

---

Softstar Research, Inc.

Risk Management Overview

## Revision History

Date	Version	Description	Author
	<0.1>	Initial draft	David Rubin

# Table of Contents

<b>REVISION HISTORY</b> .....	<b>2</b>
<b>TABLE OF CONTENTS</b> .....	<b>3</b>
<b>RISK MANAGEMENT</b> .....	<b>4</b>
RISK TYPES .....	4
RISK METHODOLOGY'S.....	4
<i>Boehm</i> .....	4
<i>Fairley</i> .....	5
<i>DOD F/A-18E/F</i> .....	5
<i>Rockwell</i> .....	5
ARCHITECTURE / TECHNICAL SERVICES RISK METHODOLOGY .....	6
REPORTING RISK STATUS.....	6

# Risk Management

Risk management documentation (identification of risks) in conjunction with a risk mitigation plan is a way to pro-actively plan for and deal with risks that could hamper the success of the project. In other words, risk management is a formalized way to identify, address, and potentially eliminate problems within a project before they become unmanageable.

## Risk Types

Within our project(s), we will define software development risk as exposure to one or more different 'Risk Types'. The 'Risk Types' are:

Risk Type	Definition
Performance Risk	Performance risk is the failure to obtain the anticipated benefits from the software under development
Cost Risk	Cost risk is significantly exceeding the budgeted and/or estimated cost
Schedule Risk	Schedule risk is the failure to deliver acceptable software by the scheduled dates
Support Risks	Support risks are mainly the quality of the software product delivered. It can be identified as excessive life cycle maintenance costs due to deficiencies in maintainability, flexibility, compatibility, and/or reliability
Technology Risks	Technology risks are any risk associated with specific implementation technologies
Peopleware Risks	Peopleware risks are risks associated with the people resources available for the project

The risk types identified above are not 'black and white'. Many risks identified within a project can and will be classified into more than one 'Risk Types'.

## Risk Methodology's

Numerous risk methodologies' exist within software development practices. Below is a brief overview of four examples that were used to abstract commonality from to form the Architecture / Technical Services risk methodology.

### Boehm

Barry Boehm's spiral software development model identifies a six-step risk management process, composed of two main steps each divided into three sub-steps.

#### 1) Risk Assessment

- ◆ Identification of risks likely to cause problems.
- ◆ Analyses to determine the loss probability and loss magnitude for each risk and develop a compound risk matrix.

© COPYRIGHT 1992-2001, SOFTSTAR RESEARCH, INC. - ALL RIGHTS RESERVED.

*Information in this document is proprietary to Softstar Research, Inc.*

- ◆ Prioritization of identified risk items according to their compound risks.
- 2) Risk Control
- ◆ Management planning to bring the risk item under control.
  - ◆ Resolution to eliminate the risk or resolve the risk.
  - ◆ Monitoring to track the project's risk reductions progresses, and take corrective action where necessary.

### Fairley

Richard Fairley's work with various organizations helped him identify a seven-step risk management process that is managed via a mathematical model.

- 1) Identify the risk factors.
- 2) Assess the risk probabilities and effects on the project (i.e. mathematical weighting factors).
- 3) Develop strategies to mitigate identified risks.
- 4) Monitor risk factors.
- 5) Invoke the risk contingency plans when a quantitative factor crosses a predetermined threshold.
- 6) Manage the crisis by possibly drastic corrective action if the contingency plan fails.
- 7) Recover from the crisis (e.g. reward personnel, reevaluate schedule, reevaluate resources, and shoot the project managers [OK, maybe not the last one, I just added it to see if anyone was actually reading this]).

### DOD F/A-18E/F

DOD series 5000 acquisition documents now require risk management in all defense programs. An example is the F/A-18E/F project that contains a four-step process, performed in a continuous feedback loop.

- 1) Risk identification.
- 2) Risk analysis by quantifying the risk and determining the overall risk level.
- 3) Risk planning by developing a list of risk mitigation tasks.
- 4) Risk tracking via monitoring and updates.

### Rockwell

Rockwell's risk management process, based on the principals of Dr. Robert Charette, is a five-step process.

- 1) Identify risks
- 2) Characterize risks
- 3) Prioritize risks
- 4) Avert risks
- 5) Track/control risks

## Architecture / Technical Services Risk Methodology

The Architecture / Technical Services risk methodology is primarily an abstraction of risk steps from several common risk processes' including those identified above. It will primarily be made up of the following five-step process.

- 1) Identify and document the risk, including identification of a 'Risk Owner'.
- 2) Categorize the risk according to the risk types previously identified.
- 3) Prioritize the risk (high, medium, low).
- 4) Develop Contingency plan to mitigate identified risks. This step is dependent on the prioritization identified in step 3.
- 5) Monitor the risk, including reporting on the risk status.

## Reporting Risk Status

The monitoring of a specific risk (step 5 above) is accomplished through a documentation and reporting strategy. For each risk identified, the following documentation structure will be used.

Risk Item	Status	Priority	Risk Type	Owner	Documentation	Path Forward
	<ul style="list-style-type: none"> <li>◆ Open</li> <li>◆ Closed</li> <li>◆ Suspended</li> <li>◆ Under Investigation</li> </ul>	<ul style="list-style-type: none"> <li>◆ High</li> <li>◆ Medium</li> <li>◆ Low</li> <li>◆ Critical</li> <li>◆ Who Cares</li> </ul>			A list of associated documents, including the documentation of any contingency plans created to manage the risk	The next action step for the specific risk item.