

Chapter 1

Define a project. What are five characteristics which help differentiate projects from other functions carried out in the daily operations of the organization?

A project is a complex, non routine, one-time effort limited by time, budget, resource, and specifications. Differentiating characteristics of projects from routine, repetitive daily work are below:

- a. A defined life span
- b. A well-defined objective
- c. Typically involves people from several disciplines
- d. A project life cycle
- e. Specific time, cost, and performance requirements.

What are some of the key environmental forces that have changed the way projects are managed? What has been the effect of these forces on the management of projects?

Some environmental forces that have changed the way we manage projects are the product life cycle, knowledge growth, global competition, organization downsizing, technology changes, time-to-market. The impact of these forces is more projects per organization, project teams responsible for implementing projects, accountability, changing organization structures, need for rapid completion of projects, linking projects to organization strategy and customers, prioritizing projects to conserve organization resources, alliances with external organizations, etc.

Why is the implementation of projects important to strategic planning and the project manager?

Strategic plans are implemented primarily through projects—e.g., a new product, a new information system, a new plant for a new product. The project manager is the key person responsible for completing the project on time, on budget, and within specifications so the project's customer is satisfied. If the project is not linked to the strategic plan of the organization, resources devoted to the project are wasted and a customer need is not met. This lack of connectivity occurs more in practice than most would believe.

The technical and sociocultural dimensions of project management are two sides to the same coin. Explain.

The system and sociocultural dimensions of project management are two sides of the same coin because successful project managers are skillful in both areas. The point is successful project managers need to be very comfortable and skillful in both areas.

What is the impact of governance to managing an individual project? Why is this approach important in today's environment?

Governance signals to the project manager that decisions at a higher level can impact management of an individual project. Reviews (called "Gating") during project implementation assess current performance and priorities and decide to continue, halt, hold, or revised the project.

Governance is most frequently used to balance resources and risk over all organizational resources. It is also used to enforce or alter priorities and to ensure project align with organizational strategies and goals. In today's fast-paced world priorities can change quickly and can impact in process projects.

The need for governance exists anytime a group of people come together to accomplish an end.

Describe the major components of the strategic management process.

The strategic management process involves assessing what we are, what we want to become, and how we are going to get there. The major generic components of the process include the following:

- a. Defining the mission of the organization
- b. Analysis of the external and internal environments
- c. Setting objectives
- d. Formulating strategies to reach objectives
- e. Implementing strategies through projects.

Chapter 2

Explain the role projects play in the strategic management process.

Strategy is implemented primarily through projects. Successful implementation of projects means reaching the goals of the organization and thus meeting the needs of its customers. Projects that do not contribute to the strategic plan waste critical organization resources.

How are projects linked to the strategic plan?

Projects are linked to the strategic plan because projects represent *how* a strategy is to be implemented. Since some projects are more important than others, the best way to maximize the organization's scarce resources is through a priority scheme which allocates resources to a portfolio of projects which balance risk and contribute the most to the strategic plan.

Why should an organization not rely only on ROI to select projects?

Financial criteria, like ROI alone, will not ensure that selected projects **contribute to the mission and strategy of a firm.** – Must align with the firm, must consider QUALITATIVE FACTORS, non-numerical values
Other considerations such as developing new technology, public image, brand loyalty, ethical position, and maintaining core competencies should be considered.

Furthermore, it is difficult or next to impossible to assess ROI for many important projects (e.g., Y2K projects).

While ROI is likely to be a key consideration for many organizations, multiple screening criteria are recommended for selecting and prioritizing projects.

Discuss the pros and cons of the checklist versus the weighted factor methods of selecting projects.

<u>Checklist Model</u>	<u>Weighted Factor Model</u>
<ul style="list-style-type: none">• Flexible• Applies over a wide range of different types of projects, divisions, and locations	<ul style="list-style-type: none">• Allows comparison and ranking of potential projects• Open system

<ul style="list-style-type: none"> Impossible to rigorously compare and rank project by priority Politics, power, and manipulation of project selection is very possible. 	<ul style="list-style-type: none"> Allows for self evaluation of proposed project Power and politic games are exposed.
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Page 50 - Question 2

Two new software projects are proposed to a young, start-up company. The Alpha project will cost \$150,000 to develop and is expected to have annual net cash flow of \$40,000. The Beta project will cost \$200,000 to develop and is expected to have annual net cash flow of \$50,000. The company is very concerned about their cash flow. Using the payback period, which project is better from a cash flow standpoint? Why?

Payback = Investment / Annual Savings

Project Alpha: $\$150,000 / \$40,000 = 3.75$ years

Project Beta: $\$200,000 / \$50,000 = 4.0$ years

Project Alpha is the better payback.

Page 50 - Question 3

A five-year project has a projected net cash flow of \$15,000, \$25,000, \$30,000, \$20,000, and \$15,000 in the next five years. It will cost \$50,000 to implement the project. If the required rate of return is 20 percent, conduct a discounted cash flow calculation to determine the NPV.

	A	B	C	D	E	F	G	H
1								
2	Exercise 2.3							
3	Net Present Value Example							
4								
5	Project 2.3		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
6	Investment		-\$50,000					
7	Cash Inflows			\$15,000	\$25,000	\$30,000	\$20,000	\$15,000
8	Required Rate of Return	20%						
9								
10	NPV =	\$12,895	Formula: =C6+NPV(B8,D7:H7)					

Exercises - 6

6. You are the head of the project selection team at Broken Arrow records. Your team is considering three different recording projects. Based on past history, Broken Arrow expects at least a rate of return of 20 percent. Your financial advisors predict inflation to remain at 2 percent into the foreseeable future. Given the following information for each project, which one should be Broken Arrow's first priority? Should Broken Arrow fund any of the other projects? If so, what should be the order of priority based on return on investment?

The first recording Broken Arrow should choose to undertake is **Tonight's the Night**, followed by **On the Beach**. The **Time Fades Away** project does not satisfy the high rate of return Broken Arrow expects from its projects.

Recording Project: **Time Fades Away**

Year	Inflows	Outflows	Net flow	Discount Factor	NPV
0		600,000	(600,000)	1.00	(600,000)
1	600,000		600,000	0.82	492,000
2	75,000		75,000	0.67	50,250
3	20,000		20,000	0.55	11,000
4	15,000		15,000	0.45	6,750
5	10,000		10,000	0.37	3,700
					Total: \$(36,300)

If calculated in EXCEL: \$(36,322)

ROR = 20%

I = 2%

Recording Project: **On the Beach**

Year	Inflows	Outflows	Net flow	Discount Factor	NPV
0		400,000	(400,000)	1.00	(400,000)
1	400,000		400,000	0.82	328,000
2	100,000		100,000	0.67	67,000
3	25,000		25,000	0.55	13,750
4	20,000		20,000	0.45	9,000
5	10,000		10,000	0.37	3,700
					Total: \$21,450

If calculated in EXCEL: \$21,551

Recording Project: **Tonight's the Night**

Year	Inflows	Outflows	Net flow	Discount Factor	NPV
0		200,000	(200,000)	1.00	(200,000)
1	200,000		200,000	0.82	164,000
2	125,000		125,000	0.67	83,750
3	75,000		75,000	0.55	41,250
4	25,000		25,000	0.45	11,250
5	10,000		10,000	0.37	3,700
					Total: \$103,950

If calculated in EXCEL: \$104,205

Question 7

7. The Custom Bike Company has set up a weighted scoring matrix for evaluation of potential projects. Below are five projects under consideration.
- Using the scoring matrix below, which project would you rate highest? Lowest?
 - If the weight for "Strong Sponsor" is changed from 2.0 to 5.0, will the project selection change? What are the three highest weighted project scores with this new weight?
 - Why is it important that the weights mirror critical strategic factors?

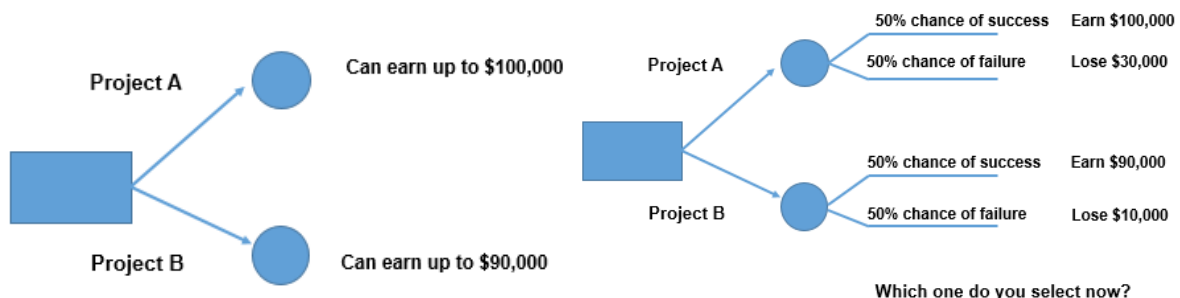
Criteria Weight	Strong sponsor	Supports business strategy	Urgency	10% of sales from new products	Competition	Fill market gap	Weighted total	Weighted total
	2.0	5.0	4.0	3.0	1.0	3.0	Part a.	Part b.
Project 1	9	5	2	0	2	5	68	95
Project 2	3	7	2	0	5	1	57	66
Project 3	6	8	2	3	6	8	99	117
Project 4	1	0	5	10	6	9	85	88
Project 5	3	10	10	1	8	0	107	116

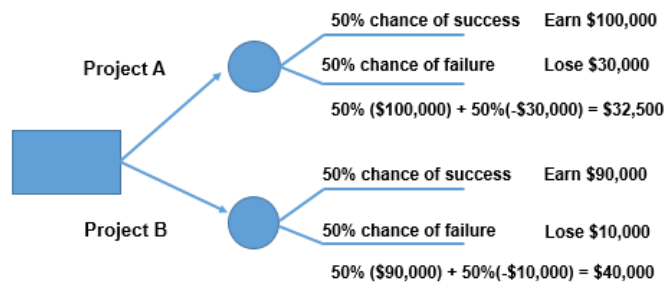
- Rate Project 5 the highest and Project 2 the lowest.
- Yes. The three highest are Projects 3, 5, and 1. Given the new strong sponsor weight, Project 3 becomes the first choice. However, note that Project 5 is still the near equivalent of Project 3 by the weighting scheme.
- It is important that the weights mirror critical strategic factors because failure to do so will cause selection of projects that do not contribute the most to the strategic plan.

Decision Tree Analysis

- Choose between 2 business projects
 - Project A can earn up to \$1,000,000
 - Project B can earn up to \$900,000
- Which one do you select?
- What if Project A had a 50% chance of success and a 50% chance of failure? And, if Project A was a success you would earn \$100,000 but if it failed you would lose \$30,000.
- What if Project B had a 50% chance of success and a 50% chance of failure? And, if Project B was a success you would earn \$90,000 but if it failed you would lose \$10,000 .

Decision Tree Analysis





Now, which one would you select? \

Project B, with an “Expected Value of \$40,000” versus Project A, with an “Expected Value of \$32,500”

Does this mean that you will earn \$40,000 on Project B? No, however if you did similar Project B's overtime, then on average your earnings will “probably” be \$40,000 per time. This does not mean \$40,000 each time

Review - AHP exercises in class and Assignment 1

Chapter 3

What are the relative advantages and disadvantages of the functional, matrix, and dedicated team approaches to managing projects?

	Functional	Matrix	Dedicated Team
Adv.	<ul style="list-style-type: none"> o radical alteration in basic structure of the parent organization o maximum flexibility in use of staff within functional units o in-depth expertise can be brought to bear on specific components of the project o normal career paths can be maintained. 	<ul style="list-style-type: none"> o Flexible utilization of resources across projects and functional duties o Project focus is provided by having a designated project manager o Specialists maintain ties with their functional group o Balances project prerogatives with technical requirements. 	<ul style="list-style-type: none"> o Does not disrupt the basic structure of the parent organization o Concentrated project focus o Projects tend to get done quickly o Strong cross-functional integration
Disadv.	<ul style="list-style-type: none"> o Lack of project focus 	<ul style="list-style-type: none"> o Decision making can be bogged down as 	<ul style="list-style-type: none"> o Dilemma of what to do with people once the

<ul style="list-style-type: none"> o poor cross-functional integration o low o lack of project ownership. 	<p>P</p> <p>So</p> <p>L</p>	<p>agreements have to be negotiated between project managers and functional managers</p> <p>Stress induced by multiple superiors.</p>	<ul style="list-style-type: none"> o project is over o Technical expertise limited to the people on the team o We/th o ey attitude emerges between project team and rest of organization which inhibits integration of project with mainstream operations o Expensive - creation of project management role and duplication of services across projects.
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What distinguishes a weak matrix from a strong matrix?

The most distinguishing characteristic between a weak and strong matrix is the ***relative influence the project manager has over project participants and functional managers***. In a weak matrix the project manager role is limited to coordinating project activities. The functional managers are responsible for managing their segment of the project. The project manager has little formal authority over the project. In a strong matrix, the project manager controls most aspects of the project including design trade-offs and assignment of project personnel. The functional managers are responsible for supporting project completion. ***A project manager in the weak matrix is not likely to be involved in performance appraisals and compensation decisions while project managers in a strong matrix would.***

How can project management offices (POs) support effective project management?

POs support effective project management by:

- tracking project progress
- promulgating best practices
- providing project management training and consulting services
- integrating latest advances in field of project management
- being an organizational advocate.

It should be noted that the extent to which a PO performs the above functions will vary from one organization to the next.

Why is it important to assess the culture of an organization before deciding what project management structure should be used to complete a project?

The culture of the organization can impact the effectiveness of different project management structures. Organizational cultures that do not encourage

teamwork, collaboration, and cross-functional integration need a stronger project management structure (i.e., project team, project matrix) to be successful. Conversely, a functional matrix can be effective in an organization in which the culture of the organization is conducive to project management.

- Consider different approaches
- What is most effective?

Chapter 4 Defining the Project

What are the six elements of a typical scope statement?

- a. Project objective
- b. Deliverables
- c. Milestones
- d. Technical requirements
- e. Limits and exclusions
- f. Reviews with customer.

What questions does a project objective answer? What would be an example of a good project objective?

The project objectives answer ***what, when, and how much***. To replace the Willamette bridge by August 3rd at a cost not to exceed \$1.5 million.

What does it mean if the priorities of a project include: Time-constrain, Scope-accept, and Cost-enhance?

The project must be completed on a specific date, the scope can be scaled back in order to meet cost and time objectives, and when possible seek opportunities to reduce costs.

What kinds of information are included in a work package?

Work packages include the following types of information:

- Work to accomplish a segment of the project
- Time to accomplish the work package
- Time-phased budget for the work package and total cost to complete the work package
- Resources needed to complete the work package
- Single person responsible for accomplishment of the work package
- Monitoring points for measuring progress during implementation of the work package
- Any specifications critical to the work package.

P. 123 Exercise 3- Develop a WBS to create a Bicycle WBS Helps the project by:

- Facilitates evaluation of cost, time, and technical performance of the organization on a project.
- Provides management with information appropriate to each organizational level.
- Helps in the development of the organization breakdown structure (OBS). which assigns project responsibilities to organizational units and individuals
- Helps manage plan, schedule, and budget.

- Defines communication channels and assists in coordinating the various project elements.

A FMEA Example** $S \times L \times D = RPN = \text{Quantitative Risk Analysis}$**

- List ways a project can fail
- Evaluate severity (S)
- Estimate likelihood (L)
- Estimate the inability to detect (D)
- Find the *risk priority number* (RPN) ($RPN = S \times L \times D$)
- Consider ways to reduce the S, L, and D for each cause of failure

<i>Threat</i>	<i>Severity, S</i>	<i>Likelihood, L</i>	<i>Ability to Detect, D</i>	<i>RPN</i>
1. Tight schedule	6	7.5	2	90
2. Can't acquire tech knowledge	8.5	5	4	170
3. Client changes scope	4	8	5	160
4. Costs escalate	3	2	6	36
5. Recession	4	2.5	7	70

Chapter 10

Why is it important to build a relationship before you need it?

People are likely to be more cooperative if they know you, and you have developed a personal relationship with them. When people view you as pleasant, credible, and helpful based on past contact, they are more likely to be responsive to your requests for help and less confrontational when problems arise. The key is building a positive credit in the relationship that you can tap into when you need help.

Why is it critical to keep the project sponsor informed?

The project sponsor is a powerful ally who uses his/her influence to protect the project when it comes under attack in higher circles of management. Project sponsors need to be kept informed so that they can defend the project to the best of their abilities.

Why is trust a function of both character and competence?

Character alone is not likely to engender trust. People must have confidence in the other person's abilities and competence. For example, you are unlikely to follow someone who has the best of intentions if he/she has a track record of failing to get things done correctly. Conversely, one will not trust someone who is very competent but has a doubtful character. For example, you are unlikely to follow someone who is quite competent if you believe he/she is only looking out for what is best for him/her.

Which of the eight traits/skills associated with being an effective project manager is the most important? The least important? Why?

Most students picked either emotional intelligence, systems thinker, skillful politician, or personal integrity.

For example, personal integrity is important because it leads to trust which facilitates more effective interaction. Alternatively, being a skilled politician is necessary to deal with different stakeholders with conflicting agendas

- Emotional intelligence, easier to connect with team

Chapter 5

Calculate the direct cost of labor for a project team member using the following data:

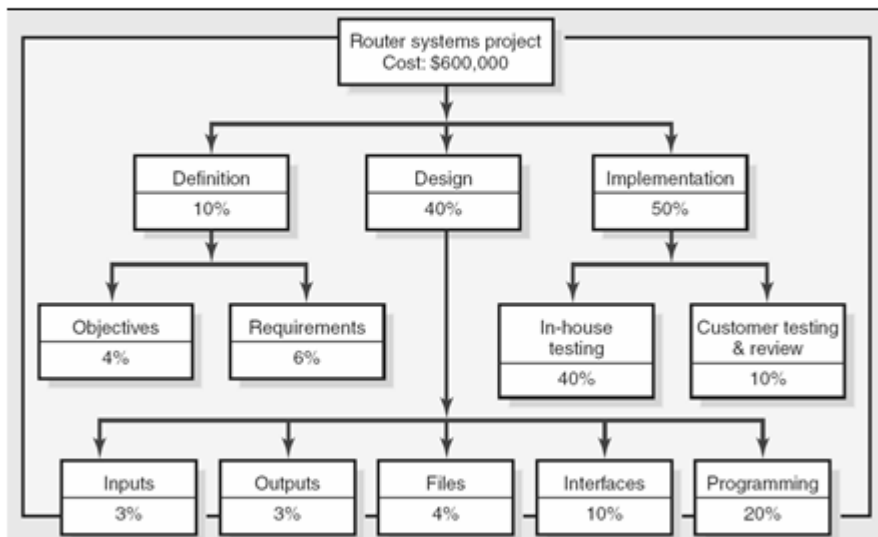
Hourly rate: \$40/hr

Hours needed: 80

Overhead rate: 40%

Direct Cost of Labor: $80 \times \$40 = \$3,200$

3. Below is a project WBS with cost apportioned by percents. If the total project cost is estimated to be \$600,000, what are the estimated costs for the following deliverables?



- a. Design? \$240,000
- b. Programming? \$120,000
- c. In-house testing? \$240,000

Design = $600,000 \times 0.4$

Programming = $600,000 \times 0.4 \times 0.5$

= $240,000 \times 20\%/40\%$

=

In-house = $600,000 \times 0.5$

= $300,000 \times 40\%/50\%$

= 240,000