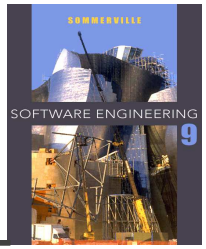
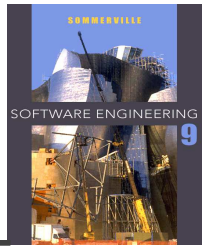


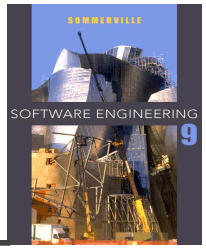
Ch 22.1 – Risk Management

Project Management



- Goals:
  - Deliver on time
  - Within budget
  - Quality that satisfies customer
  - Maintain well-functioning development team

Project Management



✧ Typical project management activities:

- Project planning / scheduling
- Reporting
- Risk Management 
- People Management
- Proposal Writing

22.1 Risk Management

- Anticipating Risk
- Make plans to avoid risk or minimize effects of risk on project

Risk Management

3 Risk Categories:

Risk Management

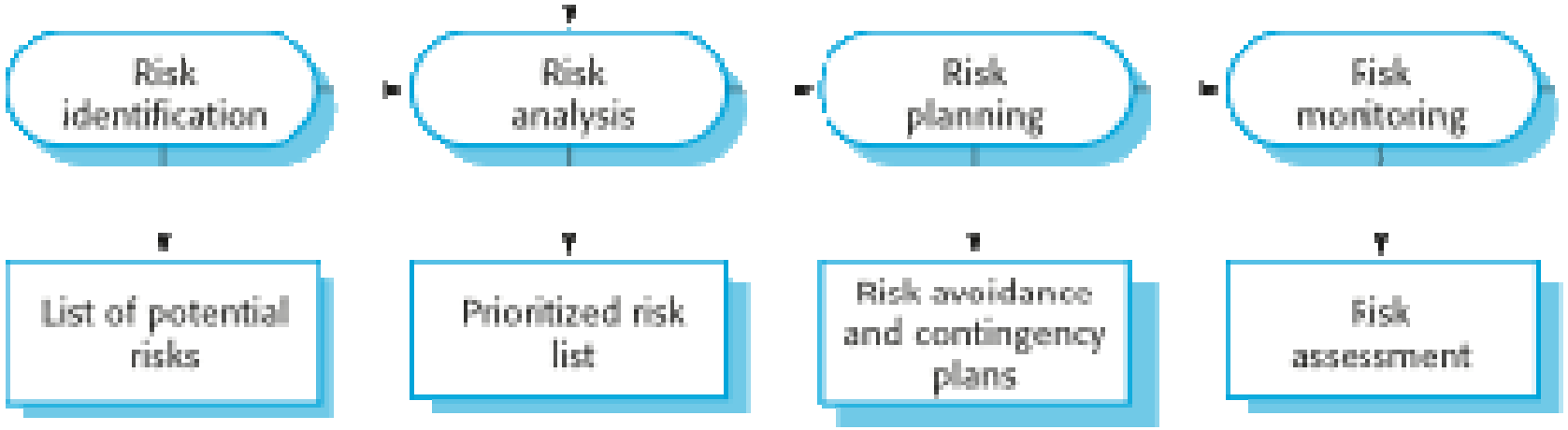
3 Risk Categories:

- Project Risk
- Product Risk
- Business Risk

that affect

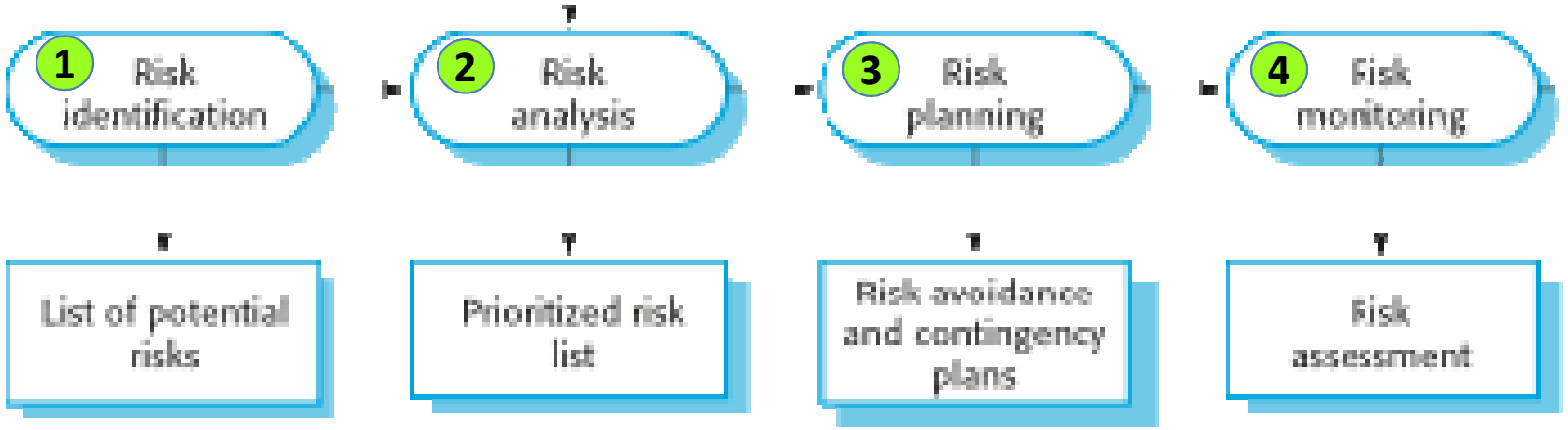
- schedule resources
- quality performance
- organization

Risk Management Process



- Document outcome of risk management process in risk management plan

Risk Management Process



✧ Document outcome of risk management process in risk management plan

1 Risk Identification

- Create list of risks
- Use checklist of common risks as starting point
  - Technology
  - People
  - Organizational
  - Tools
  - Requirements
  - Estimation

Examples of different risk types

Risk type	Possible risks
Technology	The database used in the system cannot process as many transactions per second as expected. (1) Reusable software components contain defects that mean they cannot be reused as planned. (2)
People	It is impossible to recruit staff with the skills required. (3) Key staff are ill and unavailable at critical times. (4) Required training for staff is not available. (5)
Organizational	The organization is restructured so that different management are responsible for the project. (6) Organizational financial problems force reductions in the project budget. (7)
Tools	The code generated by software code generation tools is inefficient. (8) Software tools cannot work together in an integrated way. (9)
Requirements	Changes to requirements that require major design rework are proposed. (10) Customers fail to understand the impact of requirements changes. (11)
Estimation	The time required to develop the software is underestimated. (12) The rate of defect repair is underestimated. (13) The size of the software is underestimated. (14)

TODO: Brainstorming Exercise on White Board

Identify ‘general’ risks likely to affect CS2450 projects

- What categories might apply, which ones might not?

Technology	**People**	**Organizational**
Tools	**Requirements**	**Estimation**

- Which of the risks mentioned might affect your project?
- Can you think of other risks that have not been mentioned?
- Brain storm as many ideas as you can come up with

2 Risk Analysis

✧ Rank risks by probability and seriousness

Probability:

< 10 %	10 – 25 %	25 – 50 %	50 – 75 %	> 75 %

Seriousness:

Insignificant	Tolerable	Serious	Catastrophic

✧ Tabulate results ordered by seriousness

Update table during each iteration of the risk process

Risk types and examples

Risk	Probability	Effects
Organizational financial problems force reductions in the project budget (7).	Low	Catastrophic
It is impossible to recruit staff with the skills required for the project (3).	High	Catastrophic
Key staff are ill at critical times in the project (4).	Moderate	Serious
Faults in reusable software components have to be repaired before these components are reused. (2).	Moderate	Serious
Changes to requirements that require major design rework are proposed (10).	Moderate	Serious
The organization is restructured so that different management are responsible for the project (6).	High	Serious
The database used in the system cannot process as many transactions per second as expected (1).	Moderate	Serious

Risk types and examples

Risk	Probability	Effects
The time required to develop the software is underestimated (12).	High	Serious
Software tools cannot be integrated (9).	High	Tolerable
Customers fail to understand the impact of requirements changes (11).	Moderate	Tolerable
Required training for staff is not available (5).	Moderate	Tolerable
The rate of defect repair is underestimated (13).	Moderate	Tolerable
The size of the software is underestimated (14).	High	Tolerable
Code generated by code generation tools is inefficient (8).	Moderate	Insignificant

TODO: Risk Analysis

Identify the top 3 risks and

- ✧ Assess probability and seriousness
- ✧ Order them by seriousness

3 Risk Planning

For each of the key risks:

1. Collect information to anticipate problem
2. Find strategies to minimize project disruption

Risk management strategies:

a) Avoidance strategy

b) Minimization strategy

c) Contingency plan

TODO: Risk Analysis

For each of the top 3 risks

find a stratey to minimize project disruption

Risk management strategies:

a) Avoidance strategy

b) Minimization strategy

c) Contingency plan

4 Risk Monitoring

- For the identified risks assess:
  - Probability
  - Seriousness
- Discuss each key risk separately

4 Risk Monitoring

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  - Seriousness

Needs to be done on a regular basis

- Discuss each key risk separately

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Needs to be done on a regular basis

- Discuss each key risk separately

How do I know whether a risk becomes more or less likely?

Risk indicators

Risk type	Potential indicators
Technology	Late delivery of hardware or support software; many reported technology problems.
People	Poor staff morale; poor relationships amongst team members; high staff turnover.
Organizational	Organizational gossip; lack of action by senior management.
Tools	Reluctance by team members to use tools; complaints about CASE tools; demands for higher-powered workstations.
Requirements	Many requirements change requests; customer complaints.
Estimation	Failure to meet agreed schedule; failure to clear reported defects.