


Chapter 17

Risk Management

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Basic Concept

❖ Risk management focuses on:


- Known unknowns
- Proactive management

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The alternative to proactive management is reactive management, also called crisis management. This requires significantly more resources and takes longer for problems to surface.

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RISK MANAGEMENT

- ❖ RISK MANAGEMENT FOCUSES ON THE FUTURE
- ❖ RISK AND INFORMATION ARE INVERSELY RELATED


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RISK MANAGEMENT (CONT.)

- ❖ HISTORICALLY, WE FOCUSED OUR ATTENTIONS ON SCHEDULE AND COST RISK MANAGEMENT.
- ❖ TODAY, OUR PRIMARY EMPHASIS IS ON TECHNOLOGICAL RISK MANAGEMENT:
 - CAN WE DESIGN IT AND BUILD IT?
 - WHAT IS THE RISK OF OBSOLESCENCE?

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Definition Of Risk

$\text{Risk}_{\text{event}} = f(\text{Likelihood}, \text{Impact})$

- Likelihood is the probability of occurrence
- Impact is the amount at stake

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Tolerance For Risk

- ❖ Risk avoider
- ❖ Risk neutral
- ❖ Risk lover

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Decision-Making Categories

- ❖ Complete uncertainty
- ❖ Relative uncertainty (partial information)
- ❖ Complete certainty

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Developing and Using Payoff Tables

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graph TD
    A([Establishing the procedure to follow]) --> B([Construct the Payoff table])
    B --> C[Decision-making under certainty]
    B --> D[Decision-making under complete uncertainty]
    B --> E[Decision-making under risk]
    D --> F[Maximin Approach  
Maximax Approach  
Minimax regret Approach  
Insufficient Reason Approach]
    E --> G[Expected Monetary Value (EMV) Approach  
Expected Opportunity Loss (EOL) Approach  
Expected Value of Perfect Information (EVPI) Approach]
        
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FIVE STEPS TO DEVELOP PAYOFF TABLE

- ❖ List all the alternatives.
- ❖ List the future consequences of each alternative.
- ❖ Identify the payoffs associated with each combination.
- ❖ Assess the degree of certainty that these combinations will materialize
- ❖ Decide on a decision criterion.

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Risk Management Processes

- ❖ Risk planning
- ❖ Risk assessment
 - Risk identification
 - Risk analysis/quantification
- ❖ Risk handling
- ❖ Risk monitoring

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Developing Contingency Plans

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Types Of Risks (General)

- ❖ Business risks
- ❖ Insurable (pure) risk
 - Direct property damage
 - Indirect consequential loss
 - Legal liability
 - Personnel

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Types Of Risk (PMI Method)

- ❖ External – unpredictable
- ❖ External – predictable
- ❖ Internal – non-technical
- ❖ Internal – technical
- ❖ Legal

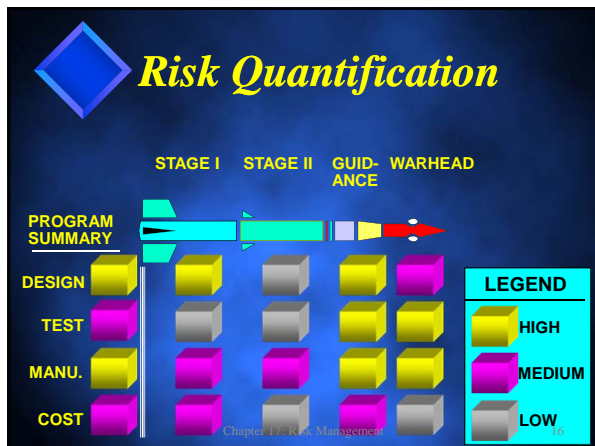
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Risk Types at Boeing

- ❖ Financial risks
- ❖ Market risks
- ❖ Technical risks
- ❖ Production risks

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Risk Handling

- ❖ Assumption (retention)
- ❖ Avoidance
- ❖ Control (mitigation)
- ❖ Transfer

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Risk Problem-Solving

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Idea Generation: Brainstorming

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Special Topics In Risk Management

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Future Risks

Inexperienced

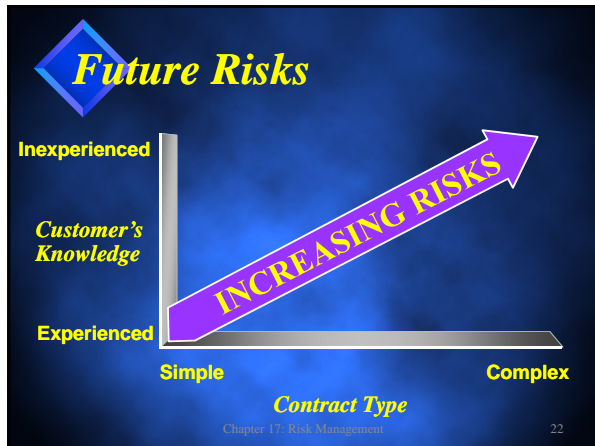
*Customer's
Knowledge*

Experienced

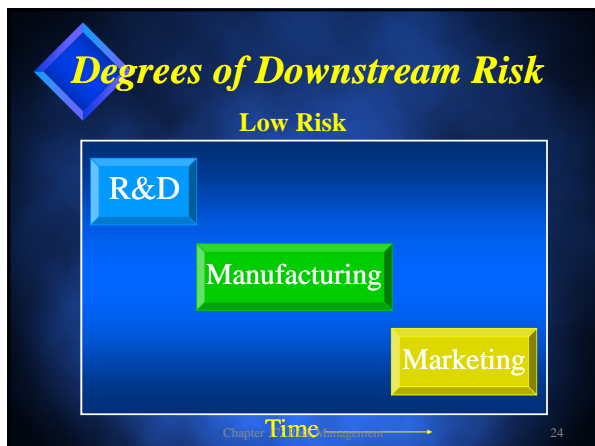
Simple

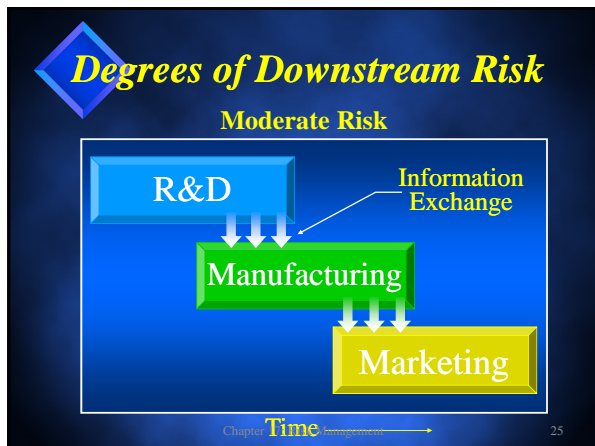
Contract Type

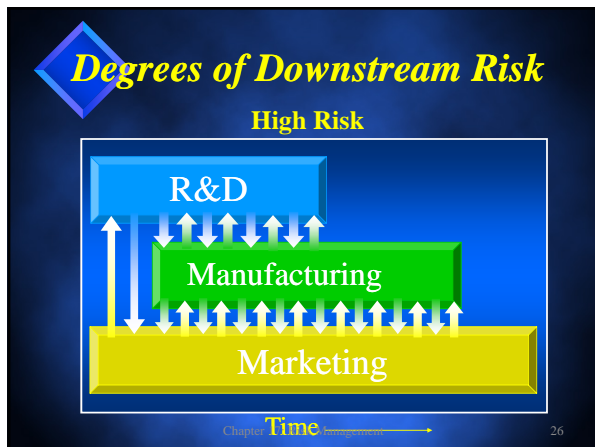
Complex











Prioritization of Risks

	Schedule	Cost	Technical Performance or Quality
First (Highest) Priority	✓		
Second Priority			✓
Third Priority		✓	

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