

# Project Management & AI @ Work

Applying AI to achieve excellence through “LEAN Opeartions”



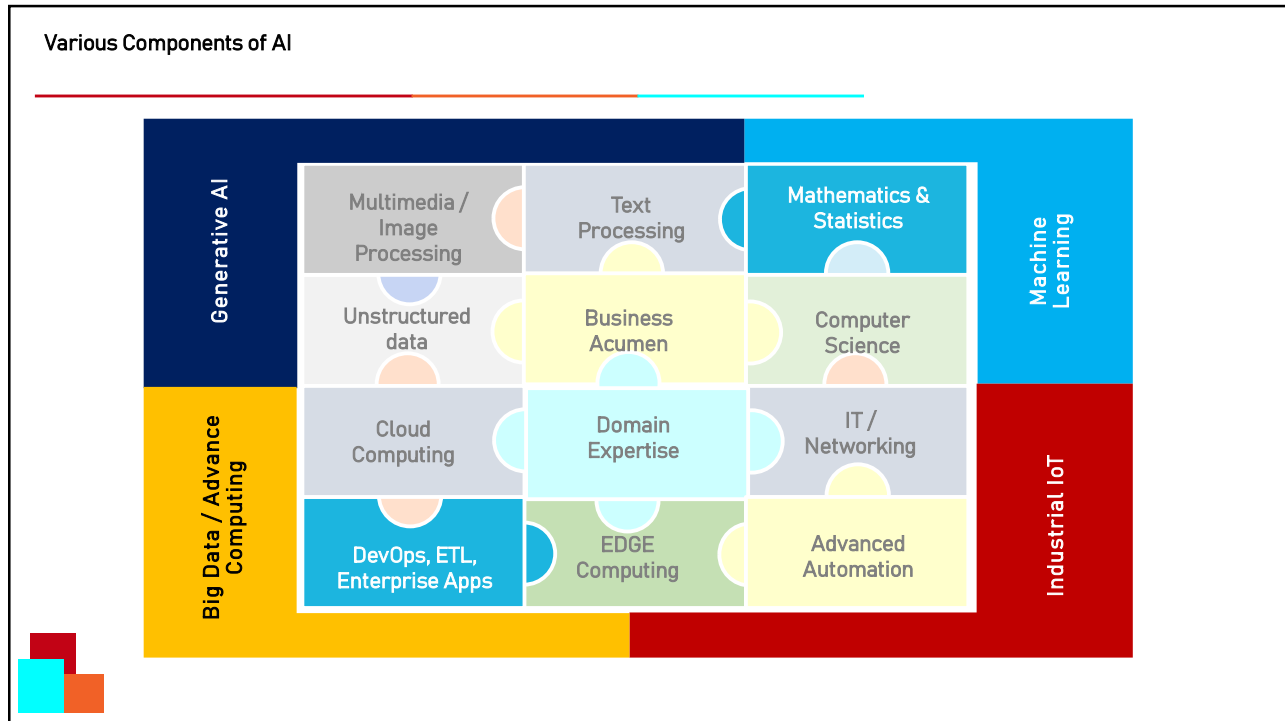
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## Artificial Intelligence as it is

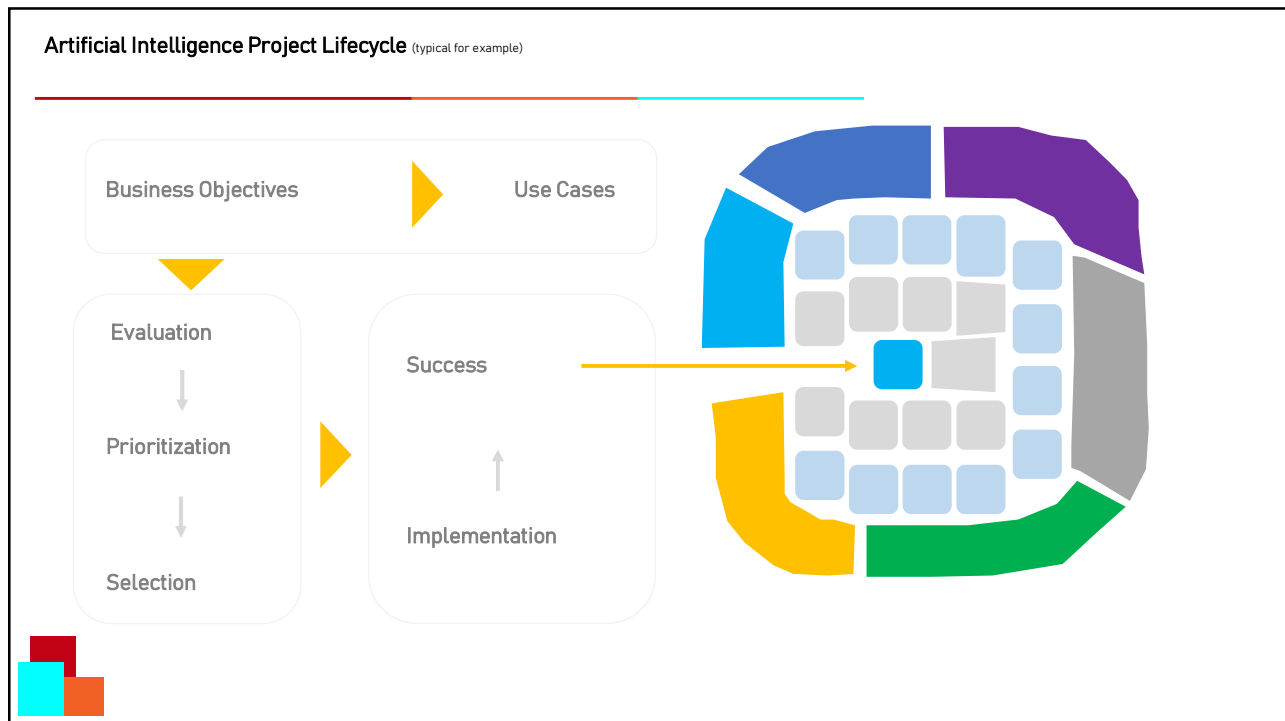
<b>AI</b>	AI brings in the power of human intelligence to perform millions of tasks without any physical presence of humans. AI is an ensemble of various techniques aimed to solve problems which otherwise require human intelligence like pattern recognition, learning, generalization etc. by embedding intelligence in machines through advance coding and training
<b>ANI</b>	Performs one cognition task with highest possible accuracy
<b>AGI</b>	It is a set of programs and services capable of producing real cognition on the input data feed
<b>ML/DL</b>	“Machine Learning” is a subset of AI that uses statistical techniques and Deep Neural Networks to give computers the ability to learn from data without being explicitly programmed
<b>Learning</b>	“Learning” refers to the process of internal adjustments within the structure of the program, to deliver the best possible outcomes, achieved through the set of algorithms based on the newly ingested data



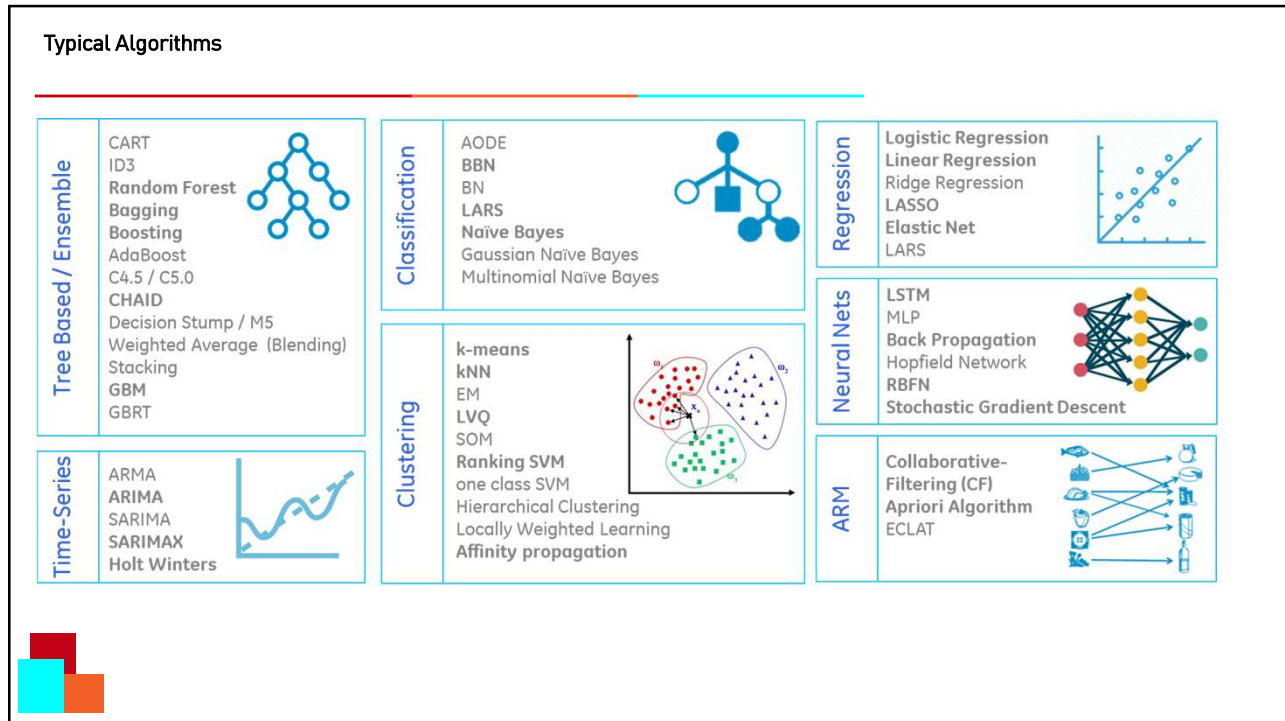
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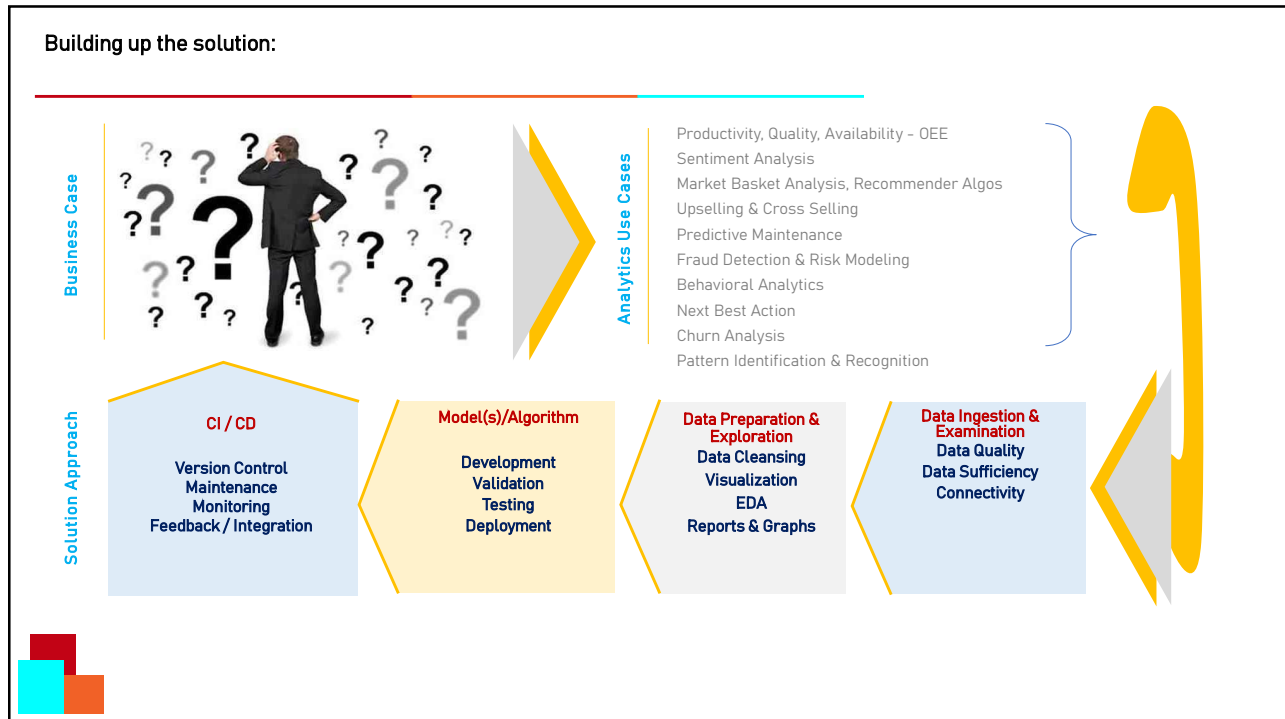
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## Key Roles

Business Analyst	Data Modeler	DevOps Engr	BI / Visualization Expert	Cloud Architect
Project Manager	Data Engineer	MLOps Engr	Data Analyst	IoT Engr
Scrum Master	Chief Digital Officer	DataOps Engr	Product Manager	Digital Transformation Engr
Principal Scientist	Chief Data Officer	LLMOps Engr	Project Sponsor	Software Engr
Data Scientist - ML	Chief Information Officer	Solution Architect	END USERS	Consultant
Data Scientist - GenAI	Chief AI Officer	Back-end Developer	Researcher / SME	OR Scientist
Data Scientist - DL	Prompt Engineer	Front-end Developer	AI Ethicist	Full Stack Developer



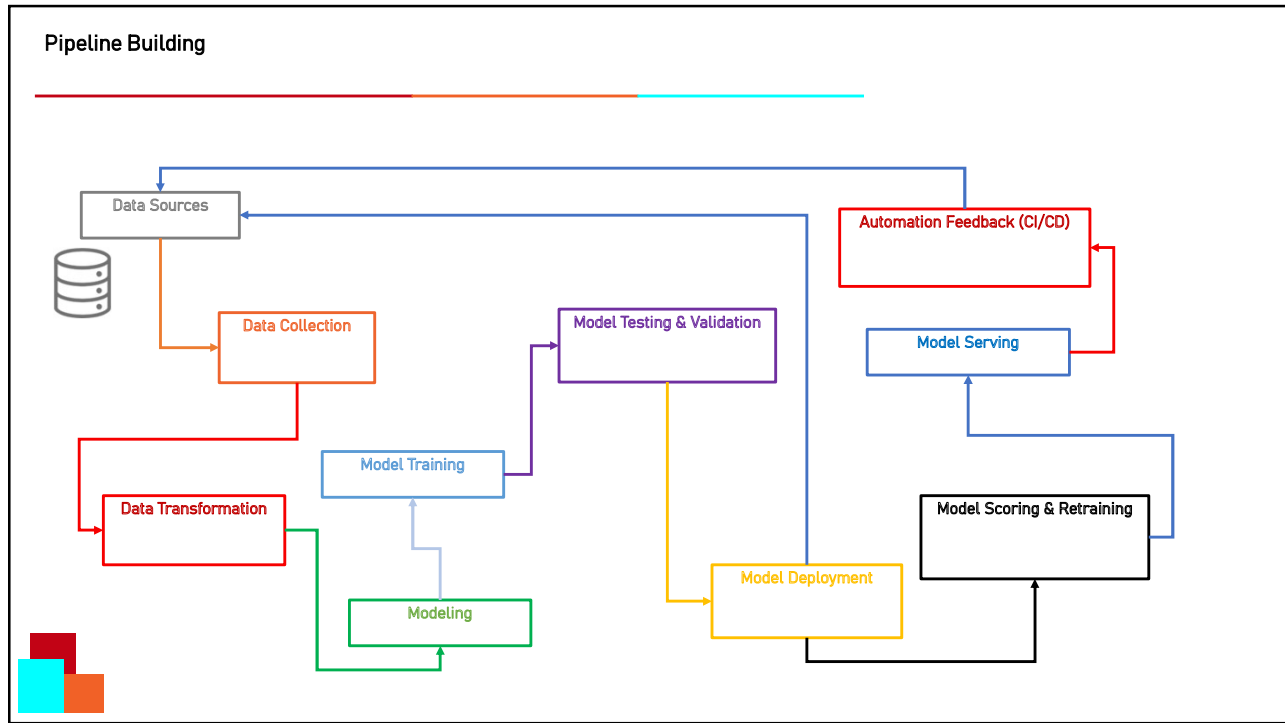
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## Key Benefits

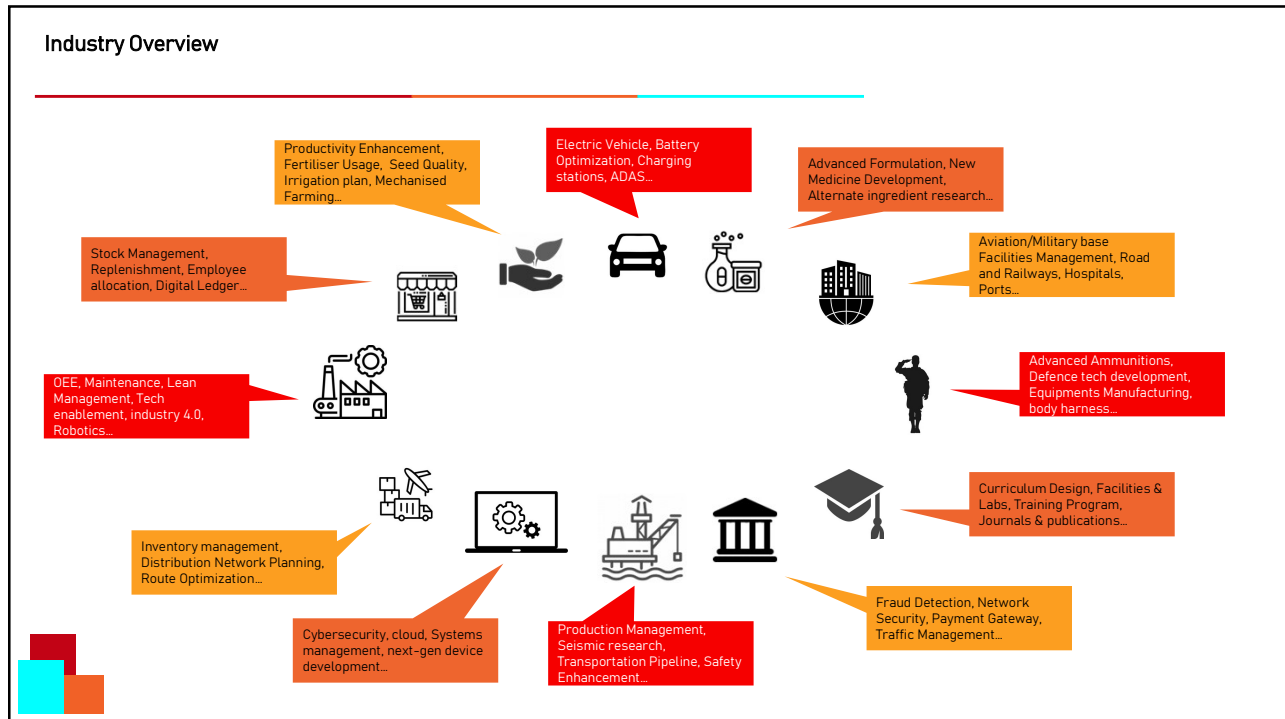
- 1 **Automation of repetitive mundane tasks** thus reducing the chances of human error and getting the accuracy of machines. This provides projects managers ample time to spend on problem solving rather than working of mechanical issues.
- 2 **Optimization**  
use historical data to calculate time to perform specific task, specific resource requirements to deliver the task, etc.
- 3 **Leverage advancements in Computing Power**  
Consume information more efficiently and effectively by designing specific AI tasks and optimizing them
- 4 **Cultivate the Tribal Knowledge**  
Develop models to imitate skills, ideas and experiences of people that are not codified explicitly expressed
- 5 **Sustainable and Predictable Future**  
Improve our approach to make the progress sustainable and make the Earth a better place to flourish life and prosperity



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## Defining Project

- ▶ Temporary endeavor undertaken to create a unique product, service, or result
- ▶ Temporary nature signifies Definite Beginning & End
- ▶ Tangible Outcome or Intangible Outcome



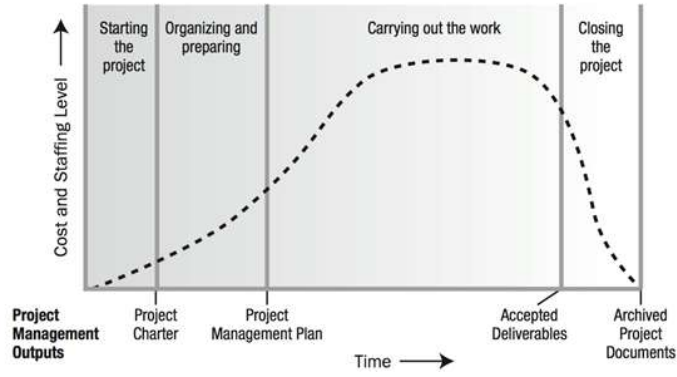
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## Project Phases



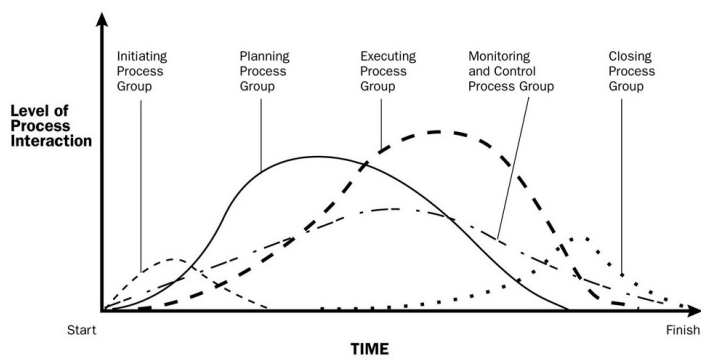
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### Project Lifecycle



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### Process Group Interactions



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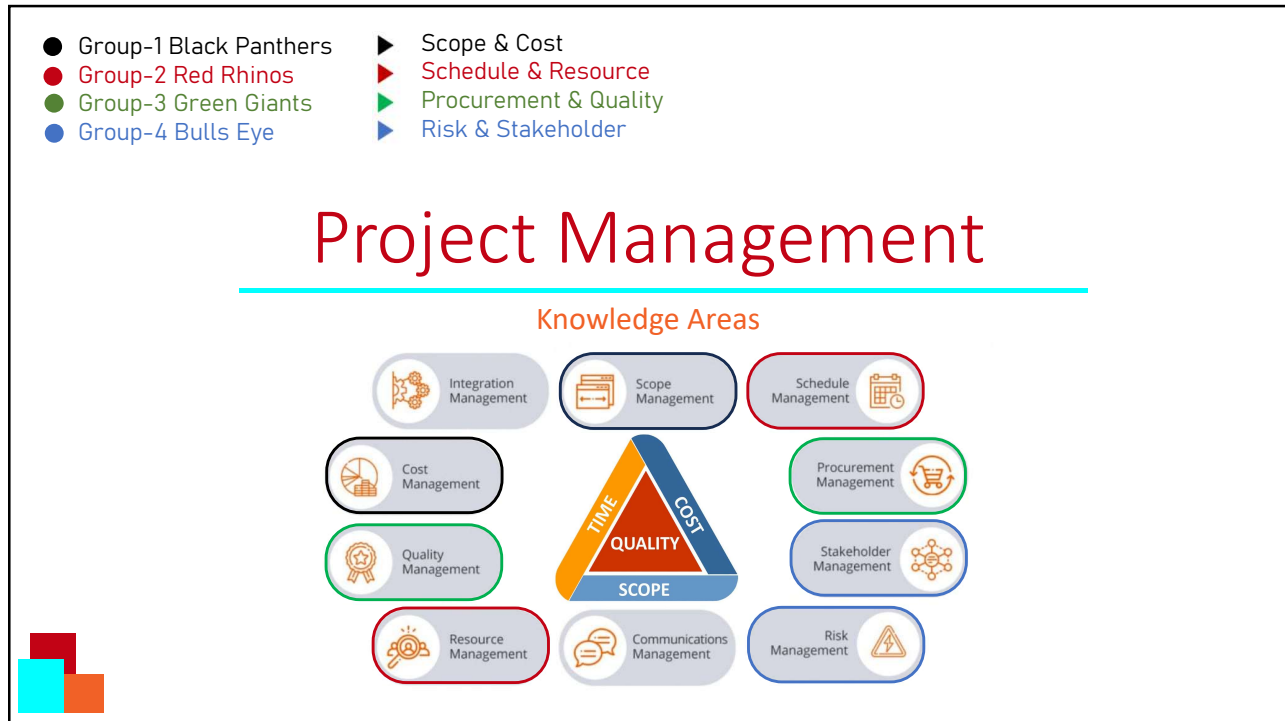
### Project Management Techniques

<b>Waterfall</b>	<ul style="list-style-type: none"> <li>Traditional Approach - Tasks to be completed in sequence</li> <li>To be used for projects with maximum inputs known</li> <li>Clear Structure and Easy to track</li> <li>Improved Risk and Quality Management</li> </ul>	<ul style="list-style-type: none"> <li>Longer Delivery timelines</li> <li>Limited Flexibility for innovation</li> <li>Limited opportunity of getting feedback</li> <li>Longer planning and gestation period</li> </ul>
<b>Agile/Scrum</b>	<ul style="list-style-type: none"> <li>Iterative and Adaptive approach</li> <li>To be used for projects with maximum unknowns</li> <li>Scrum management</li> <li>Frequent deliverables in sprints</li> </ul>	<ul style="list-style-type: none"> <li>Shorter lead time for value delivery</li> <li>Flexible for innovation and improvisation</li> <li>Frequent feedback opportunities</li> <li>Backlog Management and grooming</li> </ul>
<b>Kanban</b>	<ul style="list-style-type: none"> <li>Visual way of agile project Management</li> <li>Boards - To-Do, In-Progress, Done, Backlog</li> <li>Improved workflow</li> <li>Improved efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Limited work focus at a time</li> <li>Encourage acts of leadership at all levels</li> </ul>
<b>Lean</b>	<ul style="list-style-type: none"> <li>Reduce waste in the process</li> <li>Identify value across work streams</li> <li>Continuous improvement</li> <li>Establish pull system for task assignment</li> </ul>	<ul style="list-style-type: none"> <li>Problem solving tools &amp; techniques (6 sigma)</li> <li>Ensures higher quality products/services</li> <li>Increased innovation &amp; creativity</li> <li>Improved inventory management</li> </ul>

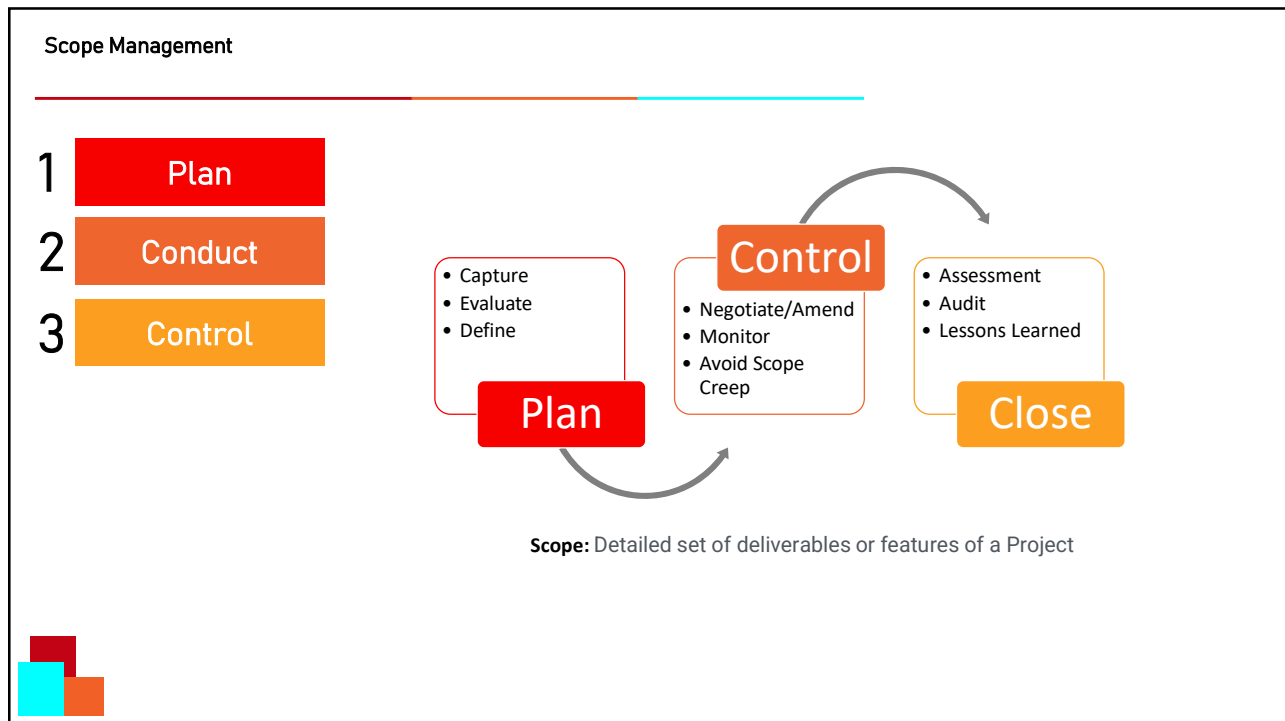
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### Agile Project Management

16

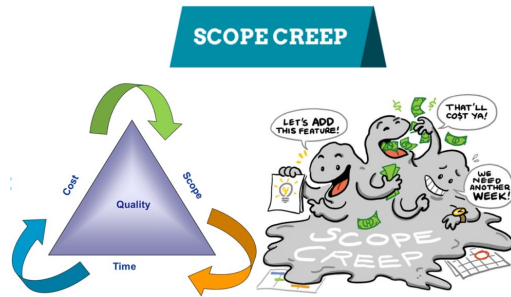


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## Scope Creep



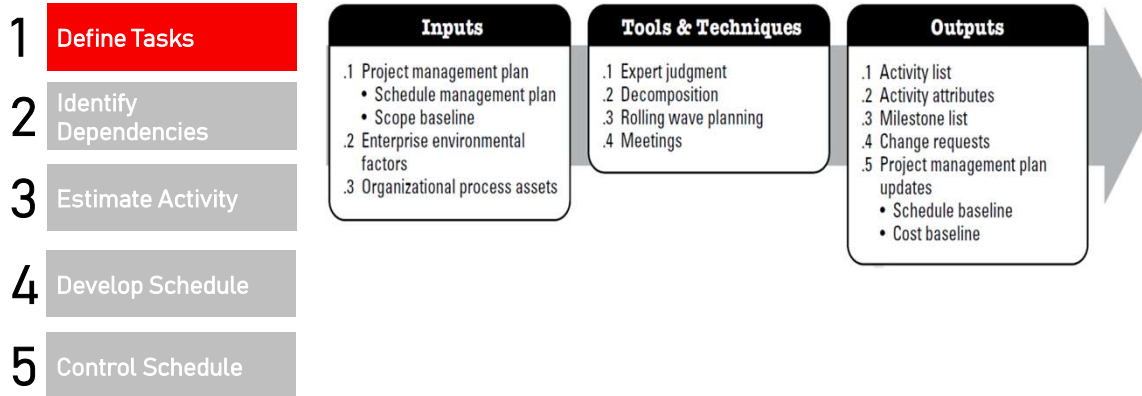
How a project's requirements tend to grow over time, goals, or vision changes beyond what was originally agreed upon.



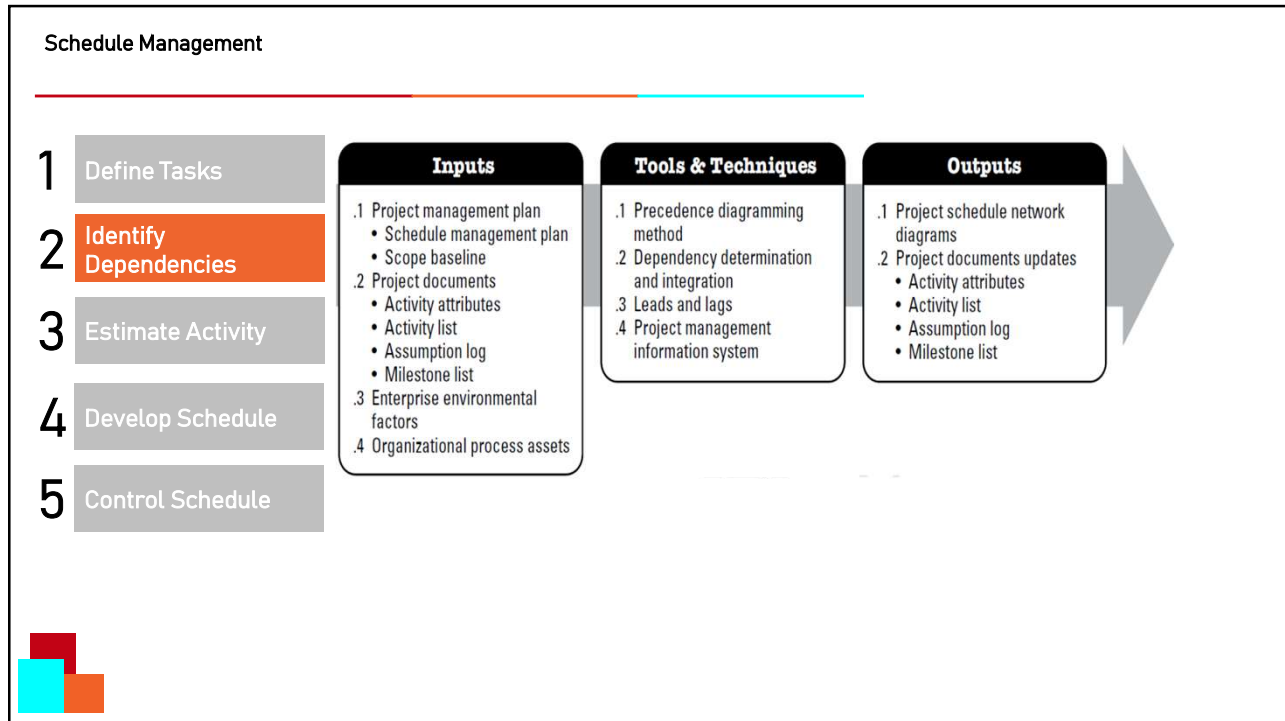
- Understand **"Why"** are you and your team working on this project?
- Tie Scope with **project objectives**.
- Write down your **project scope**.
- Review your **project scope**.
- **Make adjustments** if necessary.

19

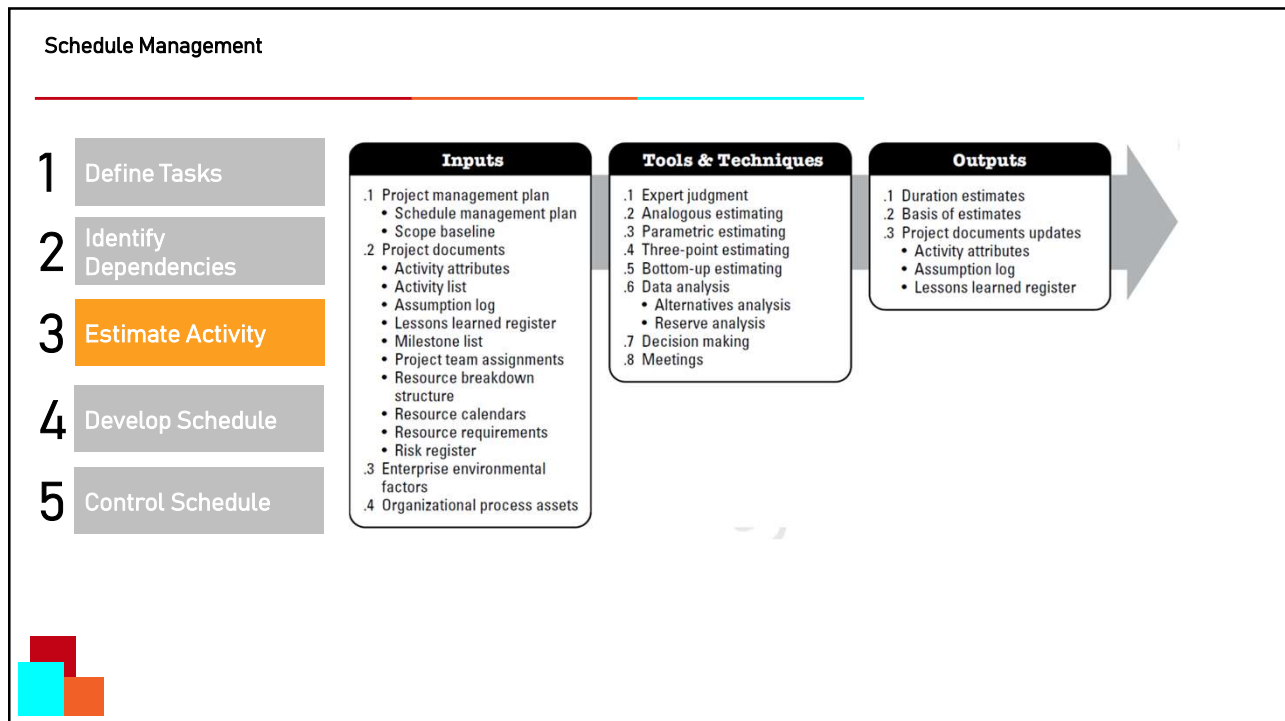
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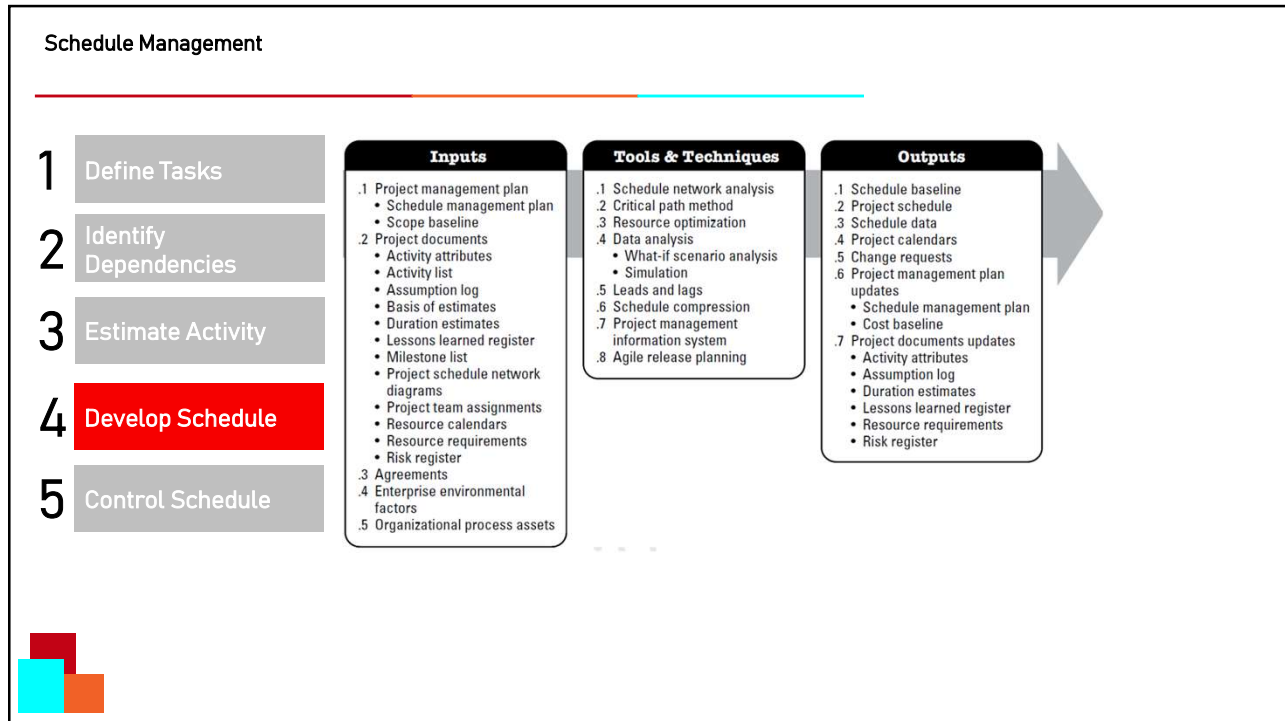
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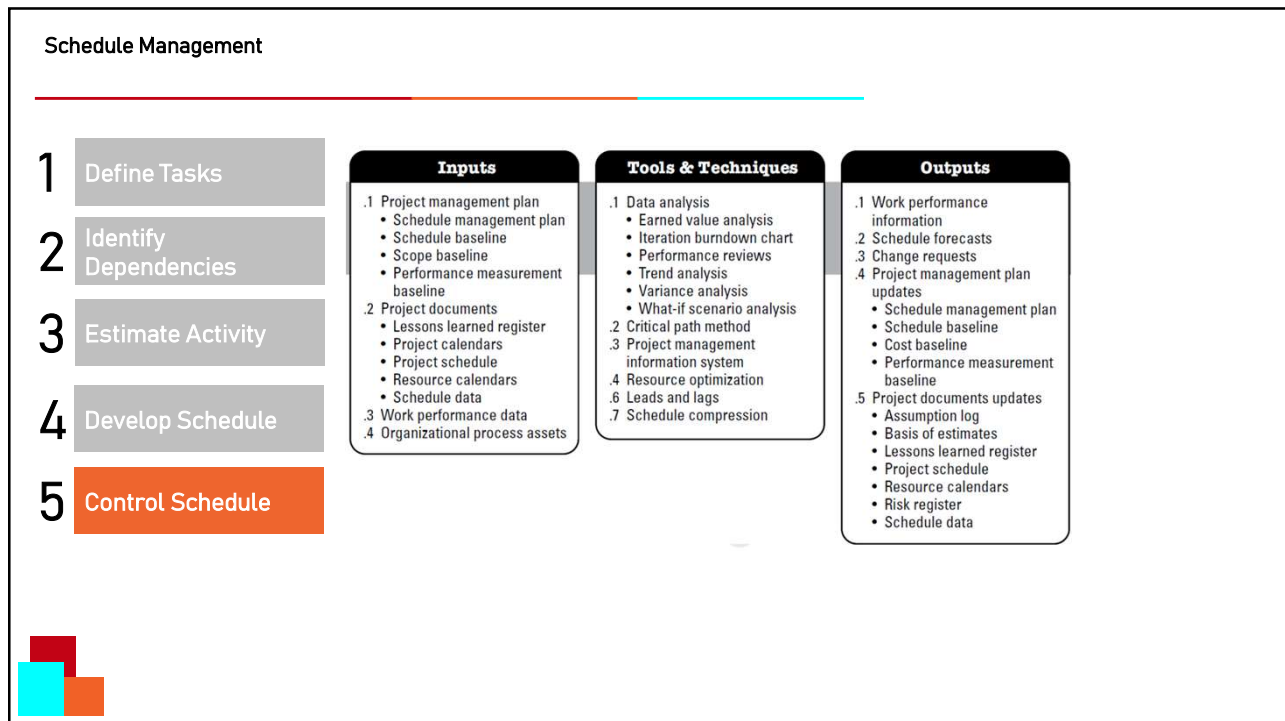
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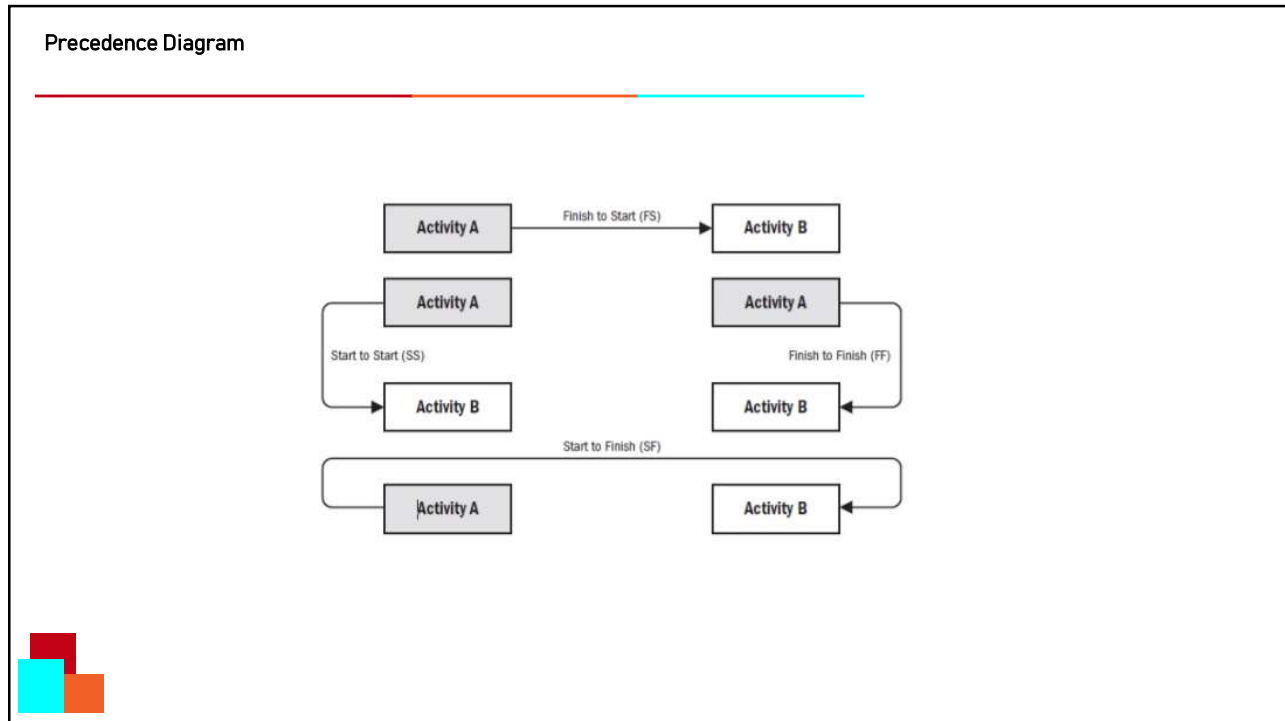
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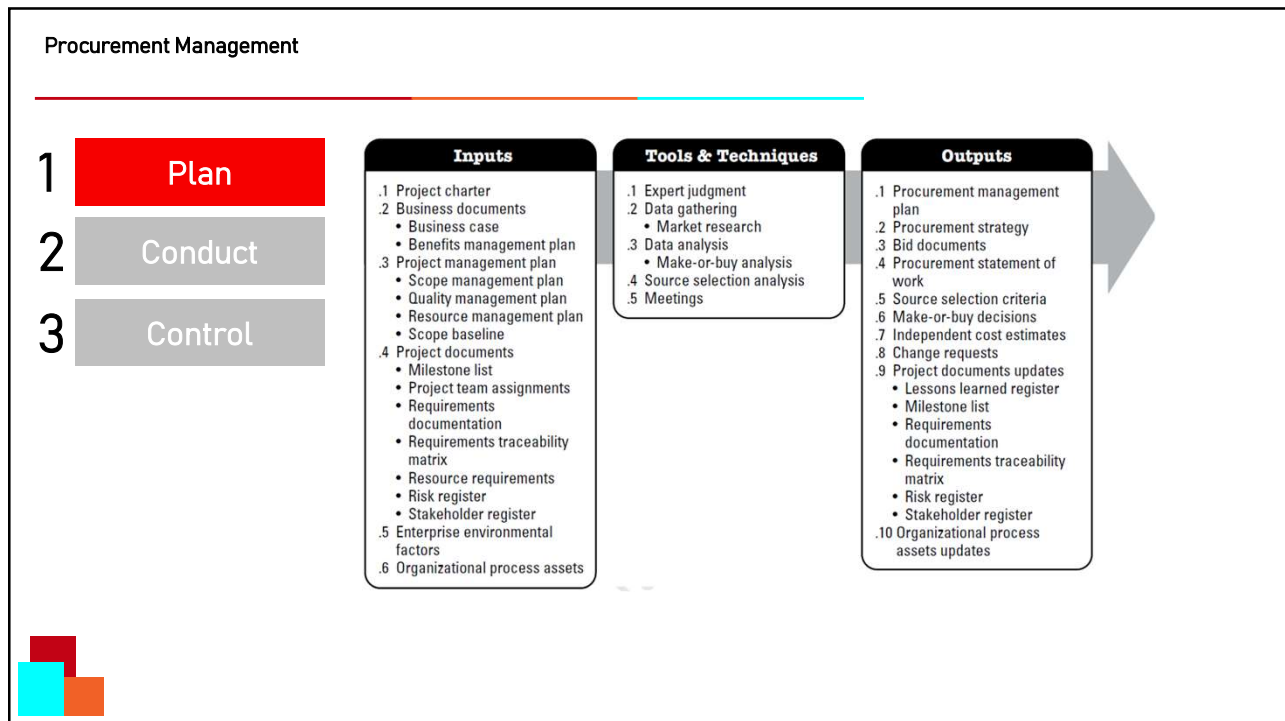
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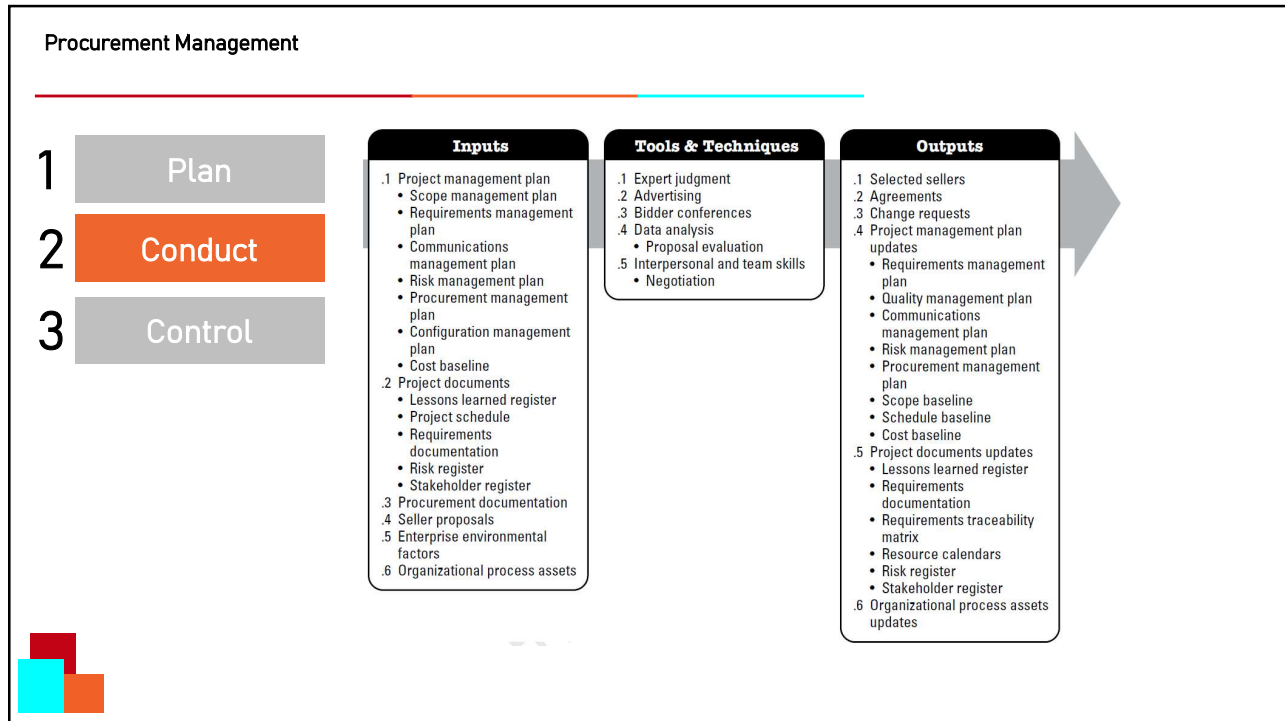
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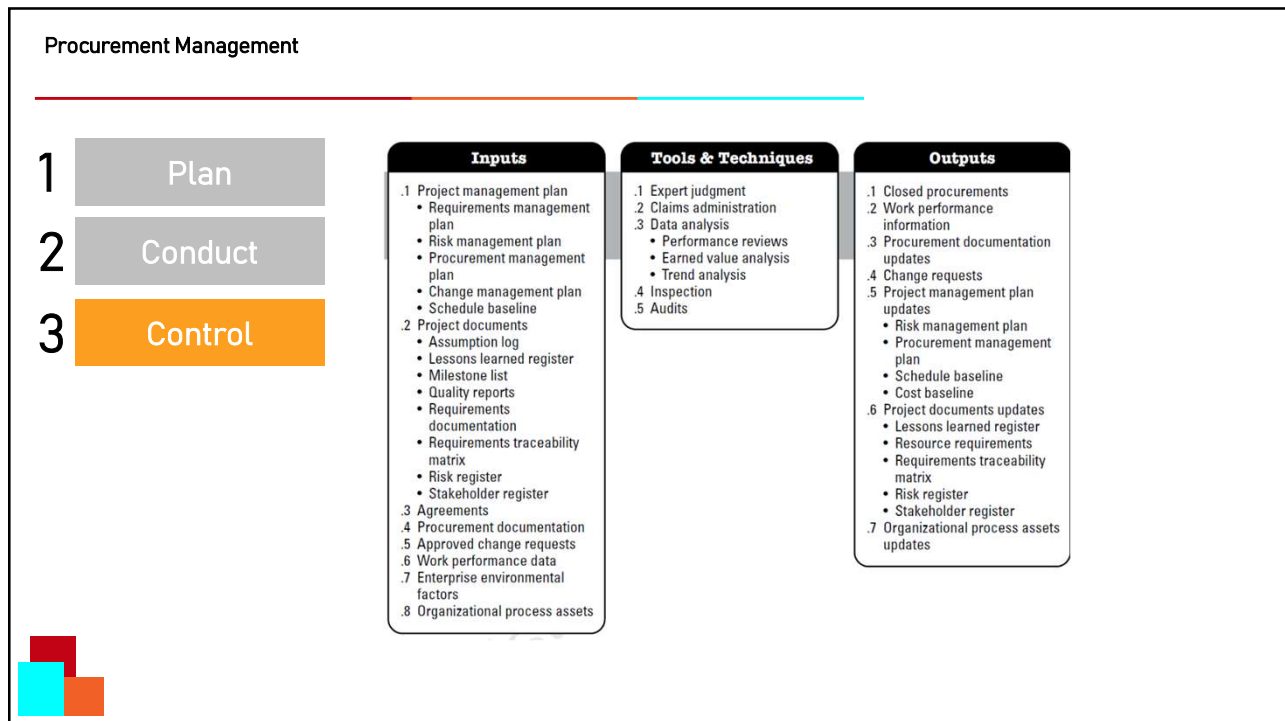
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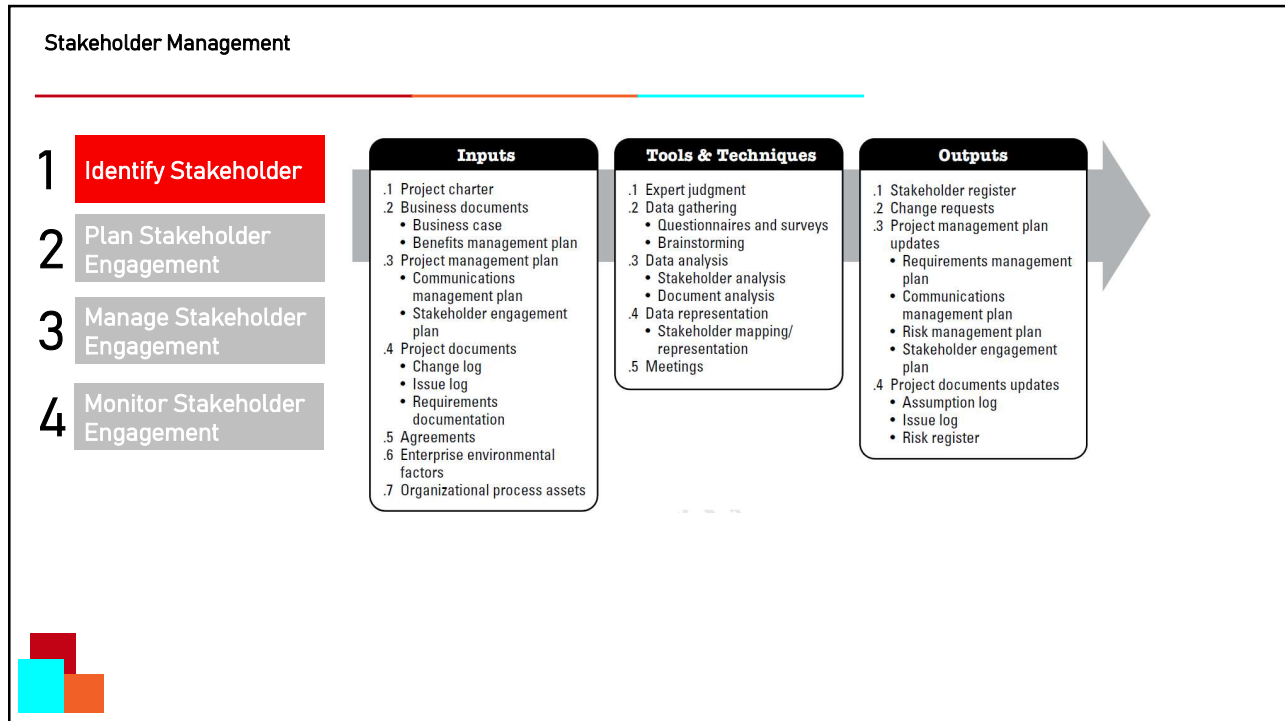
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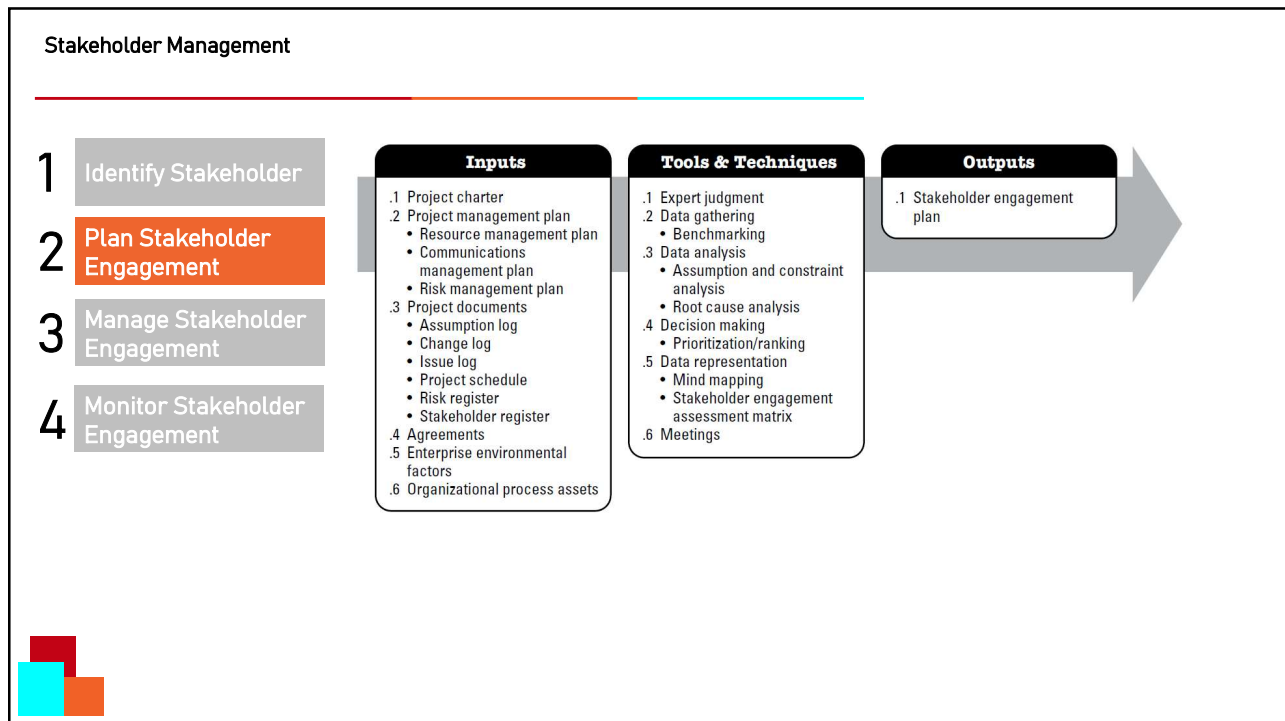
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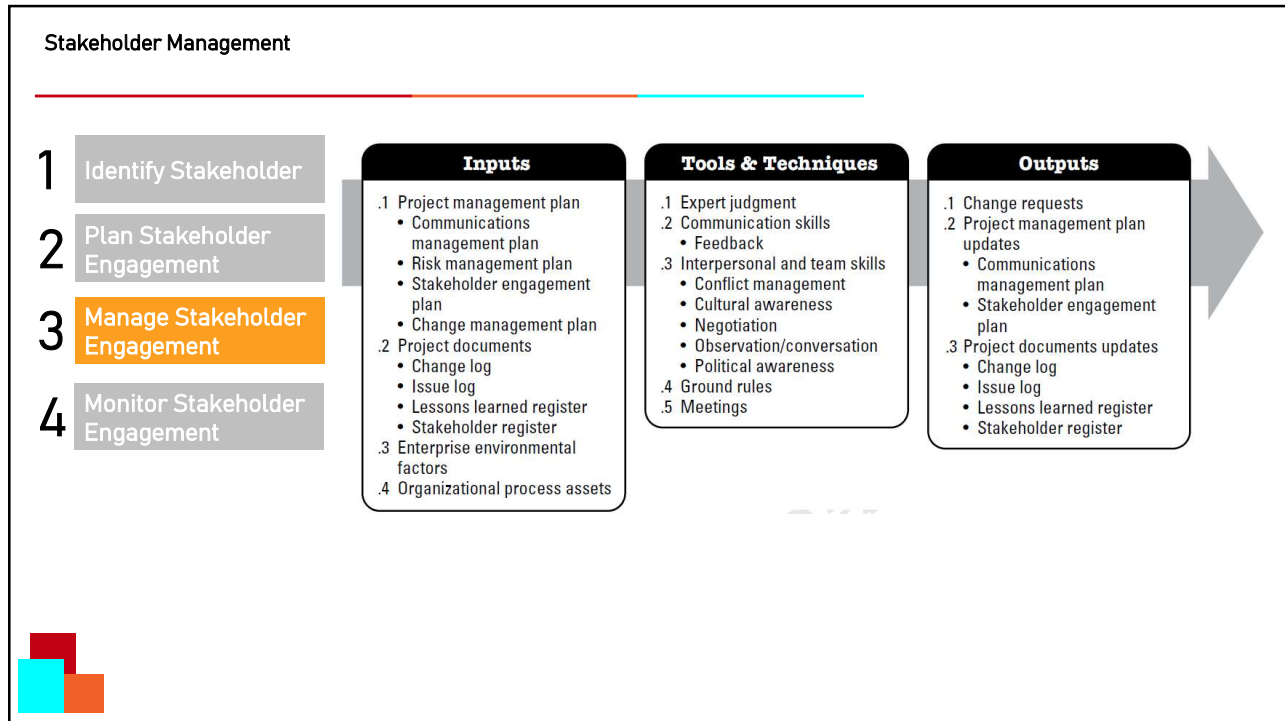
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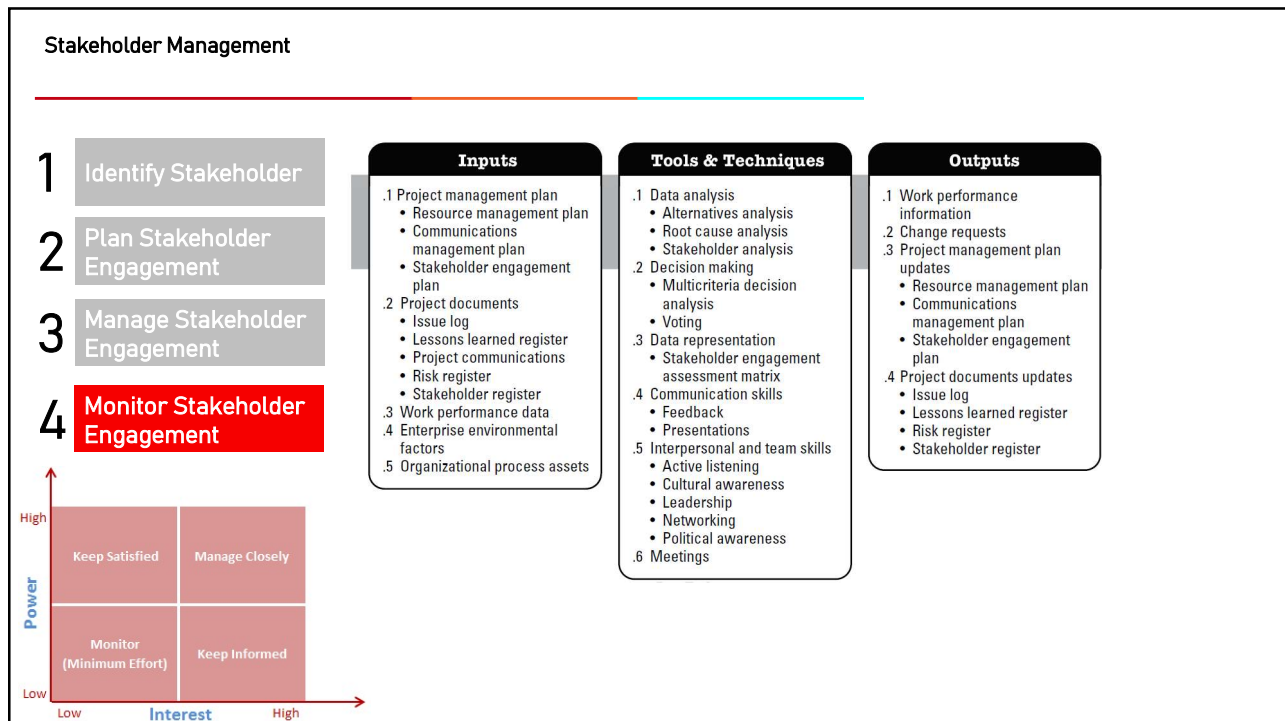
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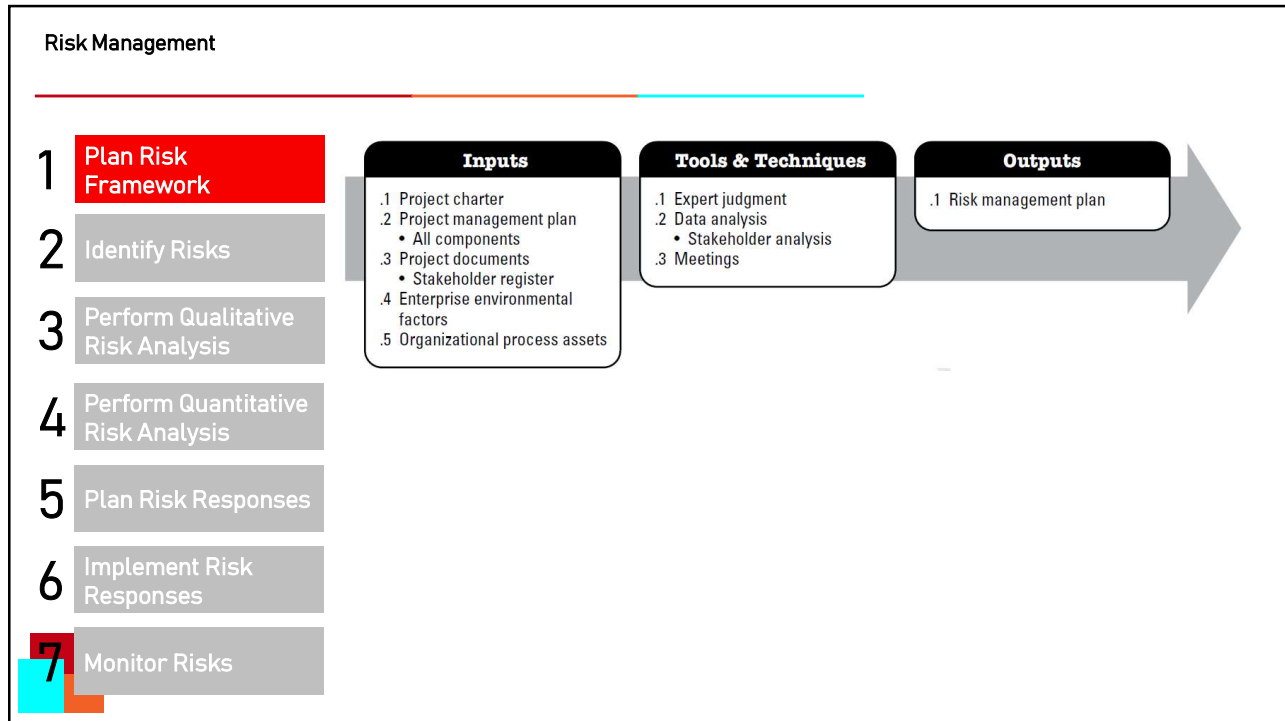
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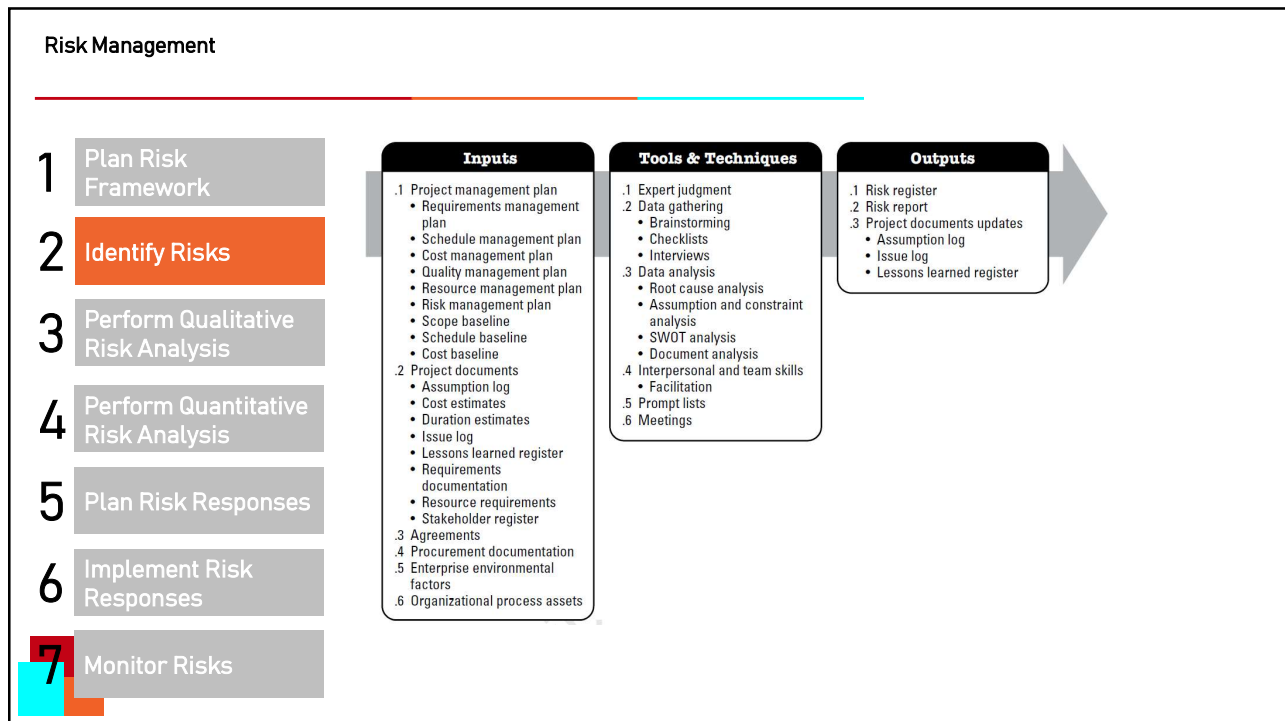
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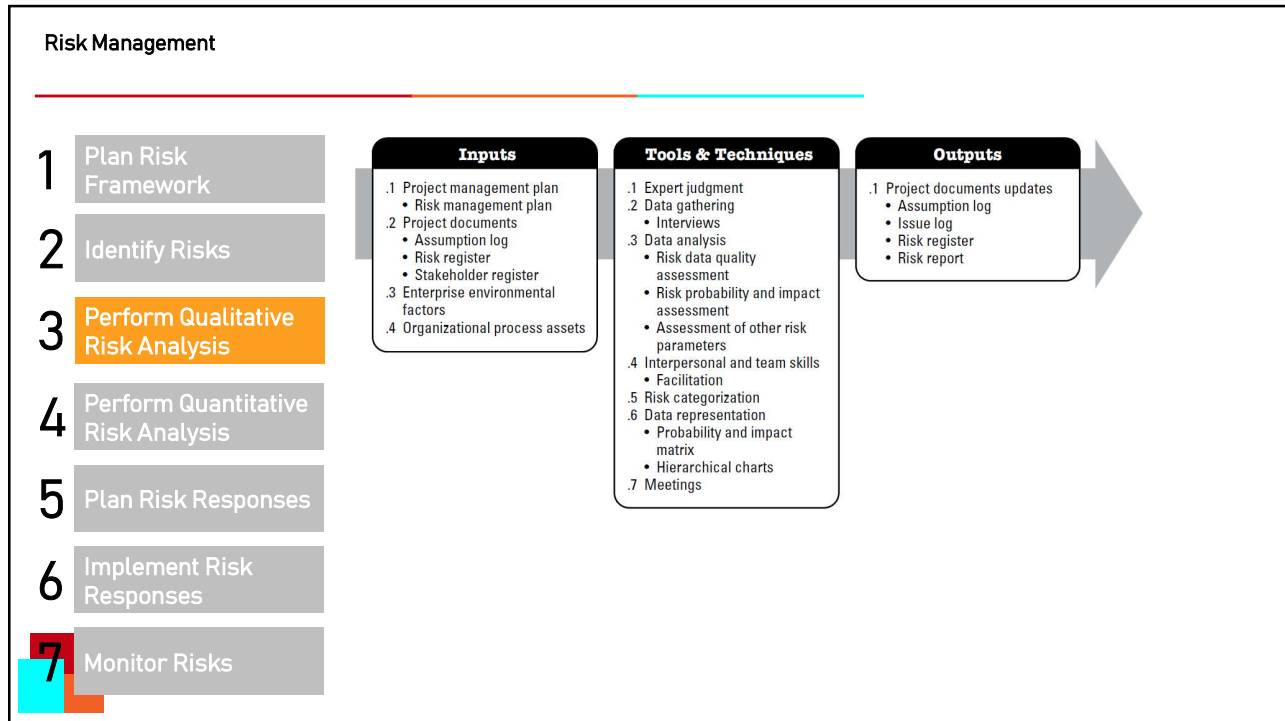
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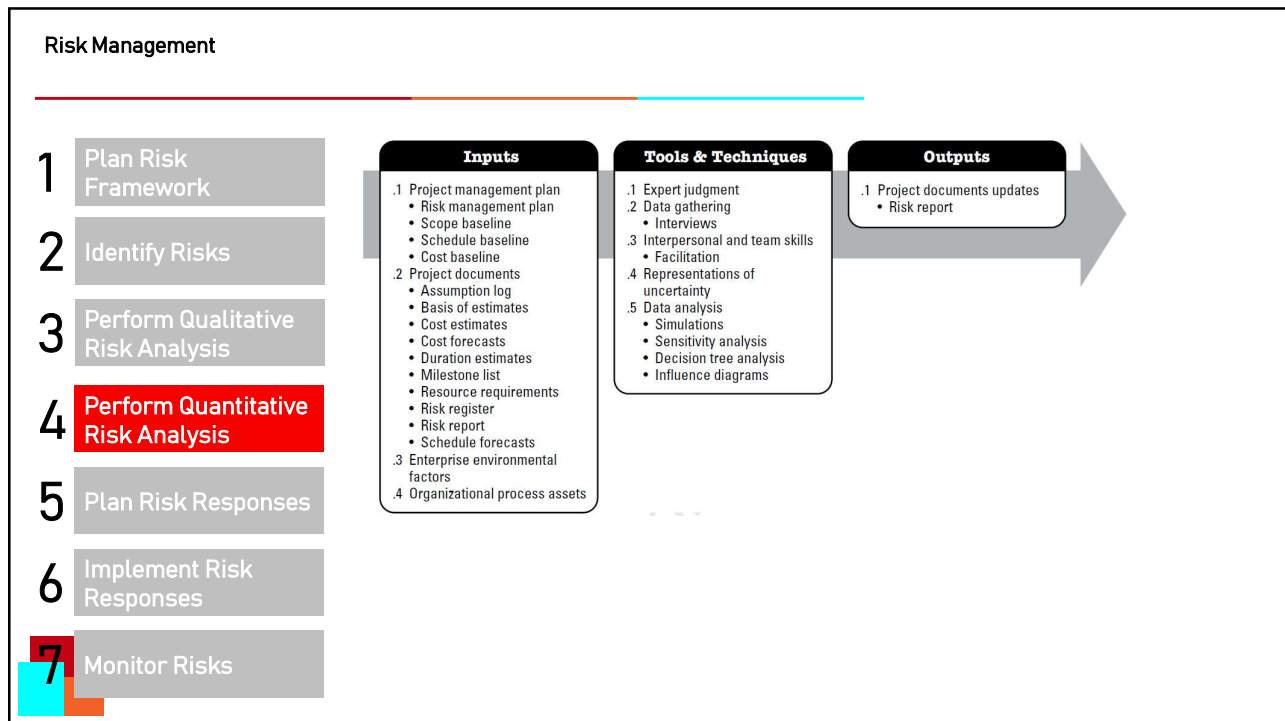
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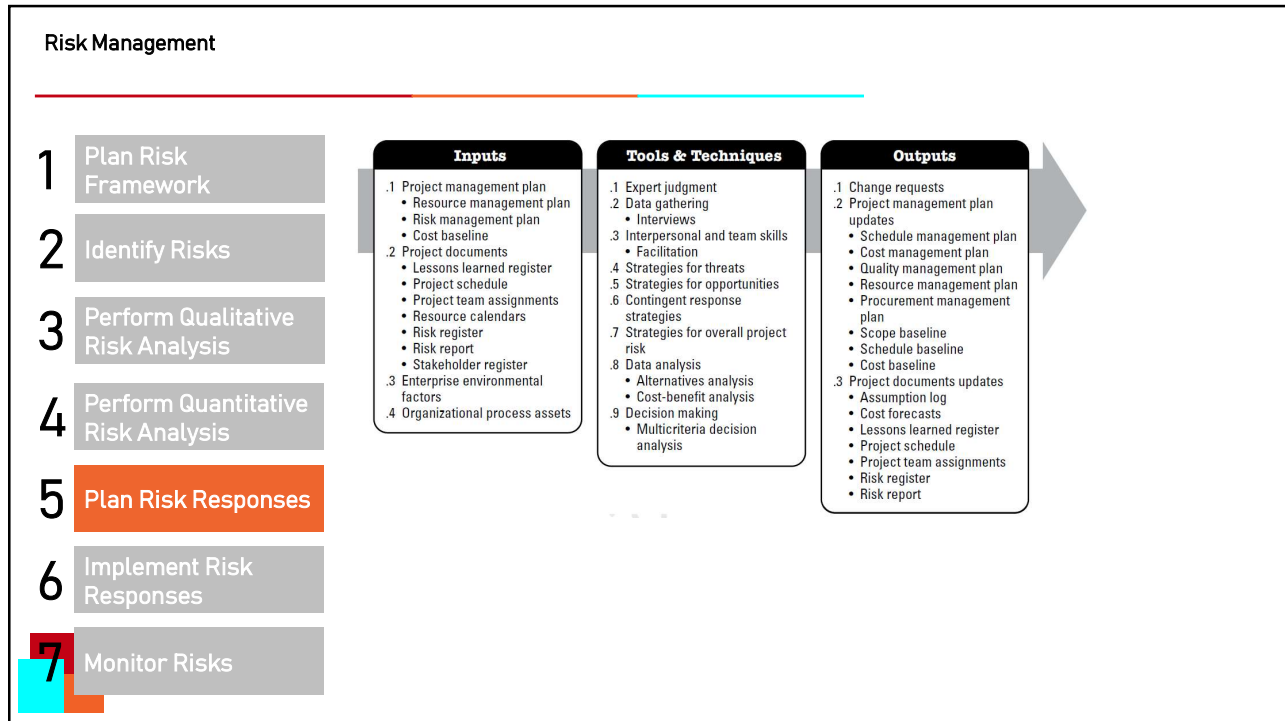
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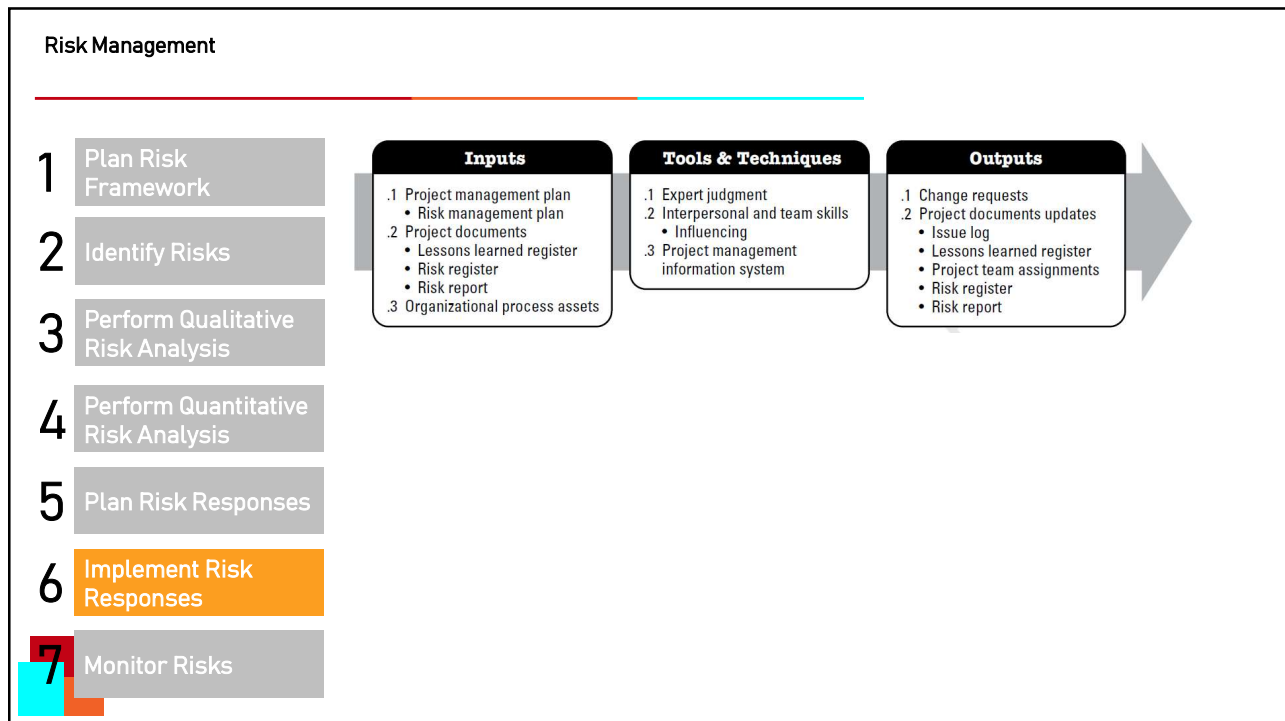
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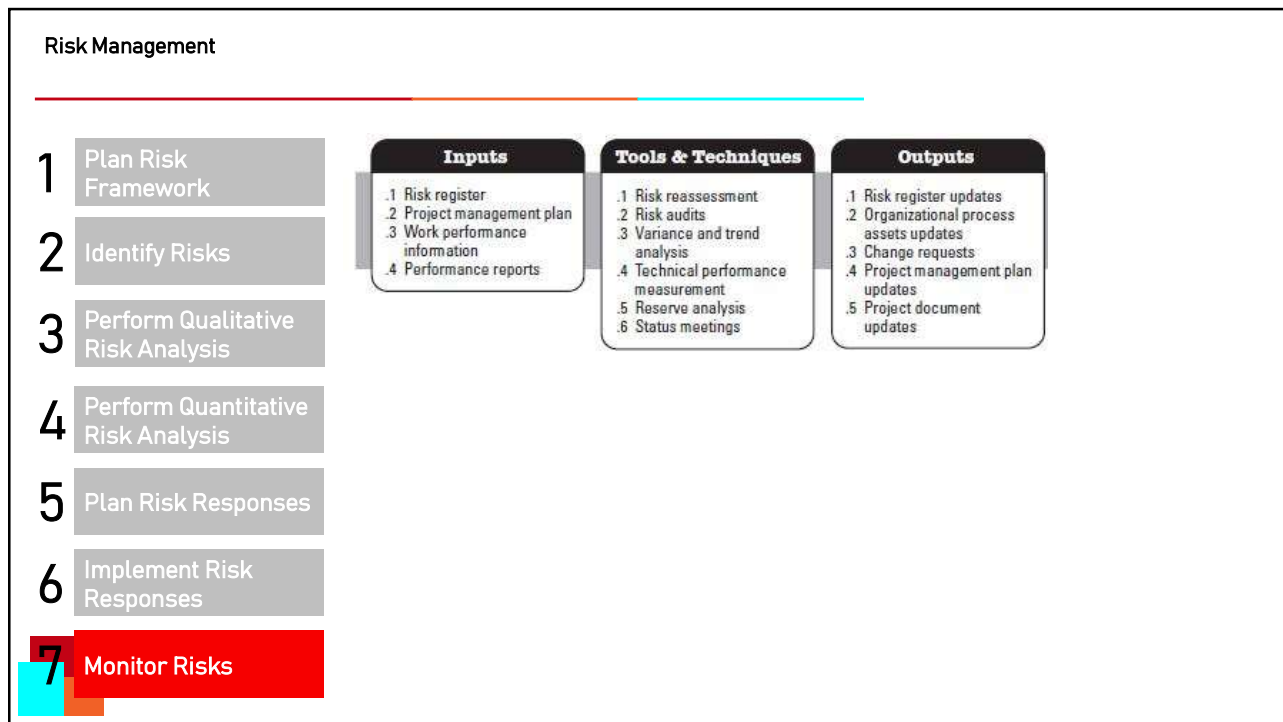
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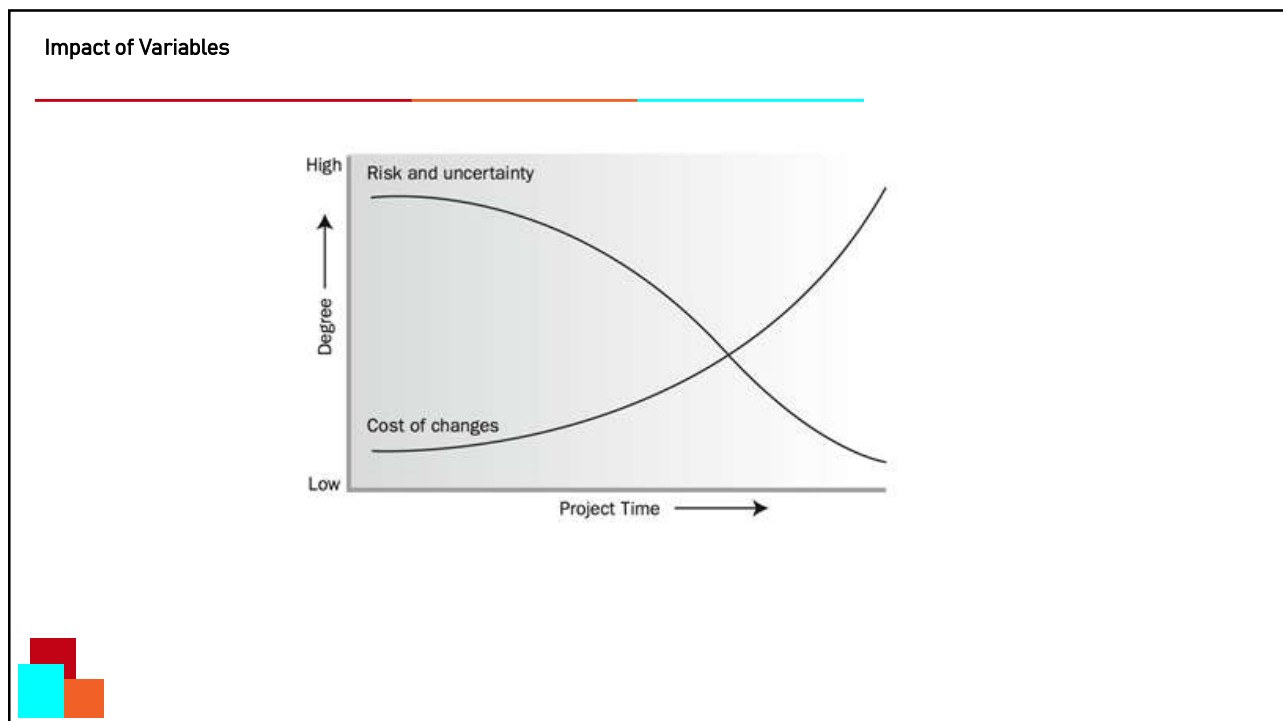
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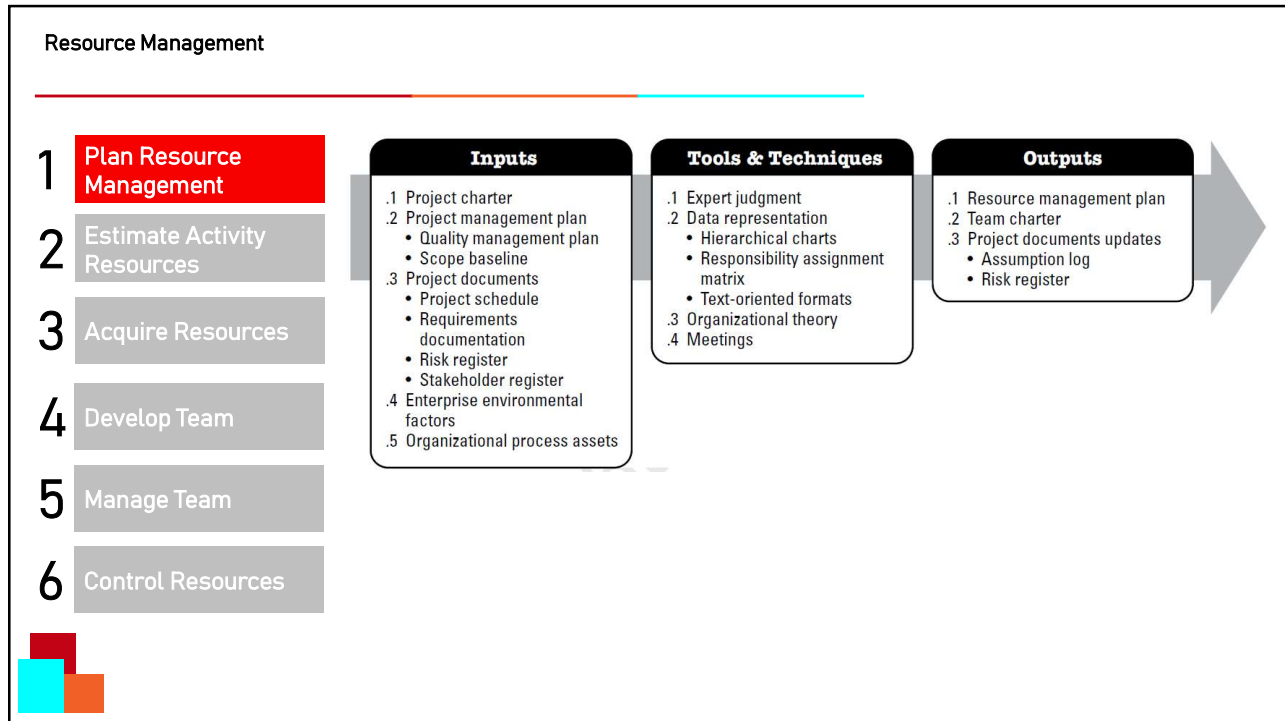
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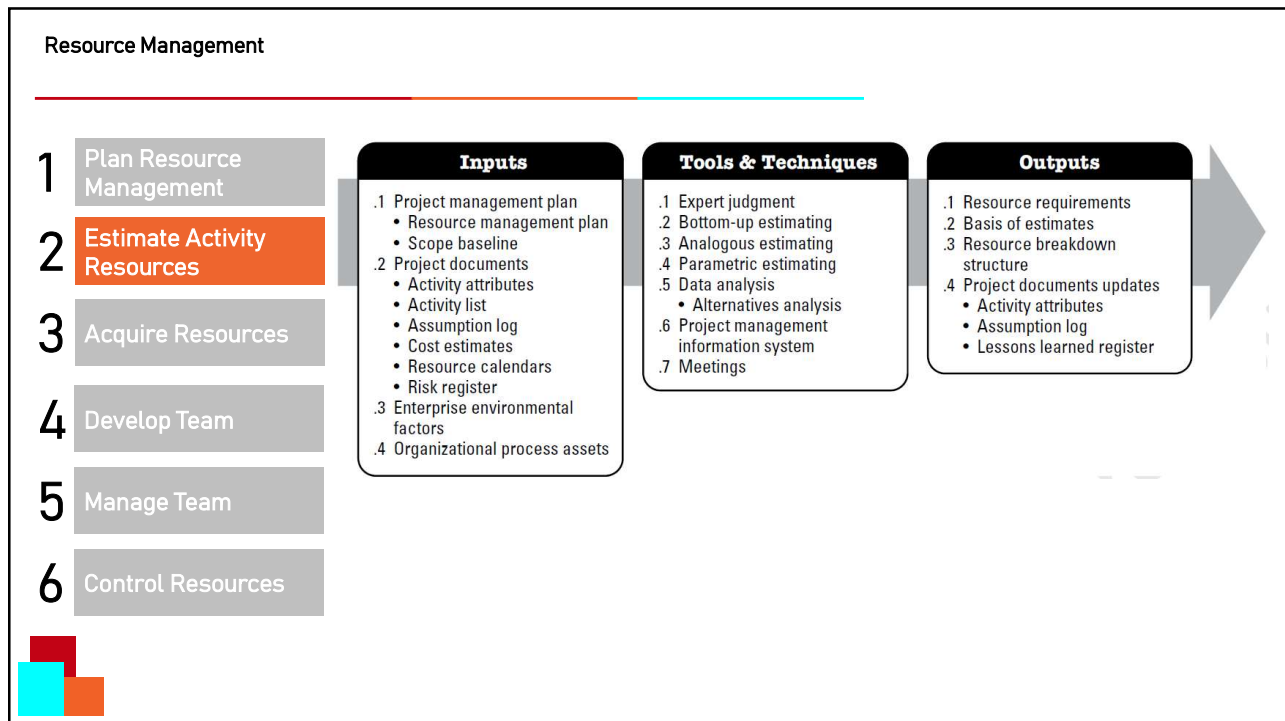
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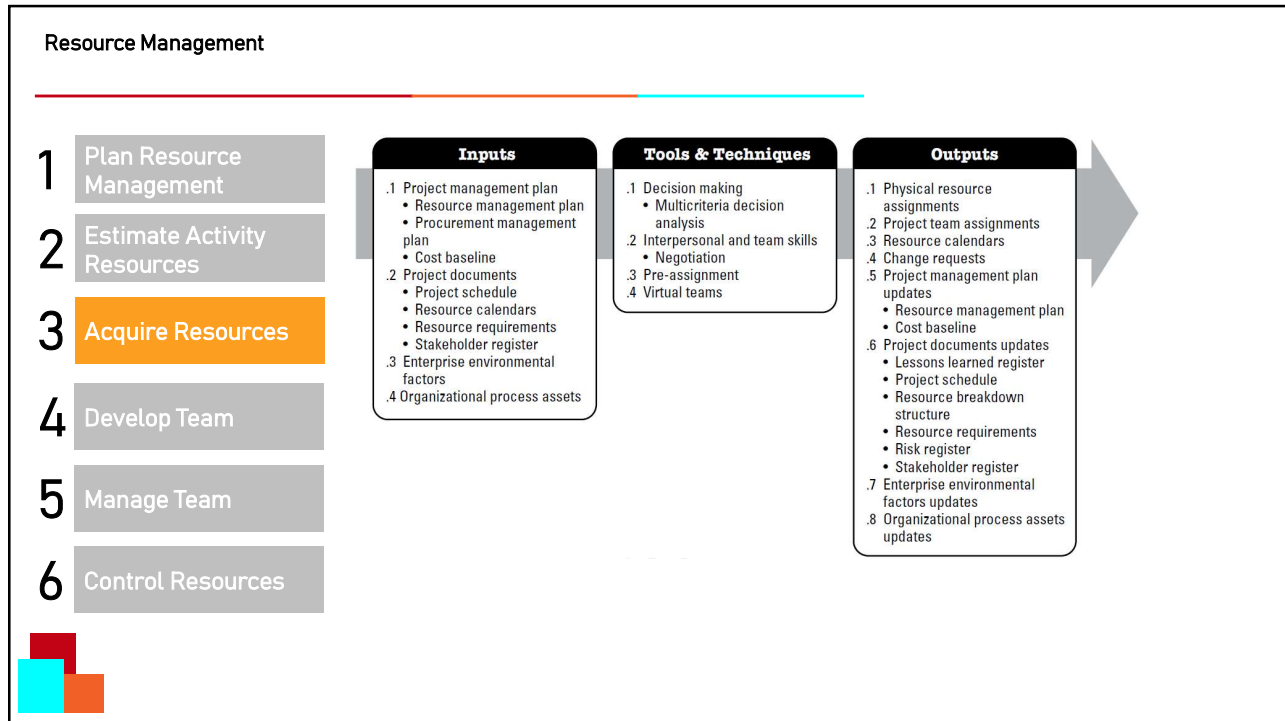
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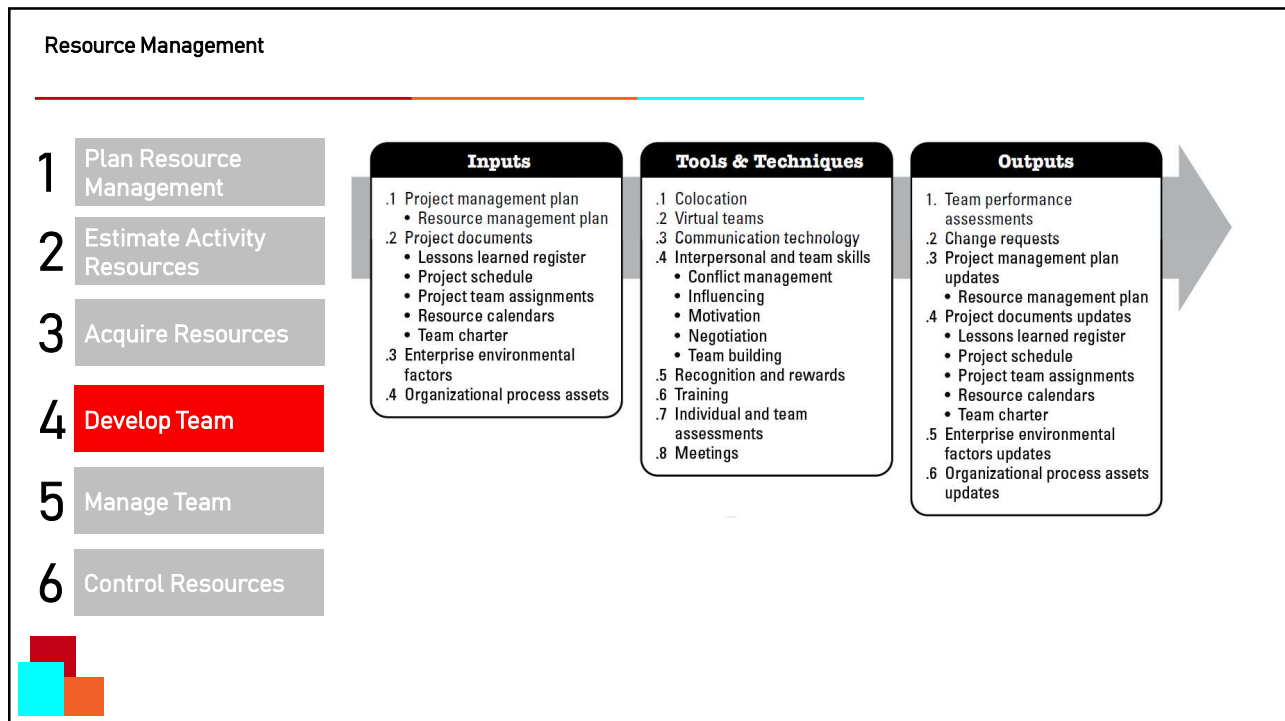
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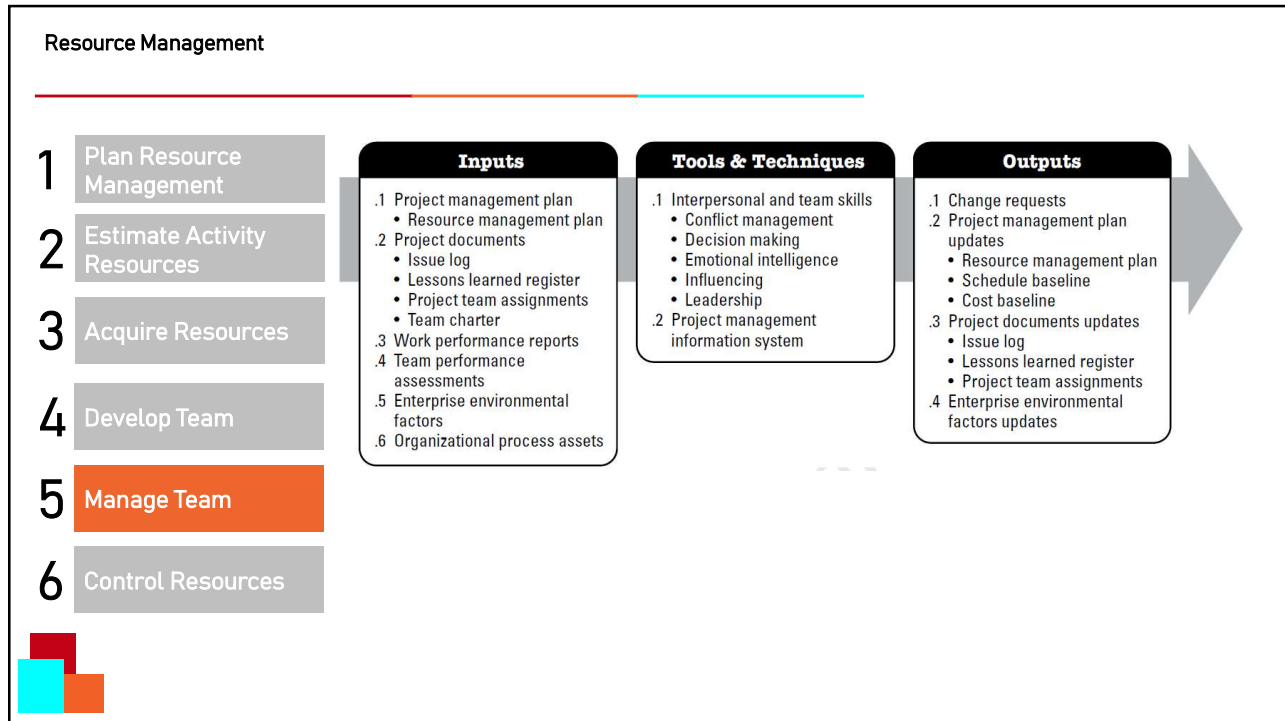
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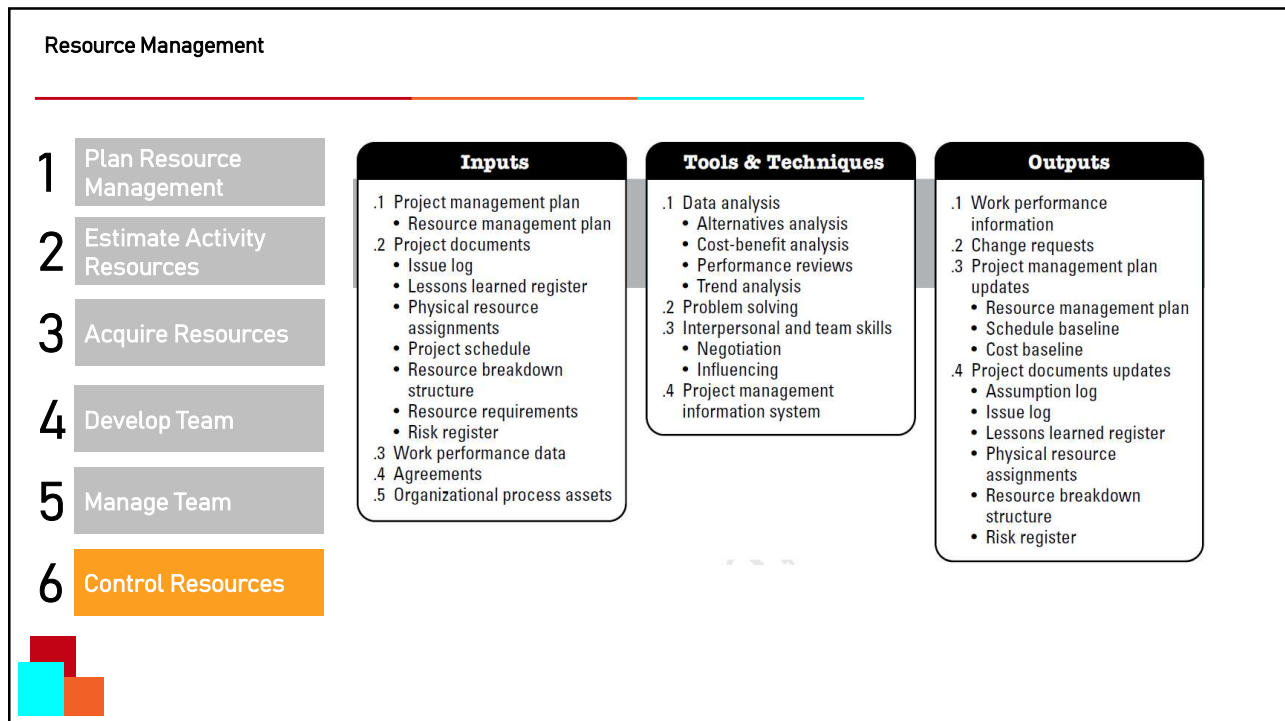
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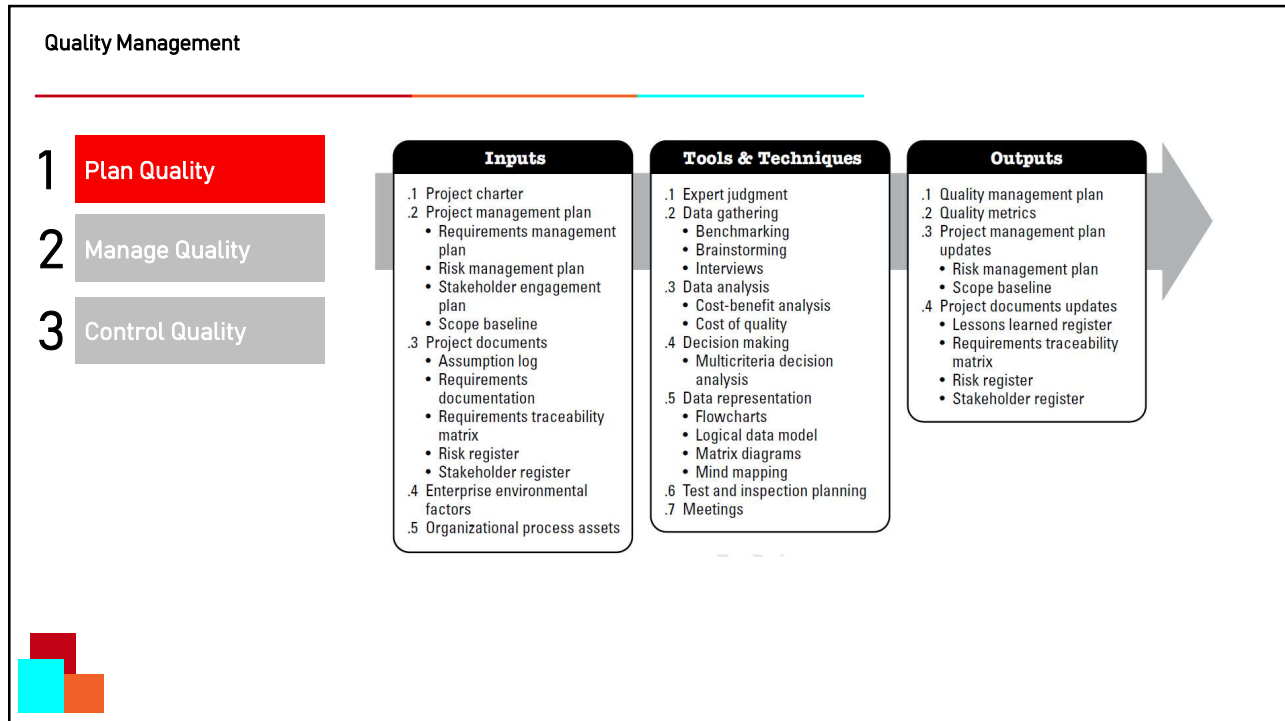
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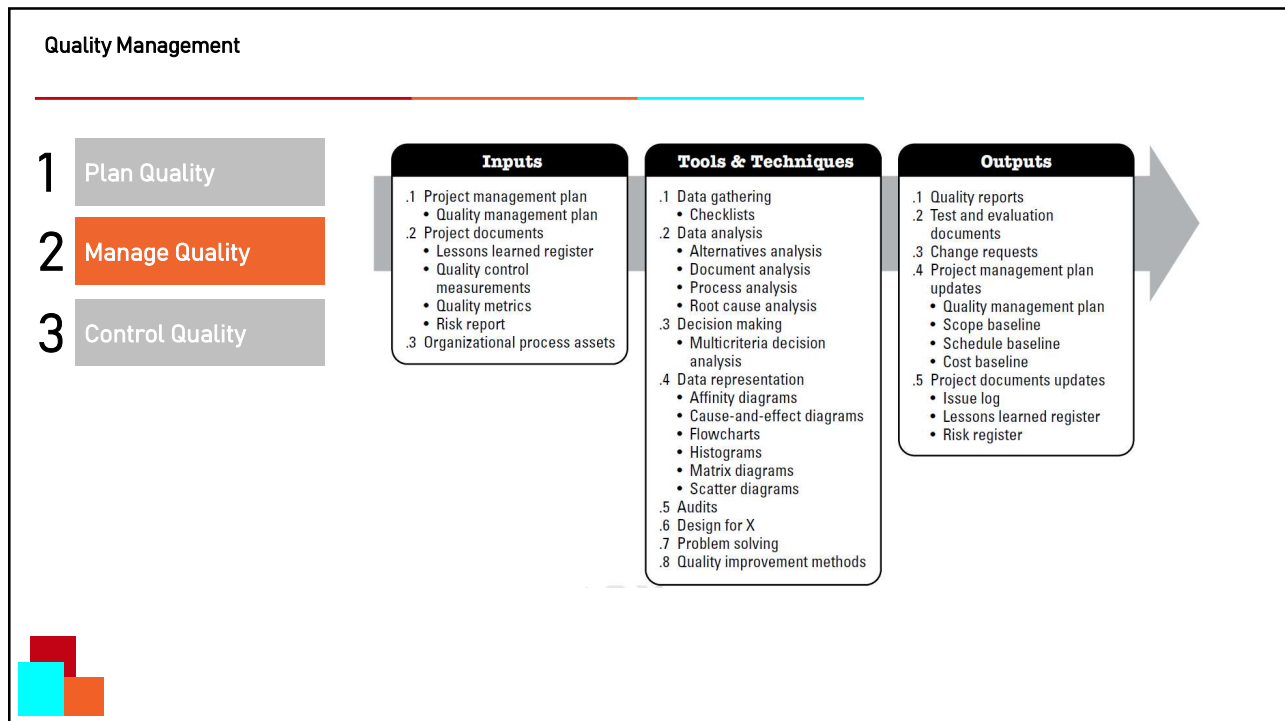
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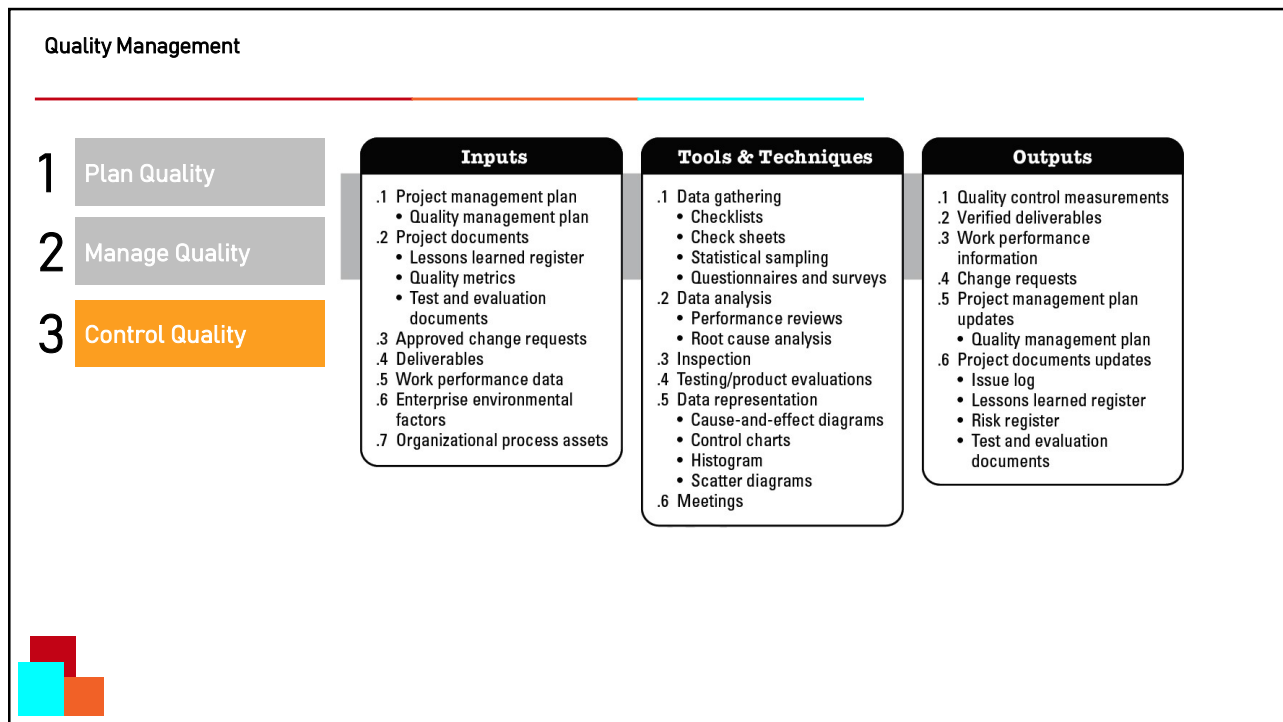
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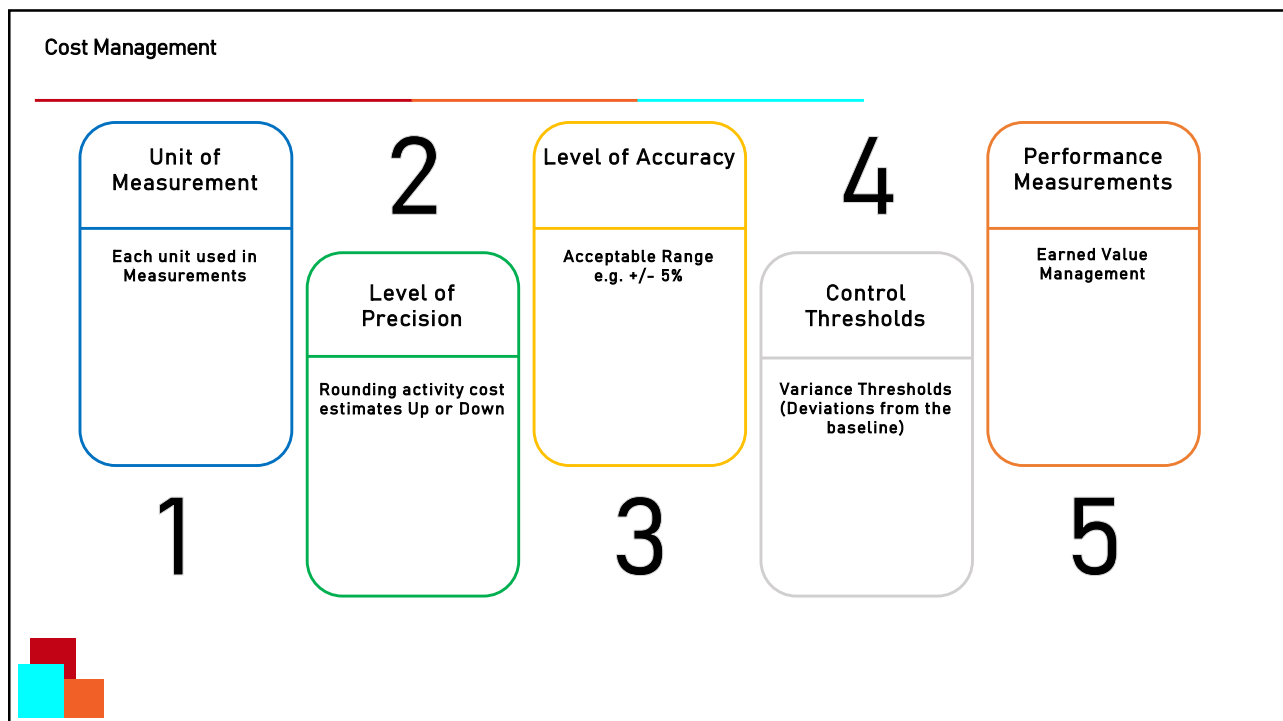
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### Earned Value Management EVM

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Schedule Variance	Cost Variance	Schedule Performance Index	Cost Performance Index
EV - PV	Budget Deficit / Surplus	It measures how efficiently the project team is using its time	It measures the cost efficiency of the budgeted resources
	EV-AC	EV/PV	EV/AC
	@ End of Project	SPI < 1.0 Less Work Done than Planned	CPI < 1.0 Cost Overrun
	PV-AC	SPI > 1.0 More Work Done than Planned	CPI > 1.0 Cost Underrun

The graph plots Cumulative Cost on the y-axis and Time on the x-axis. It shows three curves: Actual Cost (AC), Earned Value (PV), and Planned Value (PV). The Project Budget (BAC) is indicated by a vertical dashed line. The Estimate At Completion (EAC) is shown as a horizontal dashed line. The Management Reserve is the difference between EAC and BAC. The Estimate To Complete (ETC) is the difference between EAC and AC at a specific Data Date.

51

### Early Warning / Forecasting

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Estimate At Completion EAC	Estimate To Complete ETC
<ol style="list-style-type: none"> <li>1 EAC = AC + ETC</li> <li>2 EAC = AC + (BAC - EV)</li> <li>3 EAC = BAC / CPI</li> <li>4 EAC = AC + (BAC - EV) / (CPI * SPI)</li> </ol>	<p>Estimate To Complete (ETC) involves making projections of conditions and events in the project's future based on current performance information and other knowledge available at the time of forecast</p>

52

## TCPI

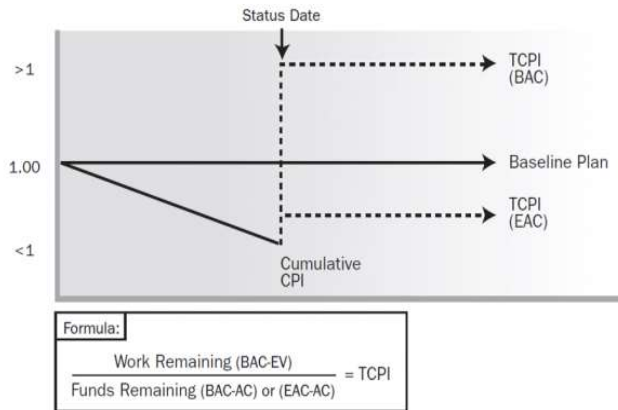
To Complete Performance Index indicates the Cost Performance required to be achieved with remaining resources.

$$TCPI (BAC) = (BAC-EV) / (BAC-AC)$$

$$TCPI (EAC) = (BAC-EV) / (EAC-AC)$$

TCPI (BAC) is expressed as Cost to finish the outstanding work to the remaining budget. Whether TCPI (BAC) is achievable is a judgement call based on a number of considerations such as risk, schedule, technical performance etc.

TCPI (EAC) indicates the current level of performance



53

## Performance Reviews

### Variance Analysis

An explanation of the Cost Variance or Schedule Variance by identifying cause, impact, corrective actions, etc.

Variance At Completion

$$VAC = EV - PV$$

### Trend Analysis

performance over time to track improvement or deterioration

BAC Vs EAC

### Earned Value Performance

Compares the performance measurement baseline to actual schedule and cost performance

54

