Software Risk Configuration Management

- ## Risk Identification

The project organizer needs to anticipate the risk in the project as early as possible so that the impact of risk can be reduced by making effective risk management planning.

A project can be of use by a large variety of risks. To identify the significant risk, this might affect a project. It is necessary to categorize the different risks of classes.

There are different types of risks which can affect a software project:

Technology risks: Risks that assume from the software or hardware technologies that are used to develop the system.

People risks: Risks that are connected with the person in the development team.

Organizational risks: Risks that assume from the organizational environment where the software is being developed.

Tools risks: Risks that assume from the software tools and other support software used to create the system.

Requirement risks: Risks that assume from the changes to the customer requirement and the process of managing the requirements change.

Estimation risks: Risks that assume from the management estimates of the resources required to build the system

- # Risk Assessment

The objective of risk assessment is to divide the risks in the condition of their loss, causing potential.

For risk assessment, first, every risk should be rated in two methods:

The possibility of a risk coming true (denoted as r).

The consequence of the issues relates to that risk (denoted as s).

Based on these two methods, the priority of each risk can be estimated:

$$p = r * s$$

Where p is the priority with which the risk must be controlled, r is the probability of the risk becoming true, and s is the severity of loss caused due to the risk becoming true. If all identified risks are set up, then the most likely and damaging risks can be controlled first, and more comprehensive risk abatement methods can be designed for these risks.

- # Risk Projection

Risk projection, also called risk estimation, attempts to rate each risk in two ways—the likelihood or probability that the risk is real and the consequences of the problems associated with the risk, should it occur.

The project planner, along with other managers and technical staff, performs four risk projection activities:

(1) Establish a scale that reflects the perceived likelihood of a risk.

(2) Delineate the consequences of the risk.

(3) Estimate the impact of the risk on the project and the product.

(4) Note the overall accuracy of the risk projection so that there will be no misunderstandings.

Developing a Risk Table

Risk table provides a project manager with a simple technique for risk projection.

Steps in Setting up Risk Table

(1) Project team begins by listing all risks in the first column of the table.

Accomplished with the help of the risk item checklists.

(2) Each risk is categorized in the second column.

(e.g. PS implies a project size risk, BU implies a business risk).

(3) The probability of occurrence of each risk is entered in the next column of the table.

The probability value for each risk can be estimated by team members individually.

(4) Individual team members are polled in round-robin fashion until their assessment of risk probability begins to converge.

Assessing Risk Impact

Nature of the risk - the problems that are likely if it occurs.

e.g. a poorly defined external interface to customer hardware (a technical risk) will preclude early design and testing and will likely lead to system integration problems late in a project.

Scope of a risk - combines the severity with its overall distribution (how much of the project will be affected or how many customers are harmed?).

Timing of a risk - when and how long the impact will be felt.

Overall risk exposure, RE, determined using:

RE = P x C

P is the probability of occurrence for a risk.

C is the cost to the project should the risk occur.

Risk No	Problem	Probability of occurrence of problem	Impact of problem	Risk exposure	Priority
R1	Issue of incorrect password	2	2	4	10
R2	Testing reveals a lot of defects	1	9	9	7
R3	The design is not robust	2	7	14	5

- ## RMMM Software Configuration management

A risk management technique is usually seen in the software Project plan.

This can be divided into Risk Mitigation, Monitoring, and Management Plan (RMMM).

In this plan, all work is done as part of risk analysis. As part of the overall project plan, the project manager generally uses this RMMM plan.

In some software teams, risk is documented with the help of a Risk Information Sheet (RIS).

RIS contains Risk ID, Date, Probability, Impact, Description, Avoidance, Monitoring, Management plan and current plan.

This RIS is controlled by using a database system for easier management of information i.e creation, priority ordering, searching, and other analysis.

After documentation of RMMM and start of a project, risk mitigation and monitoring

steps will start.

Risk Mitigation

It is an activity used to avoid problems (Risk Avoidance).

It is proactive approach. Apply before risk have generate.

Steps for mitigating the risks as follows.

Finding out the risk.

Removing causes that are the reason for risk creation by communicating with concerned staff..

Controlling the corresponding documents from time to time.

Conducting timely reviews to speed up the work.

Risk Monitoring

It is an activity used for project tracking.

Performed by Project manager.

It has the following primary objectives as follows.

To check if predicted risks occur or not.

To ensure proper application of risk aversion steps defined for risk.

To collect data for future risk analysis.

To allocate what problems are caused by which risks throughout the project.

Risk Management and planning

It assumes that the mitigation activity failed and the risk is a reality.

This task is done by the Project manager when risk becomes reality and causes severe

problems.

If the project manager effectively uses project mitigation to remove risks successfully then it is easier to manage the risks.

This shows the response that will be taken for each risk by a manager.

The main objective of the risk management plan is the risk register.

This risk register describes and focuses on the predicted threats to a software project.

Risk generated: Late Delivery of Project

Mitigation (Avoid Risk):

Before development apply some precautionary measures

Developer already knew the project will be complete in 20 days. But he told the customer the project will be completed in 30 days.

Monitoring:

Develop project schedule.

Management:

Project not completed within deadline then negotiate with customers.

Ask some extra timer, give some additional features etc.