IIT ROORKEE

**NPTEL ONLINE
CERTIFICATION COURSE**

Project Management for Managers
Lec – 21
Risk Management (Control & Documentation)

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4. Control & Documentation

Help managers classify and codify risks, responses, and outcomes.

Customer		Project name	
Budget No		Project team	
Date of Most Recent Evaluation			
Risk Description			
Risk Assessment		Risk Factor	
Discussion			
Risk Reduction Plan		Owner	
Timeframe to net assessment			
Expected outcome			

Risk Management Report Form

Control & Documentation

Change management report system answers

- What?: Source of risk

- Who?: Assign a team member

- When?:Time frame to mitigate the risk

- Why?: Find reasons/causes of the risk

- How?: Plan to abate the risk. Charting of method for closing a particular "risk window".? Do they seem reasonable or far-fetched?. Too expensive in terms of money of time.

Project Risk Analysis & Management (PRAM): An integrated Approach

The Eurasian Association for PM has developed an integrated program of risk management, based on efforts to extend <u>risk management to cover a project's entire life cycle</u>.

This program, known as Project Risk Analysis and Management (PRAM).
PRAM: Is <u>logical</u> and <u>sequential</u> method for analyzing and addressing risk.
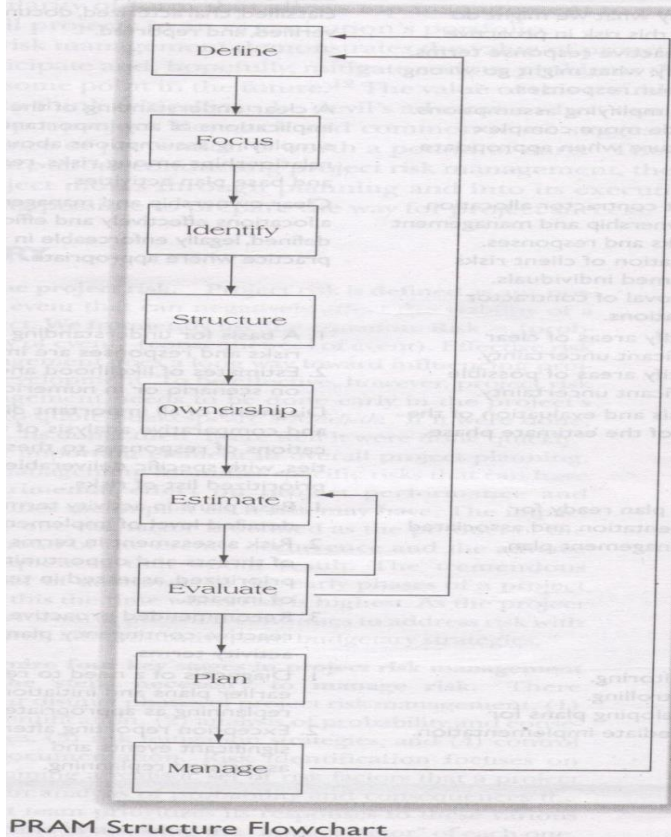
<u>Key Features of PRAM</u>

Risk management follows a **life cycle**

Risk management **strategy changes** over the project life cycle

Synthesized, coherent approach, tools of RM to be used as they are needed.

Nine Phases of Risk Assessment

PRAM Structure Flowchart

Define	**Project is well defined, deliverables, statement of work, project scope**
Focus	Begin to plan the risk management process as a project in its own right. Apply best methods for addressing risk
Identify	Sources of risk and their responses, prioritize risks
Structure	Find out commonalities across sources of risks , so that it can be handled separately.
Clarify ownership of risks	Whether project origination or clients risks
Estimate	The impact of risk and solution proposed
Evaluate	Critically evaluate the results of the estimate phase to determine the most likely plan for realizing potential risks
Plan	Produce risk mgt plan that proactively offers risk mitigation straggles
Manage	Respond to any variance in theses plans

A Generic Risk Management Process (RMP) Following the PRAM Methodology

Phases	Purposes	Deliverables
Define	Consolidate relevant existing information about the project.	A clear, unambiguous, shared understanding of all key aspects of the project documented, verified, and reported.
Focus	1. Scope and provide a strategic plan for the RMP 2. Plan the RMP at an operational level.	A clear, unambiguous, shared understanding of all relevant key aspects of the RMP, documented, verified, and reported.
Identify	1. Identify where risk might arise. 2. Identify what we might do about this risk in proactive and reactive response terms. 3. Identify what might go wrong with our responses.	All key risks and responses identified; both threats and opportunities classified, characterized, documented, verified, and reported.
Structure	1. Test simplifying assumptions. 2. Provide more complex structure when appropriate.	A clear understanding of the implications of any important simplifying assumptions about relationships among risks, responses, and base plan activities.
Ownership	1. Client contractor allocation of ownership and management of risks and responses. 2. Allocation of client risks to named individuals. 3. Approval of contractor allocations.	Clear ownership and management allocations effectively and efficiently defined, legally enforceable in practice where appropriate.

# A Generic Risk Management Process (RMP) Following the PRAM Methodology

Phases	Purposes	Deliverables
Estimate	1. Identify areas of clear significant uncertainty. 2. Identify areas of possible significant uncertainty.	1. A basis for understanding which risks and responses are important. 2. Estimates of likelihood and impact on scenario or in numeric terms.
Evaluate	Synthesis and evaluation of the results of the estimate phase.	Diagnosis of all important difficulties and comparative analysis of the implications of responses to these difficulties, with specific deliverables like a prioritized list of risks.
Plan	Project plan ready for implementation and associated risk management plan.	1. Base plans in activity terms at the detailed level of implementation. 2. Risk assessment in terms of threats and opportunities prioritized, assessed in terms of impact. 3. Recommended proactive and reactive contingency plans in activity terms.
Manage	1. Monitoring. 2. Controlling. 3. Developing plans for immediate implementation.	1. Diagnosis of a need to revisit earlier plans and initiation of replanning as appropriate. 2. Exception reporting after significant events and associated replanning.

Stand- Alone Risk Analysis
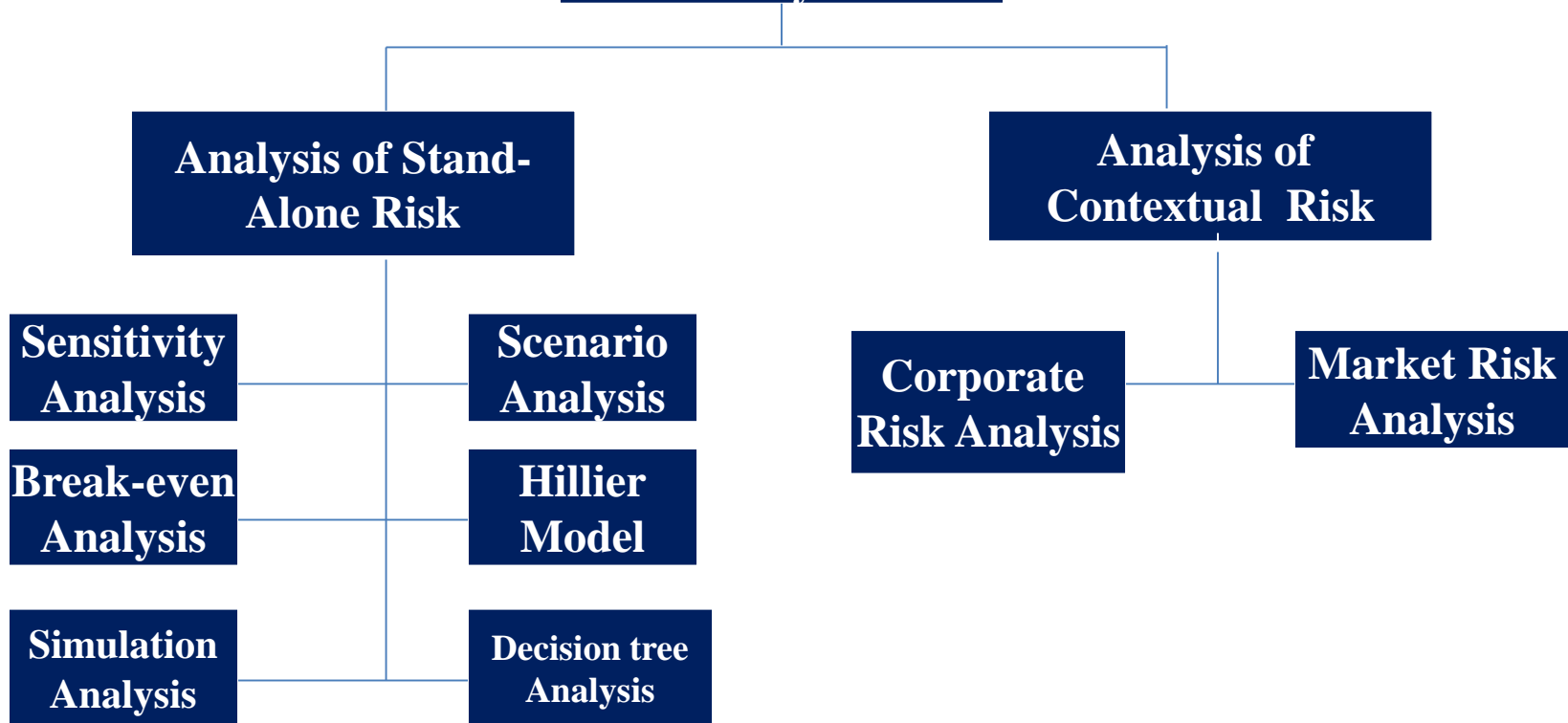
Perspectives on Risk

Standalone risk: For that project at hand only.

Firm risk: Risk of a project in context of firm.

Market risk :Risk of a project in context of market.

Sources of Risk

- Project specific risk: **Earning** and **cash** flows down (estimation **error** or quality of management)

- Competitive risk: Earning and cash flows down (unanticipated action of **competitors**)

- Industry-specific risk: Unexpected **technological** development and **regulatory** changes that are specific to industry to which the project belongs.

- Market risk: Changes in **macroeconomic** factors (GDP, Interest rates, inflation)

- International risk : In case of foreign projects (**exchange** rates)

Measures of Risk

Risk refers to variability. It is a complex and multi-faceted phenomenon. A variety of measures have been used to capture different facets of risk. The more important ones are:

- Range

- Standard deviation

- Coefficient of variation

- Semi - variance

NPV	Probability
200	0.3
600	0.5
900	0.2

What is the final NPV???

Find Range???

Find Standard Deviation???

Find risk?

NPV	Probability
200	0.3
600	0.5
900	0.2

What is the final NPV: 200*.3+600*.5+900*.2 = 540

Find Range: 900-200 = 700

Find Standard Deviation =

$$\{.3 (200-540)^2 + .5 (600-540)^2 + .2(900-540)^2 \}^{1\backslash 2} = 249.8$$

Variance = (249.8) * (249.8)   = 62400

Coefficient of variation (CV) : SD is not adjusted for scale.

NPV = 10 and SD 4 would be more risky than
NPV = 1 and SD 2.

CV= SD/ Expected value = 249.8/540 = 0.46

Semi variance = Another problem with SD is, it considers positive and negative variations, but we have to worry about only negative variations.
$$SV= \{0.3 (200-540)^2\}^{1\backslash 2}$$
$$= 186$$