

Risk

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Risk

LESSON OBJECTIVES:

- Definition of Risk
- Definition of Risk management & its purpose
- Risk management strategy
- Risk register
- Risk Management procedure
- Risk Budget
- Identification of Context & Risk
- Risk Identification techniques
- Identification of- risk cause, risk event, risk effect.
- Risk estimation & its techniques
- Risk evaluation & its techniques
- Plan & its implementation.
- Risk owner & Risk actionee
- Communicate
- Risk Appetite & Risk Tolerance
- Risk responses
- Corporate or Programme Management
- Roles & Responsibilities relevant to Risk theme: responsibilities of executive, Senior User, Senior Supplier, Project Manager, Team Manager, Project Assurance, Project Support.



Risk

Definition

- A risk is an uncertain event or set of events that will have an effect on the achievement of objectives.
- Risk can be classified as 'threat' or 'opportunity'
- Threat is used to describe an uncertain event that could have a negative impact on objectives
- Opportunity is used to describe an uncertain event that could have a favourable impact on objectives

Purpose

- To identify , assess and control uncertainty and improve the ability of the project.



Risk

- Management of risk is a continual activity, performed throughout the life of the project. Without an on going and effective risk management procedure it is not possible to give confidence that the project is able to meet its objectives and therefore whether it is worthwhile for it to continue. Hence effective risk management is a prerequisite of the continued business justification principle.

Risk Management

- Systematic application of procedures to the tasks of identifying and assessing risks

For risk management to be effective, risks need to be:

- Identified
- Assessed
- Controlled

Risk Management Strategy

- Aims to describe how risk management will be embedded in the project management activities.



Risk

Risk Register

- Captures and maintains information on all the identified project threats and opportunities.

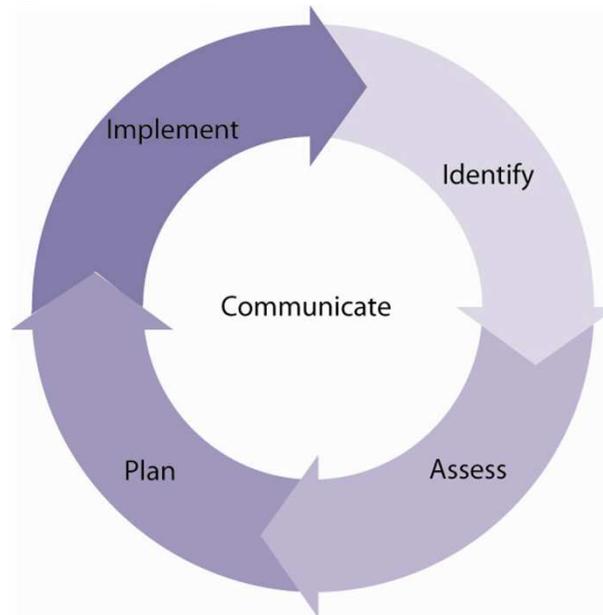
Risk management procedure

- Comprises the following steps:
 - Identify
 - Assess
 - Plan
 - Implement
 - Communicate
- All the steps in the risk management procedure are iterative and the first four steps are sequential, with the 'Communicate' step running in parallel.



Risk

The following diagram illustrates the steps involved in the risk management procedure that is applied in a PRINCE2 project:



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Figure 8.2, 'Risk management procedure', (Managing Successful Projects with PRINCE2, page 80)



Risk

Identify risks

- Identify context is primarily intended to formulate the Risk Management Strategy for the project. The Risk Management Strategy is formulated in the initiation stage of the project and is updated at the end of each stage.
- Early warning indicators will give an inkling of possible of risks. A few examples of early warning indicators are the following: shortfall in the accomplishment of planned work, approvals obtained behind schedule, increase in the number of issues being raised, and increase in the number of defects captured, etc.
- The risk identification techniques are review lessons, risk checklists, brainstorming, risk breakdown structure, and risk prompt lists.
- As risks are inherent in any project, the goal of identify risks is to recognize threats and opportunities that may impact project objectives. These identified threats and opportunities are recorded in the Risk Register.



Risk

- A effective method of countering possible risk occurrence is by addressing the following aspects of risks:
 - Risk cause: describes the source of the risk
 - Risk event: describes the area of uncertainty
 - Risk effect: describes the impact of risk on the project goals
- Relationship among risk cause, risk event and risk effect:
 - **Threat:** A traveller landing at the airport has been found to be suffering from the symptoms of H1N1 (risk cause). Hence there is a threat of infection spreading to other air travellers as well as members of public (risk event). Spreading of the virus may create public scare and may result in travel cancellations (risk effect).
 - **Opportunity:** A movie with a socially relevant theme originating from a third world country has won an internationally acclaimed award (risk cause). Hence, there is an possibility that film industry in that country will come in for global recognition (risk event). This has the potential for surge in the exports of movies from that country bolstering their export earnings (risk effect)



Risk

Assess risks

This step can be sub-divided into 'estimate' and 'evaluate' steps.

- **Estimate**
 - The primary purpose of the estimate step is to assess the threats and opportunities to the project in terms of their probability and impact.
- **Risk estimation techniques**
 - Some of the techniques used to estimate risks are:
 - Probability trees
 - Expected value
 - Pareto analysis
 - Probability impact grid



Risk

PRINCE2 recommends that the following is understood:

- The probability of the threats and opportunities in terms of how likely they are to occur
- The impact of each threat and opportunity in terms of the project objectives.
- The proximity of these threats and opportunities with regard to when they might materialize
- How the impact of the threats and opportunities may change over the life of the project.



Risk

- **Evaluate**
 - This step is primarily used to assess the net effect of all the identified project threats and opportunities. This will enable the Project Board to decide whether the overall severity of the risks affecting the project is within the set risk tolerance and whether the project enjoys continued business justification.
- **Risk evaluation techniques**
 - Some of the techniques to evaluate risks are:
 - Risk models
 - Expected monetary value



Risk

(Relevant to Practitioner Exam)

Plan

- This step is primarily used to prepare specific management responses to the threats and opportunities identified, ideally to remove or reduce the threats and to maximize the opportunities.
- A key factor in the selection of responses will be balancing the cost of implementing the responses against the probability and impact of allowing the risk to occur.
- Risk responses do not necessarily remove the inherent risk in its entirety, leaving residual risk.
- Inherent risk is the risk that exists within a project or to which a project is exposed to before any action can be taken to manage that risk.
- Secondary risks are risks that may occur as a result of change in certain aspects of the project consequent to implementation of a risk response action to an identified project risk.



Risk

- Residual risk is a risk that remains even after a risk response action is implemented for an identified risk. If the magnitude of the risk response action does not match that of the inherent risk, it is possible that the residual risk might be of considerable magnitude.
- Example: During the clinical experimental trials with a new drug, it has been observed that the use of the drug gives rise to, say, five side effects that are contra-indicated. This is an inherent risk that the drug possesses. In order to eliminate these side effects, a new combination of chemical ingredients has been formulated. The new product has resulted in the reduction of the side effects to, say, three. These three side effects are the residual risks that characterize the drug. But it has also been observed that the new combination drug has given rise to certain other new side effects not observed earlier. These new side effects are the secondary risks associated with the drug. As the complications arising out of the inherent and secondary risks are not completely known, it has been decided to subject the drug for further clinical trials and experimentation.



Risk

Implement

This step is used to ensure that the planned risk responses are implemented, monitored, and, if required, modified or corrected.

The main roles in this respect are:

Risk owner: A named individual who is responsible for the management, monitoring and control of all aspects of a particular risk assigned to them, including the implementation of the selected responses.

Risk actionee: An individual assigned to carry out a risk response action or actions to respond to a particular risk or set of risks. They support and take direction from the risk owner.

In many cases, the risk owner and risk actionee are likely to be the same person.

Communicate

- This step is primarily used to ensure that information related to project threats and opportunities is communicated to appropriate team members and stakeholders.



Risk

Example for implementation of risk management procedure in a PRINCE2 project:

Let us see how the risk management procedure is applied in an irrigation project. The project spans a length of 20 kms and is planned by the irrigation department under the ministry of agriculture. This project is expected to provide perennial irrigation facilities to 1500 hectares of agricultural land in a coastal region. The project is expected to be completed within a period of one year commencing from January.

While planning the project, a Risk Management Strategy is formulated and a Risk Register is set up. The Risk Management Strategy provides the risk tolerances for the project. An exercise is made to identify risks for the project by using tools like brainstorming, review of lessons from previous projects, etc. One of the most significant risks identified is occurrence of cyclones in the coastal regions during the months between September and November every year. The identified risks are brought to the notice of the Project Board who decided to allot a risk budget, as part of the project budget, to meet costs arising out of the delays, losses, damages that are likely to occur owing to the cyclones. The risk budget is determined by arriving at the expected monetary value after analysing impact costs, response costs, and likelihood of the risks' occurrence.



Risk

Every year onset of cyclones impact people, properties, production, and economy of the region adversely. Cautioning people in advance about the onset of cyclones, evacuating people living in low-lying areas to safer shelters, hoisting of warning signals near the sea coast, etc. are some of the measures the local government adopts to soften the severity of the cyclone.

It is estimated that if the anticipated cyclones do occur, they impact the project objectives in the following manner:

- Stoppage of project work for a period of 2-3 months
- Exceeding of costs allotted for the project
- Probable damage to work already executed
- Delay in accrual of benefits to the farmers

After taking into account the impact of the risks cited above, the Project Board has taken a decision to go ahead with the project for the following reasons:

- The irrigation project on hand has been long overdue in the region
- The slippages in cost, time, and benefits are within the tolerance limit set for the project
- The farmers will be advised to reduce their losses by growing alternate crops that can absorb the ill-effects of the cyclone



Risk

- The cost overruns will be taken care of by the risk budget allotted to the project.
- As the threat of cyclones cannot be avoided, the option of the risk response 'avoid' is ruled out. A fallback plan is put in place to effectively respond to the threat of the cyclone. The fallback plan is implemented by re-deploying men, machinery, and resources, thereby saving costs.

During project execution, the tell-tale signs of an impending cyclone have been noticed with a deep depression developing in the bay, and the meteorological department giving forecast of an imminent cyclone. As there were identified as triggers for the anticipated risk of cyclone, the Chief Engineer, who is in-charge of the project, has sent a report to the Project Board. The project management has responded to this risk by implementing the fallback plan. To implement the fallback plan, the Executive Engineer (irrigation), who is the risk owner, has taken measures to re-deploy men, machinery, and resources presently stationed at the host-site to another location where they can be made use of profitably. He has been assisted by Assistant Engineers (irrigation), who carried out the fallback plan.

The project details related to identification of risks, planning for risks and risk responses, assessment of risks, implementation of risk response actions and their effects, etc. have been continually communicated to the Project Board, the local authorities, the affected farmers, and the local government in terms of the Communication Management Strategy.



Risk

Risk budget

- It is a part of project budget that is set aside to fund specific management responses to the project's threats and opportunities.
- The amount of the risk budget is determined by aggregating the costs required to meet the impact and response costs of each and every specific risk. This aggregate cost is weighted by the probability of occurrence of each specific risk that would generate the expected monetary value for the set of risks.
- The determination of the risk budget is done by using analytical techniques such as Monte Carlo analysis and associated software tools.
- It is ideal that the project's Risk Management Strategy defines the methods for control of and access to risk budget. It is prudent that provision by way of risk budget is made not only for the identified risks but also for unknown risks.



Risk

Risk Appetite

- An organization's unique attitude towards risk taking that in turn dictates the amount of risk that it considers acceptable. Every organization in order to change with growth will continue to undertake projects. Since risk is inherent in every project, it is the risk appetite of the organization that will determine whether it takes up a particular project or not. Organizational policy and environment lays down the limits for an organization's ability to absorb risks. It is possible that the risk appetite of an organization might change depending upon its financial muscle and reputation in industry.
- For example, a software company renowned for its market capitalization and ranking went bust due to fraudulent accounting practices within the company. Although the company was targeted for takeover by many other well established and respected software companies, it was not taken over for a long time perhaps due to the limitations imposed by the risk appetite considerations of those companies. However, the takeover did take place after a while by company 'xyz', whose risk appetite was known to be lower than that of the other well established companies. Company xyz took onboard the targeted company despite heavy odds against such take over. This example proves that a company's risk appetite is subject to change with change in the company's as well as industry's environment. Risk appetite is also a function of a company's ability to look ahead and forecast future benefits.



Risk

Risk tolerance

- The threshold level of risk exposure which, when exceeded, will trigger an Exception Report to bring the situation to the attention of the Project Board. Risk tolerances could include limits on the plan's aggregated risk, or limits on any individual threat. Risk tolerance is documented in the Risk Management Strategy.
- Risk tolerances reflect the risk appetite of an organization in quantitative terms. While responding to a risk, the project management team will take into consideration the risk tolerances laid down in the Risk Management Strategy. There will be a graded delegation of risk tolerances down the hierarchy of project management levels. The allocation of risk tolerances is one method of delegation of authority to various levels of project management in order to save precious top management time. If risk tolerances allotted to a particular management level are forecast to be exceeded, escalation of the matter is made to the next higher management level.



Risk

Risk Responses

Threat responses	Opportunity responses
Avoid	Exploit
Reduce (probability and/or impact) Fallback (reduces impact only) Transfer (reduces impact only, and often only the financial impact)	Enhance
Share	
Accept	Reject

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Figure 8.7 Reference: Managing Successful Project with PRINCE2, page 85



Risk

(Relevant to Practitioner Exam)

Roles and responsibilities relevant to the Risk theme

- **Corporate or programme management**
 - Provides corporate risk management policy.
 - Provides risk management process guides
- **Executive**
 - Ensures that the project has a Risk Management Strategy.
 - Ensures that risks associated with the Business Case are identified, monitored, and controlled.
 - Escalates risks to corporate or programme management



Risk

Roles and responsibilities relevant to the Risk theme (continued)

- **Senior User**
 - Ensures that risks related to the user's interests are identified, monitored, and controlled.
- **Senior Supplier**
 - Ensures that risks relating to the supplier's aspects are identified, monitored, and controlled.



Risk

Roles and responsibilities relevant to the Risk theme (continued)

- **Project Manager**
 - Produces Risk Management Strategy
 - Produces Risk Register
 - Ensures that the project risks are being identified throughout the project life cycle
- **Team Manager**
 - Takes part in identification, assessment and control of risks.
- **Project Assurance**
 - Reviews risk management practices.
- **Project Support**
 - Helps the Project Manager in maintaining the Risk Register.



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