RISK MANAGEMENT

Lecture # 42

Lecture by Engr. Sidra

SOFTWARE RISKS

- Risk always involves two characteristics:
  - uncertainty—the risk may or may not happen; that is, there are no 100 percent probable risks
  - loss—if the risk becomes a reality, unwanted consequences or losses will occur.
- When risks are analyzed, it is important to quantify the level of uncertainty and the degree of loss associated with each risk.

RISK CATEGORIZATION: APPROACH #1

- 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
  - If they become real, they jeopardize the project or the product

RISK CATEGORIZATION

- 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

RISK CATEGORIZATION: APPROACH #2

- 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

REACTIVE VS. PROACTIVE RISK STRATEGIES

- Reactive risk strategies
  - "Don't worry, I'll think of something" – The majority of software teams and managers rely on this approach
  - Nothing is done about risks until something goes wrong
    - The team then flies into action in an attempt to correct the problem rapidly (fire fighting)
  - Crisis management is the choice of management techniques
- Proactive risk strategies
  - Steps for risk management are followed.
  - Primary objective is to avoid risk and to have a contingency plan in place to handle unavoidable risks in a controlled and effective manner`

STEPS FOR RISK MANAGEMENT

- 1) Identify possible risks; recognize what can go wrong
- 2) Analyze each risk to estimate the probability that it will occur and the impact (i.e., damage) that it will do if it does occur
- 3) Rank the risks by probability and impact - Impact may be negligible, marginal, critical, and catastrophic
- 4) Develop a contingency plan to manage those risks having high probability and high impact

RISK IDENTIFICATION

- Risk identification is a systematic attempt to specify threats to the project plan.
- By identifying known and predictable risks, the project manager takes a first step toward avoiding them when possible and controlling them when necessary
- Generic risks
  - Risks that are a potential threat to every software project
- Product-specific risks
  - Risks that can be identified only by those with a clear understanding of the technology, the people, and the environment that is specific to the software that is to be built
  - This requires examination of the project plan and the statement of scope
    - "What special characteristics of this product may threaten our project plan?"

RISK PROJECTION

- Risk projection (or estimation) attempts to rate each risk in two ways
  - The probability that the risk is real
  - The consequence of the problems associated with the risk, should it occur
- The project planner, managers, and technical staff perform four risk projection steps.
  - Establish a scale that reflects the perceived likelihood of a risk (e.g., 1-low, 10-high)
  - Delineate the consequences of the risk
  - Estimate the impact of the risk on the project and product
  - Note the overall accuracy of the risk projection so that there will be no misunderstandings
- The intent of these steps is to consider risks in a manner that leads to prioritization, By prioritizing risks, the software team can allocate limited resources where they will have the most impact

RISK MITIGATION, MONITORING, AND MANAGEMENT

- An effective strategy for dealing with risk must consider three issues
- Risk mitigation (i.e., avoidance) - It is the primary strategy and is achieved through a plan.
- Risk monitoring - During risk monitoring, the project manager monitors factors that may provide an indication of whether a risk is becoming more or less likely
- Risk management and contingency planning - It assume that mitigation efforts have failed and that the risk has become a reality
- RMMM steps incur additional project cost
- The RMMM plan documents all work performed as part of risk analysis and is used by the project manager as part of the overall project plan.