



PRINCIPLES OF COST ANALYSIS



The Auditor's Office developed a white paper sharing the criteria we use when evaluating cost analyses.

The white paper includes:

- guidance elements that should be documented by the agency, and
- principles that are best practices in comparing alternatives

This document provides a visual description of those principles.



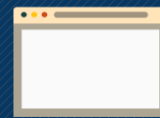
Icons you'll see in the nine principles below:



Example Project



Costs/
Benefits



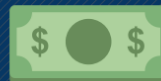
Analysis



Item



Problem



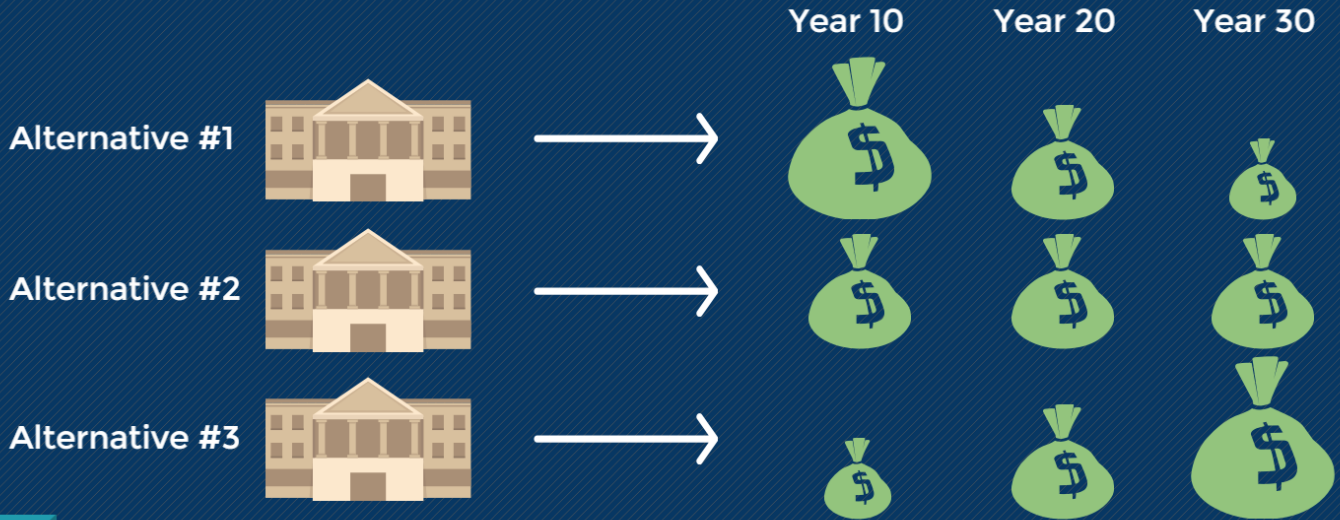
Net Present Value (NPV)



Combined Costs/Benefits

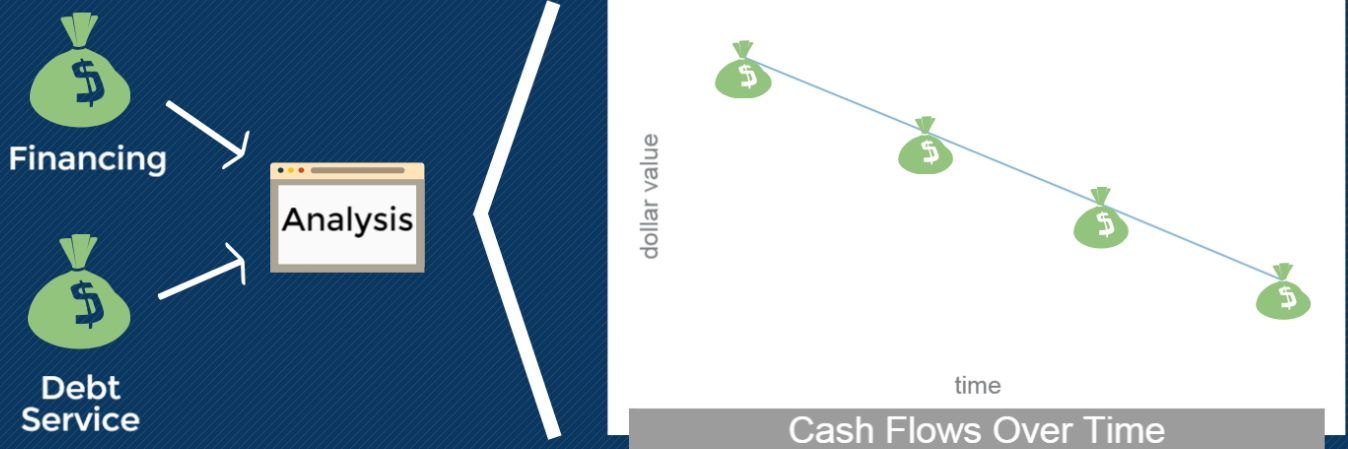
Principle 1

Analysis should include all of the estimated cash flows associated with each alternative over the estimated useful lives of the alternatives.



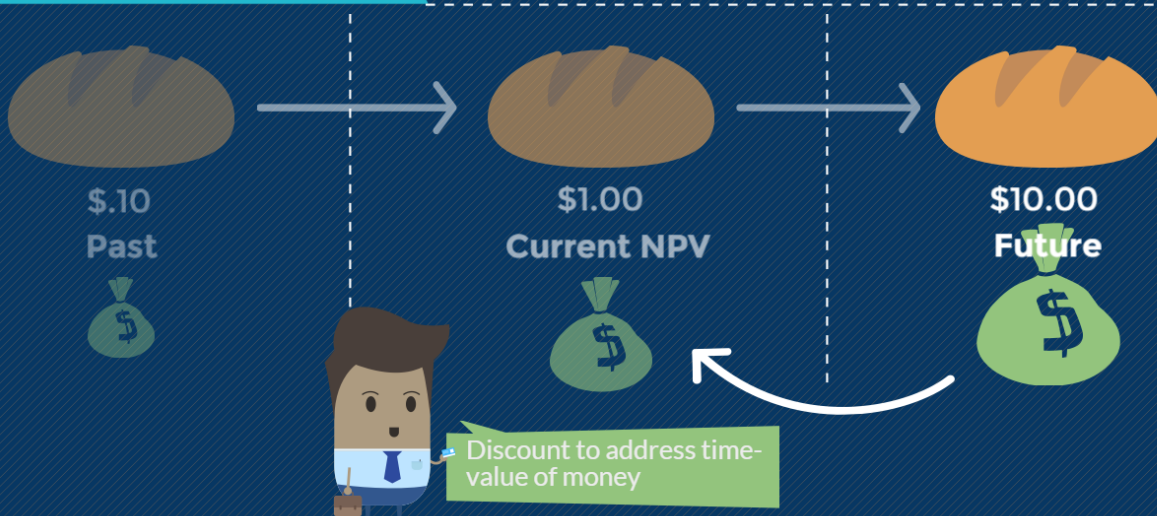
Principle 2

If the alternatives require full or partial financing, the model inputs should include the cash flows related to financing and debt service.



Principle 3

Cash flows for future years must be discounted to reflect the time-value of money.



Principle 4

The time-value of when benefits are achieved should also be taken into account.

Alternative #1



Alternative #2



Project costs are similar, but Alternative #2 reaches benefit much earlier than Alternative #1



Principle 5

When summing net present values that have been calculated in different years, the net present values should be expressed in the same year or current year dollars by adjusting them by inflation, not by the discount rate.

Project A
10 years old

Project B
Today



+



=



Project A NPV
10 years ago

Project B NPV
Current Year

Total Benefit

Remember:
inflate, don't discount

Inflate to
common NPV



+



=



Common Year NPV

Common Year NPV

Total Benefit



Principle 6

If the alternatives analyzed have different expected useful lives, a suitable methodology must be used for making a fair comparison.

Alternative #1
40 year life



Alternative #2
30 year life



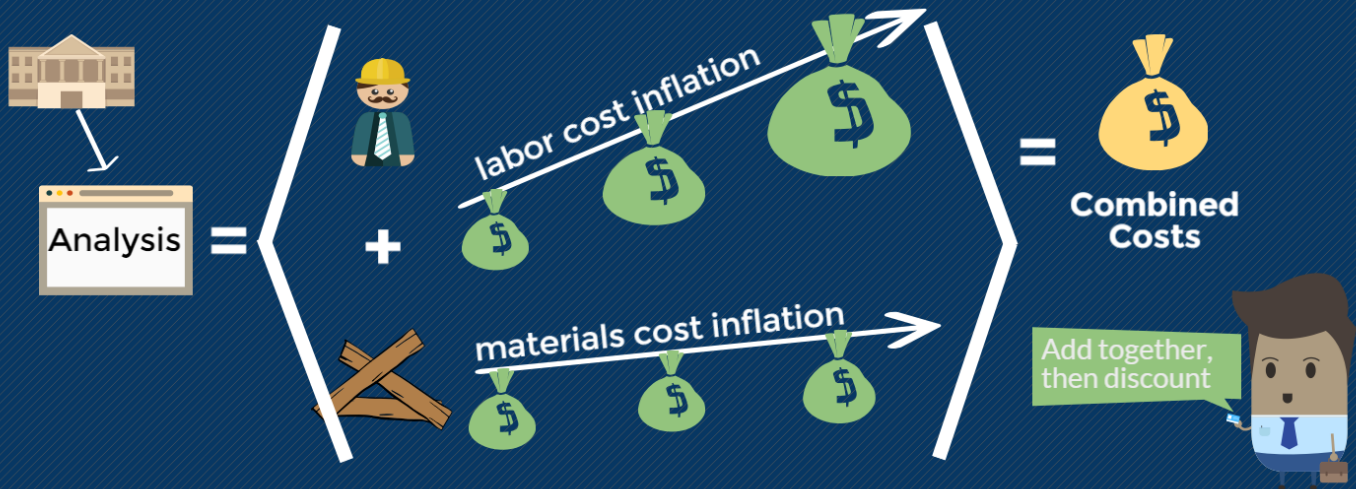
Don't ignore the value of the longer life of an alternative...

...but also don't ignore the need for the service or function



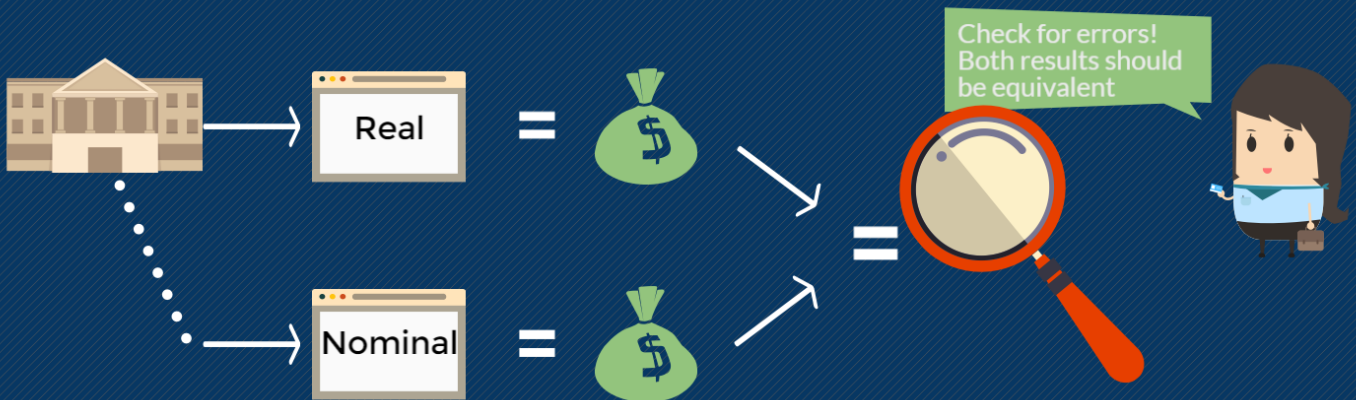
Principle 7

If costs and benefits are subject to different inflation rates, the analysis should be based on inflated cash flows and use the nominal discount rate.



Principle 8

If analysis or analytical models are constructed using the real discount rate, analysis should also be done using the nominal discount rate.



Principle 9

Reporting the outcome of the economic analysis should show the results of conducting sensitivity analysis on all major assumptions.

