Project Risk Management

Study Notes

Points to Note

- 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 read chapter 11 from Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fifth Edition, Project Management Institute, Inc., 2013 (pages 309 to 354).
- 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.
- Please study the terms and concepts in this Knowledge Area very carefully as explained in *PMBOK® Guide* Fifth Edition.
- 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?

- *The processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project.
- Increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project.
- The Risk Management processes are:
  - Plan Risk Management
  - Identify Risks
  - Perform Qualitative Risk Analysis
  - Perform Quantitative Risk Analysis
  - Plan Risk Responses
  - Control Risks

  Please refer to *PMBOK® Guide* Fifth Edition, figure 11-1, page 312. This provides an overview of Project Risk Management.

*This definition is taken from the Glossary of the Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide*) – Fifth Edition, Project Management Institute, Inc., 2013

Plan Risk Management

- *The process of defining how to conduct risk management activities for a project.
- Ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization.
- The tools and techniques used are:
  - Analytical techniques
  - Expert judgement
  - Meetings

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Risk Management Plan

- *A component of the project, program, or portfolio management plan that describes how risk management activities will be structured and performed.
- An output of Plan Risk Management process.
- It 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

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Identify Risks

- *The process of determining which risks may affect the project and documenting their characteristics.
- **Documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events.
- This is an iterative process, because new risks may evolve or become known as the project progresses through its life cycle.
- 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

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**Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide)*– Fifth Edition, Project Management Institute, Inc., 2013, Page 319

Identify Risks (continued)

- Risk Register is an output of this process.
  - *Risk register: A document in which the results of risk analysis and risk response planning are recorded.

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Perform Qualitative Risk Analysis

- *The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.
- Enables project managers to reduce the level of uncertainty and to focus on high-priority risks.
- Is usually a rapid and cost-effective means to prioritize risks for Plan Risk Responses process.
- Lays foundation for Perform Quantitative Risk Analysis process, if required.
- Is performed regularly throughout the project life cycle.
- 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

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Perform Qualitative Risk Analysis (continued)

- Output of this process is project documents updates.
- The project documents that are updated are Risk Register and Assumptions log.
- The information that may be updated to a risk register may include:
    i. Assessments of probability and impacts for each risk
    ii. Risk ranking or scores
    iii. Risk urgency information or risk categorization
    iv. A watch list for low probability risks or risks requiring further analysis
- Assumptions may be incorporated into the project scope statement or in a separate assumptions log.

Perform Quantitative Risk Analysis

- *The process of numerically analyzing the effect of identified risks on overall project objectives.
- Produces quantitative risk information to support decision making in order to reduce project uncertainty.
- Is performed on risks that have been prioritized by the Perform Qualitative Risk Analysis process.
- In some cases, it may not be possible to execute the Perform Quantitative Risk Analysis process due to lack of sufficient data to develop appropriate models.
- Tools and techniques used in this process are:
  - Data gathering and representation techniques (Interviewing and Probability distributions)
  - Quantitative risk analysis and modelling techniques (Sensitivity analysis, Expected monetary value analysis, Modelling and simulation)
  - Expert judgment
- Outputs of this process is project document updates.

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Plan Risk Responses

- *The process of developing options and actions to enhance opportunities and to reduce threats to project objectives.
- It addresses the risks by their priority, inserting resources and activities into the budget, schedule, and project management plan as needed.
- Tools and techniques used are:
  - Strategies for negative risks or threats (Avoid, Transfer, Mitigate, Accept)
  - Strategies for positive risks or opportunities (Exploit , Enhance, Share, Accept)
  - Contingent response strategies
  - Expert judgment
- The outputs of this process are:
  - Project management plan updates
  - Project documents updates

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Control Risks

- *The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.
- Applies techniques, such as variance and trend analysis, which require the use of performance information generated during project execution.
- Also involves:
  - Choosing alternative strategies
  - Executing a contingency/fallback plan
  - Taking corrective action
  - Modifying the project management plan

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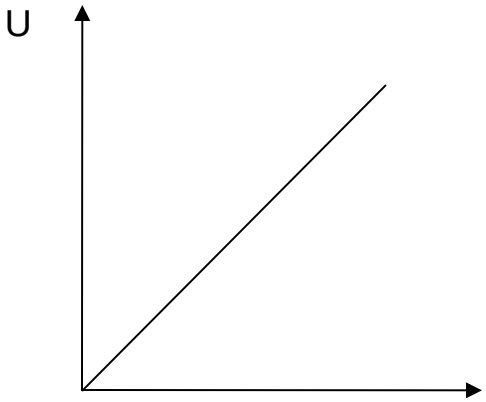
**Project Management Institute, A Guide to the Project Management Body of Knowledge, (*PMBOK® Guide)*– Fifth Edition, Project Management Institute, Inc., 2013, Page 350

Control Risks (continued)

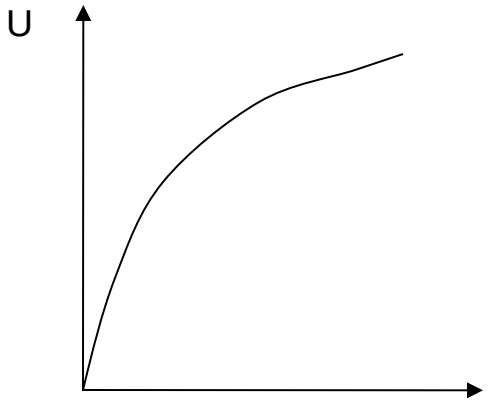
- Tools and techniques used are:
  - Risk reassessment
  - Risk audits
  - Variance and trend analysis
  - Technical performance measurement
  - Reserve analysis
  - Meetings
- Outputs of this process are:
  - Work performance information
  - Change requests
  - Project management plan updates
  - Project documents updates
  - Organizational process assets updates

Utility Function

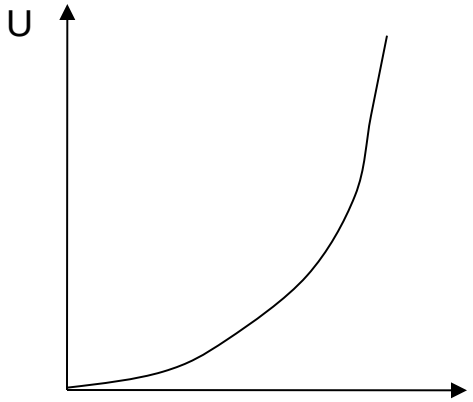
- Ultimate decision on how to deal with risk is based in part on Project Manager's tolerance for risk – this is measured by Utility function.
- Y axis refers to Utility, i.e. satisfaction that the project manager gets from a payoff. X axis refers to the amount of money at stake.



Risk Neutral



Risk Averter



Risk Seeker