# Software Project Management

Risk Management

### 1) Risk Management

➤ **Risk** – An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.

### 2) Nature of Risk

- ➤ A risk is a potential problem it might happen and it might not.
- Conceptual definition of risk
  - > Risk concerns future happenings.
  - > Risk involves change in mind, opinion, actions, places, etc.
  - ➤ Risk involves choice and the uncertainty that choice entails.
  - > It involves cause and effect.

### Two characteristics of risk

- ➤ Uncertainty the risk may or may not happen.
- ➤ Loss the risk becomes a reality and unwanted consequences or losses occur.

### 3) Types of Risk

- > Project risks
  - They threaten the project plan
  - If they become real, it is likely that the project schedule will slip and that costs will increase

### > Technical risks

- They threaten the quality and timeliness of the software to be produced.
- If they become real, implementation may become difficult or impossible.

### **Business risks**

- They threaten the viability of the software to be built.
- The risks that do not affect the project directly.
- Risks denote the outside responsibilities of the application team

### Categories of risks are,

- ➤ Actors different groups of people involved in the development like specialist and user groups etc.
- ➤ **Technology** application implementation and embedded delivered products with technology.
- > Structure describes the management and the system structures which affect planning and control process.
- ➤ Tasks tasks is an assigned piece of work which has to be completed within a specified time.

### > Sub-categories of Business risks

- Market risk building an excellent product or system that no one really wants.
- Strategic risk building a product that no longer fits into the overall business strategy for the company.
- Sales risk building a product that the sales force doesn't understand how to sell.
- Management risk losing the support of senior management due to a change in focus or a change in people.
- **Budget risk** losing budgetary or personnel commitment.

### > Known risks

• Those risks that can be uncovered after careful evaluation of the project plan, the business and technical environment in which the project is being developed, and other reliable information sources (e.g., unrealistic delivery date)

### > Predictable risks

• Those risks that are extrapolated from past project experience (e.g., past turnover)

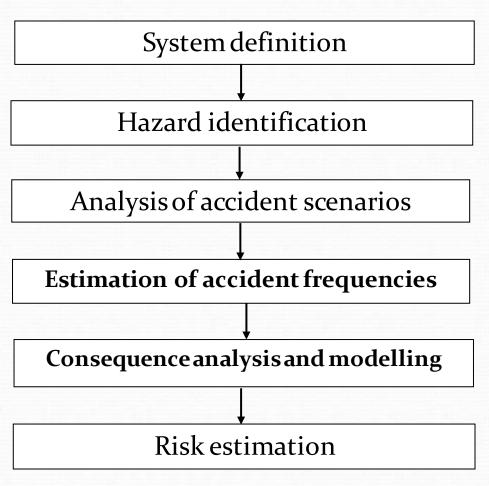
### **➤** Unpredictable risks

• Those risks that can and do occur, but are extremely difficult to identify in advance.

### 4) Managing Risk

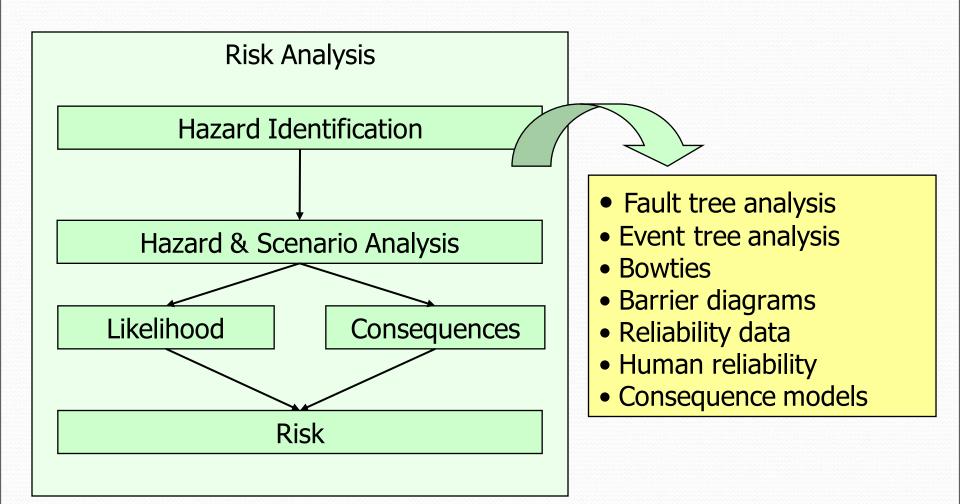
- > All projects have risks.
- The key to managing a project is not to avoid risks, but to understand them.
- A risk is the possibility of an event or condition that would have a negative impact on a project.
- ➤ Risk management is the process of identifying, mitigating, and controlling the known risks in order to increase the probability of meeting the project objectives.

### Risk Assessment

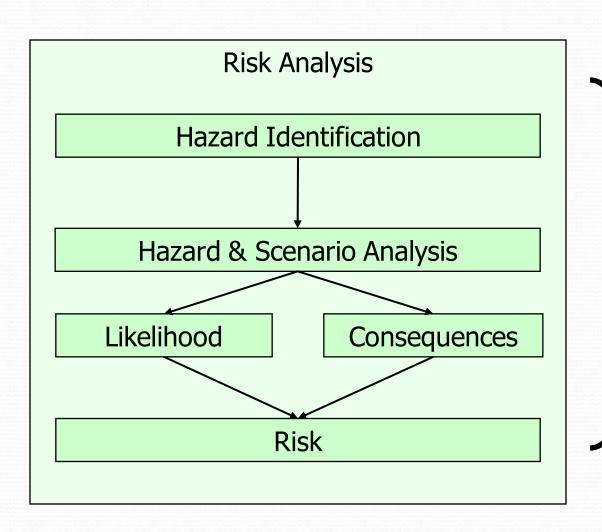


- Scheme for qualitative and quantitative assessments
- At all steps, risk reducing measures need to be considered

## Risk Analysis – Main Steps



# Risk Analysis – Main Steps



Identify Safety Barriers

### 5) Hazard Identification

- The process of identifying and listing the hazards and accidents associated with a system.
- ➤ Process hazard management is vital to keep a working environment safe and productive.
- > Process hazard analysis checklist will help in analyzing process risks.

### 5.1) Hazard Management Responsibilities

➤ Develop process hazard analysis action plans and keep track of the implementation.

### 5.2) Responsibilities of employees

- > Avoid placing employees at risk of injury.
- > Report any process risks occurred within the working environment to managers as soon as possible.
- ➤ Participate in the development of appropriate process hazard analysis methods and risk control measures to eliminate or mitigate risks.
- ➤ Hazard Identification and Hazard Analysis are parts of the Risk Management process and they are often conducted together or in direct sequence.

### 6) Hazard Analysis

- The process of describing in detail the hazards and accidents associated with a system, and defining accident sequences.
- The main goal of both is to provide the best selection of means of controlling or eliminating the risk.

### 6.1) Hazard Analysis Objectives

- > Identify hazards
- > Identify causes
- > Determine risks.

### **6.2) Hazard Analysis Steps**

- > Establish the necessity for process hazard management.
- ➤ Process hazard management is necessary when some tasks and activities within the working environment are under risks of failure.
- > Risks should be identified, assessed and controlled.

### > Major steps of a hazard analysis are,

- > Identify hazards
- Assess hazards
- Control hazards
- > Report hazards.

### 7) Risk Planning and Control

- > Risk acceptance
- > Risk avoidance
- > Risk reduction and mitigation
- > Risk transfer.