

RISK MANAGEMENT

Risk Management is the overarching, **iterative and continuous** process that encompasses risk management planning, risk identification, risk analysis, risk mitigation plans and implementation, and risk tracking. It is concerned with the outcome of **future** events, and with how to deal with the **uncertainties** associated with those events.

DOD RISK DEFINITION

“A measure of future uncertainties in achieving program goals and objectives within defined cost, schedule and performance constraints.”

Each risk event has **three components**:

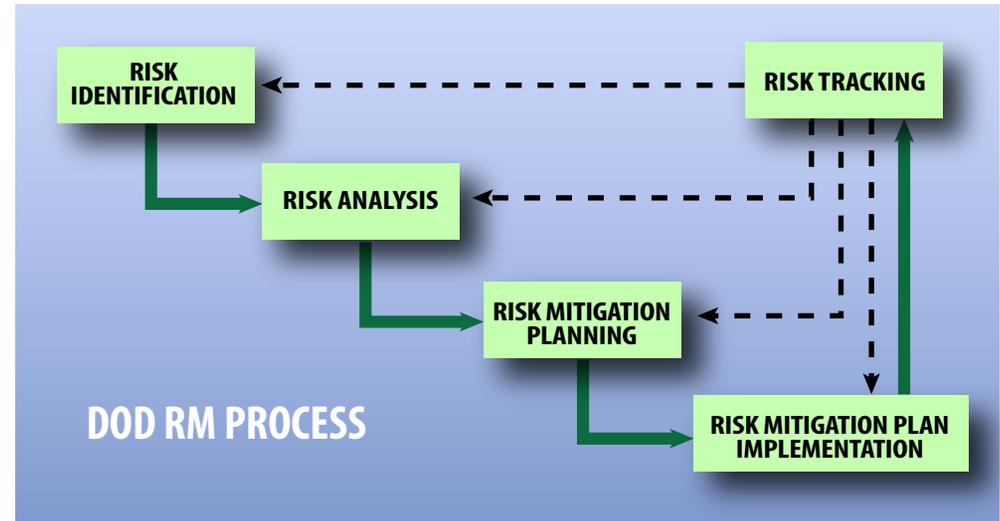
- A **future** root cause;
- The **probability** of the future root cause occurring; and
- The **consequence/impact** if the root cause occurs.

RISKS – OPPORTUNITIES – ISSUES

- **Risks: yet to happen**
 - Future consequences
 - Can be “closed” only after successful mitigation – avoiding, controlling, transferring, or assuming the risk
- **Opportunities: yet to happen**
 - Future potentially desirable situations or circumstances
 - Process for managing similar to risk process
- **Issues: current problems and/or challenges**
 - Real-time consequences

RISK MANAGEMENT PLAN OBJECTIVE

- The upfront activities necessary for a successful RM program
- Answers “Who, what, when, where, and how?”
- Develop/document an organized, detailed and iterative approach for executing the activities in the RM process
- Resulting plan of action is documented in the **RM Plan (RMP)**
- **See Chapter 8 of Risk Management Guide (August 2006) for format**



RISK IDENTIFICATION

Activities to **identify** and **document** risk events/sources of uncertainty and risk drivers, identify their root causes, and determine risk owners.

An **iterative process**; it should involve IPT members, risk management team members, subject matter experts, contractors, customers, stakeholders...

Typical methods to identify risk events include:

- Delphi technique
- SWOT analysis
- Brainstorming
- Decomposition
- Checklists/historical data
- Product-Based (WBS)
- Functional analysis
- Subject Matter Experts/Studies
- Analogous Systems
- Lessons Learned

How to write a risk statement

1. An IF - THEN type of risk statement. “If” something occurs, “then” this is what will happen.
2. A CONDITION - CONSEQUENCE type of risk statement. Given the “condition,” there is a likelihood that “consequence” will occur.

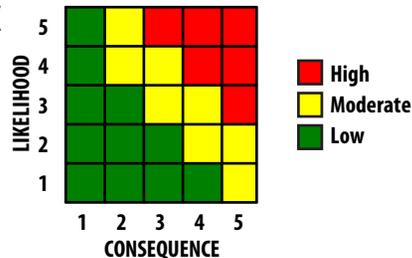
RISK ANALYSIS

Technical/systematic process to examine identified risks, isolate root causes, determine relationships to other risks, and express in terms of probability and consequences. Includes both **qualitative** and **quantitative** analyses.

QUALITATIVE RISK ANALYSIS

- The process of assessing the probability and consequences of identified risk root causes, and prioritizing them according to their potential effect on achieving program objectives
- Usually involves the use of a risk matrix or table to assign risk ratings based on the combination of probability/consequence

LIKELIHOOD & CONSEQUENCE MATRIX



QUANTITATIVE RISK ANALYSIS

- The process of numerically analyzing the probability and impact of identified risk root causes.
- Uses techniques such as:
 - Monte Carlo simulation
 - Decision analysis
 - Sensitivity analysis

RISK MITIGATION PLANNING

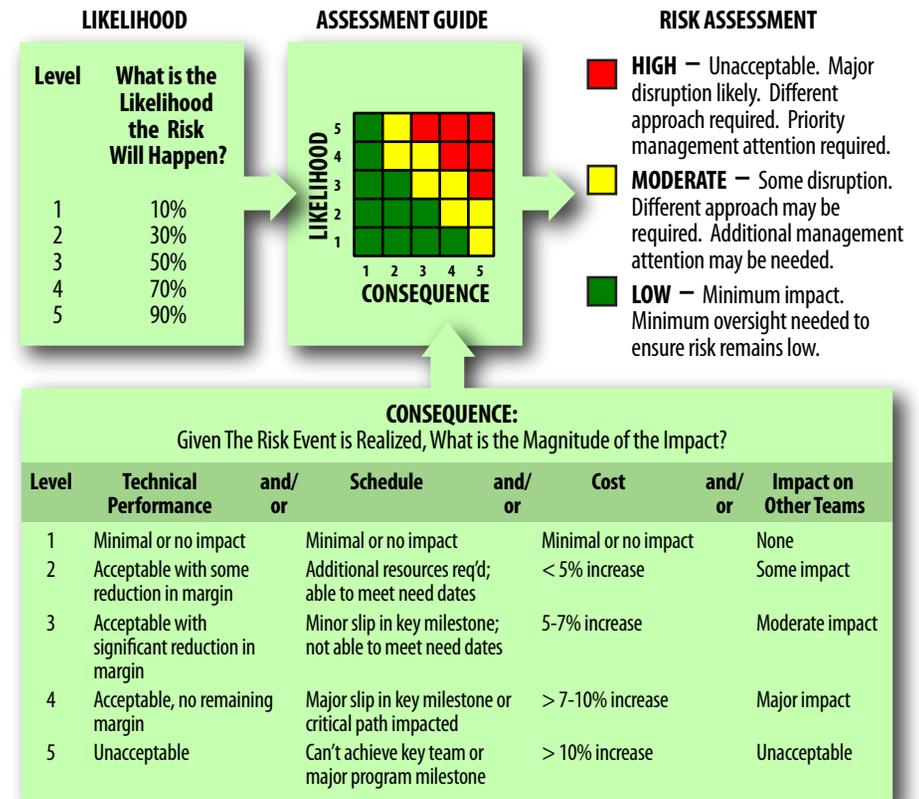
Identifying, evaluating and selecting options to set risks at acceptable levels given program constraints and objectives. Identify when they should be accomplished, identify who is responsible (risk owner), and estimate the cost and schedule associated with the mitigation methods.

- **Control:** Reduce the risk root cause probability and/or impact
- **Avoid:** Eliminate the source of higher risks, and replacing them with lower risk solutions
- **Assume:** Acknowledge risks, but make no changes
- **Transfer:** Move the risk ownership to another source

RISK MITIGATION PLAN IMPLEMENTATION

- Execute the planned mitigation efforts
- Determine what planning, resources, requirements, contract changes, etc. may be needed

SAMPLE RISK RATING CHART



RISK TRACKING

Systematically tracking and evaluating performance of identified risk areas and events against established metrics. Some examples:

- IPT meetings / Integrated Baseline Reviews (IBRs)
- Test and Evaluation
- Test-analyze-and-fix
- Demonstration events
- Earned Value Mgmt (EVM)
- Technical Performance Measures (TPM)
- Schedule performance monitoring