Project Risk Management
Study Notes
Points to Note


- The study notes explain topics that are important for PMP® exam preparation and you can expect several questions from these topics.

- Pay close attention to all the terms used. It is very important to understand all the concepts discussed in this chapter.

- Try to relate the concepts to real life examples.

- After reading the study notes, please answer the chapter test questions in this Knowledge Area. The chapter questions improve your understanding of the concepts discussed in this study notes.
What is Project Risk Management?

- Systematic process to identify, analyze, and respond to project risks

- Major risk management processes are:
  - Plan Risk Management
  - Identify Risks
  - Perform Qualitative Risk Analysis
  - Perform Quantitative Risk Analysis
  - Plan Risk Responses
  - Monitor and Control Risks

Please refer to figure 11-1, *PMBOK® Guide Fourth Edition*, page 274. This provides an overview of Project Risk Management.
Understanding Terms and Concepts

• Risk Management is not only one of the most extensive process areas in project management containing several terms and concepts which need to be understood but also the most vital for project success.

• Please study the terms and concepts in this Knowledge Area very carefully as explained in *PMBOK® Guide* Fourth Edition.
Plan Risk Management

- Process to define how to conduct the risk management activities for a project
- Uses planning meetings and analysis as a technique
- Output is:
  - Risk management plan, which includes:
    - Methodology
    - Roles and responsibilities
    - Budgeting
    - Timing
    - Risk categories
    - Definitions of risk probability and impact
    - Probability and impact matrix
    - Revised stakeholders’ tolerances
    - Reporting formats
    - Tracking
Identify Risks

- Process that determines which risks may affect the project and documents their characteristics

- Tools and techniques used are:
  - Documentation reviews
  - Information gathering techniques
    - Brainstorming
    - Delphi technique
    - Interviewing
    - Root cause analysis
  - Checklist analysis
  - Assumptions analysis
  - Diagramming techniques
    - Cause and effect diagrams
    - System or process flow charts
    - Influence diagrams
  - SWOT analysis
  - Expert judgment

- Output is:
  - Risk register
Perform Qualitative Risk Analysis

- Process to prioritize the identified risks for further action or analysis
- Rapid and cost-effective means to prioritize risks for Plan Risk Responses process
- Lays foundation for Perform Quantitative Risk Analysis process, if required
- Has to be re-visited throughout the project life cycle to stay current with changes in the project risk
- Leads into Perform Quantitative Risk Analysis process or directly into Plan Risk Response process
- Tools and techniques used are:
  - Risk probability and impact assessment
  - Probability and impact matrix
  - Risk data quality assessment
  - Risk categorization
  - Risk urgency assessment
  - Expert judgment
Perform Qualitative Risk Analysis (continued)

- Output is:
  - Risk register updates:
    - The main components that are updated include:
      - Ranking or priority of project risks
      - Risks grouped by categories
      - Causes of risk or project areas requiring particular attention
      - List of risks requiring responses in the near-term
      - List of risks for additional analysis and response
      - Watchlists of low priority risks
      - Trends in qualitative risk analysis response
Perform Quantitative Risk Analysis

- Process that analyzes numerically the probability of occurrence of each risk and its consequence on project objectives, as well as the extent of overall project risk

- Follows Perform Qualitative Risk Analysis process

- Tools and techniques used are:
  - Data gathering and representation techniques:
    - Interviewing
    - Probability distributions
  - Quantitative risk analysis and modelling techniques:
    - Sensitivity analysis
    - Expected monetary value analysis
    - Modelling and simulation
  - Expert judgment

- Outputs are:
  - Risk register updates:
    - The main components that are updated include:
      - Probabilistic analysis of the project
      - Probability of achieving cost and time objectives
      - Prioritized list of quantified risks
      - Trends in quantitative risk analysis results
Plan Risk Responses

- Process that develop options and actions to enhance opportunities and to reduce threats to project objectives.

- Tools and techniques used are:
  - Strategies for negative risks or threats:
    - Avoid
    - Transfer
    - Mitigate
    - Accept
  - Strategies for positive risks or opportunities:
    - Exploit
    - Share
    - Enhance
    - Accept
  - Contingent response strategies
  - Expert judgment

- Outputs are:
  - Risk register updates
  - Risk-related contract decisions
  - Project management plan updates
  - Project document updates
Monitor and Control Risks

- Process that implements risk response plans, tracks identified risks, monitors residual risks, identifies new risks, and evaluates risk process effectiveness throughout the project.
- Also involves:
  - Opting for alternative strategies
  - Implementing contingency plan
  - Taking corrective actions
  - Updating the project management plan
- Tools and techniques used are:
  - Risk reassessment
  - Risk audits
  - Variance and trend analysis
  - Technical performance measurement
  - Reserve analysis
  - Status meetings
- Outputs are:
  - Risk register updates
  - Organizational process assets updates
  - Change requests
  - Project management plan updates
  - Project document updates
Utility Function

- Ultimate decision on how to deal with risk is based in part on Project Manager’s tolerance for risk – this is measured by Utility function.

- Y axis refers to Utility, i.e. satisfaction that the project manager gets from a payoff. X axis refers to the amount of money at stake.

Reference: A System’s Approach to Planning, Scheduling and Controlling, page 906