Financial Risk Management

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Risk Definitions

Risk Management

- ***The practice of dealing with project risk. It includes planning for risk, assessing risk, developing risk response strategies, and monitoring risk throughout the project life cycle.***

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Risk Definitions

Risk

- ***Uncertain event that has a positive or negative effect on at least one of the project objectives (scope, schedule, budget, quality).***

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Risk Definitions

Threat

- ***A project risk that has a negative effect.***
- ***Project Managers will look for ways to eliminate or reduce the effects of a threat.***

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Risk Definitions

Opportunity

- ***A project risk that has a positive effect.***
- ***Project Managers will look for ways to enhance, exploit, or share the effects of an opportunity.***

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Risk Definitions

Risk Trigger

- ***An indicator that a risk event is imminent.***

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Risk Definitions

Risk Tolerance

- ***Risk Adverse / Risk Averter***
- ***Risk Neutral***
- ***Risk Taker / Risk Seeker***

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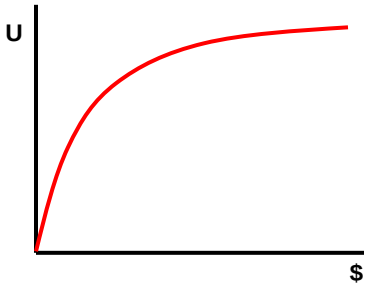
Risk Tolerance

Risk Adverse / Risk Avoider



- **Tolerance diminishes as more money is at stake.**
- **Prefers a more certain outcome and will demand a premium to accept risk.**

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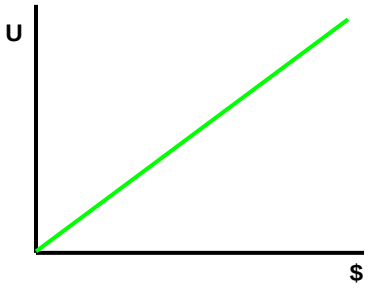
Risk Tolerance

Risk Neutral



- **Utility rises at a constant rate.**

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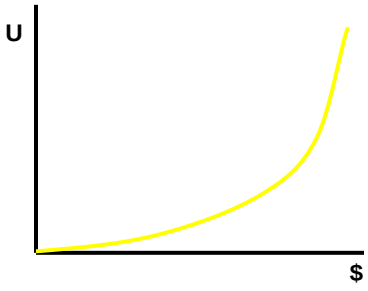
Risk Tolerance

Risk Taker / Risk Seeker



- **Tolerance increases as more money is at stake.**
- **Prefers a more uncertain outcome and be willing to pay a penalty to take a risk.**

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WSDOT Risk Policy

Executive Order 1032.00E

- ***Project Management On-Line Guide***
- ***Risk Register***

www.wsdot.wa.gov/Projects/ProjectMgmt/

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WSDOT Risk Policy

Cost Risk Estimating & Management (CREM)

- ***CEVP – Cost Estimate Validation Process***
- ***CRA – Cost Risk Assessment***

www.wsdot.wa.gov/Projects/ProjectMgmt/RiskAssessment/

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Risk Planning Process

Risk Management Planning

- ***The objectives of Risk Management Planning are to increase the probability and impact of positive events (opportunities) and decrease the probability and impact of adverse events (threats) to project objectives.***

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Risk Planning Process

Risk Management Planning

- ***Protects project investments***
- ***Proactive management – early warning***
- ***Achieve project objectives***

Ignoring risk doesn't make the risk go away!

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Risk Planning Process

Risk Management Planning Steps

- ***Step 1 – Review Organization Risk Policy***
- ***Step 2 – Risk Identification***
- ***Step 3 – Qualitative Risk Analysis***

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Risk Planning Process

Risk Management Planning Steps

- ***Step 4 – Quantitative Risk Analysis***
- ***Step 5 – Develop Risk Response Strategy***
- ***Step 6 – Risk Monitoring & Control***

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Risk Management Planning – Step 1

Review Organization Risk Policy

- ***Does this project require assistance from the CREM office?***
- ***What direction and tools are given in the Project Management On-Line Guide?***
- ***What is the Risk Profile of the Agency and Project Team?***

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Risk Management Planning – Step 2

Risk Identification

- ***Brainstorming***
- ***Delphi Technique***
- ***Interviewing***

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Risk Management Planning – Step 2

Risk Identification

- ***Root Cause Identification***
- ***SWOT Analysis***
- ***Assumption Analysis***
- ***Diagramming Techniques***

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Risk Management Planning – Step 2

Outcome: Risk Register

- ***Status (active, dormant, retired)***
- ***ID#***
- ***Date identified & Project Phase***

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Risk Management Planning – Step 2

Outcome: Risk Register

- ***Functional Assignment***
- ***Risk Event (SMART Technique)***
- ***Risk Trigger***

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Exercise – Risk Identification

Risk Identification Exercise

As a team identify risk events for either:

a) A Caribbean vacation

b) Building a custom home

As a group, select a project and identify potential risk events. Brainstorm potential risks events, use the SMART method to define the risks and root cause identification for the risk trigger. Record on Risk Register.

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Risk Management Planning – Step 3

Qualitative Risk Analysis

- ***Prioritizing risks for subsequent further analysis or action by assessing and combining their probability of occurrence and impact.***

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Risk Management Planning – Step 3

Impact/Probability Matrix

- ***A common method/tool to determine whether a risk is considered low, moderate, or high by combining the two dimensions of a risk: its probability of occurrence, and its impact on objectives if it occurs.***

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Risk Management Planning – Step 3

Impact/Probability Matrix

- ***Incorrect:* confusing or combining Impact & Probability**

  "It is very unlikely, therefore the impact is low"

- ***Correct:* Keep Impact & Probability independent**

  "Probability is low, but if it happens, the project will fail. Therefore the impact is high"

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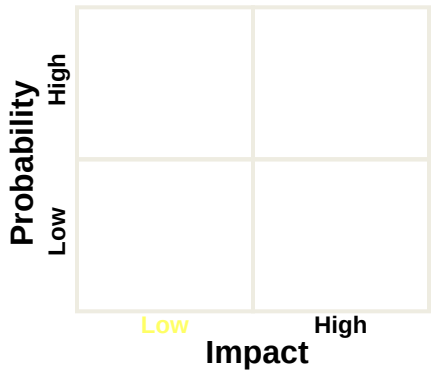
Risk Management Planning – Step 3

Using a 2x2 Impact/Probability Matrix



Green: Low Risk (Passive Acceptance – workarounds)

Yellow: Moderate Risk (Active Acceptance – contingency)

Red: High Risk (Risk Response Planning)

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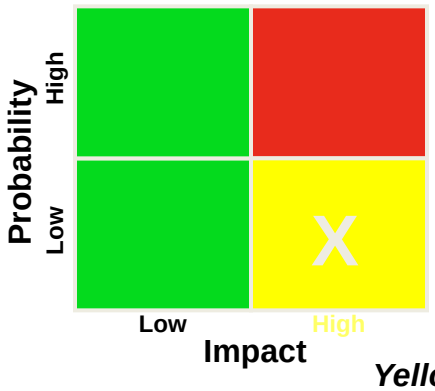
Risk Management Planning – Step 3

2x2 Impact/Probability Matrix example



Risk: Key project team member with specialized skill leaves project team before work is done.

Impact: High

Probability: Low

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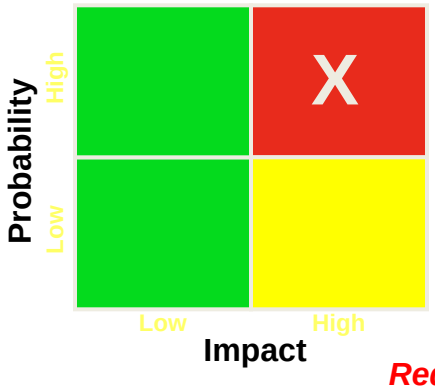
Yellow Zone – Moderate Risk

Risk Management Planning – Step 3

2x2 Impact/Probability Matrix example



Risk: Change to regulatory ordinance requires additional wetland mitigation, requiring additional R/W

Impact: High

Probability: High

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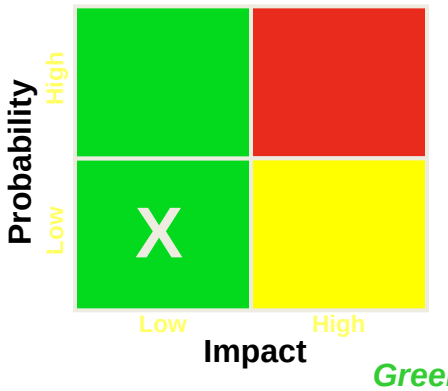
Red Zone – High Risk

Risk Management Planning – Step 3

2x2 Impact/Probability Matrix example



Risk: Mariners first World Series game is scheduled on the same date as the Environmental Hearing

Impact: Low

Probability: Low

Green Zone – Low Risk

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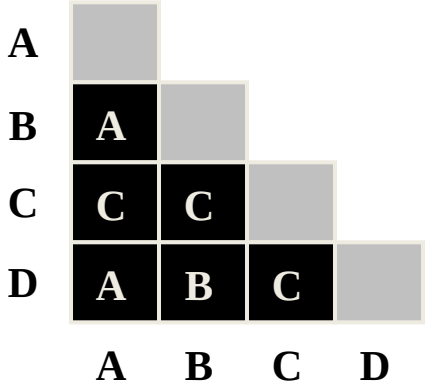
Risk Management Planning – Step 3

Comparative Risk Rating



Risk A – 2

Risk B – 1

Risk C – 3

Risk D – 0

Priority Order:

C – A – B – D

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Exercise – Qualitative Risk Analysis

Qualitative Risk Analysis Exercise

Using a 2x2 impact & probability matrix, assess the risks identified in the last exercise.

- First, evaluate the impact of the risk event on the project objectives
- Then, with the risks identified as "high" impact, assess the probability of the risk event.
- Perform a comparative risk rating on the "high-high" (red zone) risk events

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Risk Management Planning – Step 4

Quantitative Risk Analysis

- ***The process of numerically analyzing the effect of identified risks on the project's objectives. (In particular, the project schedule and the project costs).***

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Risk Management Planning – Step 4

Cost Risk Estimating & Management (CREM) Office

- ***CRA: Cost Risk Assessment*** ***(pg.37)***
  - ***$25 million or more***
  - ***$5 million or more with specific characteristics***
- ***CEVP®: Cost Estimate Validation Process*** ***(pg.37)***
  - ***$100 million or more***

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Risk Management Planning – Step 4

Quantitative Risk Analysis

- ***Quantify possible outcomes for the project***
- ***Assess probability of achieving specific project objectives***
- ***Identify risks requiring most attention***

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Risk Management Planning – Step 4

Quantitative Risk Analysis

- ***Identify realistic and achievable cost, schedule, or scope targets, given project risks***
- ***Determine best management decision when conditions or outcomes are uncertain***

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Risk Management Planning – Step 4

Quantitative Risk Analysis tools

- ***Interviewing (SMEs)***
- ***Decision Tree Analysis***
- ***Monte Carlo Simulation***

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Risk Management Planning – Step 4

Quantitative Risk Analysis products

- ***Updated Risk Register***
- ***Probabilistic analysis for project success (time and cost)***
- ***Updated priority of risk events***
- ***Trends in risk analysis***

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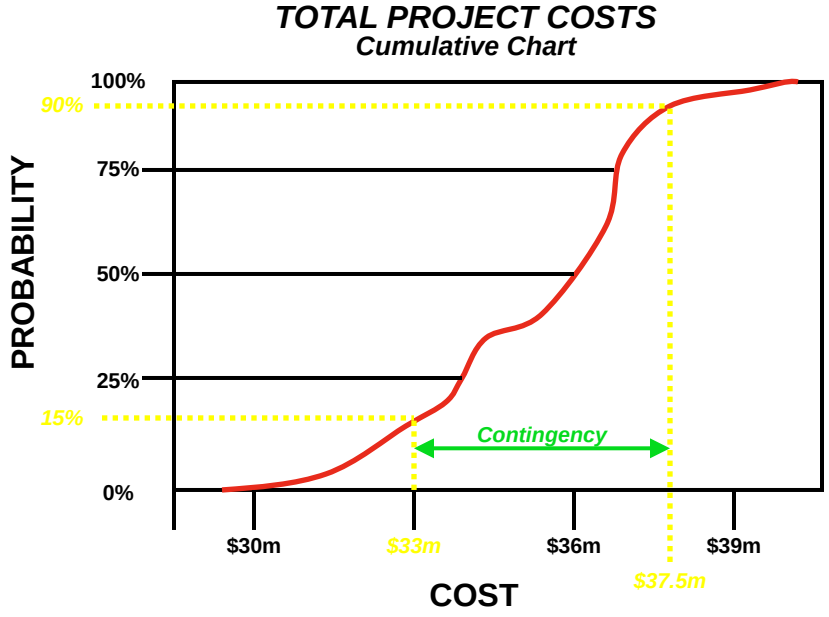
Risk Management Planning – Step 4



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Risk Management Planning – Step 5

Risk Response Strategy

- ***The process of developing options and actions to enhance opportunities and to reduce threats to the project objectives.***

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Risk Management Planning – Step 5

Risk Response Strategy

- ***Proactive, not reactive***
- ***Appropriate to significance of risk***
- ***Cost effective***
- ***Timely***

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Risk Management Planning – Step 5

Risk Response Strategy

- ***Realistic within project context***
- ***Agreed upon by project team and all parties involved***
- ***Assigned to / owned by a responsible person***

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Avoidance – Changing a project objective to eliminate the threat posed by an adverse risk event.***

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Transference* – *Shifting the negative impact of a threat, along with the ownership of the response, to a third party.***

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Mitigation* – *Reducing the Probability or Impact of an adverse risk event (threat) to an acceptable threshold.***

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Acceptance* – The project team decides not to change project objectives to deal with the risk.**
  - ***Passive acceptance*: no action , deal with threats as they occur (workarounds)**
  - ***Active acceptance*: establish a contingency reserve to handle risks**

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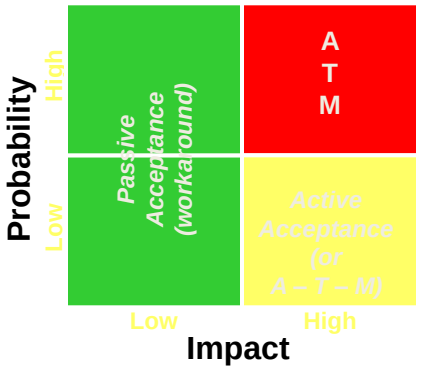
Risk Management Planning – Step 5

Risk Response Strategy (threats)



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Risk Management Planning – Step 5

Risk Response Definitions

- ***Exploit* – This strategy seeks to eliminate the uncertainty with an opportunity by changing a project objective to ensure it happens.**

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Share* – Allocating ownership of the positive risk event to a third party who is best able to capture the opportunity for the project.**

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Enhance* – Increasing the probability and/or positive impact of an opportunity.**

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Risk Management Planning – Step 5

Risk Response Definitions

- ***Contingency* – Not a risk response, but an output from risk planning. Developed for actively accepted project risks. This is typically defined as time or funds.**

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Exercise – Qualitative Risk Analysis

Risk Response Strategy Exercise

Using the results from the qualitative analysis from the last exercise:

- Identify risk response strategies for the "high-high" (red zone) risk events.
- Decide who will be the responsible person to monitor the risk event and the effectiveness of the risk response
- Decide if active acceptance or further risk response planning will be required for the "high-low" (yellow zone) risk events.

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Risk Management Planning – Step 6

Risk Monitoring & Control

- ***Managing the Risk Register during the "Work the Plan" phase of the project.***
- ***Recognize the probability and impact of risk events may change during the life of the project.***
- ***Also recognizing that additional risks events can be identified during the "Work the Plan".***

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Risk Management Planning – Step 6

Risk Monitoring & Control

- ***Assign a responsible party (ownership) of the risk event.***
- ***Track risk event status***
  - ***Active/Dormant: risk is currently being monitored and analyzed***
  - ***Retired: risk event (trigger) no longer poses a threat to the project.***

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Risk Management Planning – Step 6

Risk Monitoring & Control

- ***Risk Registers should be a standing agenda item for project team meetings.***
- ***Risk reporting should be an standing reporting item for all project progress reporting***
- ***WSDOT tools for reporting (PDIS, QPR, GMAP).***

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Risk Management

Practice

Monte Carlo Simulation Exercise

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