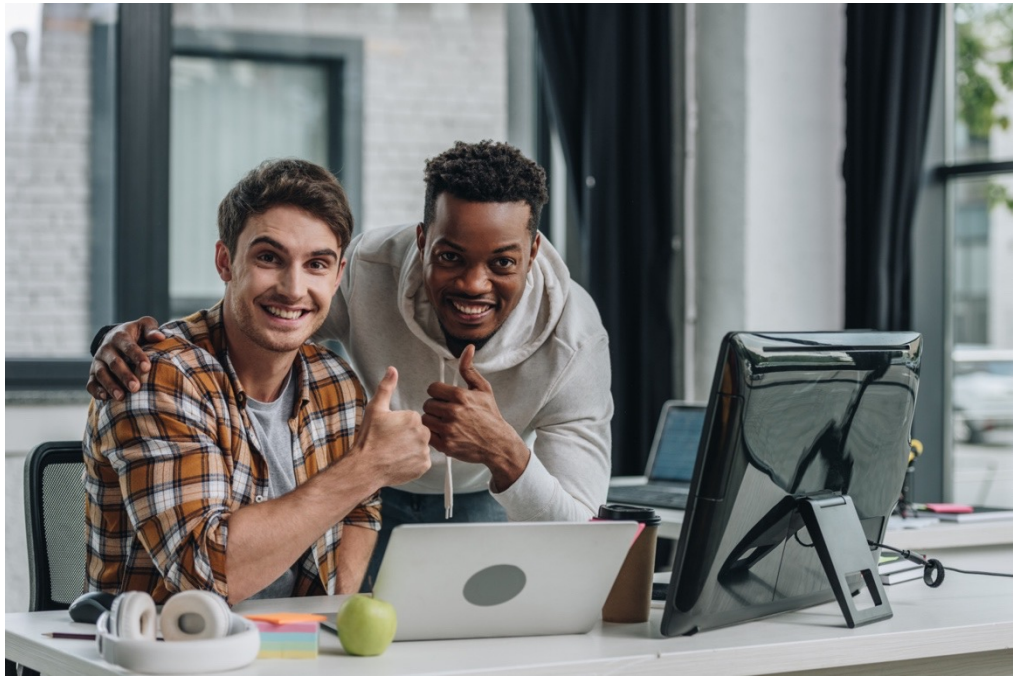
Building the Business Case

Time to Get Serious…

For most of the course, we've assumed the cash flows necessary to evaluate a project's NPV, IRR & PBP

But in reality, you need to build the cash flow statement from scratch, a critical skill in developing your project's business case.

In this module, we see how to create a cash flow statement that will impress the C-Suite and make you the envy of your engineering colleagues!



A Project's Business Case…

A business case provides justification for a proposed project based on its commercial benefits to the business.

Executive Summary & Recommendations *…the entire business case on 1-page!*

Business Drivers *…the business opportunity; the business need*

Customers & Markets *…who is the customer and how many are there?*

Financial Analysis

- *Assumptions*
- *Cash flow statement (NPV, IRR & PBP)*
- *Risk Management (Scenario & Sensitivity Analyses)*
- *Summary of Costs & Benefits*

…why the project makes good financial sense

Conclusion, recommendation, and next steps

Appendix

Our focus for this series of lessons.

Building the Financial Business Case…

What do we need to determine a Project's NPV, IRR & PBP?

The Project's Cash Flows are given by the combination of:

After-Tax Cash Flows coming from the project's operations…

Cash Flows associated with inventory (Net Working Capital)…

Cash Flows due to capital spending (the CAPEX)…

Once we have these final cash flows, we're ready for our NPV, IRR and Payback analyses!

Project Cash Flows…

You have a great idea for a very profitable project – what cash flows do you need to conduct your business case proposal?

Only the “Incremental Cash Flows”

Never the “Sunk Costs”

Never the “Financing Costs”

Maybe the Financial “Side Effects”

Only the Incremental Cash Flows…

You only consider the impact of your project on the company's financials
…not the financials for the entire company.

Incremental Cash Flows = Cash Flows from Your Project – Cash Flows Today

Incremental Cash Flows = "To-Be" Case – "As-Is" Case

Incremental cash flows are only those future cash flows that result from doing the project!

Never the ”Sunk Costs”…

Project valuation only considers *future* cash flows…

Sunk Costs: costs the company incurred in the past.

Your team spent $2M in R&D getting the technology right for a product. Now you propose advancing the project to the commercialization phase.

Do you consider the $2M in R&D when evaluating the project’s NPV & IRR?

No, the $2M is a sunk cost, and has no bearing on the project’s future cash flows!

What you spent in the past does not matter, even if it seems like you should!

Never the financing costs…

Financing Costs: the interest paid on loans and corporate bonds.

Your project requires $1M in investment.

The company has cash on hand for $500,000 and takes out a 3-year loan to cover the other $500,000 at 10% interest.

Do you include the finance charges (interest) associated with the loan?

No – you only worry about the cash flows associated with your project.

How the company finances the project is not included in the analysis - that is a management decision and is independent of the project's value.

Financial Side-Effects…

Positive Side Effect = Synergies!

You propose a software project that complements the physical product your company already sells.

Sales of the software likely increase sales of the physical product.

Do you take the increase in product sales into account in your project's evaluation?

It depends…

- *if the NPV is positive for your project by itself…then likely no.*
- *if the NPV is negative for your project, but implementing it creates such a boost in product sales that the combined NPV is positive…then definitely yes!*

Financial Side-Effects…

Negative Side Effect = Erosion or Cannibalization

You propose opening a new coffee shop 1 mile from your existing location.

Sales at your existing location could decrease due to the new shop taking some customers (cannibalization).

Do you take this erosion in sales (and profits) into account when evaluating the new location?

Probably…you may need to give your project a "haircut", reducing sales and resulting profitability by the amount of those lost profits at the existing location.

What about Environmental & Social Costs?

Externalities = costs created by the company but borne by someone else.

Your project for a new production process requires a $1M pollution control device to comply with local emission regulations.

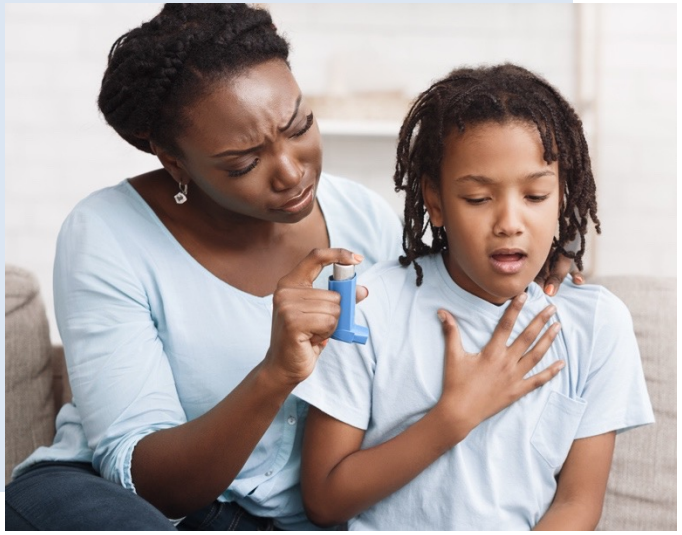
Yet even while compliant, your new process still emits ppm-levels of contaminants that are really stinky, negatively impacting home values in the area. More importantly, it creates severe health effects for people with compromised lung capacity.

Do you take the $1M for the pollution control system into account?

Yes

Do you account for degraded health and lower home values?

As of today – No. But companies are motivated to be good corporate citizens – so this could change this in the future.



Pre-Tax vs. After-Tax: Which One?

We only care about incremental cash flows…

You are proposing a project that will be highly profitable, and those profits will get taxed.

These taxes need to be paid, which are cash outflows resulting from the project…

Therefore, we take taxes into account for our project valuation.

In general, our cash flow analysis is always on an “after-tax” basis.

Main Takeaways…

We evaluate the financial value of a project using the NPV, IRR and Payback Period.

The NPV, IRR and PBP are determined from a project's combined cash flows from:

- After-tax cash flows due to the project's operations
- Cash flows due to inventory (net working capital)
- Cash flows due to the capital investment

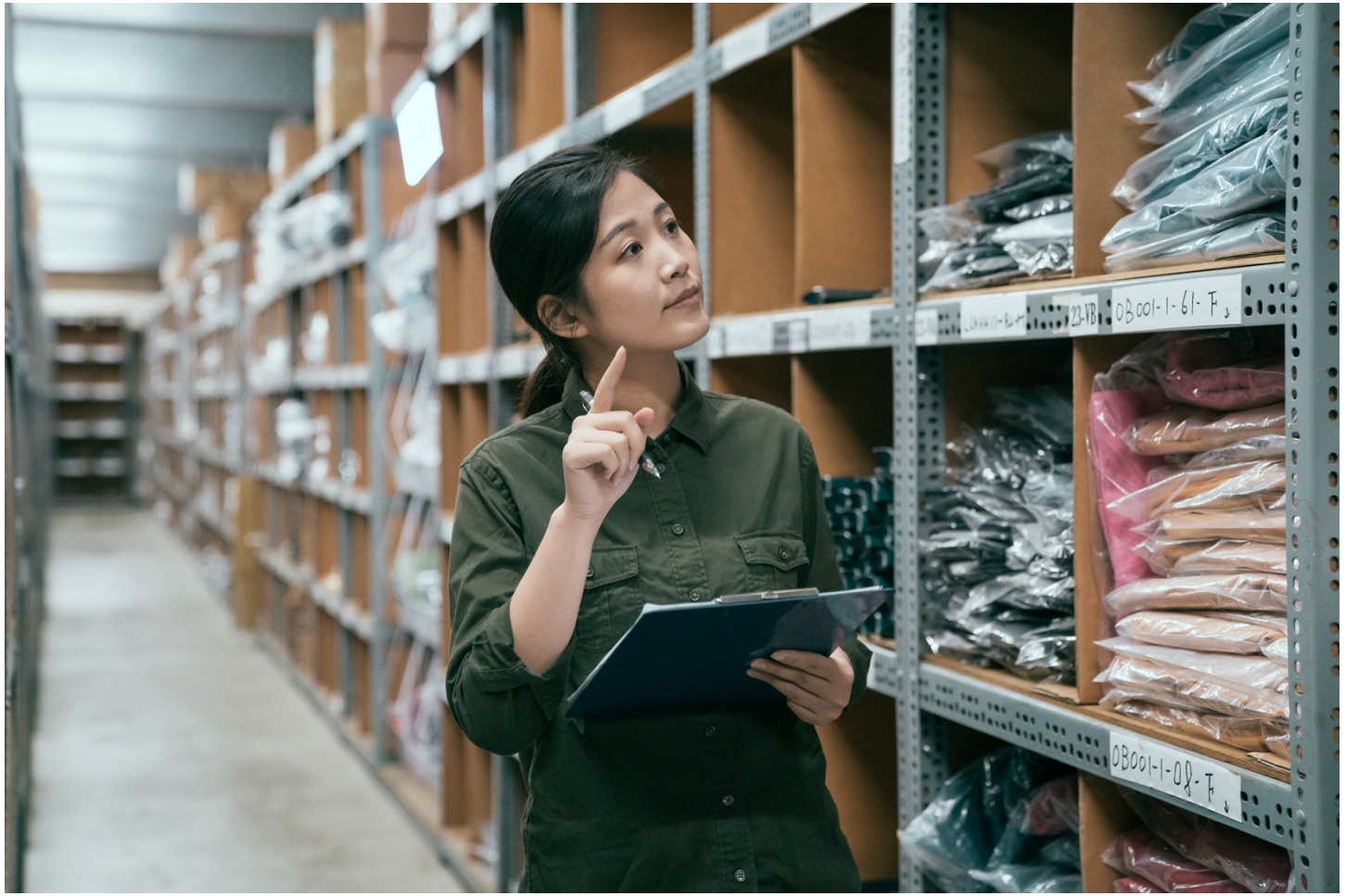
We only include the incremental cash flows from doing the project, never the sunk costs or the project's financing costs.

We may include positive or negative side effects.

Our cash flow analysis is always on an after-tax basis.

Next Time…

Deep Dive into Net Working Capital



Credits & References

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