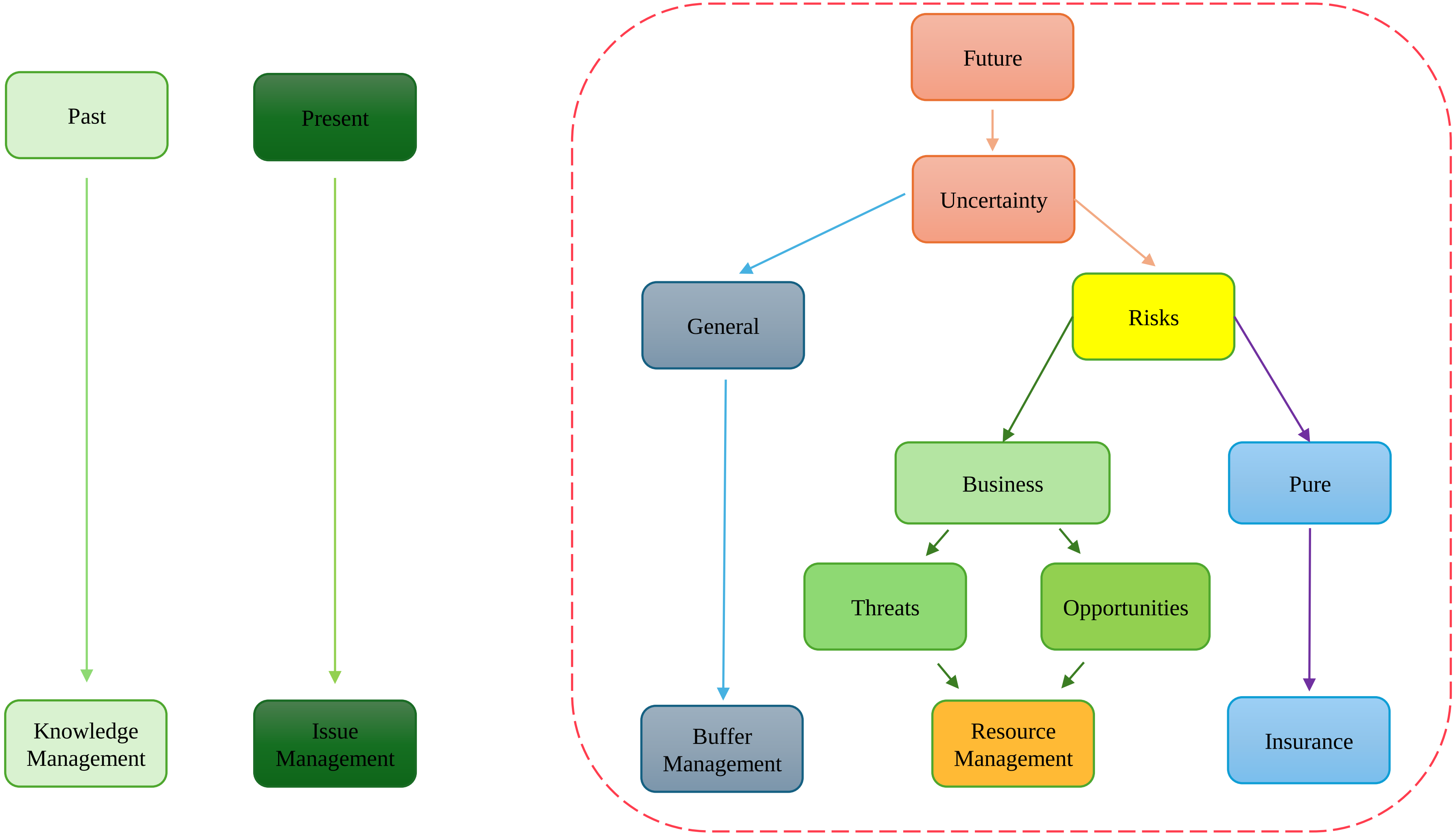
Color Coded Process Groups:
- Initiating
- Planning
- Executing
- M&C
- Closing

Plan Risk Management → **Identify Risks** → **Perform Qualitative Risk Analysis** → **Perform Quantitative Risk Analysis** → **Perform Risk Responses** → **Implement Risk Responses** → **Control Risks**

Project Risk Management includes the process of …

conducting risk management **planning, identification, analysis, response planning, response implementation, and monitoring risk** on a project

The Risk Big Picture… Risk is an ***uncertain event*** that has a positive or negative impact on project objectives



10.1 Plan Risk Management (401)

Definition: The process of...

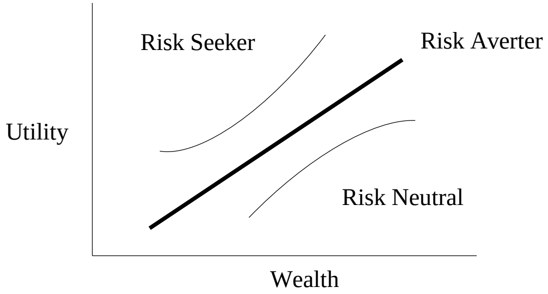
defining **HOW** to conduct risk management activities for a project

INPUT	TOOLS & TECHNIQUES	OUTPUT
▪ **Project Charter** ▪ **Project Management Plan (PMP)** • All approved subsidiary management plans ▪ Project Documents • **Stakeholder Register** ▪ EFFs & OPAs	▪ **Expert Judgment** ▪ Data Analysis • **Stakeholder Analysis** ▪ Meetings	▪ **Risk Management Plan (RMP)** • How risk management activities will be structured and performed • Subsidiary plan of the PMP • All stakeholders have responsibility to identify risk; **the PM is responsible & accountable for risk** • Methodology • Excludes risk identification & risk responses

Utility Function…

- **Used to measure stakeholder risk tolerance**; defines the level or willingness to accept a risk.

- A ***risk-neutral mentality*** does not take action until a risk event is triggered.
- The *risk-averse mentality* takes a very conservative approach to risk.
- A *risk-seeker* is a person who takes on risks in the hope of reward.



Force Majeure…

- **Extraordinary event** or circumstance beyond the control of the parties
- An event described by the legal term act of God (Earthquake, Tornado)
- **Prevents one or both parties from fulfilling their obligations under the contract**
  - i.e. death of one party

Factors of Risk Attitude

Risk Appetite

Degree of uncertainty an entity is **willing to take** on in anticipation of a reward

Risk Tolerance

Degree, amount, or volume of risk an org or individual **will withstand**

Risk Threshold

Level of uncertainty / impact a stakeholder may have a specific interest

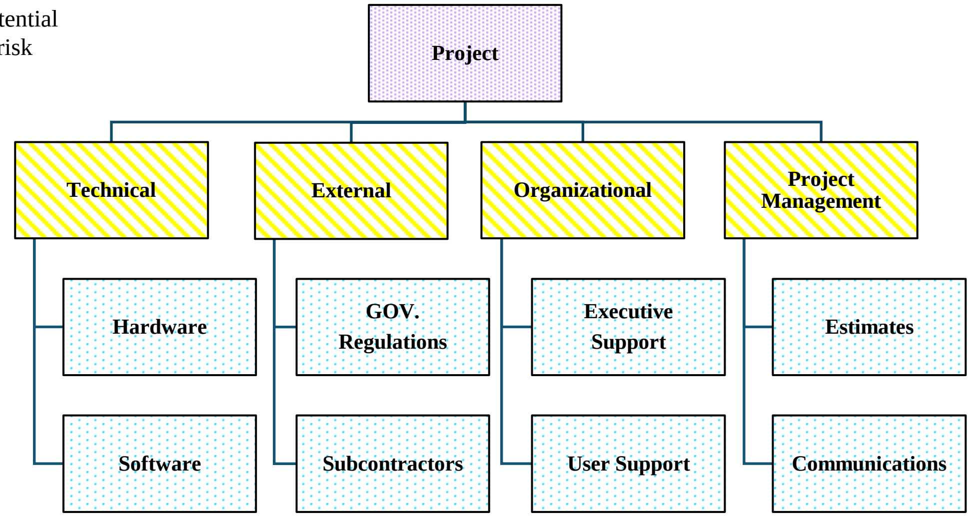
Below that risk threshold, the org **will accept the risk**

Above that risk threshold, the org **will not tolerate the risk**

Tool & Techniques - Analytical Techniques - Plan Risk Management

RBS (Risk Breakdown Structure)

Grouping potential causes of risk



Output - Risk Management Plan - Plan Risk Management

Risk Management should be proactive, consistent throughout the project; **all levels of the org should actively identify and pursue risk management**.
Project risk could exist at the moment the project is initiated.

The Risk Management Plan (RMP) may include some or all the following elements:

Risk strategy	Describes the general approach to managing risk
Methodology	Defines specific approaches, tools, and data sources used to perform risk management
Roles / Responsibilities	Defines lead, support, and risk management team members for each type of activity defined in risk management plan
Funding	Identifies the funds needed to perform activities related to RMP
Timing	Defines WHEN & HOW OFTEN the PRM processes will be performed throughout the project lifecycle
Risk categories	Provides a means of grouping individual risks (risk breakdown structure)
Stakeholder risk appetite	Key stakeholders risk appetite should be expressed as a measurable risk thresholds around each project objective
Definitions of risk probability and impacts	Definitions are specific to the project context and reflect the risk appetite and thresholds of the org and key stakeholders
Probability and impact matrix	Prioritization and descriptive terms (very high-high-medium-low-very low) or numeric values can be used for probability and impact

Color Coded Process Groups:
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Plan Risk Management → **Identify Risks** → Perform Qualitative Risk Analysis → Perform Quantitative Risk Analysis → Perform Risk Responses → Implement Risk Responses → Control Risks

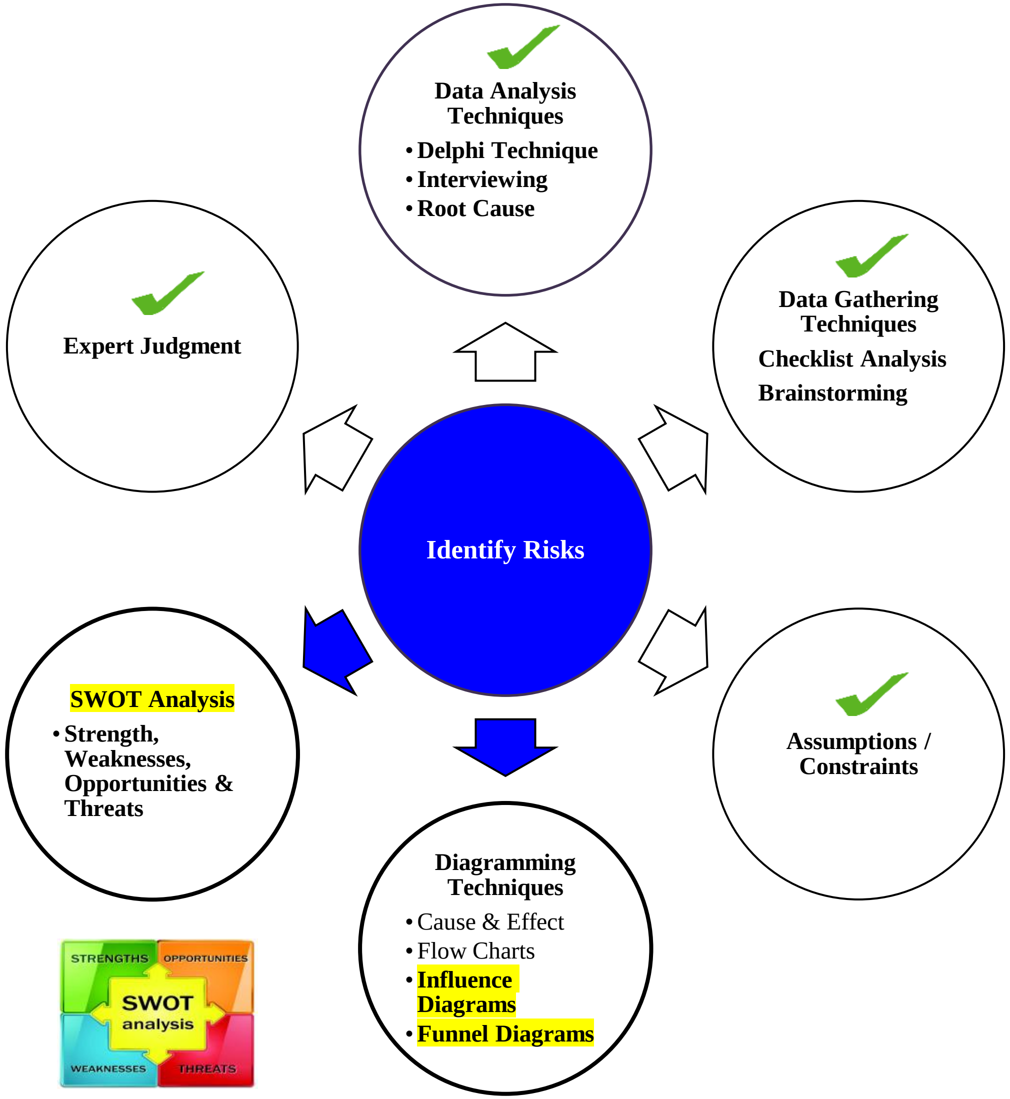
11.2 Identify Risk (409)

Definition: The process of…

identifying individual project risks as well as sources of overall project risk, and documenting their characteristics

INPUT	TOOLS & TECHNIQUES	OUTPUT
▪ **Project Management Plan (PMP)** • Requirements Management Plan • Schedule Management Plan • Quality Management Plan • Resource Management Plan • Risk Management Plan • Scope-Schedule-Cost Baselines ▪ Project Documents • **Assumption / Issue Log** • Cost Estimates • **Duration Estimates** • Lessons Learned Register • Requirements Documentation • Resource Requirements • **Stakeholder Register** ▪ **Agreements** ▪ **Procurement Documentation** ▪ EFFs & OPAs	▪ **Expert Judgment** ▪ Data Gathering • Brainstorming • **Checklists** • **Interviews** ▪ Data Analysis • **Root Cause Analysis** • Assumptions and Constraints • **SWOT Analysis** • Document Analysis ▪ Interpersonal and Team Skills • Facilitation ▪ **Prompt Lists** ▪ Meetings	▪ **Risk Register** • **ALL stakeholders are responsible to identify risks** • Iterative Process • Involve the project team to instill / implant a sense of ownership & responsibility ▪ **Risk Report** ▪ Project Doc updates • **Assumption Log** • Issue Log • Lessons Learned Register

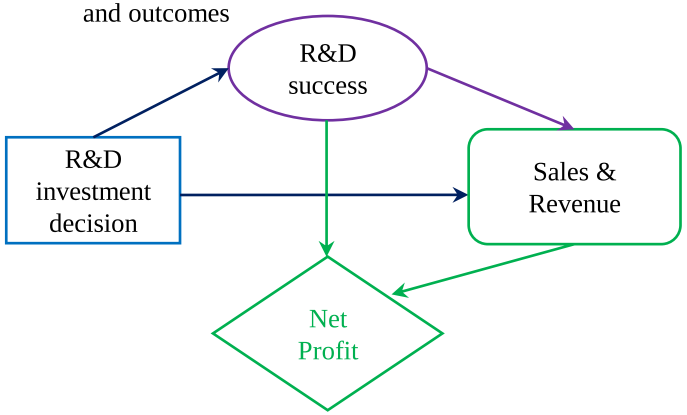
Prompt Lists (T/T)	Predetermined list of risk categories that might give rise to individual project risks that could also act as source of overall project risk
Risk Report (O)	Info on sources of overall project risk, together with summary info on identified individual project risks; quantity, distribution across risk categories, metrics, trends, etc…



Diagramming Techniques

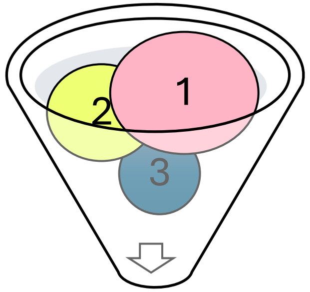
1. **Influence Diagram…**

A ***graphical representation*** **of situations showing casual influences**, time ordering of events, and other relationships amoung variables and outcomes



2. **Funnel Diagram…**

Used to ***visualize the progressive reduction of data*** as it passes from one phase to another



Output - Risk Register (RR) - Identify Risks

- Risk management is being recognized as an integral part of good management practices.
- The purpose of risk management is to proactively establish programs and processes that **support business objectives while protecting the organization's assets** - its employees, property, income and reputation - from loss or harm, at the lowest possible cost.
- Risk register, also known as a **risk log.**
- The risk register serves as a **central repository** for the organization's risk information and allows for the information that results from the risk management process to be suitably sorted, standardized, and merged for relevance to the appropriate level of management.
- RR key function is to provide management, the board, and key stakeholders with significant information on the main risks faced by the organization.
- The risk register also gives the organization's risk management stakeholders a **clear view of the current status of each risk**, at any point in time.
- **Potential Responses are identified in the 'Identify Risk Process'**
- **Risks with low ratings** of probability & impact will not be rated, but will be included on a **'Watch List'** **for future monitoring.**

Example: Risk Register

No.	Rank	Description	Category	Root Cause	**Trigger**	**Potential Responses**	Risk Owner	Probability	Impact	Status
1										
2										
…n										

Trigger Condition - An indicator that a risk event could occur

Risk Symptom - Indicate that a risk event is possibly starting to occur

Output - Risk Register - Identify Risks	
Risk Category	This is where you categorize your risk.
Risk Description	A brief description of the potential risk.
Risk ID	This is a unique identification number used to identify and track the risk in the risk register.
Project Impact	A description of the potential impact on the project as a result of the risk**.**
Likelihood	The estimated likelihood or probability that the risk will occur at some point and become a project issue. This can be qualitative: high, medium, or low; but it can also be quantitative if enough information is available.
Consequence	The potential consequence or impact of the risk if it did become a project issue.
Risk Rank	This is the magnitude or the level of the risk. It is a combination of likelihood and consequence.
Risk Trigger	What are the triggers that would indicate the need to implement contingency plans?
Prevention Plan	This is an action plan to prevent the risk from occurring.
Contingency Plan	This is an action plan to address the risk if it does occur.
Risk Owner	This is the person responsible for managing the risk and implementing the Prevention or Contingency Plans. Stakeholders, members of the project team, the Project Manager and the Project Sponsor can all be risk owners.
Residual Risk	This is the risk that remains after treatment is carried out. After treatment, we assess the residual risk level as ‘Low’.

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11.3 Perform Qualitative Risk Analysis (419)

'Think Subjective / Non-numeric'

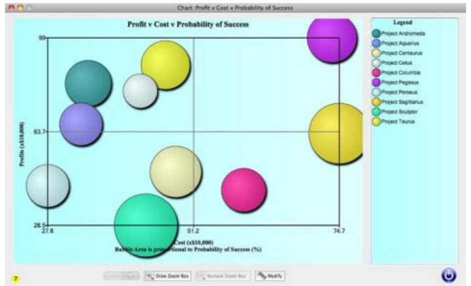
Definition: The process of…

prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact

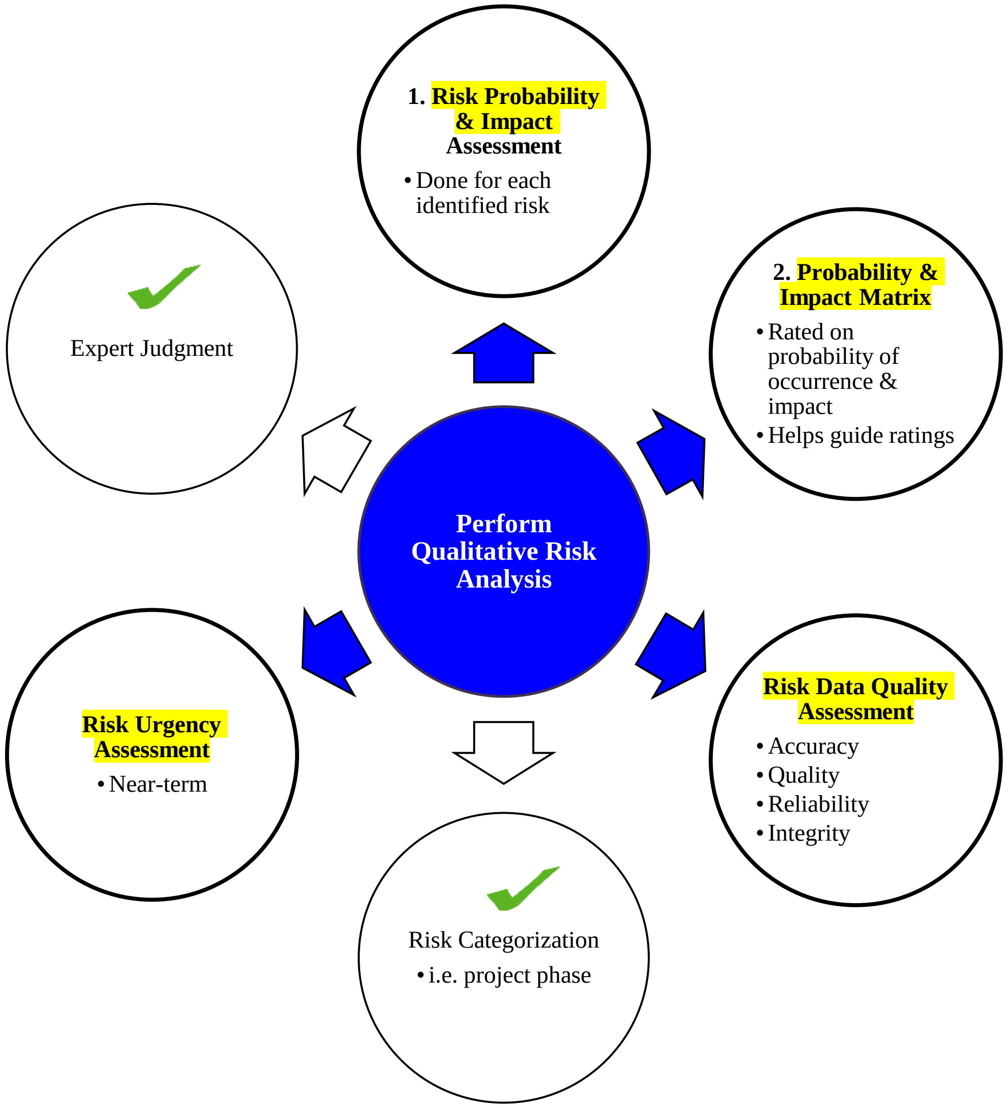
INPUT	TOOLS & TECHNIQUES	OUTPUT
▪ **Project Management Plan** (PMP) • Risk Management Plan ▪ Project Documents • Assumption Log • **Risk Register** • Stakeholder Register ▪ EFFs & OPAs	▪ **Expert Judgment** ▪ Data Gathering • Interviews ▪ Data Analysis • **Risk Data Quality Assessment** • **Risk Probability & Impact Assessment** • Assessment of other risk parameters ▪ Interpersonal and Team Skills • Facilitation ▪ **Risk Categorization** ▪ Data Representation • **Probability and Impact Matrix** • Hierarchical Charts ▪ Meetings	▪ Project Document updates • Assumption / Issue Log • **Risk Register** • **Risk Report**

Bubble Chart	A **bubble chart** is a variation of a scatter **chart** in which the data points are replaced with **bubbles**, and an additional dimension of the data is represented in the size of the **bubbles**
Risk Data Quality Assessment	Technique to evaluate the degree to which the data about risks is useful for risk management

Bubble Chart



Tool & Techniques - Perform Qualitative Risk Analysis



1. Risk Assessment Matrix

Likelihood V	Severity			
	Negligible	**Marginal**	**Critical**	**Catastrophic**
Frequent				
Probable				**HIGH**
Occasional			**SERIOUS**	
Remote		**MEDIUM**		
Improbable	**LOW**			

2. Risk Probability & Impact Matrix

Risk ID	Prob-ability	Impact Rating (SUM)				Risk Score
		Scope	**Time**	**Cost**	**Quality**	
1	**2**	2	2	3	2	**18**
2	**3**	2	2	2	1	**21**
3	**4**	3	2	0	1	**24**
4	**5**	2	3	2	0	**35**

(5*2) + (5*3) + (5*2) + (5*0)