Chapter 2:
Project, Program, and Portfolio Selection

Learning Objectives

• Describe the importance of aligning projects with business strategy, the strategic planning process, and using a SWOT analysis.

• Explain the four-stage planning process for project selection, and provide examples of applying this model to ensure the strategic alignment of projects.

• Summarize the various methods for selecting projects, and demonstrate how to calculate net present value, return on investment, payback, and the weighted score for a project.
Learning Objectives (continued)

- Discuss the program selection process, and distinguish the differences between programs and projects.
- Describe the project portfolio selection process and the five levels of project portfolio management.

Aligning Projects with Business Strategy

- Most organizations cannot undertake most of the potential projects identified because of resource limitations and other constraints.
- An organization’s overall business strategy should guide the project selection process and management of those projects.
What Went Wrong?

- With little analysis, an organization selected an enterprise resource planning package and hired a firm to assist with the implementation.
- They did not formally define the benefits of the new system or decide exactly which processes were to be redesigned.
- The project was completed over budget and behind schedule, and instead of helping the company, it prevented it from closing its books for over twelve months.

Strategic Planning

- **Strategic planning** involves determining long-term objectives by analyzing the strengths and weaknesses of an organization, studying opportunities and threats in the business environment, predicting future trends, and projecting the need for new products and services.
- Strategic planning provides important information to help organizations identify and then select potential projects.
SWOT Analysis

- **SWOT analysis** involves analyzing **Strengths**, **Weaknesses**, **Opportunities**, and **Threats**.
- It can help you identify potential projects, as is shown in the example about four people trying to start a new business.

Four Stage Strategic Planning Process for Project Selection

- Organizations often follow a detailed planning process for project selection.
- Figure 2-1 shows a four-stage planning process for selecting projects.
- *It is very important to start at the top of the pyramid to select projects that support the organization’s business strategy.*
Figure 2-1. Pyramid for the Project Selection Process

Methods for Selecting Projects

- Focus on competitive strategy and broad organizational needs.
- Perform net present value analysis or other financial projections.
- Use a weighted scoring model.
- Implement a balanced scorecard.
- Address problems, opportunities, and directives.
- Consider project time frame.
- Consider project priority.
Focusing on Competitive Strategy and Broad Organizational Needs

• Competitive strategies:
  – Cost leadership: Attract customers primarily because products or services are inexpensive. Examples include Walmart and Cub Foods.
  – Focus: Develop products and services for a particular market niche. Examples include Babies “R” Us and Ron Jon Surf Shop.

• Broad organizational needs: People agree there is a need for a project, they will make funds available, and there is a strong will to make the project succeed.
Performing Financial Projections

- Financial considerations are often an important aspect of the project selection process.
- Three important methods include:
  - Net present value analysis
  - Return on investment
  - Payback analysis

Net Present Value Analysis

- **Net present value (NPV) analysis** is a method of calculating the expected net monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time.
- NPV means the return from a project exceeds the **opportunity cost of capital**—the return available by investing the capital elsewhere.
- Projects with higher NPVs are preferred to projects with lower NPVs if all other factors are equal.
Notice that the sum of the cash flow—benefits minus costs, or income minus expenses—is the same for both projects at $5,000.

### Figure 2-3. Net Present Value Example

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
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<tr>
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<tr>
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<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td>7</td>
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<td>$2,000</td>
<td>$3,000</td>
<td>$4,000</td>
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<tr>
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<tr>
<td>10</td>
<td>PROJECT 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>YEAR 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>Benefits</td>
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<td>$2,000</td>
<td>$4,000</td>
<td>$4,000</td>
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<td>13</td>
<td>Costs</td>
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<td>$2,000</td>
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Note that totals are equal, but NPVs are not because of the time value of money.

### Figure 2-4. Detailed NPV Calculations

<table>
<thead>
<tr>
<th>Discount rate</th>
<th>10%</th>
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<tr>
<td>PROJECT 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Costs</td>
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<tr>
<td>Benefits</td>
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</tr>
<tr>
<td>Discount factor&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0.91</td>
</tr>
<tr>
<td>Discounted benefits</td>
<td>0</td>
</tr>
</tbody>
</table>

Discounted benefits - discounted costs, or NPV = $2,316

<sup>1</sup>Note: The discount factors are NOT rounded to two decimal places.

They are calculated using the formula discount factor = 1/(1+discount rate)<sup>1</sup>year.

You can access this spreadsheet on the companion Web site.
NPV Considerations

- Some organizations refer to the investment year(s) for project costs as Year 0 instead of Year 1 and do not discount costs in Year 0.
- The discount rate can vary, based on the prime rate and other economic considerations.
- You can enter costs as negative numbers instead of positive numbers, and you can list costs before benefits.
- Project managers should check to see which approaches their organizations prefer when calculating NPV.

Figure 2-5. Intranet Project NPV Example

<table>
<thead>
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<th>Discount rate</th>
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<tr>
<td>Assume the project is completed in Year 0</td>
<td>Year</td>
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<tr>
<td>0</td>
<td>1</td>
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<tr>
<td>Costs</td>
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</tr>
<tr>
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<td>140,000</td>
</tr>
<tr>
<td>Benefits</td>
<td>0</td>
</tr>
<tr>
<td>Discount factor</td>
<td>1</td>
</tr>
<tr>
<td>Discounted benefits</td>
<td>0</td>
</tr>
<tr>
<td>Discounted benefits - costs</td>
<td>(140,000)</td>
</tr>
<tr>
<td>Cumulative benefits - costs</td>
<td>(140,000)</td>
</tr>
<tr>
<td>ROI</td>
<td>112%</td>
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<td>Payback in Year 1</td>
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</table>
Steps for Calculating NPV

1. Determine the estimated costs and benefits for the life of the project and the products it produces.

2. Determine the discount rate. A discount rate is the rate used in discounting future cash flows. The annual discount factor is a multiplier for each year based on the discount rate and year (calculated as $1/(1+r)^t$, where $r$ is the discount rate, and $t$ is the year).

3. Calculate the net present value by subtracting the total discounted costs from the total discounted benefits.

Return on Investment

• **Return on investment (ROI)** is the result of subtracting the project costs from the benefits and then dividing by the costs.

• For example, if you invest $100 today and next year your investment is worth $110, your ROI is ($110 – 100)/100, or 0.10 (10 percent).

• Note that the ROI is always a percentage, and the higher the ROI, the better.

• Many organizations have a **required rate of return** for projects—the minimum acceptable rate of return on an investment.

• You can find the **internal rate of return (IRR)** by finding what discount rate results in an NPV of zero for the project.
Payback Analysis

- **Payback period** is the amount of time it will take to recoup—in the form of net cash inflows—the total dollars invested in a project.
- Payback analysis determines how much time will lapse before accrued benefits overtake accrued and continuing costs.
- Payback occurs in the year when the cumulative benefits minus costs reach zero.
- The shorter the payback period, the better.

Figure 2-6. Charting the Payback Period
Weighted Scoring Models

- A **weighted scoring model** is a tool that provides a systematic process for selecting projects based on many criteria.

- To create a weighted scoring model:
  - Identify criteria important to the project selection process.
  - Assign a weight to each criterion (so they add up to 100 percent).
  - Assign numerical scores to each criterion for each project.
  - Calculate the weighted scores by multiplying the weight for each criterion by its score and adding the resulting values.

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**Figure 2-7. Sample Weighted Scoring Model for Project Selection**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
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<th>Project 2</th>
<th>Project 3</th>
<th>Project 4</th>
</tr>
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<td>25%</td>
<td>50</td>
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<td>60</td>
</tr>
<tr>
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<td>50</td>
<td>70.5</td>
<td>60</td>
</tr>
</tbody>
</table>

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**Weighted Score by Project**

- Project 4
- Project 3
- Project 2
- Project 1
Implementing a Balanced Scorecard

• Dr. Robert Kaplan and Dr. David Norton developed another approach to help select and manage projects that align with business strategy.

• A **balanced scorecard** is a methodology that converts an organization’s value drivers—such as customer service, innovation, operational efficiency, and financial performance—to a series of defined metrics.

• Visit [www.balancedscorecard.org](http://www.balancedscorecard.org) for more information on using this approach to select projects.

Problems, Opportunities, and Directives

• **Problems** are undesirable situations that prevent an organization from achieving its goals. These problems can be current or anticipated.

• **Opportunities** are chances to improve the organization.

• **Directives** are new requirements imposed by management, government, or some external influence.
**Project Time Frame**

- Another approach to project selection is based on the time it will take to complete a project or the date by which it must be done.
- For example, some potential projects must be finished within a specific time period. If they cannot be finished by this set date, they are no longer valid projects.
- Some projects can be completed very quickly—within a few weeks, days, or even minutes. However, even though many projects can be completed quickly, it is still important to prioritize them.

**Project Priority**

- Many organizations prioritize projects as being high, medium, or low priority based on the current business environment.
- Organizations should always focus on high-priority projects.
Program Selection

• Recall that a program is a group of projects managed in a coordinated way to obtain benefits and control not available from managing them individually.

• After deciding which projects to pursue, organizations need to decide if it is advantageous to manage several projects together as part of a program.

• There might already be a program that a new project would logically fall under, or the organization might initiate a program and then approve projects for it.

Example Reasons for a Construction Firm to Create Housing Programs

• Save money: A construction firm can purchase materials, obtain services, and hire workers for less money if it is managing the construction of one hundred houses instead of just one house.

• Save time: One person or group can be responsible for similar work, such as obtaining all the permits for all the houses.

• Increase authority: The program manager can use authority in multiple situations, such as negotiating better prices with suppliers and obtaining better services in a more timely fashion.
Approaches to Creating Programs

• Some new projects naturally fall into existing programs, such as houses being built in a certain geographic area.

• Other projects might spark the need for developing a new program.
  – For example, Global Construction (see the opening case) might win a large contract to build an office complex in a foreign country. Instead of viewing the contract as either one huge project or a part of an existing program, the company should manage the work as a single program that comprises several smaller projects.

Media Snapshot

• Instead of viewing each movie for Lord of the Rings as a separate project, the producer, Peter Jackson, decided to develop all three movies as part of one program.
  – “By shooting all three films consecutively during one massive production and postproduction schedule, New Line Cinema made history. Never before had such a monumental undertaking been contemplated or executed. The commitment of time, resources, and manpower were unheard of as all three films and more than 1,000 effects shots were being produced concurrently with the same director and core cast.”*
  – Jackson said that doing detailed planning for all three movies made it much easier than he imagined to produce them, and the three movies were completed in less time and for less money by grouping them together.

• The budget for the three films was reported to be $270 million, and they grossed over $1 billion before the end of 2004

Project Portfolio Selection

• It’s crucial to focus on enterprise success when creating project portfolios.
• There may be a need to cancel or put several projects on hold, reassign resources from one project to another, suggest changes in project leadership, or take other actions that might negatively affect individual projects or programs to help the organization as a whole.
• For example, a university might have to close a campus in order to provide quality services at other campuses.

What Went Right?

• Jane Walton, the project portfolio manager for IT projects at Schlumberger, saved the company $3 million in one year by simply organizing the organization’s 120 IT projects into one portfolio.
• She found that 80 percent of the organization’s projects overlapped, and fourteen separate projects were trying to accomplish the same thing. The company canceled several projects and merged others to reduce the newly obvious redundancy.
• Mercy Health Partners’ chief information officer, Jim Albin, says project portfolio management helped his company improve its IT services and reduce costs by $4 million.
Sample Approaches for Creating a Project Portfolio

- Figure 2-8 illustrates one approach for project portfolio management in which there is one large portfolio for the entire organization. Sections of the portfolio are broken down to improve the management of projects in each sector.

- The IT projects are broken down into three categories:
  - Venture: Projects that help transform the business.
  - Growth: Projects that help increase revenues.
  - Core: Projects that help run the business.
Five Levels of Project Portfolio Management

1. Put all of your projects in one list.
2. Prioritize the projects in your list.
3. Divide your projects into several categories based on types of investment.
4. Automate the list.
5. Apply modern portfolio theory, including risk-return tools that map project risks.

Figure 2-9. Sample Project Portfolio Risk Map
Chapter Summary

• An organization’s overall business strategy should guide the project selection process and management of those projects.
• The four-stage planning process helps organizations align their projects with their business strategy.
• Several methods are available for selecting projects:
  – Financial methods (net present value, return on investment, and payback)
  – Weighted scoring models
  – Balanced scorecards
  – Addressing problems, opportunities, and directives
  – Project time frame
  – Project priority
• The main criteria for program selection are the coordination and benefits available by grouping projects together into a program.
• The goal of project portfolio management is to help maximize business value to ensure enterprise success.