Risk Management

A risk is **any anticipated unfavourable event or circumstance that can occur while a project is underway**. Risk management consists of three essential activities—risk identification, risk assessment, and risk mitigation.

1 Risk Identification

The **project manager needs to anticipate the risks in a project as early as possible**. As soon as a risk **is identified, effective risk management plans are made**, so that the possible impacts of the risks is minimised. So, **early risk identification is important.** There are three main categories of risks which can affect a software project: **project risks, technical risks, and business risks.**

Project risks: Project risks concern various forms of **budgetary, schedule, personnel, resource, and customer-related problems.** An important project risk is schedule slippage. Since, software is intangible, it is very difficult to monitor and control a software project.

Technical risks: Technical risks concern **potential design, implementation, interfacing, testing, and maintenance problems.** Technical risks also include ambiguous specification, **incomplete specification, changing specification, technical uncertainty, and technical obsolescence.**

Business risks: This type of risks includes the risk of building an excellent product that no one wants, losing budgetary commitments, etc.

2 Risk Assessment The objective of risk assessment **is to rank the risks in terms of their damage causing potential.**

For risk assessment, first each risk should be rated in two ways:

The likelihood of a risk becoming real (r).

The consequence of the problems associated with that risk (s).

Based on these two factors, the priority of each risk can be computed as follows:

p = r* s

where**, p is the priority with which the risk must be handled, r is the probability of the risk becoming real, and s is the severity of damage caused due to the risk becoming real.**

3 Risk Mitigation (shamipikkuka)

After all the identified risks of a project have been assessed, plans are made to contain the **most damaging and the most likely risks first.**

Avoid the risk: Risks can be avoided in several ways.

Process-related risk: These risks arise due to **aggressive work schedule, budget, and resource utilisation.**

Product-related risks: These risks arise due to **commitment to challenging product features (e.g. response time of one second, etc.), quality, reliability etc.**

Technology-related risks: These risks **arise due to commitment to use certain technology (e.g., satellite communication).**

Transfer the risk: This strategy involves **getting the risky components developed by a third party, buying insurance cover, etc.**

Risk reduction: This involves planning ways to **contain the damage due to a risk**. For example, if there is risk that **some key personnel might leave, new recruitment may be planned.**