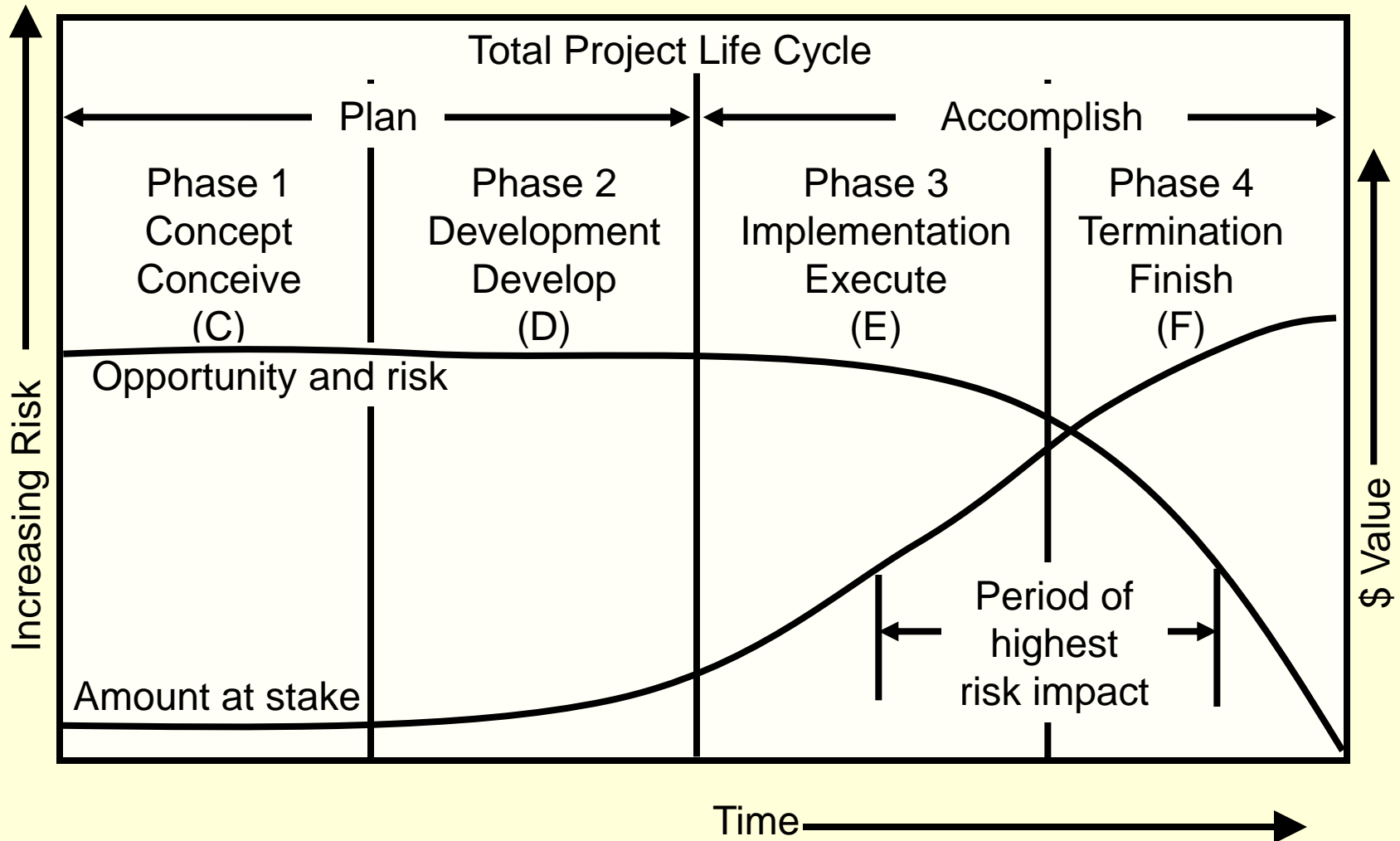# Risk Management

Chapter 7

Risk

*Risk management - the **art** and **science** of **identifying, analyzing, and responding** to risk factors throughout the **life of a project** and in the best interest of its objectives.*

Project risk – any possible event that can negatively affect the viability of a project

Risk Vs Amount at Stake

Total Project Life Cycle

Plan — Accomplish

Phase 1
Concept
Conceive
(C)

Phase 2
Development
Develop
(D)

Phase 3
Implementation
Execute
(E)

Phase 4
Termination
Finish
(F)

Opportunity and risk

Amount at stake

Period of highest risk impact

Increasing Risk

$ Value

Time

Process of Risk Management

- What is likely to happen?

- What can be done?

- What are the warning signs?

- What are the likely outcomes?

Project Risk = (Probability of Event)(Consequences of Event)

Four Stages of Risk Management

❖ Risk **identification**

❖ **Analysis** of probability and consequences

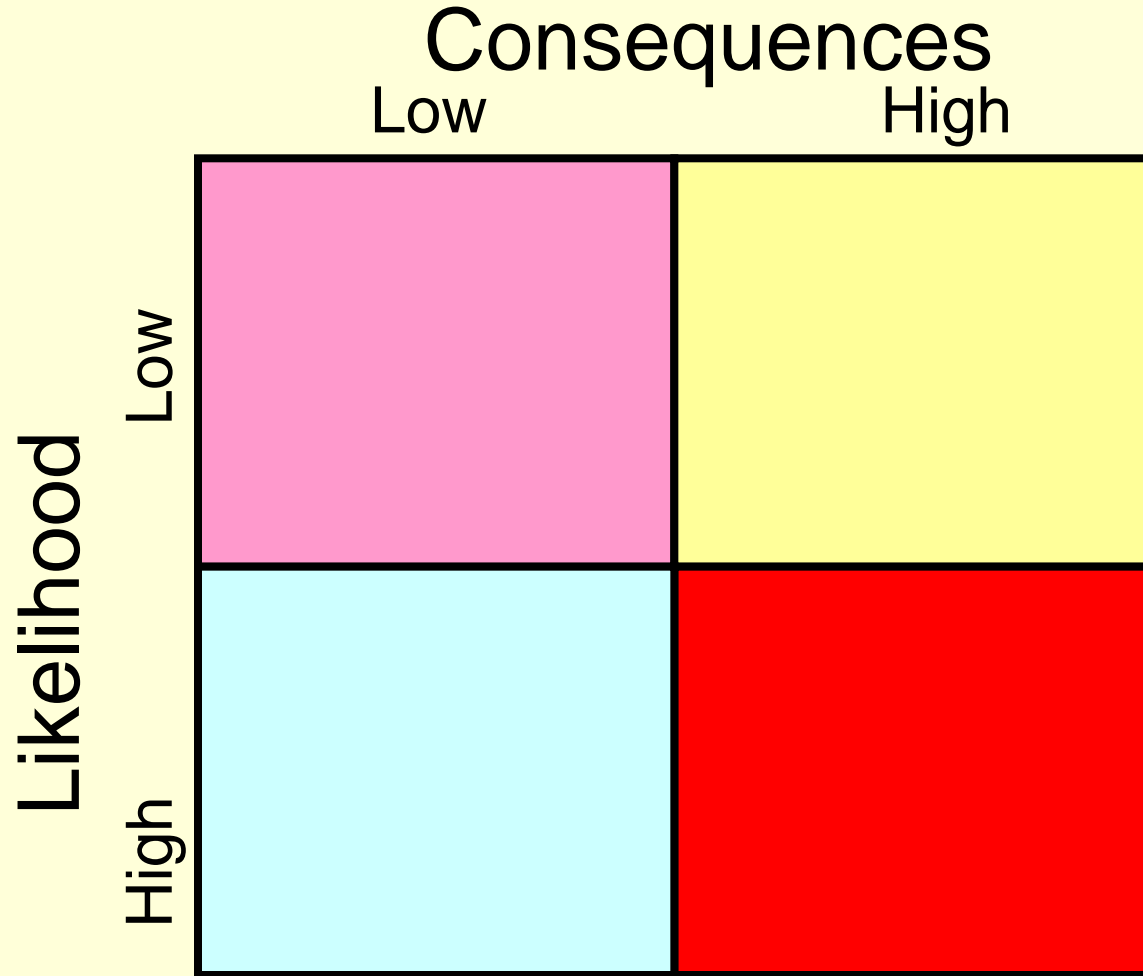❖ Risk **mitigation** strategies

❖ **Control** and documentation

Risk Clusters

- Financial
- Technical
- Contractual/Legal

- Common Types
  - Absenteeism
  - Resignation
  - Staff pulled away
  - Time overruns

- Commercial
- Execution

  - Skills unavailable
  - Ineffective Training
  - Specs incomplete
  - Change orders

Risk Factor Identification

➢ Brainstorming meetings

➢ Expert opinion

➢ Past history

➢ Multiple (team based) assessments

Risk Management Assessment Matrix

Consequences

	Low	High
Low		
High		

Likelihood

Project Risk Scoring

1. Identify factors and assess the probability (P_f) and consequences (C_f) of failure

2. Calculate overall probability & consequence

$$P_f = \frac{\sum_n P_i}{n}$$

$$C_f = \frac{\sum_m C_i}{m}$$

3. Calculate overall risk factor

$$RF = P_f + C_f - (P_f)(C_f)$$

Risk Mitigation Strategies

- Accept
- Minimize
- Share
- Transfer
- Contingency Reserves
  - Task contingency
  - Managerial contingency
- Mentoring
- Cross training

Control & Documentation

Help managers classify and codify risks, responses, and outcomes

Change management report system answers
- What?
- Who?
- When?
- Why?
- How?

Project Risk Analysis & Management

Extends risk management over project's life cycle

Key Features of PRAM

❑ Risk management follows a **life cycle**

❑ Risk management **strategy changes** over the project life cycle

❑ **Synthesized, coherent** approach

Nine Phases of Risk Assessment

1. Define
2. Focus
3. Identify
4. Structure
5. Clarify ownership of risks
6. Estimate
7. Evaluate
8. Plan
9. Manage