Chapter 11:
Project Risk Management

Information Technology Project Management

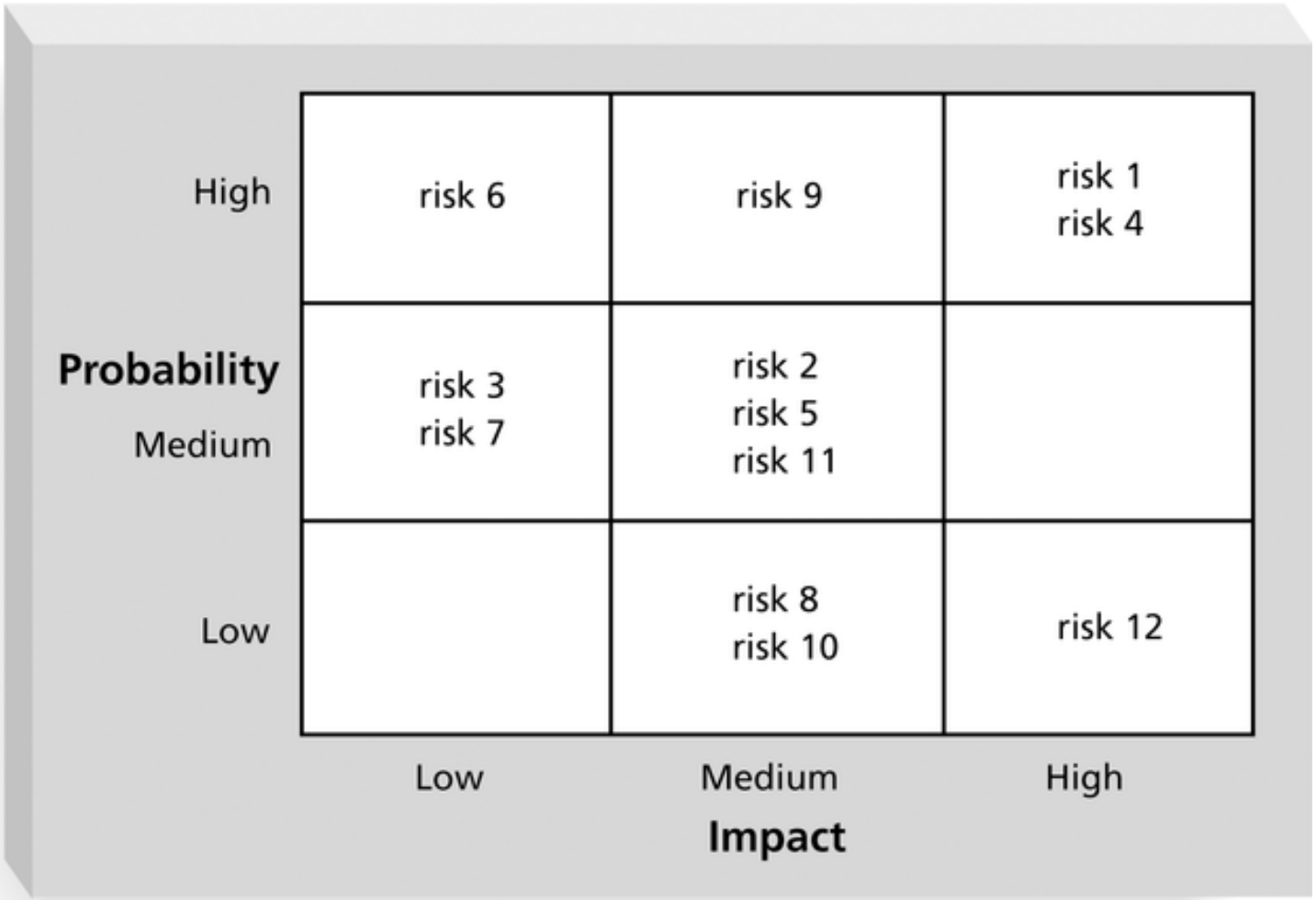
Qualitative Risk Analysis

- Assess the likelihood and impact of identified risks to determine their magnitude and priority
- Risk quantification tools and techniques include:
  - Probability/impact matrixes
  - The Top Ten Risk Item Tracking
  - Expert judgment

Probability/Impact Matrix

- A **probability/impact matrix** or **chart** lists the relative probability of a risk occurring on one side of a matrix or axis on a chart and the relative impact of the risk occurring on the other
- List the risks and then label each one as high, medium, or low in terms of its probability of occurrence and its impact if it did occur
- Can also calculate **risk factors**
  - Numbers that represent the overall risk of specific events based on their probability of occurring and the consequences to the project if they do occur

Figure 11-5: Sample Probability/ Impact Matrix



Top Ten Risk Item Tracking

- **Top Ten Risk Item Tracking** is a qualitative risk analysis tool that helps to identify risks and maintain an awareness of risks throughout the life of a project
- Establish a periodic review of the top ten project risk items
- List the current ranking, previous ranking, number of times the risk appears on the list over a period of time, and a summary of progress made in resolving the risk item

Table 11-6: Example of Top Ten Risk Item Tracking

Risk Event	Monthly Ranking: Rank This Month	Monthly Ranking: Rank Last Month	Monthly Ranking: Number of Months in Top Ten	Risk Resolution Progress
Inadequate planning	1	2	4	Working on revising the entire project management plan
Poor definition	2	3	3	Holding meetings with project customer and sponsor to clarify scope
Absence of leadership	3	1	2	After previous project manager quit, assigned a new one to lead the project
Poor cost estimates	4	4	3	Revising cost estimates
Poor time estimates	5	5	3	Revising schedule estimates

Watch List

- A **watch list** is a list of risks that are low priority, but are still identified as potential risks
- Qualitative analysis can also identify risks that should be evaluated on a quantitative basis

What Went Right?

- A large aerospace company used Monte Carlo simulation to help quantify risks on several advanced-design engineering projects, such as the National Aerospace Plan (NASP)
- The results of the simulation were used to determine how the company would invest its internal research and development funds
- Although the NASP project was terminated, the resulting research has helped develop more advanced materials and propulsion systems used on many modern aircraft

Risk Response Planning

- After identifying and quantifying risks, you must decide how to respond to them
- Four main response strategies for negative risks:
  - Risk avoidance
  - Risk acceptance
  - Risk transference
  - Risk mitigation

Table 11-7: General Risk Mitigation Strategies for Technical, Cost, and Schedule Risks

Technical Risks	Cost Risks	Schedule Risks
Emphasize team support and avoid stand-alone project structure	Increase the frequency of project monitoring	Increase the frequency of project monitoring
Increase project manager authority	Use WBS and CPM	Use WBS and CPM
Improve problem handling and communication	Improve communication, project goals understanding, and team support	Select the most experienced project manager
Increase the frequency of project monitoring	Increase project manager authority	
Use WBS and CPM		

Response Strategies for Positive Risks

- Risk exploitation
- Risk sharing
- Risk enhancement
- Risk acceptance

Residual and Secondary Risks

- It's also important to identify residual and secondary risks
- **Residual risks** are risks that remain after all of the response strategies have been implemented
- **Secondary risks** are a direct result of implementing a risk response

Media Snapshot

- A highly publicized example of a risk response to corporate financial scandals, such as those affecting Enron, Arthur Andersen, and WorldCom, was legal action
- The Sarbanes-Oxley Act is considered the most significant change to federal securities laws in the United States since the New Deal
- This Act has caused many organizations to initiate projects and other actions to avoid litigation

Risk Monitoring and Control

- Involves executing the risk management process to respond to risk events
- **Workarounds** are unplanned responses to risk events that must be done when there are no contingency plans
- Main outputs of risk monitoring and control are:
  - Requested changes
  - Recommended corrective and preventive actions
  - Updates to the risk register, project management plan, and organizational process assets

Using Software to Assist in Project Risk Management

- Risk registers can be created in a simple Word or Excel file or as part of a database
- More sophisticated risk management software, such as Monte Carlo simulation tools, help in analyzing project risks
- The PMI Risk Specific Interest Group's Web site at *www.risksig.com* has a detailed list of software products to assist in risk management

Results of Good Project Risk Management

- 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

Chapter Summary

- Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives
- Main processes include:
  - Risk management planning
  - Risk identification
  - Qualitative risk analysis
  - Quantitative risk analysis
  - Risk response planning
  - Risk monitoring and control