

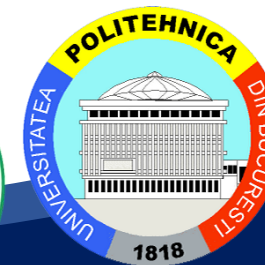


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Project Management and Lean Teams

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Curriculum Development
of Master's Degree Program in
Industrial Engineering for Thailand Sustainable Smart Industry

Project

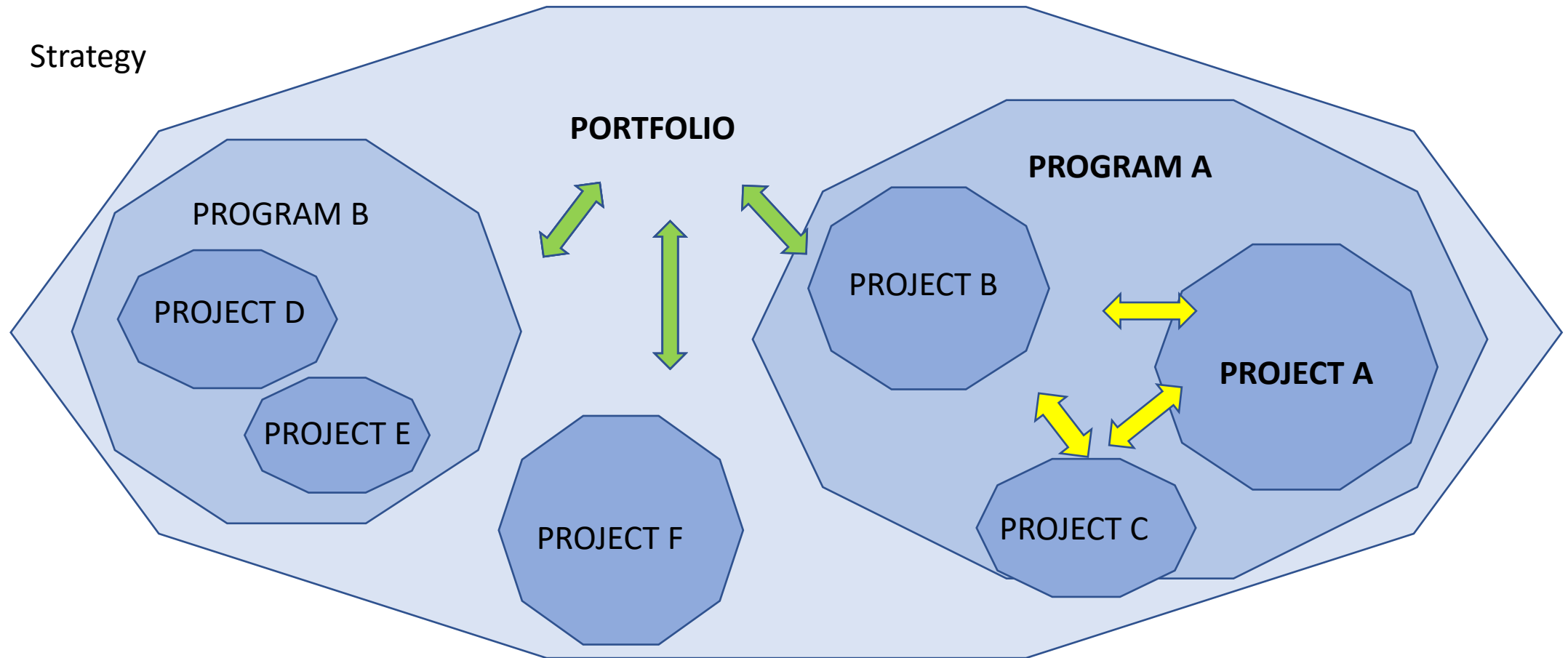
- A **temporary effort** made to create a **unique product, service or result**. (PMBOK, 2004).
 - A **unique process**, composed of a group of coordinated and controlled activities with **start and end dates**, carried out **to achieve a goal** according to specific requirements, including cost, time and resource limitations. (IPMA, 1999)
 - An **exclusive set of coordinated activities**, with a **defined beginning and end**, carried out by an individual or an organization, **to achieve specific objectives**, with a determined schedule, cost and performance. (SABATO, 1975)
-
- Project Management
 - “Application of knowledge, skills, tools and techniques to project management activities in order to satisfy its requirements.”

Project - Operations

Project	Operations
Temporary	Continuous
Unique result	Repeated results
Structure is not predefined	Predefined structure

Project and Operations
Transform inputs into products
Carry out a series of coordinated and controlled activities
Have restrictions on cost, time and resources
Are subject to performance and quality criteria

↔ Strategy

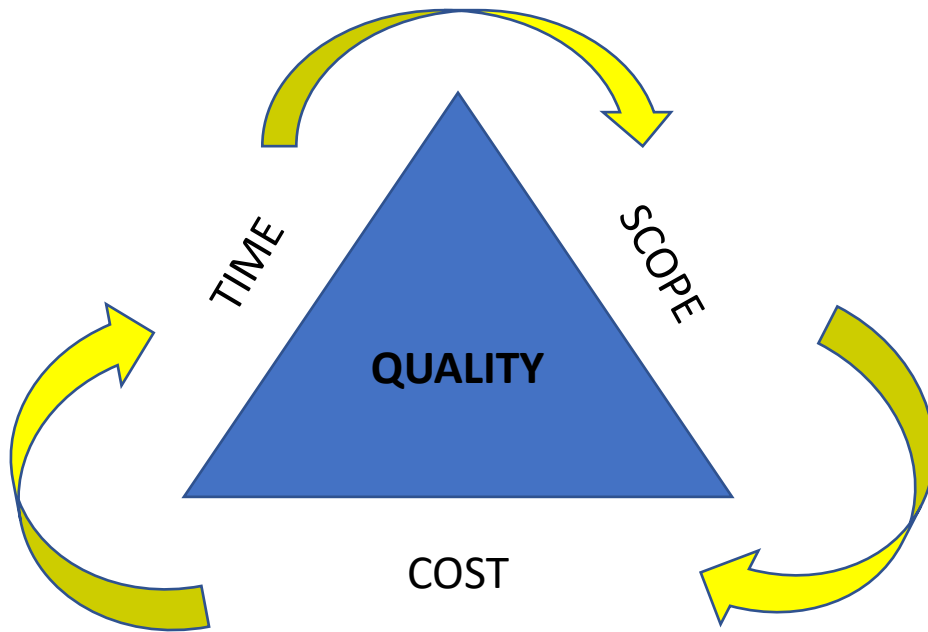


↔ Resources

Project management is the application of knowledge, skills, tools and techniques to project management activities in order to satisfy its requirements.”

QUESTIONS TO ANSWER

- What will I produce?
- What are the customer's needs and expectations?
- Who will do the job?
- How long will it take?
- How much will it cost?
- What can go wrong?
- How to avoid potential problems?



Why Project Management?

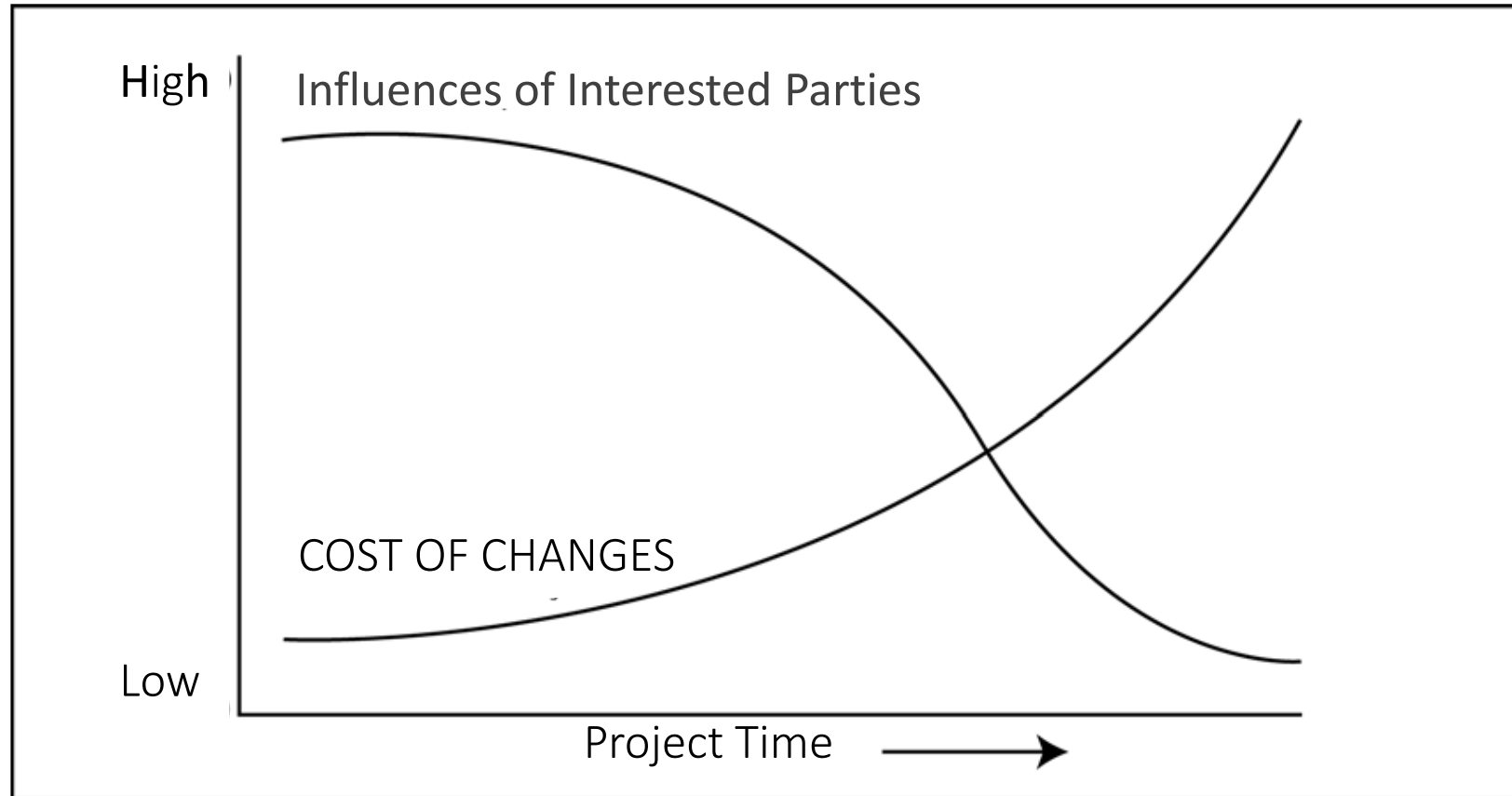


Source: Indiana Jones

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PM characterization



CORE

SCRUM

Sprint

DevOps

Agile

...

By competencies (IPMA)

By Processes (PMI)

Predictive

Iterative

Incremental

Agile

(Ways of approaching the Project Life Cycle)

Predictive	Iterative	Incremental	Agile
Requirements are defined in advance, before the start of development	Requirements can be established at periodic intervals during delivery		Requirements are developed frequently during delivery
Delivery plans for final delivery. Then, deliver only a single final product at the end of the project	Deliveries can be divided into subsets of the entire product		Delivery occurs frequently according to the subsets evaluated by the customer for the entire product
Changes are restricted as much as possible	Changes are incorporated periodically		Changes are incorporated in real time during delivery
Key stakeholders are involved in specific milestones	The main stakeholders are regularly involved		Key stakeholders are constantly involved
Risks and costs are controlled by detailed planning of the most important aspects	Risks and costs are controlled by the progressive elaboration of plans with new information		Risks and costs are controlled as requirements and restrictions arise

Source: PMI 6th Edition

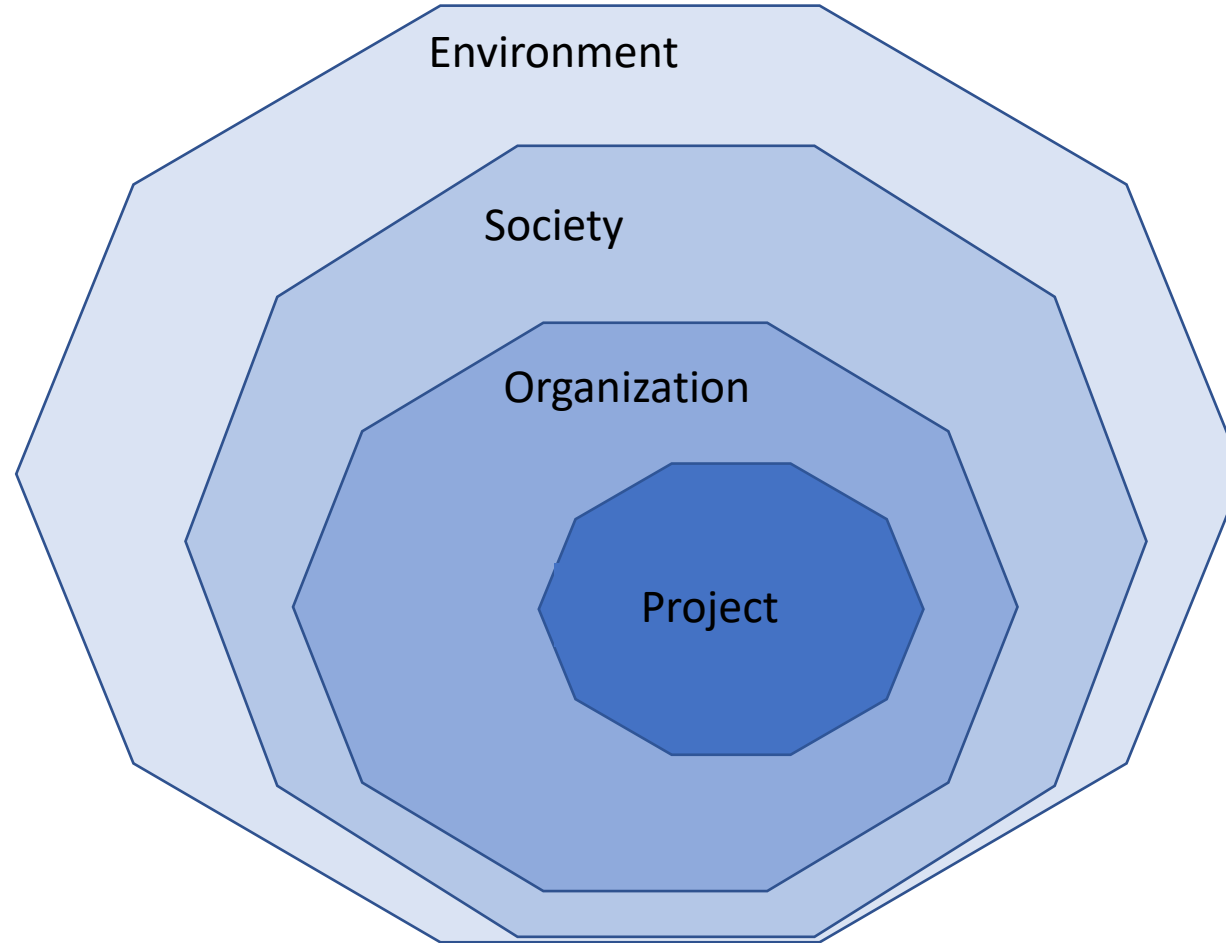
- There are several management frameworks (set of knowledge, skills, tools and techniques) that help us answer the previous questions.
- However, everyone seeks to meet the following characteristics:

- Collaborative

- Results oriented

- Has open architecture

- Easy to apply



- PMI – *Project Management Institute*
 - Sets standards - process-centered
 - PMBoK Guide; Reference Guides; Articles; Periodicals
 - Promotes publications, research; congresses ...
 - Certifies professionals,...

- Created in 1969
- Present in more than 190 countries
- Has about 500,000 members

Project Management Processes
(PMI Knowledge Areas)



Project Management Body Knowledge (PMBOK)



Identifies a subset of management knowledge that is widely recognized as good practice.

PMI considers PMBOK® a basic project management reference for its professional development programs and certifications.

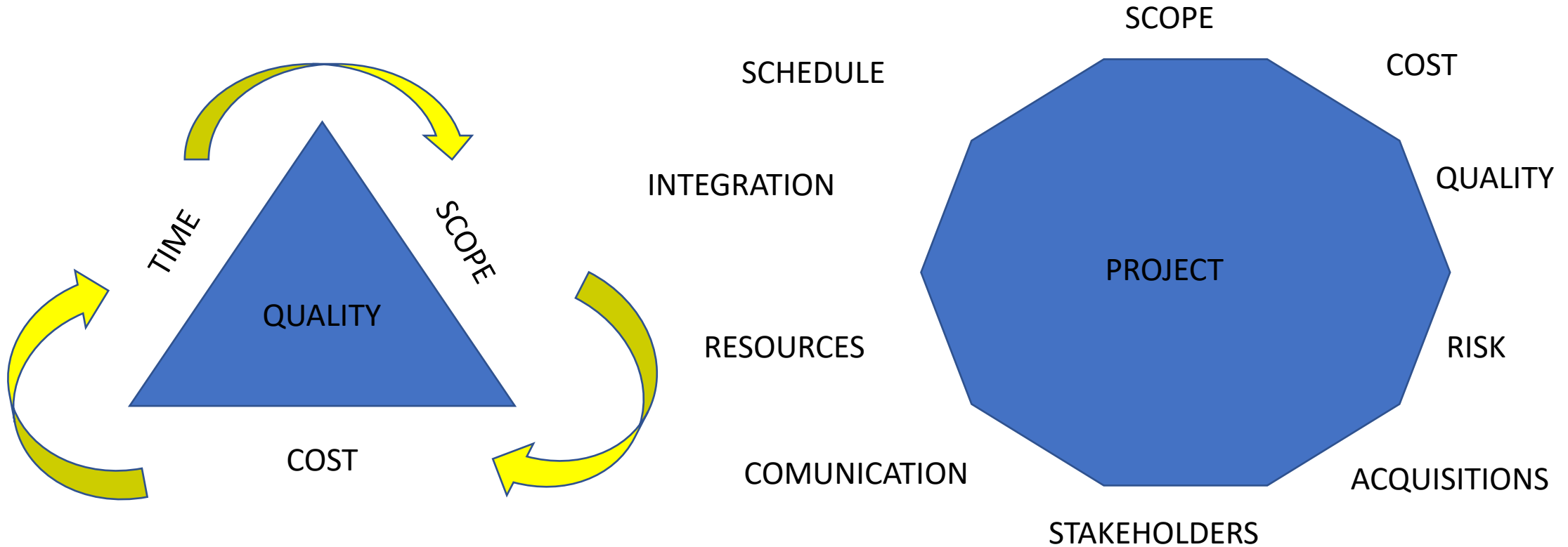
PMBOK® is not a methodology and is not complete or comprehensive. It is necessary to look for sources of additional information on project management.

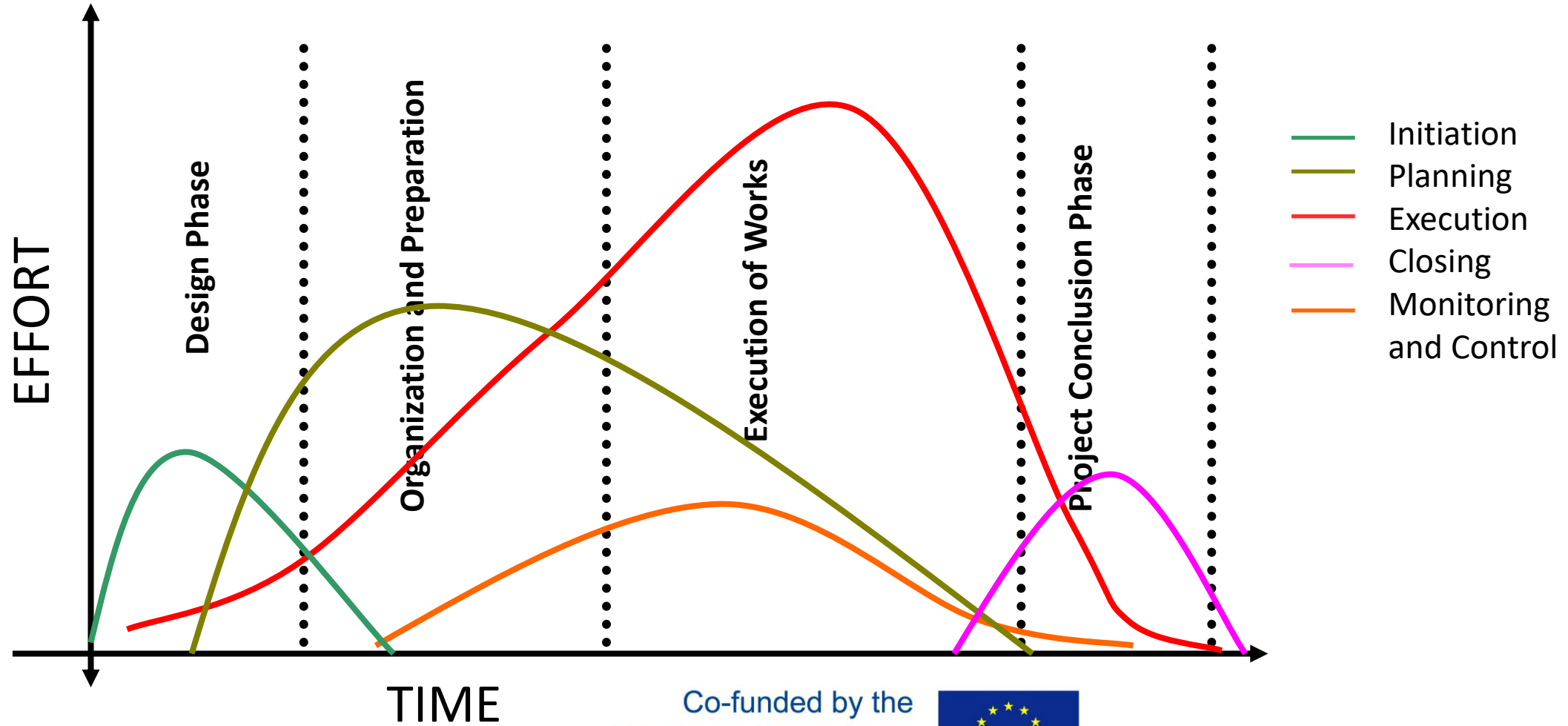
The application of knowledge, processes, skills, tools and appropriate techniques significantly impact the success of a project.



Processes and Knowledge Areas	Project Management Process Groups				
	Initiation (2)	Planning (24)	Execution (10)	Monitoring and control (12)	Closing (1)
Integration (7)	Develop the Term of Opening	Develop Management Plan	Direct and Manage project work Manage project knowledge	Monitor and control the project work; Perform integrated change control	Finalize the project or phase
Scope (6)		Scope management planning; Collect requirements; Scope definition; Create WBS		Check scope; Track scope	
Schedule (6)		Schedule management planning; Define activities; Activity sequencing; Estimate activity resources; Estimate the duration of activities; Develop schedule		Timeline control	
Cost (4)		Cost Management Planning; Estimate Costs; Determine budget		Cost Control	
Quality (3)		Quality Management Planning	Execution of quality assurance	Quality control	
Resources (6)		Resource Planning Estimate Activity Resources	Acquire resources Develop the project team; Manage the project team	Resource management control	
Communication (3)		Communication Management Planning	Manage communication	Monitor communications	
Risk (7)		Risk Management Planning; Identify the risks; Perform qualitative risk analysis; Risk response plan.	Implement risk responses	Monitor risks	
Acquisitions (3)		Purchasing management planning	Make acquisitions	Control of acquisitions	
Stakeholders (4)	Identify Stakeholders	Stakeholder engagement planning	Manage stakeholder engagement	Monitor stakeholder engagement	


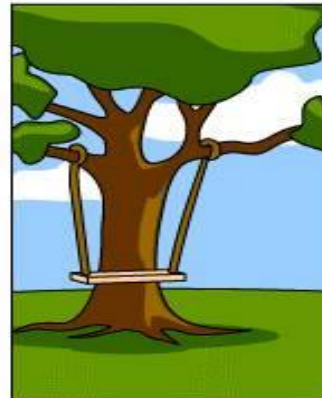



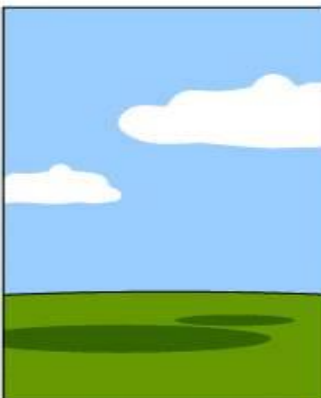


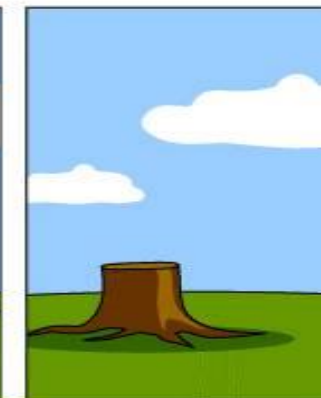
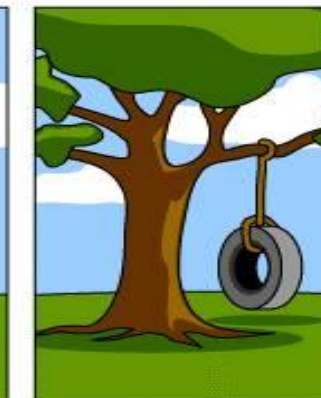
PMBOK - Knowledge Areas





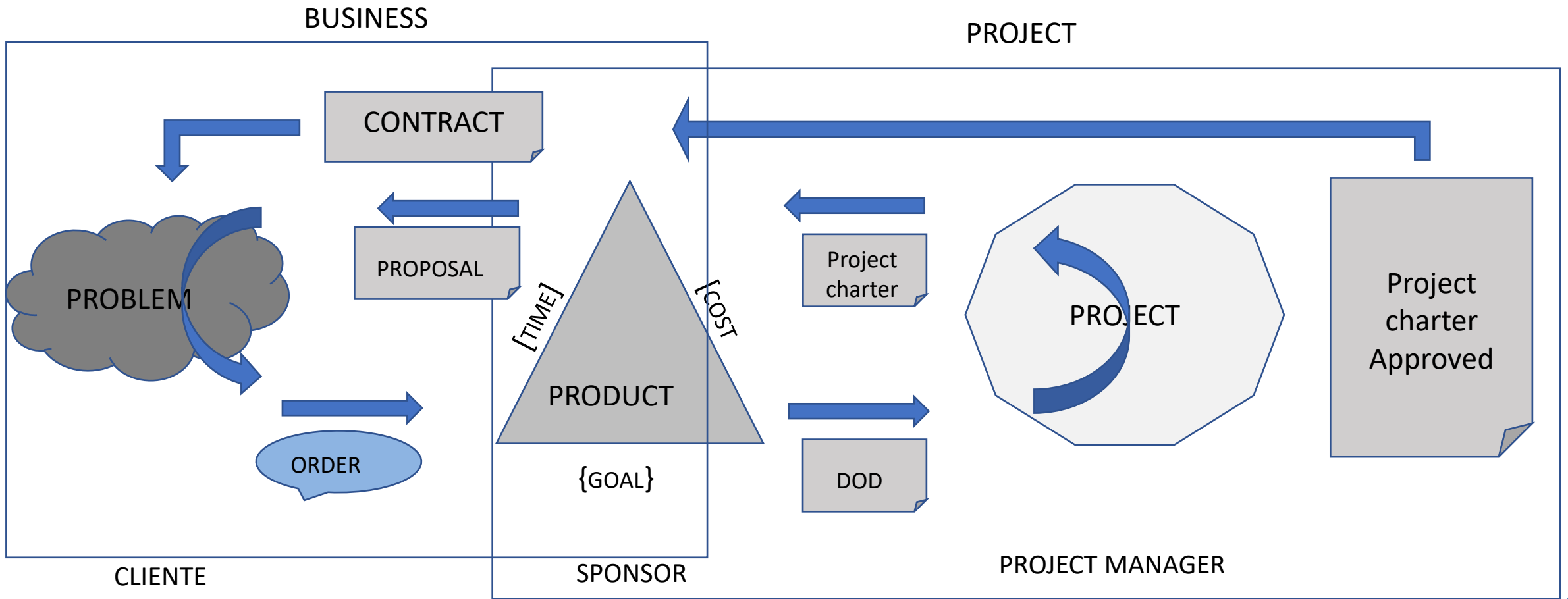
Start a Project (Project Chart)

Align expectations

 <p>How the customer explained it</p>	 <p>How the Project Leader understood it</p>	 <p>How the Analyst designed it</p>	 <p>How the Programmer wrote it</p>	 <p>How the Business Consultant described it</p>
 <p>How the project was documented</p>	 <p>What operations installed</p>	 <p>How the customer was billed</p>	 <p>How it was supported</p>	 <p>What the customer really needed</p>



How a project is born?



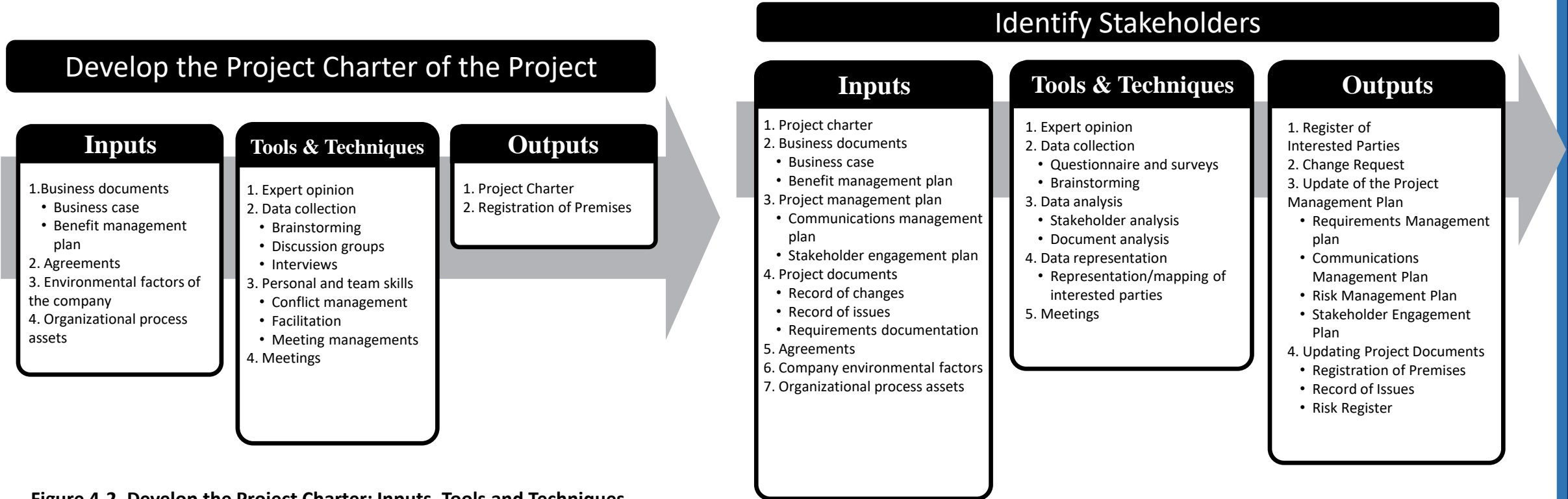


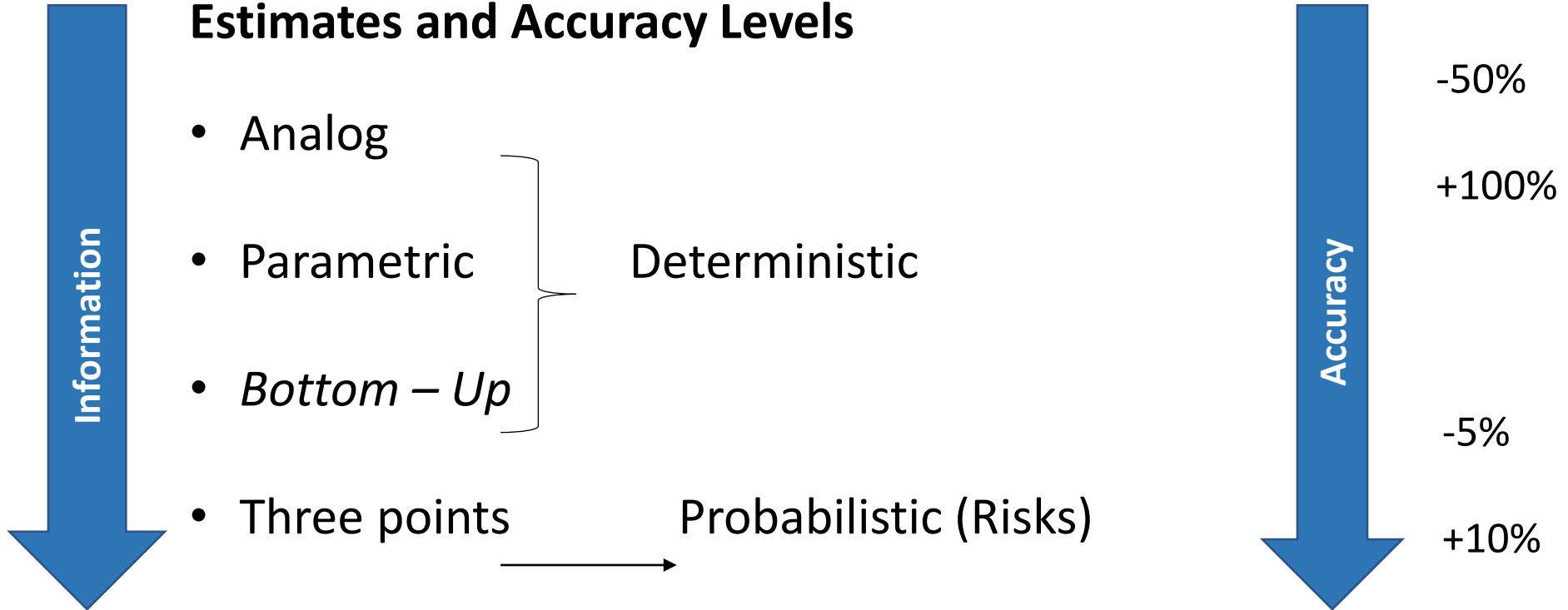
Figure 4-2. Develop the Project Charter: Inputs, Tools and Techniques, and Output

Figure 13.2 Identify the Stakeholders: Input, Tools and Techniques, and Outputs

Source: PMI 6th Edition

- Questions
 - What is expected to be produced?
 - By whom?
 - How long?
 - For how much?

Estimates and Accuracy Levels



Beta Distribution (PERT)

$$\text{Average} = \frac{O + 4 \cdot \text{ML} + P}{6} \quad \text{Variance} = \left[\frac{(P - O)}{6} \right]^2$$

$$\text{Standard deviation} = (P - O) / 6$$

O = Optimistic estimate

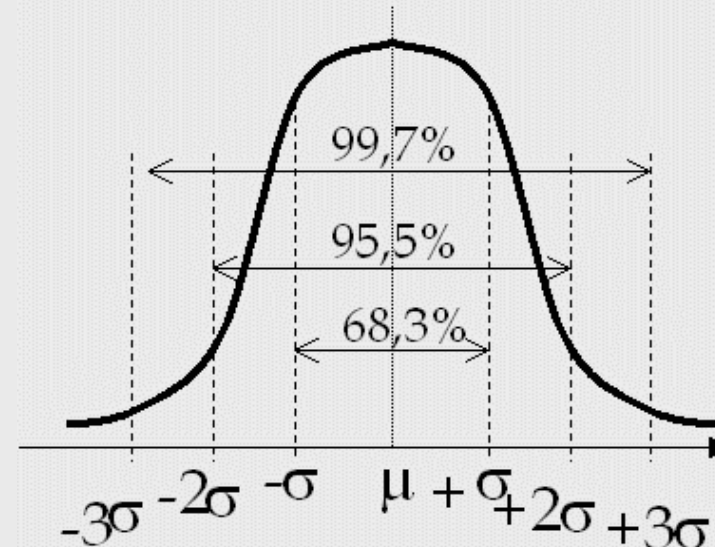
ML = Most Likely estimate

P = Pessimistic estimate

$$1 \sigma = 68,3\%$$

$$2 \sigma = 95,5\%$$

$$3 \sigma = 99,7\%$$

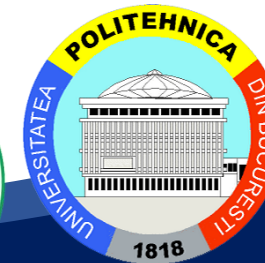


MSE 4.0

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Thank You



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