

CHAPTER 11 – It's Not About Bankruptcy

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CHAPTER 11

- **Chapter 11 - Project Risk Management**

ANSI/PMI-99-001-2000, A Guide to the Project Management Body of Knowledge (PMBOK® Guide, 2000), hereafter referred to as PMBOK®.



RISK MANAGEMENT – What it is not

- **What it is not...**

- Some practitioners complain that risk management is ponderous, expensive and appropriate to large project
- Some claim that it can drive a project to **BANKRUPTCY.**



RISK MANAGEMENT – The Agile Project Manager

- Agility is a term applying positive ideas from literature such as “The Arts of War” from Sun Tzu: improved efficiency, reacting rapidly and effectively to changing conditions.
- The Agile Project Manager:
 - Learn the Risk Management Process (PMBOK®) to know when they are mandatory rules or are optional guidelines
 - Tailor the Risk Management Process to the project’s need and requirements.

RISK MANAGEMENT – Why is it Important?

- Survey Toronto-based Business Improvement Architects - Out of the Top 10 Project Management Challenges, number four (4) is “...Project Risk Not Assessed or Managed...”-
PM Network Magazine, September 2002.
 - “We have seen an increase in the pace of change in organizations in the past 12 months, but we have not seen an improvement in the way organizations manage risk” - Michael Stanleigh, President of BIA.
- Studies quote 26% of projects succeed. Risk Management can decrease project risk in 90%.



RISK MANAGEMENT – What it is

- **RISK MANAGEMENT** (PMBOK®, page 127): The systematic process of identifying, analyzing and responding to project risk.
- **RISK** (PMBOK®, page 127): An uncertain event or condition that, if it occurs, has a positive or a negative effect on a project objective.



RISK MANAGEMENT PROCESSES

Risk Management has six major processes:

1. Risk Management Planning (PMBOK®, page 129)
2. Risk Identification (PMBOK®, page 131)
3. Qualitative Risk Analysis (PMBOK®, page 133)
4. Quantitative Risk Analysis (PMBOK®, page 137)
5. Risk Response Planning (PMBOK®, page 140)
6. Risk Monitoring and Control (PMBOK®, page 144)



1) RISK MANAGEMENT PLANNING

- The Project Manager with the stakeholders decide how to approach and plan the risk management activities (strategy).
- It includes but is not limited to identifying Stakeholders Risk Tolerance, defining the tools and method, preparing resources and finally, document the risk management strategy, called the Risk Management Plan (PMBOK® page 130).

RISK MANAGEMENT PLANNING

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The RM Plan is concerned with:

1. How Risk will be identified
2. How Risk will be measured
3. How Responses will be planned
4. How Risk will be monitored
5. What controls will be structured and performed throughout the project

NOTE(S):

1. Should be adjusted to the size, complexity, experience, skill levels, etc. of the project.
2. Does not address responses to individual risks. This is done in the Risk Response Plan.

Sample: <http://satc.gsfc.nasa.gov/crm/publications/rmpzeus.html>



2) RISK IDENTIFICATION

- “Determining which risks might affect the project and documenting their characteristics” (PMBOK® page 131). It is an iterative process to catalog all risk events, and to identify risk symptoms. All stakeholders as well as Subject Matter Experts should get involved in this process.

RISK IDENTIFICATION...(cont.)

Tools for this process are:

1. Historical and Project files
2. Brainstorming – Beware $(n(n-1))/2$

$$\begin{aligned} 05 \text{ Persons} &= (5 \times (5 - 1)) / 2 &&= 10 \text{ communication lines} \\ 10 \text{ Persons} &= (10 \times (10 - 1)) / 2 &&= 45 \text{ communications lines} \end{aligned}$$

3. Delphi Technique – (PMBOK® page 132)
4. Strengths, Weaknesses, Opportunities and Threats Analysis (SWOT)

http://www.mindtools.com/pages/article/newTMC_05.htm



RISK IDENTIFICATION...(cont.)

The output of this process is a list of Risk and Triggers (Symptoms or warning signs)

NOTE(S):

1. Agile Project Manager begin looking for risks as soon as a project is first discussed. However, this activity must occur as least once during the planning phase.
2. Risk identification cannot be completed until a Work Breakdown Structured has been created and the project team knows “what is the project”.

3) QUALITATIVE RISK ANALYSIS

- The process of assessing the impact and likelihood of identified risk (PMBOK® page 131). It includes nonnumeric analysis ranging from “eye-ball analysis” to probability-consequence matrix analysis.

Example:

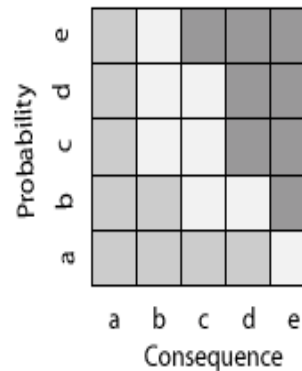
Probability-consequence matrices plot the probability that a risk event will occur against the consequences of the risk event given that it does occur. Typically, probability-consequences are 5 x 5 matrices but some project managers prefer 3 x 3 or 9 x 9.

QUALITATIVE RISK ANALYSIS

...(cont.)

Exhibit 1. Probability-Consequence Matrix

Probability	
Level	Likelihood
e	Near Certainty
d	Highly Likely
c	Likely
b	Unlikely
a	Remote



Assessment	
High	Attention required
Moderate	Different approach
Low	Monitor

Consequence

Level	Performance	Schedule	Cost	Other
e	Unacceptable	Unacceptable	>10%	Unacceptable
d	No Remaining Margin	Major Slip	7% - 10%	Major
c	Significant Reduction	Minor Slip	5% - 7%	Moderate
b	Some Reduction	Resources Required	<5%	Some
a	None/Minimal	None/Minimal	None/Minimal	None/Minimal

Source: *Risk Management Guide*, 4th Edition, Defense Systems Management College, February 2001.



QUALITATIVE RISK ANALYSIS

...(cont.)

Qualitative Risk Analysis is a subjective analysis to:

- Determine which risk events warrant a response.
- Determine the probability and impact of all risks identified in process 2.
- Determine which risks to analyze more fully in risk quantification or to skip quantification in favor of going directly to risk response planning.
- Determine the overall risk ranking for the project and a list of prioritized risks.
- Document non-critical risks.

4) QUANTITATIVE RISK ANALYSIS

- Aims to analyze numerically the probability of each risk, its consequence on project objectives, and the extent of overall project risk (PMBOK® page 137).
- The main goal is identify realistic and achievable cost, schedule or scope targets, e.g. “We only have a 80% chance of completing the project within six months required by the customer”, or “We only have a 75% chance of completing the project within the \$80,000 budget”.
- Practitioners prefer the quantitative process to the qualitative process because it is less subjective and is a better approximation of actual probabilities and consequences.

QUANTITATIVE RISK ANALYSIS

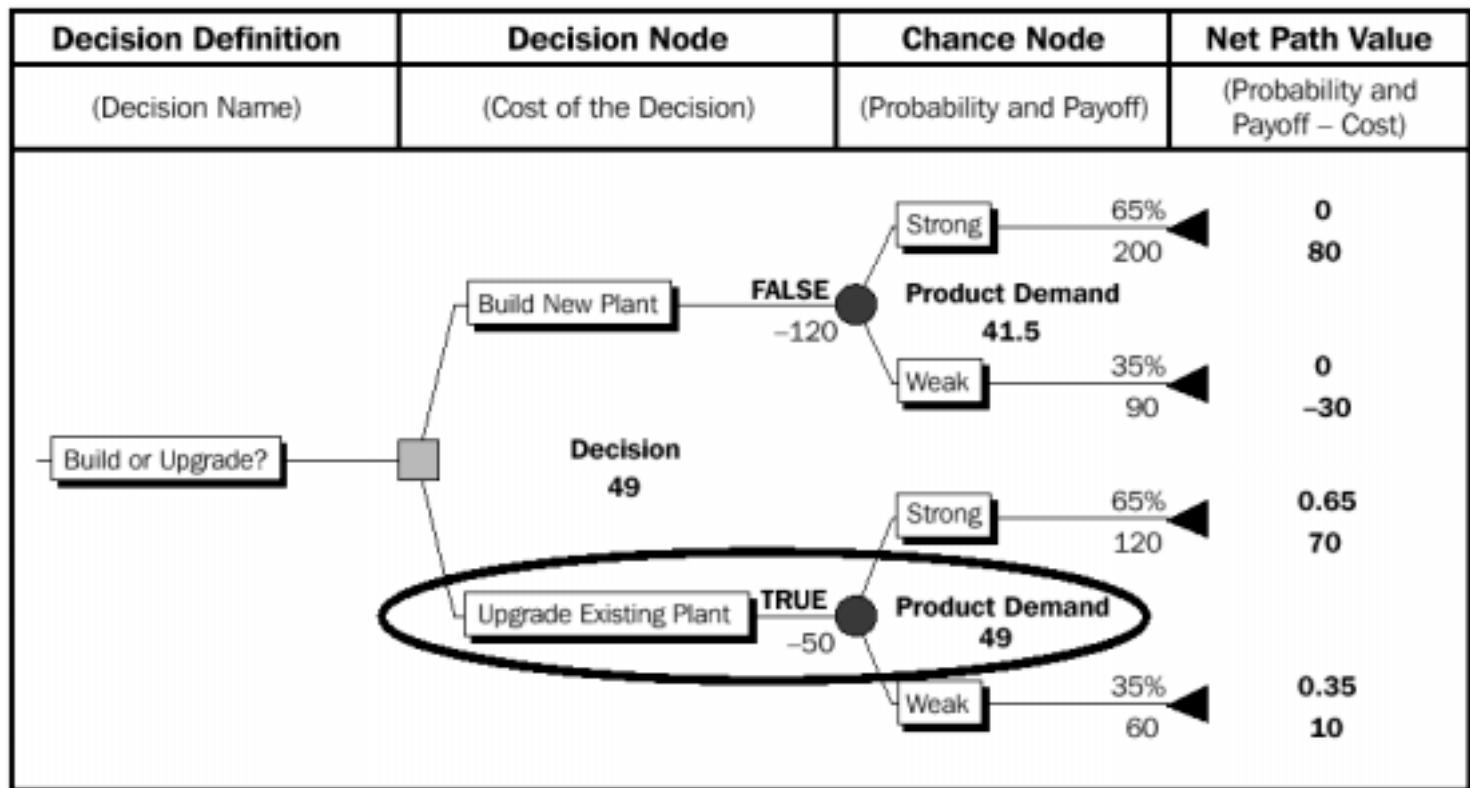
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- PMI® - The qualitative and quantitative risk analysis processes can be used separately or together. Considerations of time and budget will determine which method to use.
- Tools are Sensitivity Analysis, Decision Tree Analysis and Monte-Carlo Simulation.

<http://www.mindtools.com/dectree.html>

QUANTITATIVE RISK ANALYSIS

...(cont.)



This decision tree shows the plant decision with construction costs and probabilities and rewards of different product demand scenarios. Solving the tree indicates that the organization should choose to upgrade the existing plant since the value of that decision is \$49 (vs. \$41.50 for the new plant decision).

PMBOK® Figure 11-6

5) RISK RESPONSE PLANNING

- The process of evaluating and implementing strategies to reduce risk value to acceptable levels. There are four classic handling techniques known by the acronym CAAT.
 1. Control
 2. Avoidance
 3. Acceptance
 4. Transfer



RISK RESPONSE PLANNING

...(CONT.)

- **Control (Mitigation)** – Deliberately use the design process to lower risk value to acceptable levels.
 - Implementing a new course of action that will reduce the problem:
 - Adopting less complex processes,
 - Conducting more engineering test,
 - Choosing a more stable seller.
 - It may involve changing conditions so that the probability of the risk occurring is reduced by adding resources and time to the schedule.
 - It may require prototype development.

RISK RESPONSE PLANNING

...(CONT.)

- **Avoidance** – Is changing or removing requirements that represent uncertainty or high-risk value – e.g. reducing the scope of the project, eliminate task from the WBS.

NOTE: Risk can never be eliminated but some specific risk can be avoided.

- **Acceptance** – Assuming a risk because it is low enough in value. Typical activities include:
 - **Active Acceptance** - planning budget and schedule reserves.
 - **Passive Acceptance** – requires no action, leaving the project team deal with the risks as they occur.

RISK RESPONSE PLANNING

...(CONT.)

- The most important output of this process is the Risk Response Plan (Risk Register). It is written to the level of detail at which actions will be taken:
 - Identified risks and their descriptions,
 - Areas of the project affected, their causes and how they may affect project objectives,
 - Risk owners and assigned responsibilities,
 - Agreed responses:
 - Control/Mitigation
 - Avoidance
 - Acceptance
 - Transference
 - Specific actions to implement the response strategy
 - Budget and times for responses



6) RISK MONITORING & CONTROL

- Is the process of keeping track of the identified risks, monitoring residual risks and identifying new risks, ensuring the execution of risk plans and evaluating their effectiveness in reducing risk.
- It is an ongoing process for the life of the project. The risks change as the project matures, new risks develop or anticipated risks disappear.
- It involves figuring out “what we are going to do about it”. Finding ways to make risk smaller or eliminate it entirely.



RISK MONITORING & CONTROL

...(cont.)

- It includes systematically tracking identified risks and evaluating the effectiveness of handling strategies.
- It also includes monitoring the project for risks symptoms and events and then implementing the strategies described in the project risk management plan.



RISK MONITORING & CONTROL

...(cont.)

- **Outputs:**
 - Workaround plans
 - Corrective actions
 - Project Change requests
 - Updates to risk response plan



RISK MANAGEMENT SUMMARY

- **RISK MANAGEMENT:**

The systematic process of identifying, analyzing and responding to project risk.

- **RISK:**

An uncertain event or condition that, if it occurs, has a positive or a negative effect on a project objective.

- **RISK MANAGEMENT PROCESSES**

1. Risk Management Planning
2. Risk Identification
3. Qualitative Risk Analysis
4. Quantitative Risk Analysis
5. Risk Response Planning
6. Risk Monitoring and Control

- **CUE**

CONCLUSION



QUESTIONS and ANSWERS

