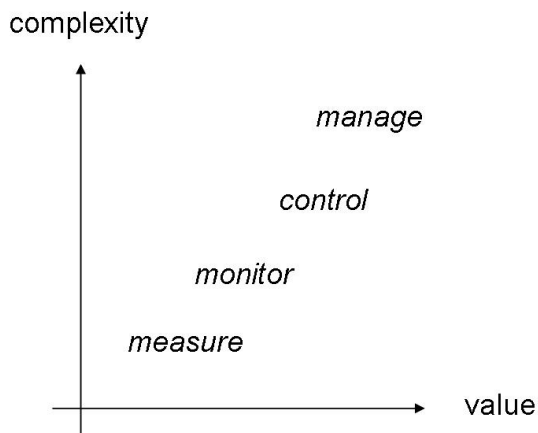
To compare costs for online analyser measurements a common model is needed. The TCM-Model is the starting point get transparency over the costs for online measurement (and other measurements as well).

Beside choosing the right instrument this model can help to value the measurement task and then support your decision to measure in house or external and laboratory versus online.

Direct costs are accountable for installation and operation. In operational costs are costs for people and maintenance and consumables.



To compare costs a common model for calculation is needed and basis for comparison and enhancements.



Application creates Tasks. Task creates Value. Task drives Complexity. Complexity drives TCM.

The TCM-Model defines direct and indirect costs. Indirect costs are costs for downtime and additional risks, i.e. when using toxic reagents, TCM will increase.

Today we see world wide big differences in people costs. Therefore TCM comparisons at this time should be done locally. Because of the very fast market growths in India, China and Russia we expect a shortage of educated and trained people. This will increase the costs for engineers to almost European levels.

What drives most the TCM?

- Complex Analyser.
- Complex Task.
- Maintenance Tasks.

What lowers most the TCM?

- Robust Analyser.
- Easy to Operate.
- Non toxic Reagents.

The TCM in Europe for online analyser is EUR 2,70. The share is 50% for maintenance, 25% for investment and installation and 25% for consumables and spare parts.