

1. Define risk. Which are the various types of risk?

“Risk, is an integral part of the economic scenario, and can be termed as a potential event that can have opportunities that benefit or a hazard to an organizational component. It could be an issue of an already occurred event. Risk can be an assumption that is not proven but is still necessary to assume to proceed successfully through the projects. Risk can also be a constraint, and is characterised by threats and opportunities. Risk as defined by ISO is a combination of the probability of an event and its consequences.

Thus risk can be defined as:

The effect of uncertainties on objectives (whether positive or negative).

Or

The chance of something happening that impacts project objectives.

A given project may come across different types of risks which include:

- **Financial risk:** It usually includes loss of funding.
- **Process risk:** It includes business processes with many risks that probably lead to project failure.
- **Time risk:** It includes risks related to time (delay).
- **Human risk:** It includes loss of critical employee or loss of employee which had more knowledge on the project processes.
- **Physical risks:** It includes damages caused to the physical resources such as powerful equipment or damage to the building.

There might be many risks in a given project. The standard definition of project risk states that “The chance of something happening that impacts project objectives.”

(Source: <http://www.expertsmind.com/questions/risk-management-30113997.aspx>)

2. How the risk analysis is carried out? Explain in detail.

“Risk analysis helps to distinguish minor risks from the major risks. It also helps in evaluation and treatment of risks. Analysing risks involves finding out sources of risks, possibility of risks and the outcomes.”

(Source: <https://www.scribd.com/document/61476634/PM0016-Project-Risk-Management-Set-1>)

The probability and effects of the risk are combined to produce a level of risk. Statistical analysis and calculations are used to find out the probability and effects of the risk. If no past record is available to determine the possible outcomes, then an estimate is made about a particular event and its outcome.

There are three types of risk analysis, they are:

- **Qualitative analysis:** Use descriptive scales to draw a level of possible effects of risks. The scale can also be adjusted to the extent most suitable to the circumstances. The qualitative risk analysis enables you to identify the main sources of risk which is basically done with the help of checklist, interviews and brainstorming sessions. It is considered as an evaluation process which involves description of each risk and its impacts or the subjective labelling of risk (high/low) in terms of risk impact as well as possibility of its occurrence.

Qualitative Risk Analysis determines risk events based on judgment, perceptions and the experience against assigning real values to these possible risks and their potential loss margins. The main features of Qualitative Risk Analysis are:

- It is extensively used.
- It provides an estimate of possible loss/impact occurred.
- No probability record is required.
- It shows the risk level.
- **Semi-quantitative analysis:** It provides more detailed prioritization of the risks that is obtained in qualitative analysis.
- **Quantitative analysis:** Using information from a variety of sources, the effects and probability of risk is represented using numeric value. Quantitative Risk Analysis is a technique which often provides mathematical estimates that allow organization to understand the impact of risk exposure to people, business and market. The main features of Quantitative Risk Analysis are:
 - Elements such as Probability and Likely Loss are used.
 - Result of Probability x Likely Loss is produced.
 - It requires measurement of uncertainty in terms of time and cost estimate.
 - Fairly limited use.

It is important to note that there is no accurate probability record in quantitative risk analysis. The probability is unique to each case. It is not easy to find out the expected loss.

Qualitative analysis done at the initial stage of the project brings considerable benefit which helps to have a good understanding of the project as well as make aware of the possible problems irrespective of whether quantitative analysis is performed or not. This in turn makes you to develop specific plan to handle specific risk issue.

Below are some ways, which can be used for risk identification:

- ***Based on objective:*** The event which prevents you from achieving an objective completely or partially is identified as risk and every project and organizations have these objectives.
- ***Based on scenario:*** The scenarios are usually the ways to achieve an objective or to analyze the interaction of forces. Any scenario that activates an undesired event is identified as risk.
- ***Based on taxonomy:*** This risk identification is done by breaking down all possible sources of risk.
- ***Based on common-risk checking:*** Many industries list out their known risks and share them. Each and every risk in the list can be evaluated for an application to suite a specific situation.
- ***Based on risk charting:*** This risk identification is done by listing resources at risks and combining the above approaches. In this method of identification you can start with threat and identify the resource that will be affected or you can examine the consequences and then determine the combination of threat and resource.

3. Enlist and explain in brief – various types of threats.

Risk analysis process begins with the process of identifying threat in the project, which can be in the form of:

- **Human:** Threat can be from each individual or group of individuals in the form of illness, death or strikes.
- **Operational:** Threat can be in form of disruption to products, not being able to access or distribute the essential project equipment and so on.
- **Reputational:** Threat can be caused by damage to reputation in the market due to loss of good business partners. For the Government projects and scheme, the reputational risk is towards international status and stand for a country towards availing grants and funding assistance regarding particular sectors.
- **Procedural:** Threat can be caused due to fraud accountability and failure of internal systems and controls.
- **Project:** Threat can be due to cost over-runs, insufficient product or service quality and so on.
- **Financial:** Threat can be caused by drop in stock market, business failure or unemployment.
- **Political:** Threat can be political in case of certain projects and activities that held up with instability in the political environment. In a country like India, as the political wheel play a major role in policy making and guiding the administrative bureaucracy, instability in political environment put major emphasis on the smooth governance.
- **Natural:** activities of disruption due to natural calamities and events may result in delay/ postponing/ cancellation of certain activity at local, state or national level. It may have serious impacts on natural geography that may chance prevailing practices of governance and certain new initiative may have to be taken up, starting from scratch.

4. Explain the risk analysis process.

A risk analysis is performed to determine the nature of the risk and its level of impact. Thus it forms the basis for decisions about risk treatments.

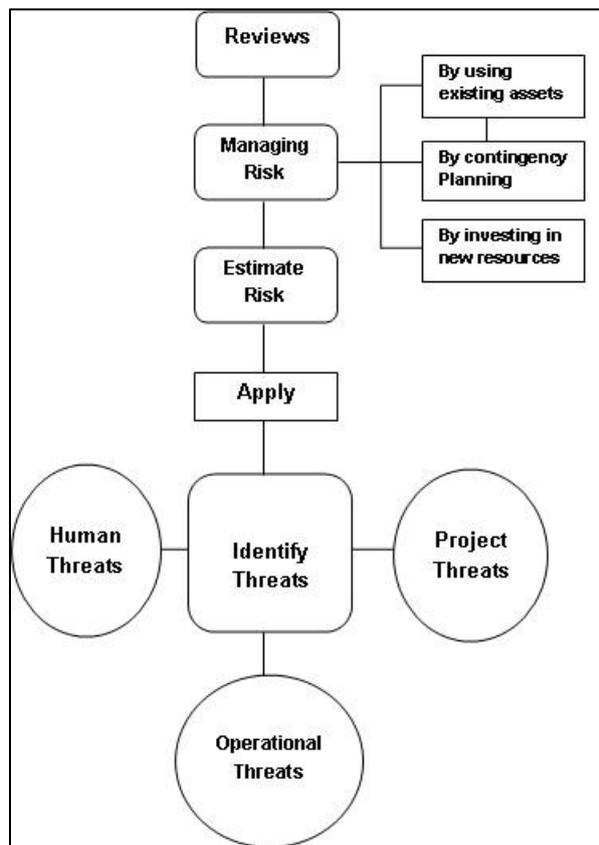


Figure 1 Risk Analysis Process

The following steps are used to carry out the risk analysis process:

Step 1: Identify threats

(As discussed in the earlier question)

In order to identify these threats there are number of different approaches:

1. First, list all the sources of threats as listed and check whether any of these apply to your project.
2. Second, consider from the point of your organization or structures and analyze risks that might occur on those part.
3. Check for any vulnerabilities within these structures.
4. Get different perspectives by asking other people.

Step 2: Estimate risk

After identifying the threats, the next step is to measure its impact. This can be done by estimating the probability of the event occurring and then multiplying these estimates with the cost that may incur to get the things right.

Step 3: Managing risk

Once you have identified and estimated the risk level, the next step is to find out ways to manage them. This can be done by selecting cost effective approaches. Accepting the risk is considered to be better and cost effective approach rather than using excessive resources to eliminate it. Sometimes, accepting risks enable you to plan for an event to minimize it, rather than eliminating a risk. Elimination sometimes causes alteration in project objectives and use of extra resources to get the alteration approved and hence may not be a feasible option. Risk can be managed in following ways:

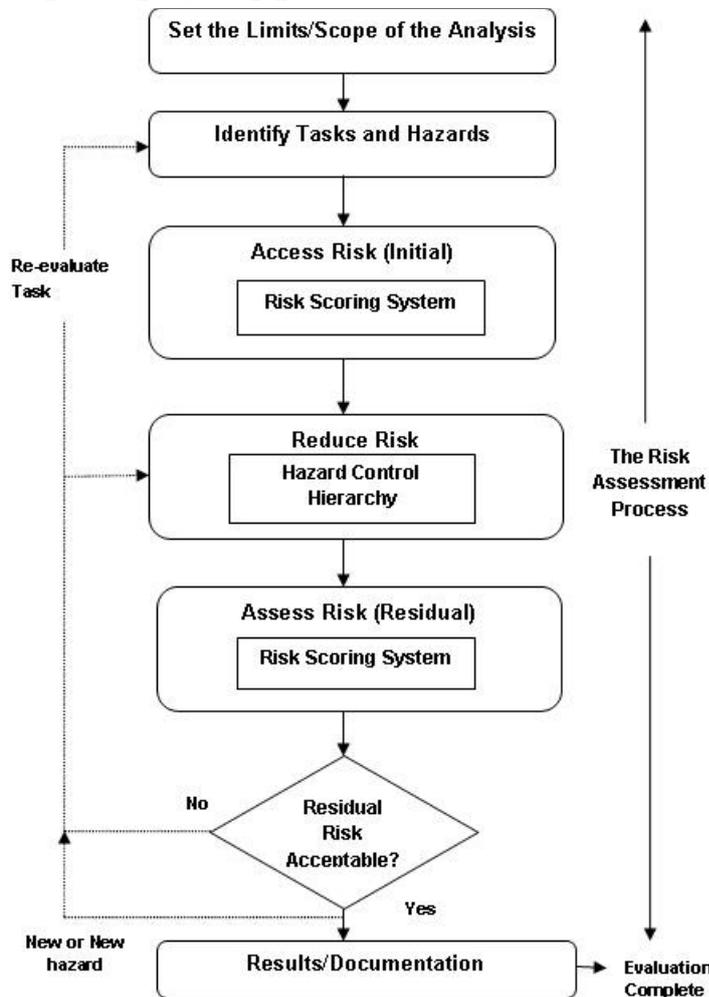
- ***By using existing assets:*** You can use the existing resources or can improve the existing systems or accountability to respond to any risk events. You can also bring changes in responsibilities and internal controls.
- ***By contingency planning:*** You must create a plan before accepting the identified risks so that you can reduce the impact of that risk. A contingency plan helps you to take quick actions in a crisis situation.
- ***By investing in new resources:*** You can decide on to bring new resources to deal with the identified risk. If it is a high priority risk, then your organization must appoint some outsiders to deal some part of the risk management process.

Step 4: Reviews

After completing the risk analysis and risk management processes, the next and final step will be review, which must be done on regular basis. The review processes include conducting formal reviews or may involve testing systems and plans.

5. Elaborate the risk assessment cycle.

Risk assessment consists of many different stages. These stages are explained in a simple step-by-step process. The risk assessment cycle has the following seven stages:



Set the limits / scope of the Analysis

The results of assessment are collected, analysed and reported to the management by the risk assessment team. Thus assessment team identifies the scope of the project objectives, the responsibilities of each member in the team, standards to be used, documents to be reviewed and operations to be noticed.

Identify tasks and hazards

Hazards can be in form of violence, noise or any kind of pressure system. The identified hazards must not be ignored as this can lead to many associated unknown risks. A task-based approach is found to be the most effective method to identify the hazards.

Assess risk (Initial)

This risk assessment helps to find out the initial risks in the project. Risk scoring system is used to rate risk at the initial stage of risk assessment process. It helps to describe how risks are measured.

Reduce risk

The main aim of risk assessment is to minimize the risks to a tolerable level. The efforts to gain tolerable risk must work within the constraint of practicality and cost. Costing is the main factor to obtain tolerable risk.

Assessing risks of a project is worthless if an appropriate plan is not made to reduce it. As risk reduction has already brought to an acceptable level, there is no need to further reduce the residual risk. This shows that risk reduction is an important part of risk assessment process.

Assess risk (Residual)

Assessing any residual risk is necessary to complete risk assessment process. This process helps to mitigate any possible risks in the project. It must be noted that the risk scoring system used is different for different application. As the risk scoring system describes the possible ways to assess risks, the risk assessment process continues to improve.

Subjective judgment

Subjective judgment is considered as the essential part of risk assessment process. Decision maker must be comfortable with the subjective nature of risk assessment. Basically uncertainty enters risk assessment as subjective judgments. Uncertainty must be accepted as the part of the risk assessment process.

Document the results

To have good and continuous improvement in risk assessment process there is need for documenting the risk assessments. It is recommended in every guideline to document the risk assessment process. This helps to gain access to the previous process results (history information) for the future reference and use. Thus upcoming projects find benefits from this document.

6. What are the risk management strategies to overcome future crisis?

As risk management is an integral part of the management at any level of governance, an organisation has to plan its risk management activities by setting various risk management policies and provide consistent risk identification, evaluation and reporting across the organisation. This unit describes the various aspects required for organising and assessing risks. It explains quality framework and the good manufacturing practices implemented for a project by the organisation. Total Quality Management (TQM) is widely used by the organisations to improve their product/service quality and operations.

“Total Quality Management (TQM) is one of the widely used project management technique or approach. TQM mainly concentrates on process measurement and provides continuous improvement. It ensures complete customer satisfaction at every phase of the project.”

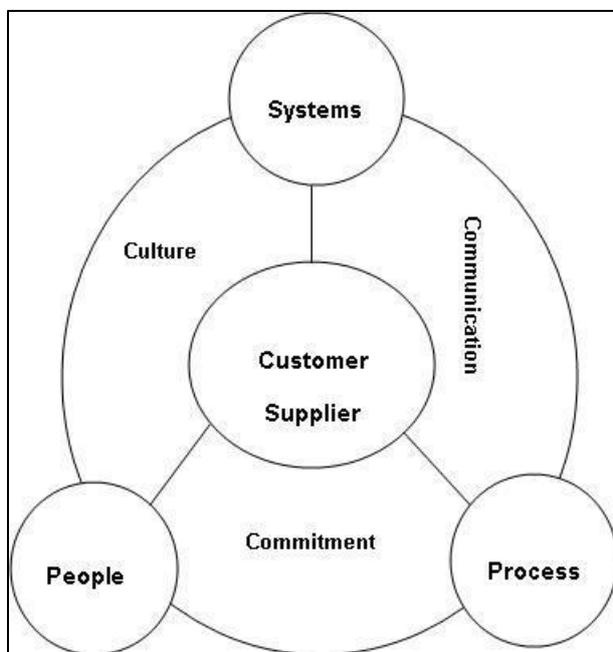


Figure 2 TQM Framework

“The core of the TQM framework has customer-supplier interfaces, where each interface comprises a wide variety of processes. The culture of the organisation has to organise their risk management technique in such a way as to build interfaces with a commitment to quality through proper communication of quality information.”

“The TQM framework is supported by roles performed by the people, processes and systems in the organisation. The customer-supplier interface is like the quality chains in the organisation. These chains can be easily broken as and when any person or equipment, fails to meet the customers' expectations. Each and every person in quality chain must be trained to attain quality. Risk management in a TQM entails proper initiative not to disentangle the customer and supplier chain. When TQM is not followed by an organisation, it will cause a list of risks, where you will **not** be able to:

- Identify the customers, their needs and expectation.

- Measure the ability to fulfil the customers' needs and expectations.
- Monitor any changes in the customers' needs and expectations.

In case of suppliers' side, one will **not** be able to:

- Identify your internal suppliers and their needs.
- Proper communication to meet the customers' needs.

To attain total quality in an organisation, it is necessary to combine TQM processes with sound risk management techniques that help the organisation to understand the quality gap.

With the introduction of the Total Quality Management (TQM) the inadequacy in defining project success and failure becomes comprehensible. TQM is mainly concerned with ensuring customer satisfaction and this is possible by delivering project on time within the budget and according to specification while taking the pointers of risk at all stages. The TQM process also involves asking customer about the organisation's performance, which help to:

- Find out any trends and solving those trends before they create any risk.
- Find out the main causes of risk and prevent it from occurring again. This can be done by using charts that are the tools of *Statistical Process Control (SPC)*. The charts used in SPC help to measure and analyse variation in processes.

Total Quality Management considers risk management as an integral part of performing any business activities and names it as Total Risk Management (TRM). This process helps each individual to take responsibility to identify and manage risks in their own areas of authority.”

(Source: <http://www.tutorsglobe.com/question/risk-management-in-the-tqm-framework-5161392>)