The Capital Budgeting Process

Or…what really goes on behind the boardroom door!

The Capital Budgeting Process

You're proposing a great project to the executive office.

But so is everyone else.

How does the executive office decide which projects to select?

Capital Budgeting: often the annual process whereby the executive office determines how to spend its investment dollars.

Project Selection Methods

Some Terminology…

Mutually Exclusive Projects: Only 1 project can be selected among several options. By selecting one project, you are deciding not to select the other projects.

Example: You can buy an Acme 3D Printing machine, or a Hi-Tech 3D printing machine, but not both.

Independent Projects: Several projects can be selected, limited only by how much money is available to invest. Selecting one project has no bearing on the decision to select other projects.

Example: Your company has $1M to invest in new projects. It selects the best 4 projects from a list of 20 submitted for review.

The Capital Budgeting Process

- Every year companies consider numerous possible investment alternatives.

- Generally, companies don’t have infinite budgets, and they must select the best alternatives from the many proposed (”capital rationing”).

- Projects are often selected based on the highest returns:
  - ✓the highest overall NPV
  - ✓the highest overall IRR
  - ✓the shortest payback period

The Capital Budgeting Process…

How does upper management select the best project among several good ones?

Independent Projects: Several projects that have nothing to do with each other can be selected, limited only by how much money is available to invest.

With independent projects, the only limitation is how much is available to invest…

Step 1: Evaluate the economic viability of all projects

Step 2: Eliminate those that are not viable (e.g., NPV < 0)

Step 3: Rank order the projects in terms of some financial metric (NPV, IRR)

Step 4: Fund the top projects until you run out of money.

Project Selection Using NPV

Ex. Your company has an investment budget of $250,000. Which projects should be selected from the mostly good ones below.

The company uses NPV as the ranking factor.

- *Step 1: First calculate the NPV for each project*

Project	P_o ($)	PV($)	NPV
A	70,000	122,000	52,000
B	100,000	145,000	45,000
C	115,000	126,500	11,500
D	80,000	100,000	20,000
E	60,000	57,000	-3,000
F	82,000	95,000	13,000

You can eliminate this one since NPV < 0.

Project Selection Using NPV

Ex. Your company has an investment budget of $250,000. Which projects should be selected from the mostly good ones below.

The company uses NPV as the ranking factor.

- *Step 2: Rank order the projects based on NPV (high to low)*

Project	P_o ($)	PV($)	NPV	Rank
A	70,000	122,000	52,000	1
B	100,000	145,000	45,000	2
D	80,000	100,000	20,000	3
F	82,000	95,000	13,000	4
C	115,000	126,500	11,500	5

Project Selection Using NPV

Ex. Your company has an investment budget of $250,000. Which projects should be selected from the mostly good ones below.

The company uses NPV as the ranking factor.

- *Step 3: Fund each successive project until you run out of money.*

Project	I($)	PV($)	NPV	Rank	Cumulative Investment
A	70,000	122,000	52,000	1	$70,000
B	100,000	145,000	45,000	2	$170,000
D	80,000	100,000	20,000	3	$250,000
F	82,000	95,000	13,000	4	$332,000
C	115,000	126,500	11,500	5	$447,000

Projects above the line are accepted.

Projects falling “below the line” are rejected.

Project Selection and a Reality Check

The Executive Office has broad authority to modify its decisions…

In our example, the cumulative project investments exactly equalled the capital budget, and that doesn't really happen.

More commonly, there is some amount leftover that isn't sufficient to fund the next project on the list. But the company still wants to spend the entire budget.

In these cases, the company often has three options it might pursue:

1. fund a smaller project on the list;
2. fund the next project on the list, but do so by reducing the budgets of all the selected projects so the capital budget isn't overspent;
3. *increase* the capital budget to select that next project on the list – the one so strongly argued by the VP of Engineering!

Project Selection Using IRR

Caution – this approach might recommend the wrong project! More to come on this!

- Calculate the IRR for each project.
- Rank-order projects from highest to lowest.
- Draw the line when all the capital available has been spent.

Ex. ACME has $250,000 to spend on new projects and a Discount Rate of 18%.

Project	P_o ($)	IRR %	IRR Ranking	Cumulative Investment ($)
A	70,000	32%	1	70,000
B	100,000	26%	2	170,000
D	80,000	21%	3	250,000
F	82,000	19%	4	332,000
C	115,000	15%	5	447,000

Projects above the line are accepted.
Projects falling "below the line" are rejected.

You can eliminate this one since IRR < MARR.

Main Takeaways…

The annual Capital Budgeting Process evaluates all projects exactly the same way – all based on one or more financial metrics: NPV, IRR or Payback Period.

Projects are rank ordered according to a key metric (often NPV).

Projects above the line are funded (i.e., until the capital budget is used up).

Occasionally the executive office funds a financially a not-so-good project, because:

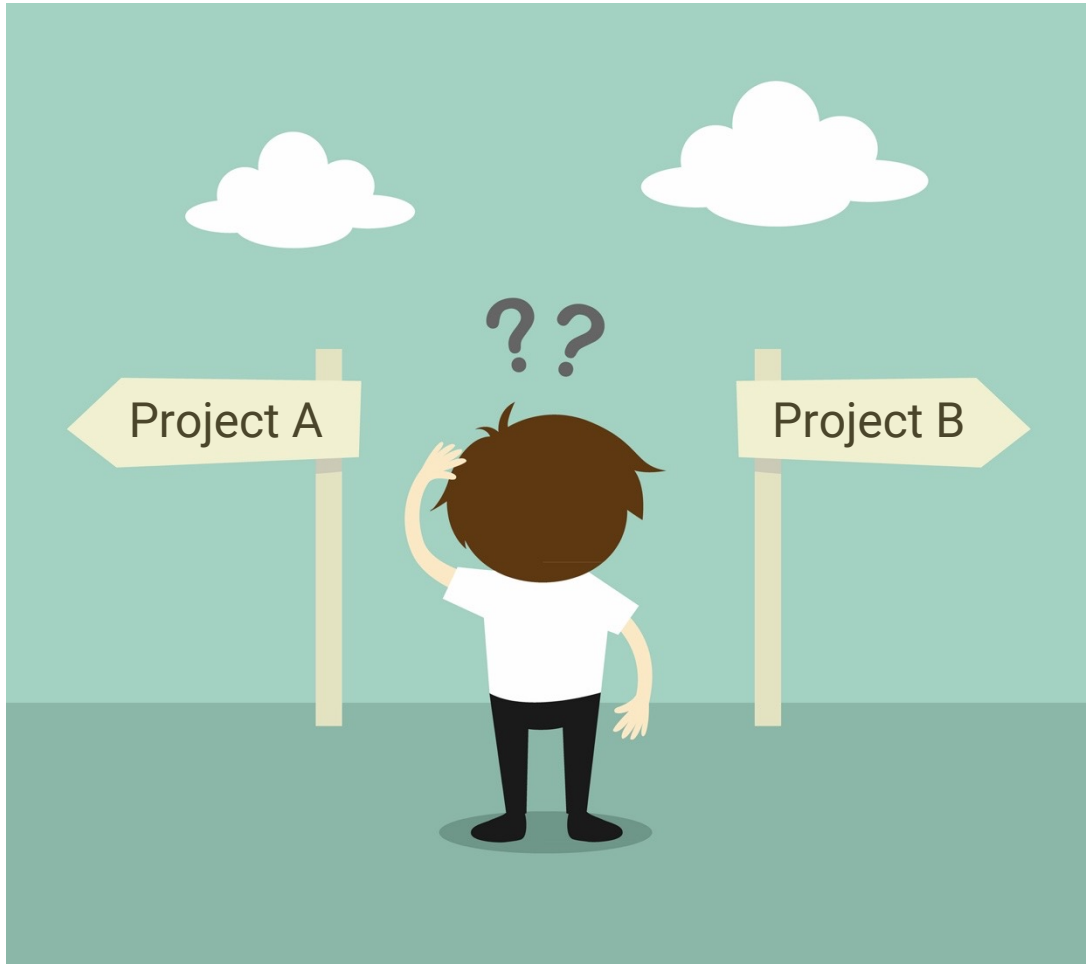
- *It is a strategically important project for reasons beyond financial (intellectual property)*
- *The CEO has a pet project, and no one wants to argue with the CEO!*

Your project competes for funding with plenty of other projects.

You must confidently present your project's financial benefits relative to its costs, and hope you end up above the line!

Next Time…

Selection Techniques for Mutually Exclusive Projects



Credits & References

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