SOFTWARE RISK MANAGEMENT

RISK MANAGEMENT

- Risk analysis and management are actions that help a software team to understand and manage uncertainty.
  - risk identification
  - Analyzed
  - Plan to manage the risks
- Risk mitigation, monitoring, and management (RMMM) plan is produced.
- Concerns are:
  - Future
  - Change
  - Choices

REACTIVE AND PROACTIVE RISK STRATEGIES

- Reactive Strategy- Never worrying about problems until they happened

vs

- A proactive strategy begins long before technical work is initiated.
  - Identified
  - Probability
  - Impact
  - Ranking
  - Plan for managing risk

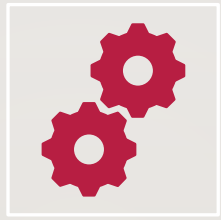
SOFTWARE RISKS CHARACTERISTICS

Uncertainty

Loss

RISK CATEGORIES

Project



Technical

Business

Market

Strategic

Sales

Management

Budget

RISK IDENTIFICATION

- attempt to specify threats to the project plan
- two distinct types of risks for each of the categories
  - generic risks
  - product-specific risks- “What special characteristics of this product may threaten our project plan?”

CHECKLIST

Product size

Business impact

Stakeholder characteristics

Process definition

Development environment

Technology to be built

Staff size and experience

RISK COMPONENTS AND DRIVERS

Performance risk

Cost risk

Support risk

Schedule risk

RISK PROJECTION

- The likelihood or probability that the risk is real and
- The consequences of the problems associated with the risk, should it occur.
- The intent of these steps is to consider risks in a manner that leads to prioritization

Developing a Risk Table

ASSESSING RISK IMPACT

- Impact values:

1—catastrophic

2—critical

3—marginal

4—negligible

Risks	Category	Probability	Impact	RMMM
Size estimate may be significantly low	PS	60%	2	
Larger number of users than planned	PS	30%	3	
Less reuse than planned	PS	70%	2	
End-users resist system	BU	40%	3	
Delivery deadline will be tightened	BU	50%	2	
Funding will be lost	CU	40%	1	
Customer will change requirements	PS	80%	2	
Technology will not meet expectations	TE	30%	1	
Lack of training on tools	DE	80%	3	
Staff inexperienced	ST	30%	2	
Staff turnover will be high	ST	60%	2	
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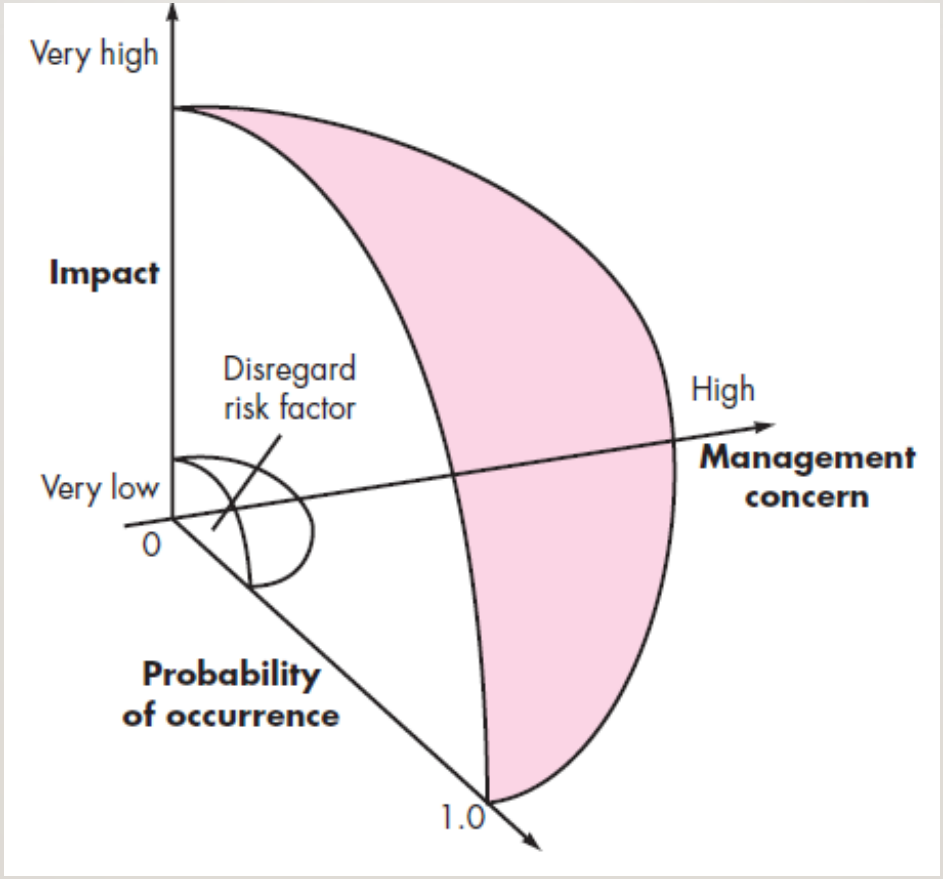
RISK AND MANAGEMENT CONCERN



RISK EXPOSURE

$$RE = P * C$$

where *P* is the probability of occurrence for a risk, and *C* is the cost to the project should the risk occur.

RISK REFINEMENT

Given that all reusable software components must conform to specific design standards and that some do not conform, then there is concern that (possibly) only 70 percent of the planned reusable modules may actually be integrated into the as-built system, resulting in the need to custom engineer the remaining 30 percent of components.

This general condition can be refined in the following manner:

Subcondition 1. Certain reusable components were developed by a third party with no knowledge of internal design standards.

Subcondition 2. The design standard for component interfaces has not been solidified and may not conform to certain existing reusable components.

Subcondition 3. Certain reusable components have been implemented in a language that is not supported on the target environment.

RISK MITIGATION, MONITORING, AND MANAGEMENT

Risk information sheet

Risk ID: P02-4-32	Date: 5/9/09	Prob: 80%	Impact: high

Description:
Only 70 percent of the software components scheduled for reuse will, in fact, be integrated into the application. The remaining functionality will have to be custom developed.

Refinement/context:
Subcondition 1: Certain reusable components were developed by a third party with no knowledge of internal design standards.
Subcondition 2: The design standard for component interfaces has not been solidified and may not conform to certain existing reusable components.
Subcondition 3: Certain reusable components have been implemented in a language that is not supported on the target environment.

Mitigation/monitoring:
1. Contact third party to determine conformance with design standards.
2. Press for interface standards completion; consider component structure when deciding on interface protocol.
3. Check to determine number of components in subcondition 3 category; check to determine if language support can be acquired.

Management/contingency plan/trigger:
RE computed to be $20,200. Allocate this amount within project contingency cost. Develop revised schedule assuming that 18 additional components will have to be custom built; allocate staff accordingly.
Trigger: Mitigation steps unproductive as of 7/1/09.

Current status:
5/12/09: Mitigation steps initiated.

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