Università
degli Studi
della Campania
Luigi Vanvitelli

Cattedra di Sviluppo Organizzativo e delle Risorse Umane
Corso di laurea magistrale in Psicologia Applicata

Prof. Alessandro Lo Presti

Seimnario:

Le Knowledge Areas del Project Management

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Dipartimento di Ingegneria dell'innovazione
Università del Salento

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Agenda

- Project economy
- The Project **LIFE CYCLE**
- The **PROCESS GROUP** for the Project management
- **KNOWLEDGE AREAs** of Project Management
- Main outputs deliverables of KAs

Definition of Project

According to the *Project Management Body of Knowledge* (PMBook)

A project is a temporary endeavor undertaken to create a unique product, service, or result.
The temporary nature of projects indicates a beginning and an end to the project work or a phase of the project work.

For example, a project to build a national monument will create **a result expected to last for centuries**. Projects can also have social, economic, and environmental impacts that far outlive the projects themselves.

Projects are expected to create **Value** for the organization and stakeholders within the organization's system for value delivery.

How projects create value ?

How Projects create VALUE?

Examples of ways that projects produce value include, but are not limited to:

The Project Economy Has Arrived

Projects

involve the ***Changing*** of organizations

driving both **short-term performance** and **long-term value creation**—through:

- more-frequent organizational transformations
- faster development of new products
- quicker adoption of new technologies,

and so on.

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Source: Nieto-Rodriguez, (2021) the project economy has arrived, HBR.

The Project Economy Has Arrived

Projects involve the ***Changing*** of organizations

In Germany, projects have been rising steadily **as a percentage of GDP** since at least 2009, and in 2019 they accounted for as much as **41% of the total.**

The percentages are higher in China and other leading Asian economies, where project-based work has long been an important **Source Of Growth**.

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Source: Nieto-Rodriguez, (2021) the project economy has arrived, HBR.

The Project Economy Has Arrived

Projects

involve the ***Changing*** of organizations

In 2017, the Project Management Institute estimated that the value of project-oriented economic activity worldwide would grow from **$12 trillion in 2017** to **$20 trillion in 2027**, in the process putting some **88 million people to work in project management**–oriented roles—and those estimates were made before nations started spending trillions on pandemic-recovery projects.

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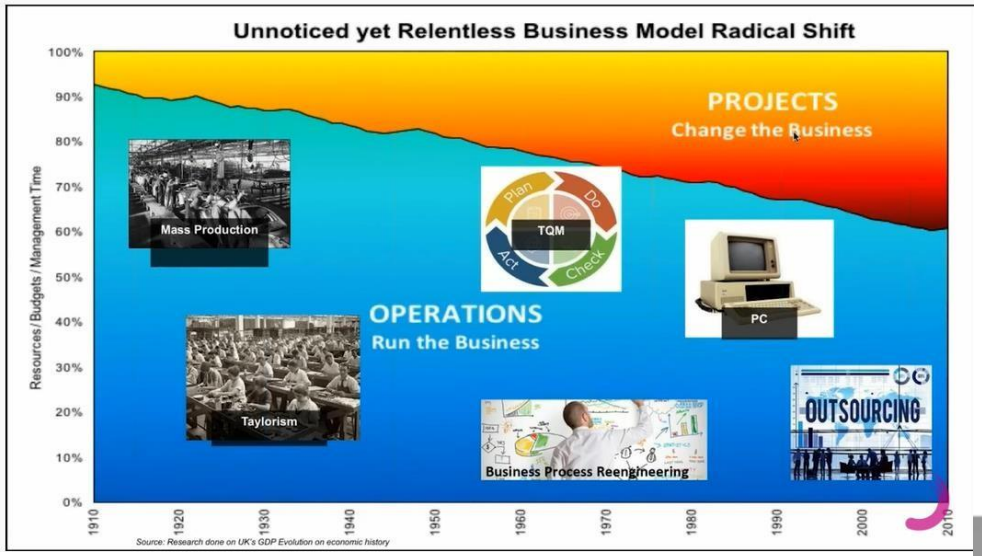
Source: Nieto-Rodriguez, (2021) the project economy has arrived, HBR.

The Project Economy Has Arrived



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Source: Nieto-Rodriguez, (2021) the project economy has arrived, HBR.

The Project Economy Has Arrived

Projects

involve the ***Changing*** of organizations

Companies need to be organizationally ambidextrous ------they must balance

the ***EXPLOITATION*** of their current capabilities (operations) with

the ***EXPLORATION*** of new competencies (projects).

Organizations need to focus simultaneously on **Running** the organization and

Changing it.

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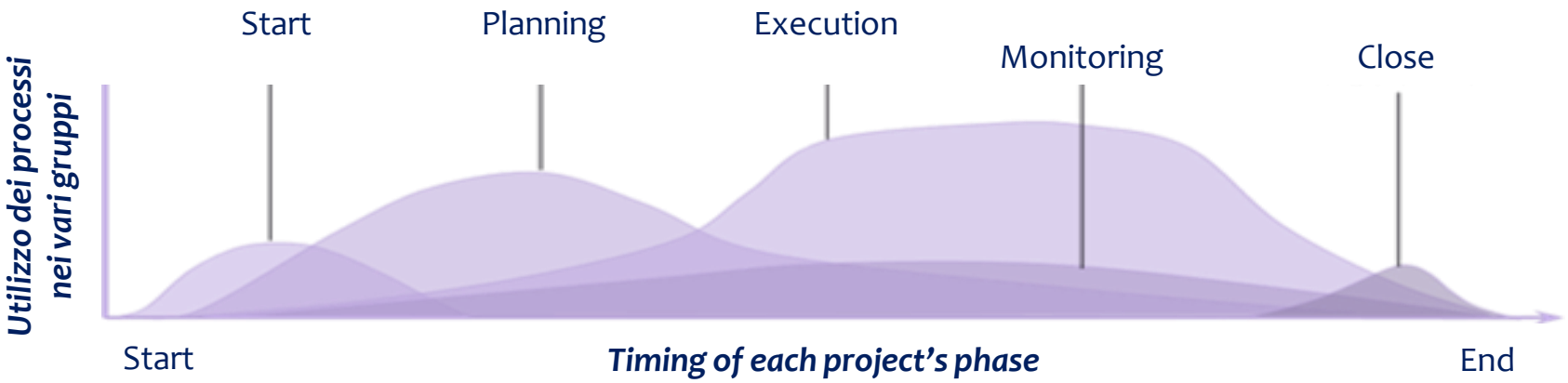
Source: Nieto-Rodriguez, (2021) the project economy has arrived, HBR.

Project **Life Cycle**

The Project Life Cycle

The life cycle of a generic project includes a variable number of ***stages,*** selected according to the requirements of each project, in each of the phases are used the processes of five process groups that are temporally interrelated according to the following scheme:



- **Start,** namely the definition and authorization for the starting of the specific phase of the project
- **Planning,** scheduling and detailed objectives and actions required to achieve the result
- **Execution,** coordination of people and resources resulting in the action plan
- **Monitoring,** control and analysis phase of the project to identify changes and implement corrective actions
- **Closing,** to formalizing acceptance of the product-service-result and end of the phase.

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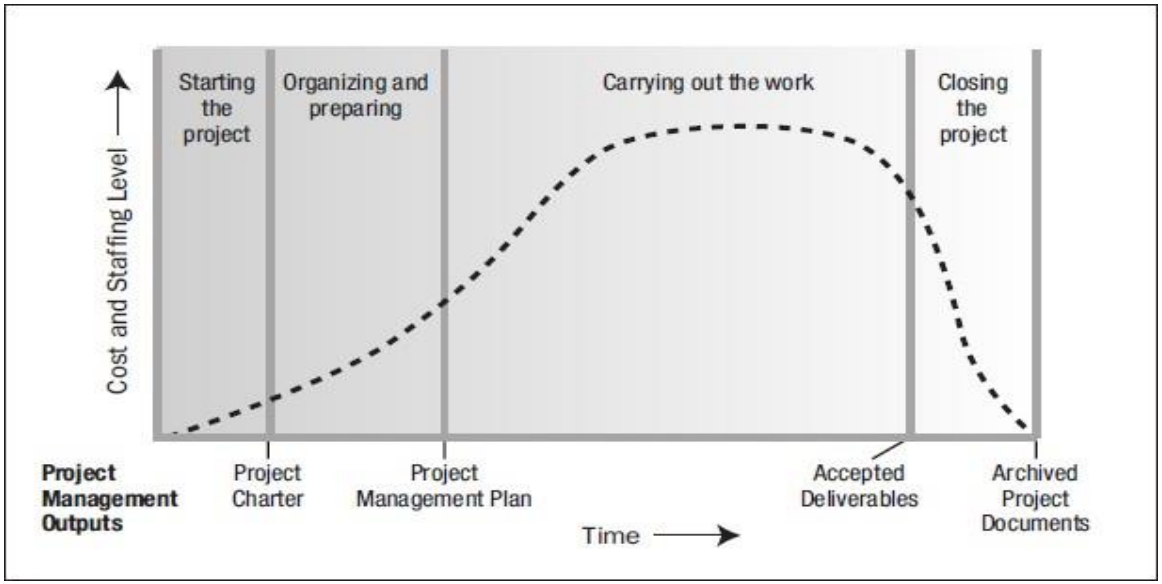
The Project Life Cycle

A project life cycle is **the series of phases that a project passes through from its initiation to its closure.** Each project has a **life cycle** that includes several **interrelated phases** that connect the beginning of the activities to achieve the outcomes and objectives. Each phase is characterized by the execution of specific activities and management processes through which it's possible to plan, execute and monitor the status of the project throughout its development. The life cycle provides the basic framework for managing the project, regardless of the specific work involved.

The life cycle of the project defines: 1) **what work must be done** at each stage, and 2) **when the deliverables are to be produced** at each stage and how each deliverable must be analyzed and validated, and 3) **who is involved** in every stage; 4) **how to check** and approve each phase.

Projects vary in size and complexity. *All projects can be mapped to the following generic life cycle structure:* **Starting the project, Organizing and preparing, Carrying out the project work,** and **Closing the project.**



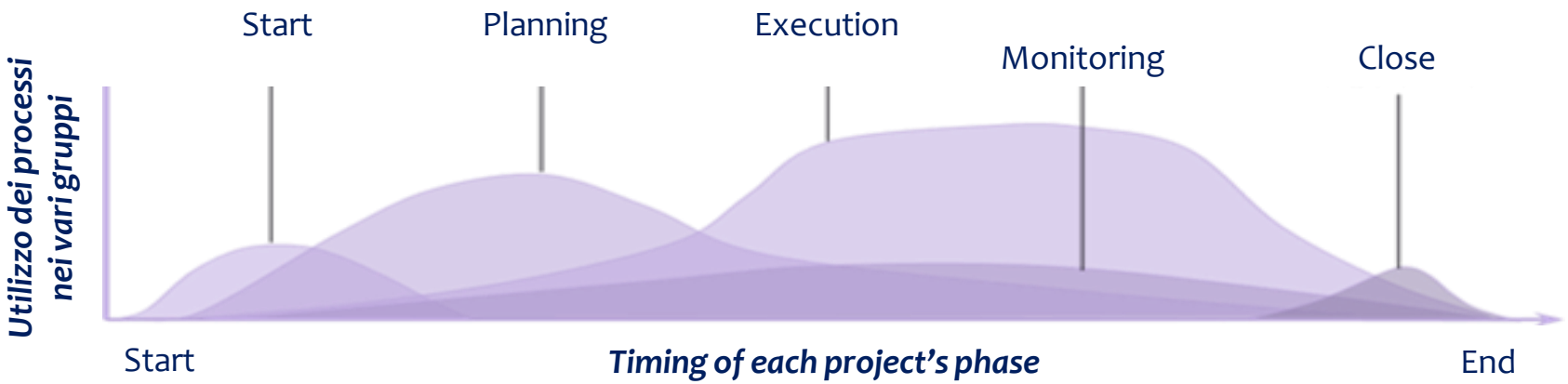
The transition from one phase to another is usually defined with the transfer of technical information and / or the completion and handover of specific technical components or sub-systems of the project.

Project and constraints

Every project is constrained in terms of **TIME, COST AND SCOPE.**

A change in each of the three variables generates the consequences in terms of at least one of the other two.

The Project Life Cycle



Which processes to perform in each phase?

Project and Process Group

In every project, Project management processes are grouped into five categories known as Project Management Process Groups (or Process Groups):

- **Initiating Process Group.** Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
- **Planning Process Group.** Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
- **Executing Process Group.** Those processes performed to complete the work defined in the project management plan to satisfy the project specifications.
- **Monitoring and controlling Process Group.** Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
- **Closing Process Group.** Those processes performed to finalize all activities across all Process Groups to formally close the project or phase.

Interaction among the Process Group (1)

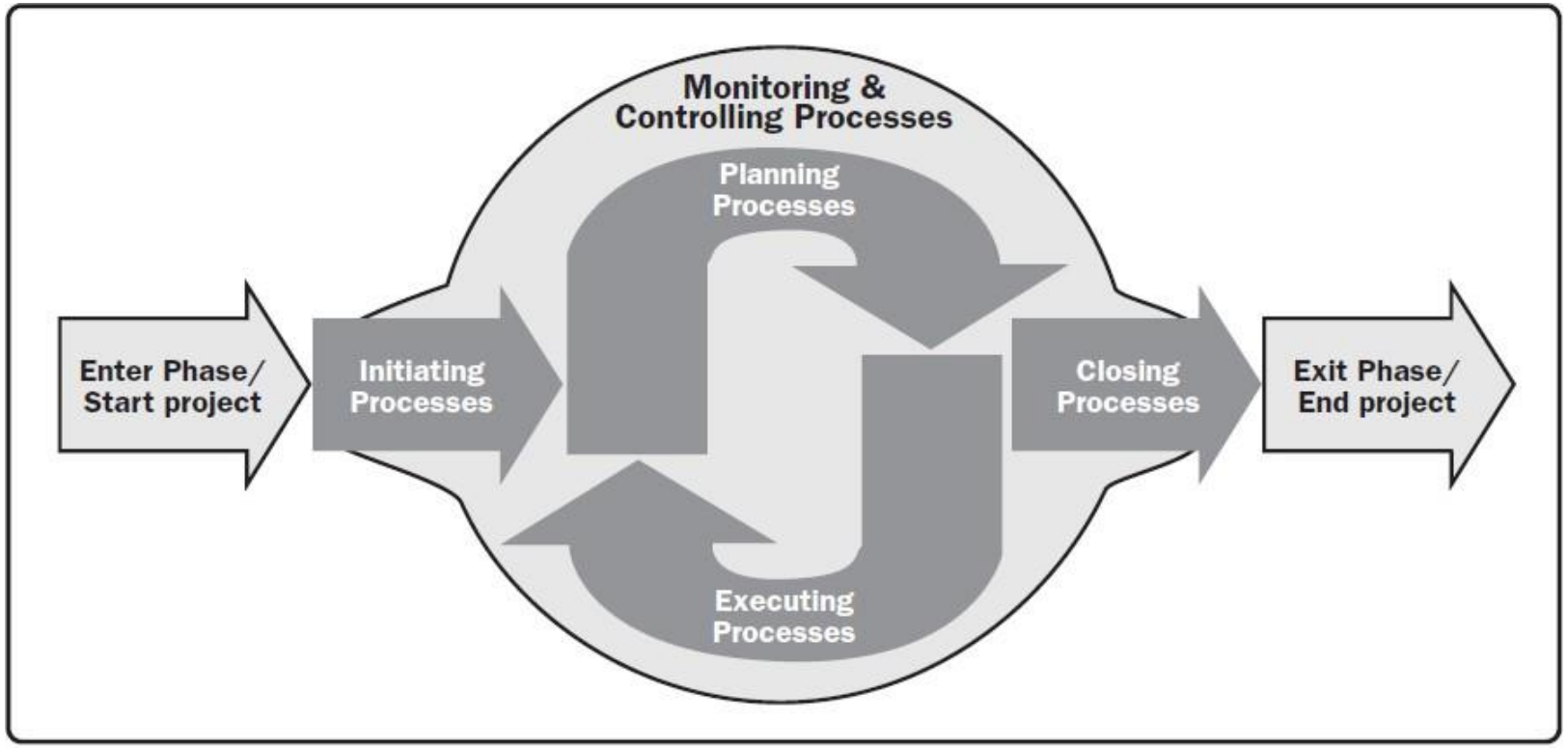


Figure 3-1. Project Management Process Groups

The integrative nature of project management requires the Monitoring and Controlling Process Group to interact with the other Process Groups, as shown in Figure 3-1. Monitoring and Controlling processes occur at the same time as processes contained within other Process Groups**. Thus, the Monitoring and Controlling Process is pictured as a "background" Process Group for the other four Process Groups.**

10 Knowledge Areas

Integration Management

Scope Management

Time Management

Cost Management

Quality Management

HR Management

Communication Management

Risk Management

Procurement Management

Stakeholders Management

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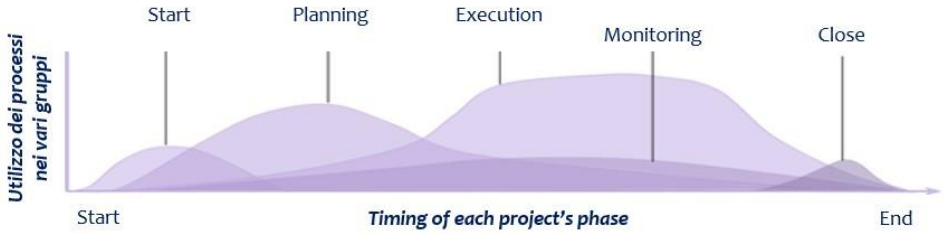
10 Knowledge Areas and Processes of PM



Integration Management

Scope Management

Time Management

Cost Management

Quality Management

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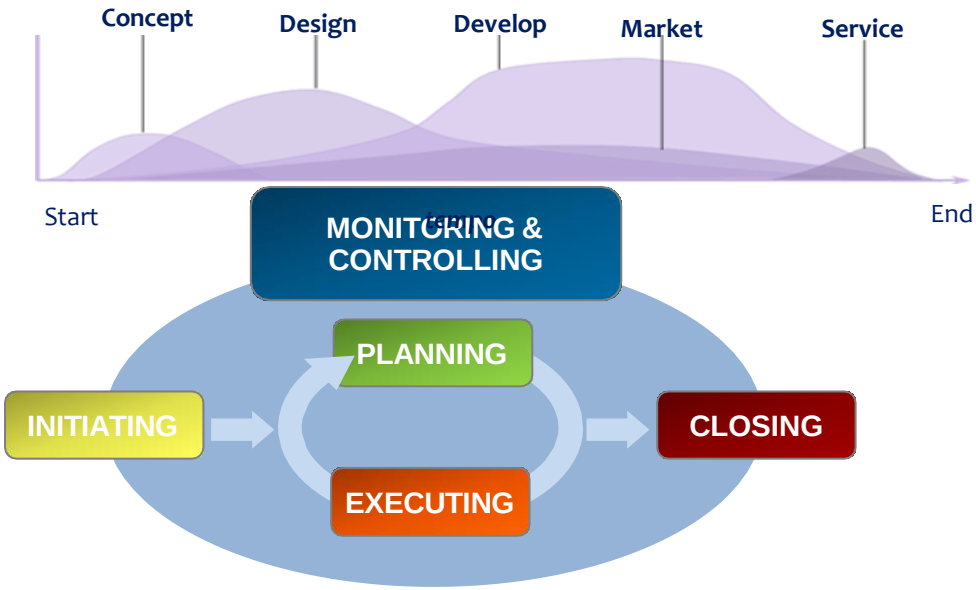
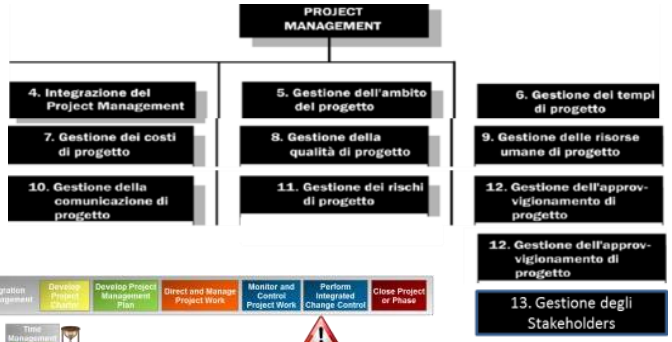
Logical Schema of Project Management





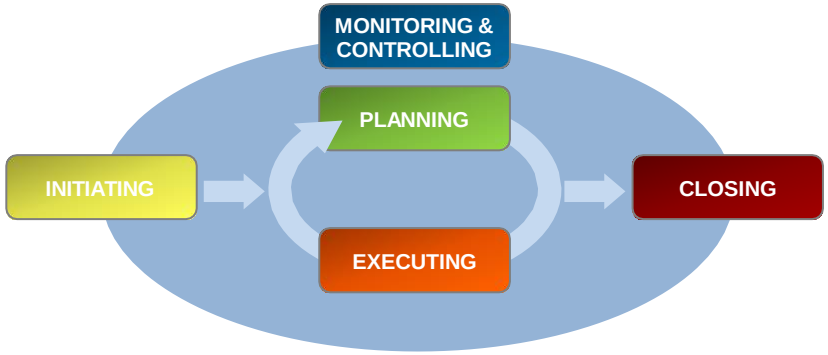
Within each PHASE of a Project LIFE CYCLE …

… **5 PROCESS GROUP** are developed …

… related to **10 Knowledge Area of Project Management** …

… for a total of **47 different Processes of Project Management**

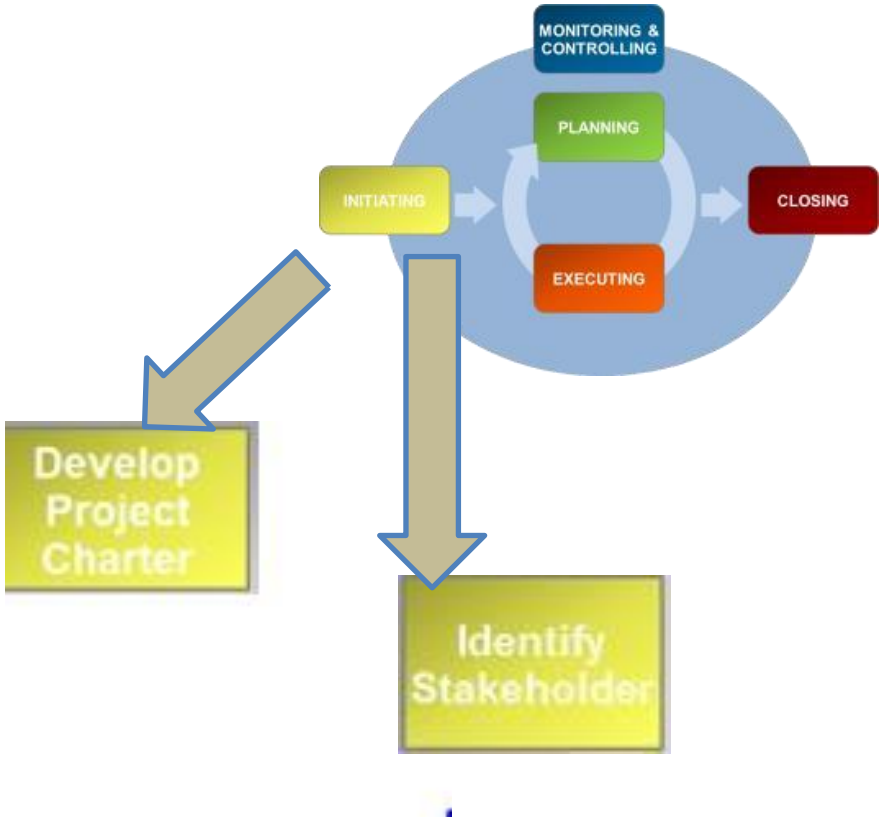
Two different criteria for the «Aggregation» of processes



CRITERIA
CRONOLOGICAL o TEMPORAL
(e.g. Processes related to Initiating Phase)

CRITERIA
CONTENT or SPECIALIZATION
(e.g. Processes related to cost management relativi alla Gestione dei Costi)

10 Knowledge Areas and Processes of PM



10 Knowledge Areas and Processes of PM

Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Work	Monitor and Control Project Work	Perform Integrated Change Control	Close Project or Phase

Scope Management	Time Management	Cost Management	Quality Management	HR Management	Communications Management	Risk Management	Procurement Management	Stakeholder Management
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Create WBS	Estimate Activity Resources	Control Costs		Manage Project Team		Perform Quantitative Risk Analysis	Close Procurements	Control Stakeholder Engagemen
Validate Scope	Estimate Activity Durations					Plan Risk Responses		
Control Scope	Develop Schedule					Control Risks		
	Control Schedule							

10 Knowledge Areas and Processes of PM

- Develop Project Management Plan
- Plan Scope Management
- Collect Requirements
- Define Scope
- Create WBS
- Plan Schedule Management
- Define Activities
- Sequence Activities
- Estimate Activity Resources
- Estimate Activity Durations
- Develop Schedule
- Plan Cost Management
- Estimate Costs
- Determine Budget
- Plan Quality Management
- Plan HR Management
- Plan Communica-tion Mgmt
- Plan Risk Management
- Identify Risks
- Perform Qualitative Risk Analysis
- Perform Quantitative Risk Analysis
- Plan Risk Responses
- Plan Procurement Management
- Plan Stakeholder Management

10 Knowledge Areas and Processes of PM

Direct and Manage Project Work

Perform Quality Assurance

Acquire Project Team

Develop Project Team

Manage Project Team

Manage Communica-tion

Conduct Procurements

Manage Stakeholder Engagement

10 Knowledge Areas and Processes of PM

Monitor and Control Project Work

Perform Integrated Change Control

Validate Scope

Control Scope

Control Schedule

Control Costs

Control Quality

Control Stakeholder Engagement

Control Communica-tion

Control Risks

Control Procurements

10 Knowledge Areas and Processes of PM

Close Project or Phase

Close Procurements

10 Knowledge Areas and Processes of PM

Integration Management	Develop Project Charter	Develop Project Management Plan	Direct and Manage Project Work	Monitor and Control Project Work	Perform Integrated Change Control	Close Project or Phase

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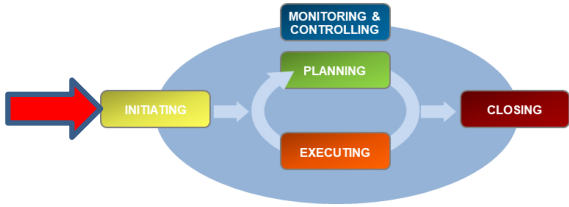
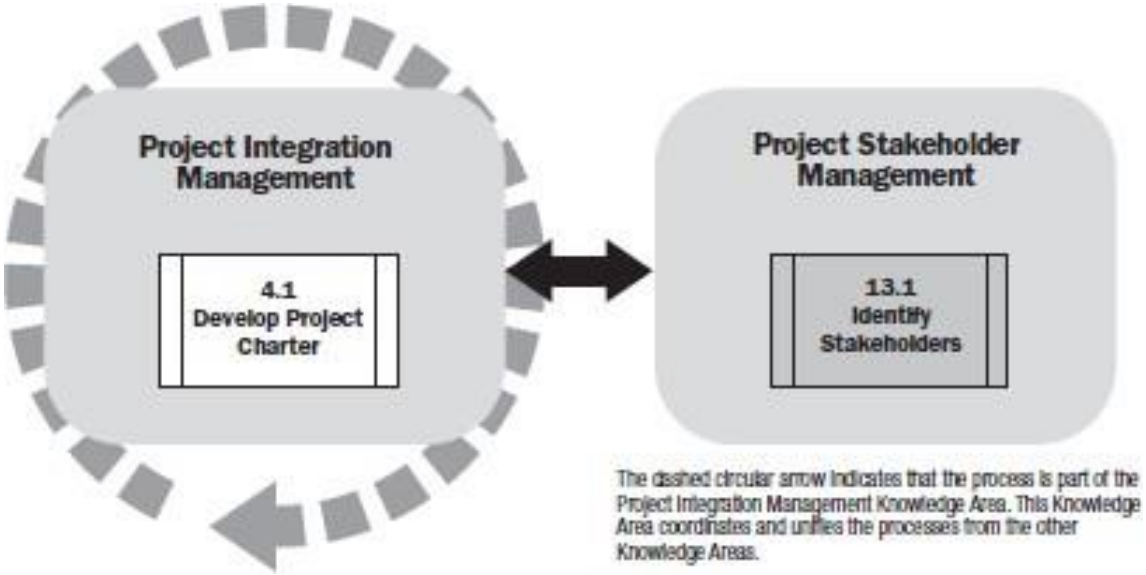
Validate Scope	Estimate Activity Durations					Plan Risk Responses		
Control Scope	Develop Schedule					Control Risks		
	Control Schedule							

The Process Group «Initiating»

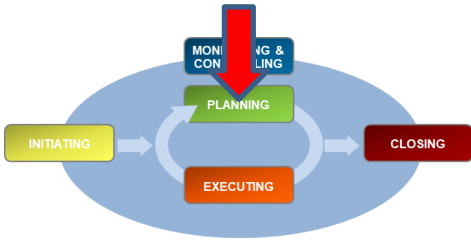


The Group Process of INITIATING includes all the necessary processes for the formal authorization and the beginning of the project, including the identification of all the stakeholders who are interested or involved in the project implementation and the achievement of its objectives.

The Group INITIATING include 2 PROCESSES

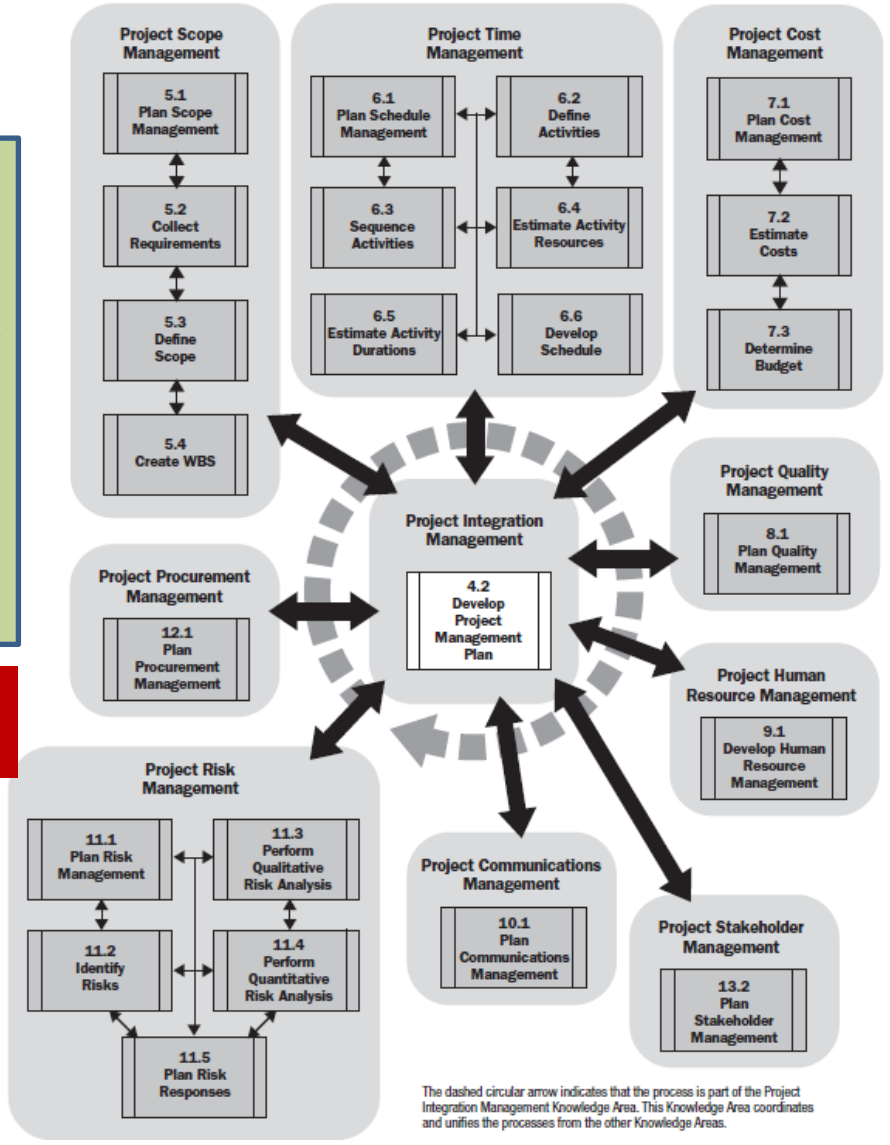


The Process Group «PLANNING»

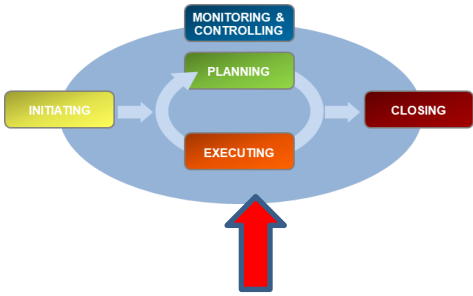


The Group Process **PLANNING** includes all the processes that allow the development of the project management plan. These processes contribute to the identification and definition of the scope and maturity of the project cost and schedule of the project activities. As the project has been enhanced with information, identify or resolve the dependencies, requirements, risks, opportunities, assumptions, and constraints.

The Group PLANNING include **24 PROCESSES**

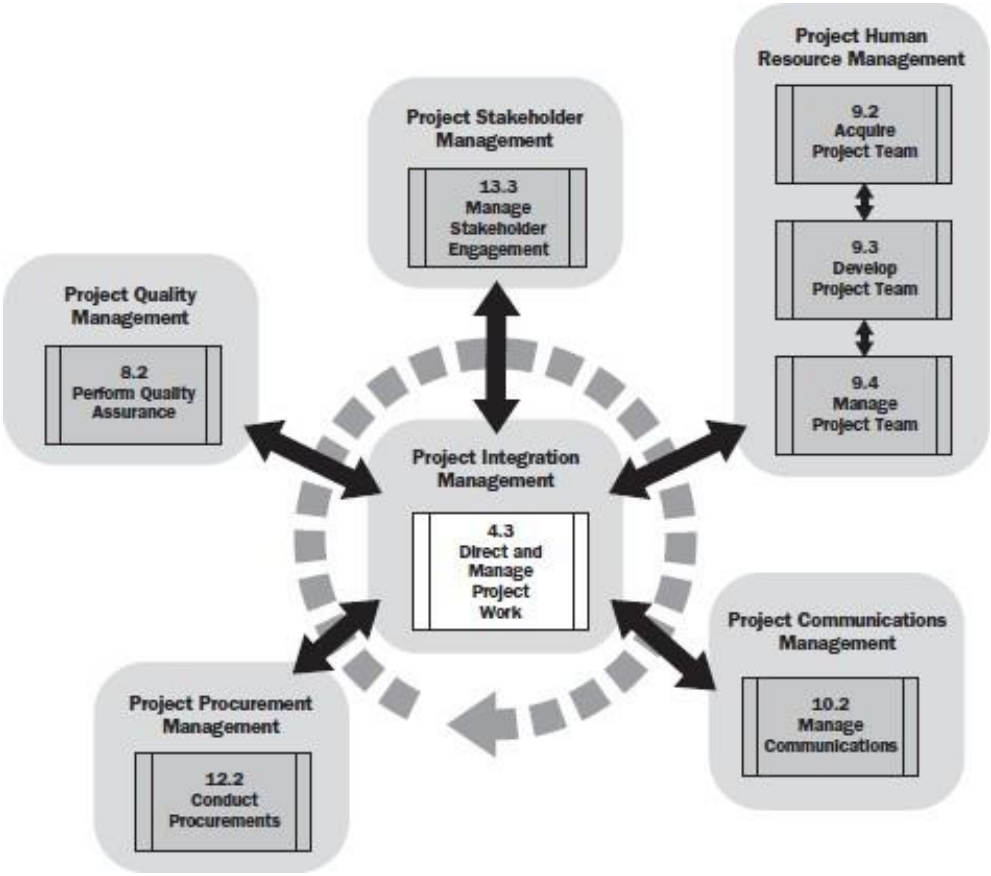


The Process Group «Execution»

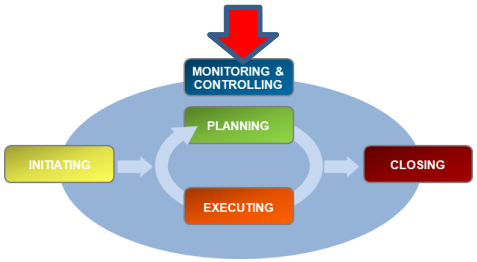


The Group Process **EXECUTION** includes the processes used to complete the work defined in the project management plan to meet the requirements of the project. This group of processes involves the coordination of people and resources, as well as integration and implementation of project activities as set out in the project management plan. This process group is also involved in the scope defined in the project scope and implementation of approved changes.

The Process EXECUTION include **8 PROCESSES**

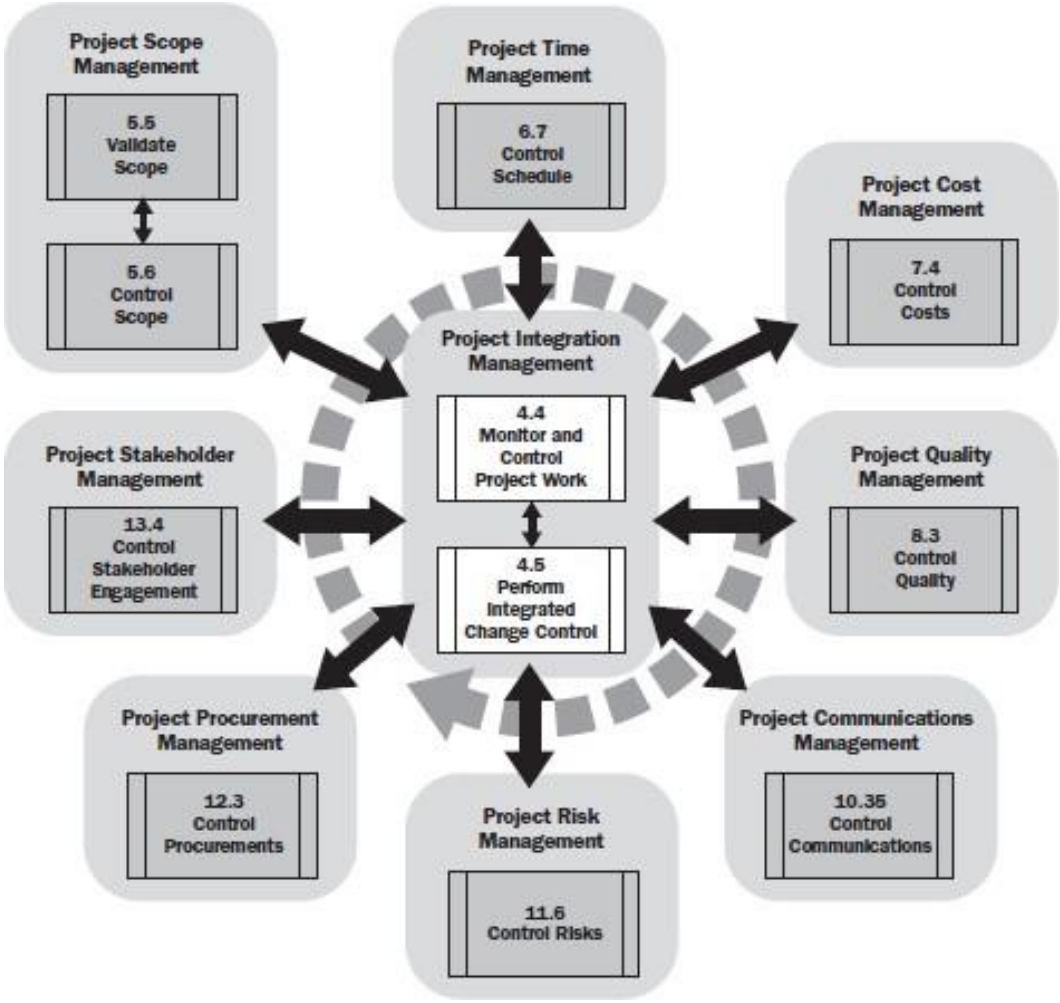


The Process Group «Monitoring and Controlling»



The Group Process **MONITORING AND CONTROL** includes the processes performed to observe project execution so that we can promptly identify potential problems and take appropriate corrective measures. The main objective of the activities in this phase is to observe and measure project performance regularly to identify variances from the project management plan.

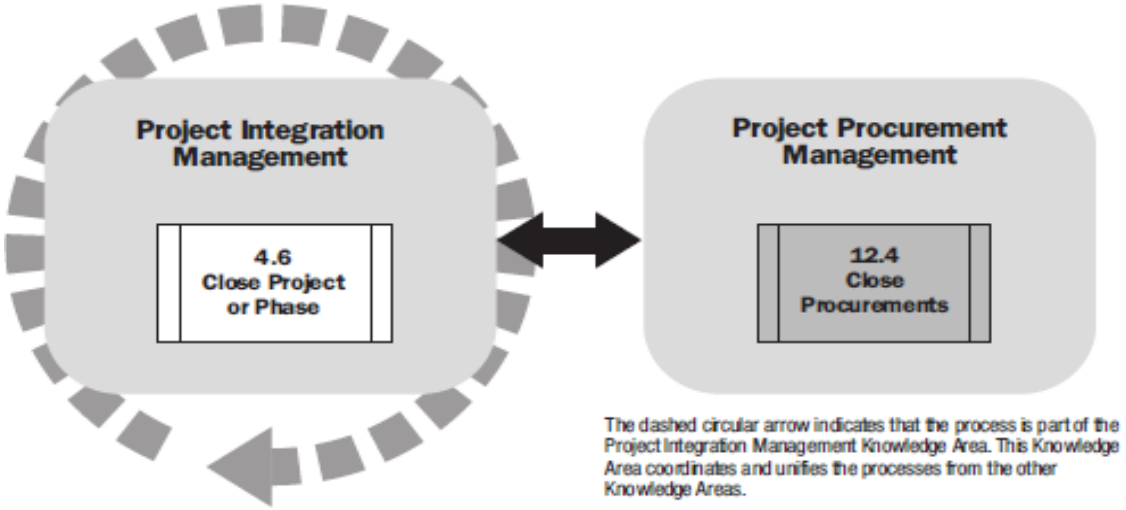
The Group MONITORING and CONTROLLING include **11 PROCESSES**



The Process Groups «CLOSING»

The Group Processes **CLOSING** includes the processes used to formally terminate all activities of a project or a project phase, to forward to others the finished product or close a canceled project. This group of processes verifies that the defined processes have been carried out to formally close the project or phase, and formally establish the end of the project or project phase.

The Process Group **CLOSING** include 2 Processes



10 Knowledge Areas and Processes of PM

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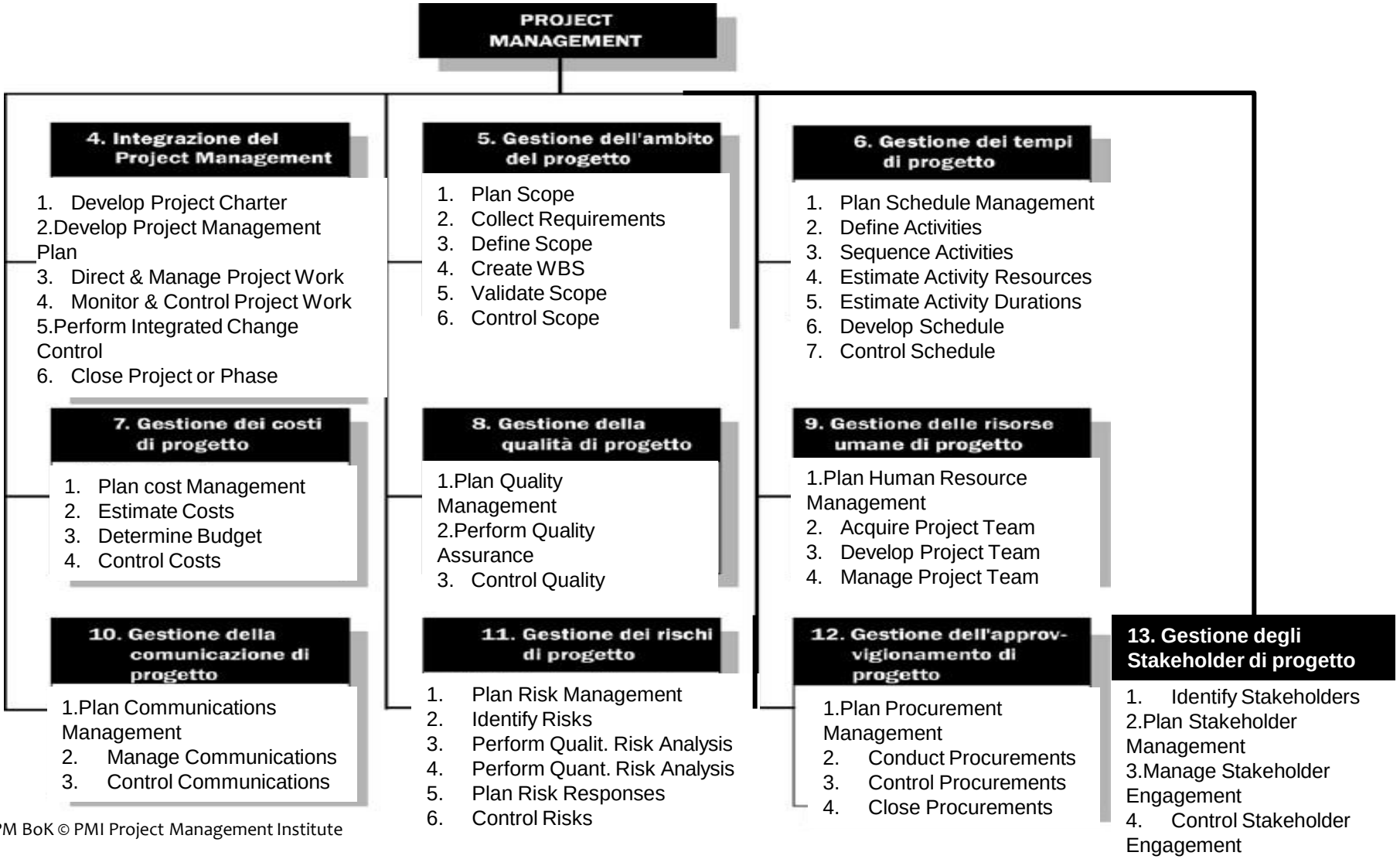
Validate Scope	Estimate Activity Durations					Plan Risk Responses		
Control Scope	Develop Schedule					Control Risks		
	Control Schedule							

Knowledge Areas vs. Process Groups (2)

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Knowledge Areas within the PM BoK



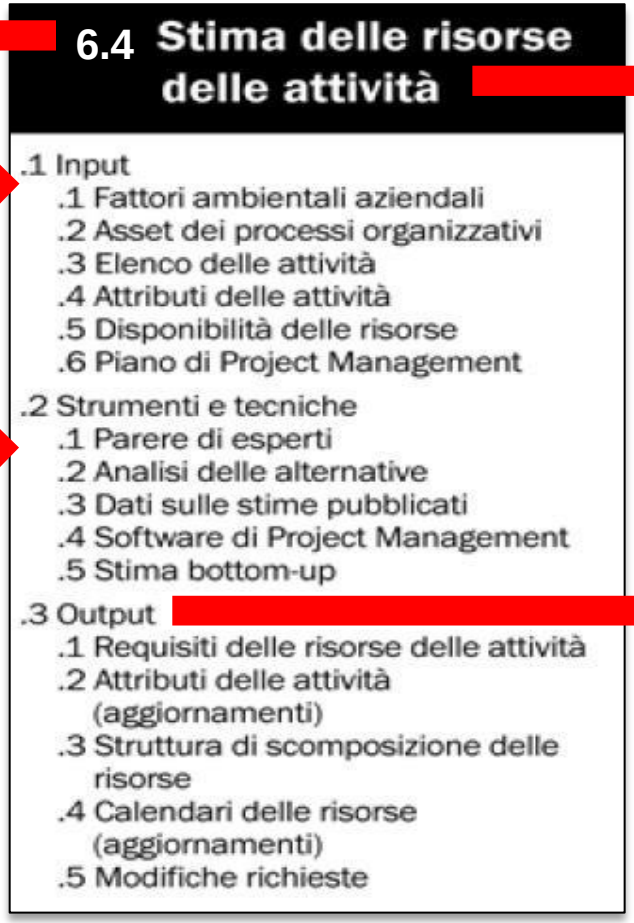
PM BoK © PMI Project Management Institute

How to represent a Process in the PM BoK (1)

Process Code
[**First number**= Reference to the Area of Management; **Second number** = Progressive Number within the AREA

Input = all the «objects» and resources necessary to implement the process

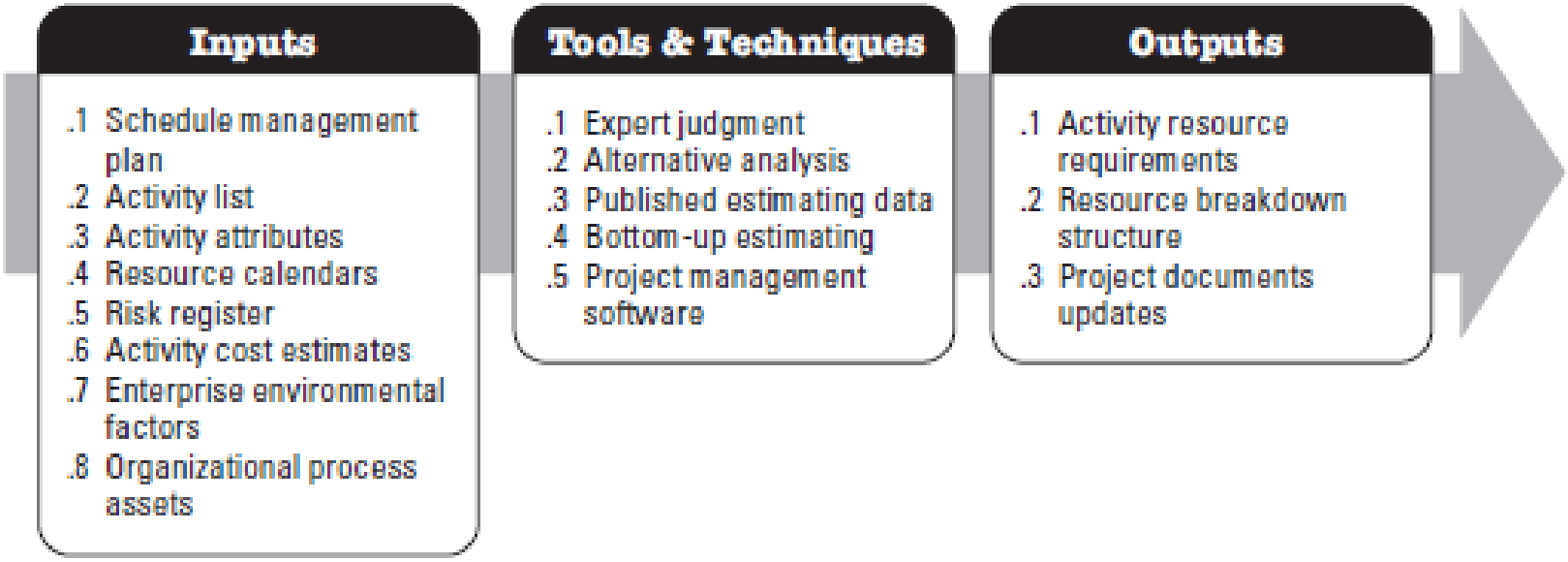
Tools and Techniques = Modalities, tools and concrete applications useful to develop the process



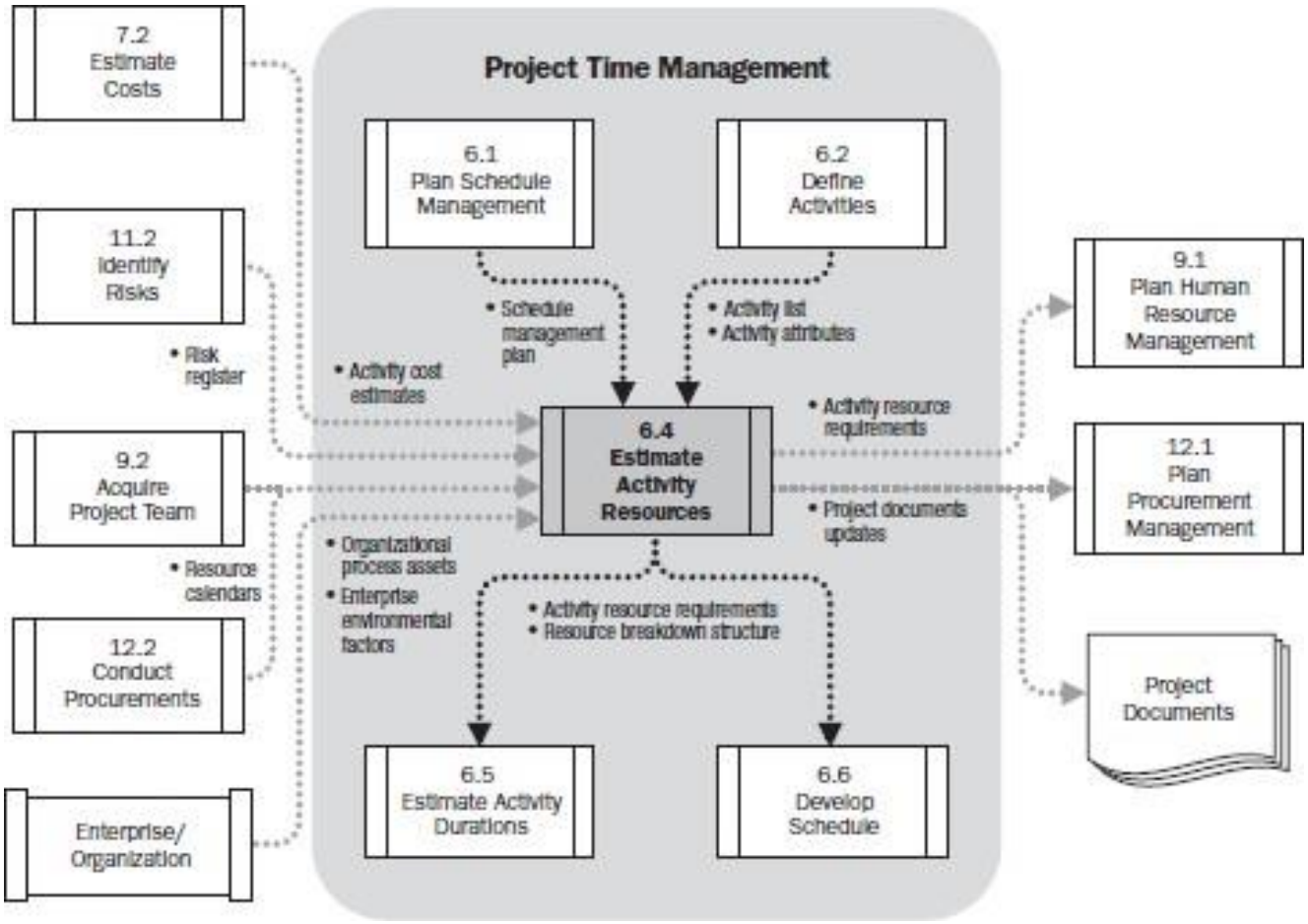
Name of the Process
[expressed as Action]

Output = is the RESULT of the process, what the process should produce or develop at the end

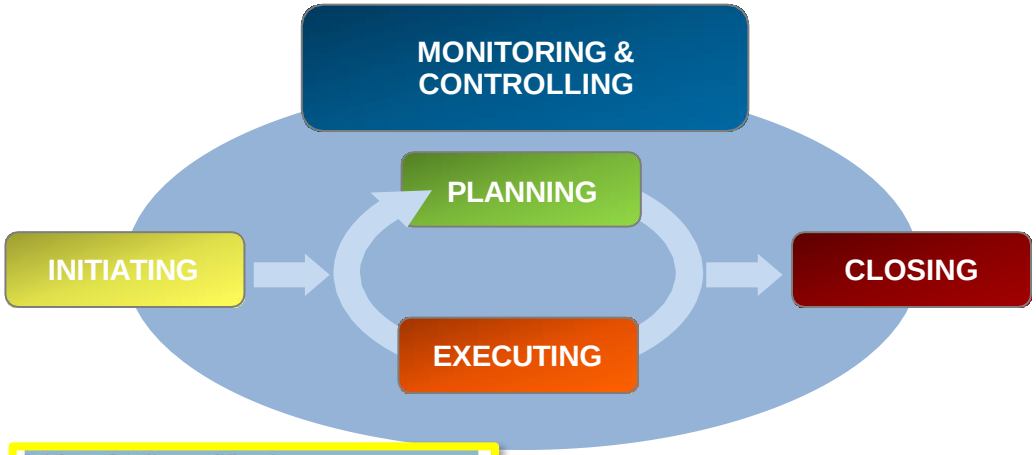
How to represent a Process in the PM BoK (2)



How to represent a Process in the PM BoK (3)



Which are the main outputs of KA?



Project Charter

Titolo Progetto: Project Management Skill upgrade

Data di partenza del Progetto: 15 gennaio 2010

Data fine: 15 Dicembre 2010

Project Manager: Mario Rossi – email: mario.rossi@mail.it

Obiettivi di progetto: Formare 100 dipendenti della azienda Barozzi in 11 mesi sul project management per consentirgli di sostenere l'esame di certificazione PMI.

L'Upgrades riguarda PM e persone dei team di progetto che avranno da sostenere rispettivamente la certificazione PMP e CAPM. Questo progetto si rende necessario in quanto l'anno prossimo si prevede che tutte le richieste di progetto pubbliche richiederanno personale certificato. Il *budget* previsto e' di 80.000€ per i corsi e 10.000€ per l'attrezzatura e le aule. Tutti i capi permetteranno l'impiego di 20 gg a persona da dedicare allo studio.

Approccio:

- Verificare impegno personale per disponibilita'
- Corsi con non piu' di 10 persone
- Non piu' di 4 ore al giorno
- Utilizzare docenti certificati

Firme di approvazione:

Nome	Firma	Data
Project Sponsor Nome: Alberto Verdi		
Project Manager		

Stakeholders List

takeholder	Position	Project role	Power	Aware?	Interested?	Supportive?

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1. DEVELOP PROJECT CHARTER

Develop Project Charter is the process of **developing a document that formally authorizes the existence of a project and provides the project manager** with the authority to apply organizational resources to project activities.

THE APPROVED PROJECT CHARTER FORMALLY INITIATES THE PROJECT.

A **Project Manager** is identified and assigned as early in the project as is feasible, preferably while the project charter is being developed and always prior to the start of planning.

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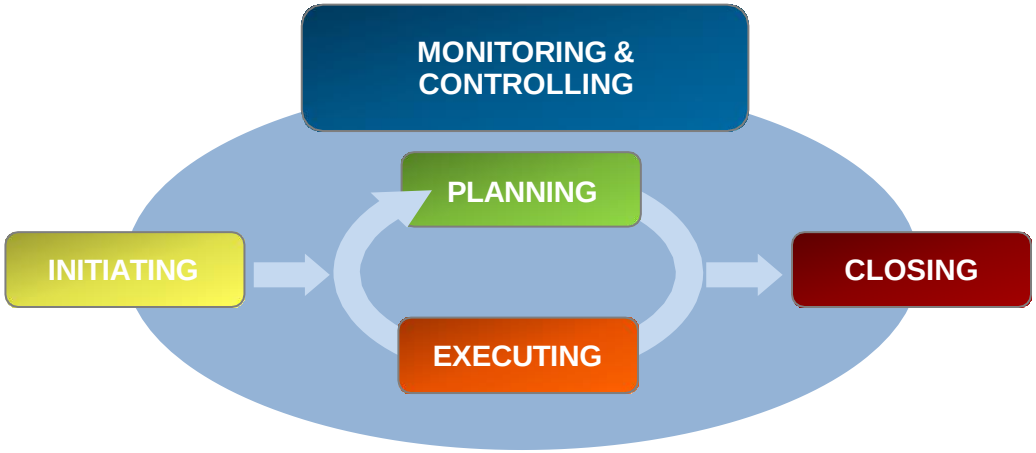
Which are the main outputs of KA2



Project Plan

- WBS - WORKBREAKDOWN STRUCTURE
- RBS - RESOURCE - BREAKDOWN STRUCTURE
- COST BREAKDOWN STRUCTURE
- SCHEDULING AND GANTT
- RISK MANAGEMENT

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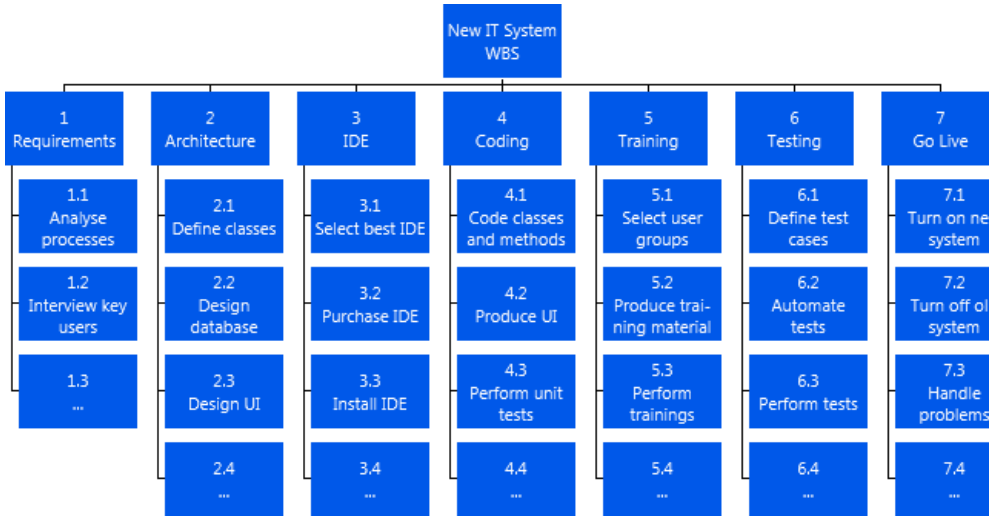
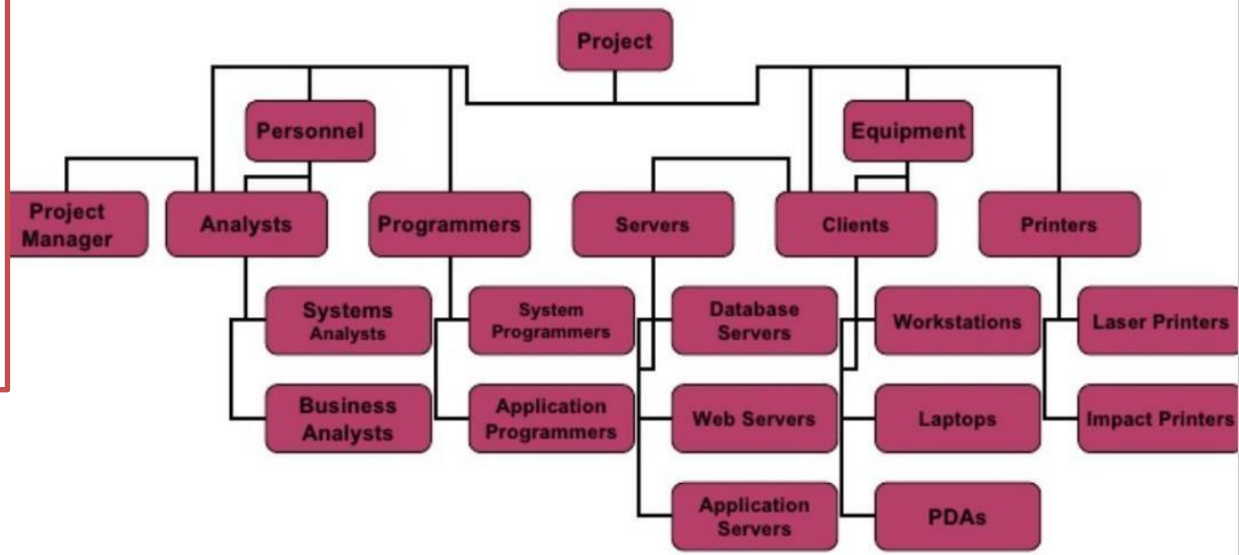
WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure (WBS) is a **deliverable-oriented hierarchical decomposition of the work** to be executed by the project team to accomplish the project objectives.
The WBS defines the **total scope of the project** and represent the work specified in the scope statement.
The lowest level of WBS components can be scheduled, cost estimated, monitored, and controlled.



The **Resource Breakdown Structure (RBS)**

A resource breakdown structure is a list of the resources that will be required to execute the project. The list is broken down and include anything you spend money on for the project, such as people, equipment, materials, even fees and licenses necessary to complete a project successfully.



Cost breakdown Structure - Budget

A **Cost Breakdown Structure** (CBS) is a breakdown or hierarchical representation of the various costs in a project. The **CBS** represents the costs of the components in the Work Breakdown Structure (WBS). The CBS is a critical tool in managing and the financial aspects of any project and creates a structure for applying measurable cost controls.

Codice WBS	Fase	Costi interni (1)	Costi interni (2)	Costi generali	Hardware	Licenze software	Sviluppo di software	Installa-zione	Banche dati	Consu-lenza	Comuni-cazione	Totale
1	Pianificazione del Progetto	760	4.000	2.000						10.500		17.260
1.1	Analisi esigenze	261	1.500	1.000						4.500		7.261
1.2	Stima dei tempi e dei costi di realizzazione	178	500							1.500		2.178
1.3	Definizione della proposta di progetto	320	2.000	1.000						4.500		7.820
1.3.1	Definizione del piano di progetto	320	1.000	1.000						4.500		6.820
1.3.2	Approvazione del piano di progetto		1.000									1.000
2	Progettazione	772	4.000	5.000						10.500		20.272
2.1	Costituzione del team di progetto	131	1.000	1.000						1.500		3.631
2.2	Progettazione esecutiva	392	1.000	2.000						6.000		9.392
2.3	Selezione fornitura e fornitori	249	1.000	1.000						3.000		5.249
2.4	Approvazione budget spesa materiali		1.000	1.000								2.000
3	Realizzazione Progetto	2.611	5.500	3.000	62.000	30.000	100.000	15.000		9.000		227.111
3.1	Sviluppo software personalizzato	1.056	2.000				100.000			3.000		106.056
3.2	Acquisizione hardware e software	522	500	1.000	62.000	30.000				1.500		95.522
3.3	Realizzazione sottosistemi	1.033	2.000	2.000				15.000		3.000		23.033
3.3.1	Installazione rete e hardware di sistema	522	500	500				6.000				7.522
3.3.2	Installazione e configurazione software	107	500	500				3.000				4.107
3.3.3	Integrazione sottosistemi	404	1.000	1.000				6.000		3.000		11.404
3.4	Collaudo del sistema		1.000							1.500		2.500
4	Dispiegamento	3.953	17.500	12.000			10.000	-	24.000	15.000	12.000	94.453
4.1	Realizzazione manuali operativi	499	1.000							4.500		5.999
4.2	Predisposizione banche dati	499	5.000	1.000					15.000			21.499
4.3	Formazione operatori	499	5.000	3.000					4.500		2.000	14.999
4.4	Configurazione processi ed utenti	499	1.000	1.000					3.000			5.499
4.5	Avvio esercizio	1.958	4.500	6.000			10.000		1.500	9.000	10.000	42.958
4.5.1	Avvio sperimentale	783	2.000	1.000						1.500		5.283
4.5.2	Coinvolgimento utenti	783	2.000	3.000						4.500	10.000	20.283
4.5.3	Revisione ed adeguamenti all'avvio	392	500	2.000			10.000		1.500	3.000		17.392
4.6	Collaudo Finale		1.000	1.000						1.500		3.500
5	Revisione finale:	261	2.000	2.000						4.500		8.761
5.1	Monitoraggio finale	59	1.000	1.000						3.000		5.059
5.2	Chiusura progetto	202	1.000	1.000						1.500		3.702
6	Gestione del progetto	11.644	47.000	18.000						25.500		102.144
6.1	Project management	3.881	30.000	10.000						15.000		58.881
6.2	Amministrazione di progetto	3.881	15.000	7.000						6.000		31.881
6.3	Monitoraggio qualità	3.881	2.000	1.000						4.500		11.381
	Totale Budget	20.000	80.000	42.000	62.000	30.000	110.000	15.000	24.000	75.000	12.000	470.000

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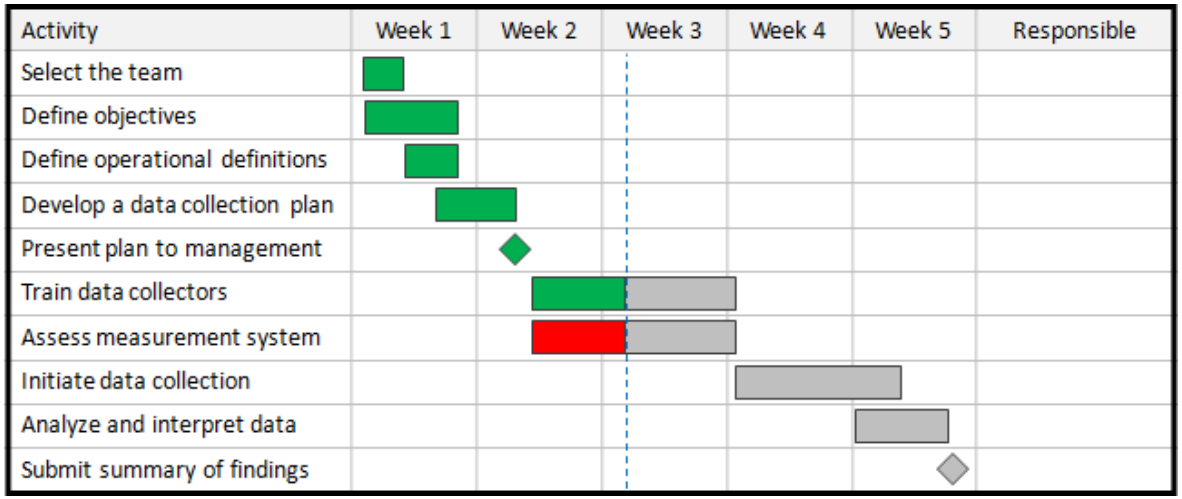
Gantt Chart

A Gantt chart provides a visual view of project tasks scheduled over time. A Gantt chart is a useful way of **showing what work is scheduled** to be done on specific days.
It helps project managers and team members view the start dates, end dates and milestones of a project schedule in one simple stacked bar chart.



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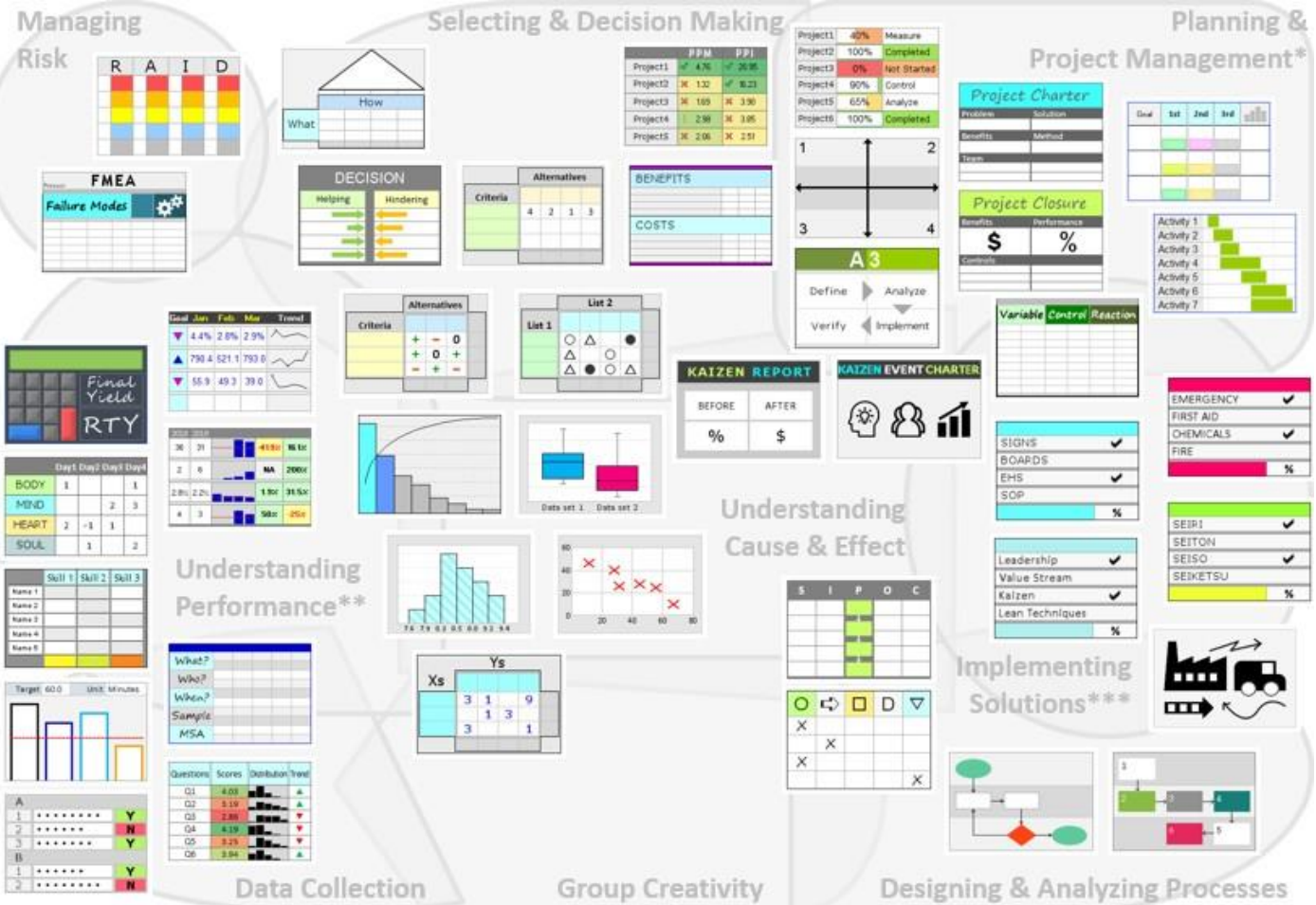
Methods Maps, Templates, tools



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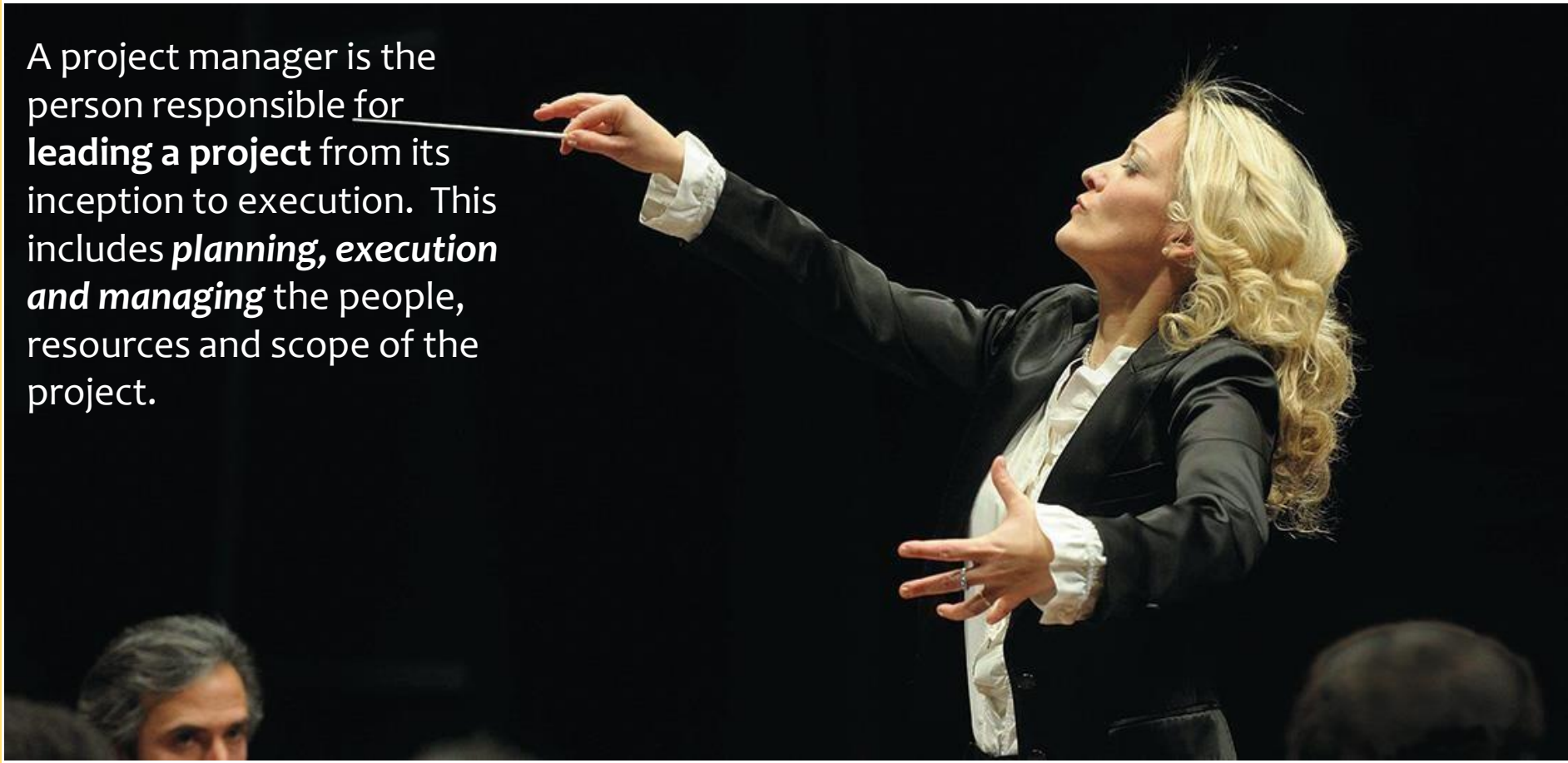
Source: Continuoes improvement toolkit - cittoolkit.com

Project Manager

A project manager is the person responsible for **leading a project** from its inception to execution. This includes ***planning, execution and managing*** the people, resources and scope of the project.



Project managers must have the *discipline* to create clear and attainable objectives, and to see them through to successful completion.

The project manager has full *responsibility and authority* to complete the assigned project.

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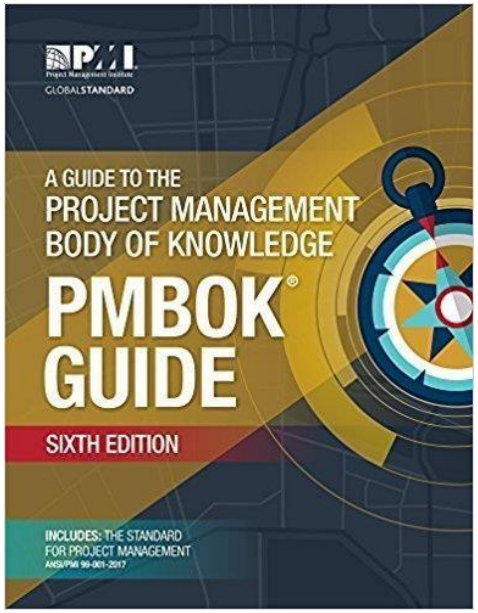
Resources



A Guide to Project Management body of Knowledge (PMBOK® Guide) Sixth EDITION

- **Part 2/Chapter 1 – Standards and knowledge areas pg. 526 - 536**
- **APPENDIX X6 TOOLS AND TECHNIQUES, pg. 673**

Thank You!

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