Analyzing the Business Case

When evaluating a potential project, Project Managers determine whether or not the project is feasible. Criteria for Operational, Economic, Technical, & Schedule feasibility are discussed in section 2.6 of our textbook.

There are other aspects of feasibility that may be important: Organizational (politically feasible), Cultural (important internationally), Legal/Ethical, etc. But because managers focus so much on profitability, Economic feasibility is usually the most important.

One of the most important project management skills (life skills!) is performing a cost-benefit analysis. If a project's estimated benefits far outweigh the project's costs, the high Return On Investment (ROI) will make management feel better about giving a project the green light. A project's benefits & costs occur over time, so it's important to adjust future dollar values into today's dollar values. The promise of a future value, whether a benefit or a cost, has a Present Value.

Part I

Calculating Present Value

$PV = Amount / (1 + i)^n$
Amount = the dollar amount in the future
i = the interest rate (also known as the discount rate)
n = the number of years in the future

Example:

What is the Present Value of $10,000 to be received one year from now, assuming an interest rate of 10%?

PV = $10000 / (1.1)
PV = $9090

For most projects, you'll calculate the PV of a series of future benefits & a series of future costs. The PVs of all of the benefits are added together to determine the total benefits in today's dollars, & the PVs of all of the costs are added together to determine the total costs in today's dollars.

- (PV of all project benefits - PV of all project costs) / PV of all project costs = ROI.
- Net Present Value (NPV) / PV of all project costs = ROI

Part II

Assignment Problems

1. Assume it is September 1st, 2019. Sylvester "Sly" Weezel, a salesman at Jim's Jags, wants to sell you a brand new Jaguar XJ sedan for $79,999.99 Just as you're preparing to hand over the full amount in cash, Sly says that, because your business is so valuable to Jim's Jags, the firm's financing aficionado, Fiscally Fast Frankie, will accept your payment on an installment plan: $29.000 per year for 3 years. The 1st payment would be due today, on September 1st, 2019. The 2nd payment would be due in one year, on September 1st, 2020, and the 3rd payment would be due in 2 years, on September 1st, 2021. Assuming a discount rate of 5%, determine whether it is better for you to pay cash or to accept the terms of this installment plan. Explain your answer and show calculations. (Hint: this is a stream of 3 payments, but only 2 payments are in the future)

2. A potential software project will cost $17000 now, $2000 one year from now, $1000 2 years from now, and $1000 3 years from now. It will provide benefits of $28000 after it is installed 1 year from now, $30000 2 years from now, and $35000 3 years from now. Calculate the Present Value of the costs and benefits for each year and the overall Net Present Value of the project. Use a discount rate of 3%.

(Hint: set up a spreadsheet…)

	Year 0	Year 1	Year 2	Year 3	
Benefits	$0	$28,000	$30,000	$35,000	
PV of Benefits	?	?	?	?	Total Benefits
Costs	$17,000	$2,000	$1,000	$1,000	
PV of Costs	?	?	?	?	Total Costs

Net Present Value (NPV) = Total PV of Benefits – Total PV of Costs

3. The Payback Period is the length of time required to recover the cost of an investment. Management uses Payback Period to assess the risk of an investment – the longer the Payback Period, the higher the investment risk. What is the Payback Period for the project in question #2 above?

4. What is the ROI for the project in question #2 above?

A project's Return On Investment (ROI), can be defined as

- *What do I get back ('return') for the money I'm being asked to spend ('investment')?*
- *What is it really worth (the "ROI")?*
    - *ROI = NPV / Total Cost (expressed as a percentage)*

5. Explain how is ROI used to make better IT investment decisions.

- Look up what they have to say about ROI at the iSixSigma site:
- https://www.isixsigma.com/operations/finance/calculating-roi-realize-project-value/