Project Risk Management

THE IMPORTANCE OF PROJECT RISK MANAGEMENT

- Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives.

- Risk management is often overlooked in projects, but it can help improve project success by helping select good projects, determining project scope, and developing realistic estimates.

NEGATIVE RISK

- A dictionary definition of risk is “the possibility of loss or injury.”

- Negative risk involves understanding potential problems that might occur in the project and how they might impede project success.

- Negative risk management is like a form of insurance; it is an investment.

RISK CAN BE POSITIVE

- Positive risks are risks that result in good things happening; sometimes called opportunities.
- A general definition of project **risk** is an uncertainty that can have a negative or positive effect on meeting project objectives.
- The goal of project risk management is to minimize potential negative risks while maximizing potential positive risks.

RISK UTILITY

- ***Risk utility*** or ***Risk tolerance*** is the amount of satisfaction or pleasure received from a potential payoff.
  - Utility rises at a decreasing rate for people who are risk-averse.
  - Those who are risk-seeking have a higher tolerance for risk and their satisfaction increases when more payoff is at stake.
  - The risk-neutral approach achieves a balance between risk and payoff.

PROJECT RISK MANAGEMENT PROCESSES

1. **Risk management planning**: Deciding how to approach and plan the risk management activities for the project.

2. **Risk identification**: Determining which risks are likely to affect a project and documenting the characteristics of each.

3. **Qualitative risk analysis**: Prioritizing risks based on their probability and impact of occurrence.

PROJECT RISK MANAGEMENT PROCESSES

4. **Quantitative risk analysis**: Numerically estimating the effects of risks on project objectives.
5. **Risk response planning**: Taking steps to enhance opportunities and reduce threats to meeting project objectives.
6. **Risk monitoring and control**: Monitoring identified and residual risks, identifying new risks, carrying out risk response plans, and evaluating the effectiveness of risk strategies throughout the life of the project.

1. Risk Management Planning

- The main output of risk management planning is a **risk management plan**
  – A plan that documents the procedures for managing risk throughout a project.

- The project team should review project documents and understand the organization’s and the sponsor’s approaches to risk.

- The level of detail will vary with the needs of the project.

Topics Addressed in a Risk Management Plan

- Methodology : Organizations can take several approaches to assess risks—quantitative, qualitative, semi-quantitative, asset-based, vulnerability-based, or threat-based. Each methodology can evaluate an organization’s risk posture, but they all require tradeoffs.
- Roles and responsibilities
- Budget and schedule
- Risk categories
- Risk probability and impact
- Risk documentation

CONTINGENCY AND FALLBACK PLANS, CONTINGENCY RESERVES

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- ***Contingency plans*** are predefined actions that the project team will take if an identified risk event occurs.

- ***Fallback plans*** are developed for risks that have a high impact on meeting project objectives, and are put into effect if attempts to reduce the risk are not effective.

- ***Contingency reserves*** *or* ***allowances*** are provisions held by the project sponsor or organization to reduce the risk of cost or schedule overruns to an acceptable level.

Exam Hint !!

The Standish Group developed an IT success potential scoring sheet based on potential risks.

Success Criterion	Relative Importance
User Involvement	19
Executive Management support	16
Clear Statement of Requirements	15
Proper Planning	11
Realistic Expectations	10
Smaller Project Milestones	9
Competent Staff	8
Ownership	6
Clear Visions and Objectives	3
Hard-Working, Focused Staff	3
Total	**100**

BROAD CATEGORIES OF RISK

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- **Market risk** refers to the potential for losses due to changes in market conditions such as interest rates, exchange rates, and asset prices. It encompasses the uncertainty of returns stemming from macroeconomic factors and investor behavior.

- **Financial risk** pertains to the potential for losses arising from a company's financing decisions, including its use of debt, leverage, and liquidity management. It encompasses the danger of insolvency or inability to meet financial obligations.

- **Technology risk** refers to the possibility of losses resulting from technological failures, cybersecurity breaches. It involves the vulnerability of systems, infrastructure, and data to disruptions or malicious attacks.

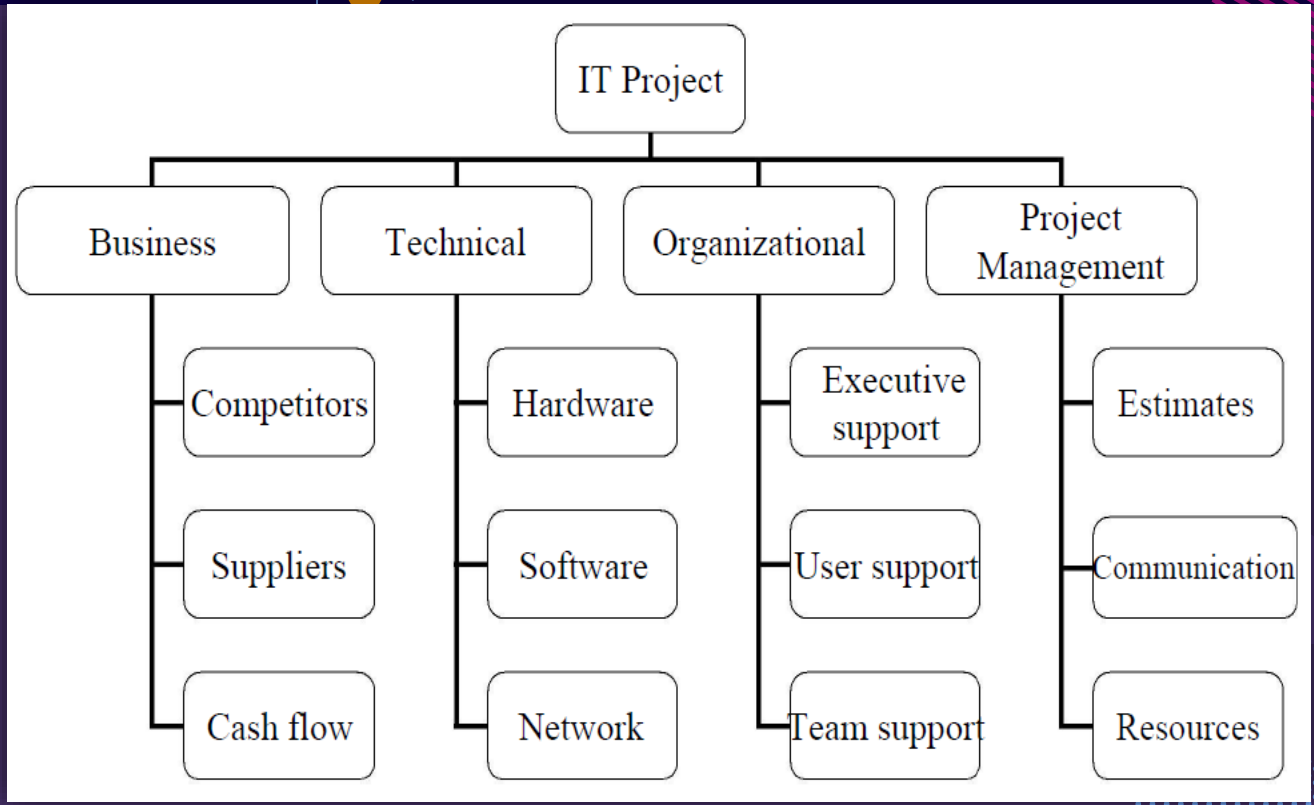
BROAD CATEGORIES OF RISK

- **People risk** relates to the potential for losses due to human factors such as employee turnover, skill shortages, or misconduct. It encompasses the impact of organizational culture, leadership, and talent management on business operations.

- **Structure/process** risk refers to the potential for losses resulting from weaknesses or inefficiencies in organizational structures, operational processes, or governance frameworks. It involves the susceptibility to errors, delays, or breakdowns in executing business activities.

RISK BREAKDOWN STRUCTURE

A **risk breakdown structure** is a hierarchy of potential risk categories for a project.



Exam Hint!!!

Knowledge Area	Risk Conditions
Integration	Inadequate planning; poor resource allocation; poor integration management; lack of post-project review
Scope	Poor definition of scope or work packages; incomplete definition of quality requirements; inadequate scope control
Time	Errors in estimating time or resource availability; poor allocation and management of float; early release of competitive products
Cost	Estimating errors; inadequate productivity, cost, change, or contingency control; poor maintenance, security, purchasing, etc.
Quality	Poor attitude toward quality; substandard design/materials/workmanship; inadequate quality assurance program
Human Resources	Poor conflict management; poor project organization and definition of responsibilities; absence of leadership
Communications	Carelessness in planning or communicating; lack of consultation with key stakeholders
Risk	Ignoring risk; unclear assignment of risk; poor insurance management
Procurement	Unenforceable conditions or contract clauses; adversarial relations

2. Risk Identification

Risk identification is the process of understanding what potential events might hurt or enhance a particular project.

Risk identification tools and techniques include:

- Brainstorming
- The Delphi Method
- Interviewing
- SWOT analysis

The Delphi method

- The Delphi method is a process used to arrive at a group opinion or decision by surveying a panel of experts.
- Experts respond to several rounds of questionnaires, and the responses are aggregated and shared with the group after each round.
- The experts can adjust their answers each round, based on how they interpret the “group response” provided to them. The ultimate result is meant to be a true consensus of what the group thinks.

3. Qualitative Risk Analysis

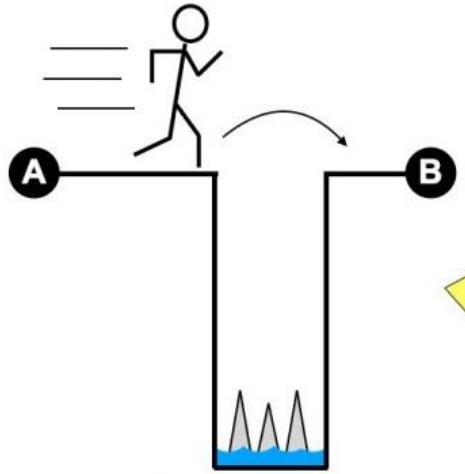
Assess the likelihood and impact of identified risks to determine their magnitude and priority.

Risk quantification tools and techniques include:
- Probability/impact matrixes
- The Top Ten Risk Item Tracking
- Expert judgment

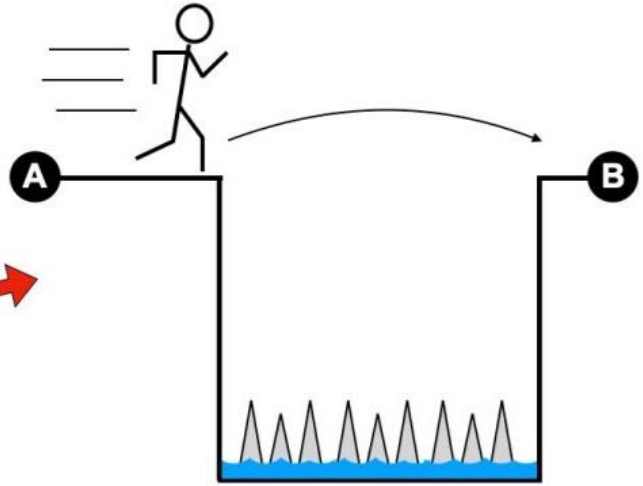
Probability/Impact matrixes

A Probability and Impact Matrix is a tool used in risk management to assess and prioritize risks within a project, business, or other contexts. It helps stakeholders evaluate the potential consequences (impact) of a risk and the likelihood (probability) of that risk occurring.

1. Probability: This measures the likelihood or chance that a specific risk event will occur. It's often expressed as a percentage or a qualitative assessment (e.g., low, medium, high).
2. Impact: This measures the severity of the consequences or effects if the risk event were to occur. Impact can be assessed on various dimensions, such as financial, operational, reputational, or safety. It's also often expressed qualitatively (e.g., low, medium, high).

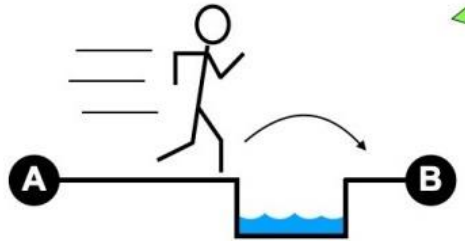


Low Probability, High Impact Risk

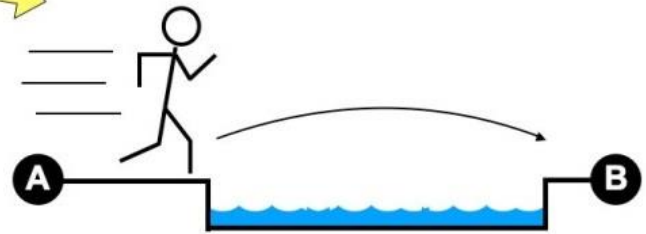


High Probability, High Impact Risk

Risk Assessment Matrix				
Impact of Risk (Consequence)	Major Impact	Medium	High	Extreme
	Moderate Impact	Medium	Medium	High
	Minor Impact	Low	Medium	Medium
Risk Exposure = Impact x Probability		Unlikely (0-33%)	Moderately Likely (33%-66%)	Very Likely (66%+)
		Probability of Risk (Likelihood)		



Low Probability, Low Impact Risk



High Probability, Low Impact Risk

Top Ten Risk Item Tracking

- **Top Ten Risk Item Tracking** is a qualitative risk analysis tool that helps to identify risks and maintain an awareness of risks throughout the life of a project.

- Establish a periodic review of the top ten project risk items.

- List the current ranking, previous ranking, number of times the risk appears on the list over a period of time, and a summary of progress made in resolving the risk item.

	Monthly Ranking			
Risk Item	**This Month**	**Last Month**	**Number of Months**	**Risk Resolution Progress**
Inadequate planning	1	2	4	Working on revising the entire project plan
Poor definition of scope	2	3	3	Holding meetings with project customer and sponsor to clarify scope
Absence of leadership	3	1	2	Just assigned a new project manager to lead the project after old one quit
Poor cost estimates	4	4	3	Revising cost estimates
Poor time estimates	5	5	3	Revising schedule estimates

Expert Judgment

- Many organizations rely on the intuitive feelings and past experience of experts to help identify potential project risks.

- Experts can categorize risks as high, medium, or low with or without more sophisticated techniques.

- Can also help create and monitor a **watch list**, a list of risks that are low priority, but are still identified as potential risks.

4. Quantitative Risk Analysis

- Often follows qualitative risk analysis, but both can be done together.

- Large, complex projects involving leading edge technologies often require extensive quantitative risk analysis.

Main techniques include:
- Decision tree analysis
- Simulation
- Sensitivity analysis

Decision Trees and Expected Monetary Value (EMV)

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- A **decision tree** is a diagramming analysis technique used to help select the best course of action in situations in which future outcomes are uncertain.

- **Estimated monetary value (EMV)** is the product of a risk event probability and the risk event's monetary value.

- You can draw a decision tree to help find the EMV.
Click Here

Exam Hint !!

5. Risk response planning

- **Risk Avoidance:**
This strategy involves taking steps to eliminate the risk entirely, often by choosing not to engage in the activity that presents the risk.
- **Risk Acceptance:**
This approach acknowledges the presence of a risk and consciously decides to accept the potential consequences, usually because the cost of mitigating the risk is higher than the cost of the risk itself.
- **Risk Mitigation:**
This involves taking measures to reduce the impact or likelihood of the risk, such as implementing safety protocols or backup systems.

6. Risk monitoring and control

Risk monitoring and control is a continuous process in risk management that involves tracking identified risks, monitoring residual risks, identifying new risks, and evaluating the effectiveness of risk response strategies.

This ensures that risks are properly managed throughout the lifecycle of a project or operation, allowing for timely adjustments to risk management plans as needed to address any changes or new developments.

SUMMARY

Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives.

Main processes include:

- Risk management planning
- Risk identification
- Qualitative risk analysis
- Quantitative risk analysis
- Risk response planning
- Risk monitoring and control

Thanks!