Software Risks

*What to do about risks?*

Be proactive – (start early)

Why – may affect decisions now
Know risks early (proactive)

*not to undertake prevention*

**Problem of estimation**

*Calculation*

Expected value of a lottery ticket

- probability of winning * value won

Risk Exposure = probability of occurrence * Cost

RE = P*C

Problems with calculation

- probability ??
  - *atomic bomb project – false security*
  - *fuzzy probability*

- cost – $??
  - *usually nonlinear jumps*

*Actions – to deal with risks*

prevention

- lessen probability or cost before the problem occurs - MITIGATION

tracking – triggers - MONITORING

- will occur or probability or cost has increased

remediation – MANAGEMENT -

- what to do about it
  - plan what to do ahead of time - contingency plan

- psychology – plan ahead - dollar auction

bailout

**Procedure**

*Brainstorm*

- Identify risks
- Checklists may help

*Evaluate*

- Rank by impact
- Rank by probability
- Try to categorize by impact
  - *showstopper*
  - *extra expense*
  - *extra time*
quality affect – reduce features
cost performance, schedule, support
Qualitative rating: low, very low, hi etc.
Consider combinations of risks

A military example:

<table>
<thead>
<tr>
<th>Impact / Probability</th>
<th>Very High</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>Very Low</th>
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</thead>
<tbody>
<tr>
<td>Catastrophic</td>
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<td>Moderate</td>
<td>Moderate</td>
<td>Low</td>
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<tr>
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<td>Moderate</td>
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<td>None</td>
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<td>Low</td>
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<td>None</td>
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<tr>
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<td>Low</td>
<td>Low</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Plan for most significant risks
Try to plan for
prevention
tracking
remediation
Reevaluate risks periodically