PROJECT PLANNING AND MANAGEMENT

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PROJECT SELECTION

EAEQ 4206: LESSON FOUR

What is Project Selection

- The process evaluating individual project so that you choose which project(s) to undertake.
- Its about decision; which project among competing projects.
- The important thing here is to meet the objectives of the organisation (financial, competitive, risk etc).
- E.g. competing land uses; agricultural, residential, industrial, institutional etc.
- If residential competing uses; apartments, bungalows, maisonettes.
- It is the choice that shapes the future; increase profitability, competitive advantage, scarce resource utilisation.

Selection Model

Criteria for selection of a Decision model

1. Realism:- should reflect reality. Decisions are real.
2. Capability:- should be complicated enough to perform the requirement- comparison
3. Flexibility:- easy to modify or adjust with project, organisation,
4. Ease of use:- easy to use, understand and not time consuming
5. Cost:- cost friendly, benefits should be more than the cost
6. Easy computerisation;- easy to store, manipulation, and retrieve from a computer system

Selection Model

1. Numeric – represented by numbers (objective/subjective)
2. Non numeric- not represented by numbers
3. You can apply both at the same time
4. Model do not make decisions, people do-the manager takes full responsibility
5. Models partially represent reality-reality is to complex

Nonnumeric Selection Model

1- The Sacred Cow

- The project is suggested by a senior member of the organisation, the boss.
- The project is therefore undertaken.

2- The operating necessity

- This is necessitated by the daily operations of the organisation, that threaten its functioning.
- E.g. switching from analogue TV to Digital TV,

3- The competitive necessity

- This is necessary to maintain competitive advantage.
- This is evident in the banking industry where the micro-finance are continually being upgraded to full banks

Nonnumeric Selection Model

4- The product line extension

- Filling in the gap, or strengthening the existing production
- Adding on to what you already have to make it better.

5- Comparative benefit method

- Which project will benefit you more than the in the set of projects.
- You can rank the project base on the perceived benefits or what meets you objectives best.

Numeric Model - Profitability

1- Payback period (PBP)

- This is the most basic tool applied by investors to compare projects, or development options.
- Pay Back Period is the amount of time taken to recoup your invested capital in the project.
- It is presented as a ratio of the total investment cost to its annual income which is assumed fixed over the life of the project.
- PBP = (Cost of Project/Annual income) Years.

Numeric Model - Profitability

Payback period (PBP)

- For example if you invest 10m in a project which earns you 600,000/- per annum with 10% outgoings, your PBP will be computed as follows:
- PBP = (10,000,000/(600,000-60,000)) Years.
- PBP = 18.52 years
- This can then be compared with other investment options and the industry benchmark. A shorter PBP is an indicator that the project is better.

Numeric Model - Profitability

2- Return on Investment (ROI)

- Return on Investment measures the profitability of the project. Again this is a basic tool applied by investors to compare projects, or development options.
- It is presented as a percentage of the annual income to the total investment cost.
- ROI = (Annual Income/Cost of Project) x 100%.

Numeric Model - Profitability

Return on Investment (ROI)

- In the above example, the ROI is computed as follows:
- ROI = ((600,000-60,000)/10,000,000) x 100 %.
- ROI = 5.40%
- Again this can be compared with other investment options and the industry benchmark.
- A positive return implies the project is viable. A higher ROI is an indicator that the project is better.
- However conversely, a higher ROI is also an indicator that the project is riskier.

Numeric Model - Profitability

3- Net Present Value (NPV)

- This is a relatively complex computation applied by an expert to determine the viability of a project. Unlike the other tools above, this reflects the real world scenario; that income is not static - rents rise with time and that a project has life – beginning and end.
- Under the NPV computation, all positive and negative cash flows are projected over the life of the project and discounted to the present and summed up.
- A positive value implies the project is viable while a negative one implies the project is not feasible.
- The expert applying this must be conversant with the market of the real estate class .
- In the above example, we introduce project life as 5 years and rent growth at 5% per annum. NPV can be computed as in the table below:

Numeric Model - Profitability

Year/Description	Cash Flows				PV @6%	NPV
	Implement (-) Dispose of (+)	Income (+)	Expense (-)	Net Income		
0	(10,000,000)			(10,000,000)	1.00	(10,000,000)
1		600,000	(60,000)	540,000	0.94	507,600
2		660,000	(66,000)	594,000	0.89	528,660
3		726,000	(72,600)	653,400	0.84	548,856
4		798,600	(79,860)	718,740	0.79	567,805
5	14,500,000	878,460	(87,846)	15,290,614	0.75	11,467,961
NPV				7,796,754		3,620,881

Numeric Model - Profitability

4- Internal Rate of Return (IRR)

- Internal Rate of Return refers to the rate of return at the point where the Net Present Value - **NPV** is **zero**.
- This is a fairly complex mathematical concept that involves calculus and guesswork as may be necessary in the application.
- And not to dampen your hope, it can be computed using computer software or spreadsheets.
- In the above example, I used Microsoft excel to compute the **IRR** which I obtained as**13.34%.**
- You can therefor compare various project IRRs. The higher the IRR the better the investment

Numeric Model - Profitability

5- Profitability Index (PI)

- Profitability Index is also referred to as the Cost/Benefit ratio. It is the present value of all anticipated benefits from an investment divided by the present value of capital outlay – cost.
- PI = Present value of anticipated investment returns/present value of capital outlay
- Again, in the above example (note NPV in 3), this is computed as follows:
- PI = (507,600+528,660+548,856+567,805+11,467,961)/10,000,000
- PI = 1.36
- PI higher than 1.0 indicates that the project is feasible. This is a useful tool in comparing investment options. PI of 1.0 is an indicator that the rate of return is the same as the IRR.

Numeric Model - Profitability

Advantages

1. Simple to use and understand
2. Use readily available accounting data to determine cash flows
3. Model output is in terms familiar to business decision makers
4. Model output is on an absolute profit/profitability scale and allows absolute go/no go decision making
5. Some profit models account for project risk

Numeric Model - Profitability

Disadvantages

1. Ignore all non monetary factors except risk
2. Models that do no allow discounting ignore the timing of the cash flow and time value of money
3. Models that reduce cash flows to present value are strongly biased to short term
4. Payback time models ignores cash flows beyond the payback period
5. Internal rate of return models can result in multiple solutions
6. All are sensitive to errors in the early input data of the early years of the project
7. All discount models are non linear and the effect of changes (or errors in the variables) or parameters are not obvious to decision makers
8. All depend on inputs for cash flows, but it is not clear exactly how the concept of cash flows is properly defined for the purpose of evaluating the project

Further Reading

1	Project Management Institute, 2008	A Guide to the Project Management Body of Knowledge (PMBOK GUIDE) 4th Edition
2	James P. Lewis 2007	Fundamentals of Project Management, Third Edition, AMACOM, New York
3	Eric Verzuh 2003	The Portable MBA in Project Management, John Wiley & Sons, inc.
4	John M. Nicholas, 2004	Project Planning for Business and Engineering, Principles and Practice, Second Edition, Elsevier Butterworth–Heinemann
5	F. Lawrence Bennet 2003	The Management of Construction, A Project Life Cycle Approach,