Project Management Tutorial Series

Project Risk Management

Presented to

Eastern Idaho Chapter
Project Management Institute

Presented by

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By Scott Adams
AS REQUESTED, I DID A "RISK MANAGEMENT" ASSESSMENT.
I CONCLUDED THAT THERE WAS NO RISK OF ANY MANAGEMENT.
DO YOU HAVE ANYTHING TO ADD?
I'LL GET BACK TO YOU.
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Project Risk Definition

"An uncertain event or condition that, if it occurs, has a positive or a negative effect on at least one project objective such as scope, time, cost or quality."[1]

[1] *A guide to the Project Management Body of Knowledge, 3rd edition, 2004*

Project Risk

- Project risks have their origins in the uncertainties present in all projects
- Known risks can be analyzed and planned
- Unknown risks cannot be managed proactively and thus general contingency against such risks may need to be allocated
- Successful project managers are committed to managing project risks proactively and consistently throughout the project

Sources of Project Risk

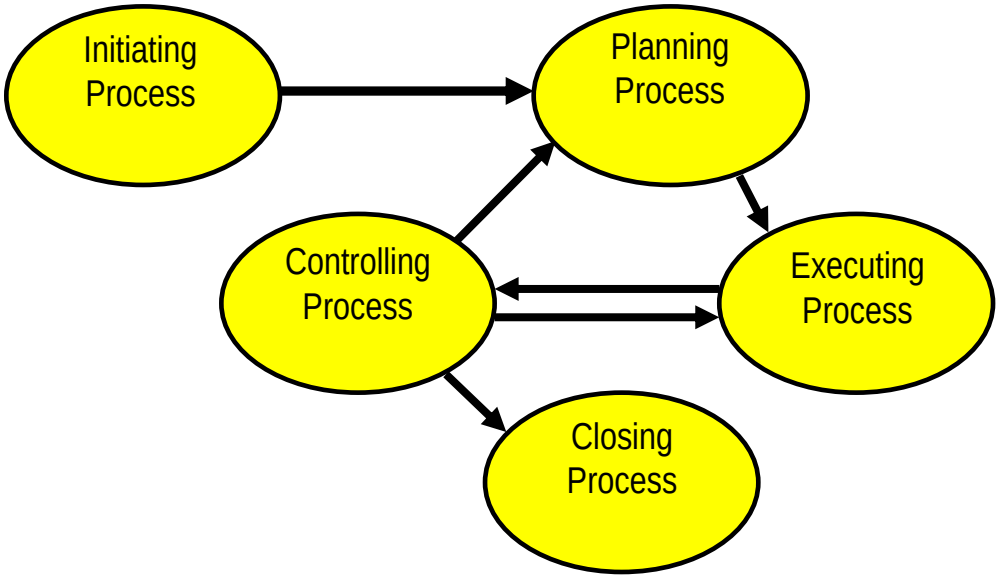
- Funding
- Design complexities
- New technology or new application
- Regulatory
- Offsite shipments/receiver sites
- Resource limitations
- Numerous project assumptions

Project Risk Management Objectives

- Increase the probability and impact of positive events
- Decrease that probability and impact of adverse events

Interaction with Other Knowledge Areas

Project risk management processes interact with the processes in the other knowledge areas



Process Group Relationships

Project Risk Management Process

- **Risk Management Planning** – decide how to approach, plan and execute the risk management activities for a project
- **Risk Identification** – determine which risks might affect the project and their characteristics
- **Qualitative Risk Analysis** – prioritize risks for subsequent analysis and action by assessing their probability of occurrence and impact
- **Quantitative Risk Analysis** – numerically analyze the effect on the overall project objectives
- **Risk Response Planning** – develop options and actions to enhance opportunities and reduce threats to project objectives
- **Risk Monitoring and Control** – track identified risks, identify new risks, execute response plans and evaluate effectiveness

Risk Management Planning

- Planning commensurate with the level and type of risks
- Completed early during project planning
- Project manager, selected project team members, risk management experts and other stakeholders develop the risk management plan
- Risk Management Plan describes how risk management will be structured and performed on the project (subset of the PMP)
  - Methodology
  - Roles and responsibilities
  - Categorization (e.g., risk breakdown structure or listing)
  - Define risk probability and impact
    - Probability – narrative (“likely”) or numerical (1-5)
    - Impact – narrative (“high”) or numerical (1-5 or nonlinear)

Probability and Impact Matrix

- Typical Matrix (simplified)

Relative scale

Project Objective	Very Low	Moderate	High
Cost	Insignificant	10% cost increase	40% cost increase
Schedule	Insignificant	10% time increase	20% time increase
Scope	Insignificant	Major areas of scope affected	Scope impact unacceptable to client
Quality	Insignificant	Client approval required	Quality reduction unacceptable to client

Risk Identification

- Typical participants in the identification process include the project manager, project team members, risk management experts, subject matter experts (SMEs) outside of the project, stakeholders and customers
- Initially performed during development of project plan
- Iterative process – performed throughout the project lifecycle
- Outputs usually categorized and maintained in a document called a “risk register”
  - Listing of identified risks and causes
  - Potential responses

Risk Identification (cont)

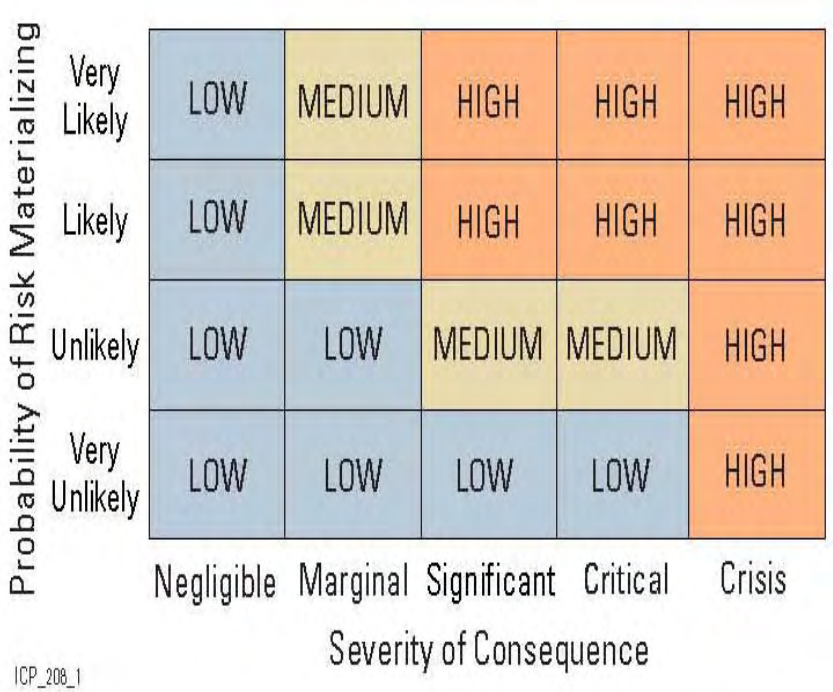
- Some identification techniques
  - Information gathered from previous projects
  - Project scope statements and assumptions therein
  - Interviews
    - Usually main source of risk identification
    - Interview project team, other SMEs, customers and other stakeholders
  - Brainstorming
    - Usually led by a facilitator with project team and other experts
  - Delphi
    - Used to reach a consensus among experts
    - Anonymous
    - Questionnaire is used to solicit ideas about important project risks
    - Experts comment and consensus is eventually reached

Qualitative Risk Analysis

- Prioritize the identified risks for further action
  - Likelihood that risk will occur (probability)
  - Potential effect on project objectives (impact)
- Assessed through interviews and meetings led by a facilitator (typical) with knowledgeable persons
- Probability and impact matrix developed
- Risk classification and categorization enables PM to
  - Focus attention on risks with high significance
  - Look for common causes
  - Create watch lists for low priority risks

Qualitative Risk Analysis (cont)

- Probability and impact matrix reveals project risk classification
- Risk “score” helps guide risk response



Quantitative Risk Analysis

- Performed on risks that have been prioritized by the qualitative risk analysis process as potentially and substantially impacting the project
- A numerical rating assigned to those risks
- Techniques used include modeling simulation (e.g., Monte Carlo technique) and decision tree analysis (use of a decision tree diagram)
- Outputs of analysis include
  - Probability of achieving cost and schedule objectives
  - Prioritized list of quantified risks

Risk Response Planning

- Process to develop options and determine actions to enhance opportunities and reduce threats
- One or more people are identified to take responsibility for each risk response (“risk response owner”)
- For negative risks, typically three strategies employed
  - Avoid – eliminate the threat posed by an adverse risk (e.g., extend a schedule or reduce the scope)
  - Transfer – transfer the risk to a third party (e.g., insurance)
  - Mitigate – reduce probability or impact of risk (e.g., prototype development)

Typical Risk Management Plan

I. General Information
   a. Risk event title
   b. Unique risk event identification number
   c. Responsible person

II. Collective Risk Data
   a. Risk score
   b. Probability of occurrence
   c. Impact score
   d. Scoring date
   e. Description of the effect the risk would have on the project

III. Risk Mitigation Strategy
   a. Strategy Description
   b. Specific Action Plan
      i. Action
      ii. Responsible party
      iii. Completion date
      iv. Status
   c. New risks interjected by the plan
   d. “Go/No Go” decision dates/description
   e. Approvals
      i. Preparer
      ii. Manager
      iii. Project manger

Risk Monitoring and Control

- Project risk must be continuously monitored throughout the life of the project
- The project manager must
  - Receive regular briefings from risk response owners
  - Monitor contingency and workaround plans
  - Reassess project risks regularly

Closing Thoughts

- Projects will *always* have risks
- If you do not manage project risks *they will manage you*
- Companies value project managers who are risk-takers, not gamblers (The distinction is the understanding and managing of project risk)