Chapter 2

The Project Management and Software Engineering Process context:

The Organizational Context: Strategy, Structure, and Culture

Learning Objectives (1 of 2)

2.1 Understand how effective project management contributes to achieving strategic objectives.

2.2 Recognize three components of the corporate strategy model: formulation, implementation, and evaluation.

2.3 See the importance of identifying critical project stakeholders and managing them within the context of project development.

2.4 Recognize the strengths and weaknesses of three basic forms of organizational structure and their implications for managing projects.

Learning Objectives

2.5 Identify the characteristics of three forms of a project management office (PMO).

2.6 Understand key concepts of corporate culture and how cultures are formed.

Projects and Organizational Strategy

Strategic management—the science of formulating, implementing, and evaluating **cross-functional decisions** that enable an **organization** to achieve its **objectives**.

Consists of:

- Developing vision and mission statements

- Formulating, implementing, and evaluating

- Making cross-functional decisions

- Achieving objectives

Table 2.1 Projects Reflect Strategy

Strategy	Project
Technical or operating initiatives (such as new distribution strategies or decentralized plant operations)	Construction of new plants or modernization of facilities
Development of products for greater market penetration and acceptance	New product development projects
New business processes for greater streamlining and efficiency	Reengineering projects
Changes in strategic direction or product portfolio reconfiguration	New product lines
Creation of new strategic alliances	Negotiation with supply chain members (including suppliers and distributors)
Matching or improving on competitors' products and services	Reverse engineering projects
Improvement of cross-organizational communication and efficiency in supply chain relationships	Enterprise IT efforts
Promotion of cross-functional interaction, streamlining of new product or service introduction, and improvement of departmental coordination	Concurrent engineering projects

What went wrong with the A380? The aircraft itself features cutting edge technology, has modern conveniences (Emirates offers its first-class passengers on-board showers and a fully stocked bar and lounge area), and is popular with travelers. Unfortunately, its design has also led to several ancillary problems. For example, because the airplane is so large, it requires a longer-than-average runway for takeoffs and landings. Furthermore, the two-decker configuration requires airports to redesign and install special jet bridges and entrance/exit gates to allow for double lines of passengers boarding and leaving the aircraft. These redesigns have proven to be unpopular with many airports that refuse to make the necessary modifications. When the A380 was first introduced in the United States, only eight airports had taxiways wide enough and parking ramps large enough to accommodate the plane. Interestingly, the sheer size of the aircraft also creates operational hazards for other flights landing or taking off behind it. As one writer put it, "The A380 is basically a flying weather system, with its 261-foot wings throwing off hurricane-strength winds. Under current international guidelines, smaller aircraft need a seven-mile gap between themselves and the A380." By comparison, some airports that handle smaller jets can space them as little as 2.5 miles apart. The arrival and departure of multiple A380s can slow flight operations at some of the busiest airports in the country.

What went wrong for the A380? Much of the blame rests on the strategic decisions taken by Airbus and its view of the future of global aviation. At the beginning of the millennium, Airbus and Boeing looked where their business was heading and saw similar facts: air traffic doubling every 15 years, including estimates that the number of travelers would hit four billion by 2020—and came to radically different conclusions for the future. For Airbus there was need for much bigger planes for sustainable growth at congested airports. For Boeing, medium-sized wide-body jets best matched future globalizatio pressures and anticipated higher frequency of travel among major and multiple growing cities.

Projects and Organizational Strategy

Strategic management consists of the following elements

1. ***Developing vision statements and mission statements.*** Vision and mission statements establish a sense of what the organization hopes to accomplish or what top managers hope it will become at some point in the future.
2. ***Formulating, implementing, and evaluating.*** Projects, as the key ingredients in strategy implementation, play a crucial role in the basic process model of strategic management. A firm devotes significant time and resources to evaluating its business opportunities through developing a corporate vision or mission, assessing internal strengths and weaknesses as well as external opportunities and threats, establishing long-range objectives, and generating and selecting among various strategic alternatives
3. ***Making cross-functional decisions.***
4. ***Achieving objectives.***

TOWS Matrix

	External Opportunities (O) 1. 2. 3.	External Threats (T) 1. 2. 3.
Internal Strengths (S) 1. 2. 3.	SO "Maxi-Maxi" Strategy Develop projects that use strengths to maximize opportunities	ST "Maxi-Mini" Strategy Develop projects that use strengths to minimize threats
Internal Weaknesses (W) 1. 2. 3.	WO "Mini-Maxi" Strategy Develop projects that minimize weaknesses by taking advantage of opportunities	WT "Mini-Mini" Strategy Develop projects that minimize weaknesses and avoid threats

Stakeholder Management

Organizations and project teams cannot operate in ways that ignore the external effects of their decisions. One way to understand the relationship of project managers and their projects to the rest of the organization is through employing stakeholder analysis.

Stakeholder analysis is a useful tool for demonstrating some of the seemingly irresolvable conflicts that occur through the planned creation and introduction of new projects.

Project stakeholders are defined as all individuals or groups who have an active stake in the project and can potentially impact, either positively or negatively, its development.

Identifying Project Stakeholders
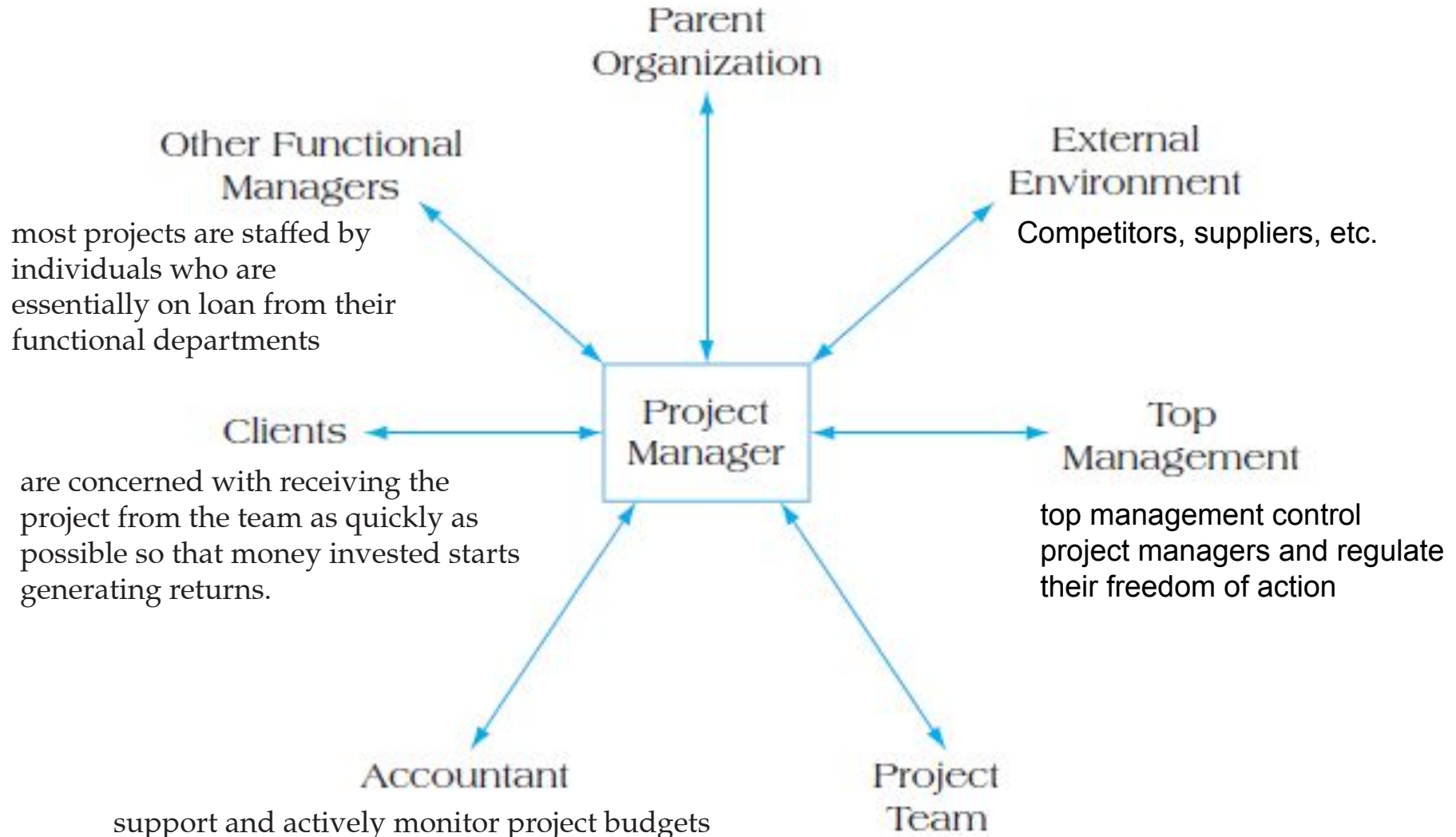
Internal Stakeholders

- Top management
- Accountant
- Other functional managers
- Project team members

External Stakeholders

- Clients
- Competitors
- Suppliers
- Environmental, political, consumer, and other intervenor groups

- Hydraulic fracturing technology has been widely embraced in USA which led to going from being a net importer of natural gas in 2012 to a net exporter in 2016. Environmental groups, however, continue to oppose these steps, using litigation and political lobbying to resist the development of these energy sources. They were initially successful in halting completion of the Dakota Access Pipeline project and have delayed for years the development of the 1,700-mile-long Keystone XL oil pipeline from Canada's oil sands region to refineries in Texas. These types of external stakeholders as **intervenor groups** (possessing the power to effectively intervene and disrupt the project)

Figure 2.3 Project Stakeholder Relationships

Parent Organization

Other Functional Managers

most projects are staffed by individuals who are essentially on loan from their functional departments

External Environment

Competitors, suppliers, etc.

Clients

are concerned with receiving the project from the team as quickly as possible so that money invested starts generating returns.

Project Manager

Top Management

top management control project managers and regulate their freedom of action

Accountant

support and actively monitor project budgets

Project Team

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Managing Stakeholders

1. **Assess the environment:** Is the project relatively low-key, or is it potentially so significant that it will likely excite a great deal of attention? Market research is essential (Google and Tesla working closely with consumers to determine their expectations from a self-driving car)

2. **Identify the goals of the principal actors:** the positions various parties adopt from some project (acceptance/rejection) are almost invariably based on need.

3. **Assess your own capabilities:** consider what you do well. Likewise, what are your weaknesses, do you have strong bargaining position to gain support

4. **Define the problem:** define problems not just from our viewpoint but also, by trying to understand how the same issue may be perceived by stakeholders

5. **Develop solutions:** develop solutions that acknowledge the interrelationships of each of the relevant stakeholder groups

6. **Test and refine the solutions:** You make your best guesses, test for stakeholder reactions, and reshape your strategies accordingly

Organizational Structure

Consists of three key elements:

1. Designates formal reporting relationships, Who reports to whom?
   - number of levels in the hierarchy
   - span of control

2. Identifies groupings of
   - individuals into departments
   - departments into the total organization

3. Design of systems to ensure
   - effective communication
   - coordination
   - integration of effort across departments

Forms of Organization Structure

- **Functional organizations**—group people performing similar activities into **departments**

- **Project organizations**—group people into **project teams** on temporary assignments

- **Matrix organizations**—create a dual hierarchy in which **functions and projects** have equal prominence

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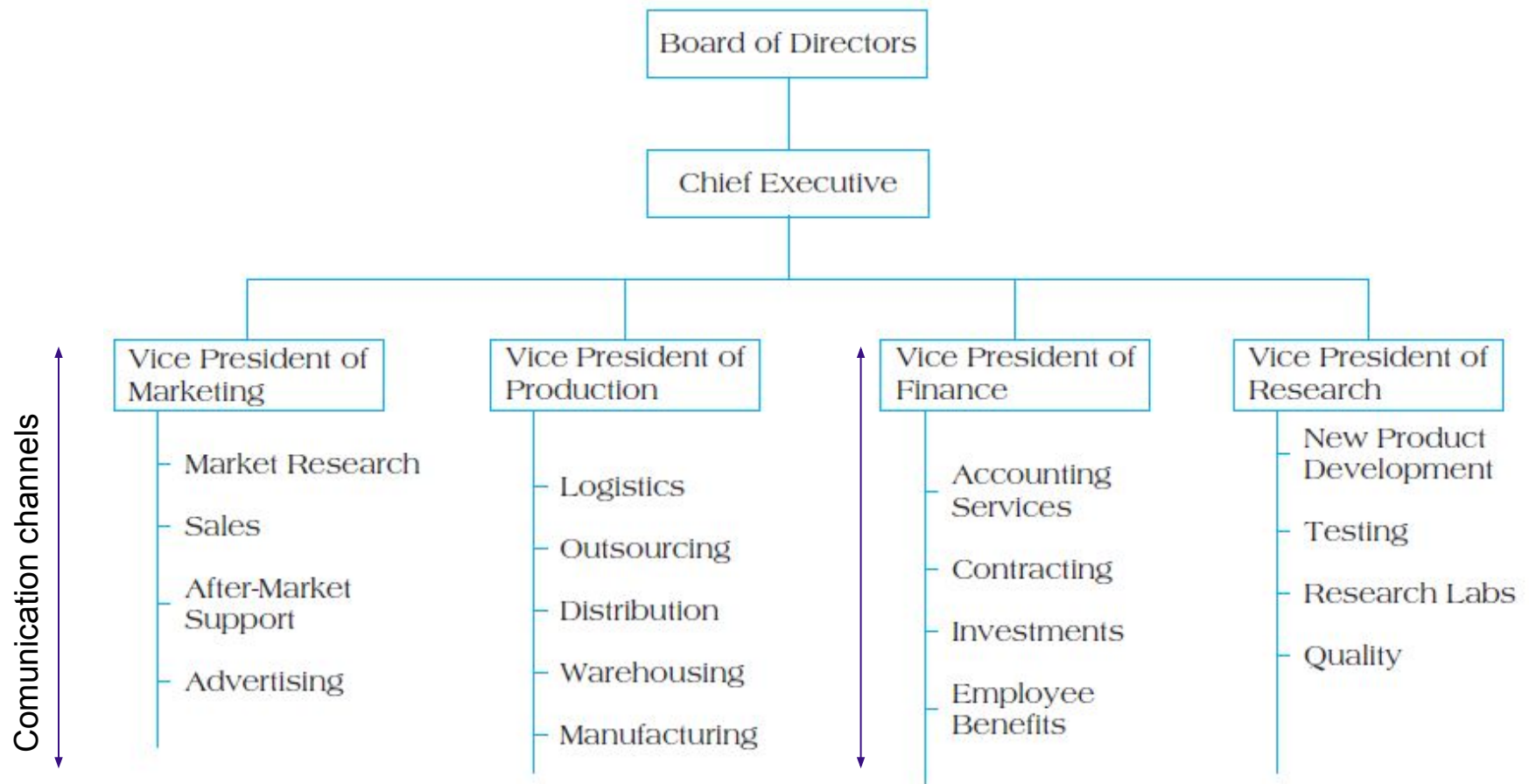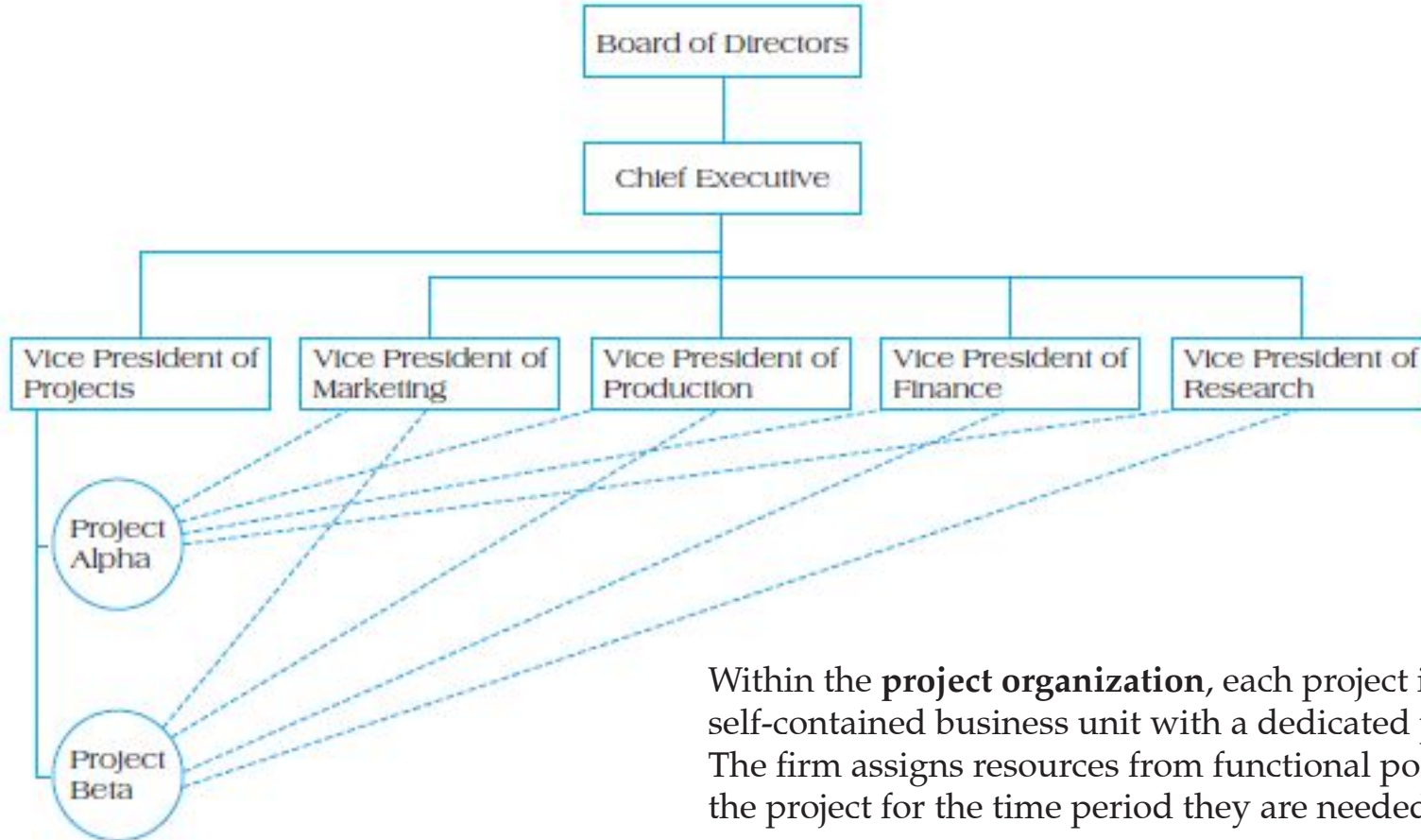# Figure 2.4 Example of a Functional Organizational Structure

Table 2.2 Strengths and Weaknesses of Functional Structures

Strengths for Project Management	Weaknesses for Project Management
1. Projects developed within basic functional structure require no disruption or change to firm's design.	1. Functional **siloing** (unwillingness to consider alternative viewpoints, collaborate with other groups, etc.) makes it difficult to achieve cross-functional cooperation.
2. Enables development of in-depth knowledge and intellectual capital.	2. Lack of customer focus.
3. Allows for standard career paths.	3. Longer time to complete projects due to structural problems, slower communication, etc.
	4. Varying interest or commitment.

Project Organizational Structure

Within the **project organization**, each project is a self-contained business unit with a dedicated project team. The firm assigns resources from functional pools directly to the project for the time period they are needed.

Project organizations are those that are set up with their exclusive focus aimed at running projects. Construction companies, large manufacturers such as Boeing or Airbus, pharmaceutical firms, and many software consulting and research and development organizations are organized as pure project organizations.

Table 2.3 Strengths and Weaknesses of Project Structures

Strengths for Project Management	Weaknesses for Project Management
1. Project manager sole authority	1. Expensive to set up and maintain teams
2. Improved communication	2. Chance of loyalty to the project rather than the firm
3. Effective decision making 4. Creation of project management experts	3. Difficult to maintain a pooled supply of intellectual capital (contractors hired temporarily for the project then leave the organization)
5. Rapid response to market opportunities	4. Team member concern about future once project ends

Figure 2.7 Example of a Matrix Organizational Structure

The vice president of projects controls the activities of the project managers under his authority. They, however, must work closely with functional departments to staff their project teams through loans of personnel from each functional group
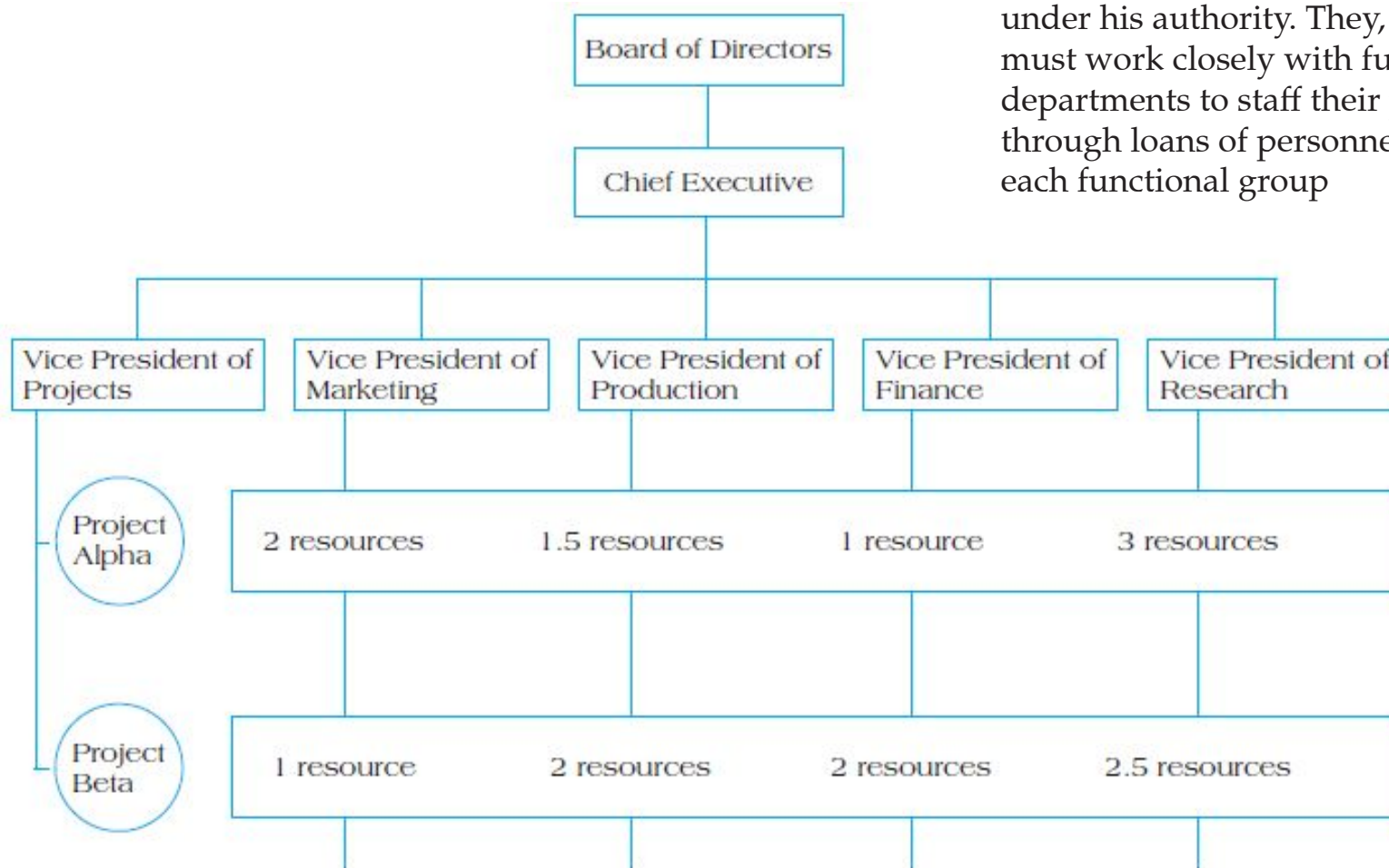

	Vice President of Marketing	Vice President of Production	Vice President of Finance	Vice President of Research
Project Alpha	2 resources	1.5 resources	1 resource	3 resources
Project Beta	1 resource	2 resources	2 resources	2.5 resources

Board of Directors — Chief Executive — Vice President of Projects

P Pearson

Table 2.4 Strengths and Weaknesses of Matrix Structures

| Strengths for Project Management	Weaknesses for Project Management
1. Suited to dynamic environments	1. Dual hierarchies mean two bosses
2. Equal emphasis on project management and functional efficiency	2. Negotiation required in order to share resources
3. Promotes coordination across functional units	3. Workers caught between competing project and functional demands
4. Maximizes scarce resources	

Heavyweight Project Organizations

Organizations can sometimes gain tremendous benefit from creating a **fully dedicated project organization**.

Lockheed Corporation's "*Skunk works* " model (small autonomous team of highly skilled hand-picked individuals given complete freedom, the project manager is given full authority, status, and responsibility)

- Project manager authority expanded

- Functional alignment abandoned in favor of market opportunism, direct reporting to the highest executive levels

- Focus on external customer

Figure 2.8 Managers' Perceptions of Effectiveness of Various Structures on Project Success (survey study)
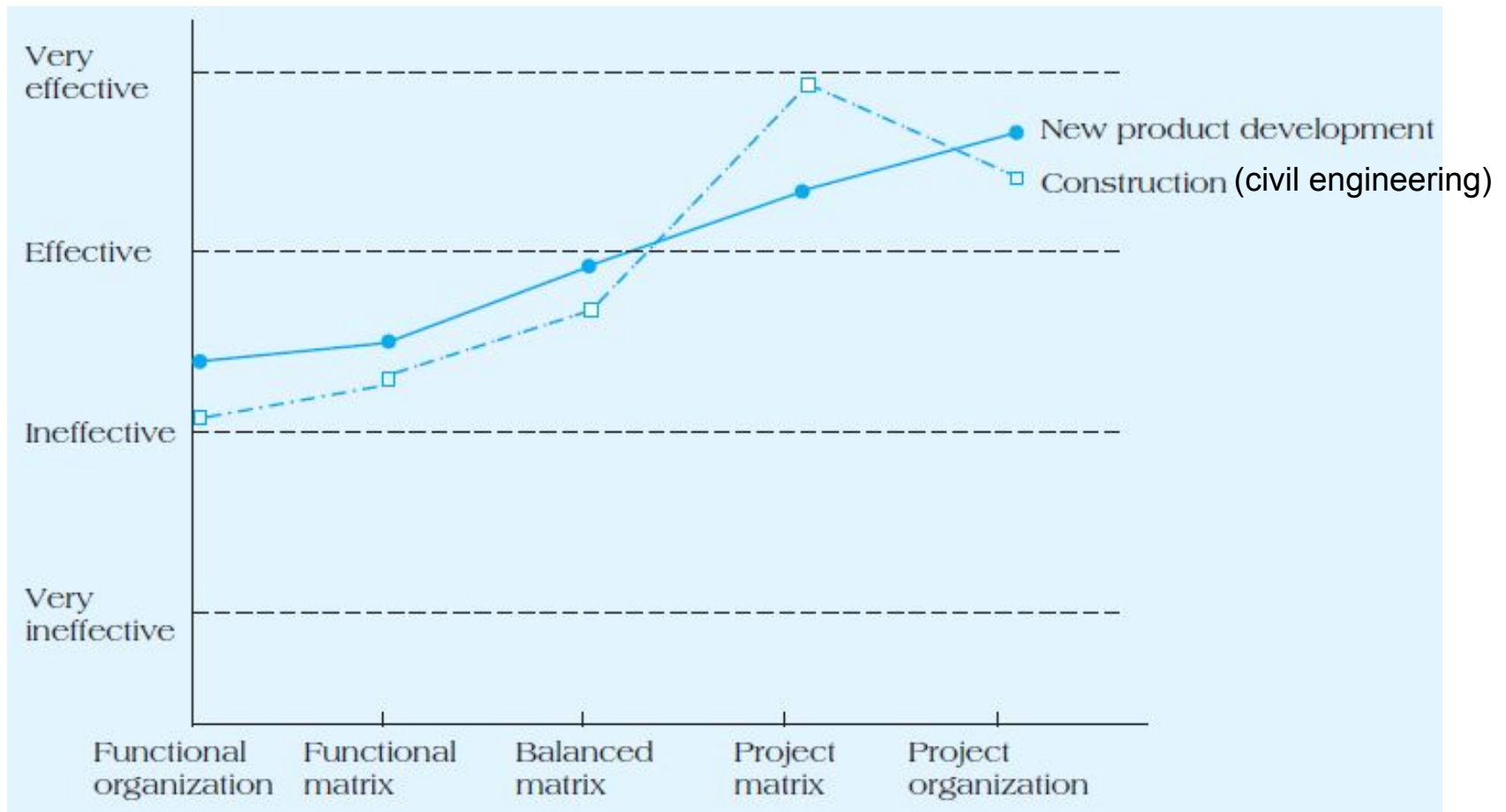
Project Management Offices

Centralized units that oversee or improve the management of projects

Resource centers for:

- Technical details

- Expertise

- Repository

- Center for excellence

Using a PMO as a resource center shifts some of the burden for PM activities (activity scheduling, resource allocation, monitoring, control processes, etc.) from the project manager to a support staff that is dedicated to providing this assistance

Alternative Levels of Project Offices

The PMO may be situated at a corporate level (Level 3), where it serves an overall corporate support function. It can be placed at a lower functional level (Level 2), where it serves the needs within a specific business unit. Finally, the PMO can be decentralized down to the actual project level (Level 1), where it offers direct support for each project.

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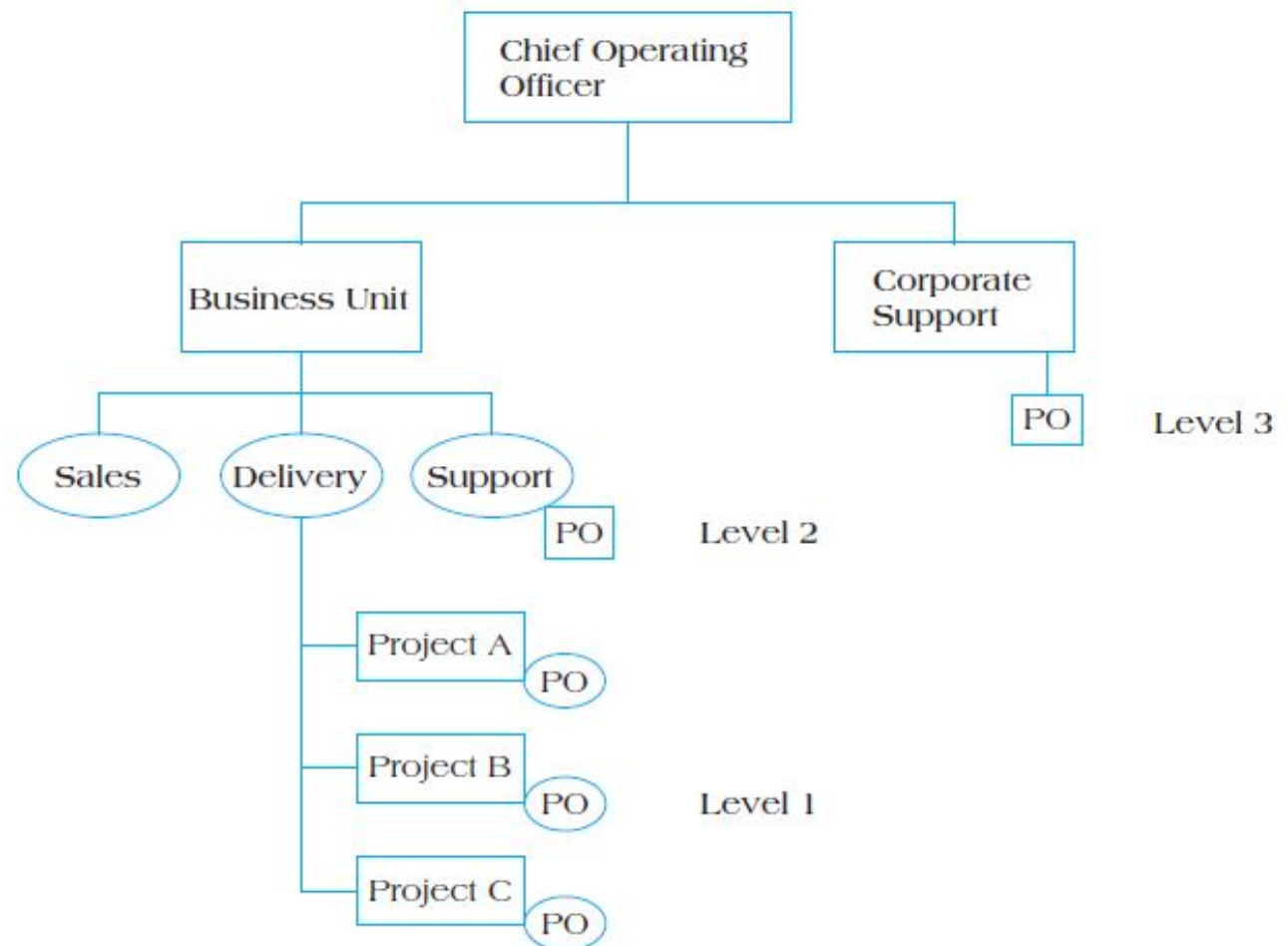
Forms of PMOs and Control

Three forms of PMOs, varying with degrees of control and influence include:

- **Supportive**—low control; consultative and provide PM resources and training

- **Controlling**—moderate control; requires compliance to adopted PM standards/processes

- **Directive**—high control; directly manages projects

Models of PMOs

In addition to the forms of PMO and varying levels of control, there are three models of PMOs with various purposes for companies:

- **Weather station**—the PMO is typically used only as a monitoring and tracking device (management wants to keep an eye on the status of the projects without directly attempting to influence or control them)

- **Control tower**—project management is a skill to be protected and supported (focus on improving methodology and practices and help PM apply them)

- **Resource pool**—maintain and provide a cadre of skilled project professionals (supplying project managers and other skilled professionals to the company's projects)

Organizational Culture

- The third key contextual variable in how projects are managed effectively is that of organizational culture

- Definition of culture: "**organization's culture** refers to the **unwritten rules of behavior**, or norms that are used to shape and guide behavior, that are shared by some subset of organizational members and that are taught to all new members of the company"
  - Unwritten (are often not written down)
  - Rules of behavior (guidelines as to how best to react to these events)
  - Held by some subset of the organization (may or may not be companywide)
  - Taught to all new members (New members of an organization pick up the behaviors as they observe others engaging in them)

- Ex: Company X has a strong supportive culture that emphasizes and rewards positive collaboration between functional groups.

Key Factors That Affect Culture Development

Among the key factors that affect the development of a culture are

- Technology

- Environment

- Geographical location

- Reward systems

- Rules and procedures

- Key organizational members

- Critical incidents (are a public expression of which rules *really* operate)

" General Electric's Jet Engine Division and Rolls-Royce share many features, including product lines. Both produce jet engines for the commercial and defense aircraft industries. However, GE prides itself on its competitive, high-pressure culture that rewards aggressiveness and high commitment but also has a high burnout rate among engineers and mid-level managers. Rolls-Royce, on the other hand, represents an example of a much more paternalistic culture that rewards loyalty and long job tenure. "

Organizational Culture: Effects on Project Management

Culture can affect project management in at least four ways:

- **Departmental interaction**: cultures that favor active cooperation between functional groups and new projects are much more successful than those that adopt a disinterested or even adversarial relationship

- **Employee commitment to goals**: A culture that promotes employee commitment and self-sacrifice through working extra hours or on multiple tasks is much more successful than a culture in which the unwritten rules seem to imply that there is nothing wrong with simply going through the motions, provided you don't get caught.

- **Project planning**: activity estimation is an imprecise process, it is common for team members to give wider estimates to give themselves as much time as possible. These people are often responding to a culture that reinforces the idea that it is better to engage in poor estimation and project planning than to be late. In the contrary: Culture of trust -> honest assessments.

- **Performance evaluation**: if organizations tacitly support caution and playing it safe, their project management approaches will equally reflect this principle

Part 2: Project Selection and Portfolio Management

PROJECT PROFILE

Project Selection Procedures: A Cross-Industry Sampler

The art and science of selecting projects is one that organizations take extremely seriously. Firms in a variety of industries have developed highly sophisticated methods for project screening and selection to ensure that the projects they choose to fund offer the best promise of success. As part of this screening process, organizations often evolve their own particular methods based on technical concerns, available data, and corporate culture and preferences. The following list gives you a sense of the lengths to which some organizations go with project selection:

- Hoechst AG, a pharmaceutical firm, uses a scoring portfolio model with 19 questions in five major categories when rating project opportunities. The five categories include probability of technical success, probability of commercial success, reward to the company, business strategy fit, and strategic leverage (that is, the ability of the project to employ and elevate company resources and skills). Within each of these factors are several specific questions, which are scored on a 1 to 10 scale by management.
- At German industrial giant Siemens, every business unit in each of the 190 countries in which the company operates uses a system entitled "PM@Siemens" for categorizing projects that employs a two-digit code. Each project is awarded a letter from A to F, indicating its significance to the company, and a number from 0 to 3, indicating its overall risk level. Larger or riskier projects (e.g., an "A0") require approval from Siemens' main board in Germany, but many of the lesser projects (e.g., an "F3") can be approved by local business units. Too many A0s in the portfolio can indicate mounting risks while too many F3 projects may signal a lack of economic value overall.
- The Royal Bank of Canada has developed a scoring model to rate its project opportunities. The criteria for the portfolio scoring include project importance (strategic importance, magnitude of impact, and economic benefits) and ease of doing (cost of development, project complexity, and resource availability). Expected annual expenditure and total project spending are then added to this rank-ordered list to prioritize the project options. Decision rules are used, e.g., projects of low importance that are difficult to execute get a "no-go" rating.

Approaches to Project Screening

- Checklist model

- Simplified scoring models

- Analytic hierarchy process

- Profile models

Checklist Model

A checklist is a list of criteria applied to possible projects.

- Requires agreement on **criteria**

- Assumes all criteria are **equally important**

Checklists are valuable for recording opinions and stimulating discussion.

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	

Simplified Scoring Models

Each project receives a score that is the weighted sum of its grade on a list of criteria. Scoring models require:

- agreement on **criteria**

- agreement on **weights** for criteria

- a **score** assigned for each criteria

$$\text{Score} = \sum (\text{Weight} \times \text{Score})$$

- Relative scores can be misleading! If the score of 3 means High and 2 means Medium, we know that 3 is better than 2, but we do not know by how much. Also, criteria selection may lead to selecting overlapping criteria (some factors are double-counted) such as "quality" and "service to customers".

Analytic Hierarchy Process

The AHP is a four step process:

1. Construct a hierarchy of **criteria and subcriteria**.

2. **Allocate weights** to criteria.

- Assign **numerical values** to evaluation dimensions. Ex:

  Poor, *Fair*, *Good*, *Very Good*, and *Excellent -> 0.0, 0.10, 0.30, 0.60*, and *1.00*

- **Determine scores** by summing the products of numeric evaluations and weights.

Unlike the simple scoring model, these scores can be compared!

Figure 3.1 Sample AHP with Rankings for Salient Selection Criteria
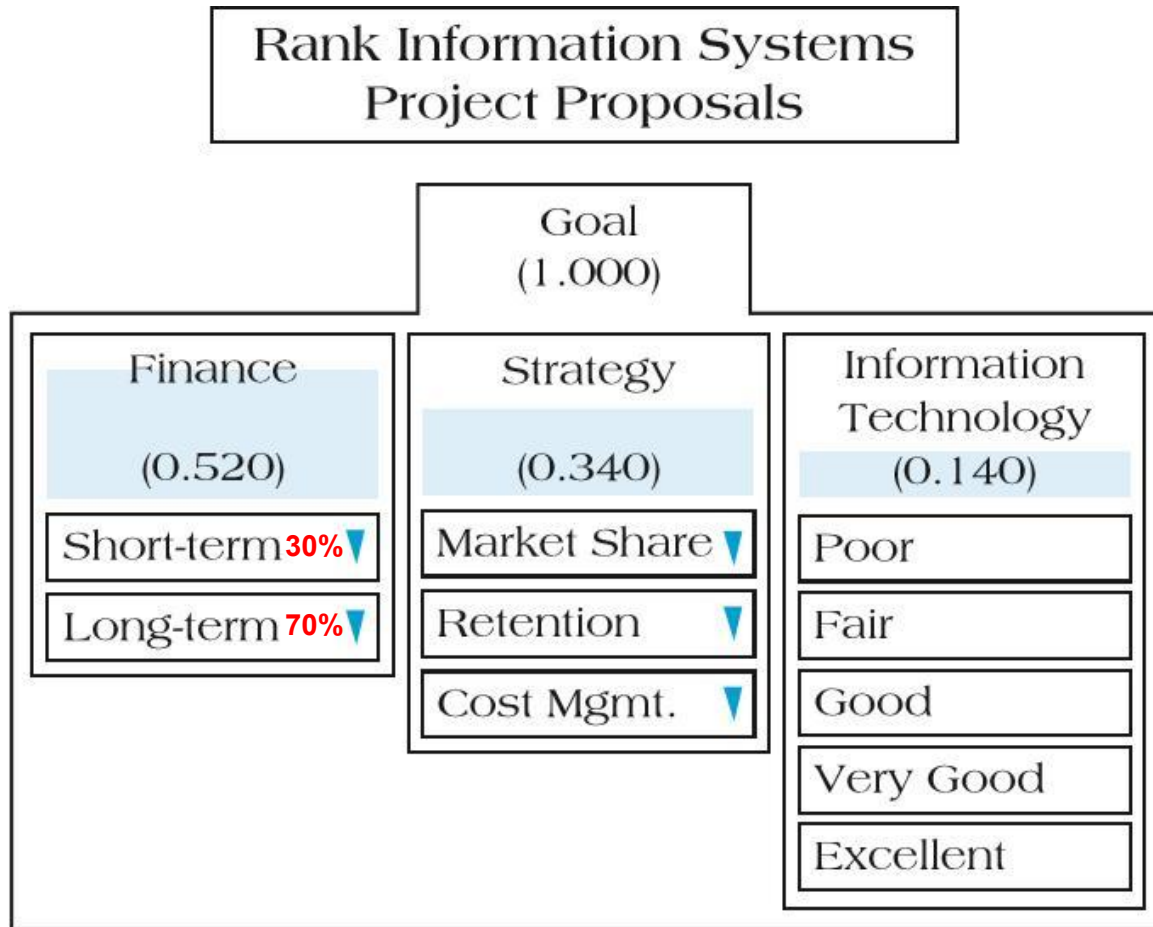
Ex: a firm's IT steering committee has selected three criteria for evaluating project alternatives: (1) *financial benefits*, (2) *contribution to strategy*, and (3) *contribution to IT infrastructure*. The *financial benefits* criterion, which focuses on the tangible benefits of the project, is further subdivided into long-term and short-term benefits. *Contribution to strategy*, an intangible factor, is subdivided into three subcriteria: (a) *increasing market share for product X*, (b) *retaining existing customers for product Y*, and (c) *improving cost management*.

Profile Model
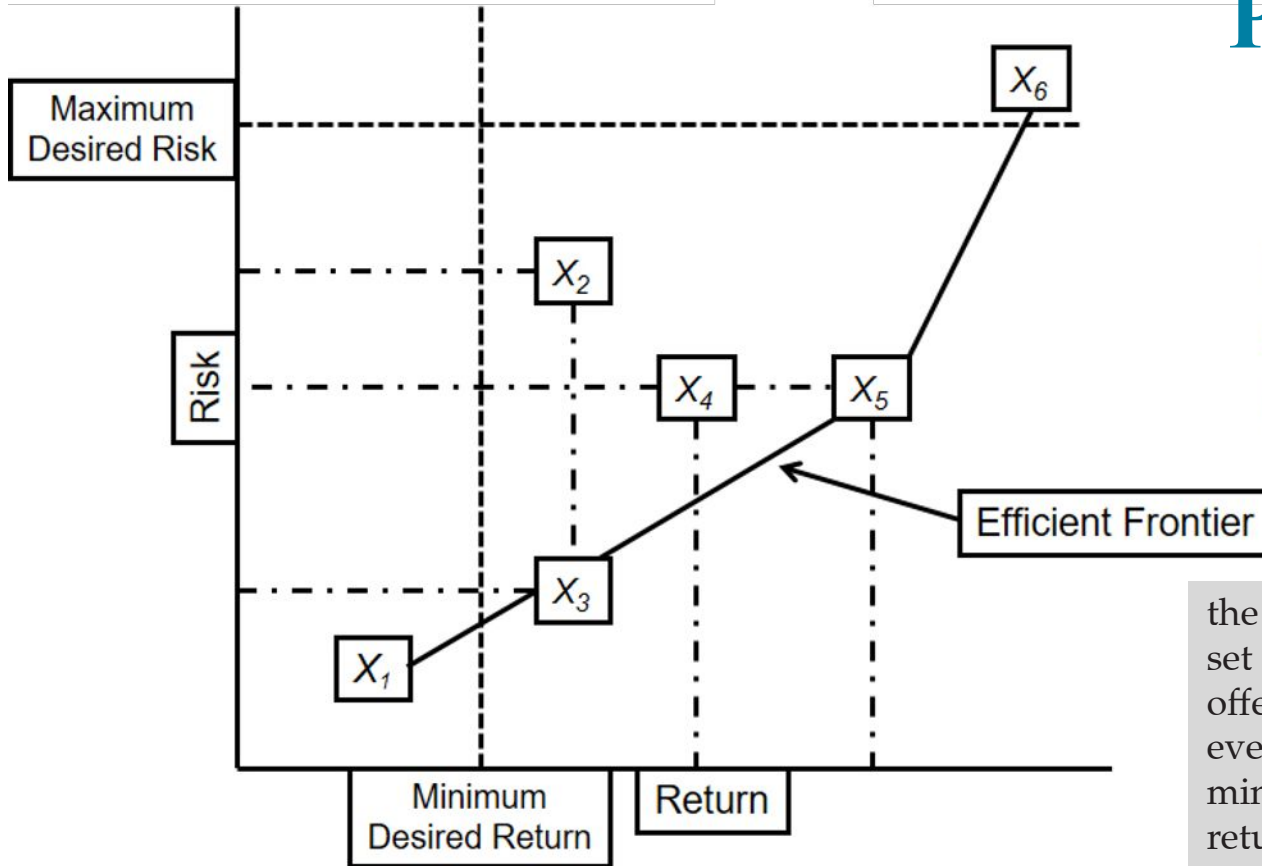
Criteria selection as axes

the **efficient frontier** is the set of project portfolio options that offers either a maximum return for every given level of risk or the minimum risk for every level of return

Profile models allow managers to plot **risk/return** options for various alternatives and then select the project that maximizes return while staying within a certain range of minimum acceptable risk.

"Risk," of course, is a subjective assessment: it may be difficult to reach overall agreement on the level of risk associated with a given project. Nevertheless, the profile model offers another way of evaluating, screening, and comparing projects.

Financial Models

- Financial models are all predicated on the **time value of money** principle. The time value of money suggests that money earned today is worth more than money we expect to earn in the future.

- In other words, $100 that I receive four years from now is worth significantly less to me than if I were to receive that money today.

- We expect future money to be worth less for two reasons: (1) the impact of inflation, and (2) the inability to invest the money.

- Main Financial Models:
  - Payback period
  - Net present value
  - Discounted payback period
  - Internal rate of return

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Payback Period

Determines **how long** it takes for a project to reach a breakeven point.

$$\text{Payback Period} = \frac{\text{Investment}}{\text{Annual Cash Savings}}$$

Cash flows should be **discounted.**

Lower numbers are **better (faster payback)**.

Payback Period Example

Initial Outlay (investment نفقات) and Projected Revenues for Two Project Alternatives

	Project A Revenues	Project A Outlays	Project B Revenues	Project B Outlays
Year 0		$500,000		$500,000
Year 1	$50,000		$75,000	
Year 2	150,000		100,000	
Year 3	350,000		150,000	
Year 4	600,000		150,000	
Year 5	500,000		900,000	

Payback Period Example

Table 3.6 Comparison of Payback for Projects A and B

Project A	Year	Cash Flow	Cum. Cash Flow
	0	($500,000)	($ 500,000)
	1	50,000	(450,000)
	2	150,000	(300,000)
	3	350,000	50,000
	4	600,000	650,000
	5	500,000	1,150,000

Payback = 2.857 years

$$3 - \frac{50,000}{350,000} = 2.857$$

Divide the cumulative amount by the cash flow amount in the third year and subtract from 3 to find out the moment the project breaks even.

Payback Period Example

Table 3.6 [continued]

Project B	Year	Cash Flow	Cum. Cash Flow
	0	($500,000)	($ 500,000)
	1	75,000	(425,000)
	2	100,000	(325,000)
	3	150,000	(175,000)
	4	150,000	(25,000)
	5	900,000	875,000

Payback = 4.028 years

$$5 - \frac{875,000}{900,000} = 4.028$$

Divide the cumulative amount by the cash flow amount in the third year and subtract from 3 to find out the moment the project breaks even.

Net Present Value

- Projects the change in the firm's value if a project is undertaken. A *positive* **NPV** indicates that the firm will make money—and its value will rise—as a result of the project.

$$NPV = I_o + \sum \frac{F_t}{(1 + r + p_t)^t}$$

Where

F_t = net cash flow for period t

r = required rate of return (ex: 10%)

I = initial cash investment (ex: 100KSAR)

p_t = inflation rate during period t (ex: 4%)
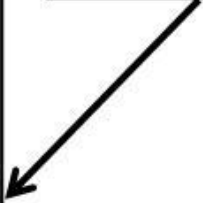
Higher *NPV* values are better!

Net Present Value Example

Table 3.8 Discounted Cash Flows and NPV (I)

discount rate:
$(1 /(1 + r + p)^t)$

Year	Inflows	Outflows	Net Flow	Discount Factor	NPV
0		$100,000	$(100,000)	1.0000	$(100,000)
1	$20,000		20,000	0.8772	17,544
2	50,000		50,000	0.7695	38,475
3	50,000		50,000	0.6749	33,745
4	25,000		25,000	0.5921	14,803
Total					$ 4,567

The NPV column total is positive, so invest!

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Discounted Payback Method

discount rate:
$$(1 / (1 + r + p)^t)$$

. Suppose we require a 12.5% return on new investments, and we have a project opportunity that will cost an initial investment of $30,000 with a promised return per year of $10,000 (no inflation in this example).

Year	Project Cash Flow* Discounted	Undiscounted
1	$8,900	$10,000
2	7,900	10,000
3	7,000	10,000
4	6,200	10,000
5	5,500	10,000
Payback Period	4 Years	3 Years

*Cash flows rounded to the nearest $100.

Discount sum of cash flows by the company's required rate of return to get a more accurate payback period.

Internal Rate of Return

The IRR method asks the simple question, what rate of return will this project earn?

A project must meet a **minimum rate of return** before it is worthy of consideration.

$$IO = \sum_{n=1}^{t} \frac{ACF_t}{(1 + IRR)^t}$$

Higher *IRR* values are better!

where

ACF_t = annual after tax cash flow for time period t

IO = initial cash outlay (نفقات)

n = project's expected life

IRR = the project's internal rate of return

Pearson

Internal Rate of Return Example

A project requires an initial cash investment of $5,000 and expected to generate inflows of $2,500, $2,000, and $2,000 for the next three years. Assume the company's required rate of return for new projects is 10%

We pick an arbitrary discount rate (here: 15%) and see if we break even.

Year	Discount Factor Inflows	Discount Factor at 15%	Discount Factor NPV
1	$2,500	.870	$2,175
2	2,000	.756	1,512
3	2,000	.658	1,316
Present value of inflows			**5,003**
Cash investment			**5,000**
Difference			**$ 3**

The project does meet our 15% requirement and **should be considered further**.

Project Portfolio Management

- **The systematic process of selecting, supporting, and managing the firm's collection of projects:** a firm's projects share a common strategic purpose and the same scarce resources -> firms should not manage projects as independent entities, but rather should regard portfolios as unified assets

Portfolio management objectives and initiatives require:

- decision making: The decision of whether to proceed in specific strategic directions

- Prioritization: Because firms have limited resources

- Review: All project alternatives are evaluated according to the company's priorities

- Realignment: portfolios are altered by the addition of new projects, managers must reexamine company priorities

- reprioritization of projects: managers must reprioritize corporate goals and objectives

Pearson

The Portfolio Selection Process

Selecting projects for a firm's portfolio is usually a systematic, committee-based process.

The portfolio selection process is an integrated framework of interrelated steps and activities.

- Preprocess Phase
  - Define Methodology of selection and strategy: The approaches (often multiple) that are going to be used to evaluate projects against each other

- Process Phase
  - Prescreening, individual project analysis, screening, portfolio selection, and portfolio adjustment

- Postprocess Phase
  - Project development, project evaluation, and portfolio completion

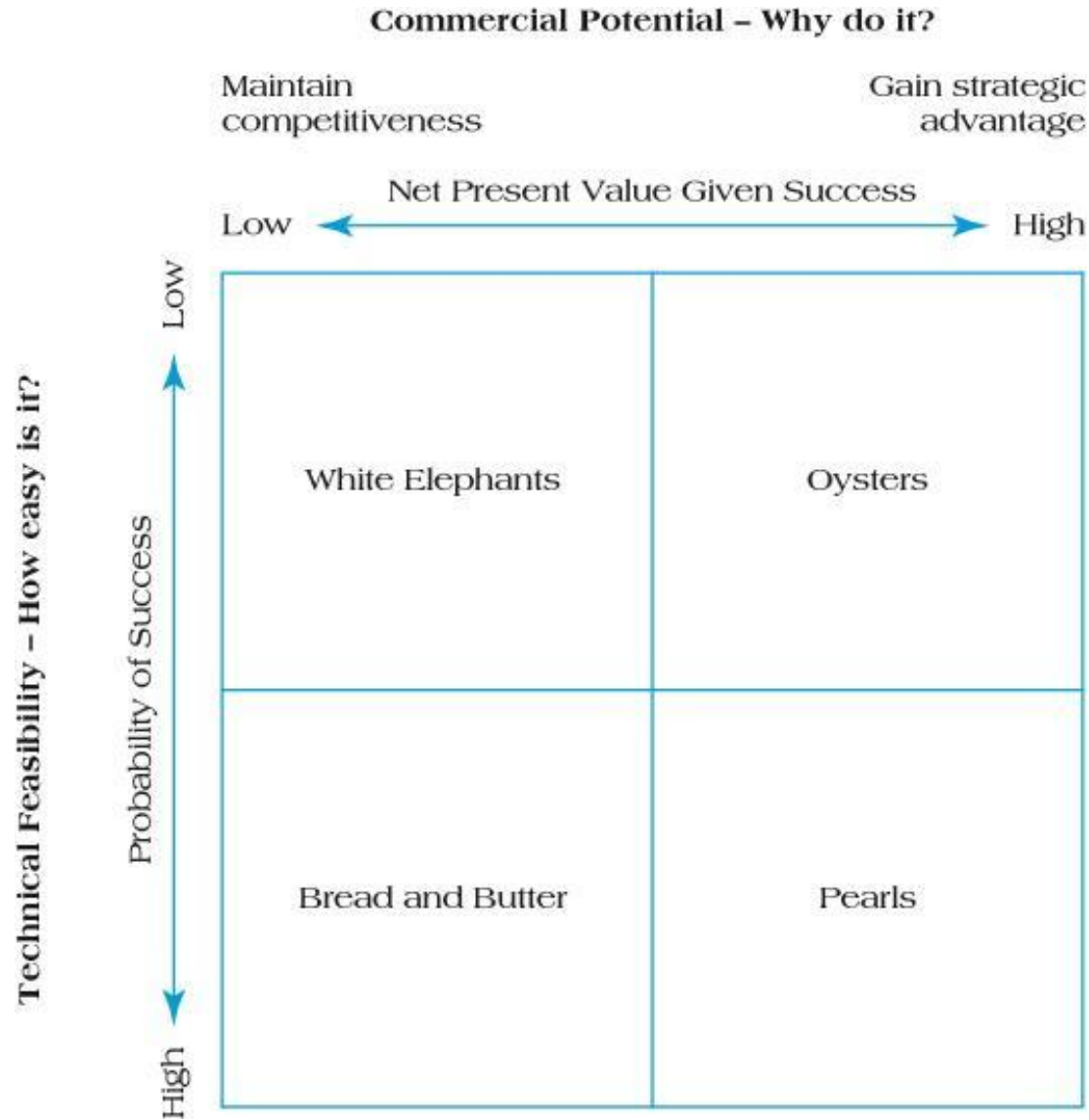# Project Portfolio Selection Process
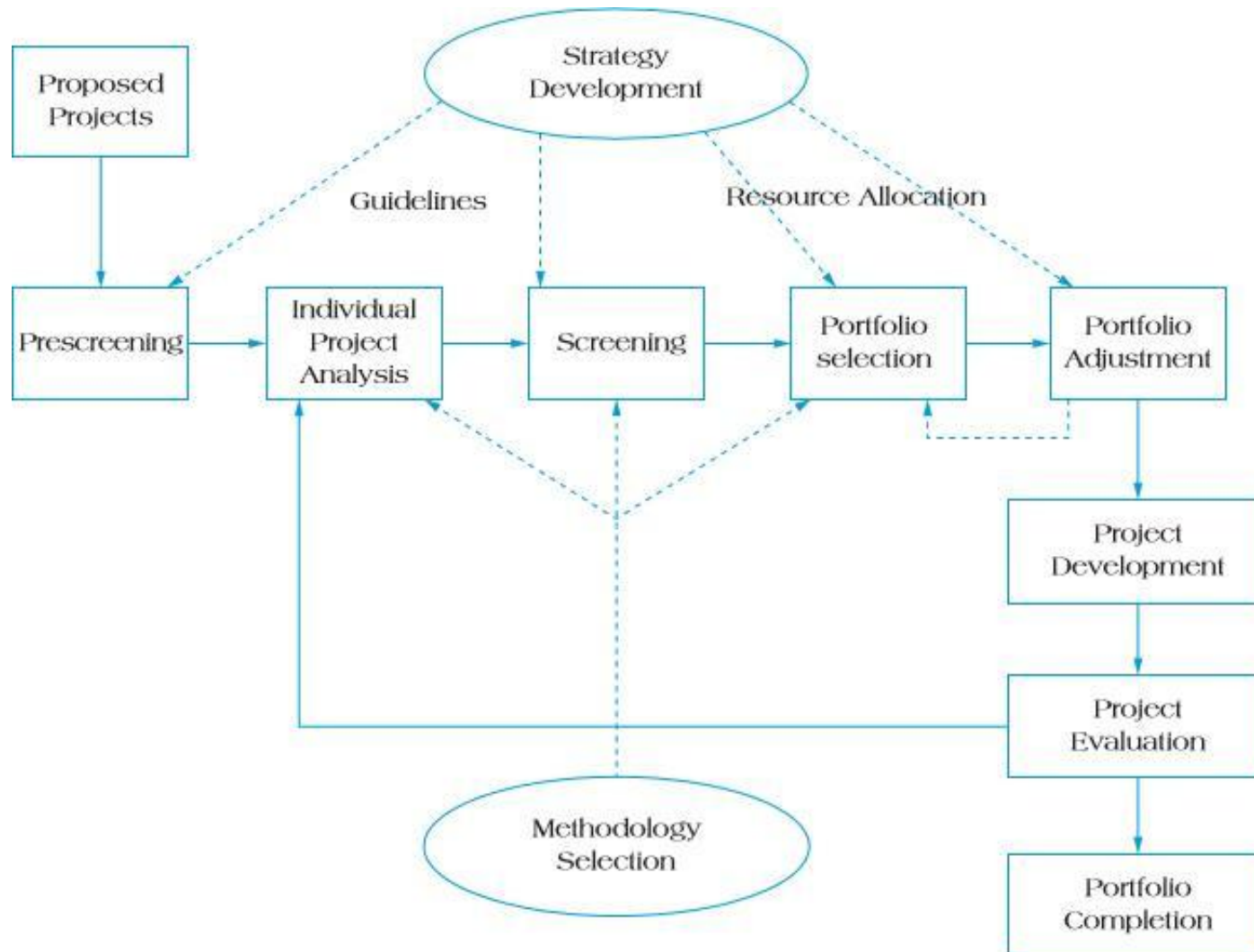
Developing a Proactive Portfolio

The project portfolio matrix classifies projects into four types according to commercial potential and technical feasibility:

- Bread and butter: projects are those with a high probability of technical feasibility and a modest likelihood for commercial profitability. These projects are typically evolutionary improvements to existing product lines or modest extensions to existing technology.

- Pearls: projects that offer a strong commercial potential and are technically feasible. These projects can be used to gain strategic advantage in the marketplace.

- Oysters: are revolutionary projects that have the potential to unleash significant strategic and commercial advantages for the company that can solve the technical challenges.

- White elephant: usually start life as bread and butter projects or oysters that never live up to their potential: originally undertaken with high hopes but end up consuming resources and wasting time

Figure 3.9 Project Portfolio Matrix

Commercial Potential – Why do it?

Maintain competitiveness

Gain strategic advantage

Net Present Value Given Success

Low → High

Technical Feasibility – How easy is it?

Probability of Success

Low

High

White Elephants	Oysters
Bread and Butter	Pearls

Pearson

Keys to Successful Project Portfolio Management

- **Flexible structure** and freedom of communication: Multiple-project environments cannot operate effectively when they are constrained by restrictive layers of bureaucracy, narrow communication channels, and rigid development processes. Successful portfolios emerge from environments that foster flexibility and open communication.

- **Low-cost** environmental scanning: As a rule, successful project portfolio strategies call for launching several low-cost probes into the future, the idea behind environmental scanning—developing and market-testing several experimental product prototypes, sometimes by entering strategic alliances with potential partners.

- **Time-paced** transition: Successful firms use project portfolio planning routinely to plan ahead in order to make the smoothest possible transition from one product to another.

Problems in Implementing Portfolio Management

- Conservative technical communities: In many organizations, there is a core of technical professionals—project engineers, research scientists…—who develop project prototypes. A common phenomenon is this group's unwillingness to give up project ideas that are too risky, too costly, or out of sync with strategic goals (out of pride, organizational inertia, or due to arguments supporting pure research)

  -> opportunities of creating spin-off startups by those people

- Out-of-sync projects and portfolios: Sometimes after a firm has begun realigning and reprioritizing its strategic outlook, it continues to develop projects or invest in a portfolio that no longer accurately reflects its new strategic focus.

- Unpromising projects: The worst-case scenario finds a company pursuing poor-quality or unnecessary projects.

- Scarce resources: A principal cause of portfolio underperformance is a lack of adequate resources, especially personnel, to support required development