

Risk Management

(Module 4 & 5)

Surya · D



Introduction to Project Risk management

Topics covered:

- Need for effective risk management.
- Roles & responsibilities involved.
- Define risk & uncertainty in projects
- Differentiate b/w opportunities & threats.
- Model risk metalinguage to document risks, distinguish b/w cause, event and impact.
- Importance of SWOT analysis & risk management plans.
- challenges in implementing a risk program, qualitative risk analysis, risk exposure & score concept.

Project Risk Management Basics

Risk Management Overview :-

Need for project risk Management :

- Risk is any event that can impact a project.
Eg. communication
- More than 50% projects fail.
- Be aware of impacts.

You should manage
risk (or) risk
will manage you

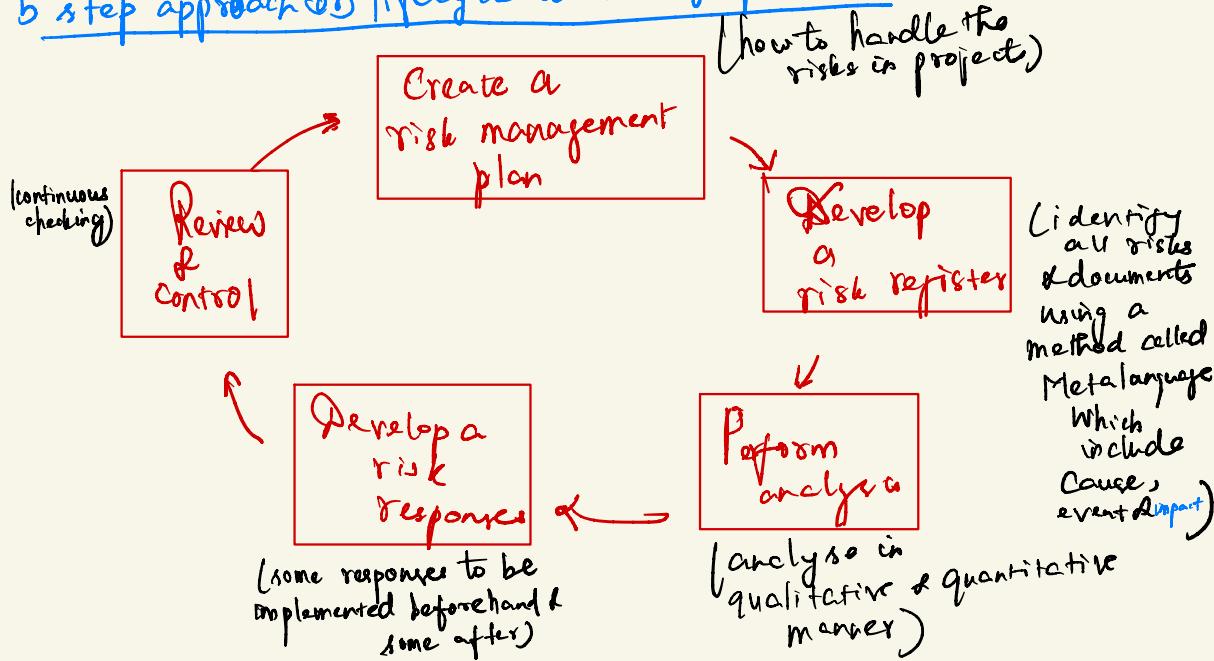
Primary reasons for project failures

- Uncertainties !
 1. Delay in delivery
 2. Cost overruns.
 3. Objectives not achieved
 4. Requirements not satisfied.
 5. Little or no value delivered.

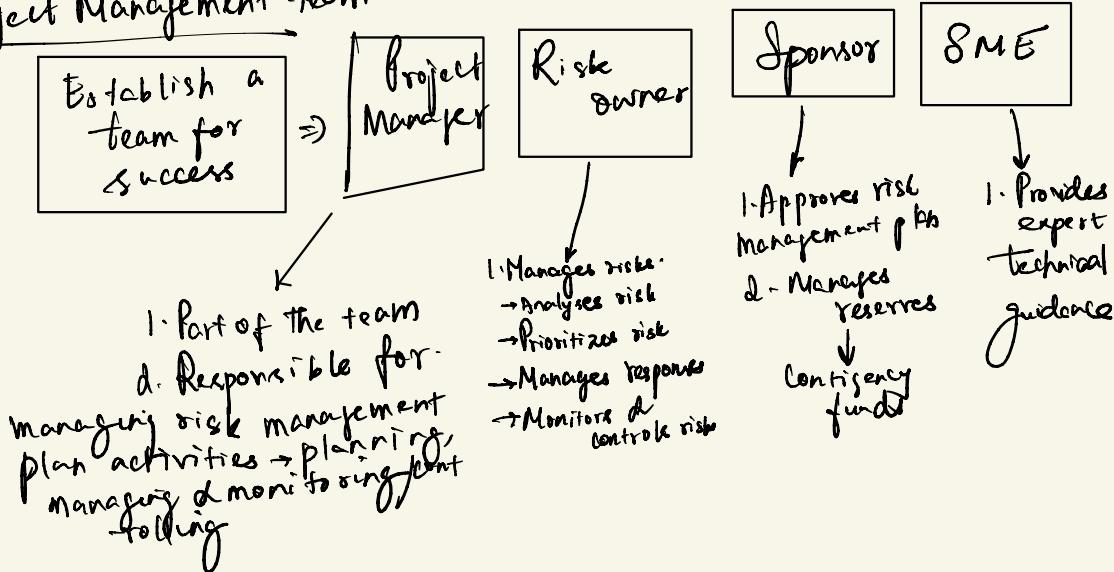
Risk management lifecycle for projects

Effective risk management can increase chances of successful project upto 90%.

5 step approach to lifecycle to manage project risk:



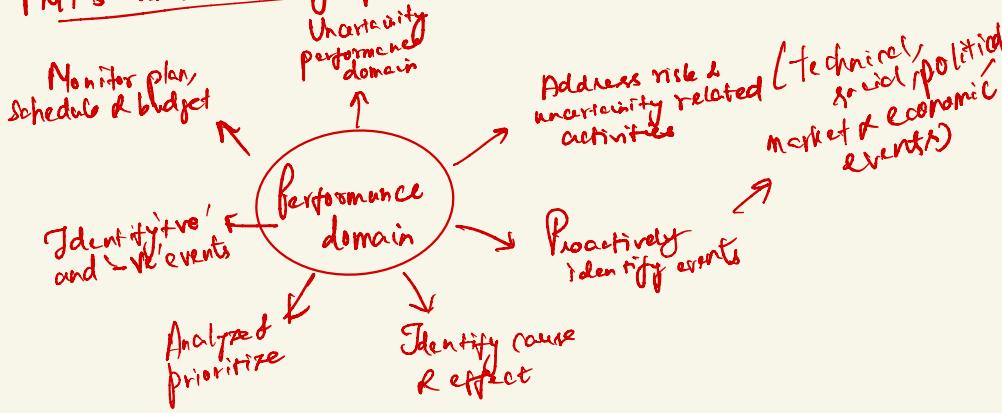
Project Management team



Risk defined :-

Risk: Any potential event that can impact a project positively/negatively.

PMI's uncertainty performance domain



Risk Categories

Threat

- Risk with '−ve' impact
- Causes: Scope creep, schedule delays, Budget overruns
- Identify & plan for threats

Opportunities

- Risk with '+ve' impact
- Ability to increase scope
- Accelerated schedules
- Cost savings
- Look for potential opportunities e.g. TCR, quick delivery to milestone

Risk types

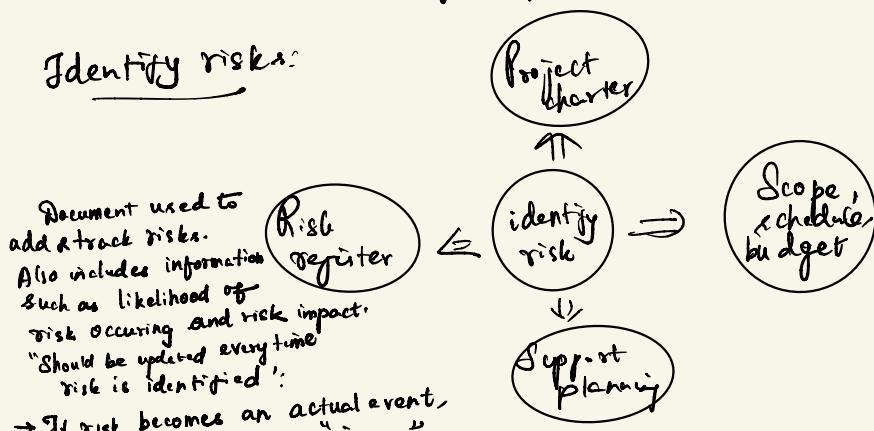
Known risks: If threat (or) opportunities has been identified by the team.

Unknown : Unidentified threat (or) opportunity

Goal for project risk management:

- Identify risks early.
- Develop responses.

Identify risks:



→ If risk becomes an actual event, it is referred to as an "issue".

Issue: Issues are tracked through issue log. A document containing a list of issues along with details required to track the issue i.e. such as issue description, current status, priority.

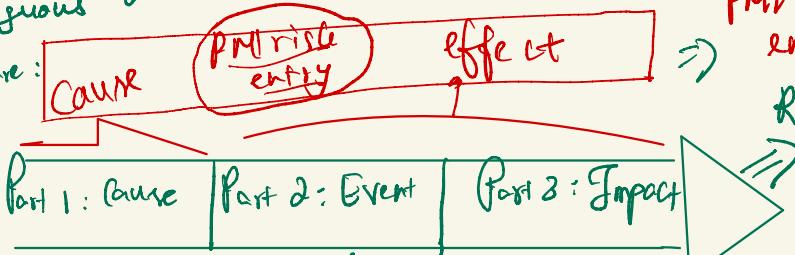
Risk Metalanguage:

Writing risk statements is important → for eg: Whether is unpredictable is not enough. Ambiguous statement can be difficult to decipher

Introducing risk metalanguage:

→ Unambiguous & accurate risk statement

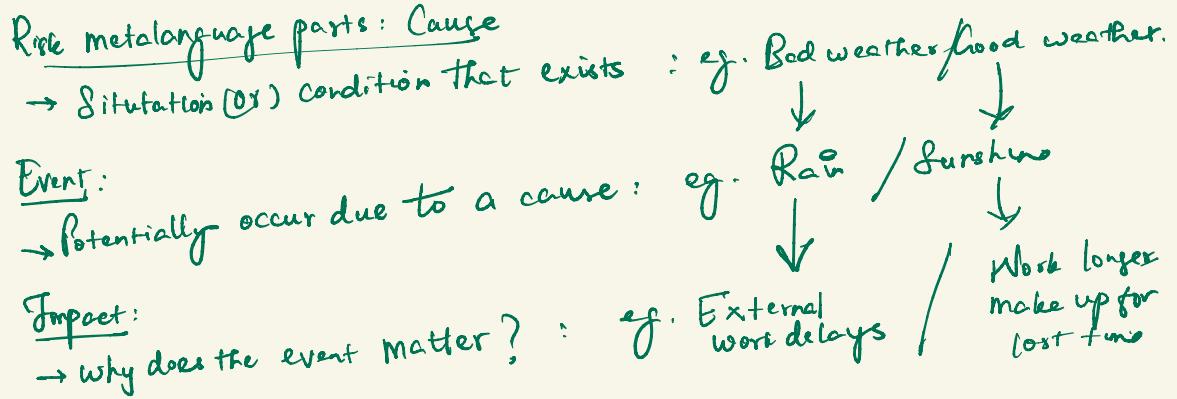
→ Structure:



→ Include risk cause & effect statement

→ Mapping with risk metalanguage structure.

PMI risk entries & risk metalanguage



SWOT Analysis

SWOT - Strength, Weakness, Opportunities & Threats

- A risk identification tool.

Strength: Internally controlled factors that are positive

Weakness: Internally controlled factors that are negative

Opportunities: result from existing strengths, and document external events that may occur as a result.

Threats: result from existing weaknesses, and document external events that may occur as a result.

Post SWOT: Complete risk register

Define the impact

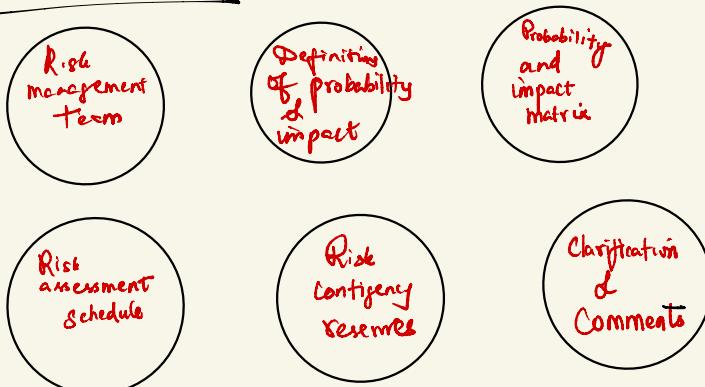
Assess probability × impact = risk score.

Risk management planning

Risk Management plan :

- Describes risk management activities (a structure on how risks are handled)
- Provides instructions & roadmap

Sectors of a risk management plan



Risk Management Team	Defining probability & impact ratings	Probability & impact matrix	Risk assessment schedule	Risk contingency reserves	Clarification & comments
Roles & responsibilities → Project manager → Risk owner → SME → Sponsor → other stakeholders	Ratings used to score risks → Btw 1-5 or screenshot below → probability score x impact score → Risk score → R.s, more monitoring	→ Risk score & actions → Define prob & impact matrix → Risk & core range along with potential outcomes (standard template from PMI e.g.) → Schedules reflected in communications plan	→ Document risk review schedule → Include status meeting requirement, status reporting requirements, and management reporting requirements → Schedules reflected in communications plan	→ funds to support known risks → How reserves are maintained & distributed → R.M.P. shares amount & process → they do not control reserves (funds) → Management reserves → Funds to support unknown risks	→ Optional section → References, policies, links etc. → That impact R.M.P. → Risk Breakdown Structure → Lessons learned → (Risk breakdown structure is a list of potential issues that may impact projects broken out by category)

Qualitative method

Probability score	Impact score
5: 80-90% chance of occurrence	5: Near 100% chance of overall project failure
4: 60-79% chance of occurrence	4: Likely to impact all three constraints
3: 40-59% chance of occurrence	3: Likely to impact two of three constraints
2: 20-39% chance of occurrence	2: Likely to impact one of three constraints
1: 1-19% chance of occurrence	1: Minimal impact on three constraints

Risk Score	Risk Management Plan
20-25 High Urgent List	<ul style="list-style-type: none"> Assign Risk Owner Review Risk Weekly Include on Status Reports
10-19 Moderate	<ul style="list-style-type: none"> Assign Risk Owner Review Risk Every Two Weeks Include on Status Reports as Required
1-9 Low Watch List	<ul style="list-style-type: none"> Assign Risk Owner Review Risk Monthly

Category	Risk Causes
Resources	<ul style="list-style-type: none"> Skills Capacity Commitment Costs Competing Priorities
Finance	<ul style="list-style-type: none"> Estimation Currency fluctuations Efficiency
Communications	<ul style="list-style-type: none"> Virtual teams Time zones Language

Customer & stakeholder interaction

(look into the pdf)

Challenges:

- Uncertainty (solid awareness of issues, events, paths, solutions is not known)
- Unambiguity (unclear risks)
- Complexity (difficulty in managing human/system behaviours)
- Volatility (fast paced being proactive / not reactive)
- Flexibility (gather credible information & prepare for multiple outcomes)

Risk appetite:

"Risk(s) Reward."

- degree of uncertainty an organization is willing to accept in anticipation of reward
- If budget is constrained, appetite should be low.
- If willing to stretch budget → scope can be explored to achieve a valued outcome
(other criteria)

Risk Thresholds:

- measure of acceptable variation around an objective that reflects the risk appetite of organization & stakeholders.
- PMI is relatively rigid in assessing project success
- If a project approved budget is \$100,000 and if final costs are \$100,001 → This is a failure
- Account for thresholds like 5% \Rightarrow 95,000 to 105,000
- If final budget is in between then it is a success.

Risk register

- List of risks particular to a project
- Document used to add and track risks
- Uses risk meta language
- Should be updated regularly
- Should have likelihood of risk occurring, impact, risk score.

Common template

Project name, Date, version should be there

#	Cause	Event	Impact	Risk owner	Category (Cost)	Prob risk rating	Impact risk rating	Risk score	Trigger	Response

Unique identification number

risk meta language
(cause, event, impact)

early warning system

Total risk score =

5 : High
4 : High to moderate
3 : Moderate
2 : Moderate to low
1 : Low

What is the preventive action?
① Precautionary

Risk trigger → an event (or) condition that indicates a risk is about to occur or has occurred

Risk threshold → level of risk an organization is willing to accept

Risk owner,
Get some support,
Learn

Respond & monitor risk

Responding to Risk:

- Risk response categories
- Responses to threats or opportunities

Response strategies

Eight distinct response strategies =>

Risk Type	Number of response strategies
Threat	3
Opportunity	3
Any type of risk	2

- Response strategy is tied to risk metalinguage
- Strategies are dependent upon whether or not the team can control the cause of risk.
- If the cause can be controlled, certain strategies are appropriate.
- If not, other strategies are required.

Threats of response strategies - 3

1. Avoid risk	2. Transfer risk	3. Mitigate risk
<ul style="list-style-type: none"> → Avoid a cause that can be controlled. → example: identify & control causes such as <ul style="list-style-type: none"> * An ineffective team member * Lack of training * Manual process 	<ul style="list-style-type: none"> → Third party to manage threats. (They are accountable) → used when project team does not have expertise → e.g.: Life insurance (or) Contract L&E 	<ul style="list-style-type: none"> → No control over cause → Reduce probability & impact eg. → Planning indoor work in the event of rain → Developing workarounds to reduce the impact of new regulatory guidance

↓
Avoid risk when cause can be controlled

Transfer risk when you do not have expertise

Mitigate risk when cause cannot be controlled

Opportunities	Exploiting (or) Taking advantage of an opportunity	Sharing the opportunity	Enhancing the impact of opportunity		
Exploit	Share	Balance			
<ul style="list-style-type: none"> → where cause can be controlled. <u>example:</u> → leverage a motivated team member → leverage a highly trained team 	<ul style="list-style-type: none"> → Make third party accountable if: <ul style="list-style-type: none"> → combining orders to achieve a goal → sharing expertise to achieve a mutual goal 	<ul style="list-style-type: none"> → No control over the risk cause → increase the probability of opportunity occurring Impact of the opportunity clearly (or) increase both prob & impact of opportunity occurring 			
<u>Both threats & opportunities</u>					
<u>Acceptance:</u>	<h3>Acceptance</h3> <ul style="list-style-type: none"> Scenario 1: Risk probability and impact are low <ul style="list-style-type: none"> Accept that the risk might occur Respond Scenario 2: Risk probability and impact are not clear <ul style="list-style-type: none"> No clear response Reassessment for high probability and impact 				
<p><u>Escalation:</u> To gain high level approval</p> <ul style="list-style-type: none"> → Used if a response is controversial → requires additional funding (or) resources 					
<u>Expert views</u>	<ul style="list-style-type: none"> → Opportunity (or) threat? → Cause, event and impact → Probability of impact → Transfer negative risk 				
	<ul style="list-style-type: none"> → Share the risk. → Accept minimal risk → Respond & reevaluate major risk 				
	<ul style="list-style-type: none"> → Frequent team syncs → Monitor risk → Risk owners & SME responsibilities → Training sessions 				

Risk report Template

Risk Report Template and Instructions

Project Name: Project Manager: Date:	Provide a brief description of the project and purpose.												
Project Purpose:	Provide a breakout of urgent negative risks. Urgent risks are normally those scoring 16 or higher. Do not include every risk. Use a table as follows:												
Urgent Risk List: Threats	<table border="1"> <thead> <tr> <th>Risk (Cause-Event-Impact)</th> <th>Response</th> <th>Risk Score</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </tbody> </table>	Risk (Cause-Event-Impact)	Response	Risk Score									
Risk (Cause-Event-Impact)	Response	Risk Score											
Urgent Risk List:	List urgent positive risks as you did for negative risks.												

→ Important

only urgent risky needs to be updated in report

Urgent Risk List: Opportunities	List urgent positive risks as you did for negative risks.
New Risks Identified Since last Report:	List any new risks identified since last report that are classified as urgent.
Project Risk Exposure:	Show graphically how overall risk exposure is increasing or decreasing:
Help Needed:	What support to manage risk is required? <ul style="list-style-type: none">Additional contingency reservesResponse approval

A great tool to determine how well your risk management plan is working
↑ If exposure is low, then it is wonderful job
↓ In mitigating risks

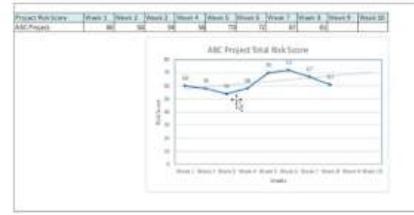
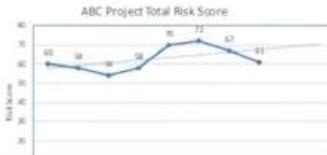
Risk Exposure: An aggregate measure of the potential impact of all risks at a given point in a project.

Key Note: The Risk Score for a Threat is a positive number. Risk scores for opportunities are subtracted.

Risk #	Category	Risk Score
1	Threat	16
2	Opportunity	-9
3	Threat	12

Risk Exposure: 19

Project Risk Score	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
ABC Project	60	58	54	56	70	72	67	62	62	62



↓ helps in reviewing if the risk optimization is working as the project proceeds.

Risk Reviews : Risk reassessment.

- Importance of timely risk response
- Risk Audit characteristics
- Residual & secondary risks.
- Issue log contents

Importance of timely risk response:

- Impacts project success (Schedule, budget, time etc)
- Implement response

Monitoring risk for effective responses

- Update risk register regularly (risk score changes)
- Perform risk reassessment (includes risk register updates, risk audits, documenting secondary & residual risks, managing issue logs)

Risk audits :- | Integral part of overall risk management plan Determines the effectiveness of R.M.P & strategy

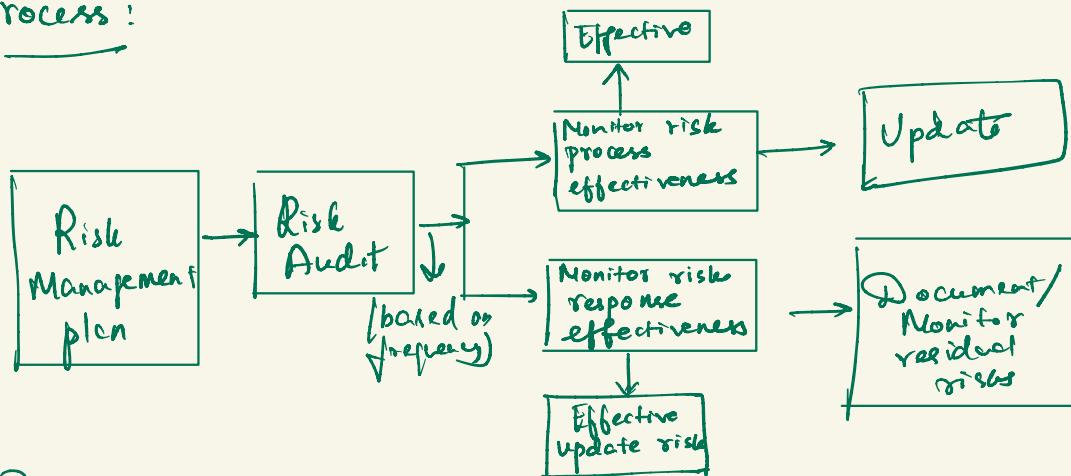
Objective

- Review & Determining risk Management plan effectiveness.
- Review response strategy effectiveness. to make adjustments
- Always document the audit & relevant conclusions.

Frequency :

- Based on the needs of the project
- Scope is a key factor
- Medium/Large projects → more frequent risk audit than small ones.
- Risk audit frequency and processes defined in Risk management plan

Process :



Residual risks :

- Risk in an altered state (even after a response to a risk.) → Underlying risk added to an existing risk
- eg:

Risk occurrence	Response
Heavy snowfall in parking lot	Hire commercial snow removal company

Residual risk	Response
Ice under snow	Pre-ice the parking lot.
- Added to risk register when discovered.

Secondary risks :

- High risks may require multiple risk response options
- If primary response doesn't yield result, a fallback response is initiated
- New risk generated from the primary (or) fallback response is called secondary risk

Primary risk
Lack of safety inventory may lead to material shortages

Response
Increase level of safety stock

Secondary risk
Increased levels of safety stock may exceed storage capacity

Response
Leave additional storage space

⇒ Check if the cost outweighs the benefits of increasing safety stock and/or check for project delays due to material shortages

Issue logs:-

- Risk that occurred is the issue
- Issue log is a document that lists all the issues and tracks them
- Headings :-
 - Issue description
 - Priority (H/N/L)
 - Category (like Operation/Finances)
 - Reported by
 - Assigned to
 - Status
 - Date resolved.
 - Resolution

eg. GIMs

Expert viewpoints : → How to make sure reassessments are done in timely manner

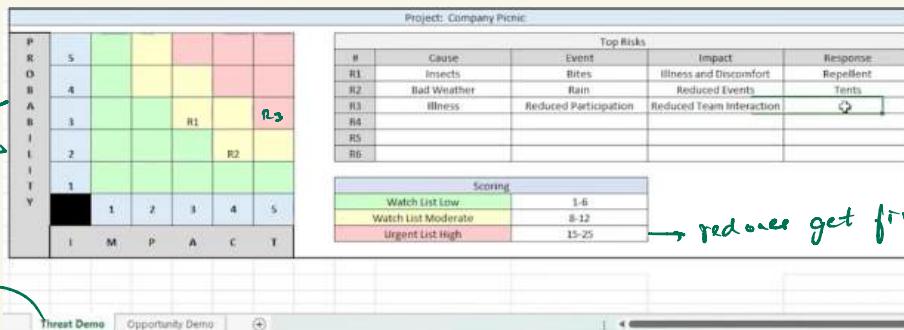
- Risk identified throughout project
- Schedule risk reassessments.
- Ensure task owner & stakeholders commit to schedule

Critical success factor when reassessing risks:

- Right person performs the reassessment
- Change proposal made with subjective/objective criteria
- Make sure you are taking action
- Address updates in status reports
- Pay attention to all risks → first urgent, but also watch list

Risk matrix:

- Risk register often has more information than is needed by all of project stakeholders.
- There may be times when you need to provide risk status to certain key stakeholders
- In this case, risk matrix is the best choice.
- Risk matrix → a visual tool and provides quick status.
- Prioritizes risks visually and primarily used during risk assessment with specific stakeholders.
(prioritizes risk based on likelihood & impact)
- 2D grid. [Probability vs Impact]
- Risk register is used throughout the project and focuses on documentation & response planning. While risk matrix is used to prioritize which risks to be addressed first



Risk management tools:

1. Brainstorming
2. Brainwriting
3. Delphi technique (structured anonymous process involving multiple rounds of questionnaires to gather expert opinions)
4. Interviewing
5. Root cause Analysis
6. Checklist Analysis
7. Assumption Analysis
8. Lessons learned