Perspectives in Risk Management

Formulation

in

Rigor

Implementation

Discipline

in

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Risk Management & Project Management

Project Management

Schedule
Performance
Budget
Risk Management
People
Quality
Safety
Configuration Management

WEC 10/0103
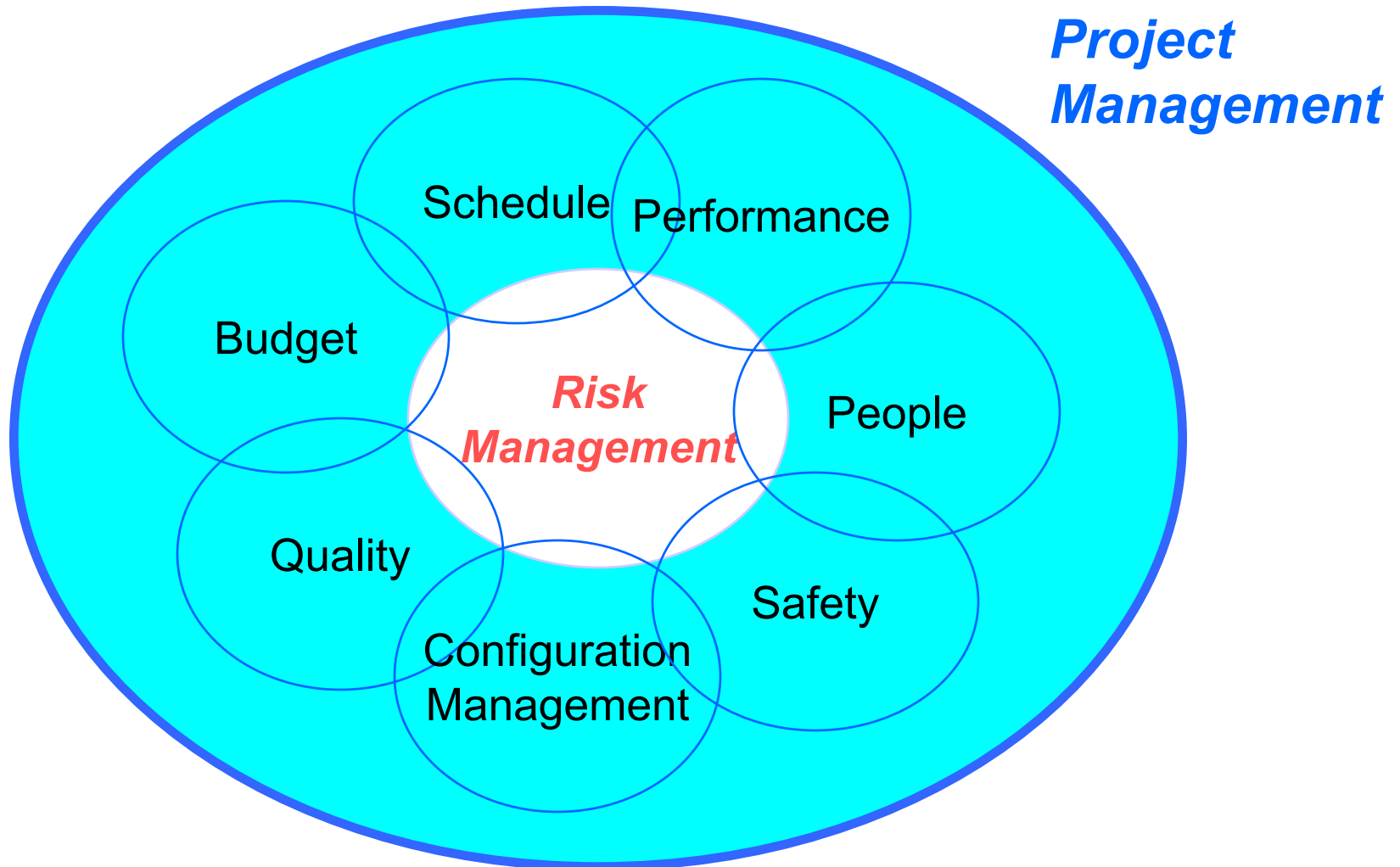
What is a Risk?

- **A Risk is characterized by the combination of the <u>probability</u> that a program or project will experience an undesired event and the <u>consequences, impact, or severity</u> of the undesired event, were it to occur.**

Risk always involves the <u>probability</u> that an undesired event will occur.

Risk should consider the <u>impact</u> of the event should it occur

Risk = Probability * Impact
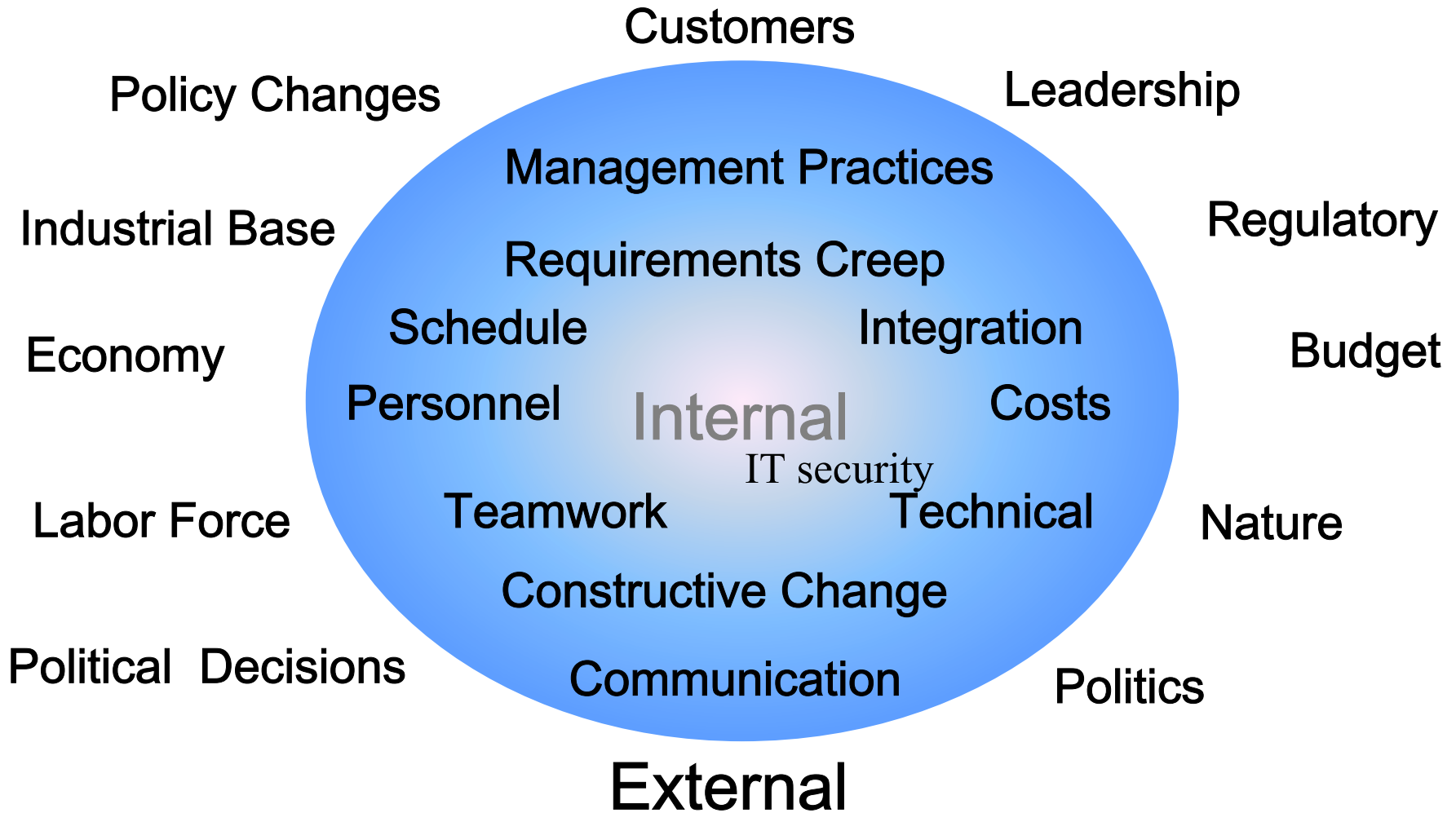
What is Risk Management

An organized, systematic decision making process that
efficiently identifies, analyzes, plans, tracks, controls,
Communicates, and documents risk to increase the likelihood
Of achieving program/project goals.

NPG7120.5B

Risk management Approaches?

- **Proactive Risk Management:** the process of assessing continuously what can go wrong, determining what risks are important, their impact, and implementing a strategy to deal with those risks

- **Reactive risk management:** This risk management approach is better known as crisis management or **putting out fires**. This type of risk management almost always negatively affects the project's schedule, cost and quality. In addition, process improvement opportunities are ignored – **fire fighting** has priority

Risk come from all aspects of the Job

Customers

Policy Changes

Leadership

Management Practices

Industrial Base

Regulatory

Requirements Creep

Economy

Schedule

Integration

Budget

Internal

Personnel

Costs

IT security

Labor Force

Teamwork

Technical

Nature

Constructive Change

Political Decisions

Communication

Politics

External

Risks come from every aspect of the job
We need to understand the task(s), the environment we work in, and the Risks

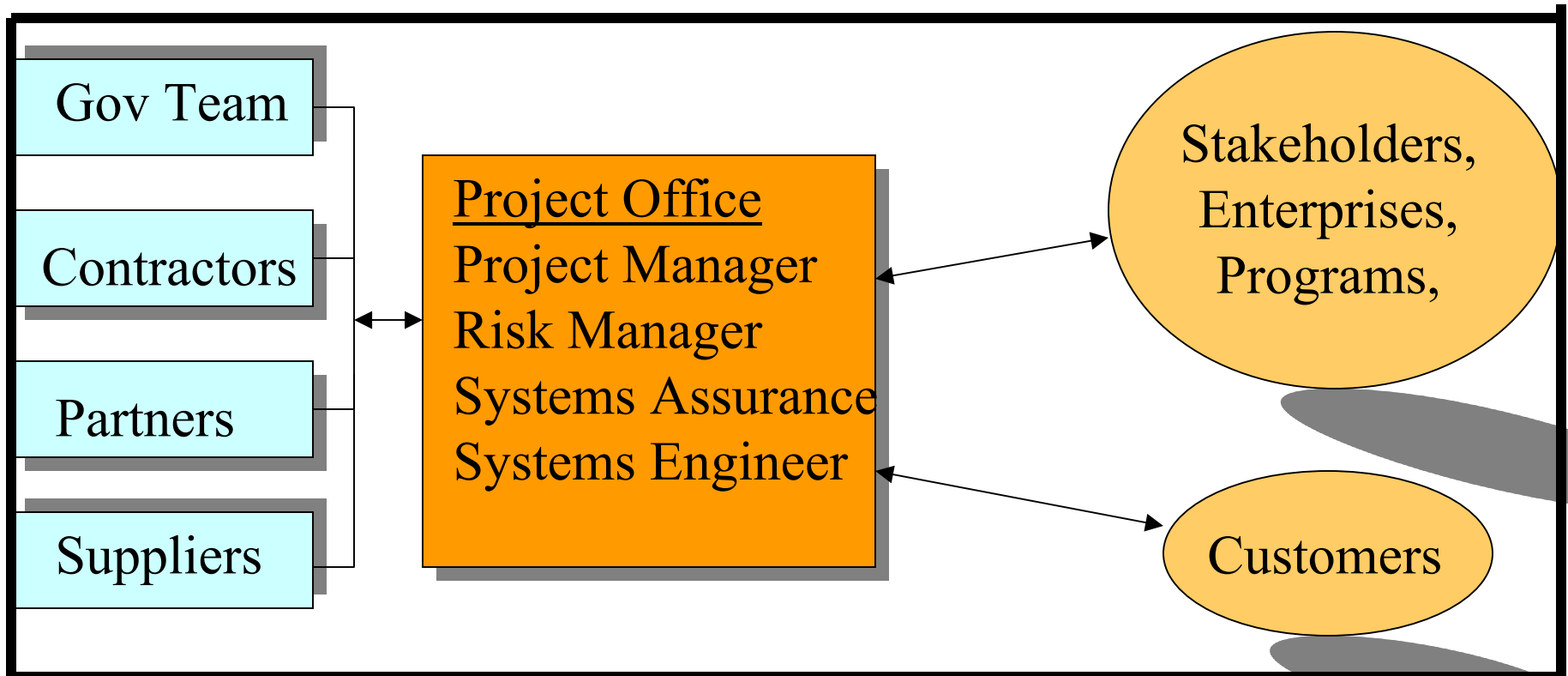# Early Phases of the Life Cycle Have High Payoff
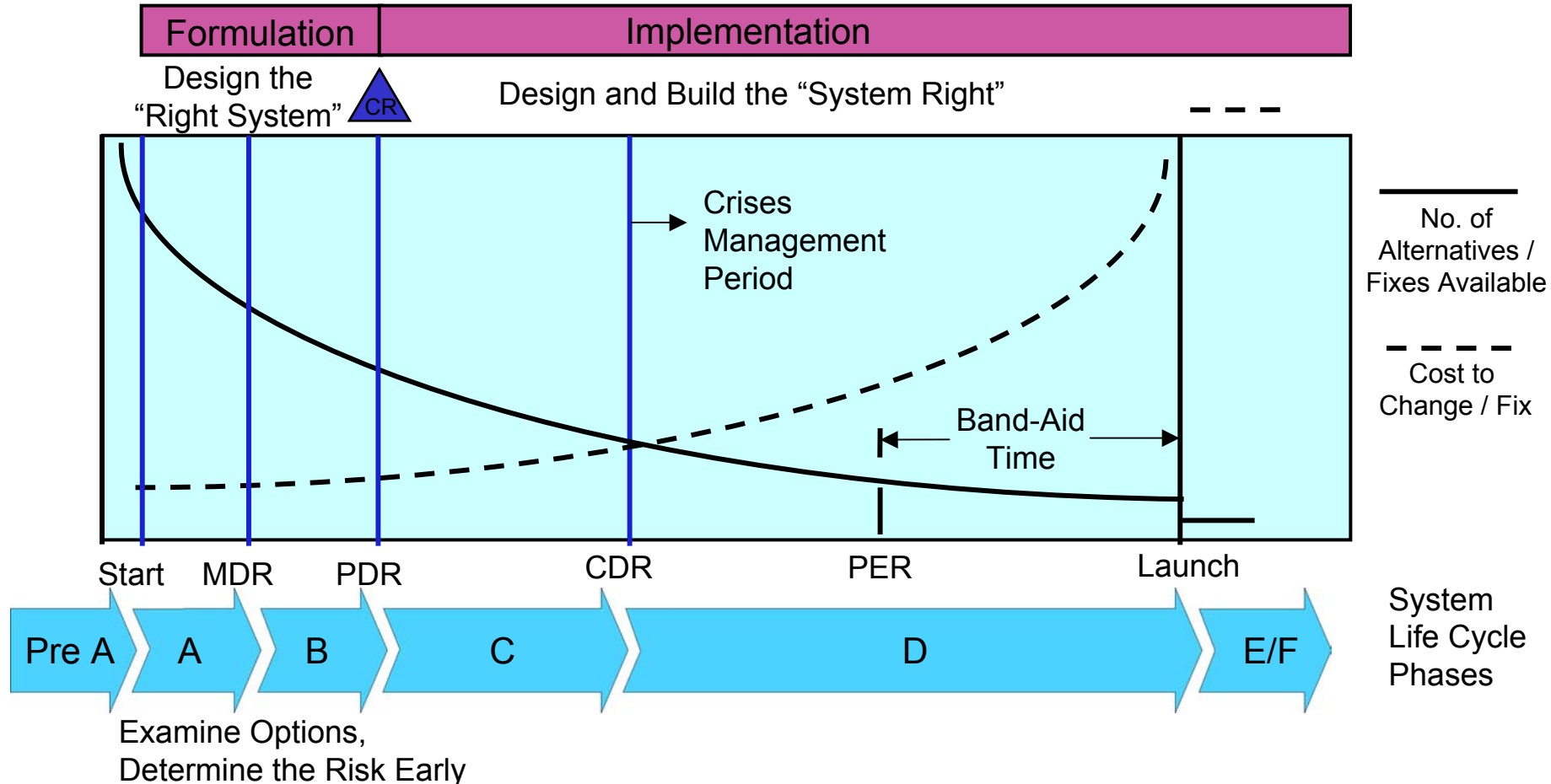
- **The Life Cycle Phases defines the work and progression gates to the next development step**
    - Uses schedules and milestones to guide the proper sequencing of work
- **Risk Management seeks to identify what could be done early to minimize chances of later problems**

Risk Management is a Team effort

All stakeholders have to be integrated in the RM process to make it work properly

PROJECT RISK MANAGEMENT

Gov Team		Stakeholders, Enterprises, Programs,
Contractors	Project Office Project Manager Risk Manager Systems Assurance Systems Engineer	
Partners		
Suppliers		Customers

Risk Management is an integrated Effort

Safety Hazard Analysis
Monthly Reports
What Can Go Wrong Thinking
Problem Reporting

Safety Risk

Injury to Personnel or Damage to Equipment

Fault Tree Analysis (Top Down)
FMEA (Bottom Up)
Reliability Block Diagram (Predication)
What Can Go Wrong Thinking
Problem Reporting
PRA

Performance Risk

Mission Assurance

Technical, Performance

Monthly Reports
Telecons and Status Reports
Schedule & Pert Chart Assessment
Cost vs. Schedule Assessment
What Can Go Wrong Thinking
Problem Reporting

Programmatic Risk

Meets objectives On time & with budget

Risk Board

Integrates

Ranked

Risk List Matrix Resource Allocation

Risk Management helps us do a better job at making the unknows known

Understanding and Communicating Acceptable Risk

Acceptable risk is a result of a knowledge-based review and decision process

- **Management and stakeholders must participate in the risk acceptance process**

- **Effective communication is essential to the mutual understanding of risk**

- **Assessment and communication of acceptable risk must be a continuing process**

Current Environment
CAIB Report Risk Related Findings

- Culture and thinking

- Inadequate:

  – Engineering Models

  – Integrated Risk Analysis

  – Risk Communications

  – Public Risk Assessment

  – Hazard Analysis

  – Micrometeoroid and Orbital Debris Analysis

  – Trend Analysis

  – Training of Engineers and Managers

Examples from CAIB

- Deficient Knowledge Base for Decisions
  - Missed opportunity for obtaining images
- Lack of Testing
  - Using expert opinion instead of test data
- False Confidence
  - Inadequate Models used to determine tile impact
- Lack of Organizational Learning
  - tile damage recurring can be viewed in the same light as o-ring damage
- Communication Failures from cultural norms
  - People afraid to speak up

Common Themes of Mishap Reports/Assessments

Inadequate/Poor -

- **Independent Review**

- **Risk Management/Assessment**

- **Testing, Simulation, Verification & Validation**

- **Communications**

- **Health Monitoring During Critical Operation**

- **Safety/Quality Culture**

- **Staffing**

Source: MCO Mishap Investigation Board Report on Project Management in NASA March 13, 2000

Why is RM difficult ?

- Uncertainty
- Looks into the future at potential problems
- Various perspectives
- Not always clear
- Time consuming
- Value and benefits not clear
- Contrary to culture

We all won't to manage risk but we have a hard
time doing risk management

We are trained and conditioned to manage problems

- RM is proactive, we are conditioned for reactive management, putting out fires
- The concept of RM is to identify and manage Risk (hence not problems)
- Risk have uncertainty and problems don't ?
- Risk management goes against the "If its not broke don't fix it" mentality
- Risk management goes against the "don't bother me unless you have a problem" mentality

Retaining these thoughts will create week risk solving behaviors

Recommendations

- Start early

- Get the entire team involved

- Communicate

- Create a culture of risk management

- Stay diligent

- Get training to sharpen skills