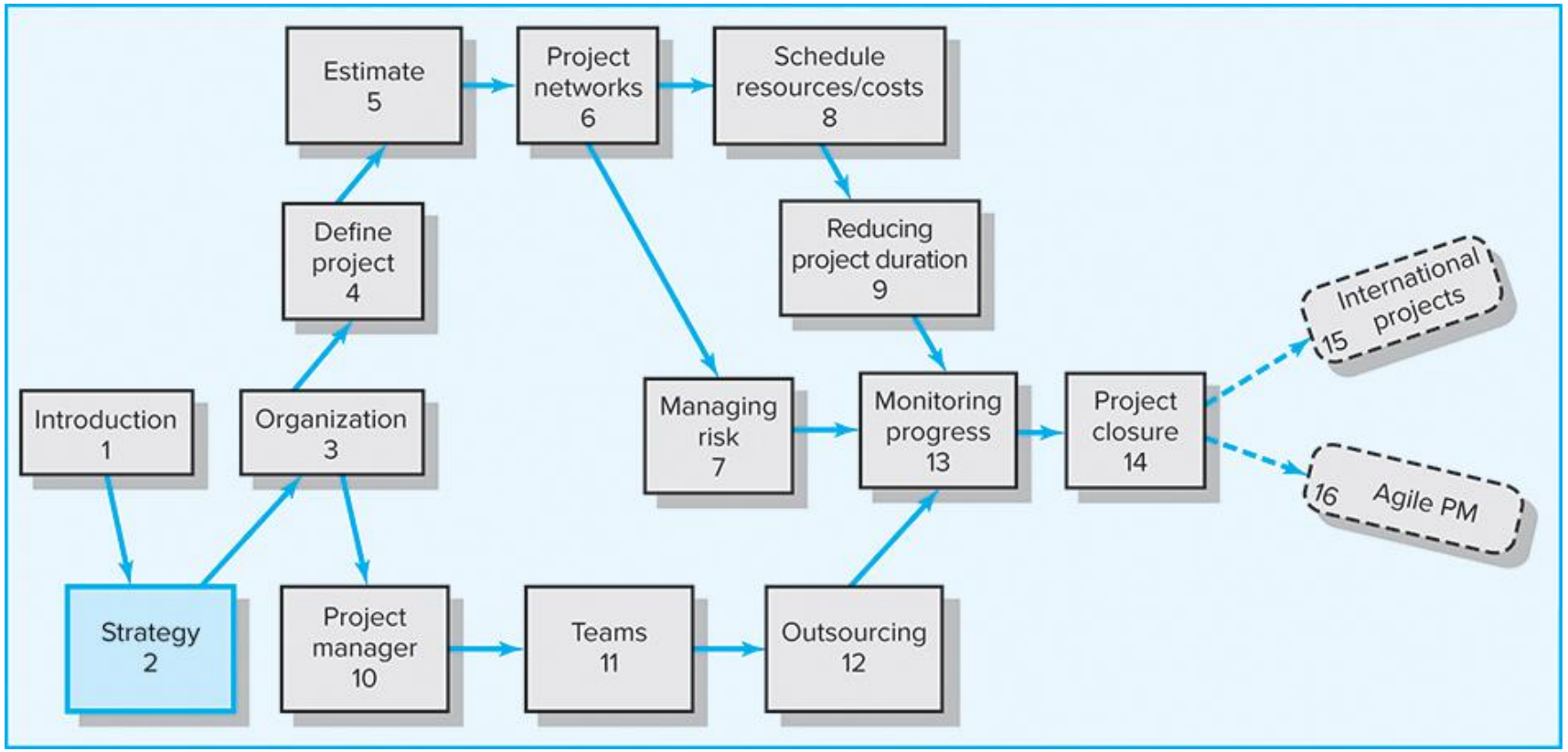
Project Planning and Management

Chapter Two

Organization Strategy and Project Selection

Where We Are Now



Learning Objectives

Every significant project should have a clear link to the organization's strategy.

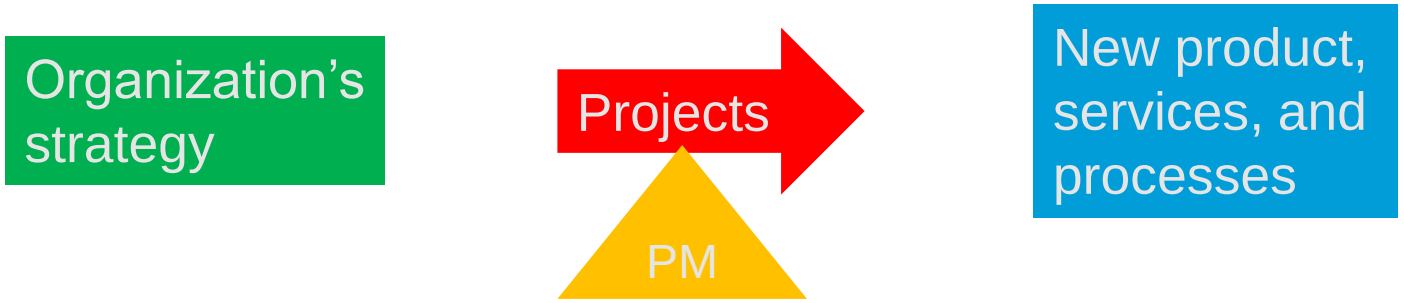
So, it is important to understand strategic management process and project selections process

Chapter Outline

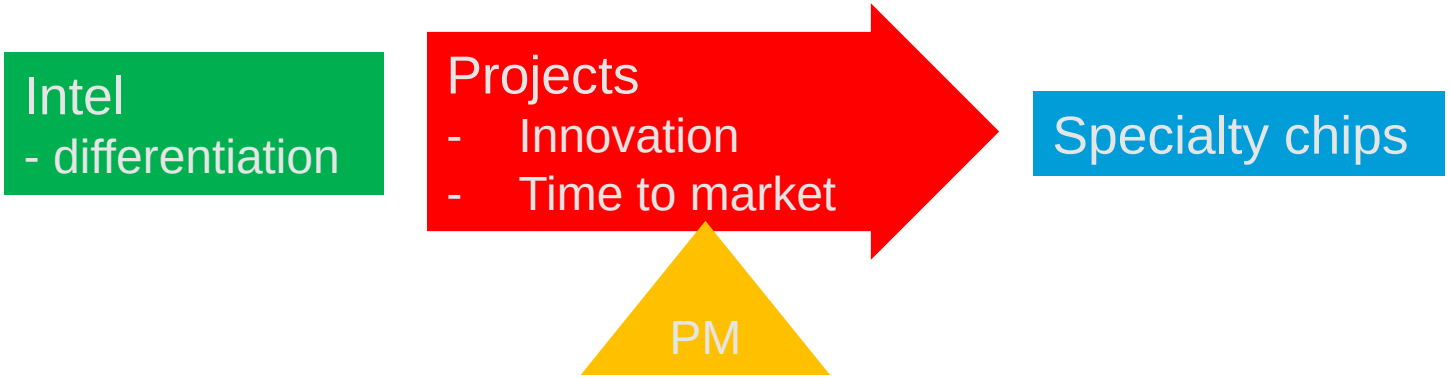
2.1 The Strategic Management Process: An Overview
2.2 The Need for a Project Priority System
2.3 A Portfolio Management System
2.4 Selection Criteria
2.5 Applying a Selection Model
2.6 Managing the Portfolio System

The Organization's Strategy

- Strategy is fundamentally deciding **how the organization will compete**.



  - Eg., Intel's major strategy is one of **differentiation**. Its projects target innovation and time to market.



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Why Project Managers Need to Understand Strategy

- Two main reasons:
  - Project managers can make appropriate decisions and adjustments for **changes of Project**.
    - Modify the design of a product to enhance performance
      - to be a product leader through innovation, or
      - to achieve operational excellence through low cost solutions
  - Project managers can become effective advocates of projects aligned with the firm's mission.

The Strategic Management Process: An Overview

How an organization intends to compete using the resources available in the existing and perceived future environment.

Improve its competitive position

The Strategic Management Process: An Overview

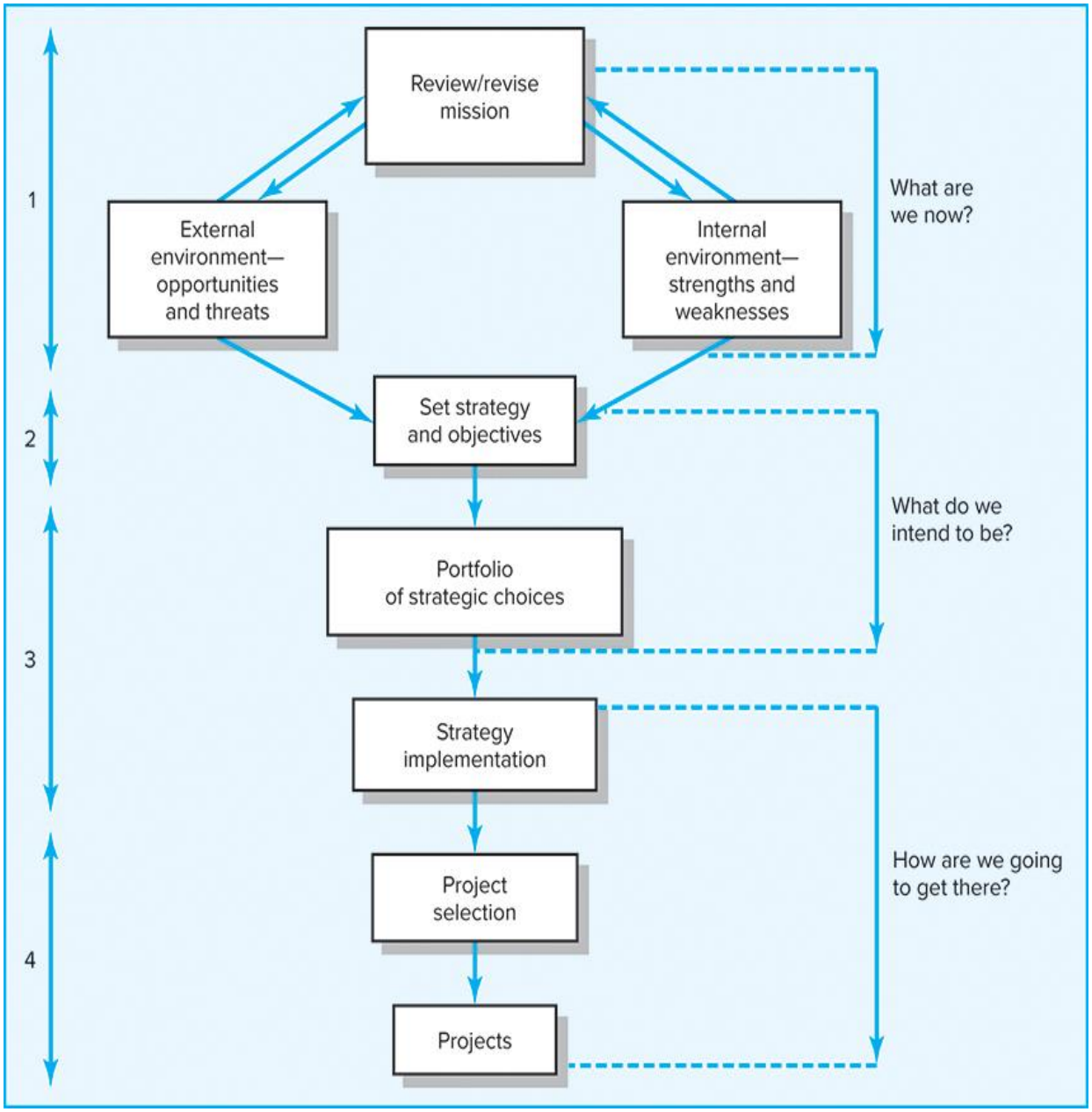
Improve its competitive position

- Strategic Management
  - Provides theme and focus of firm's future direction.
    - **Responding to changes** in the external environment—environmental scanning
    - **Allocating scarce resources** of the firm to improve its competitive position—internal responses to new programs
  - Requires strong links among mission, goals, objectives, strategy, and implementation.

The Strategic Management Process: An Overview

Improve its competitive position

- Strategic Management
  - Provides theme and focus of firm's future direction.
  - Requires strong links among mission, goals, objectives, strategy, and implementation.
    - Mission: the general purpose of the organization (eg, "market leader in leather goods offering quality goods for low-mid income consumers")
    - Goals: global targets with the mission (eg, "Achieve 50% market share in product X, Y Z by 2025)
    - Objectives: specific targets to goals (eg, "gain 20% market share of product X by next 2 year")
    - Strategy: actions and tasks to be implemented (eg, "low cost/ differentiation")
    - Implementation: making them happen (eg, low cost product development projects/ developing a site where customers can submit highly customized orders).



Strategic Management Process

FIGURE 2.1

The Strategic Management Process: An Overview

1. Review and define the organisational mission
2. Set long-range goals and objectives
3. Analyse and formulate strategies to reach objectives
4. Implement strategies through projects

1. Review and Define the Organizational Mission

- Mission statement: “What we want to become”
- Identifies and communicates the purpose of the organisation to all stakeholders
- Identifies the scope of the organisation in terms of its product or service
- Provides a focus for decision making
- Used for evaluating organisational performance

- e.g., major products and service, target customers and markets, organizational philosophy, key technologies, contribution to society

1. Review and Define the Organizational Mission

___'s mission is to offer a wide range of home furnishing products of good design and function, excellent quality and durability, at prices so low that the majority of people can afford to buy them. The company targets the customer who is looking for value and is willing to do a little bit of work serving themselves, transporting the products home and assembling the furniture for a better price.

___'s mission is to organize the world's information and make it universally accessible and useful

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___’s mission is to organize the world’s information and make it universally accessible and useful

- Users
- Employees
- Advertisers and other customers
- Investors
- Governments
- Communities

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2. Set long-range goals and objectives

- Translates the mission into specific, concrete and measurable terms
  - a 40% increase in sales
- Sets targets for all levels of the organisation in a cascaded manner
  - A new type of joint, called a wedge dowel, that makes it much quicker and simpler to assemble wooden products

  - To develop a wedge dowel for market within six months within a budget of $200,000
    - It is passed to marketing, design, and R&D departments
- *Where* is an organisation headed and *when* it is going to get there
- Bring the focus of managers on where the organisation should move to

Characteristics of objectives

S	**Specific**	Be specific in targeting an objective
M	**Measurable**	Establish a measurable indicator(s) of progress
A	**Assignable**	Make the objective assignable to one person/ team for completion
R	**Realistic**	State what can realistically be done with available resources
T	**Time related**	State when the objective can be achieved, that is, duration

3. Analyse and formulate strategies to meet objectives

- Focuses on *what* needs to be done to reach objectives

1. Realistic view of the past and current position
2. Assessment of the internal and external environments
    - SWOT analysis: SW-internal, OT-external (technology, industry structure, competition)
    - O: increasing demand, emerging markets and demographics
    - T: a slowing of the economy, exchange rates or government regulation
3. Alternatives generated and assessed
4. Strategy formulation ends with cascading objectives or projects assigned to lower divisions, departments, or individuals.

4. Implementation of strategy through projects

- Focuses on *how* the strategies will be realised with resources
- Maintain the link between strategy (the *'what')* and implementation (the *'how')*

4. Implementation of strategy through projects

- Requires action and completion of tasks

1. Resource allocation
   - Represent funds, people, management talents, technological skills, and equipment
2. Formal and informal organization: support strategy and project
   - Authority, responsibility, and performance all depend on organization structure and culture
3. Planning and control systems
4. Motivating project contributors
5. Project Prioritisation system

The Need for a Project Priority System

Problems with project implementation without priority system

- The Implementation Gap
  - The lack of understanding and consensus on strategy among top management and middle-level (functional) managers who independently implement the strategy.
- Organization Politics
  - Project selection is based on the persuasiveness and power of people advocating the projects.
    - e.g., Xerox (1970s) – ALTO computer project
  - *Top management: reduces the impact of internal politics*
- Resource Conflicts and Multitasking
  - Multiproject environment creates interdependency relationships of shared resources which results in the starting, stopping, and restarting projects.
    - e.g., the labor resource pool of a construction company

The Need for a Project Priority System

How can the implementation gap be narrowed?

How can power politics be minimized?

Project Portfolio Management

Benefits of Project Portfolio Management

- Builds discipline into the project selection process
- Links project selection to strategic metrics
- Prioritizes project proposals across a common set of criteria, rather than on politics or emotion
- Allocates resources to projects that align with strategic direction
- Balances risk across all projects
- Justifies killing projects that do not support strategy
- Improves communication and supports agreement on project goals

EXHIBIT 2.2

A Portfolio Management System

- Design of a project portfolio system:
  - Classification of a project
  - Selection criteria depending upon classification
  - Applying a Selection Model

A Portfolio Management System: Portfolio of Projects by Type

- Compliance: Must do project, Emergency projects.
  - eg., rebuilding a soybean factory destroyed by fire
- Operational project: projects to support current operations.
  - Improve efficiency
  - Reduce product costs
  - Improve performance
- Strategic projects: projects to support the organization's long-run mission
  - e.g., new products, research, and development

FIGURE 2.2

A Portfolio Management System

- Design of a project portfolio system:
  - Classification of a project
  - **Selection criteria depending upon classification**
    a. Financial criteria / nonfinancial criteria
    b. Multi-Criteria Selection model
  - Applying a Selection Model

A Portfolio Management System

a. Selection Criteria

- **Financial models:** payback, net present value (NPV), Return of Interest (ROI)
- **Non-financial models:** projects of strategic importance to the firm

b. Multi-Criteria Selection Models

- Use several weighted selection criteria to evaluate project proposals.

Financial Models

- Three primary methods for determining the projected or estimated financial value of projects:

  a. Payback analysis

  b. Net present value (NPV) analysis

  c. Return on investment (ROI)

Financial models

a. The payback model:

- measures the time the project will take to recover the project investment
- uses more desirable, shorter paybacks
- emphasises cash flows, a key factor in business

- **Project A** has an initial investment of $700,000 and projected cash inflows of $225,000 for 5 years.
- **Project B** has an initial investment of $400,000 and projected cash inflows of $110,000 for 5 years.

- Payback period (years) = Estimated Project Cost / Annual Saving

Financial models

- Exhibit 2.3A: Comparing two projects using payback method

	A	B	C	D	E	F	G	H	I	J	K	L	M
1					Exhibit 2.3 A								
2													
3				Example Comparing Two Projects Using the Payback Method									
4													
5				Project A		Project B							
6													
7													
8		Investment		$700,000		$400,000				Project A: Payback = (D8/D9)			
9		Annual savings		$225,000		$110,000				Project B: Payback = (F8/F 9)			
10													
11		Payback period*		3.1 years		3.6 years							
12													
13		Rate of return **		32.1%		27.5				Project A: Rate of return = D9/D8)			
14										Project B: Rate of return = (F9/F8)			
15	Project A: Accept. Less than 5 years and exceeds 15% desired rate												
16													
17	Project B: Accept. Less than 5 years.												
18													
19	* Note: Payback does not use the time value of money												
20	** Note: Rate of return is reciprocal of Payback												
21													
22													

- Payback period (years) = Estimated Project Cost / Annual Saving

Financial models

- Limitations of payback:
  - ignores the time value of money
  - assumes cash inflows for the investment period (and not beyond)
  - does not consider profitability

- **Project A** has an initial investment of $100,000 and projected cash inflows of $10,000 for 10 years.
- **Project B** has an initial investment of $100,000 and projected cash inflows of $100,000 after 10 years.

Financial Models (cont'd)

b. The Net Present Value (NPV) Model

- Uses management's minimum desired rate-of-return (discount rate) to compute the present value of all net cash inflows.
  - **Positive NPV**: project meets minimum desired rate of return and is eligible for further consideration.

    The **higher** the NPV, the better.
  - **Negative NPV**: project is rejected.

$$\text{Project NPV} = I_0 + \sum_{t=1}^{n} \frac{F_t}{(1+k)^t} \quad \text{where}$$

I_0 = Initial investment (since it is an outflow, the number will be negative)
F_t = net cash inflow for period t
k = required rate of return (or discount rate)

Example Comparing Two Projects Using Net Present Value Method

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2					Exhibit 2.3B								
3													
4				Example Comparing Two Projects Using NPV									
5	Project A		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total		Formulas		
6	Required	15%											
7	Outflows		-$700,000						-$700,000				
8	Inflows			$225,000	$225,000	$225,000	$225,000	$225,000	$1,125,000				
9	Net inflows			$225,000	$225,000	$225,000	$225,000	$225,000	$425,000	Project A:	=C7+NPV(B6,D9:H9)		
10	NPV	$54,235											
11		=-700000+(225000/(1+0.15)^1)+(225000/(1+0.15)^2)+(225000/(1+0.15)^3)+(225000/(1+0.15)^4)+(225000/(1+0.15)^5)											
12													
13	Project B												
14	Required	15%											
15	Outflows		-$400,000						-$400,000				
16	Inflows			$110,000	$110,000	$110,000	$110,000	$110,000	$550,000				
17	Net inflows			$110,000	$110,000	$110,000	$110,000	$110,000	$150,000	Project B:	=C15+NPV(B14,D17:H17)		
18	NPV	-$31,263											
19		=-400000+(110000/(1+0.15)^1)+(110000/(1+0.15)^2)+(110000/(1+0.15)^3)+(110000/(1+0.15)^4)+(110000/(1+0.15)^5)											
20													
21													
22	NPV comparison: Accept Project A---NPV is positive.												
23	Reject Project B---NPV is negative.												

EXHIBIT 2.3b

Return on Investment

c. Return on investment (ROI) is calculated by *subtracting* the discounted project costs from the benefits and then *dividing* by the costs.

$$\text{ROI} = \frac{\text{(total discounted benefits - total discounted costs)}}{\text{total discounted costs}}$$

- The ***higher*** the ROI, the better.
- Many organisations have a ***required rate of return*** or minimum acceptable rate of return on investment for projects.

Return on Investment: example

Discount rate	8%					
Assume the project is completed in Year 0			Year			
	0	1	2	3	Total	
Costs	140,000	40,000	40,000	40,000		
Discount factor	1	0.93	0.86	0.79		
Discounted costs	**140,000**	**37,200**	**34,400**	**31,600**	**243,200**	
Benefits	0	200,000	200,000	200,000		
Discount factor	1	0.93	0.86	0.79		
Discounted benefits	**0**	**186,000**	**172,000**	**158,000**	**516,000**	
Discounted benefits - costs	(140,000)	148,800	137,600	126,400	**272,800**	←NPV
Cumulative benefits - costs	(140,000)	8,800	146,400	272,800		
ROI →	112%					
	Payback In Year 1					

Multiply by the discount factor each year to get discounted costs and benefits, then ***subtract*** discounted costs from discounted benefits to get NPV

(516000 – 243200)

243200

Discount Factor = $1/(1+r)^{\wedge t}$ eg, Year 1 = $(1/1+0.08)^{\wedge 1}$ = 0.93

Year 2 = $(1/1+0.08)^{\wedge 2}$ = 0.86

Payback Analysis

Discount rate	**8%**					
Assume the project is completed in Year 0			**Year**			
	0	**1**	**2**	**3**	**Total**	
Costs	140,000	40,000	40,000	40,000		
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Cumulative benefits - costs	(140,000)	8,800	146,400	272,800		
		↑				
ROI →	**112%**					
	Payback In Year 1					

Payback period (years) = Estimated Project Cost / Annual Saving ???

365 days * 140000/(140000 + 8800) = 365 days * 0.941 = 343.4 days

A Portfolio Management System

- Design of a project portfolio system:
  - Classification of a project
  - Selection criteria depending upon classification
    - Financial criteria / nonfinancial criteria
    - Multi-Criteria Selection model
  - Applying a Selection Model

Nonfinancial Strategic Criteria

A firm may support projects that do not have high profit margins:

- To capture larger market share
- To make it difficult for competitors to enter the market
- To develop an enabler product, which by its introduction will increase sales in more profitable products
- To develop core technology that will be used in next-generation products
- To reduce dependency on unreliable suppliers
- To prevent government intervention and regulation
- To restore corporate image or enhance brand recognition

A Portfolio Management System

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A Portfolio Management System

- Design of a project portfolio system:
  - Classification of a project
  - Selection criteria depending upon classification
    - Financial criteria / nonfinancial criteria
    - Multi-Criteria Selection model: no single criterion can reflect strategic significance

      a. Checklist Models

      b. Multi-Weighted Scoring Models
  - Applying a Selection Model

Multi-Criteria Selection Models

a. Checklist Model

- Uses a list of questions to review potential projects and to determine their acceptance or rejection.
- Fails to answer the relative importance or value of a potential project and fails to allow for comparison with other potential projects.

Topic	Question
Strategy/alignment	What specific organization strategy does this project align with?
Driver	What business problem does the project solve?
Success metrics	How will we measure success?
Sponsorship	Who is the project sponsor?
Risk	What is the impact of not doing this project?
Risk	What is the project risk to our organization?
Risk	Where does the proposed project fit in our risk profile?
Benefits, value, ROI	What is the value of the project to this organization?
Benefits, value, ROI	When will the project show results?
Objectives	What are the project objectives?
Organization culture	Is our organization culture right for this type of project?
Resources	Will internal resources be available for this project?
Approach	Will we build or buy?
Schedule	How long will this project take?
Schedule	Is the time line realistic?
Training/resources	Will staff training be required?
Finance/portfolio	What is the estimated cost of the project?
Portfolio	Is this a new initiative or part of an existing initiative?
Portfolio	How does this project interact with current projects?
Technology	Is the technology available or new?

Multi-Criteria Selection Models

b. Multi-Weighted Scoring Model

- Uses several weighted qualitative and/or quantitative selection criteria to evaluate project proposals.
- Allows for comparison of projects with other potential projects.

Figure 2.3 PROJECT SCREENING MATRIX

Criteria / Weight	Stay within core competencies	Strategic fit	Urgency	25% of sales from new products	Reduce defects to less than 1%	Improve customer loyalty	ROI of 18% plus	Weighted total
	2.0	3.0	2.0	2.5	1.0	1.0	3.0	
Project 1	1	8	2	6	0	6	5	66
Project 2	3	3	2	0	0	5	1	27
Project 3	9	5	2	0	2	2	5	56
Project 4	3	0	10	0	0	6	0	32
Project 5	1	10	5	10	0	8	9	102
Project 6	6	5	0	2	0	2	7	55
⋮								
Project *n*	5	5	7	0	10	10	8	83

=2*1 + 3*8 + 2*2 + 2.5*6 + 1*6 + 3*5

Applying a Selection Model (cont'd)

c. Sources and Solicitation of Project Proposals

- Within the organization
- Request for proposal (RFP) from external sources (contractors and vendors)

d. Ranking Proposals and Selection of Projects

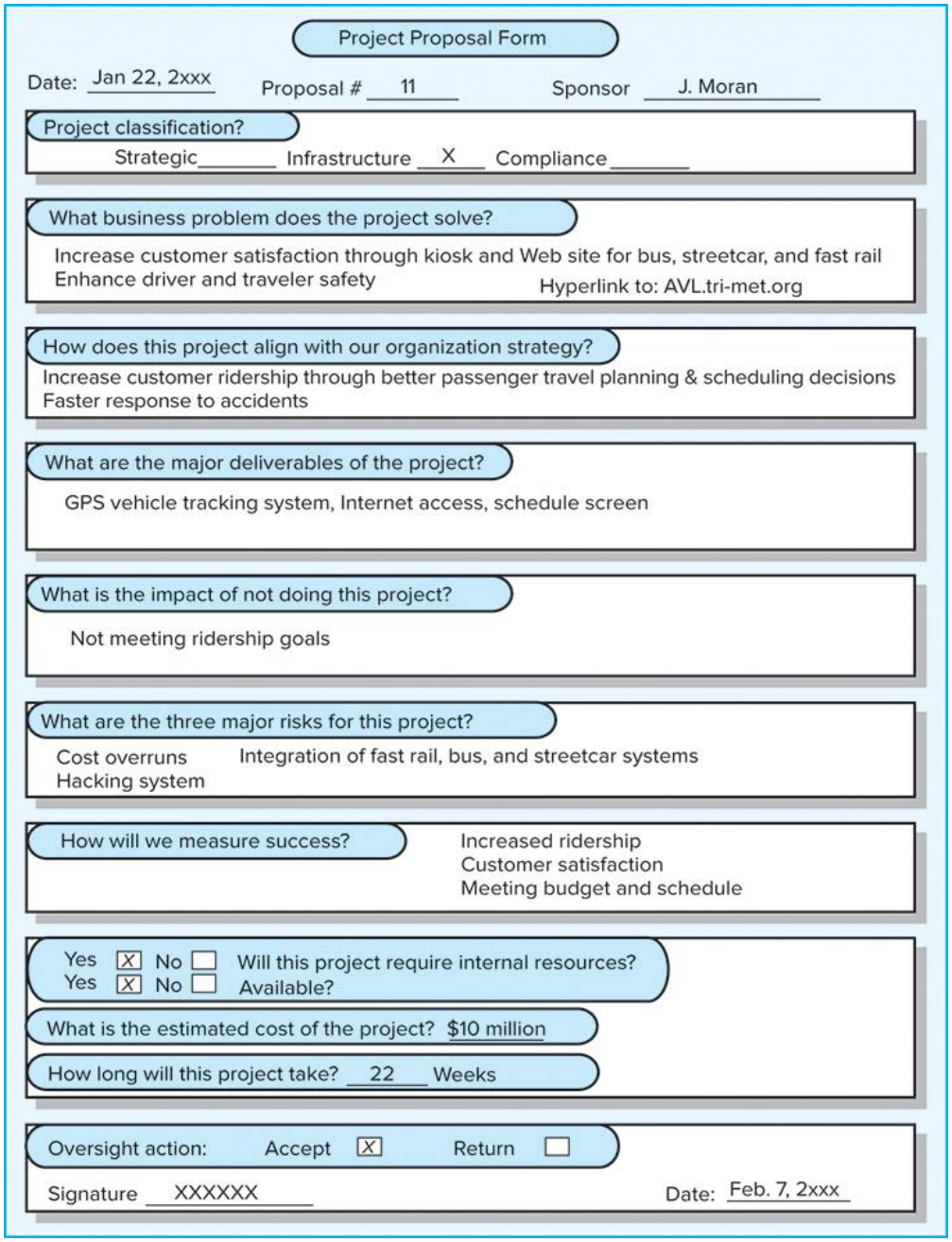
- Prioritizing requires discipline, accountability, responsibility, constraints, reduced flexibility, and loss of power

e. Managing the Portfolio

i. Senior management input

ii. The governance team (project office) responsibilities

iii. Balancing the Portfolio for Risks and Types of Projects



Project Proposal Form

Date: Jan 22, 2xxx Proposal # 11 Sponsor J. Moran

Project classification?
Strategic_____ Infrastructure X Compliance_____

What business problem does the project solve?
Increase customer satisfaction through kiosk and Web site for bus, streetcar, and fast rail
Enhance driver and traveler safety
Hyperlink to: AVL.tri-met.org

How does this project align with our organization strategy?
Increase customer ridership through better passenger travel planning & scheduling decisions
Faster response to accidents

What are the major deliverables of the project?
GPS vehicle tracking system, Internet access, schedule screen

What is the impact of not doing this project?
Not meeting ridership goals

What are the three major risks for this project?
Cost overruns
Hacking system
Integration of fast rail, bus, and streetcar systems

How will we measure success?
Increased ridership
Customer satisfaction
Meeting budget and schedule

Yes [X] No [ ] Will this project require internal resources?
Yes [X] No [ ] Available?

What is the estimated cost of the project? $10 million

How long will this project take? 22 Weeks

Oversight action: Accept [X] Return [ ]

Signature XXXXXX Date: Feb. 7, 2xxx

A Proposal Form for an Automatic Vehicular Tracking (AVL) Public Transportation Project

FIGURE 2.4A

Applying a Selection Model (cont'd)

c. Sources and Solicitation of Project Proposals

- Within the organization
- Request for proposal (RFP) from external sources (contractors and vendors)

d. Ranking Proposals and Selection of Projects

- Prioritizing means discipline, accountability, responsibility, constraints, reduced flexibility, and loss of power

e. Managing the Portfolio

i. Senior management input

ii. The governance team (project office) responsibilities

iii. Balancing the Portfolio for Risks and Types of Projects

Project Screening Process

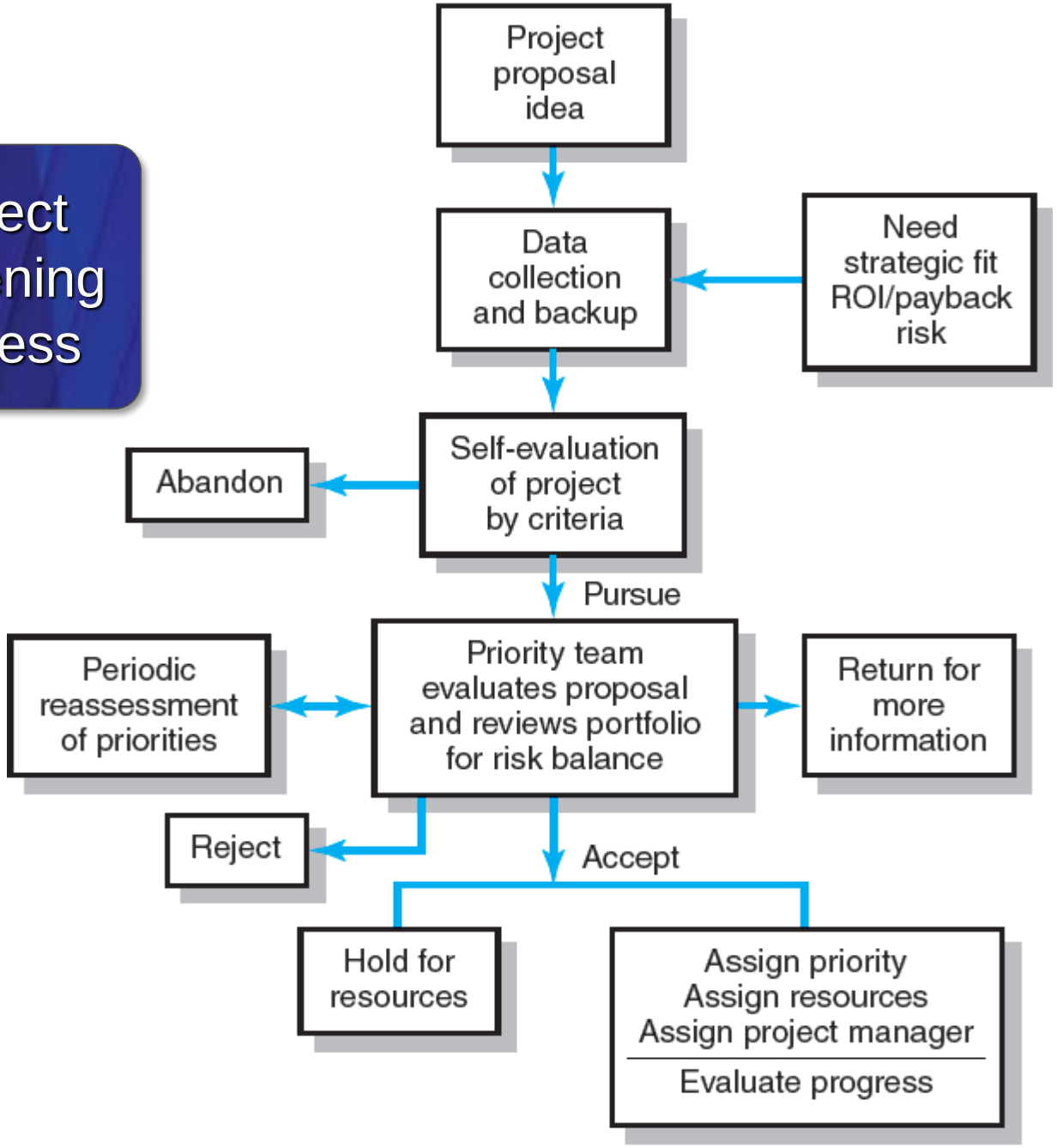


FIGURE 2.5

Applying a Selection Model (cont'd)

c. Sources and Solicitation of Project Proposals

- Within the organization
- Request for proposal (RFP) from external sources (contractors and vendors)

d. Ranking Proposals and Selection of Projects

- Prioritizing requires discipline, accountability, responsibility, constraints, reduced flexibility, and loss of power

e. Managing the Portfolio

i. Senior management input

ii. The governance team (project office) responsibilities

iii. Balancing the Portfolio for Risks and Types of Projects

Applying a Selection Model (cont'd): Managing the Portfolio

i. Senior Management Input

- Provide guidance in selecting criteria that are aligned with the organization's strategic goals.
- Decide how to balance available resources among current projects.
  - e.g. 20% compliance, 50% strategic, and 30% operational

ii. The Governance Team Responsibilities

- Publish the priority of every project.
- Ensure that the project selection process is open and free of power politics.
  - e.g. use an electronic bulletin board to disperse the current portfolio of projects, the current status of each project, and current issues
- Reassess the organization's goals and priorities.
- Evaluate the progress of current projects.

Applying a Selection Model (cont'd): Managing the Portfolio

iii. Balancing the Portfolio for Risks and Types of Projects

Bread-and-butter projects:

- involve evolutionary improvements to current products and services
- Software upgrades

Pearls:

- represent revolutionary commercial opportunities using proven technical advances
- Next-generation integrated circuit chip

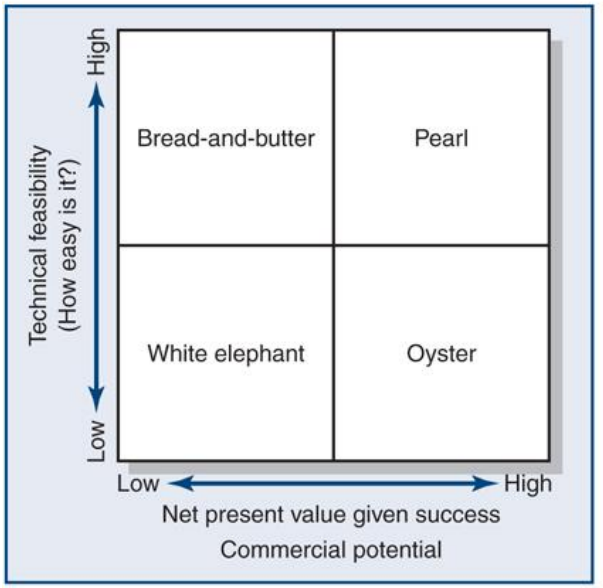
Oysters:

- involve technological breakthroughs with high commercial payoffs
- New kinds of metal alloys

White elephants:

- showed promise at one time but are no longer viable
- a potent energy source with toxic side-effects

Figure 2.8 PROJECT RELATIVITY MATRIX



Key Terms

Organization's strategy

Mission statement

Payback analysis

Net present value (NPV)

Return on investment (ROI)

Priority system

Project portfolio

Project screening matrix

Next week

Organization structure and culture