Project Risk Management

Project Risk Management

MODULE OBJECTIVES

After this session on Risk Management, participants will be able to :

- **Define** what Risk is and what Project Risk is all about.
- **Identify** the 7 Project Risk Management Processes.
- **Use** the Risk Management Processes to conduct Risk Management on a Sample Project.
- **Explain** the Inputs, Tools & Techniques that are used for the 7 Project Risk Management Processes

Project Risk Management
Preamble

- **What is Risk?**

    o The possibility that something **harmful** or **undesirable** may happen.

    o To take the chance of **losing** or **uncertainty**

    o Potential for **threats** or **opportunities**

Every one of us takes **risks** on a daily basis. Just getting out of bed in the morning is a **risk**. You might stub your toe in the dark on the way to the light switch or trip over the dog and break a leg. These events don't usually happen, but the **possibility** exists. The same is true for your project because Risk exists on all projects.

Project Risk Management

Preamble

- Not all risks are bad. Risks can present opportunities as well as threats to a project. All risks have <u>causes</u>, and if the risk event occurs during a project, there are consequences as a result of that risk. Those consequences will likely impact one or more of the project objectives, and you'll need to know whether the consequences have <u>positive</u> or <u>negative</u> impacts.

- The more you know about risks and their impacts beforehand, the better equipped you are to handle a risk when it occurs.

- When it comes to project management, understanding risk and knowing how to minimize its impacts or take full advantage of its opportunities on your project are essential for success. It is needful to find out <u>WHAT</u> risk might occur, <u>HOW</u> to deal with them and <u>DEVELOPING</u> action plans for those of them that have hefty impacts.

- Project Risk Management includes the processes concerned with conducting risk management planning, identification, analysis, responses, monitoring and control on a project.

- Project risk is an uncertain event or condition that, if it occurs, has a <u>positive</u> or a <u>negative</u> effect on at least one project objective, such as time, cost, scope, or quality.

- Risks come about for many reasons. Some are internal to the project, and some are external. The project environment, the planning process, the project management process, inadequate resources, and so on, can all contribute to risk.

- The objectives of Project Risk Management are to increase the probability and impact of <u>positive events</u>, and decrease the probability and impact of <u>events adverse</u> to the project

Project Risk Management

Plan Risk Management

Risk Management Planning is the *process of deciding or defining how to approach and conduct the risk management activities* for a project. The Plan Risk Management process should begin as a project is conceived and should be completed early during project planning.

It is often said that you should plan before you act, Risk Management Planning therefore is all about defining and planning how the other Risk Management Processes will be structured and performed. The Plan Risk Management process should begin when a project is conceive and should be completed early during project planning.

Project Risk Management
Plan Risk Management

Plan Risk Management

Inputs	Tools & Techniques	Outputs

.1 Project charter
.2 Project management plan
   • All components
.3 Project documents
   • Stakeholder register
.4 Enterprise environmental factors
.5 Organizational process assets
	.1 Expert judgement
	.2 Stakeholder analysis
	.3 Meetings
		.1 Risk management plan

Project Risk Management
Plan Risk Management

INPUTS

Project Charter
- Project Charter documents the high-level project description and boundaries, requirements, including risks,

Project Management Plan
- The Project Management Plan contains all other subsidiary management plans that will provide inputs to develop the Risk Management Plan.

Project Documents
- This document that can be considered as input for this process is stakeholder register. Stakeholder register provide all details related to the project's stakeholders roles and their attitudes towards risk on the project.

Enterprise Environmental Factors (EEF)
- The EEF that can Influence this process are: Risk attitudes, thresholds, tolerances, etc.

Organizational Process Assets (OPA)
- The organization's historical information and lesson learned knowledge base, risk categories, templates, authority levels for decision making, etc are part of the OPA that can influence this process.

Project Risk Management
Plan Risk Management

TOOLS&TECHNIQUES

1. Expert Judgment
This refers to the inputs received from persons with specialized education, skills, experience, etc needed to develop the scope management plan. They may be stakeholders, consultants, other experts in the organization, or technical or professional organizations.

2 Stakeholder Analysis is a process of identifying project stakeholders; grouping them according to their levels of participation, interest, and influence in the project; and determining their risk appetite and tolerances

3. Meetings
The project team members MEET to deliberate, brainstorm and develop the Risk Management Plan.

Project Risk Management
Plan Risk Management

OUTPUTS

Risk Management Plan

- The risk management plan is a component of the project management plan, and it describes how risk management activities will be structured and performed on the project. The Risk Management Plan details how risk management processes (including Risk Identification, Qualitative & Quantitative Risk Analysis, Risk Response Planning, and Risk Monitoring and Control) will be implemented. This risk management plan includes the followings:
  - Risk Strategy
  - Roles & responsibilities
  - Budgeting
  - Timing
  - Risk categories
  - Definition of risk probability & impact
  - Probability & impact matrix
  - Reporting format
  - Etc.

Project Risk Management
Identify Risks

Identify Risk process identifies individual project risks as well as sources of overall project risk which *might affect the project and documents their characteristics.* Participants in risk identification activities can include the following, where appropriate: project manager, project team members, risk management team (if assigned), subject matter experts from outside the project team, customers, end users, other project managers, stakeholders, and risk management experts.

In summary, *Identify Risk* process involves **identifying** all the risks that might impact the project, **documenting them**, and documenting their **characteristics**.

All project personnel should be encouraged to identify risks. Identify Risks is an iterative process because new risks may evolve or become known as the project progresses through its life cycle. The process should involve the project team so they can develop and maintain a sense of **ownership** and **responsibility** for the risks and associated risk response actions.

Project Risk Management

Identify Risks

Inputs

.1 Project management plan
- Requirements management plan
- Schedule management plan
- Cost management plan
- Quality management plan
- Resource management plan
- Risk management plan
- Scope baseline
- Schedule baseline
- Cost baseline

.2 Project documents
- Assumption log
- Cost estimates
- Duration estimates
- Issue log
- Lessons learned register
- Requirements documentation
- Resource requirements
- Stakeholder register

.3 Agreements
.4 Procurement documentation
.5 Enterprise environmental factors
.6 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Data gathering
- Brainstorming
- Checklists
- Interviews

.3 Data analysis
- Root cause analysis
- Assumption and constraint analysis
- SWOT analysis
- Document analysis

.4 Interpersonal and team skills
- Facilitation

.5 Prompt lists
.6 Meetings

Outputs

.1 Risk register
.2 Risk report
.3 Project documents updates
- Assumption log
- Issue log
- Lessons learned register

Project Risk Management
Identify Risk

INPUTS

Project Management Plan & Documents (Artifact)

- This Artifact consists but not limited to Requirement Plan, Schedule Management Plan, Cost Management Plan, Quality Management Plan, Scope Baseline Risk Management Plan Assumption Log, Duration Estimates, Cost Estimates, Issue Log etc.

Procurement Documentation

- If the project requires external procurement of resources, procurement documents will be required as inputs to the identify risk process.

Agreements

- If the project requires external procurement of resources, the initial procurement documentation will be reviewed as procuring goods and services from outside the organization may increase or decrease overall project risk and may introduce additional project risks.

Enterprise Environmental Factors (EEF) & Organizational Process Assets (OPA)

- The EEF & OPA that can Influence this process are: Published information, academic studies, published checklists, benchmarking, risk attitudes, risk statement formats or templates, lesson learned, etc.

Identify Risk

TOOLS&TECHNIQUES

1. Expert Judgment
Risks can be identified directly by experts with relevant experience of similar projects or business areas. Such experts should be identified by the project manager and invited to consider all aspects of the project and suggest possible risks based on their previous experience and areas of expertise.

2. Data Gathering
Techniques such as the below listed can be used to gather information during this process.

i.   **Brainstorming:** Used to obtain a comprehensive list of individual project risk and sources of overall project risk.

ii. **Checklist:** This is a structured tool used to verify that a set of required steps has been performed or to check if a list of requirements has been satisfied.

iii. **Interviews:** Interviewing expert professionals, stakeholders, can help during this process .

iv. **Delphi technique:** It involves sending questionnaires to experts and compiling their responses without linking the opinions to the persons that suggested them. Experts supply their opinions of risks anonymously without influencing one another.

T O O L S & T E C H N I Q U E S

2. <u>Data Analysis</u>

The data analysis techniques that can be used during this process.

i. Root Cause Analysis (RCA): They are analytical techniques to determine the basic underlying reason that causes variance, defect or risk. When all root causes for a problem are removed, the problem does not recur.

ii. SWOT Analysis: This techniques examines the project from each of the strengths, weaknesses, opportunities, and threats (SWOT) perspectives. For risk identification, it is used to increase the breadth of identified risks by including internally generated risk.

3. <u>Data Analysis</u>

Data Analysis techniques that can be used for this process are:

iii **Assumption and Constraint Analysis:** Every project and its management plan are conceived and develop based on a set of assumptions and within a series of constraints.

Iv **Document Analysis:** Risk may be identified from a structured review of project documents, including, but not limited to plans, constraints, previous files contract, agreements and technical documentation.

Identify Risk

TOOLS&TECHNIQUES

4. <u>Interpersonal and Team Skills</u>

Interpersonal and team skills that can be used for this process includes facilitation. **Facilitation** improves the effectiveness of many techniques used to identify individual projects risk and sources of overall project risk.

5. <u>Prompt Lists</u>

A prompts list is a predetermined list of risk categories that might give rise to individual project risks and that could also act a sources of overall project risk. The prompt risks can be used as a framework to aid project team in idea generation when using risk identification techniques.

6. <u>Meetings</u>

To undertake risk identification, the project team may conduct a specialized meeting often called **(Risk Workshop).** Most risk workshops include some form of brainstorming, but other risk identification techniques may be included depending on the level of the risk process defined in the risk management plan

Project Risk Management

Identify Risk

OUTPUTS

Risk Register

- The risk register which becomes a component of the project document is a document in which the results of risk analysis and risk response planning are recorded. It also contains the outcomes of the other risk management processes as they are conducted. The preparation of the risk register begins in the identify risk process with the following basic information:
  - List of Identified Risk
  - Potential Risk Owners
  - List of Potential Responses

Risk Report

- The Risk report present information on sources of overall project risk, together with summary information on identified individual project risks. The risk report is developed progressively throughout the Project Risk Management Process. The results of Perform Qualitative Risk Analysis, Perform Quantitative Risk Analysis, Plan Risk Responses, Implement Risk Responses, and Monitor Risks are also included in the risk report.

Project Document Updates

- The project documents that may be updated are, Issue Log, Assumptions Log Updates, Lessons Learned Register

Project Risk Management

Perform Qualitative Risk Analysis is the process of **prioritizing** individual risks for further analysis or action by assessing and combining their **probability** of occurrence and their **impact,** as well as other characteristics**.**

It involves determining **what impact** the identified risks will have on the project objectives and the **probability they will occur**. It also ranks the risks in **priority order** according to their effect on the project objectives. This helps the team determine whether Perform **Quantitative Risk Analysis** should be performed or whether you can skip right to developing response plans **(Plan Risk Responses Process)**.

Organizations can improve the project's performance by focusing more on high-priority risks as prioritized by the Perform Quantitative Risk Analysis Process.

Project Risk Management

Perform Qualitative Risk Analysis

Inputs

.1 Project management plan
  • Risk management plan
.2 Project documents
  • Assumption log
  • Risk register
  • Stakeholder register
.3 Enterprise environmental factors
.4 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Data gathering
  • Interviews
.3 Data analysis
  • Risk data quality assessment
  • Risk probability and impact assessment
  • Assessment of other risk parameters
.4 Interpersonal and team skills
  • Facilitation
.5 Risk categorization
.6 Data representation
  • Probability and impact matrix
  • Hierarchical charts
.7 Meetings

Outputs

.1 Project documents updates
  • Assumption log
  • Issue log
  • Risk register
  • Risk report

Project Risk Management

Perform Qualitative Risk Analysis

INPUTS

Project Management Plan

- This document contains other subsidiary plans, especially the Risk Management Plan. The elements that are contained in this Risk Management Plan that is needed for this process include the roles & responsibilities for conducting risk management, risk categories, definition of probability and impact, probability and impact matrix, etc.

Project Documents

- The project document helps to provide information about decisions that can help better to identify projects risks, such documents are Assumption Log, Risk Register, Stakeholder Register etc.

Enterprise Environmental Factors (EEF)

- Risk databases from industries and industry studies of similar projects are the key EEF that can influence this process.

Organizational Process Assets

- Information on prior, similar completed projects (Lesson Learned) are the OPAs that can influence this process.

TOOLS & TECHNIQUES

1. Expert Judgment

Risks can be identified directly by experts with relevant experience of similar projects or business areas. Such experts should be identified by the project manager and invited to consider all aspects of the project and suggest possible risks based on their previous experience and areas of expertise.

2. Data Gathering

Data gathering techniques that can be used for this process include but are not limited to **Interviews**. Structured or semi-structured interviews can be used to assess the probability and impacts of individuals project risks, as well as other factors.

TOOLS&TECHNIQUES

3. Data Analysis

Data Analysis technique that can be used during this process include.

i. Risk Data Quality Assessment: The data quality assessment involves determining the usefulness of the data gathered to evaluate the risk. Most importantly, the data must be unbiased and accurate. Low-quality data will render the Qualitative Risk Analysis process findings of little use to the project. Spend time to validate and verify the information you've collected about risks so that your prioritization and analysis is as accurate as it can be.

3. Data Analysis

Data Analysis technique that can be used during this process include.

ii. Risk Probability and Impact Assessment: This considers the likelihood that a specific risk will occur. Risk impact assessment considers potential effect on one or more project objectives such as schedule, cost Quality or performance. Impacts will be negative for threats and positive for opportunities.

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TOOLS&TECHNIQUES

3. Data Analysis

Data Analysis technique that can be used during this process include.

iii. Assessment of other Risk Parameter: The project team may consider other characteristics of risk in addition to probability and impact when prioritizing individual project risks for further analysis and action. Other parameter includes

- **Urgency**: The period of time within which a response to the risk is to be implemented in other to be effective.
- **Proximity**: The period of time before the risk might have an impact on one or more project objectives

4. Interpersonal and Team Skills

An example of this techniques that can be used for this process is Facilitation. Facilitation is used with focused sessions to bring key stakeholders together to reach consensus on assessments of probability and impacts, etc.

TOOLS & TECHNIQUES

5. Risk Categorization

Risks to the project can be categorized by sources of risk *(e.g., using the RBS*), the area of the project affected *(e.g., using the WBS),* or other useful category (e.g., project phase) to determine areas of the project most exposed to the effects of uncertainty. Grouping risks by common root causes can lead to developing effective risk responses.
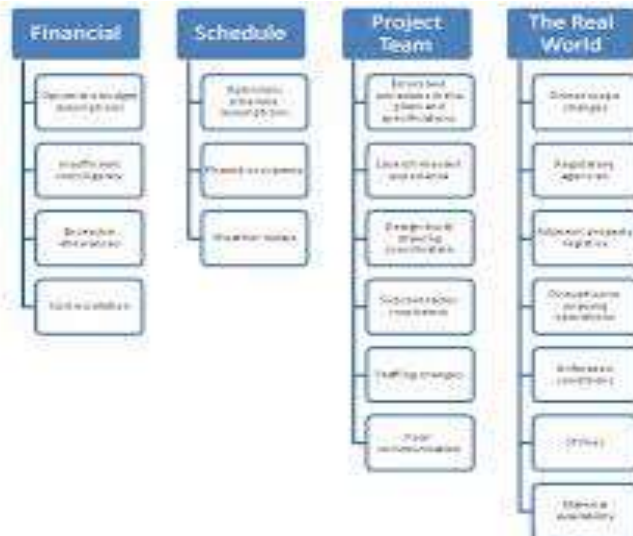
6. Data Representation

Data representation techniques that can be used during this process are:

i. **Probability and Impact Matrix**: A probability and impact is a grid for mapping the probability of each risk occurrence and its impact on project objectives if that risk occurs. This matrix specifies combinations of probability and impact that allows individual projects risks to be divided into groups.

7. Meetings

To undertake qualitative risk analysis, the project team may conduct a specialized meeting often called (Risk Worship), which is dedicated to the discussion of identified individual project risks. The goal of this meeting include reviewing of previously identified risk, assessment of probability and impacts, categorization and prioritization.

Project Risk Management

Perform Qualitative Risk Analysis

OUTPUTS

Project Documents Updates

- The project documents that may be updated are:
  - Risk Register
  - Assumptions Log
  - Issue Log
  - Risk Report

RISK REGISTER

Risk ID #	Risk Statement (Description)	Probability of Occurrence	Impact	Score (Probability x Impact)	Risk Trigger	Risk Owner	Planned Response(s) (Description)

Project Risk Management
Perform Quantitative Risk Analysis

Quantitative Risk Analysis is performed on *risks that have been prioritized by the Perform Qualitative Risk Analysis process* as potentially and substantially impacting the project's competing demands. The Perform Quantitative Risk Analysis is the process **NUMERICALLY** analyzing the effect of those identified risks on the overall project objectives.

The purpose of the Quantitative Risk Analysis is to:

•Determine which of the risks will require response.
•Determine overall project risks (Risk Exposure).
•Identify the risks that requires utmost attention.
•Etc.

Quantitative vs. Qualitative Risk Analysis

In practice, some projects may not need that you perform this process and you may just move straight to the **Plan Risk Responses** from the Perform Qualitative Risk Analysis process.

Project Risk Management

Perform Quantitative Risk Analysis

Inputs

.1 Project management plan
- Risk management plan
- Scope baseline
- Schedule baseline
- Cost baseline

.2 Project documents
- Assumption log
- Basis of estimates
- Cost estimates
- Cost forecasts
- Duration estimates
- Milestone list
- Resource requirements
- Risk register
- Risk report
- Schedule forecasts

.3 Enterprise environmental factors

.4 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Data gathering
- Interviews
.3 Interpersonal and team skills
- Facilitation
.4 Representations of uncertainty
.5 Data analysis
- Simulation
- Sensitivity analysis
- Decision tree analysis
- Influence diagrams

Outputs

.1 Project documents updates
- Risk report

Project Risk Management
Perform Quantitative Risk Analysis

INPUTS

Project Management Plan

- The Project Management Plan gives guidance on how the risk will be quantified. It contains other subsidiary plans such as Risk Management Plan, Scope, Schedule and Cost Baselines.

Project Documents

- The project document that can be considered as input for this process are: Assumption Log, Basis of estimates, Cost estimates, Duration forecast, Milestones list, Risk register, Resource requirement etc.

Enterprise Environmental Factors (EEF)

- Risk databases from industries & studies of similar industry projects can influence this process

Organizational Process Assets (OPA)

- Information on prior, similar completed projects (Lesson Learned) are the OPAs that can influence this process.

Project Risk Management

Perform Quantitative Risk Analysis

TOOLS&TECHNIQUES

1. <u>Expert Judgment</u>

Expert judgment which means to use experts with relevant, recent experiences is required to identify potential cost and schedule impacts, to evaluate probability, and to define inputs such as probability distributions into the tools. Their judgment is also needed in the interpretation of the data.

ASK AN EXPERT

2. <u>Data Gathering</u>

The data gathering techniques that can be used to gather information during this process is Interview.

• **Interviewing.** Interviewing techniques are used to *quantify the probability and impact of risks on project objectives*. The information needed depends upon the type of probability distributions that will be used.

Project Risk Management
Perform Quantitative Risk Analysis

TOOLS & TECHNIQUES

3. <u>Interpersonal and Team Skills</u>
The examples of this techniques that can be used for this process is <u>Facilitation</u>. A skilled facilitator is useful for gathering input data during a dedicated risks workshop involving team members and stakeholders

4. <u>Representation of Uncertainty</u>
Quantitative risk analysis requires input to a **quantitative risk analysis model** that reflect individual risk and other sources of uncertainty. Where the duration cost or resource requirement for a plan activity is uncertain, the range of possible values can be represented in the model as a probability distribution.

5. <u>Data Analysis</u>
Data analysis techniques that can be use during this process are:

i. **Sensitivity Analysis:** Sensitivity analysis helps to determine which risks have the most potential impact on the project. It examines the extent to which the uncertainty of each project element affects the objective being examined when all other uncertain elements are held at their baseline values. You can use tornado diagrams to determine sensitivity in cost, time, and quality objectives or for risks you've identified during this process.

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5. <u>Data Analysis</u>

Data analysis techniques that can be use during this process are:

ii Simulation. A project simulation uses a model that translates the uncertainties specified at a detailed level of the project into their potential impact on project objectives. Simulations are typically performed using the Monte Carlo technique.

5. <u>Data Analysis</u>

Data analysis that can be use during this process are as follows.

iii. Decision Tree Analysis. This is used to support selection of the best of several alternative courses of action.

Iv Influence Diagram. This is a graphical presentation that aids in decision making under uncertainty. An influence diagram represent a project or situation within the project as a set of entities, outcomes and influences together with the relationships and effect between them.

Project Risk Management

Perform Quantitative Risk Analysis

OUTPUTS

Project Documents Updates

- The project documents that are updated with information resulting from this process is the Risk report. This report is updated to reflect the results from this process. Information such as:
  - Assessment of overall project risk exposure.
  - Detailed probabilistic analysis of the project
  - Prioritized list of individual project risks
  - Trends in quantitative risk analysis results
  - Recommended risk responses

Project Risk Management

Plan Risk Responses

After all the data gathering and analysis about project risk, it is now time to figure out what you will do when the identified risks occurs.

Risk Response Planning is a process of developing options, selecting strategies, and agreeing on actions to address the overall project risk exposure.

It involves deciding what actions to take to reduce threats and take advantage of the opportunities discovered during the risk analysis processes. This process also includes assigning departments or individual staff members the responsibility of carrying out the risk response plans you have outlined in this process. These responsible individual staff are known as *Risk Owners*.

Risk Responses may include doing some or all of the followings for each of the identified priority risks:

1. Do something to eliminate the risk before it happens
2. Do something to make sure the opportunity happens
3. Decrease the probability / impact of threats or increase the probability / impact of opportunities.

Project Risk Management

Plan Risk Responses

Inputs

.1 Project management plan
  - Resource management plan
  - Risk management plan
  - Cost baseline
.2 Project documents
  - Lessons learned register
  - Project schedule
  - Project team assignments
  - Resource calendars
  - Risk register
  - Risk report
  - Stakeholder register
.3 Enterprise environmental factors
.4 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Interviews
.3 Strategies for threats
.4 Strategies for opportunity
.5 Contingent response strategies

Outputs

.1 Change requests
.2 Project management plan updates
  - Schedule management plan
  - Cost management plan
  - Quality management plan
  - Resource management plan
  - Procurement management plan
  - Scope baseline
  - Schedule baseline
  - Cost baseline
.3 Project documents updates
  - Assumption log
  - Cost forecasts
  - Lessons learned register
  - Project schedule
  - Project team assignments
  - Risk register
  - Risk report

Project Risk Management

Plan Risk Responses

INPUTS

Project Management Plan

- The Project Management Plan gives guidance on how the risk will be quantified. It also provides the baselines or current state of risk-affected areas including scope, schedule, cost, etc.

Project Documents

- The project document that can be considered as input for this process Lessons learned register, Project schedule, Project team assignments, Resource calendars, Risk register, Stakeholder register etc.

Enterprise Environmental Factors (EEF)

- The enterprise environmental factors that can influence the plan risk responses process include but not limited to the risk appetite and thresholds of key stakeholders.

Organization Process Assets (OPA)

- The organizational process assets that can influence the plan risk responses process include templates for the risk management plan, risk register, historical database, lessons learned

Plan Risk Responses

1. Expert Judgment
As the name Implies, it means getting help form experts. Expertise may be provided by any group or person with specialized education, knowledge, skill, experience, etc in establishing risk response.

2. Interviews are Structured or semi-structured interviews that is used with risk owners and risk actionees to understand the risk, identify and compare possible alternatives.

Plan Risk Responses

T O O L S & T E C H N I Q U E S

3. Strategies for Negative Risks or Threats

There are five strategies that are typically used to deal with threats or risks that may have negative impacts on project objectives. These strategies are to **avoid, escalate, transfer, mitigate** and **accept:**

A. **Avoid.** Risk avoidance involves changing the project management plan to eliminate the threat posed by an adverse risk, to isolate the project objectives from the risk's impact, or to relax the objective that is in jeopardy, *such as extending the schedule or reducing scope*. With risk avoidance, you essentially eradicate the risk by eliminating its cause.

B. Transfer. Risk transference requires shifting the negative impact of a threat, along with ownership of the response, to a third party. Transferring the risk simply gives another party responsibility for its management; it does not eliminate it. Insurance is one form of risk transfer. Another method of risk transfer is contracting. Contracting transfers specific risks to the vendor, depending on the work required by the contract. Other forms of transference include warranties, guarantees, and performance bonds.

C. Mitigate. Risk mitigation implies a reduction in the probability and/or impact of an adverse risk event to an acceptable threshold. Taking early action to reduce the probability and/or impact of a risk occurring on the project is often more effective than trying to repair the damage after the risk has occurred.

3. <u>**Strategies for Negative Risks or Threats**</u>

D. <u>**Accept.**</u> Risk acceptance is a risk response strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs. This strategy is adopted where it is not possible or cost-effective to address a specific risk in any other way.

This strategy can be either **passive** or **active**. <u>*Passive acceptance*</u> requires no action except to document the strategy, leaving the project team to deal with the risks as they occur. <u>*Active acceptance*</u> strategy is to establish a contingency reserve, including amounts of time, money, or resources to handle the risks.

3. <u>**Strategies for Negative Risks or Threats**</u>

E. <u>**Escalate.**</u> Risk escalation is appropriate when the project team or the project sponsor agrees that a threat is outside the scope of the project or that the proposed response would exceed the project manager's authority. Escalated risk are managed at the portfolio or program level, or other relevant part of the organization, and not on the project level

Your project   Avoid   Mitigate   Transfer   Accept

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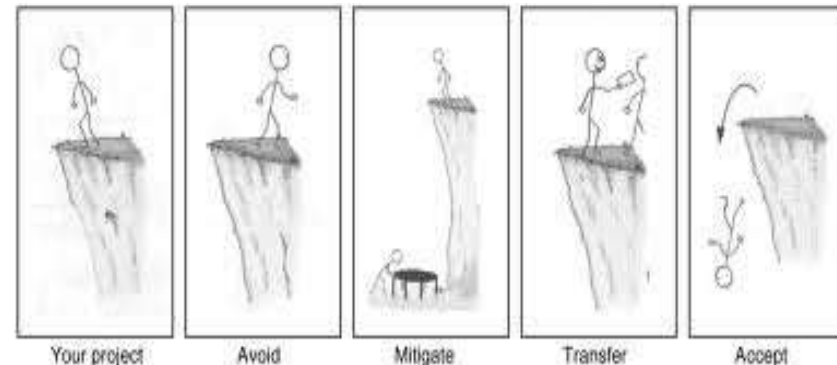
T O O L S & T E C H N I Q U E S

4. <u>Strategies for Positive Risks or Opportunities</u>

Five responses are suggested to deal with risks with potentially positive impacts on project objectives. These strategies are to **exploit, escalate, share, enhance** and **accept.**

A. <u>**Exploit.**</u> When you *exploit* a risk event, you're looking for opportunities for positive impacts. This is the strategy of choice when you've identified positive risks that you want to make certain will occur on the project. Examples of exploiting a risk include reducing the amount of time to complete the project by bringing on more qualified resources or by providing even better quality than originally planned.

B. <u>**Share.**</u> The *share* strategy is similar to transferring because you'll assign the risk to a third-party owner who is best able to bring about the opportunity the risk event presents. For example, perhaps what your organization does best is investing. However, it isn't so good at marketing. Forming a joint venture with a marketing firm to capitalize on a positive risk will make the most of the opportunities.

C. <u>**Enhance.**</u> The *enhance* strategy closely watches the probability or impact of the risk event to assure that the organization realizes the benefits. This entails watching for and emphasizing risk triggers and identifying the root causes of the risk to help enhance impacts or probability.

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4. <u>Strategies for Positive Risks or Opportunities</u>

D. Accept: Accepting an opportunity is being willing to take advantage of the opportunity if it arises, but not actively pursuing it.

E. Escalate This risk response strategy is appropriate when the project team stakeholders agrees that an opportunity is outside the scope of the project or that the proposed response would exceed the project manager authority.

5. <u>Contingent Response Strategies</u>

Each of the strategies for negative risk or positive risk discussed previously is developed for clearly identified risks. However, it is highly unlikely that despite your best efforts you will end up identifying all of the risks that may occur on a project, and thus it is prudent to have in place **contingent response strategies**, which are your <u>planned responses </u>to **UNPLANNED RISK**. Contingency allowances or reserves are a common contingency response.

A further means of dealing with unplanned risks occurring is a ***<u>workaround.</u>*** *<u>This is an unplanned and reactive response to an unplanned risk occurring, whereas a contingent response strategy is a planned and prepared response to an unplanned risk occurring</u>*

Project Risk Management

Plan Risk Responses

OUTPUTS

Change Request

- Planned risk responses may result in a change request to the cost and schedule baselines or other components of the project management plan. Change request are processed for review and disposition through the perform integrated change control process.

Project Management Plan & Documents (Artifacts) Updates

- Elements of the Project Artifacts that may be updated as a result of carrying out this this process are:
  - Schedule Management Plan
  - Cost Management Plan
  - Quality Management Plan
  - Procurement Management Plan
  - Scope Baseline
  - risk register
  - Etc

Project Risk Management

Implement Risk Responses

Implement Risks is the process of <u>implementing agreed-upon risk response plans.</u>, throughout the project.

Implement Risks Response process ensures that agreed-upon risk responses are executed as planned in order to address overall project risk exposure, minimize individual project threats, and maximize individual project opportunities. This process is performed throughout the project.

Project Risk Management

Implement Risk Responses

Inputs

.1 Project management plan
  • Risk management plan
.2 Project documents
  • Lessons learned register
  • Risk register
  • Risk report
.3 Organizational process assets

Tools & Techniques

.1 Expert judgment
.2 Interpersonal and team skills
  • Influencing
.3 Project management
   information system

Outputs

.1 Change requests
.2 Project documents updates
  • Issue log
  • Lessons learned register
  • Project team assignments
  • Risk register
  • Risk report

Implement Risk Response

INPUTS

Project Management Plan

- The Project Management Plan components include but not limited to the risk management plan. The risk management plan list the roles and responsibilities of project team members and other stakeholders for risk management.

Project Documents

- Information from project documents, such as the this risk register, risk report are needed for this process. Information such as the identified risk and risk owners, agreed upon risk responses, cost contingency reserves, etc.

Organizational Process Assets (OPA)

- Information on prior, similar completed projects (Lesson Learned) are the OPAs that can influence this process.

Project Risk Management

Implement Risk Response

TOOLS&TECHNIQUES

1. Expert Judgment

As the name Implies, it means getting help form experts. Expertise may be provided by any group or person with specialized education, knowledge, skill, experience, etc in establishing risk response.

2. Interpersonal and Team Skills

Interpersonal and team skills that can be used for this process include **influencing**. Some risk response actions may be owned by people outside the immediate project team or who have other competing demands. The project manager or person responsible for facilitating the risk process may need to exercise **influencing** to encourage nominated risk owners to take necessary action required.

3. Project Management Information System

Project Management information system may include schedule, resource, and cost software to ensure that agreed-upon risk response plans and their associated activities are integrated into the project alongside other project activities.

Project Risk Management

Implement Risk Response

OUTPUTS

Change Request

- Implement risk responses may result in a change request to the cost and schedule baselines or other components of the project management plan. Change request are processed for review and disposition through the perform integrated change control process.

Project Documents Updates

- During this process, several project documents may be updated as needed, especially updating information in the risk register, risk report, Issue log, lesson learned register. Such information as risk owner and assigned responsibilities, budget and schedule activities required to implement chosen responses, etc.

Project Risk Management

Implement Risk Response

| Manage Project Issues |

Projects do not always go smoothly and situations can arise which have the potential to affect the project objectives of scope, cost, schedule or quality if left unattended to. Issue can be defines as a current situation or condition that have occurred and may have impact on the project obejctives

RISK

- Focus on the future
- Can be positive or negative
- Is documented in Risk Register
- Response is call a- Risk Response
- Example:
  - The Sponsor may resign from the project
  - The major supplier may / might go on strik

Issue

- Focused on the present
- Will always be negative
- Is documented in Issue Log
- Response is call a- Workaround
- Example:
  - The Sponsor has resigned from the project
  - The major supplier has gone on strike

Project Risk Management

Monitor Risk

Monitor Risks is the process of monitoring the <u>implementation of agreed-upon response plans</u>, <u>tracking identified risks</u>, <u>monitoring residual risks</u>, <u>identifying new risks</u>, and <u>evaluating risk process effectiveness</u> throughout the project.

Monitor Risks can involve choosing alternative strategies, executing a contingency or fallback plan, taking corrective action, and modifying the project management plan. The risk response owner reports periodically to the project manager on the effectiveness of the plan, any unanticipated effects, and any correction needed to handle the risk appropriately.

Project Risk Management

Monitor Risks

Inputs

.1 Project management plan
  - Risk management plan
.2 Project documents
  - Issue log
  - Lessons learned register
  - Risk register
  - Risk report
.3 Work performance data
.4 Work performance reports

Tools & Techniques

.1 Data analysis
  - Technical performance analysis
  - Reserve analysis
.2 Audits
.3 Meetings

Outputs

.1 Work performance information
.2 Change requests
.3 Project management plan updates
  - Any component
.4 Project documents updates
  - Assumption log
  - Issue log
  - Lessons learned register
  - Risk register
  - Risk report
.5 Organizational process assets updates

Project Risk Management

Monitor Risk

INPUTS

Project Management Plan

- This plan contains the risk management plan which provides guidance for risk monitoring and controlling.

Project Documents

- Project documents that are considered as inputs for this process include issue log, risk register, risk report etc

Work Performance Data

- Work performance data related to various performance results that are impacted by risk are collected. Such data are: Risk responses that have been implemented, risk that have occurred, etc.

Work Performance Reports

- Work performance data are captured during performance measurements. And these data are analyzed and processed to form Work Performance Information, which are presented in reports called the Work Performance Reports. These reports are needed as inputs to this process.

Project Risk Management

TOOLS&TECHNIQUES

1. **<u>Data Analysis</u>**
   Data analysis technique that can be used for this process include.

i. **Technical Performance Analysis:** compares technical compliments during project execution to the schedule of technical achievement. It requires the definition of objective, quantifiable measures of technical performance, which can be used to compare actual result against targets. Such technical performance measures may include weight, transaction times, number of delivered defects, storage capacity etc.

1. **<u>Data Analysis</u>**
   Data analysis technique that can be used for this process include.

ii. **Reserve Analysis:** Throughout execution of the project, some individual project risk may occur with positive or negative impacts on budget or schedule contingency reserves. Reserve analysis compares the amount of the contingency reserves remaining to the amount of risk remaining at anytime in the project in order to determine if the remaining reserve is adequate.

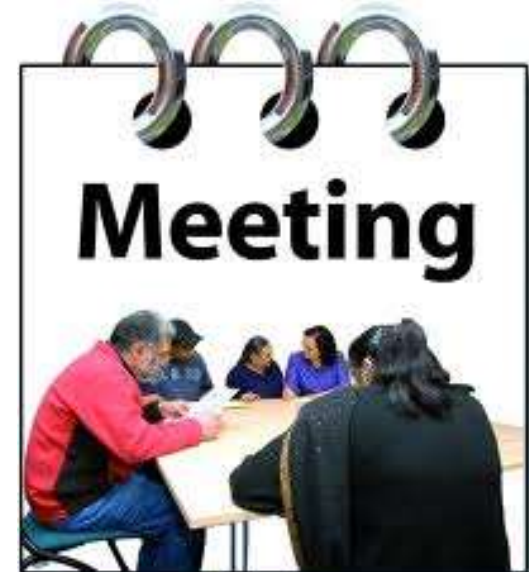## Monitor Risk

TOOLS&TECHNIQUES

2. <u>Risk Audits</u>

Risk audits examine and document the effectiveness of risk responses in dealing with identified risks and their root causes, as well as the effectiveness of the risk management process. Risk audits are carried out during the entire life of the project by risk auditors. Risk auditors are not typically project team members and are expertly trained in audit techniques and risk assessment. These audits are specifically interested in looking at the implementation and the effective use of risk strategies.

3. <u>Meetings</u>

Project risk management should be an agenda item during periodic status meetings. Frequent discussions about risk make it more likely that project team will identify risks and opportunities.

Project Risk Management

Monitor Risk

OUTPUTS

Work Performance Information	• Work performance information collected during this process provides a mechanism to communicate and support project decision making.
Change Request	• Implementing contingency plans and workarounds sometimes results in change request. Request could be for preventive or corrective actions.
Project Management Plan Updates	• If any change request is approved, components of the project management plan may be updated. Such as the risk management plan, cost management, schedule, procurement management plans, etc.
Project Documents Updates	• Project documents that are updated during this process include issue log, lesson learned register, risk register, risk report etc
Organizational Process Assets Updates	• The OPA that are updated during this process are: risk breakdown structure, lesson learned from current project risk management activities, etc.

Project Risk Management