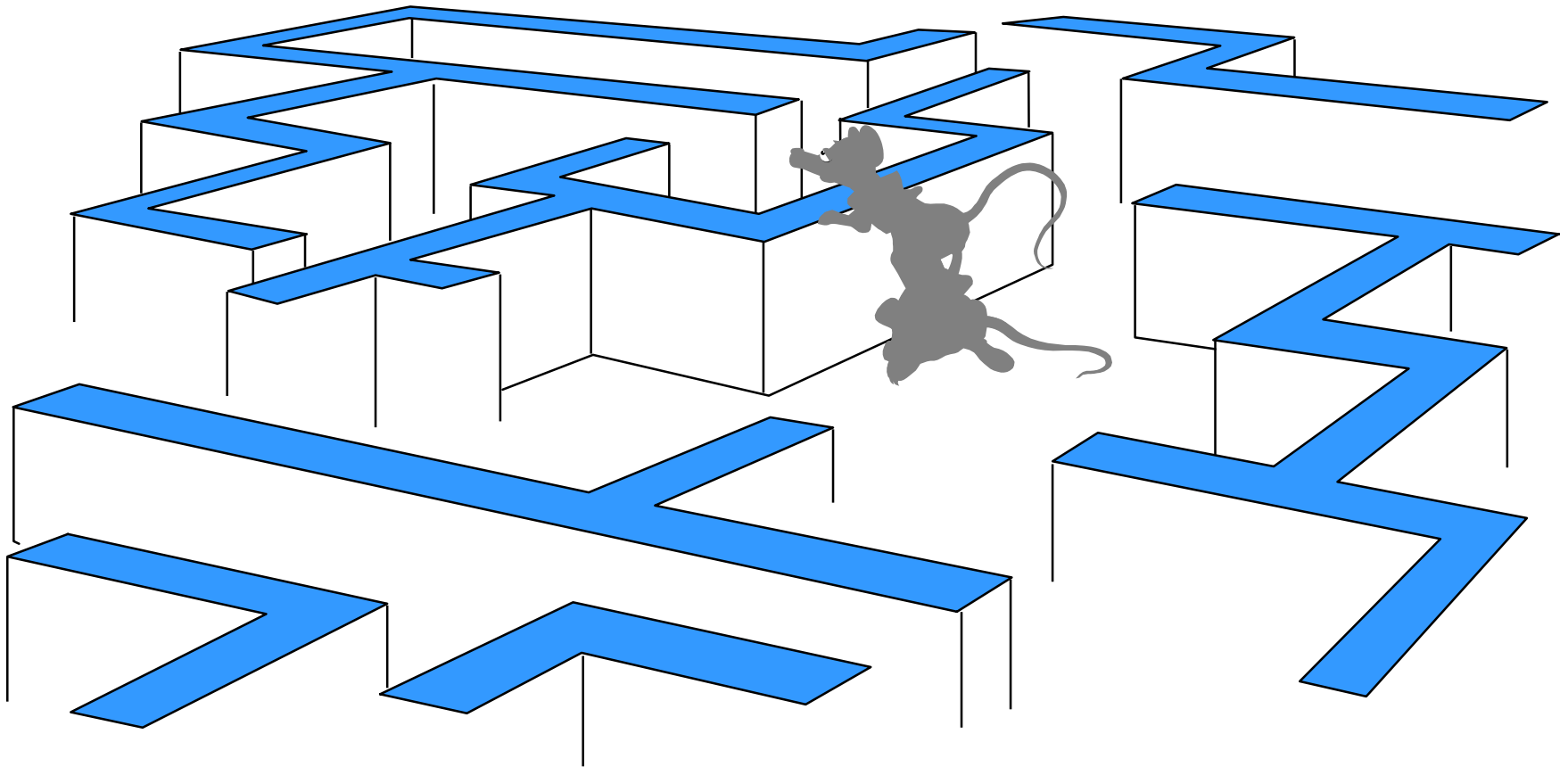
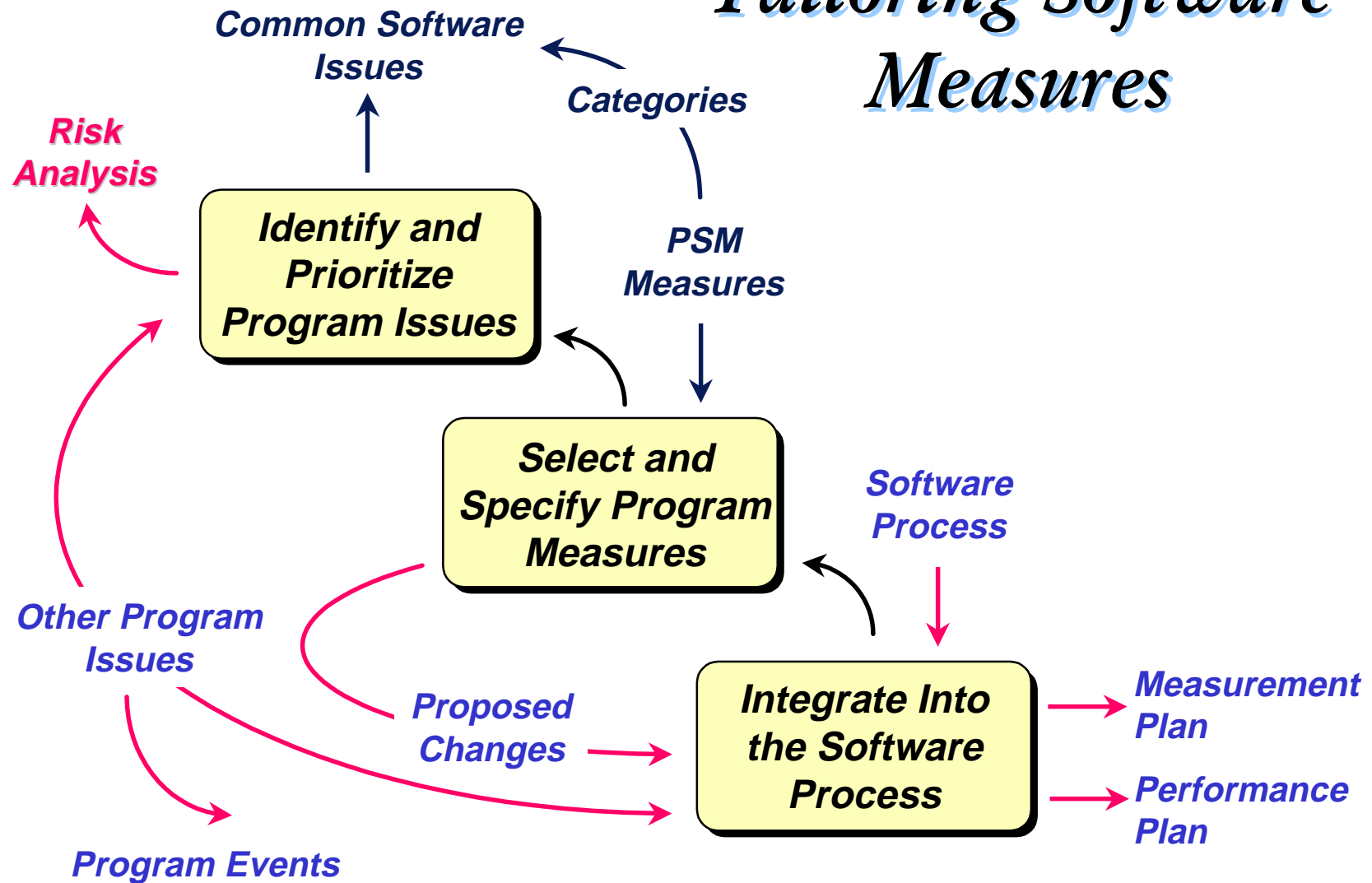


Risk Management & PSM

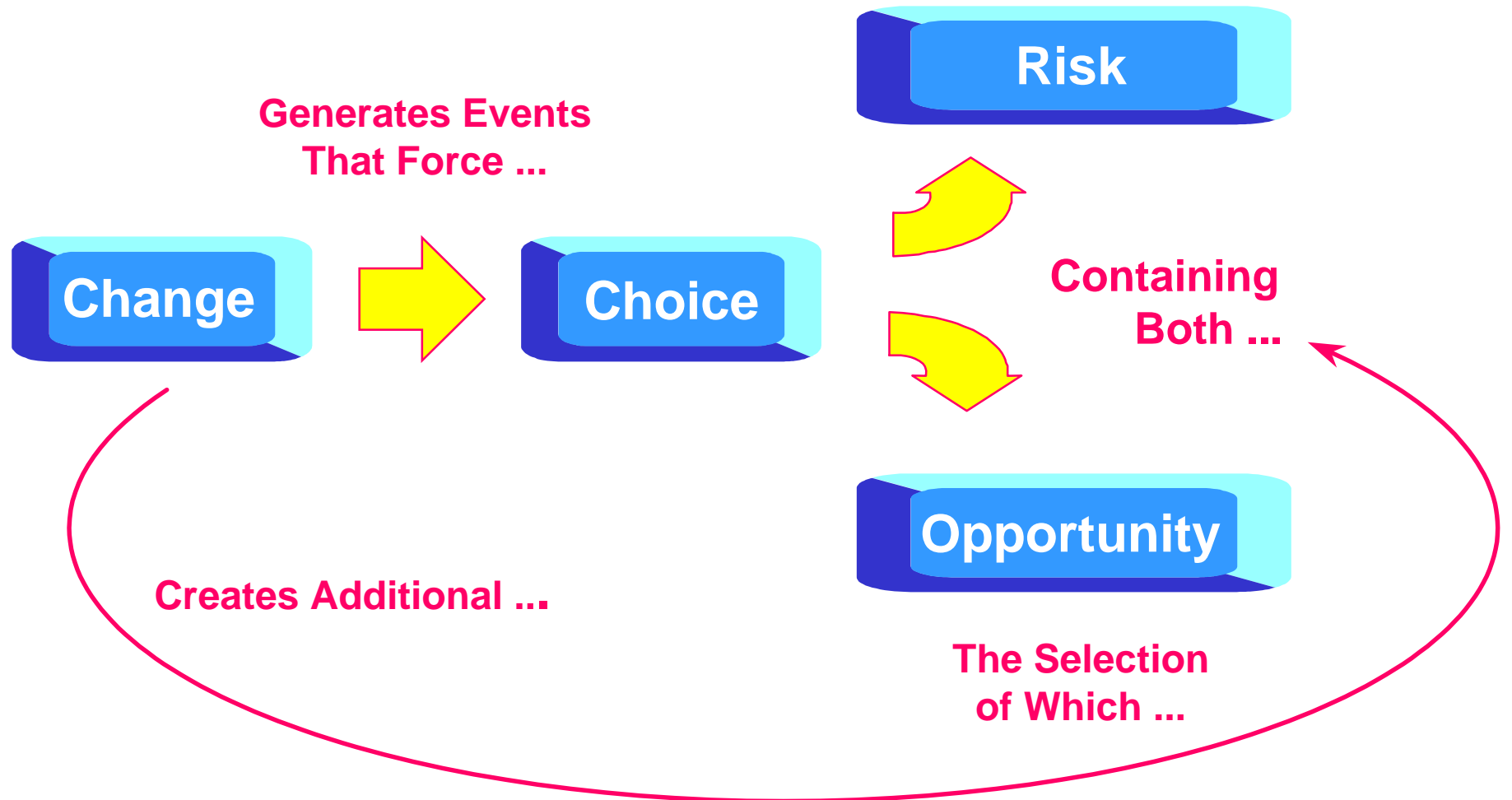


Dr. Robert N. Charette
ITABHI Corporation

Tailoring Software Measures



Fundamental Paradigm

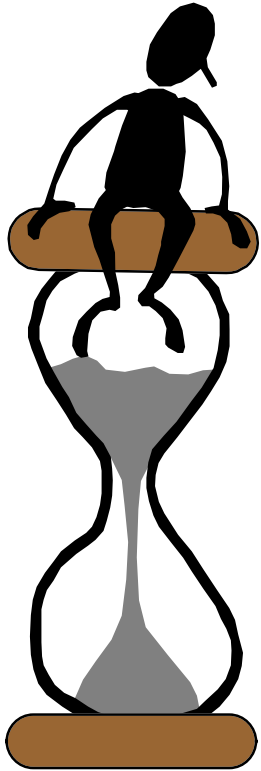


Risk is.....

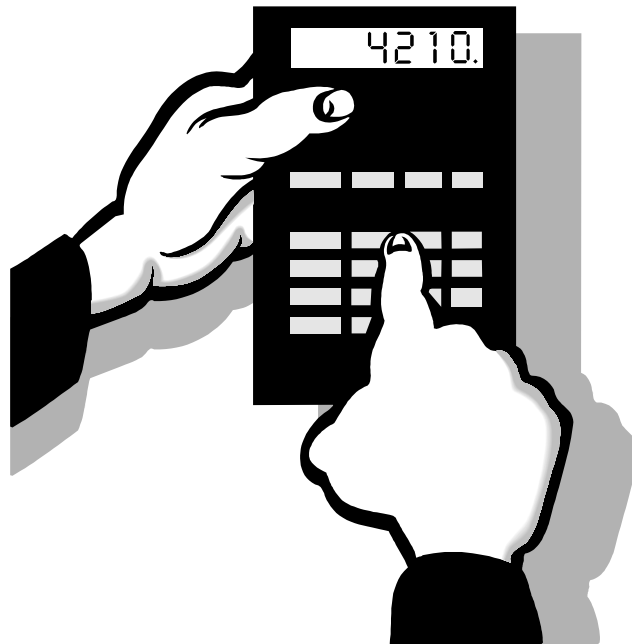
- the implication of uncertainty.
- the differences that exist between means & ends.
- a hypothesis about future problems.
- the amount that can be afforded to be lost.
- the potential for realization of unwanted, negative, consequences of an event.



The Risk Calculation



Expected Value = **Likelihood** * **Consequences**



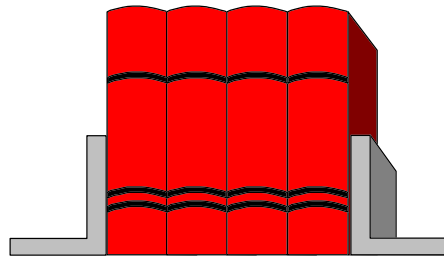
< S_i, L_i, C_i >



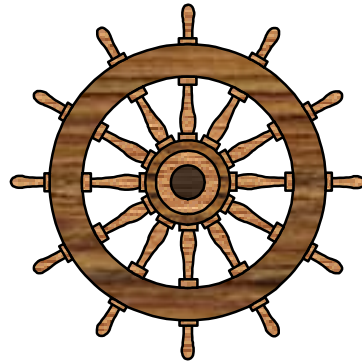


*Risks,
Problems &
Collision
Courses*

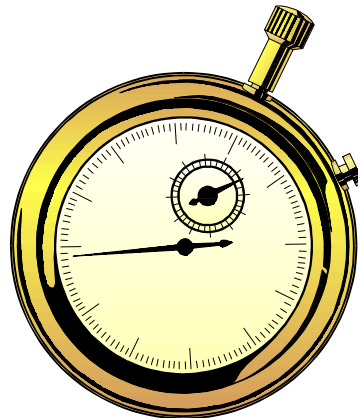
Causation



- **Lack of Information**



- **Lack of Control**



- **Lack of Time**

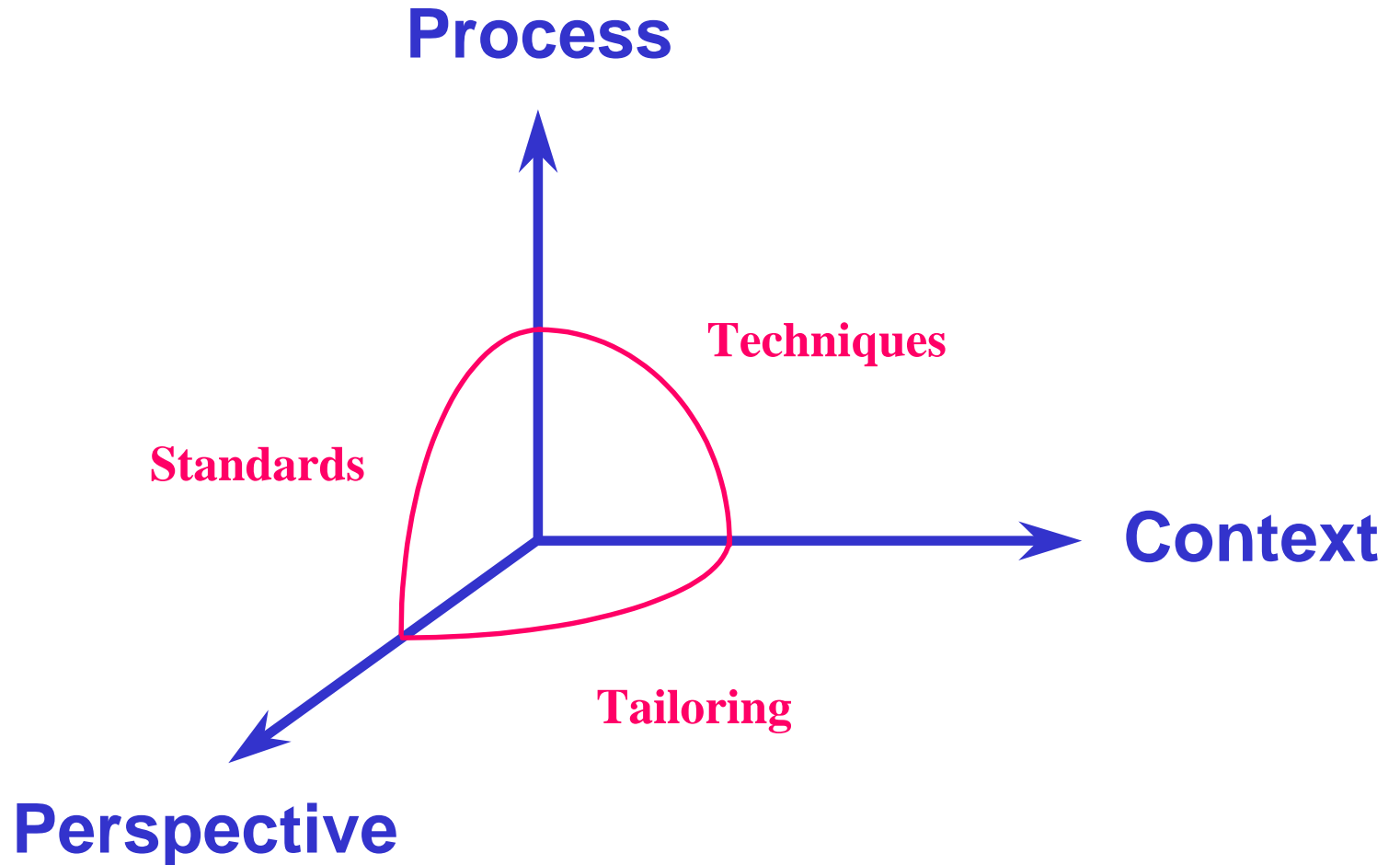


Requirements

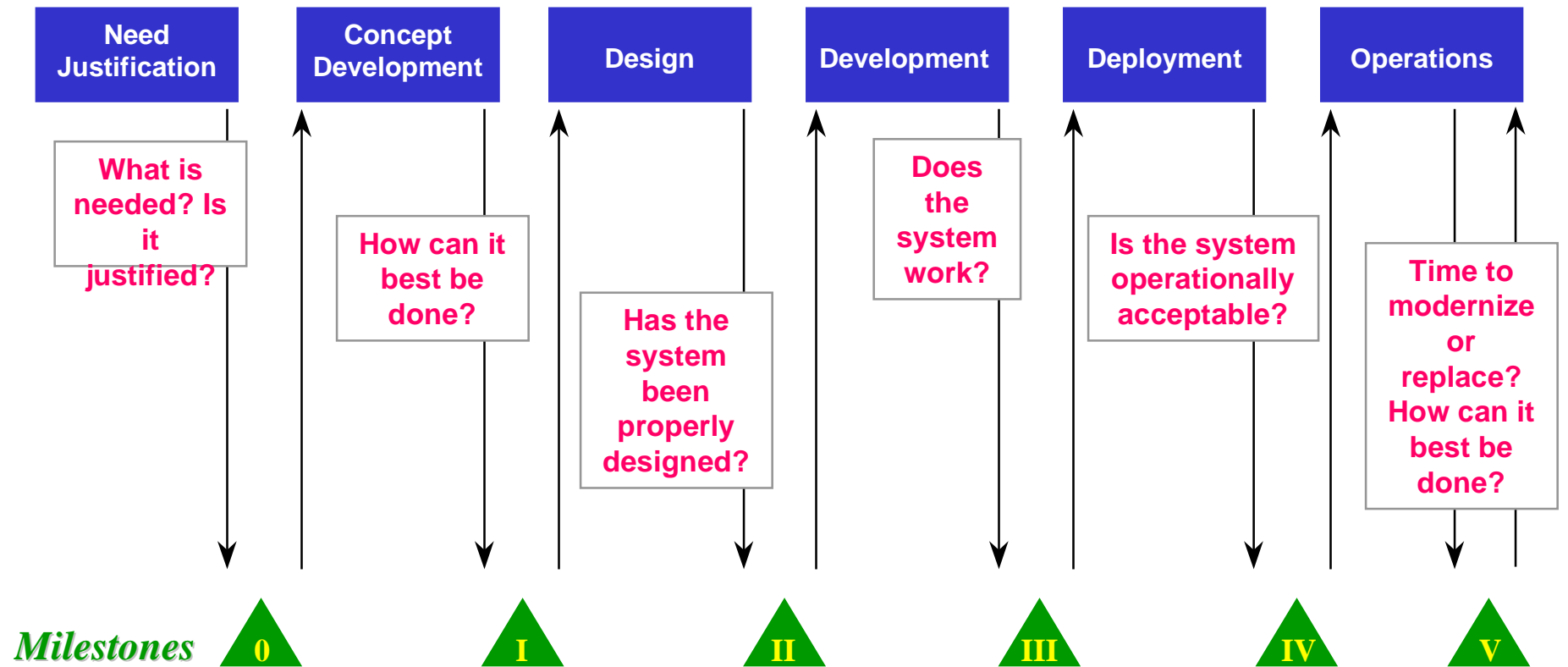
- **Disciplined Decision Making**
- **Systemic & Systematic Processes**
- **Continuous Management of Risk**
- **Continuous Risk Management**
- **Embracing a Risk-Taking Ethic**



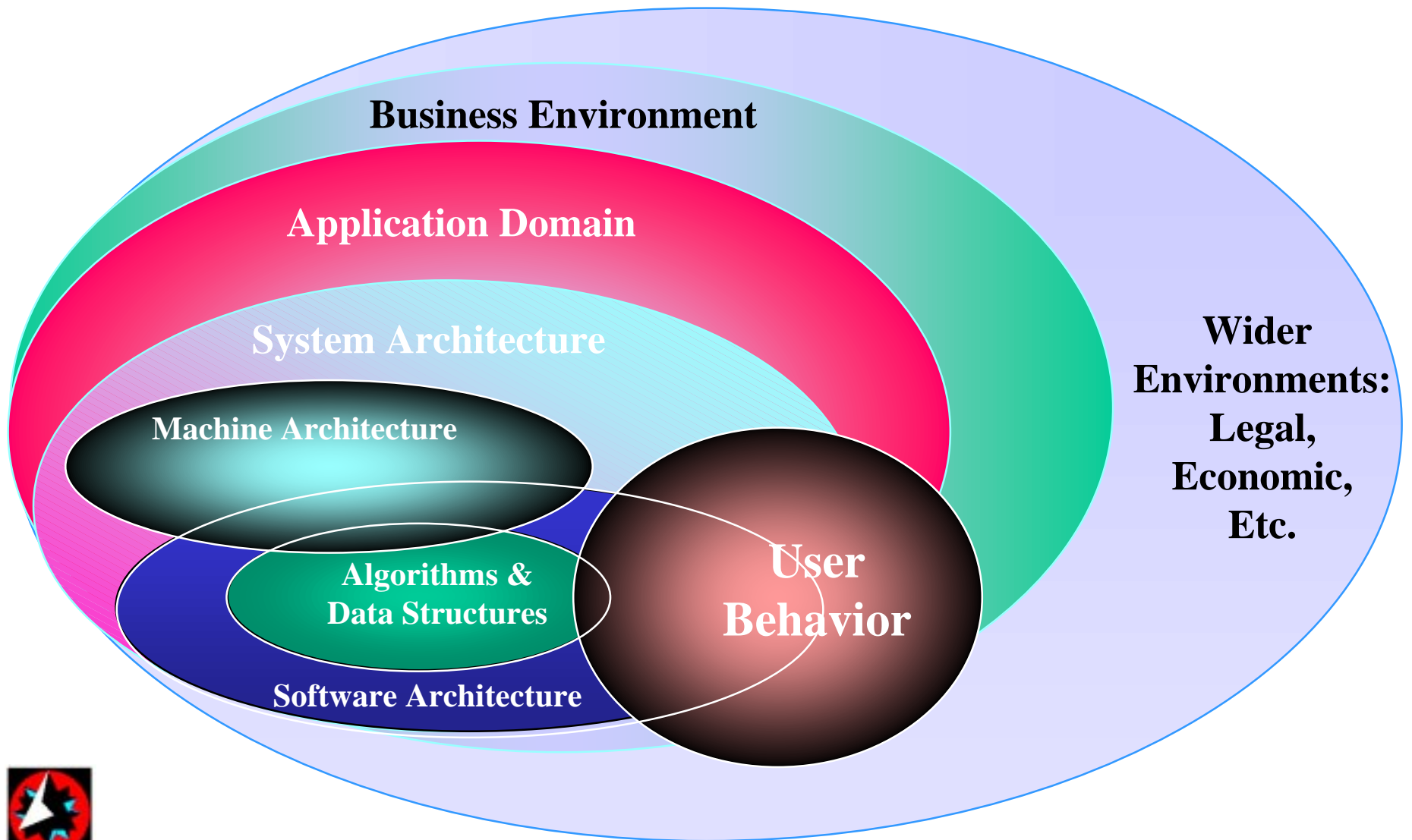
Axes of Operations



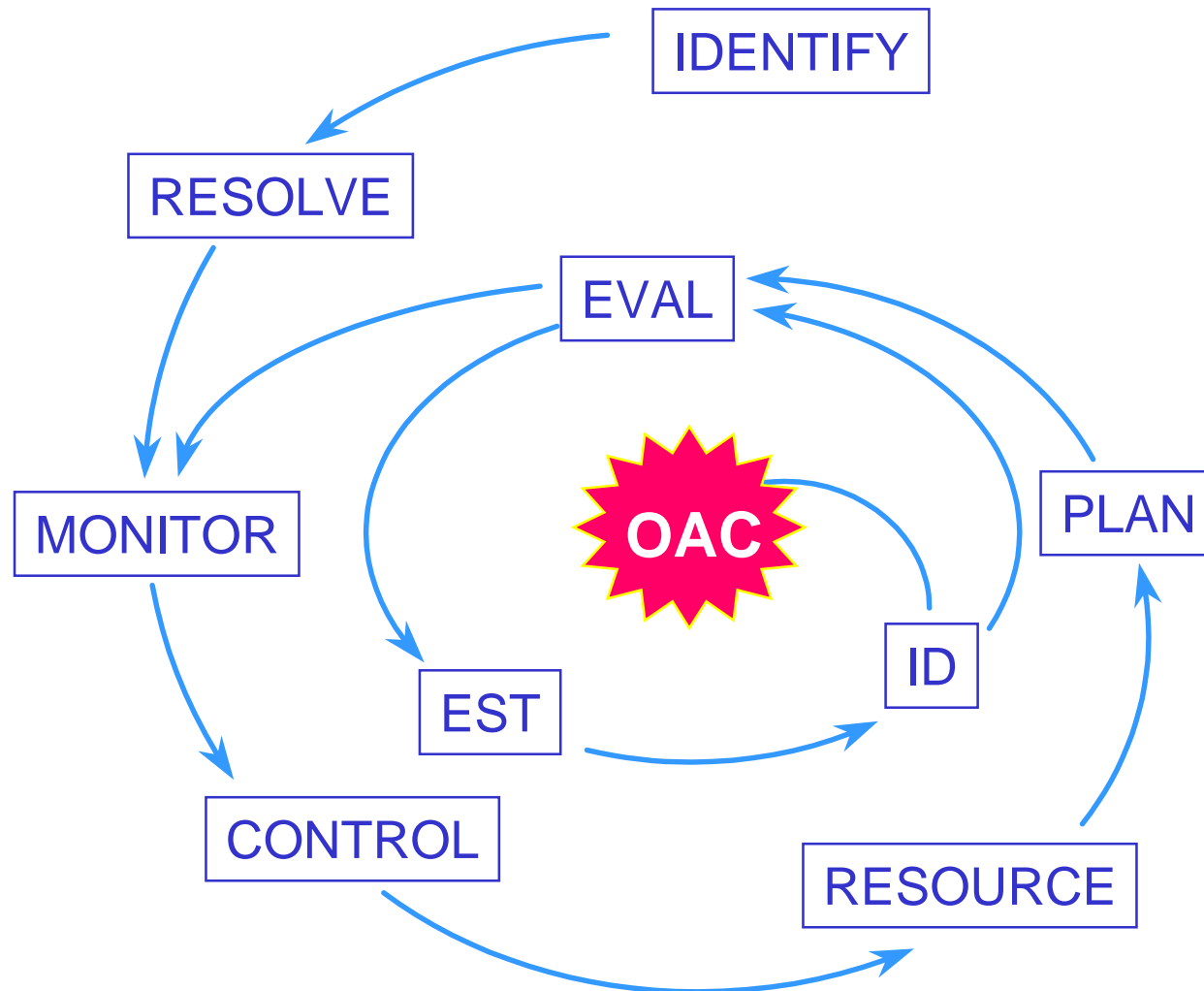
Risk Management Changes With Need



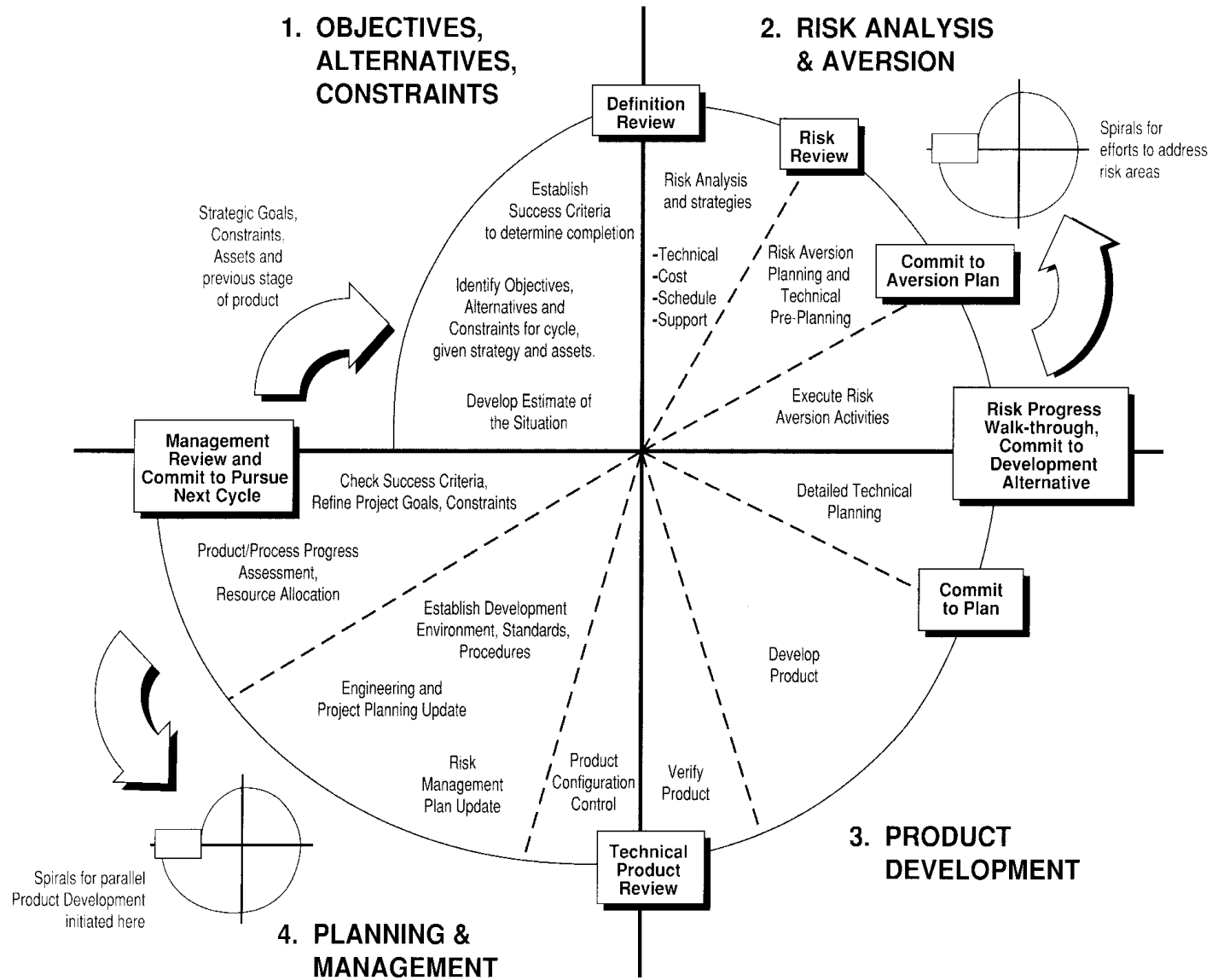
Domains of Interest



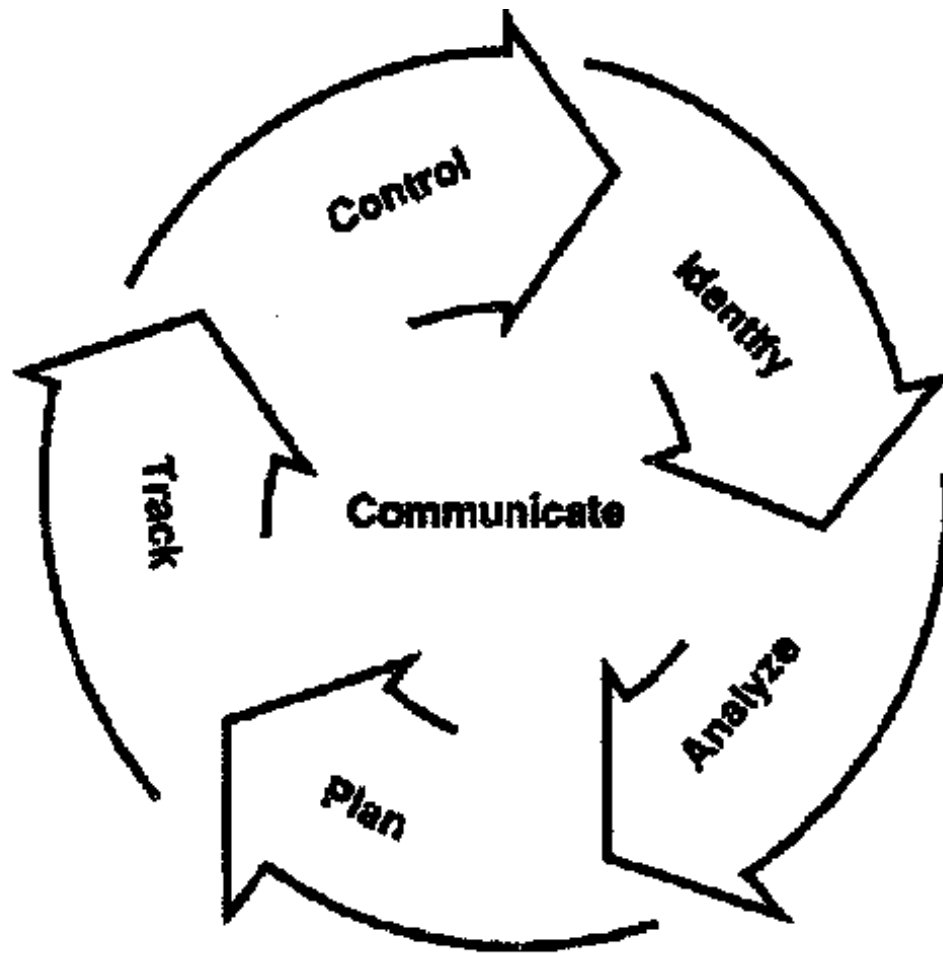
Process Overview



Evolutionary Spiral Process Management Cycle



SEI Risk Management Process



- **TRM**
- **SCE**
- **ARM**

SEI Software "Risk" Taxonomy

A. PRODUCT ENGINEERING

1. REQUIREMENTS

- a. Stability
- b. Completeness
- c. Clarity
- d. Validity
- e. Feasibility
- f. Precedent
- g. Scale

2. DESIGN

- a. Functionality
- b. Difficulty
- c. Interfaces
- d. Performance
- e. Testability
- f. Hardware
- g. Non-Dev. SW

3. CODE & UNIT TEST

- a. Feasibility
- b. Testing
- c. Coding/Implem.

4. INTEGRATION & TEST

- a. Environment
- b. Product
- c. System

5. ENGINEERING SPEC.

- a. Maintainability
- b. Reliability
- c. Safety
- d. Security
- e. Human Factors
- f. Specifications

B. DEV. ENVIRONMENT

1. DEV. PROCESS

- a. Formality
- b. Suitability
- c. Process Control
- d. Familiarity
- e. Product Control

2. DEV. SYSTEM

- a. Capacity
- b. Suitability
- c. Usability
- d. Familiarity
- e. Reliability
- f. System Support
- g. Deliverability

3. MGT. PROCESS

- a. Planning
- b. Project Org.
- c. Mgt. Experience
- d. Prog. Interfaces

4. MGT. METHODS

- a. Monitoring
- b. Personnel Mgt
- c. Quality Assurance
- d. CM

5. WORK ENVIRONMENT

- a. Quality Attitude
- b. Cooperation
- c. Communication
- d. Morale

C. PROGRAM CONSTRAINTS

1. RESOURCES

- a. Schedule
- b. Staff
- c. Budget
- d. Facilities

2. CONTRACT

- a. Type of Contract
- b. Restrictions
- c. Dependencies

3. PROG. INTERFACES

- a. Customer
- b. Assoc. Contract.
- c. Subcontractors
- d. Prime Contractor
- e. Corporate Mgt.
- f. Vendors
- g. Politics

Key

Class

Element

Attribute

SEI Taxonomic Approach

PRODUCT ENGINEERING

1. Design

d. Performance

[Are there stringent response time and/or throughput requirements?]

[22] Are there any problems with performance?

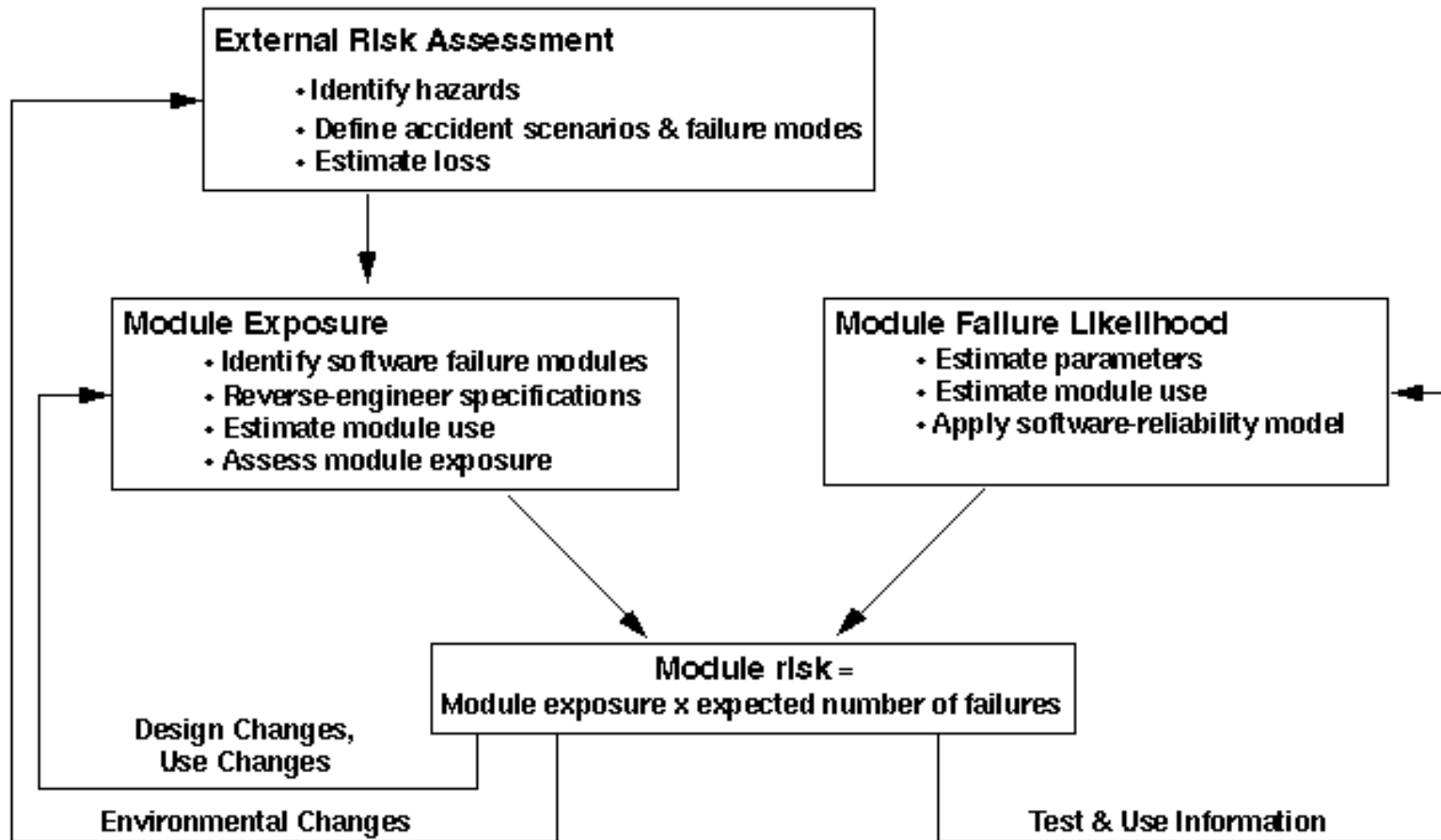
- Throughput
- Scheduling asynchronous real-time events
- Real-time response
- Recovery timeliness
- Response time
- Database response, contention or access

[23] Has a performance analysis been done?

(Yes) (23.a) What is your level of confidence in the performance analysis?

(Yes) (23.b) Do you have a model to track performance through design and implementation?

Software Failure Assessment



Decision Boundary

Decision Boundary

Risk Analysis

Seek out potential problems

Id the nature of the potential problem

Assess alternatives & consequences

Control

Identify

Estimate

Plan

Evaluate

Monitor

Resource

Proactive Decision Process

Provide feedback

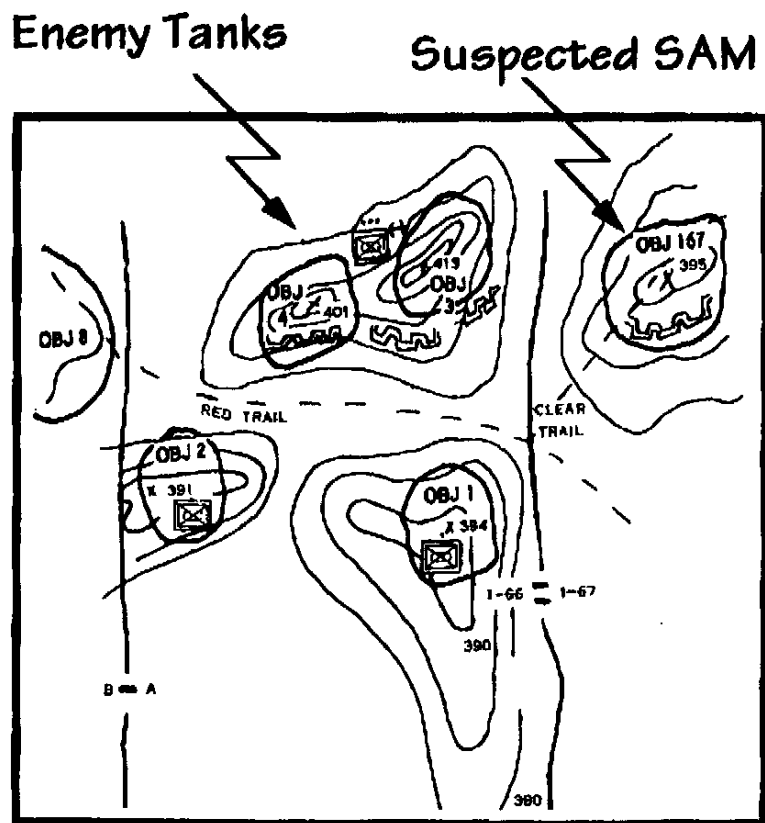
Implement the decision

Select a solution

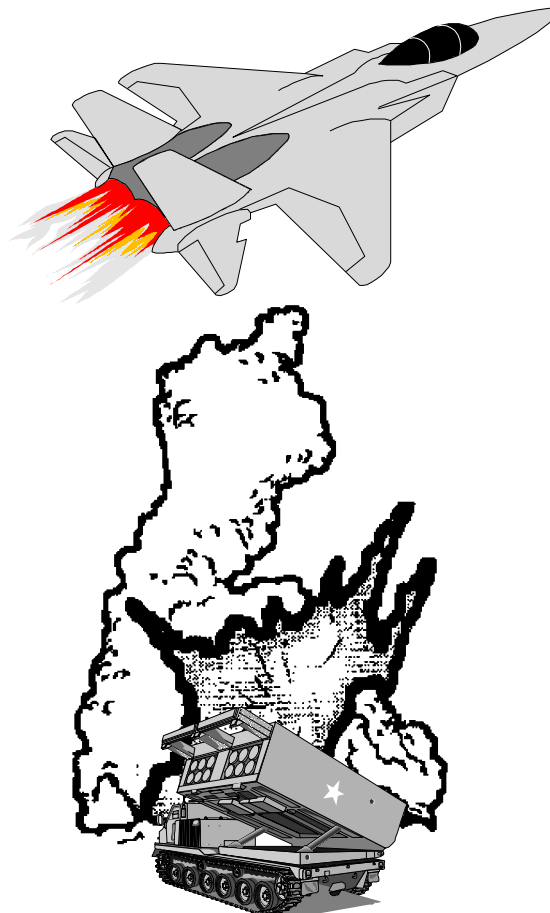
Risk Management



Management of Risk vs. Risk Management



Management of Risk

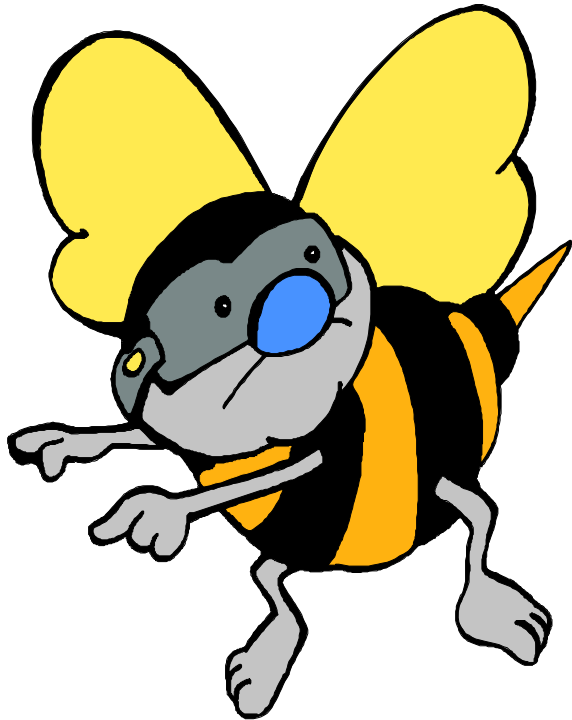


Risk Management



Risk Management & PSM

Cooperation, Coordination & Symbiosis



- **Issue Identification**
- **Referent Definition**
- **Coupling Recognition**
- **Symptoms vs Causes**
- **Information Monitoring**



Essential Risk Management

Controlling risk does not deal with future decisions, but the future of present decisions.



For More Info Contact:

**Dr. Robert N. Charette
ITABHI Corporation
PO Box 1929
Springfield, VA 22151**

**703 425-0564 (Tel)
703 425-3758 (Fax)
Charette@erols.com**

