### Chapter 10

Project Risk Management

# Learning Objectives

After reading this chapter you will be able to:

1. Understand the importance of good project risk management

2. Understand what risk is and describe different tolerances for risk

3. Describe each of the processes involved in project risk management, including risk management planning, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning, and risk response control

4. Identify common sources of risk on information technology projects and develop strategies for reducing them

5. Describe common risk conditions that occur in each project management knowledge area and techniques for identifying potential risks on specific projects

6. Use tools and techniques for qualitative risk analysis, such as probability/impact matrices and the Top 10 Risk Item tracking approach, and quantitative risk analysis, such as expected monetary value and simulation.

7. Describe how software, such as Monte Carlo simulation software, can assist in project risk management

8. Explain the results of good project risk management

# Chapter Outline

**The Importance of Project Risk Management**

###### Risk Management Planning

**Common Sources of Risk on Information Technology Projects**

**Risk Identification**

**Qualitative Risk Analysis**

Calculating Risk Factors Using Probability/Impact Matrixes

Top 10 Risk Item Tracking

Expert Judgment

**Quantitative Risk Analysis**

Decision Trees and Expected Monetary Value

Simulation

**Risk Response Planning**

**Risk Monitoring and Control**

**Using Software to Assist in Project Risk Management**

**Results of Good Project Risk Management**

**Lecture Notes**

## What is Risk?

## A dictionary definition of risk is “the possibility of loss or injury”

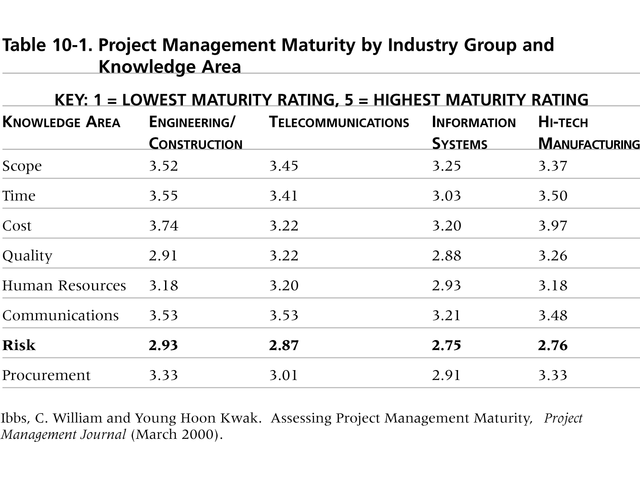
## Project risk involves understanding potential problems that might occur on the project and how they might impede project success

## Risk management is like a form of insurance; it is an investment

## Importance of Project Risk Management

Many people ignore risk management on projects, and a few people over emphasize it. Risk management should be done during the entire project life cycle. It is especially important to consider risk when selecting projects to work on, as illustrated in the opening and closing case.

The study results in Table 10-1 pointing out that most industries are least mature when it comes to project risk management. This knowledge area has changed a fair amount from the 1996 edition of the PMBOK Guide.

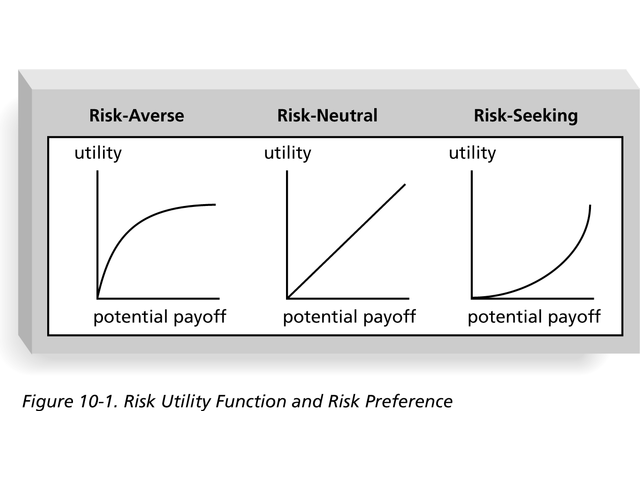


## Project risk management is the art and science of identifying, assigning, and responding to risk throughout the life of a project and in the best interests of meeting project objectives

## Risk management is often overlooked on projects, but it can help improve project success by helping select good projects, determining project scope, and developing realistic estimates

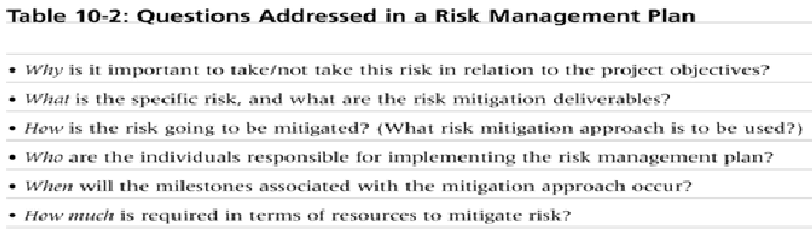
## Risk Utility or Risk Tolerance

* Risk utility or risk tolerance is the amount of satisfaction or pleasure received from a potential payoff, as shown in Figure 10.1.
  + Utility rises at a decreasing rate for a person who is risk-averse
  + Those who are risk-seeking have a higher tolerance for risk and their satisfaction increases when more payoff is at stake
  + The risk neutral approach achieves a balance between risk and payoff



## Risk Management Planning

The importance of creating a risk management plan for the projects it makes sense to do so. Table 10-2 includes questions addressed in a risk management plan. Examples of contingency plans, fallback plans, and contingency reserves are addressed in the table.



***Contingency and Fallback Plans, Contingency Reserves***

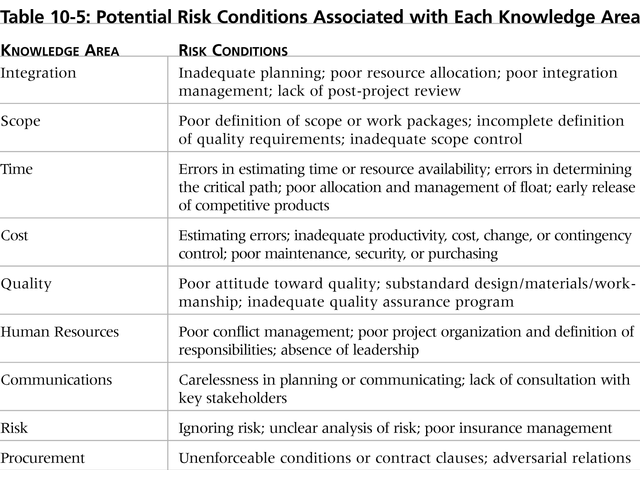
* Contingency plans are predefined actions that the project team will take if an identified risk event occurs
* Fallback plans are developed for risks that have a high impact on meeting project objectives
* Contingency reserve or allowances are provisions held by the project sponsor that can be used to mitigate cost or schedule risk if changes in scope or quality occur

***Other Categories of Risk***

* Market risk: Will the new product be useful to the organization or marketable to others? Will users accept and use the product or service?
* Financial risk: Can the organization afford to undertake the project? Is this project the best way to use the company’s financial resources?
* Technology risk: Is the project technically feasible? Could the technology be obsolete before a useful product can be produced?

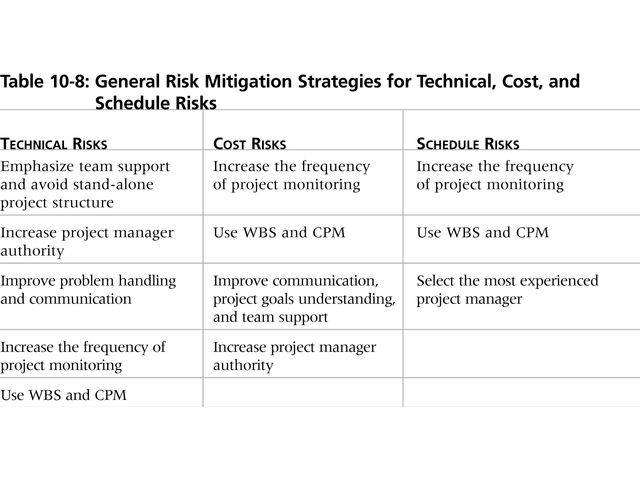
***Risk Identification***

* Risk identification is the process of understanding what potential unsatisfactory outcomes are associated with a particular project, see Table 10.5.
* Several risk identification tools and techniques include
  + Brainstorming
  + Interviewing
  + SWOT analysis (**S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats)

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## Risk Response Planning

Explain the difference between risk avoidance, risk acceptance, risk transference, and risk mitigation. Table 10-8 provides general mitigation strategies for technical, cost, and schedule risks on projects. Discuss items included in a risk response plan, including residual risks and secondary risks.



***Risk Monitoring and Control***

The importance of responding to risk events includes emphasis on risk management which is an on-going activity performed by the entire project team throughout the entire project.

* Monitoring risks involves knowing their status
* Controlling risks involves carrying out the risk management plans as risks occur
* Workarounds are unplanned responses to risk events that must be done when there are no contingency plans
* The main outputs of risk monitoring and control are corrective action, project change requests, and updates to other plans

**Risk Response Control**

* Risk response control involves executing the risk management processes and the risk management plan to respond to risk events
* Risks must be monitored based on defined milestones and decisions made regarding risks and mitigation strategies
* Sometimes workarounds or unplanned responses to risk events are needed when there are no contingency plans

## Using Software to Assist in Project Risk Management

The different software tools that can assist in project risk management. PERT (Program Evaluation and Review Technique) estimates and the Monte Carlo simulation as a better method for using probabilistic estimates. If you have any risk analysis software, you could demonstrate how to use it. Demonstrating risk analysis software might not be appropriate, however, for an undergraduate class, as it may be too advanced for them to understand it.

## Results of Good Project Risk Management

Although good project risk management is very important, good crisis management sometimes receives more attention. An outstanding project manager and team will perform good project risk management in order to avoid needing to attend to crises.

* Unlike crisis management, good project risk management often goes unnoticed
* Well-run projects appear to be almost effortless, but a lot of work goes into running a project well
* Project managers should strive to make their jobs look easy to reflect the results of well-run projects