

# **Chapter 5 abbreviated Risk Managment**

**Introduction to Project Management**

# Project Risk Management Planning

- PMI defines a project **risk** as an uncertainty that can have a *negative or positive* effect on meeting project objectives.
- Key outputs of project risk management planning include a risk management plan, a probability/impact matrix, a risk register, and risk-related contractual agreements.

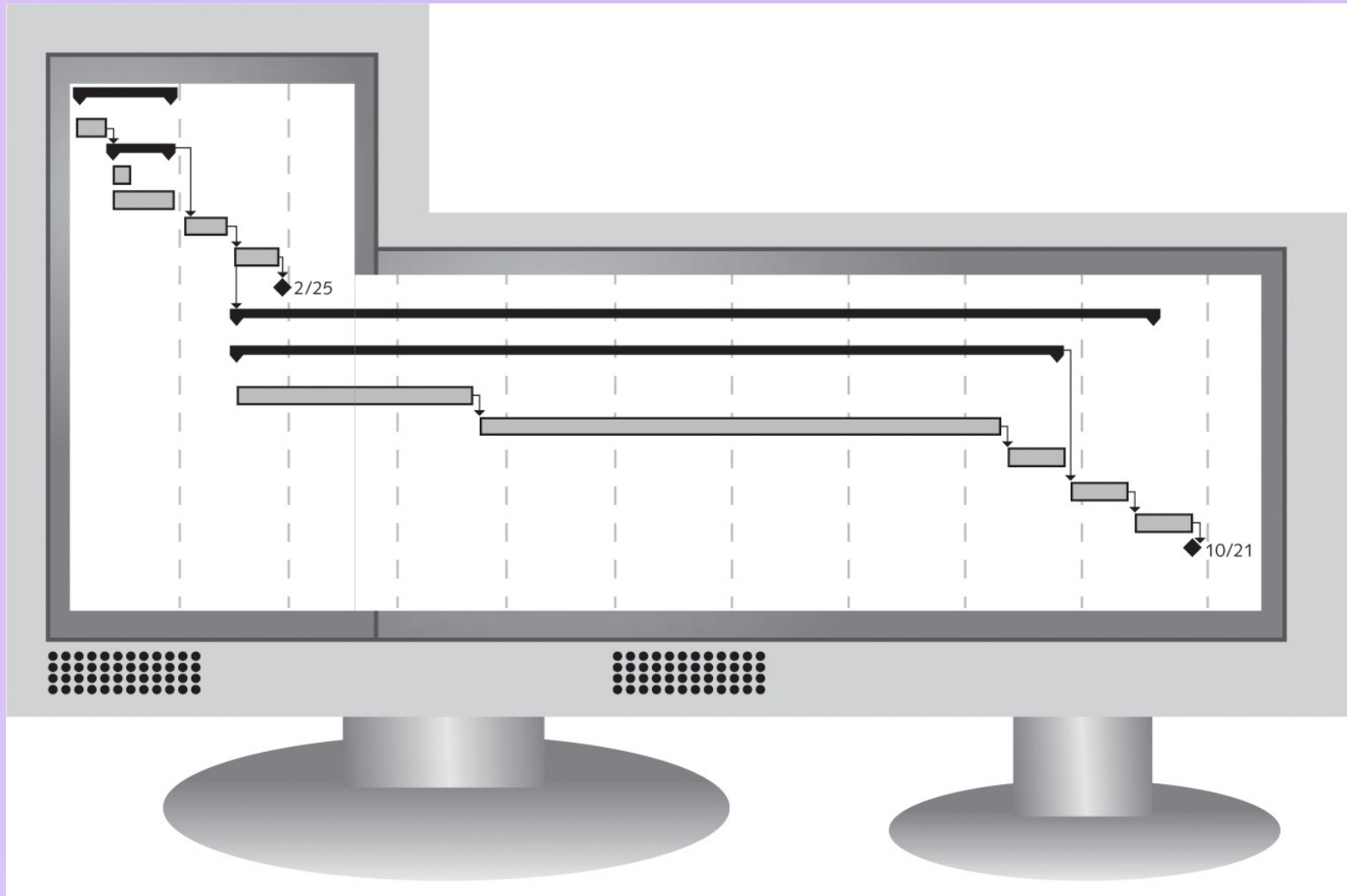
# Risk Management Plans

- A risk management plan documents the procedures for managing risk *throughout the life of a project*.
- The general topics that a risk management plan should address include the methodology for risk management, roles and responsibilities, budget and schedule estimates for risk-related activities, risk categories, probability and impact matrices, and risk documentation.

# Other Risk Plans

- **Contingency plans** are predefined actions that the project team will take if an identified risk event occurs.
- **Fallback plans** are developed for risks that have a high impact on meeting project objectives, and are put into effect if attempts to reduce the risk are not effective; sometimes called contingency plans of last resort.
- **Contingency reserves** or **contingency allowances** are funds held by the project sponsor that can be used to mitigate cost or schedule overruns if unknown risks occur.

# Figure 5-4. Special Monitor to Help Manage Schedule Delays



# Table 5-8. Sample Risk Management Plan

## Risk Management Plan

September 3, 2007

**Project Name:** Just-In-Time Training Project

### 1. Methodology

The project team will review data available from the Phase I project and past training programs within Global Construction to assist in risk management planning. They will also review information related to external projects similar to this one. The team will use several tools and techniques, including brainstorming, surveys, and risk-related checklists to assist in risk management.

### 2. Roles and Responsibilities

The project manager will be responsible for leading the team and other stakeholders in performing risk-related activities. As detailed tasks and deliverables are determined, the project manager will delegate those tasks as appropriate.

### 3. Budget and Schedule Estimates

As specific risk-related tasks and deliverables are determined, budget and schedule information will be provided.

### 4. Risk Categories

General categories and subcategories for risk on this project include business risks (suppliers and cash flow), technical risks (course content, hardware, software, and network), organizational risks (executive support, user/employee support, supplier support, and team support), and project management risks (estimates, communication, and resources).

### 5. Risk Probability and Impact

Risk probability and impact will initially be estimated as high, medium, or low based on expert advice. If more advanced scoring is needed, the project team will determine an appropriate approach.

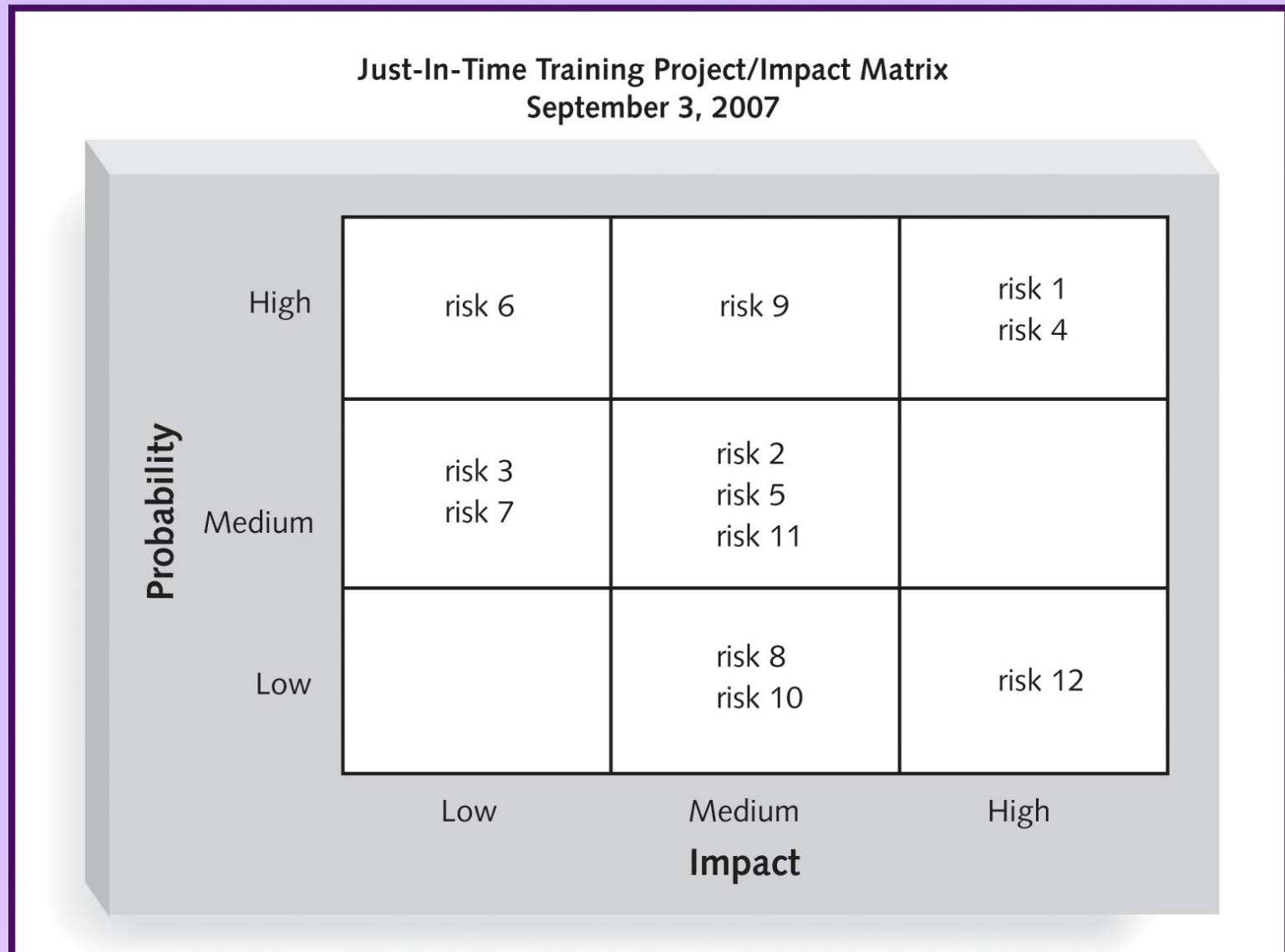
### 6. Risk Documentation

All risk-related information will be summarized in a risk register. Detailed documentation will be available in a secure area on the project Web site.

# Risk Events and Probability/Impact Matrices

- **Risk events** refer to specific, uncertain events that may occur to the detriment or enhancement of the project.
  - **Negative risk events** include the performance failure of a product produced as part of a project, delays in completing work as scheduled, increases in estimated costs, supply shortages, litigation against the company, and strikes.
  - **Positive risk events** include completing work sooner than planned or at an unexpectedly reduced cost, collaborating with suppliers to produce better products, and obtaining good publicity from the project.
  - You can chart the probability and impact of risk events on a matrix.

# Figure 5-5. Sample Probability/Impact Matrix





# Risk Registers

- A **risk register** is a document that contains the results of various risk management processes and is often displayed in a table or spreadsheet format.
- It is a tool for documenting potential risk events and related information, including:
  - An identification number for each risk event
  - A rank for each risk event (usually high, medium, or low)
  - The name of the risk event
  - A description of the risk event
  - The category under which the risk event falls
  - The **root cause**: The real or underlying reason a problem occurs
  - **Triggers**: Indicators or symptoms of actual risk events
  - Potential responses to each risk event
  - The risk owner, or person who will own or take responsibility
  - The probability of the risk event occurring
  - The impact to the project if the risk event occurs
  - The status of the risk event

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  - The status of the risk event

# Table 5-9. Sample Risk Register

## Risk Register September 3, 2007

**Project Name:** Just-In-Time Training Project

ID No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk Owner	Probability	Impact	Status
R15	1										
R21	2										
R7	3										

To understand the risk register more fully, imagine that the following data is entered for the first risk in the register.

- ID No.: R15
- Rank: 1
- Risk: Poor survey response.
- Description: Many people dislike surveys and avoid filling them out, or if they do, they don't offer good or honest feedback.
- Category: Organizational/user support risk
- Root cause: People don't want to take the time and think their inputs aren't important.
- Triggers: Low survey response rate the first few days; incomplete surveys.
- Potential Responses: Make sure senior management emphasizes the importance of this project and the survey for designing good courses. Have the functional managers personally mention the survey to their people and stress its importance. Offer a reward to the department with the most responses. Ensure that the survey instructions say it will take ten minutes or less to complete. Extend the deadline for survey responses.
- Risk owner: Mike Sundby, project champion
- Probability: Medium
- Impact: High
- Status: PM will set up a meeting within a week with a project steering committee to decide which response strategies to implement if the survey response is low.

# Risk-Related Contractual Agreements

- Work done by outside suppliers or sellers should be well documented in **contracts**, which are mutually binding agreements that obligate the seller to provide the specified products or services, and obligate the buyer to pay for them.
- Project managers should include clauses in contracts to help manage project risks by using:
  - Incentive or penalty clauses.
  - Certain types of contracts, such as fixed-price contracts, to reduce their risk of incurring higher costs than expected.
  - Competition for supplying goods and services to help reduce negative risks and enhance positive risks on projects.

# Table 5-10. Sample Guidelines for Risk-Related Contractual Agreements

## Guidelines for Risk-Related Contractual Agreements

January 10, 2007

The following guidelines are provided for your consideration as you develop contracts between Global Construction (the buyer) and its suppliers (the seller). Be sure to work with a member of the contracting department to write your specific contracts. All contracts must be reviewed and signed by the legal department, as well.

- **Contract termination clauses:** These clauses list circumstances under which the buyer and/or seller can terminate a contract and how final payment will be settled. All the contracts must include a termination clause.
- **Incentive clauses:** These clauses provide incentives for the seller to provide goods or services at certain times, of certain quality, and so on. Incentive clauses can include extra payments or profit sharing, if appropriate.
- **Penalty clauses:** These clauses specify penalties that will be applied when the seller does not provide goods or services as specified in the contract. For example, if a product is delivered late, the seller might be required to pay a certain dollar amount for each day the product is late.
- **Fixed-price contracts:** To minimize the negative risk of paying more than planned for specific goods or services, Global Construction issues fixed-priced contracts, which specify that the seller agrees to a fixed price and bears the risk if it costs more to provide the goods or services than originally assumed.
- **Competitive contracts:** In many situations, Global Construction can use competition to help reduce risks. In addition to reviewing bids from several sellers, a good strategy may be to award two small contracts and then award the following larger contract to the seller that does the best job on the first job.

# What Went Right?

- The Petronis Twin Towers in Malaysia are famous landmarks in Kuala Lumpur. They were the tallest buildings constructed at the time, and the first large construction project to use GPS (Global Positioning System). Over 7000 people were working on the site during the peak of construction. The project management team decided to use competition to help keep the project on time and on budget. The Japanese firm Hazama Corporation led the construction of Tower 1, and the Korean firm Samsung Engineering Co. led the construction of Tower 2. Because the towers were constructed simultaneously, everyone could see the progress of the two competitors as the 88-story towers rose into the sky. “Construction of the towers was fast paced, thanks in part to the decision to grant two contracts, one for each tower, to two separate contractors. This naturally created a competitive environment, to the benefit of the building.”\*

Cesar Pelli and Michael J. Crosbie, “Building Petronas Towers,” *Architecture Week* (February 19, 2003).

# Project Procurement Management Planning Tasks

- Project procurement management includes acquiring or procuring goods and services for a project from outside the organization.
- As the business world continues to become more competitive and global, more and more projects include procurement, often referred to as outsourcing.
- Key outputs include make-or buy analyses, procurement management plans, requests for proposals or quotes, contract statements of work, and supplier evaluation matrices.



# Media Snapshot

- Several companies, including those owned by famous celebrities, work closely with outside sources to help both parties come out ahead. For example, Oprah Winfrey celebrated the premiere of her show's nineteenth season by giving each of her 276 audience members a new car.
- “We’re calling this our wildest dream season, because this year on the Oprah show, no dream is too wild, no surprise too impossible to pull off,” said Winfrey. Everyone in the audience was there because their friends or family had written about their need for a new car. Winfrey’s organization did an excellent job of planning the event and keeping it a secret. They also worked closely with suppliers, including Pontiac, which donated all of the cars, which retailed for \$28,000 each. The audience members were obviously overjoyed, and Winfrey’s organization was happy they did not have to pay for the cars. Many marketing experts say Pontiac’s generosity was also outstanding for their business.
- In other segments on the same show, Winfrey surprised a twenty-year-old woman who had spent years in foster care and homeless shelters with a four-year college scholarship, sponsored by the telecommunications company SBC. The young woman also received a makeover and \$10,000 in clothes, provided by several other companies. Winfrey also showed how her organization worked with many suppliers to provide a needy family with \$130,000 and several new products to buy and repair their home. The Web site for the show includes a detailed list of sponsoring organizations and links to their Web sites. By collaborating with outside companies, everyone can come out ahead.\*

Oprah Gives Audience 276 Cars,” CBSNEWS.com (September 13, 2004).



# Make-or-Buy Analysis

- **Make-or-buy analysis** involves estimating the internal costs of providing a product or service, and comparing that estimate to the cost of outsourcing.
- Many organizations also use make-or-buy analysis, often called a lease-or-buy analysis, to decide if they should purchase or lease items for a particular project.
- Example: Assume you can lease an item you need for a project for \$800/day. To purchase the item, the cost is \$12,000 plus a daily operational cost of \$400/day. How long will it take for the purchase cost to be the same as the lease?

# Make-or-Buy Solution

- Set up an equation so both options, purchase and lease, are equal.
- In this example, use the following equation. Let  $d$  be the number of days to use the item.

$$\$12,000 + \$400d = \$800d$$

Subtracting  $\$400d$  from both sides, you get:

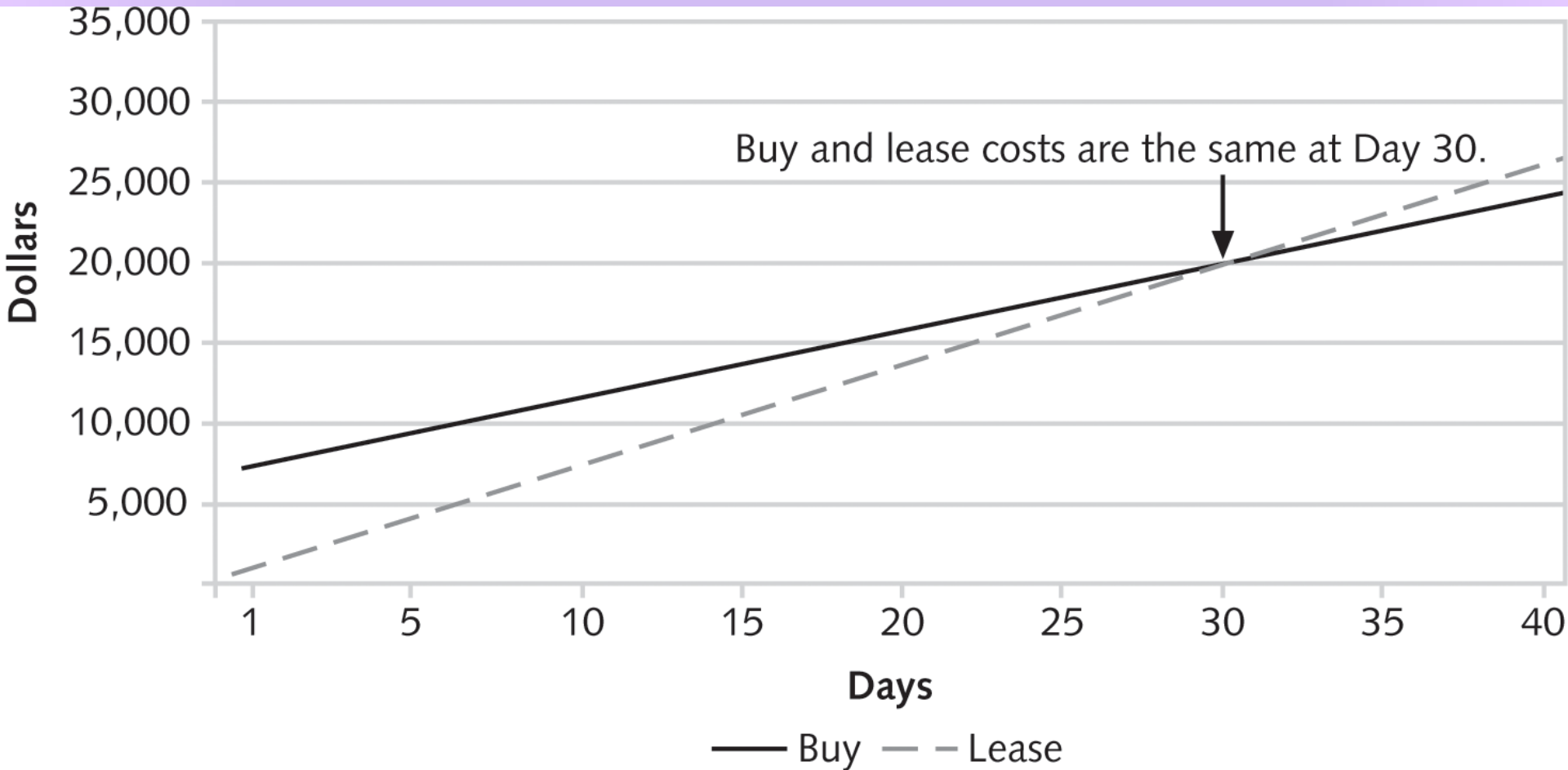
$$\$12,000 = \$400d$$

Dividing both sides by  $\$400$ , you get:

$$d = 30$$

- If you need the item for more than thirty days, it would be more economical to purchase it.

# Figure 5-6. Comparing the Cost of Leasing Versus Buying



# Table 5-11. Sample Make-or-Buy Analysis

## Make-or-Buy Analysis September 1, 2007

**Project Name:** Just-In-Time Training Project

**Decision Being Analyzed:** Project management training

**Option 1: Make:** Use in-house instructors for the instructor-led basic project management training and facilitation for online materials (includes purchasing course materials)

Estimated cost per hour for in-house trainer (excludes employee time): \$60

Estimated training hours: 80 (10 total days of training x 8 hours per day)

Subtotal: \$4,800

Materials cost: \$7,500 (\$75/participant/course, 100 participants total)

Estimated cost per hour for online facilitation (excludes employee time): \$60

Estimated hours: 500

Subtotal: \$30,000

Materials cost: \$7,500

*Total: \$49,800* (\$4,800 + 7,500 + 30,000 + 7,500)

**Option 2: Buy:** Outsource instructor-led basic project management training and facilitation for online materials (includes purchasing course materials)

Estimated cost per person per day of training (excludes employee time): \$500

Estimated hours: 200 (assumes 20 participants/class, 10 total days of training, 2 days average course length)

Subtotal: \$100,000

Estimated cost per hour for online facilitation (excludes employee time): \$100

Estimated hours: 500

Subtotal: \$50,000

*Total: \$150,000*

**Cost Difference: \$150,000 - \$49,800 = \$100,200**

**Recommendation:** Because we have qualified internal staff and can purchase suitable materials, we recommend Option 1, in which we conduct the basic project management training in-house. Global Construction could save even more money by having employees take the courses after hours or on weekends. Employee time is not included in these estimates.

# Procurement Management Plans

- A procurement management plan is a document that describes how the procurement processes will be managed, from developing documentation for making outside purchases or acquisitions to contract closure.
- Topics addressed include:
  - Guidelines on types of contracts to be used in different situations.
  - Standard procurement documents or templates to be used, if applicable.
  - Guidelines for creating contract work breakdown structures, statements of work, and other procurement documents.
  - Roles and responsibilities of the project team and related departments, such as the purchasing or legal department.

# Table 5-12. Sample Procurement Management Plan

## Procurement Management Plan September 17, 2007

**Project Name:** Just-In-Time Training Project

**Guidelines on types of contracts:** To reduce Global Construction's risk, contracts for the Just-In-Time Training project should be fixed price as often as possible. When goods or services cannot be well defined, cost-reimbursable or time-and-material contracts may be used. The representative from the contracting department assigned to this project will work with the project manager to determine the appropriate contract type for each contract developed.

**Standard procurement documents or templates:** Global Construction's intranet site includes many sample documents and templates for project procurement. The project team will review these documents and templates and use them as often as possible.

**Guidelines for creating procurement documents:** Global Construction's intranet site provides guidelines for creating many procurement documents. The Just-In-Time Training project team should review our current work breakdown structure and scope statement to provide the basis for contract work breakdown structures and statements of work.

**Roles and responsibilities:** The project manager is the main contact for all procurement matters directly related to the Just-In-Time Training project. The representative from the contracting department assigned to this project will coordinate with other staff in the contracting and legal departments, as needed.  
Etc.

# Types of Contracts

- **Fixed-price or lump-sum contracts** involve a fixed total price for a well-defined product or service.
- **Cost-reimbursable contracts** involve payment to the seller for direct and indirect actual costs.
- **Time-and-material contracts** are a hybrid of both fixed-price and cost-reimbursable contracts.
- Unit pricing can also be used in various types of contracts to require the buyer to pay the supplier a predetermined amount per unit of service.

# Requests for Proposal or Quote

- A **Request for Proposal (RFP)** is a document used to solicit proposals from prospective suppliers.
  - A **proposal** is a document in which sellers describe what they will do to meet the requirements of a buyer.
- A **Request for Quote (RFQ)** is a document used to solicit quotes or bids from prospective suppliers.
  - A **bid** (also called a quote) is a document prepared by sellers providing pricing for standard items that have been clearly defined by the buyer.
- RFPs are used for procurements where there are a variety of ways to meet a need, while RFQs are used for more standard items.



# Table 5-13. Sample RFP

## Request for Proposal August 1, 2007

**Project Name:** Just-In-Time Training Project

**RFP Name:** Qualified-Sellers List for Just-In-Time Training Project

### **Purpose of RFP**

Global Construction wants to improve training in supplier management, negotiating skills, project management, and software for its employees. In the fast-paced, ever-changing construction market, effectively training employees across a globally dispersed company with different populations is a challenge. By redesigning our current training, Global Construction can reduce training costs and improve productivity. In addition to providing traditional instructor-led courses on-site, we want to allow our employees to learn about specific topics on a just-in-time basis by having quick access to materials and expert advice. The purpose of this RFP is to hire experts to help us find qualified sellers to develop and deliver these new training courses.

### **Background Information**

Global Construction employs 10,000 full-time employees in ten different countries and fifteen U.S. states. We want to increase the productivity of our employees, especially in the sales, purchasing, engineering, and information technology departments. The Just-In-Time Training project, a one-year project, began on July 2, 2007. A key part of this project is working with outside firms to develop and provide just-in-time training in supplier management, negotiating skills, project management, and software applications. See Appendix A for detailed information on the project and specific training needs.

# Table 5-13. Sample RFP (continued)

## **Basic Requirements**

The basic requirements for this work include the following:

1. Develop a list of qualified sellers to develop and provide the training as described in Appendix A.
2. Provide a summary description and detailed evaluation of each seller. Provide company brochures, Web sites, annual reports, and other appropriate information.
3. Work with Global Construction to develop an evaluation system to assess each seller.
4. Provide an objective assessment of each seller using this evaluation system.
5. Develop a list of the top five sellers for each course.
6. Provide recommendations for developing partnerships/relationships with each of the top five sellers.
7. Complete the above work no later than September 9, 2007.

## **RFP Process**

Prospective sellers will send written proposals to Global Construction no later than August 10, 2007. To prepare your proposal, use the outline in Appendix B, and examine Appendix C for our evaluation criteria. We expect to award the contract no later than August 20, 2007.

## **Statement of Work and Schedule Information**

See Appendix C for a statement of work. The work must be completed no later than September 9, 2007.

## **Appendices**

Appendix A: Just-In-Time Training Project Documents

Appendix B: Proposal Outline

Appendix C: Evaluation Criteria

Appendix D: Statement of Work

# Contract Statements of Work

- A **contract statement of work (SOW)** is a description of the work that is to be purchased.
- It is a type of scope statement that describes the work in sufficient detail to allow prospective suppliers to determine if they are capable of providing the goods and services required and an appropriate price.
- It should be clear, concise, and as complete as possible, describe all services required, and include performance information, such as the location and timing of the work.

# Table 5-14. Sample Contract Statement of Work

## Contract Statement of Work

August 1, 2007

**Project Name:** Just-in-Time Training Project

**Contract Name:** Qualified-Sellers List

**Scope of Work:**

1. Develop a list of qualified sellers to develop and provide the training as described in Appendix A.
2. Provide a summary description and detailed evaluation of each seller. Provide company brochures, Web sites, annual reports, and other appropriate information.
3. Work with Global Construction to develop an evaluation system to assess each seller.
4. Provide an objective assessment of each seller using this evaluation system.
5. Develop a list of the top five sellers for each course.
6. Provide recommendations for developing partnerships/relationships with each of the top five sellers.
7. Complete the above work no later than September 9, 2007.

**Location of Work:**

The seller can perform the work at any location. The seller must physically meet with representatives from Global Construction in our corporate office at least twice during the term of the contract.

**Period of Performance:**

Work is expected to start on or around August 20, 2007, and end no later than September 9, 2007. The seller will prepare a detailed schedule for all work required, including dates for deliverables and meetings. After meeting with representatives from Global Construction to review and update the schedule, the seller will agree to the schedule for this work.

**Deliverables Schedule:**

The seller will prepare a detailed schedule for all of the work required, including dates for all deliverables and meetings. After meeting with representatives from Global Construction to review and update the schedule, the seller will agree to the schedule for this work.

**Applicable Standards:**

The seller will use standard software to produce the required documentation for this project. Draft and final documents will be sent via e-mail.

**Acceptance Criteria:**

The seller will work closely with the project manager, Kristin Maur, to clarify expectations and avoid problems in providing acceptable work. Kristin will provide written acceptance/non-acceptance of all deliverables.

**Special Requirements:**

The seller's staff assigned to work on this contract must have appropriate education and experience. Résumés of proposed staff will be provided as part of the RFP. The seller will work with Global Construction to make all travel arrangements and minimize travel costs.

# Supplier Evaluation Matrix

- After doing a thorough evaluation of potential suppliers, many organizations summarize evaluations using a supplier evaluation matrix—a type of weighted scoring model.
- Suppliers are often evaluated on criteria related to cost, quality, technology, past performance, and management.

# Figure 5-7. Sample Supplier Evaluation Matrix

Just-In-Time Training Project Supplier Evaluation Matrix  
September 9, 2007

		Proposal 1		Proposal 2, etc.	
Criteria	Weight	Rating	Score	Rating	Score
Quality of instructor-led c	15%				
Quality of online/CD-ROM training	15%				
Cost	20%				
Past performance	20%				
Customization experience	10%				
Management approach	20%				
Total	100%				



# Chapter Summary

Planning outputs related to various knowledge areas include the following:

- **Quality management:** A quality management plan, quality metrics, and a quality checklist.
- **Human resource management:** A project organizational chart, responsibility assignment matrix, resource histogram, and staffing management plan.
- **Communications management:** A communications management plan and project Web site.
- **Risk management:** A risk management plan, a probability/impact matrix, a risk register, and risk-related contractual agreements.
- **Procurement management:** A make-or-buy analysis, a procurement management plan, requests for proposals/quotes, a contract statement of work, and a supplier evaluation matrix.