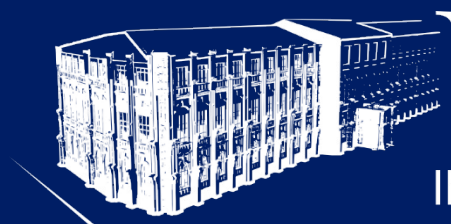

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Project Management

Lecture 4: Organizational Strategy and Projects

by Ulugbek Islamov

Agenda

- What is Strategy?
- Activities of Strategic Management
- Strategy and Projects
- Project Selection
- Priority Matrix

"Nobody really knows what strategy is."

The Economist

Marc Sniukas, 2011 slide 1, available at https://www.slideshare.net/sniukas/what-is-strategy-1687829

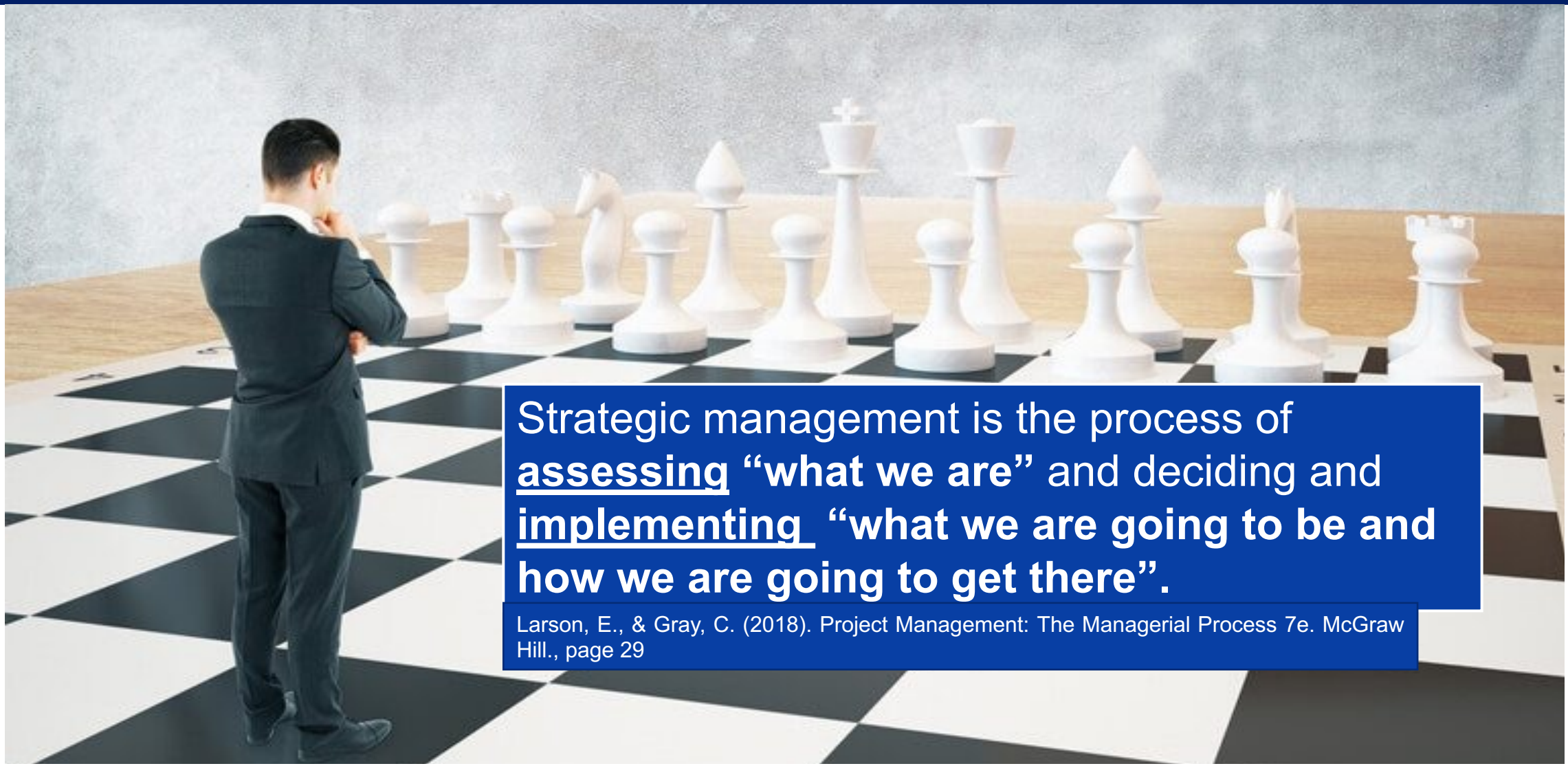
Strategy

- Strategy describes how an organization intends to **compete** with available resources in the existing and perceived future environment

Larson and Grey (2018)

- A well formulated strategy helps to **organize resources into a unique** and **viable force** based on the *competences and shortcomings* of organization, an anticipated changes in the environment and activities by competitors

Strategic Management



Strategic management is the process of **assessing** **"what we are"** and deciding and **implementing** **"what we are going to be and how we are going to get there".**

Larson, E., & Gray, C. (2018). Project Management: The Managerial Process 7e. McGraw Hill., page 29

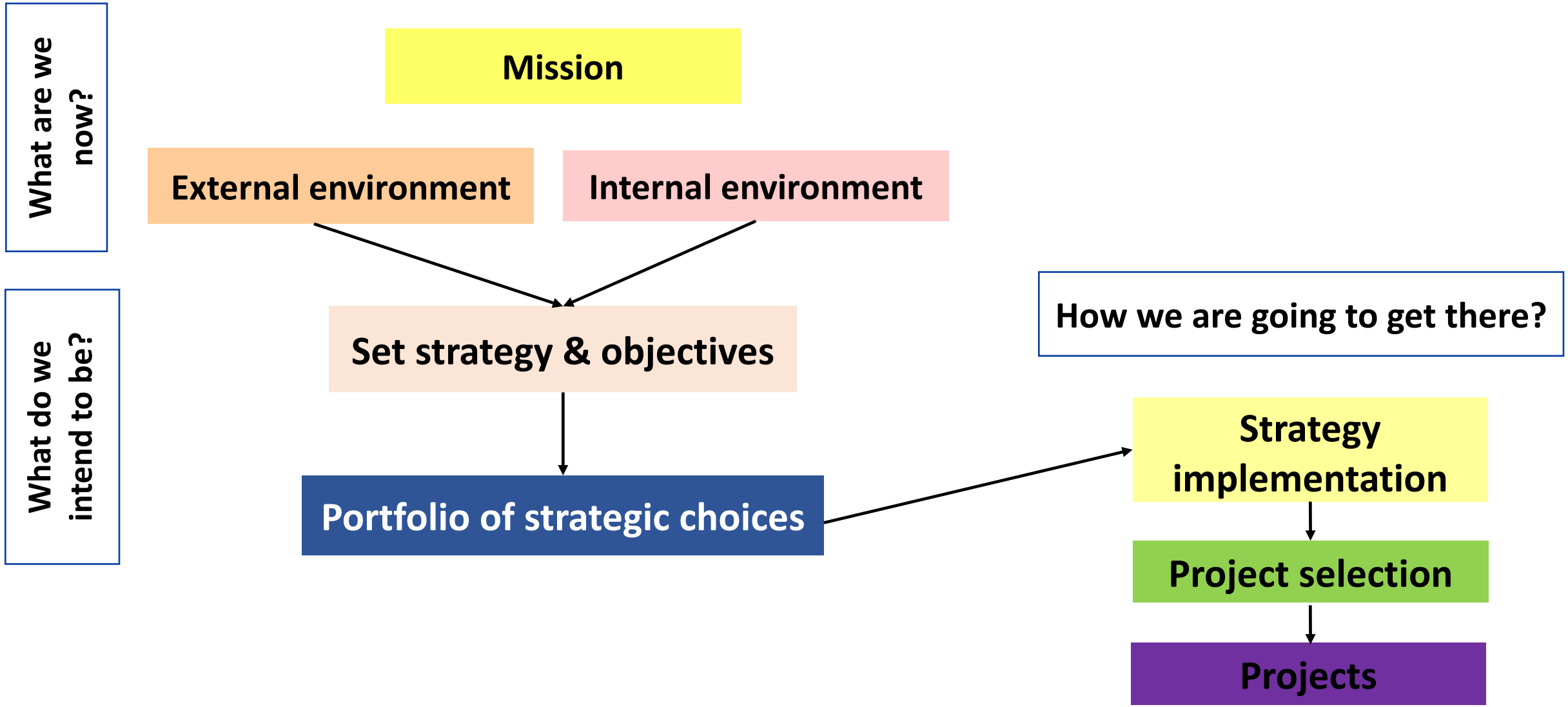
Peshkov, No date: ttps://st2.depositphotos.com/2605379/10886/i/950/depositphotos_108862726-stock-photo-strategy-concept-chess.jpg

Activities of Strategic Management

- Review and define the organizational mission.
- Set long-range goals and objectives.
- Analyze and formulate strategies to reach objectives.
- Implement strategies through projects.

Larson, E., & Gray, C. (2018). Project Management: The Managerial Process 7e. McGraw Hill., page 29

Strategy and Projects



Adopted from Larson, E., & Gray, C. (2018). Project Management: The Managerial Process 7e. McGraw Hill., page 31

Strategy and Projects

There is a clear evidence of alignment of strategy and projects – selection of projects

Strategy	Project selection
Development of products for greater market penetration and acceptance	New product development projects
Creating of strategic alliances	Negotiation with supply chain members
Changes in strategic direction or product portfolio reconfiguration	New product lines

Project Selection

…the **process of choosing a project or set of projects to be implemented by the organization.**

Project Selection

Projects require a substantial investment in terms of money and resources, both of which are limited, it is vital that the selected projects provide good return on the resources and capital invested.

- Many projects that fall outside the organization's stated mission.
- Many projects being conducted are completely unrelated to the strategy and goals of the organization.
- Many projects with funding levels that are excessive relative to their expected benefits.

Project Selection Example

SIEMENS
Ingenuity for life

- For every project in 190 countries the company operates in the system called PM@Siemens is used – for categorizing projects:
- A to F – depending on importance of project
- 0 to 3 – depending on risk associated

For important and rather risky ones (A0) the approval of the main board is required

For simpler ones F3 – local business units can make decision on

There should be a good balance of both project types in the portfolio

TRANSPOREON
DER LOGISTIK-EFFIZIENZER.

Being rather a start-up at the beginning, after 15 years company has become a global leader in the respected area.

The project selection process takes place on a weekly based on project requests from perspective clients.

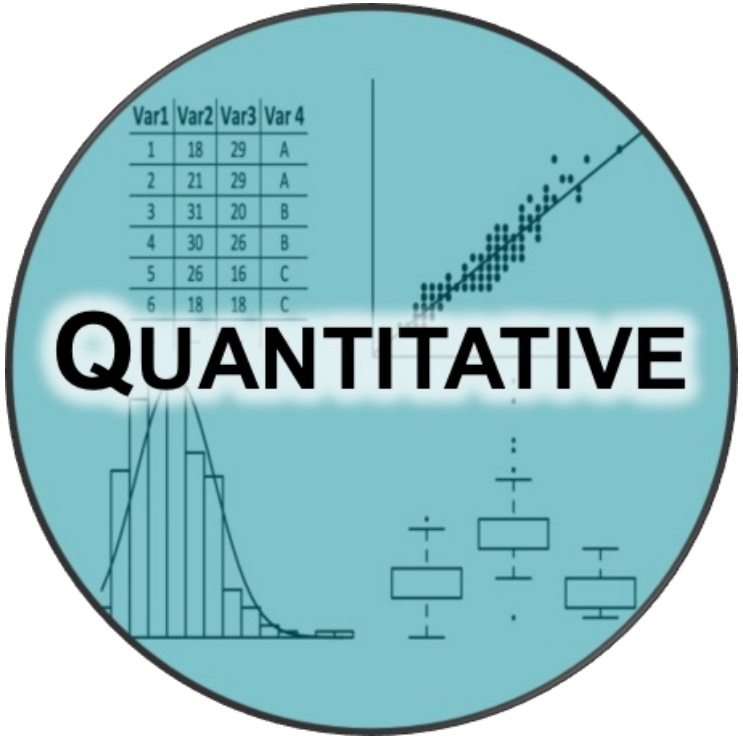
The criteria for selection are – the company size, cost of project, possible benefit it brings to organization.

As the number of requests is big, pre-screening is done by PMO.

Project Selection

There are two types of project selection model:

(non-numeric)



(numeric)

Images taken from: NYU libraries at https://guides.nyu.edu/dataservices/home

Qualitative Project Selection

Operating necessity	project/s required in order to keep the system operating. The primary question to be asked: **Is the system worth saving at the estimated cost of the project?**
Competitive necessity	desire to maintain the company's competitive position in that market. Despite the complexity of projects.
Product line extension	project to develop and distribute new products would be judged on the degree to which it fits the firm's existing product line, fills a gap, strengthens a weak link etc.
The sacred cow	project is suggested by a senior and powerful official in the organization. The project will be maintained until successfully concluded, or the boss, personally, recognizes the idea as a failure and terminates it.
Comparative benefit model	Choosing projects based on the benefit they bring – Selection committee decides which projects have more benefits, although there could be many projects that are beneficial

Quantitative Project Selection

Payback period	measures the time it will take to recover the project investment. **Shorter paybacks are more desirable**.
Accounting Rate of Return	ratio of the average annual profit (either before or after taxes) to the initial or average investment in the project.
Discounted cash flow	using future free **cash flow** projections and **discounts** them to arrive at a present value estimate
Profitability Index	**or Present Value Index** attempts to identify the **relationship between the costs and benefits of a proposed project**
Internal Rate of Return	interest rate at which the **net present value of all the cash flows (both positive and negative) from a project or investment equal zero**.

Pinto, J. K. (2007). Project management: achieving competitive advantage. Upper Saddle River, NJ, USA: Pearson/Prentice Hall., page 90-96

Payback Period Example

The major limitations of payback are that it ignores the time value of money, assumes constant cash flows for the investment period (and not beyond), and does not consider profitability.

PP= Initial investment/cash flow per year

Ex: Project A's initial investment is $100,000. Expected return is $25,000 each year.
PP(A) = 100,000/25,000 = 4 years
Project B's initial investment is $200,000. Expected return is $40,000 each year.
PP(B) = 200,000/40,000 = 5 years.

Project A is preferred to Project B

Activity for Class

Company A is planning to undertake a project requiring initial investment of $105 million. The project is expected to generate $25 million per year for 7 years. Calculate the payback period of the project.

PP= Initial investment/cash flow per year

PP= $105mio/$25mio = 4.2 years

What if Cash flow is uneven???

Activity for Class

Company B is planning to undertake a project requiring initial investment of $105 million. The project is expected to generate $25 million first year, $30mio in second, $5mio in third, $17mio in forth, $20mio in fifth, $30mio in sixth and $40mio in seventh year. What is the payback period of the project.

PP= Initial investment/cash flow per year

$$PP = A + \frac{B}{C}$$

A is the last period with a negative cumulative cash flow;
B is the absolute value of cumulative cash flow at the end of the period A;
C is the total cash flow during the period after A

Activity for Class

Company B is planning to undertake a project requiring initial investment of $105 million. The project is expected to generate $25 million first year, $30mio in second, $15mio in third, $17mio in forth, $20mio in fifth, $30mio in sixth and $40mio in seventh year. What is the payback period of the project.

$$PP = A + \frac{B}{C}$$

$$PP = 4 + \frac{18}{20}$$

PP= 4.9 years

Year	Cash flow	Cumulative Cashflow
0	($105)	($105)
1	$25	($80)
2	$30	($50)
3	$15	($35)
4	$17	($18)
5	$20	$2
6	$30	$32
7	$40	$72

Discounted cash flow

- Ignores cash flows received after the discounted payback period.

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_T}{(1+r)^T}$$

$-C_0 = Initial\ Investment$
$C = Cash\ Flow$
$r = Discount\ Rate$ including interest rate
$T = Time$

A positive NPV indicates that the projected earnings generated by a project exceeds the anticipated costs.
Generally, an investment with a positive NPV will be a profitable one and one with a negative NPV will result in a net loss.

NPV example

Required rate of return of 15%, inflation rate of 3% per year, cash inflow is $25,000 per year for 8 years. Initial investment is $100,000. What is NPV?

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_T}{(1+r)^T}$$

Year	Cash flow		Present Value
0	($100,000)		($100,000)
1	$25,000	1.18	$ 21,186.44
2	$25,000	1.39	$ 17,954.61
3	$25,000	1.64	$ 15,215.77
4	$25,000	1.94	$12,894.72
5	$25,000	2.29	$ 10,927.73
6	$25,000	2.70	$9,260.79
7	$25,000	3.19	$ 7,848.13
8	$25,000	3.76	$ 6,650.95
		NPV	**$1,939.14**

Positive NPV

Activity for Class

Consider company Shoes For You's who is determining whether they should invest in a new project. Shoes for You's will expect to invest $500,000 for the development of their new product. The company estimates that the first year cash flow will be $200,000, the second year cash flow will be $300,000, and the third year cash flow to be $200,000. The expected return of 10% is used as the discount rate.

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_T}{(1+r)^T}$$

Year	Cash flow		Present Value
0	($500,000)		($500,000)
1	$200,000	1.10	$181,818.18
2	$300,000	1.21	$247,933.88
3	$200,000	1.33	$150,262.96
		NPV	$80,015

Profitability Index

Profitability index (or Present Value Index) - is an index that attempts to identify the **relationship between the costs and benefits of a proposed project** through the use of a ratio calculated as:

PI = PV of Future Cash Flows ÷ Initial Investment.

A ratio of 1.0 is the lowest acceptable measure on the index.
Any value lower than 1.0 would indicate that the project's PV is less than the initial investment.

As values on the PI increase, so does the financial attractiveness of the proposed project.

Profitability Index Example

Required rate of return of 15%, inflation rate of 3% per year, cash inflow is $25,000 per year for 8 years. Initial investment is $100,000.

PI = PV of Future Cash Flows ÷ Initial Investment.

What do we already know from this example?

$$PV = \frac{C_1}{(1+r)^n}$$

or

$$\frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \ldots + \frac{C_T}{(1+r)^T}$$

PI = $101,939.14 ÷ $100000

PI = 1.02

Activity for Class

Consider company Shoes For You's who is determining whether they should invest in a new project. Shoes for You's will expect to invest $500,000 for the development of their new product. The company estimates that the first year cash flow will be $200,000, the second year cash flow will be $300,000, and the third year cash flow to be $200,000. The expected return of 10% is used as the discount rate.

PI = PV of Future Cash Flows ÷ Initial Investment.

PI = (181 818+247 933+150 262)÷ 5000000

PI = 1.16

IRR

- Answers the question what the discount rate should it be in order to have NPV=0

$$\boxed{0} = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \dots + \frac{C_T}{(1+r)^T}$$

Priority should be given to the project with the *highest NPV*, not necessarily the highest IRR – because, at the end of the day, your financial statements are measured in dollars, not percents.
Project A with 25% IRR and Project B with 50% IRR, but Project A has a higher NPV, you would pick Project A.

IRR Calculation

- You choose discount rate which gives you the biggest positive NPV
- Then you pick the one that has the negative NPV – assumption

$$IRR = r_a + \frac{NPV_a}{NPV_a - NPV_b}(r_b - r_a)$$

r_a = lower discount rate chosen
r_b = higher discount rate chosen
N_a = NPV at r_a
N_b = NPV at r_b

From earlier example we know that 10% generates NPV of **$80,015**

If we have 20% - it generates NPV of $**(9,259)**

IRR=18,84%

Checklist Model

Criterion
Time to market
Profit potential
Development risks
Cost

Project	Criteria	Performance on Criteria		
		High	Medium	Low
Project Alpha	Cost	X		
	Profit potential			X
	Time to market		X	
	Development risks			X
Project Beta	Cost		X	
	Profit potential		X	
	Time to market	X		
	Development risks		X	
Project Gamma	Cost	X		
	Profit potential	X		
	Time to market			X
	Development risks	X		
Project Delta	Cost			X
	Profit potential			X
	Time to market	X		
	Development risks		X	

Pinto, J. K. (2007). Project management: achieving competitive advantage. Upper Saddle River, NJ, USA: Pearson/Prentice Hall., page 80

Scoring Model

Project	Criteria	(A) Importance Weight	(B) Score	(A) × (B) Weighted Score
Project Alpha				
	Cost	1	3	3
	Profit potential	2	1	2
	Development risk	2	1	2
	Time to market	3	2	6
	Total Score			**13**
Project Beta				
	Cost	1	2	2
	Profit potential	2	2	4
	Development risk	2	2	4
	Time to market	3	3	9
	Total Score			**19**
Project Gamma				
	Cost	1	3	3
	Profit potential	2	3	6
	Development risk	2	3	6
	Time to market	3	1	3
	Total Score			**18**
Project Delta				
	Cost	1	1	1
	Profit potential	2	1	2
	Development risk	2	2	4
	Time to market	3	3	9
	Total Score			**16**

Pinto, J. K. (2007). Project management: achieving competitive advantage. Upper Saddle River, NJ, USA: Pearson/Prentice Hall., page 82

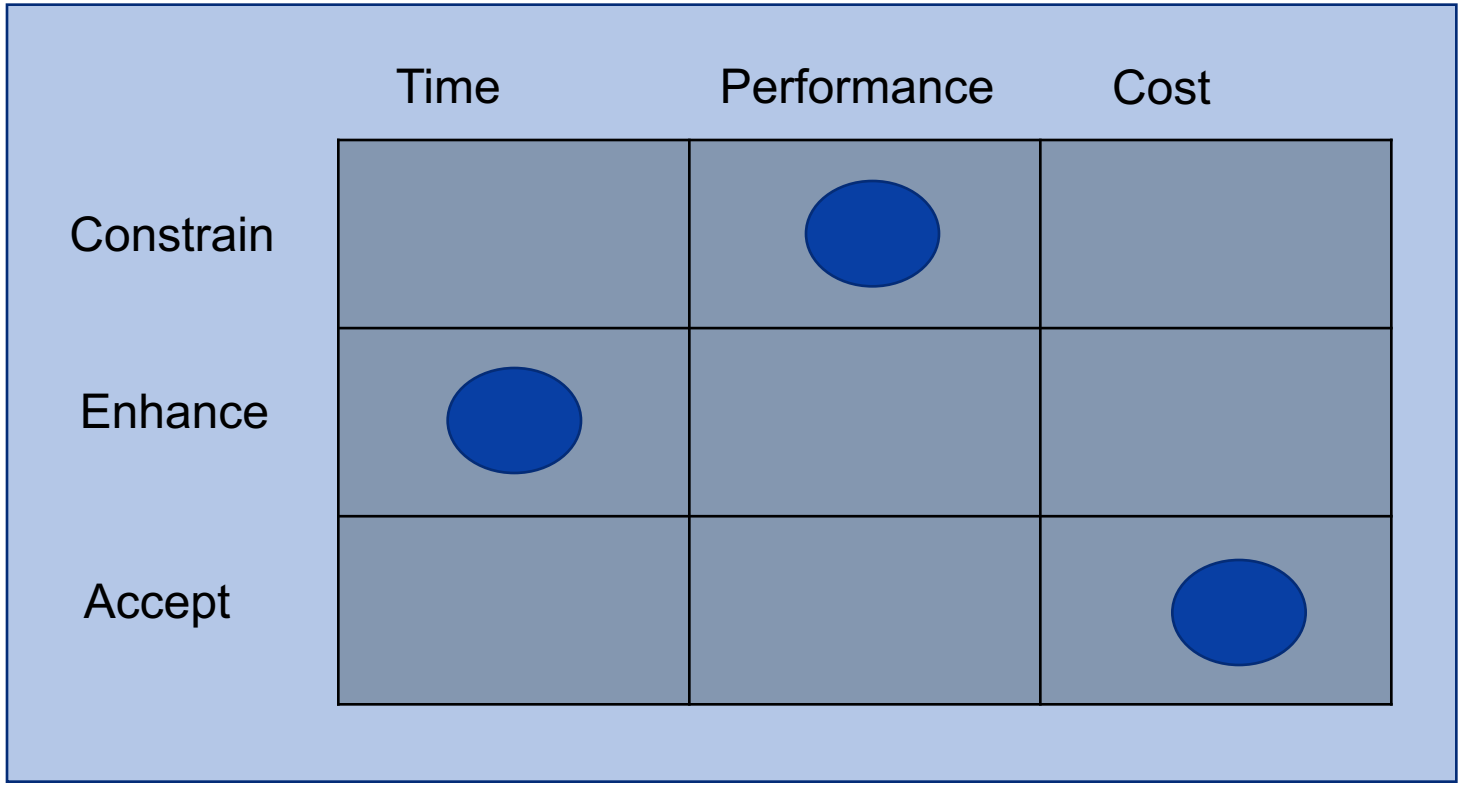
Priority Matrix

This tool is helpful to identify the key criteria of the project with regard to:

Time

Cost

Performance

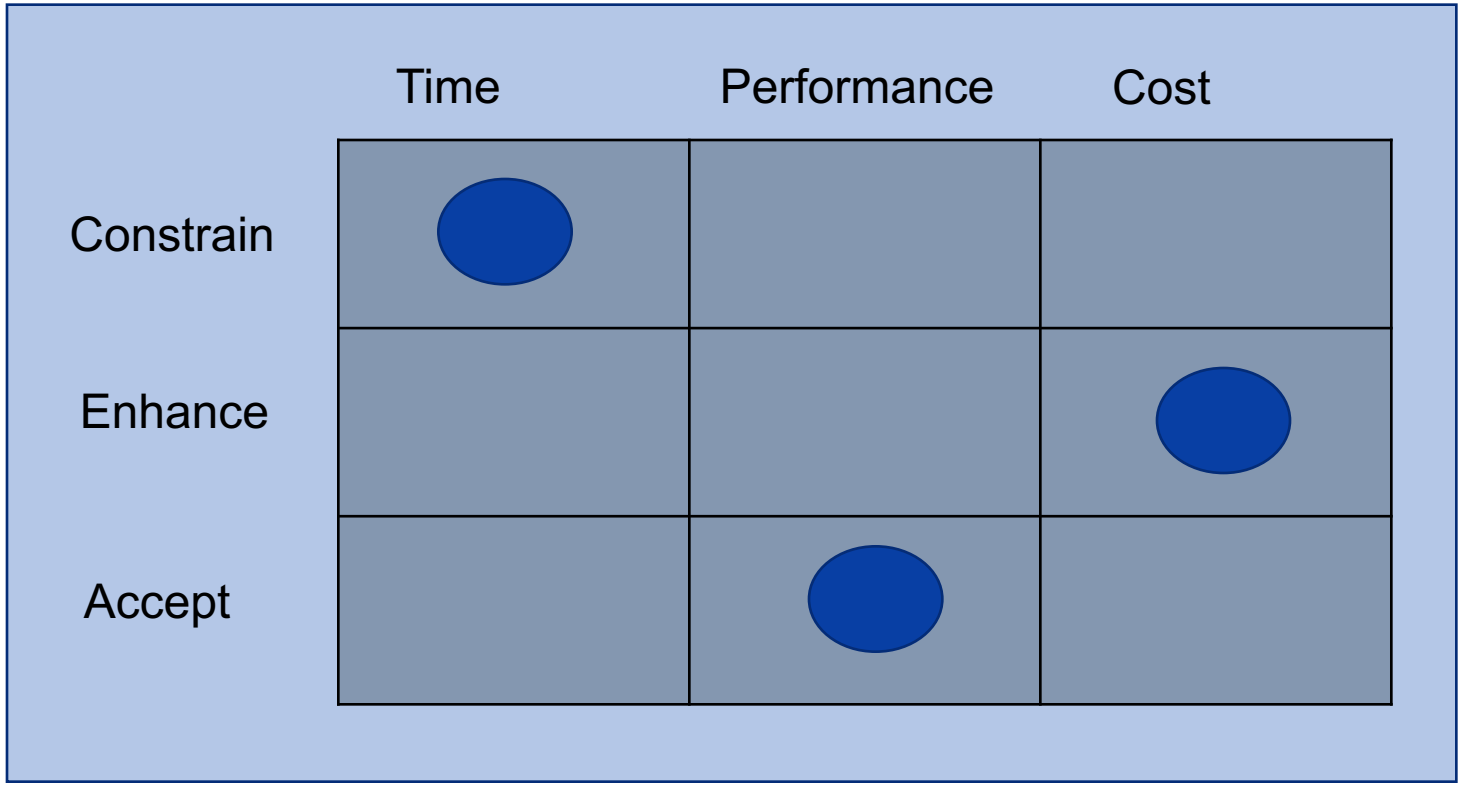


For instance, for new wireless modem development project **time to market is crucial** and PM should take every opportunity to reduce time even **compromising the budget** – which is not desirable but acceptable. Original **performance specifications cannot be compromised.**

Eaton Business School, No date at https://ebsedu.org/blog/iphone-x-project-priority-matrix/

Priority Matrix

How about an event management project? Say conference.



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QUESTIONS?

References

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Online Sources:

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