



Project Risk Management v2006-1

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A decorative graphic consisting of a dotted line forming a rectangular frame. The top horizontal line has a solid black triangle pointing upwards at its right end. The left vertical line has a solid black triangle pointing downwards at its top end. The text "Project Risk Management Workshop v2007-1" is centered within the frame.

**Project Risk Management
Workshop** v2007-1

Project Risk:

- **An uncertain event or condition that, if it occurs, has a positive or negative effect on the project's objective**

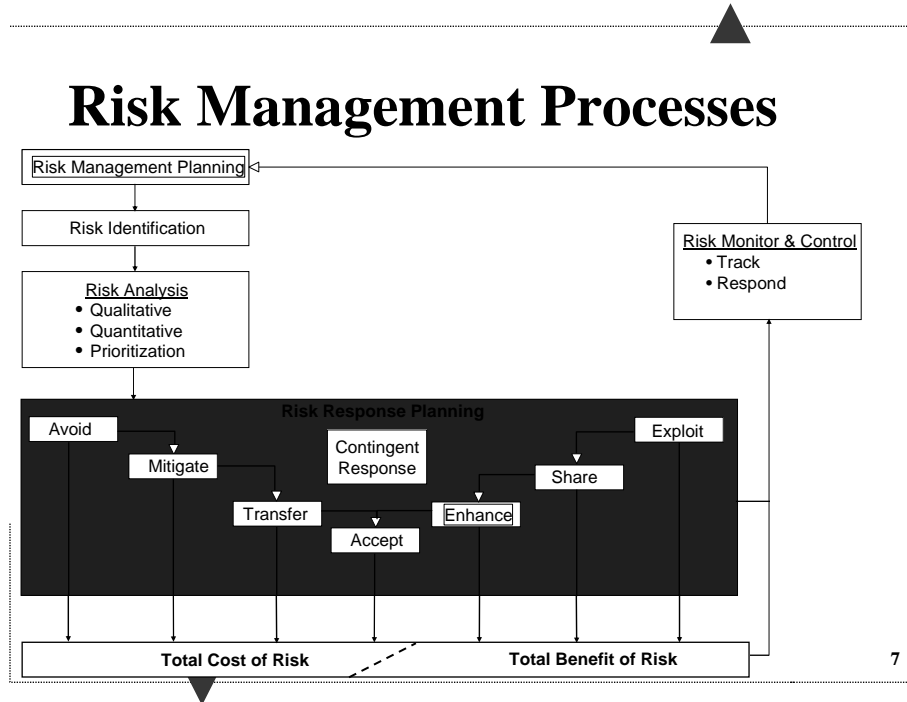
PMBOK® Guide 2004, glossary

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Project Risk Management:

- **Systematic process of...**
- **Identifying,**
- **Analyzing, &**
- **Responding to,**
- **Risks throughout the life of the project**

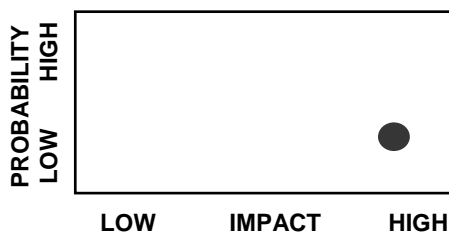
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Describing a Risk

- Risk Event
- Risk Probability (frequency)
- Impact



- Urgency
- Tolerance

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Risk Management Planning

- **As part of project planning, consider...**
- **Organization's risk practices, templates**
- **Roles and responsibilities**
 - **e.g. a risk "owner"**
- **Stakeholder risk tolerances**

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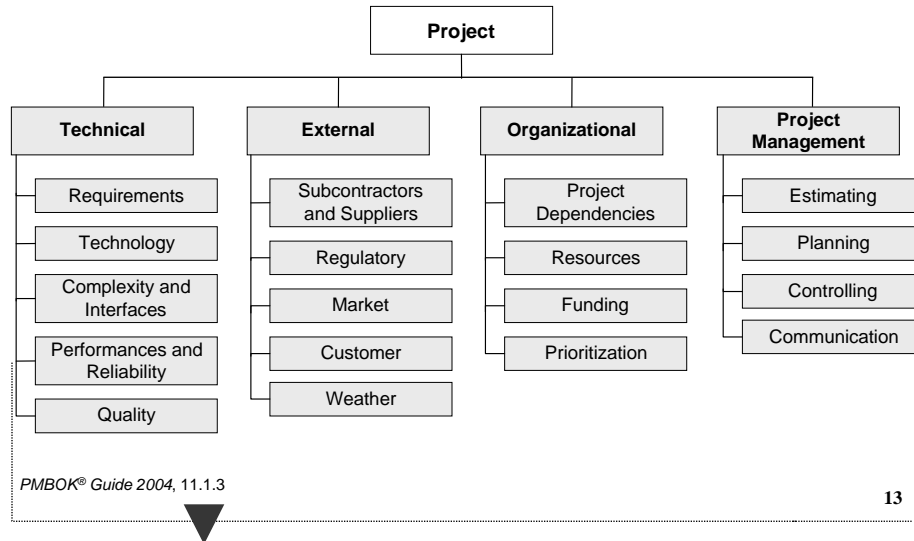
Risk Identification

- **Use analogy - there are no totally new projects!**
- **Checklists, Interviews, Brainstorming, Delphi, Nominal Group Technique, Affinity Diagramming**
- **Test your assumptions!**

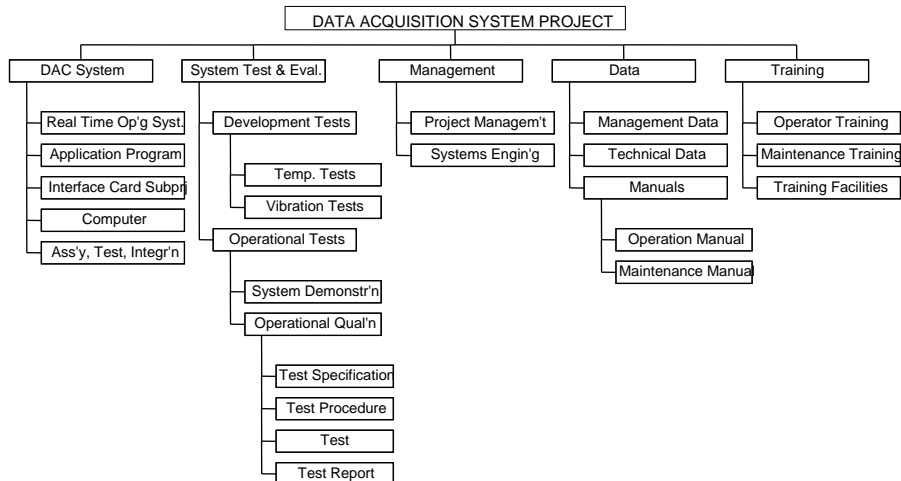
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A Classification of Risk Sources



Use the Work Breakdown Structure!



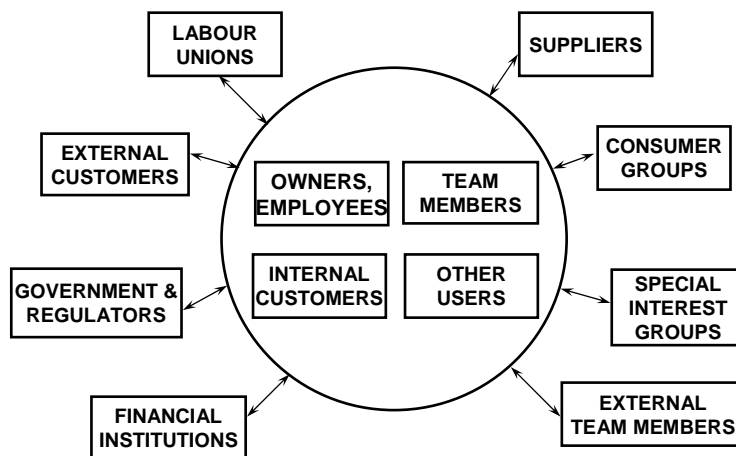
Identifying ... Stakeholders are a Big Source of Risk !

- Stakeholders: “Individuals and organizations who are involved in or may be affected by project activities”
- Stakeholders may be “hidden”
- or requirements may be unclear !

Abbreviation of *PMBOK Guide*, PMI, 2004

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External and Internal Stakeholders



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Risk Identification Statement

“As a result of a <definite cause>, an <uncertain event> may occur, which could lead to an <effect on the objective>.”

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Risk Identification Statement

- **Cause:**
Definite event or set of circumstances that exists in the project of its environment, and which give rise to uncertainty.
- **Risk:**
Uncertain event or set of circumstances that, if it occurs, would affect the project objectives.
- **Effect:**
Unplanned variations from project objectives, either positive or negative, which arise as a result of risk occurring.

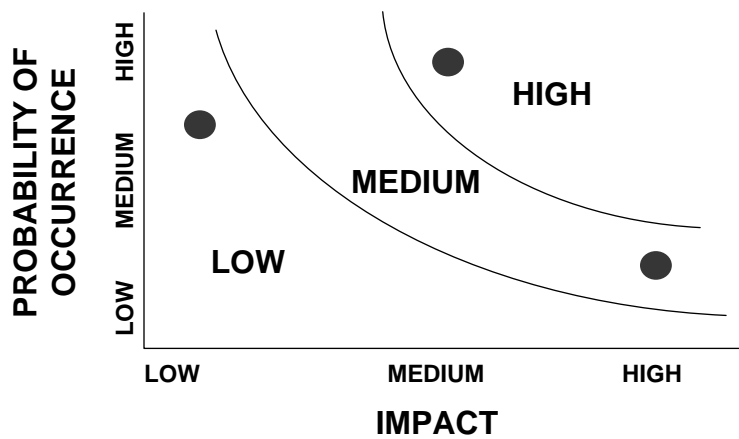
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Risk Assessment

- Qualitative
- Assess each risk
- Prioritize the risks

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Risk Mapping...



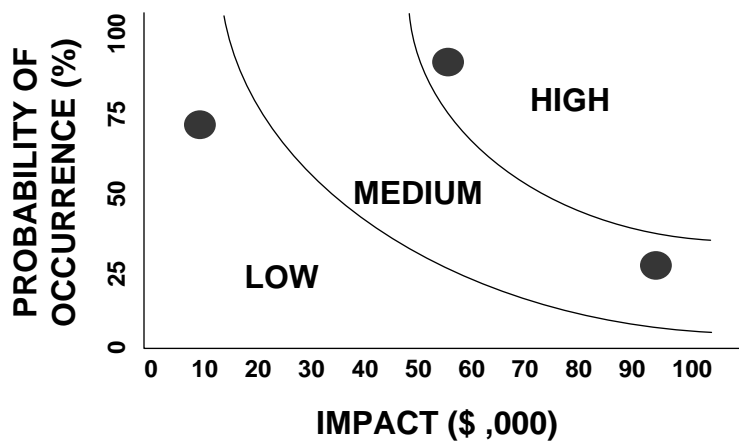
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Group Workshop # 1: Risk Identification

- Think of a work-related project
- You are in the planning phase
- Think of what can go wrong (some serious, some small, be specific)
- Express as Risk Identification Statement
- Plot on a Risk Map
- Do not solve these risks

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Quantitative Risk Mapping...



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Risk Quantification

- Many methods use:
 - probabilities
 - frequency histograms
- Sensitivity analysis (“what if”)
- Simulations, e.g. Monte Carlo
- Expected monetary value
- Decision tree
- Consider “risk tolerance”
- Avoid “garbage in, gospel out”

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Exercise

- What is the “rational” value of the opportunity?
- How much are you willing to bid?
- Why?

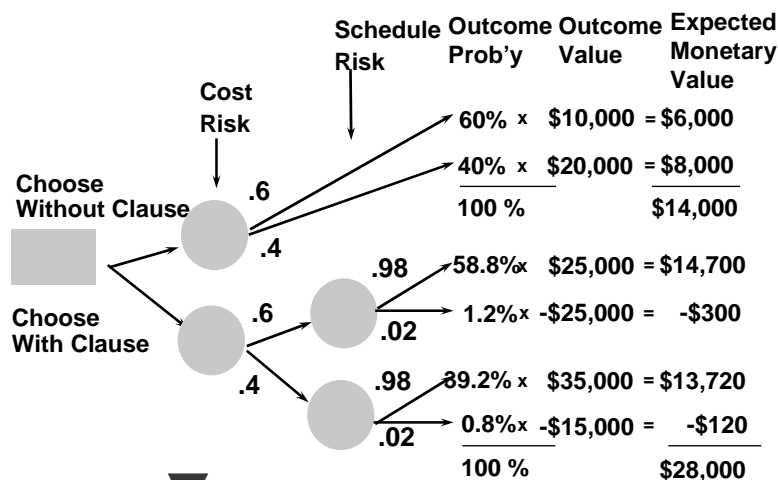
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Take into Account ... Risk Tolerance

- There is a 1% chance that your house will burn down during the upcoming 12 months.
- It would cost \$100,000 to rebuild it.
- Expected monetary value of the loss is $1\% \times \$100,000 = \$1,000$.
- An insurance company offers a policy for \$--???---.
- What do you do?

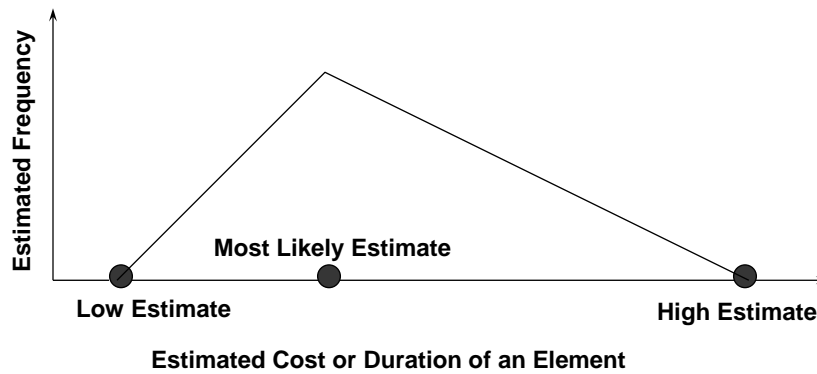
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Decision Tree



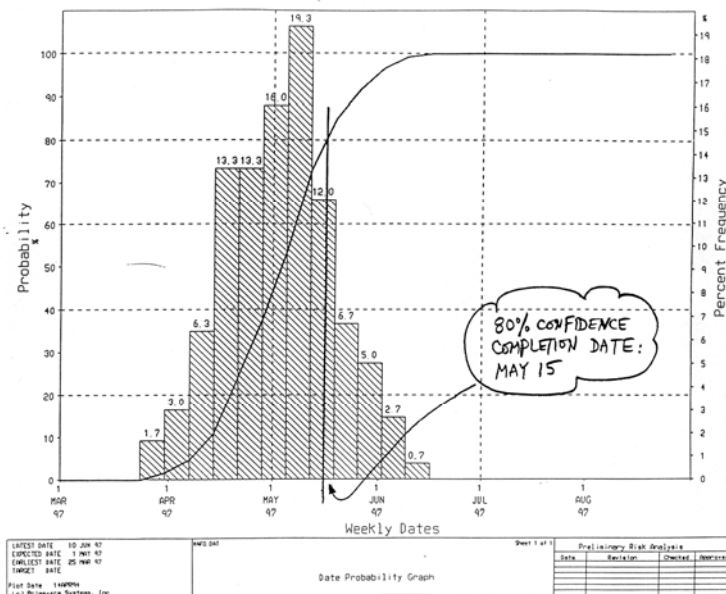
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Monte Carlo Simulation: Typical Input Variable



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Monte Carlo Simulation: Example



Risk Response Planning

- **Strategies for negative risks ...**
 - **Avoid**
 - **Mitigate**
 - **Transfer**
- **Strategies for opportunities**
 - **Exploit**
 - **Share**
 - **Enhance**
- **Accept**
- **Contingent response**

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Avoid

- **“Eliminating a specific threat, usually by eliminating the cause”**
- **Decline the project ?**
- **Change technology ?**

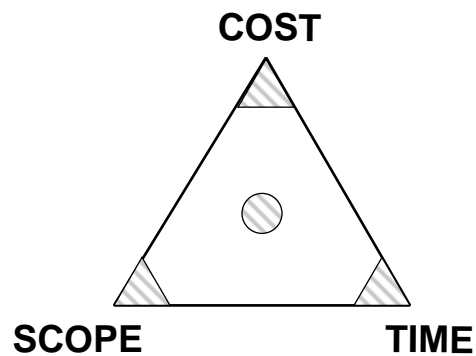
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Mitigate

- “Reducing the expected monetary value of a risk event by:
 - Lowering the probability of occurrence, or
 - Reducing its effect”
- How to do that?
- Trade-offs...

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A Tool for Discussing Trade-offs



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Transfer

- **By insurance ...**
 - **pay premium**
- **By contracting ...**
 - **pay risk premium**

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Transfer ... by Contracting

- **Who is the source of the risk?**
- **Who can best manage it?**
- **Does client want to be involved in managing the work?**
- **Can recipient withstand consequences?**
- **Is the risk premium reasonable?**
- **Will the risk transfer lead to other risks?**

Max Wideman, *Project and Program Risk Management*, PMI, 1992.

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Strategies for Opportunities

- **Exploit (opposite of avoid)**
 - **Make it happen !**
- **Share (similar to transfer)**
 - **Bring in a 3rd party**
- **Enhance (similar to mitigate)**
 - **Increase the probability, ...**
 - **or increase the positive impact**

PMBOK Guide 2004

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Acceptance

- **Accepting the consequences, ...**
- **Ignore ?**
- **“Contingency reserves” in budget and schedule**

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Contingent Response

- = “Contingency” plan
- A predetermined response plan
- Only do it if the “trigger”, or the threat itself, occurs

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Risk Response Planning Depends Upon:

- Probability of risk event
- Impact (\$\$)
- Visibility of consequences (publicity!)
- Manageability of risk

...Output is a Risk Response Plan!

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Risk Workshop Part 2

- For each risk event:
- Estimate relative probability and impact
- Plot each risk event on the grid

PROBABILITY LOW HIGH	<i>MED</i>	<i>HIGH</i>	<i>HIGH</i>
	<i>LOW</i>	<i>MED</i>	<i>HIGH</i>
	<i>LOW</i>	<i>LOW</i>	<i>MED</i>
	LOW	MEDIUM IMPACT	HIGH

- How will you respond to each risk (Avoid, Mitigate, Transfer, Accept) ?

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Risk Monitoring and Control

- By “risk owner”
- Track risks
 - look for triggers
- Respond to new potential risks:
 - Identify, analyse, respond
- Respond to actual events as they occur:
 - implementing contingent responses
 - “workarounds” (unplanned responses)

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Thank You

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