

Gestão do Processo de Software



Gestão de Projetos - Planeamento

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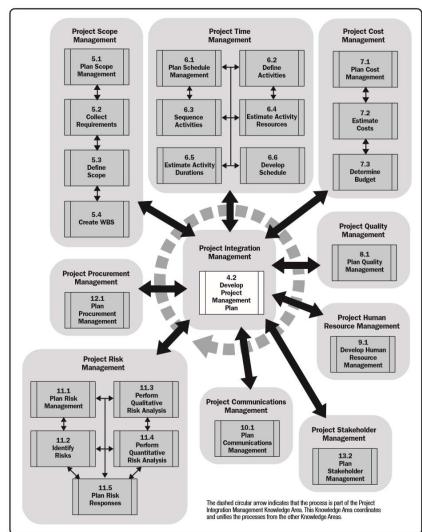
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Processos do Planeamento (PMBOK)



(PMBOK ® Guide – 2013)

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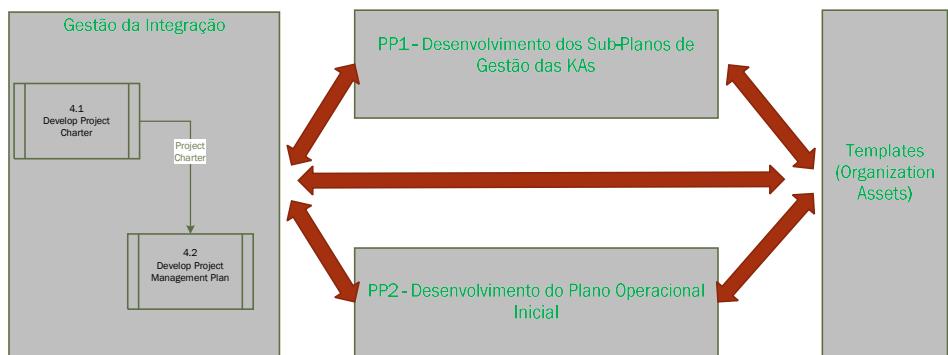
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◆ Procedimento para o Planeamento (P-Plan)



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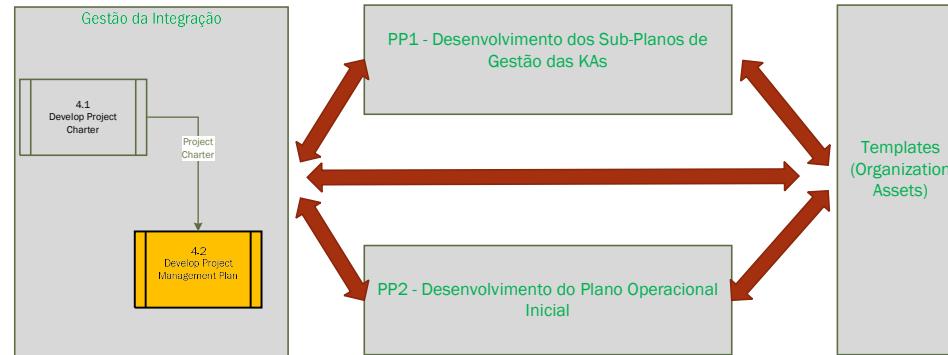
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◆ 4.2 Develop Project Management Plan



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➤ 4.2 Develop Project Management Plan



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Processos do Planeamento (PMBOK)



➤ 4.2 Develop Project Management Plan

The project management plan integrates and consolidates all of the subsidiary management plans and baselines from the planning processes and includes:

- ◆ All of the selected project life cycle and, for multi-phase projects, the associated project phases,
- ◆ Results of the tailoring by the project management team as follows:
 - ❖ Project management processes selected by the project management team,
 - ❖ Level of implementation of each selected process,
 - ❖ Descriptions of the tools and techniques to be used for accomplishing those processes
 - ❖ How the selected processes will be used to manage the specific project, including the dependencies and interactions among those processes, and the essential inputs and outputs.

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Processos do Planeamento (PMBOK)



➤ 4.2 Develop Project Management Plan

◆ Results of the tailoring by the project management team as follows (cont):

- ❖ How work will be executed to accomplish the project objectives,
- ❖ How changes will be monitored and controlled,
- ❖ How configuration management will be performed,
- ❖ How integrity of the performance measurement baselines will be maintained,
- ❖ Need and techniques for communication among stakeholders, and
- ❖ Key management reviews for content, extent, and timing to facilitate addressing open issues and pending decisions.

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➤ 4.2 Develop Project Management Plan

Subsidiary plans include, but are not limited to:

- ◆ Scope management plan
- ◆ Requirements management plan
- ◆ Schedule management plan
- ◆ Cost management plan
- ◆ Quality management plan
- ◆ Human resource plan
- ◆ Communications management plan
- ◆ Risk management plan
- ◆ Procurement management plan
- ◆ Stakeholders management plan

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➤ 4.2 Develop Project Management Plan

Project baselines include, but are not limited to:

- ◆ Schedule baseline,
- ◆ Cost performance baseline,
- ◆ Scope baseline.

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➤ Documentos do Plano e Documentos do Projeto

Project Management Plan	Project Documents	
Change management plan	Activity attributes	Project staff assignments
Communications management plan	Activity cost estimates	Project statement of work
Configuration management plan	Activity duration estimates	Quality checklists
Cost baseline	Activity list	Quality control measurements
Cost management plan	Activity resource requirements	Quality metrics
Human resource management plan	Agreements	Requirements documentation
Process improvement plan	Basis of estimates	Requirements traceability matrix
Procurement management plan	Change log	Resource breakdown structure
Scope baseline <ul style="list-style-type: none">• Project scope statement• WBS• WBS dictionary	Change requests	Resource calendars
Quality management plan	Forecasts <ul style="list-style-type: none">• Cost forecast• Schedule forecast	Risk register
Requirements management plan	Issue log	Schedule data
Risk management plan	Milestone list	Seller proposals
Schedule baseline	Procurement documents	Source selection criteria
Schedule management plan	Procurement statement of work	Stakeholder register
Scope management plan	Project calendars	Team performance assessments
Stakeholder management plan	Project charter Project funding requirements Project schedule Project schedule network diagrams	Work performance data Work performance information Work performance reports

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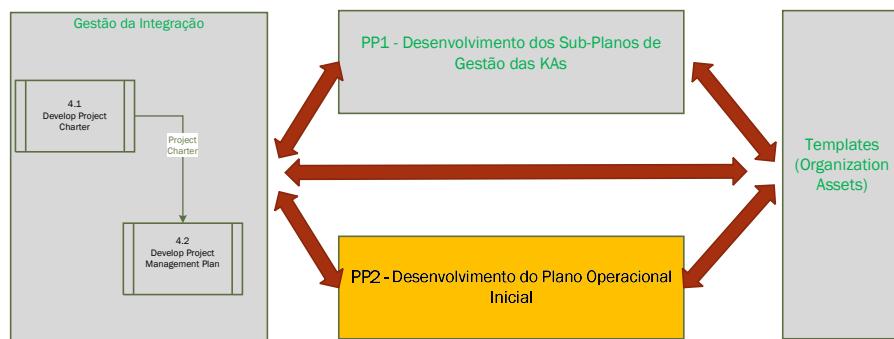
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◆ PP2 - Desenvolvimento do Plano Operacional Inicial

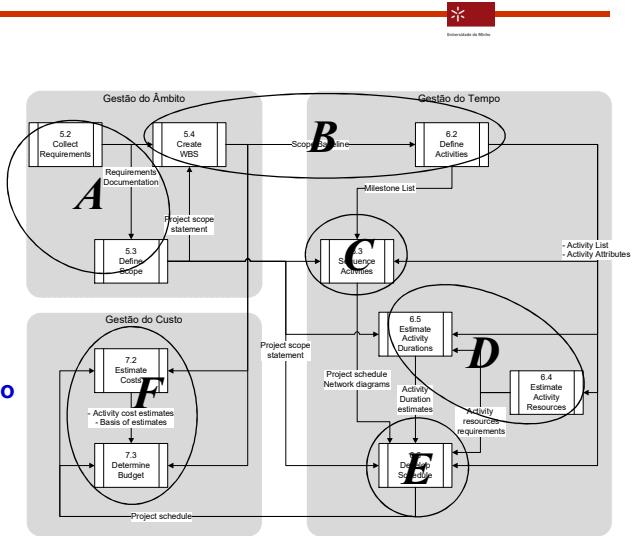


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Procedimento para o Desenvolvimento do Plano Operacional

- A. Planear Âmbito
 - 5.2 Recolher Requisitos
 - 5.3 Definir Âmbito
- B. Planear Actividades
 - 5.4 Criar WBS
 - 6.2 Definir Actividades
- C. Sequenciar Actividade
 - 5.3 Definir Scope
 - 6.3 Sequenciar Actividades
- D. Realizar Estimativas
 - 6.4 Estimar Recursos
 - 6.5 Estimar Duração
- E. Desenvolver Calendarização
 - 6.6 Desenvolver Calendarização
- F. Planear Orçamento
 - 7.2 Estimar Custos
 - 7.3 Determinar Orçamento



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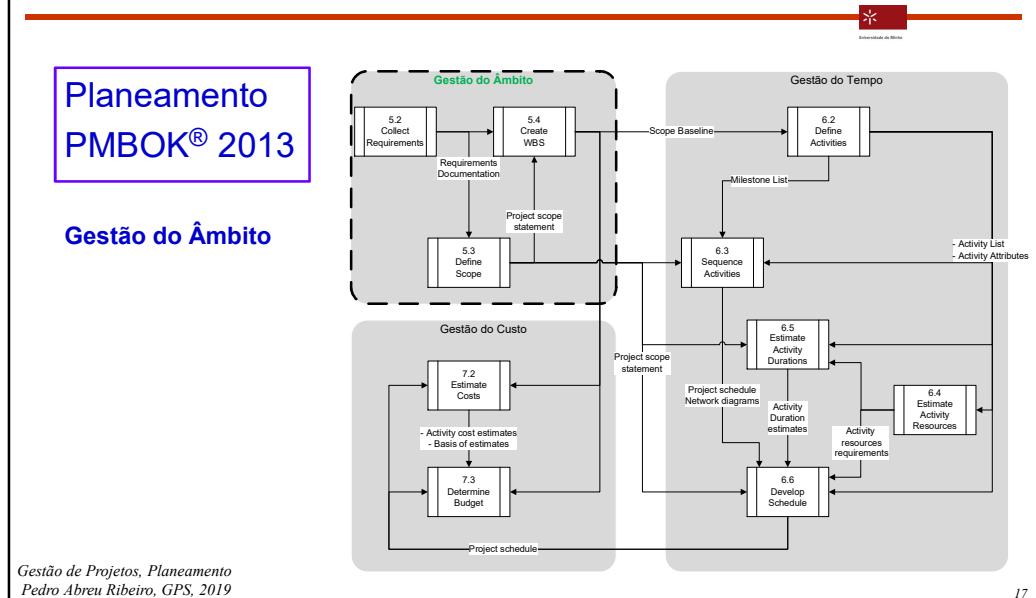
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Desenvolvimento do Plano Operacional Inicial



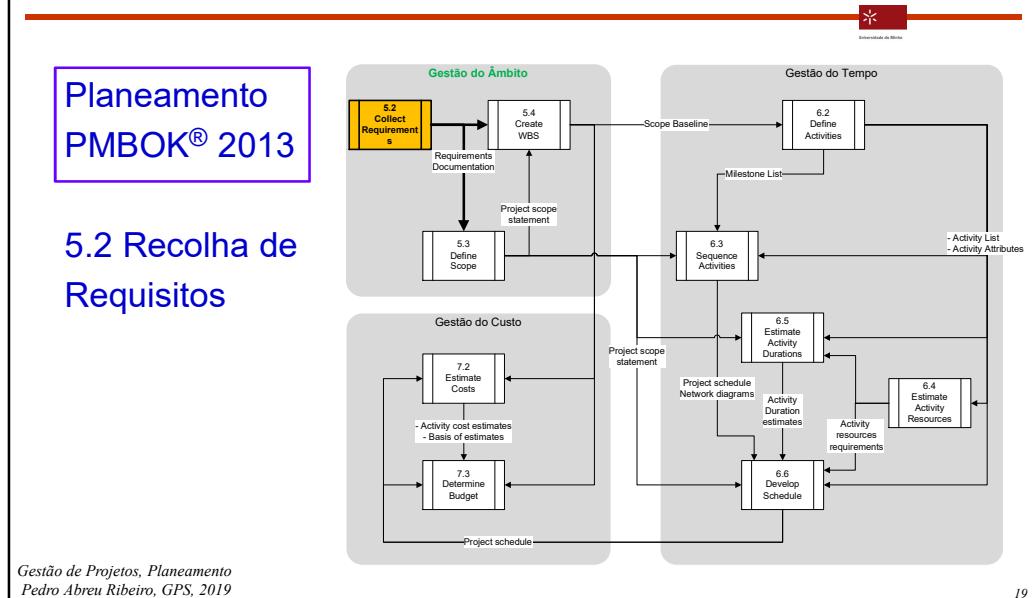
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5 – Gestão do Âmbito do Projeto

- ◆ Project Scope Management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project.
- ◆ In the project context, the term scope can refer to:
 - Product scope. The features and functions that characterize a product, service, or result
 - Project scope. The work that needs to be accomplished to deliver a product, service, or result with the specified features and functions.

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➤ 5.2 Recolha de Requisitos

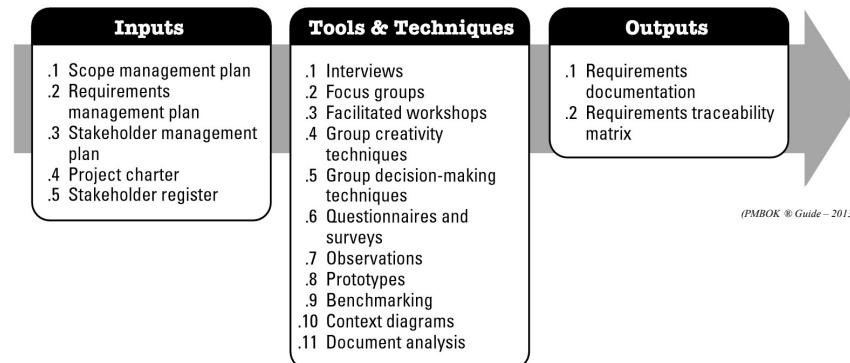
- ◆ **Collect Requirements** is the process of defining and documenting the project and product features and functions needed to fulfill stakeholder's needs and expectations. The project's success is directly influenced by the care taken in capturing and managing requirements.
- ◆ **Requirements** are a condition or capability that must be met or possessed by a system, product, service, result, or component to satisfy a contract, standard, specification, or other formal document.
- ◆ These **requirements** need to be elicited, analyzed, and recorded in enough detail to be measured once the project execution phase begins. Collecting requirements is as much about defining and managing customer expectations as any other key project deliverable and becomes the very foundation of the work breakdown structure (WBS).

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5.2 Recolha de Requisitos



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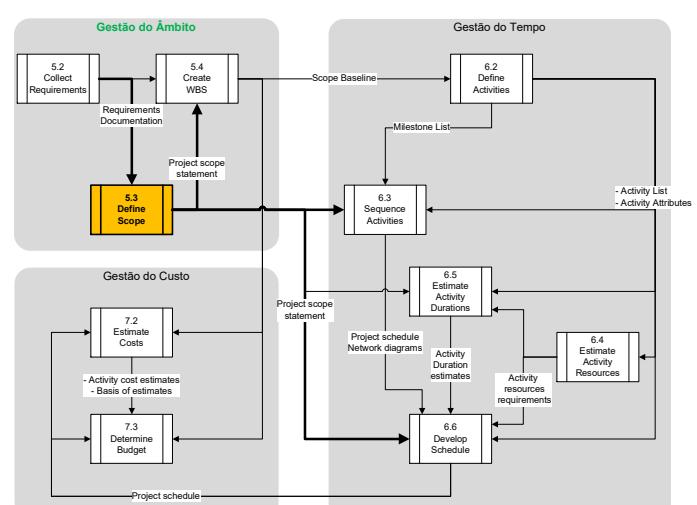
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Planeamento PMBOK® 2013

5.3 Definir o Âmbito



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➤ 5.3 Definir o Âmbito

- ◆ Define Scope is the process of developing a detailed description of the project and product. The preparation of a detailed project scope statement is critical to project success and builds upon the major deliverables, assumptions, and constraints that are documented during project initiation.



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Processos do Planeamento (5.3 Definir o Âmbito)



The detailed project scope statement includes:

- **Product scope description.** Progressively elaborates the characteristics of the product, service, or result described in the project charter and requirements documentation.
- **Acceptance criteria.** A set of conditions that is required to be met before deliverables are accepted.
- **Deliverable.** Any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. Deliverables also include ancillary results, such as project management reports and documentation. These deliverables may be described at a summary level or in great detail.
- **Project exclusion.** Generally identifies what is excluded from the project. Explicitly stating what is out of scope for the project helps to manage stakeholders' expectations.
- **Constraints.** A limiting factor that affects the execution of a project or process. Constraints identified with the project scope statement list and describe the specific internal or external restrictions or limitations associated with the project scope that affect the execution of the project, for example, a predefined budget or any imposed dates or schedule milestones that are issued by the customer or performing organization. When a project is performed under an agreement, contractual provisions will generally be constraints. Information on constraints may be listed in the project scope statement or in a separate log.
- **Assumptions.** A factor in the planning process that is considered to be true, real, or certain, without proof or demonstration. Also describes the potential impact of those factors if they prove to be false. Project teams frequently identify, document, and validate assumptions as part of their planning process. Information on assumptions may be listed in the project scope statement or in a separate log.

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Processos do Planeamento (5.3 Definir o Âmbito)



Elements of the Project charter and Project Scope Statement:

Project Charter	Project Scope Statement
Project purpose or justification	Project scope description (progressively elaborated)
Measurable project objectives and related success criteria	Acceptance criteria
High-level requirements	Project deliverables
High-level project description	Project exclusions
High-level risks	Project constraints
Summary milestone schedule	Project assumptions
Summary budget	
Stakeholder list	
Project approval requirements (what constitutes success, who decides it, who signs off)	
Assigned project manager, responsibility, and authority level	
Name and authority of the sponsor or other person(s) authorizing the project charter	

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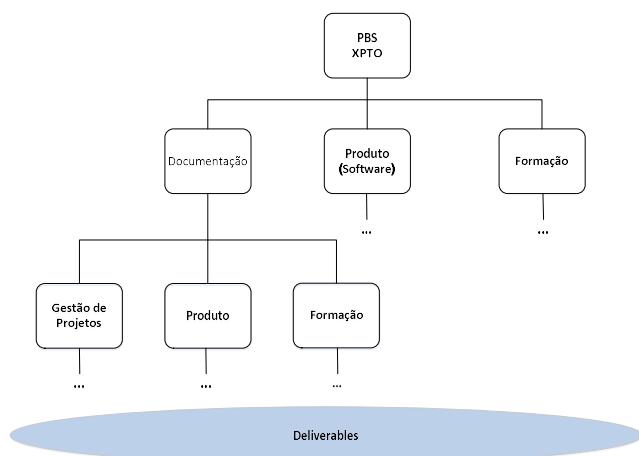
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Processos do Planeamento (5.3 Definir o Âmbito)



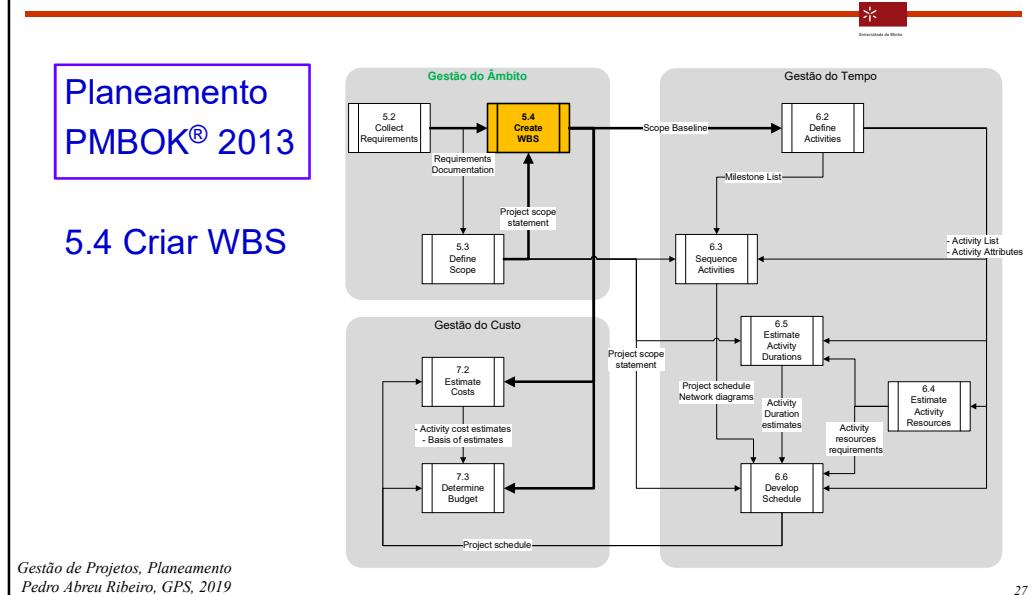
Exemplo de uma PBS (Product Breakdown Structure):



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➤ 5.4 Criar WBS

- ◆ Create WBS is the process of subdividing project deliverables and project work into smaller, more manageable components.
- ◆ The WBS is a deliverable-oriented hierarchical decomposition of the work to be executed by the project team, to accomplish the project objectives and create the required deliverables, with each descending level of the WBS representing an increasingly detailed definition of the project work.
- ◆ The planned work contained within the lowest-level WBS components, which are called work packages, can be: scheduled, cost estimated, monitored, and controlled. In the context of the WBS, work refers to work products or deliverables that are the result of effort and not to the effort itself.

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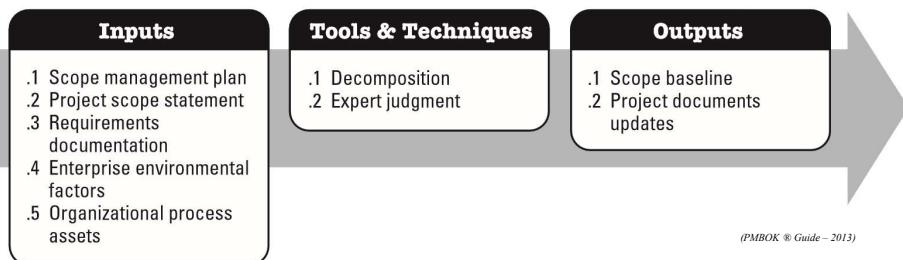
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➤ 5.4 Criar WBS



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➤ 5.4 Criar WBS

Decomposition of the total project work into work packages generally involves the following activities:

1. Identifying and analyzing the deliverables and related work.
2. Structuring and organizing the WBS.
3. Decomposing the upper WBS levels into lower level detailed components.
4. Developing and assigning identification codes to the WBS components.
5. Verifying that the degree of decomposition of the work is necessary and sufficient.

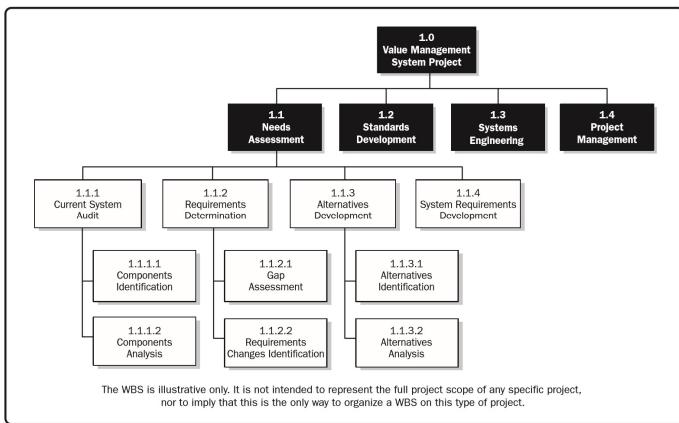
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➤ 5.4 Criar WBS

Sample WBS decomposed down through Work Packages



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➤ 5.4 Criar WBS

The WBS structure can take a number of forms, for example:

- ◆ Using phases of the project life cycle as the first level of decomposition, with the project deliverables inserted at the second level.
- ◆ Using major deliverables as the first level of decomposition.
- ◆ Using subprojects which may be developed by organizations outside the project team, such as contracted work. The seller then develops the supporting contract work breakdown structure as part of the contracted work.

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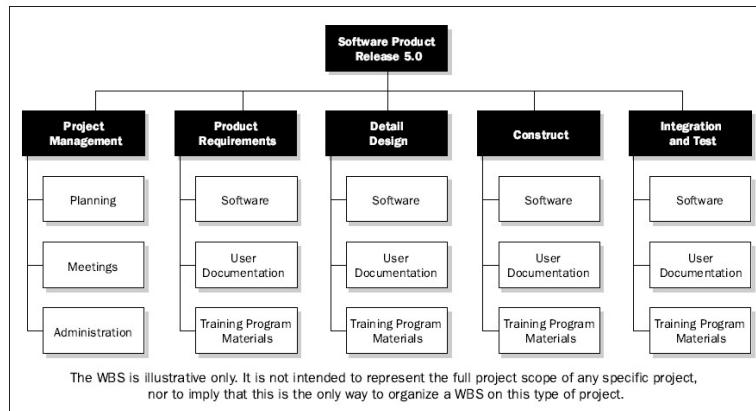
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➤ 5.4 Criar WBS (Decomposição por fases)



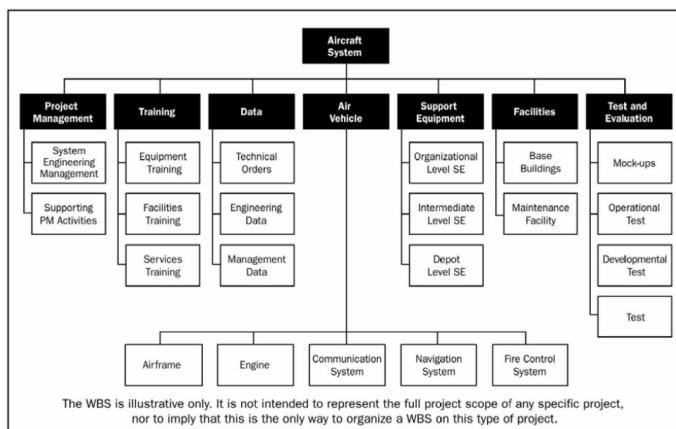
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➤ 5.4 Criar WBS (Decomposição pelos deliverables)



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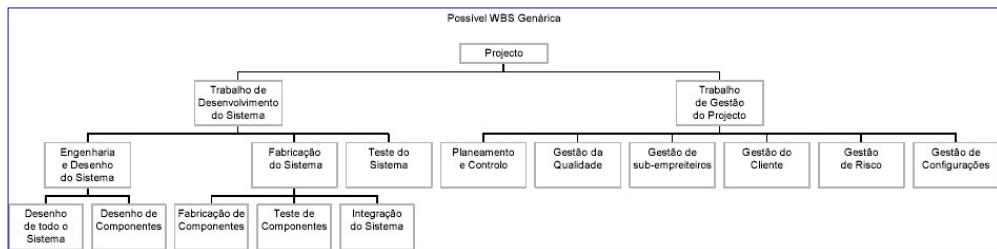
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➤ 5.4 Criar WBS

- ◆ Na prática para o desenvolvimento da WBS na área das TIs, utilizam-se as seguintes regras:
 - ❖ separar as tarefas de gestão do projeto das tarefas de desenvolvimento;
 - ❖ dividir as tarefas de gestão de acordo com as funções da gestão do projeto;
 - ❖ as tarefas de desenvolvimento são divididas por fase do processo e por componente.



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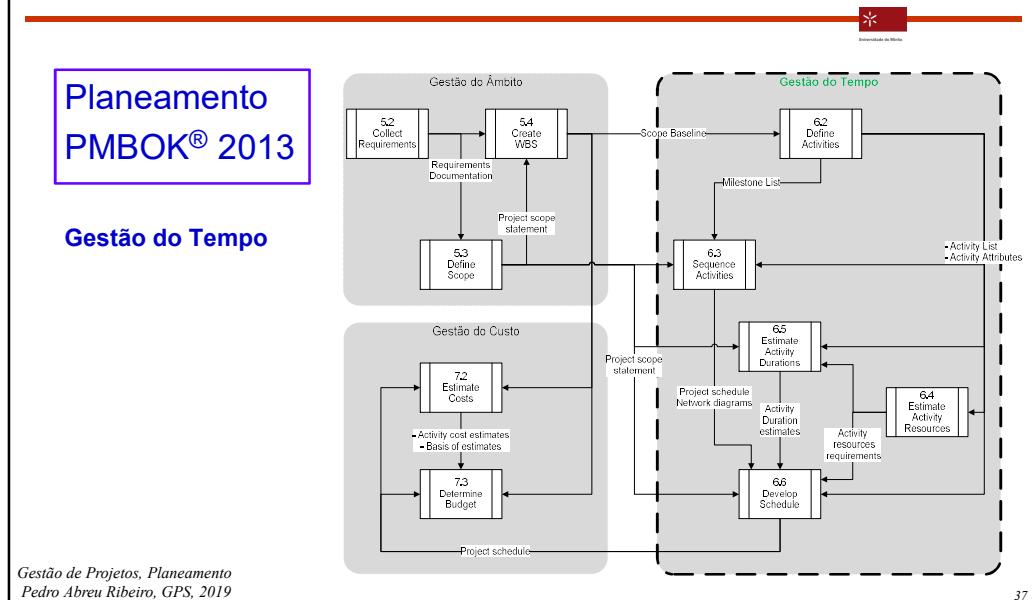


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➤ 6 – Gestão do Tempo do Projeto

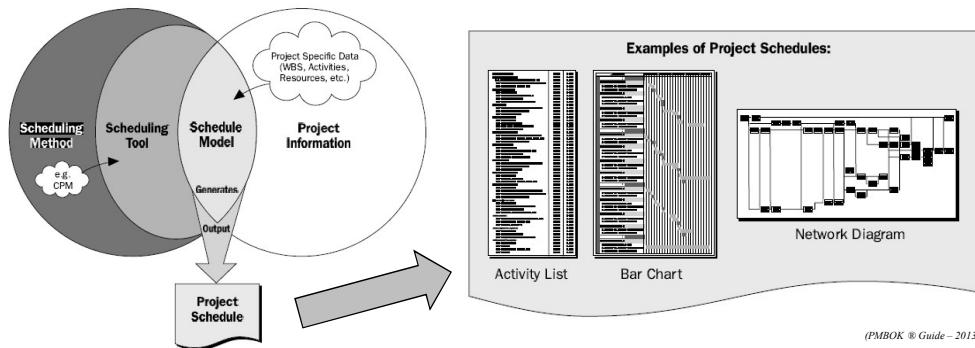
- ◆ Project Time Management includes the processes required to accomplish timely completion of the project.
- ◆ On some projects, especially those of smaller scope, defining activities, sequencing activities, estimating activity resources, estimating activity durations, and developing the schedule are so tightly linked that they are viewed as a single process that can be performed by a person over a relatively short period of time. These processes are presented here as distinct processes because the tools and techniques for each are different.

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6 – Gestão do Tempo do Projeto



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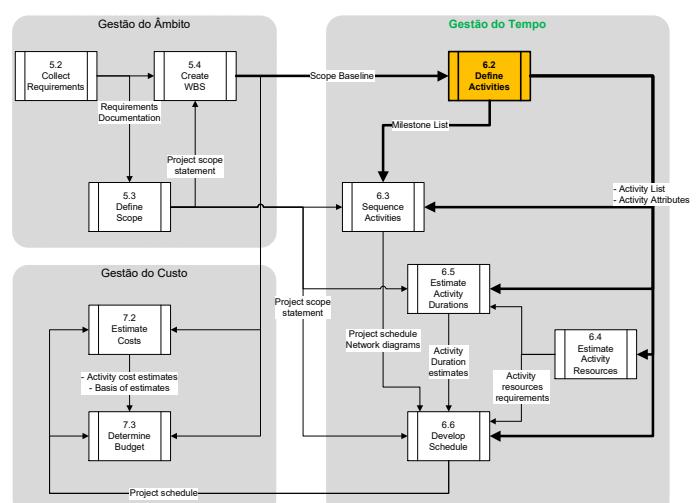
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Planeamento PMBOK® 2013

6.2 Definir Actividades



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➤ 6.2 Definir Actividades

- ◆ Define Activities is the process of identifying the specific actions to be performed to produce the project deliverables. Project work packages (WBS) are typically decomposed into smaller components called activities to provide a basis for estimating, scheduling, executing, and monitoring and controlling the project work.



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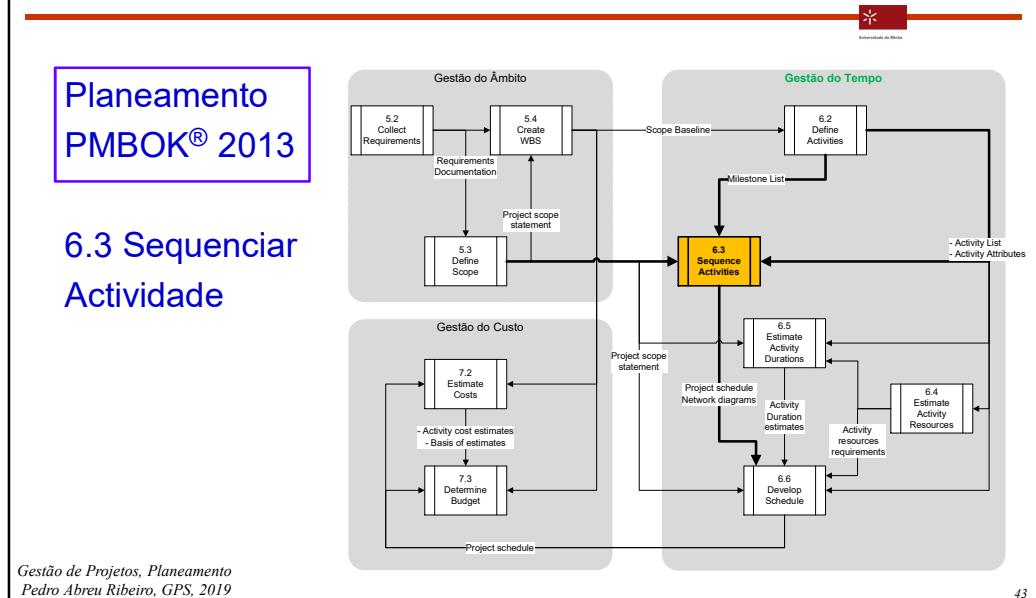
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➤ 6.2 Definir Actividades: Técnicas e Ferramentas

- ◆ Decomposition: The technique of decomposition, as it is applied to defining activities, involves subdividing the project work packages into smaller, more manageable components called activities or schedule activities.
- ◆ Rolling Wave Planning: Rolling wave planning is a form of progressive elaboration planning where the work to be accomplished in the near term is planned in detail at a low level of the WBS. Future work is planned for WBS components that are at a relatively high level of the WBS.
- ◆ Expert Judgment: Project team members or other experts, who are experienced and skilled in developing detailed project scope statements, the WBS, and project schedules, can provide expertise in defining activities.

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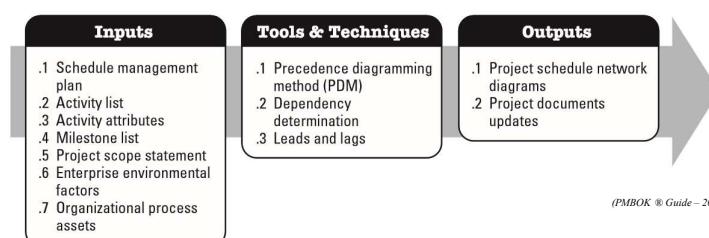


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➤ 6.3 Sequenciar Actividades

- ◆ Sequence Activities is the process of identifying and documenting relationships among activities. Schedule activities are sequenced with logic relationships. Every activity and milestone except the first and last are connected to at least one predecessor and one successor.



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- **6.3 Sequenciar Actividades: Técnicas e ferramentas**
- ◆ **Precedence Diagramming Method (PDM):** PDM is a method used in Critical Path Methodology (CPM) for constructing a project schedule network diagram that uses boxes or rectangles, referred to as nodes, to represent activities and connects them with arrows that show the logical relationships that exist between them.
- ◆ Relações de dependência:
 - ❖ FS (conclusão – início): a actividade B só pode começar depois da actividade A terminar.
 - ❖ SS (Início – Início): a actividade B só pode começar depois da actividade A começar.
 - ❖ FF (conclusão – conclusão) A actividade B só pode terminar depois da actividade A terminar.
 - ❖ SF (início – conclusão) A actividade B só pode terminar depois da actividade A começar

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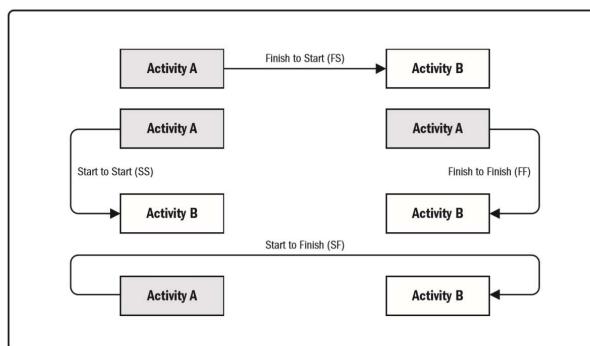
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- **6.3 Sequenciar Actividades: Técnicas e ferramentas**

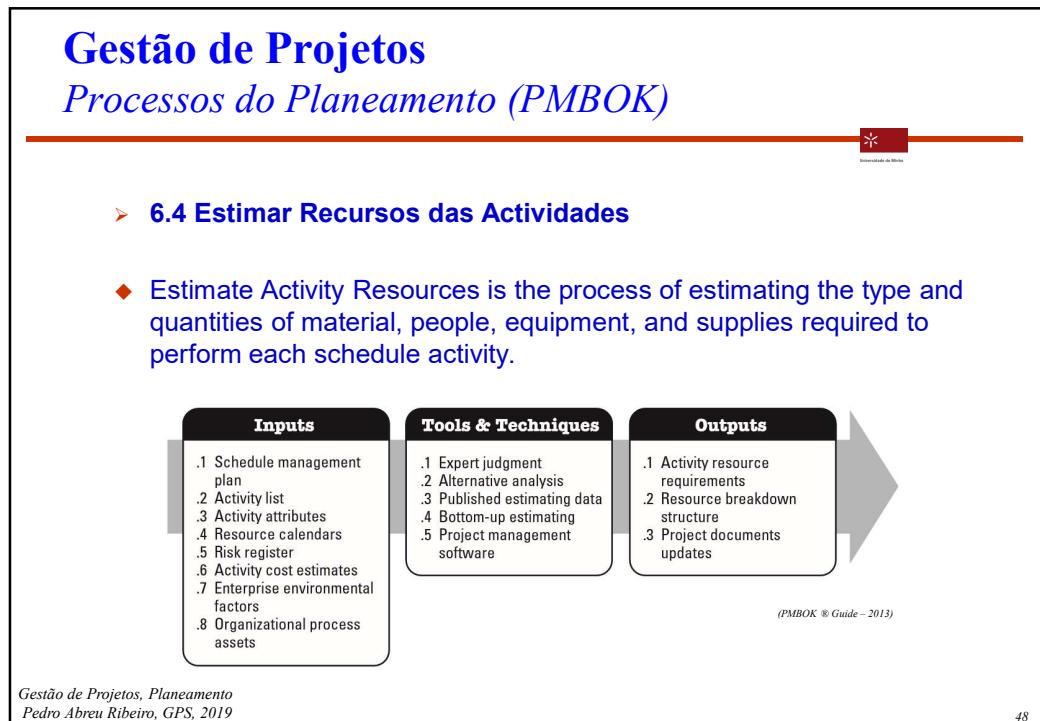
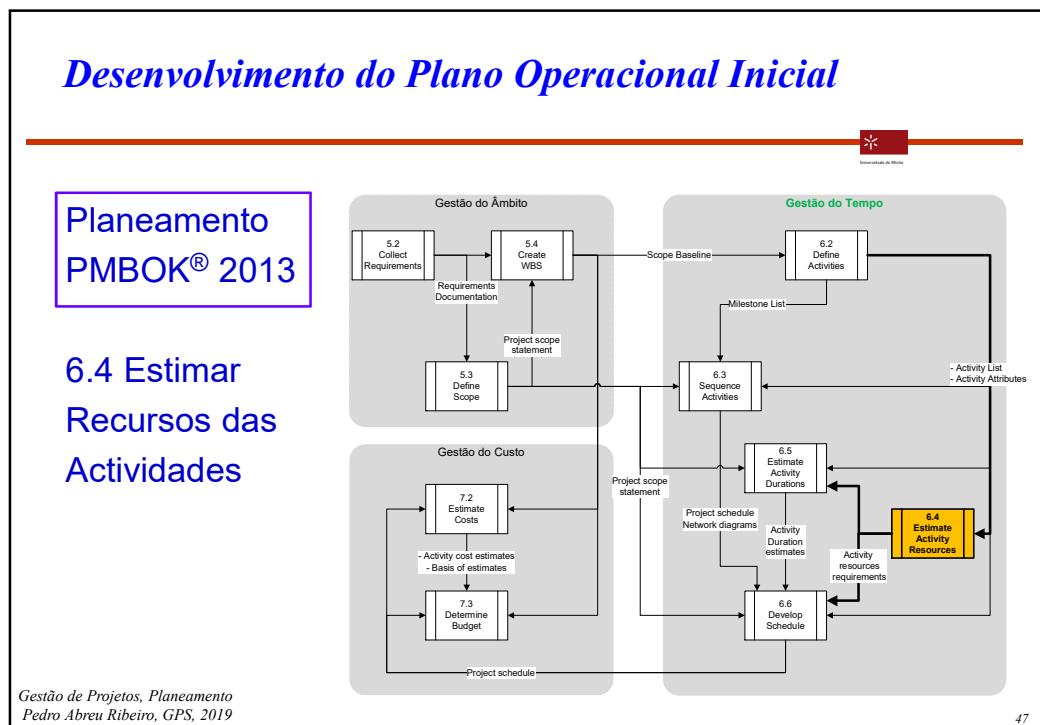
In PDM, finish-to-start is the most commonly used type of precedence relationship. The start-to-finish relationship is very rarely used but is included to present a complete list of the PDM relationship types.



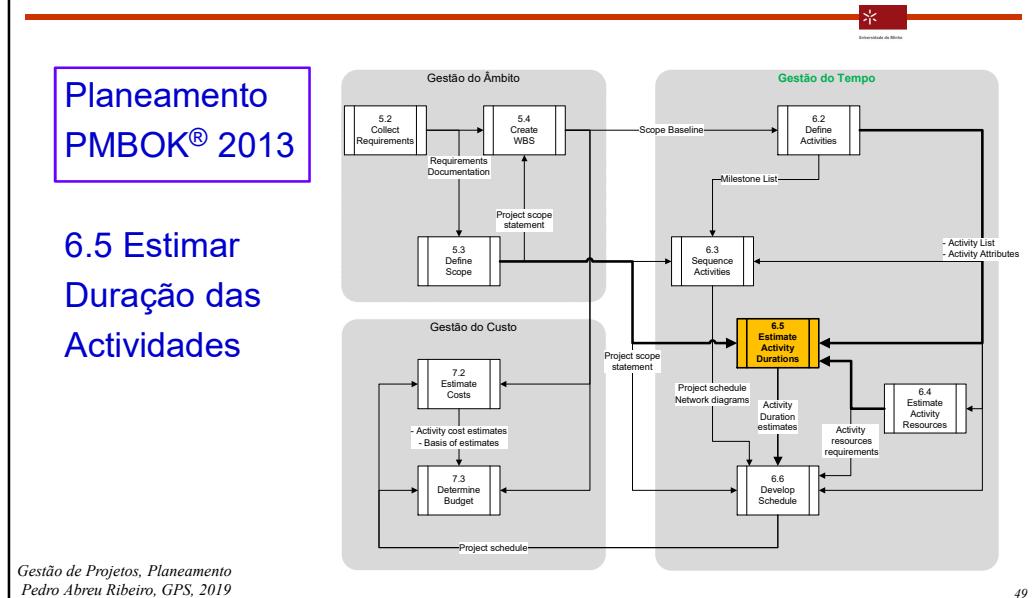
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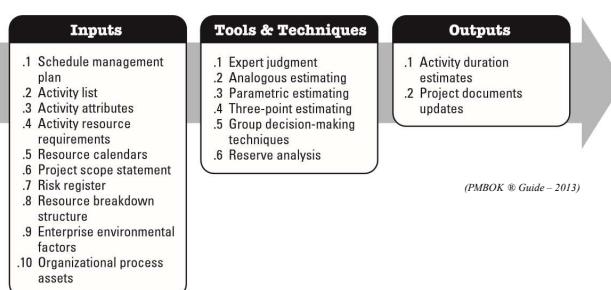
Desenvolvimento do Plano Operacional Inicial



Gestão de Projetos Processos do Planeamento (PMBOK)

6.5 Estimar Duração das Actividades

- ◆ Estimate Activity Durations is the process of approximating the number of work periods needed to complete individual activities with estimated resources. Estimating activity durations uses information on activity scope of work, required resource types, estimated resource quantities, and resource calendars. The inputs for the estimates of activity duration originate from the person or group on the project team who is most familiar with the nature of the work in the specific schedule activity.



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➤ 6.5 Estimar Duração das Actividades

6.5.2.2 Analogous Estimating

Analogous estimating is a technique for estimating the duration or cost of an activity or a project using historical data from a similar activity or project. Analogous estimating uses parameters from a previous, similar project, such as duration, budget, size, weight, and complexity, as the basis for estimating the same parameter or measure for a future project. When estimating durations, this technique relies on the actual duration of previous, similar projects as the basis for estimating the duration of the current project. It is a gross value estimating approach, sometimes adjusted for known differences in project complexity. Analogous duration estimating is frequently used to estimate project duration when there is a limited amount of detailed information about the project.

6.5.2.3 Parametric Estimating

Parametric estimating is an estimating technique in which an algorithm is used to calculate cost or duration based on historical data and project parameters. Parametric estimating uses a statistical relationship between historical data and other variables (e.g., square footage in construction) to calculate an estimate for activity parameters, such as cost, budget, and duration.

(PMBOK ® Guide – 2013)

Gestão de Projetos

Processos do Planeamento (PMBOK)



➤ 6.5 Estimar Duração das Actividades

6.5.2.4 Three-Point Estimating

The accuracy of single-point activity duration estimates may be improved by considering estimation uncertainty and risk. This concept originated with the program evaluation and review technique (PERT). PERT uses three estimates to define an approximate range for an activity's duration:

- **Most likely (tM)**. This estimate is based on the duration of the activity, given the resources likely to be assigned, their productivity, realistic expectations of availability for the activity, dependencies on other participants, and interruptions.
- **Optimistic (tO)**. The activity duration based on analysis of the best-case scenario for the activity.
- **Pessimistic (tP)**. The activity duration based on analysis of the worst-case scenario for the activity.

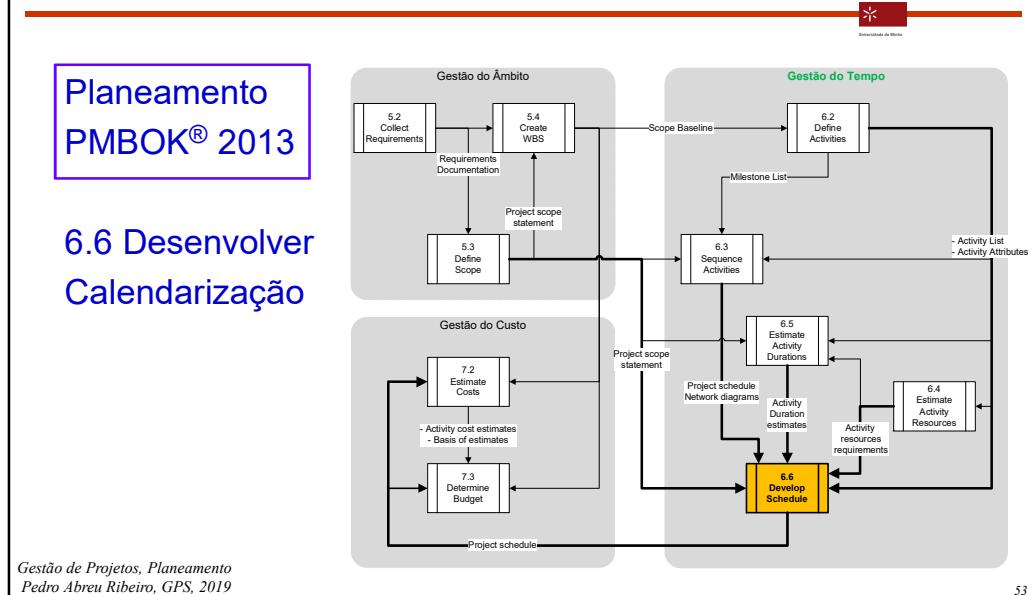
Depending on the assumed distribution of values within the range of the three estimates the expected duration, tE , can be calculated using a formula. Two commonly used formulas are triangular and beta distributions. The formulas are:

- **Triangular Distribution**. $tE = (tO + tM + tP) / 3$
- **Beta Distribution** (from the traditional PERT technique). $tE = (tO + 4tM + tP) / 6$

Duration estimates based on three points with an assumed distribution provide an expected duration and clarify the range of uncertainty around the expected duration.

(PMBOK ® Guide – 2013)

Desenvolvimento do Plano Operacional Inicial

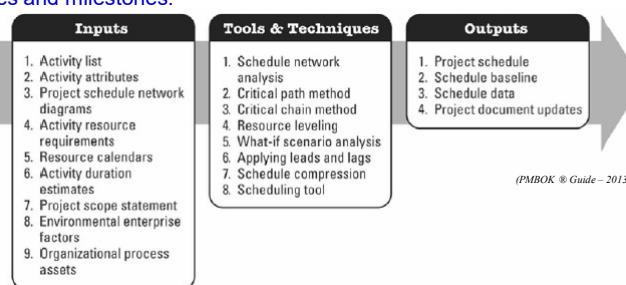


Gestão de Projetos

Processos do Planeamento (PMBOK)

6.6 Desenvolver Calendarização

- ◆ Develop Schedule is the process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule. Entering the activities, durations and resources, into the scheduling tool generates a schedule with planned dates for completing project activities. Developing the project schedule is often an iterative process. It determines the planned start and finish dates for project activities and milestones.



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Desenvolvimento da rede lógica PERT/CPM



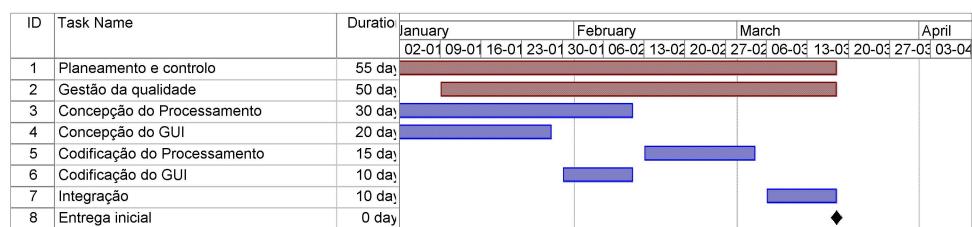
- ◆ Objectivo:
 - ❖ Proporcionar um plano detalhado do trabalho do projeto...
... calendarizando a realização do trabalho do projeto.
... afectando recursos às tarefas do projeto.
... produzindo perfis de recursos humanos, materiais e financeiros necessários à consecução do projeto
- ◆ Existem duas técnicas principais de apoio ao desenvolvimento e manutenção do plano do projeto:
 - ❖ Diagramas de Gantt
 - ❖ Redes Lógicas de Caminho Crítico – PERT/CPM

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Diagrama de Gantt



- ◆ O diagrama de Gantt consiste numa simples representação calendarizada do trabalho, orientada ao tempo, e foi introduzida por Henry L. Gantt nos princípios do século XX.
- ◆ O diagrama é representado num espaço XY, onde em X é representado o tempo e em Y as tarefas elementares do plano do projeto. Por exemplo:



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Diagrama de Gantt



- ◆ Os diagramas de Gantt são muito utilizados tanto em projetos de grande escala como em projetos pessoais. As suas grandes vantagens são:
 - 1) simplicidade – a representação é simples e intuitiva.
 - 2) flexibilidade e visão global – os diagramas podem ser desenvolvidos com vários níveis de detalhe.
- ◆ Contudo os diagramas de Gantt não são utilizados como único instrumento de planeamento devido a uma limitação principal:
 - ❖ Não consideram explicitamente a dependência entre as tarefas

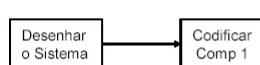
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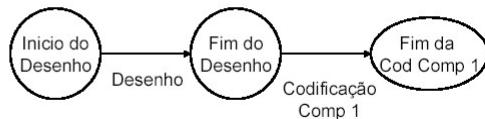


- ◆ As redes lógicas de caminho crítico, tal como os diagramas de Gantt, são uma técnica de calendarização das tarefas do projeto.
- ◆ Foram desenvolvidas em meados dos anos 50 em duas formas principais: PERT (Programme Evaluation and Review Technique) e CPM (Critical Path Method). Focam no impacto que as dependências entre as tarefas têm na duração e custo do projeto.
- ◆ Existem duas formas básicas de se representar uma rede lógica:
 - ❖ **Actividade no Nό (AON)** – cada tarefa elementar é um nó na rede e as dependências entre as tarefas são linhas que unem os nós.
 - ❖ **Actividade no Arco (AOA)** – cada nó na rede representa o início ou terminação de uma tarefa. As linhas que unem os nós são as tarefas elementares.
 - ❖ Por exemplo:

Actividade no Nό (AON)



Actividade no Arco (AOA)

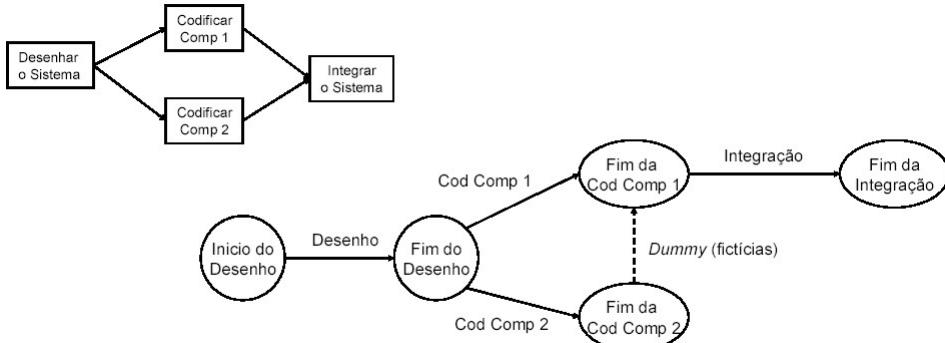


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Redes lógicas PERT/CPM



- ◆ A notação “Actividade no Nó (AON)” é mais popular é utilizada por ser uma representação mais intuitiva e por não requerer tarefas fictícias. Será aqui utilizada a notação AON.



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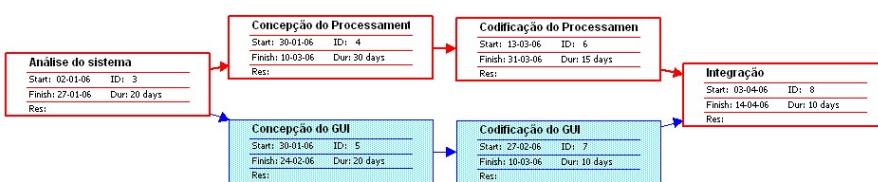
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Redes lógicas PERT/CPM



- ◆ Para que servem as redes lógicas de caminho crítico:
 - ❖ Em primeiro lugar permitem identificar a sequência de tarefas que determina o caminho crítico.
 - ❖ Na rede a seguir as tarefas a vermelho determinam a duração do projeto.
- ◆ Existem algumas regras e conceitos básicos para a utilização das redes lógicas:
 - ❖ Na sua forma básica não representam as tarefas numa escala temporal (ao contrário dos diagramas de Gantt).
 - ❖ Na sua forma básica as dependências consideradas são do tipo “fim-início” sem sobreposição de tarefas ligadas.



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Redes lógicas PERT/CPM



◆ Conceitos básicos:

- ❖ **Sucessor** – tarefa final numa ligação.
- ❖ **Antecessor** – tarefa inicial numa ligação.
- ❖ **Caminho** – sequência única de tarefas ligadas por dependências desde o início até ao final da rede.
- ❖ **Caminho crítico** – Caminho com duração mais longa, impõe a duração do projeto.
- ❖ “**Início mais cedo (E_s)**” e “**Fim mais cedo (E_f)**” – datas de início e de fim mais cedo, dentro das quais é possível executar a tarefa.
- ❖ “**Início mais tarde (L_s)**” e “**Fim mais tarde (L_f)**” – datas de início e de fim mais tarde, dentro das quais é possível executar a tarefa sem atrasar a data de conclusão do projeto.

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Redes lógicas PERT/CPM



◆ Conceitos básicos (cont.):

- ❖ **Folga total de uma tarefa** – tempo que a data de conclusão de uma tarefa individual pode ser atrasada sem que tal atrasse a data de conclusão do projeto.
- ❖ **Folga local** – tempo que a data de conclusão de uma tarefa individual pode ser atrasada sem que tal atrasse a data de início de nenhum dos sucessores.
- ❖ “**Criticabilidade**” de uma tarefa ou caminho – é tanto maior quanto menor for a folga total.
- ❖ **Tarefa crítica ou caminho crítico** – tarefa ou caminho sem folga total. O mais pequeno atraso atrasa a data de conclusão do projeto.

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Redes lógicas PERT/CPM



A utilização das redes lógicas requer o cálculo de alguns destes parâmetros:

- ◆ **Caminhos e sua duração** ⇒ a duração de cada caminho é simplesmente a soma das durações das tarefas que pertencem ao caminho.
- ◆ **Caminho crítico** ⇒ é identificado como sendo o caminho de maior duração.
- ◆ **E_s e E_f** ⇒ executa-se o varrimento da rede da esquerda para a direita, ou seja, do início para o fim.
- ◆ **L_s e L_f** ⇒ executa-se o varrimento da rede da direita para a esquerda.
- ◆ **Folga total de uma tarefa** ⇒ igual a $E_f - E_s$ ou a $E_f - L_s$.
- ◆ **Folga local de uma tarefa** ⇒ igual a $\text{Min}(E_s(\text{sucessores})) - E_s$.

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Redes lógicas PERT/CPM



Uma vez desenvolvida a rede lógica do plano de um projeto e calculados os parâmetros anteriormente descritos, a utilização da rede no apoio ao planeamento baseia-se nos seguintes princípios:

- ◆ **Prioridade às tarefas críticas** – tanto em termos de rigor de controlo e gestão como em termos de atribuição de recursos.
- ◆ **Atenção às tarefas “quase críticas”** – uma tarefa é quase crítica quando a sua folga total é muito pequena. Portanto, basta um pequeno atraso para se tornar crítica e atrasar o projeto.
- ◆ **Risco do plano do projeto** – um plano com vários caminhos críticos e/ou quase críticos é tipicamente um plano comprimido no tempo. Assim é muito sensível a atrasos.
- ◆ **Perfil de recursos necessários** – tal como o diagrama de Gantt, a calendarização das tarefas na rede PERT/CPM permite o cálculo do perfil de recursos necessários ao projeto ao longo do tempo.

Gestão de Projetos

O plano PERT/CPM



◆ Cálculo das datas E_S , E_F , L_S , L_F e das Folgas das tarefas

	WBS	Task Name	Duration	Early Start (ES)	Early Finish (EF)	Late Start (LS)	Late Finish (LF)	Total Slack	Free Slack
1	1	Projecto facturação	269,87 days	Mon 02-01-06	Fri 12-01-07	Mon 02-01-06	Fri 12-01-07	0 days	0 days
2	1.1	Gestão	250 days	Mon 02-01-06	Fri 15-12-06	Fri 27-01-06	Fri 12-01-07	19,87 days	19,87 days
3	1.2	Desenvolvimento	269,87 days	Mon 02-01-06	Fri 12-01-07	Mon 02-01-06	Fri 12-01-07	0 days	0 days
4	1.2.1	Análise de requisitos	40,8 days	Mon 02-01-06	Mon 27-02-06	Mon 02-01-06	Mon 27-02-06	0 days	0 days
5	1.2.2	Incremento 1	89,47 days	Mon 27-02-06	Mon 03-07-06	Mon 27-02-06	Mon 03-07-06	0 days	0 days
6	1.2.2.1	Componente GC	56,4 days	Mon 27-02-06	Wed 17-05-06	Wed 22-03-06	Fri 09-06-06	16,93 days	16,93 days
7	1.2.2.1.1	Protótipo	8,4 days	Mon 27-02-06	Fri 10-03-06	Wed 22-03-06	Tue 04-04-06	16,93 days	0 days
8	1.2.2.1.2	Desenho GC	9,6 days	Fri 10-03-06	Thu 23-03-06	Tue 04-04-06	Mon 17-04-06	16,93 days	0 days
9	1.2.2.1.3	Codificação GC	24 days	Thu 23-03-06	Wed 26-04-06	Mon 17-04-06	Fri 19-05-06	16,93 days	0 days
10	1.2.2.1.4	Teste GC	14,4 days	Wed 26-04-06	Wed 17-05-06	Fri 19-05-06	Fri 09-06-06	16,93 days	16,93 days
11	1.2.2.2	Componente GP	73,33 days	Mon 27-02-06	Fri 09-06-06	Mon 27-02-06	Fri 09-06-06	0 days	0 days
12	1.2.2.2.1	Desenho GP	22,6 days	Mon 27-02-06	Thu 30-03-06	Mon 27-02-06	Thu 30-03-06	0 days	0 days
13	1.2.2.2.2	Codificação GP	28,2 days	Thu 30-03-06	Tue 09-05-06	Thu 30-03-06	Tue 09-05-06	0 days	0 days
14	1.2.2.2.3	Teste GP	22,53 days	Tue 09-05-06	Fri 09-06-06	Tue 09-05-06	Fri 09-06-06	0 days	0 days
15	1.2.2.3	Integração e teste 1	16,13 days	Fri 09-06-06	Mon 03-07-06	Fri 09-06-06	Mon 03-07-06	0 days	0 days
16	1.2.3	Incremento 2	139,6 days	Mon 03-07-06	Fri 12-01-07	Mon 03-07-06	Fri 12-01-07	0 days	0 days
17	1.2.3.1	Desenho GF	37,6 days	Mon 03-07-06	Wed 23-08-06	Mon 03-07-06	Wed 23-08-06	0 days	0 days
18	1.2.3.2	Codificação GF	47 days	Wed 23-08-06	Fri 27-10-06	Wed 23-08-06	Fri 27-10-06	0 days	0 days
19	1.2.3.3	Teste GF	28,2 days	Fri 27-10-06	Thu 07-12-06	Fri 27-10-06	Thu 07-12-06	0 days	0 days
20	1.2.3.4	Integração e teste 2	26,8 days	Thu 07-12-06	Fri 12-01-07	Thu 07-12-06	Fri 12-01-07	0 days	0 days

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Redes lógicas PERT/CPM



Muitas vezes a análise da rede lógica mostra um projeto com alto risco e/ou exigindo um perfil de recursos não disponível. Torna-se necessário melhorar este plano. As redes lógicas apoiam nesta tarefa...

- ◆ redução do caminho crítico
- ◆ nivelamento do perfil de recursos (resource leveling)
- ◆ impedir que limites de recursos sejam excedidos (resource loading)
- ◆ análise de risco e alternativas

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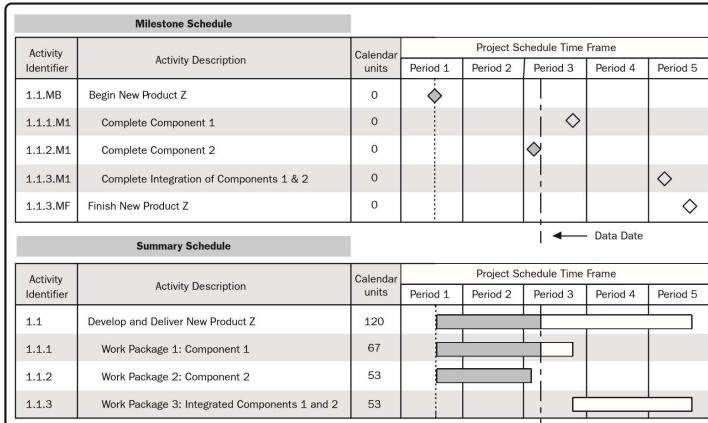
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➤ Apresentação do Cronograma do Projeto (exemplo 1)



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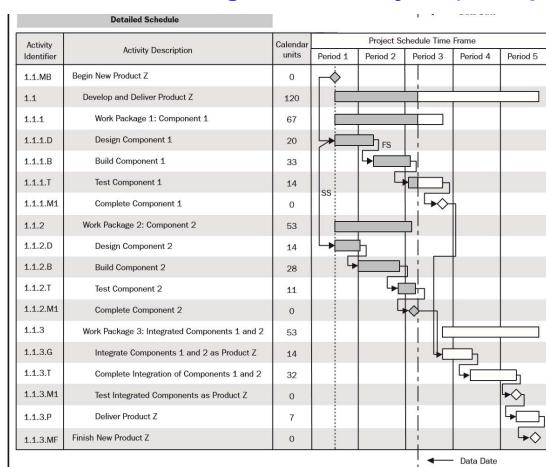
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➤ Apresentação do Cronograma do Projeto (exemplo 2)



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◆ PP1 - Desenvolvimento dos Sub-Planos de Gestão das KAs

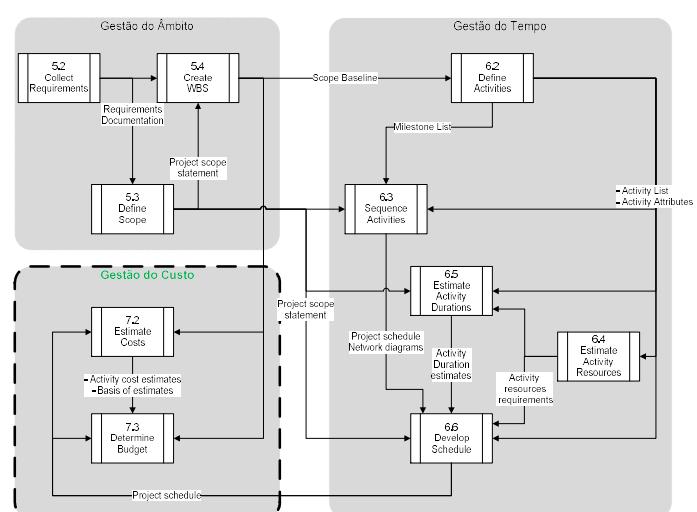
◆ Conclusões

Desenvolvimento do Plano Operacional Inicial



Planeamento PMBOK® 2013

Gestão do Custo



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Processos do Planeamento (PMBOK)



➤ 7 – Gestão do Custo

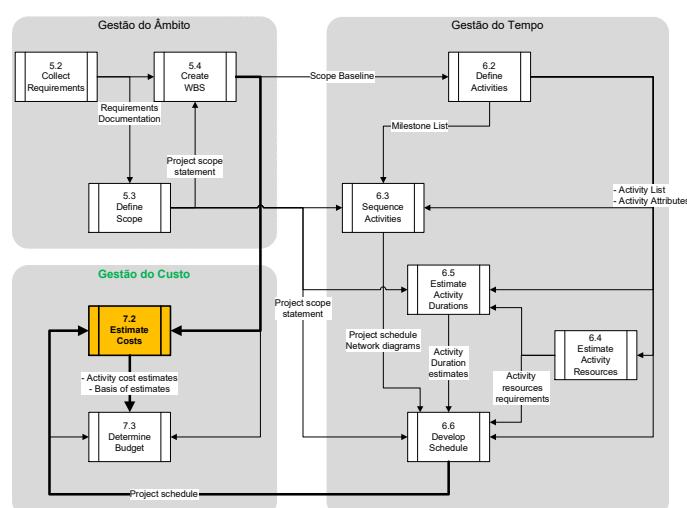
- ◆ Project Cost Management includes the processes involved in estimating, budgeting, and controlling costs so that the project can be completed within the approved budget.
- ◆ On some projects, especially ones of smaller scope, cost estimating and cost budgeting are so tightly linked that they are viewed as a single process that can be performed by a single person over a relatively short period of time.
- ◆ Project Cost Management should consider the stakeholder requirements for managing costs. Different stakeholders will measure project costs in different ways and at different times. For example, the cost of an acquired item may be measured when the acquisition decision is made or committed, the order is placed, the item is delivered, or the actual cost is incurred or recorded for project accounting purposes.

Desenvolvimento do Plano Operacional Inicial



Planeamento PMBOK® 2013

7.2 Estimar Custos



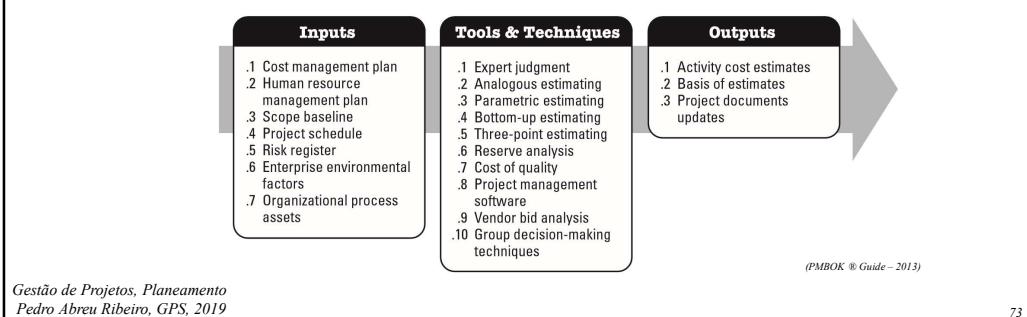
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7.2 Estimar Custos

- ◆ Estimate Costs is the process of developing an approximation of the monetary resources needed to complete project activities. It includes the identification and consideration of costing alternatives to initiate and complete the project.
- ◆ Cost estimates are generally expressed in units of some currency (i.e., dollars, euro, yen, etc.), although in some instances other units of measure, such as staff hours or staff days, are used to facilitate comparisons both within and across projects.



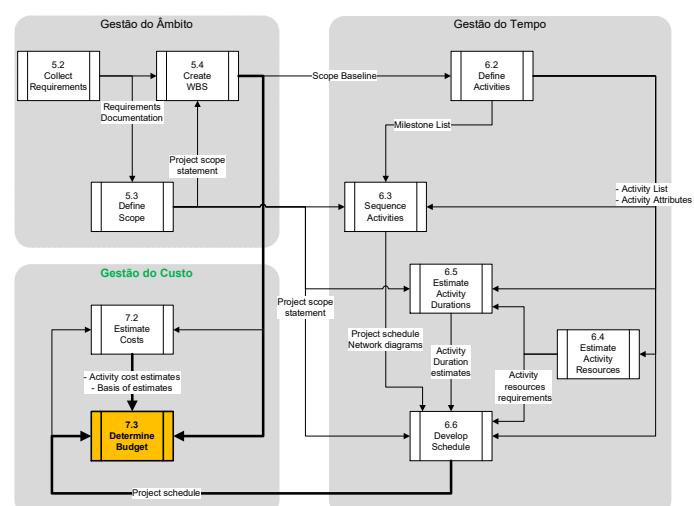
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7.3 Determinar Orçamento



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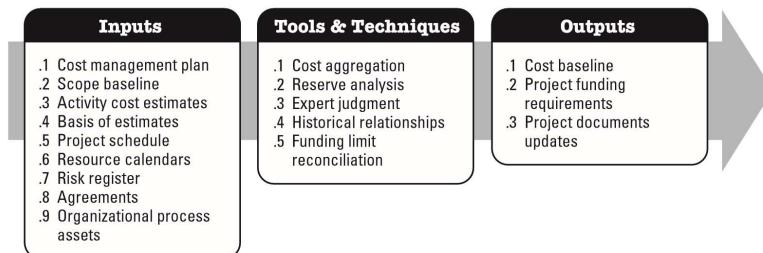
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➤ 7.3 Determinar Orçamento

- ◆ Determine Budget is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline. This baseline includes all authorized budgets, but excludes management or contingency reserves.
- ◆ Project budgets constitute the funds authorized to execute the project. Budgets may differ from the estimates. Project cost performance will be measured against the authorized budget.



(PMBOK ® Guide – 2013)

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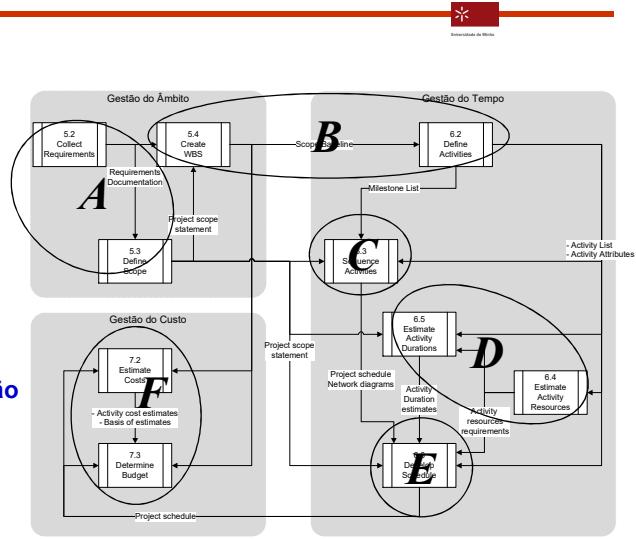


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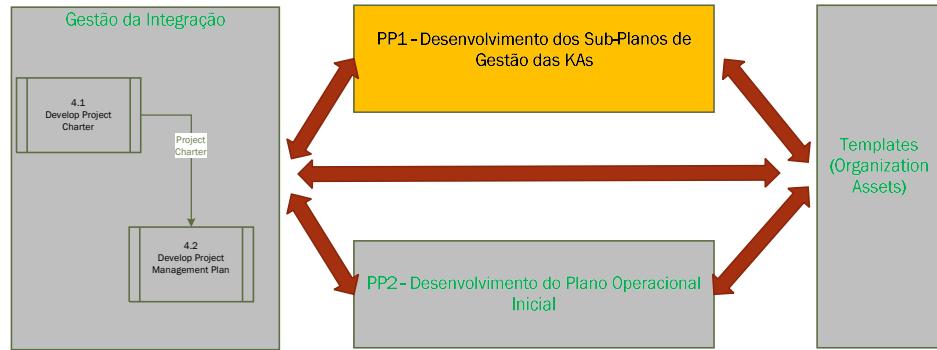
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◆ PP1 - Desenvolvimento dos Sub-Planos de Gestão das KAs



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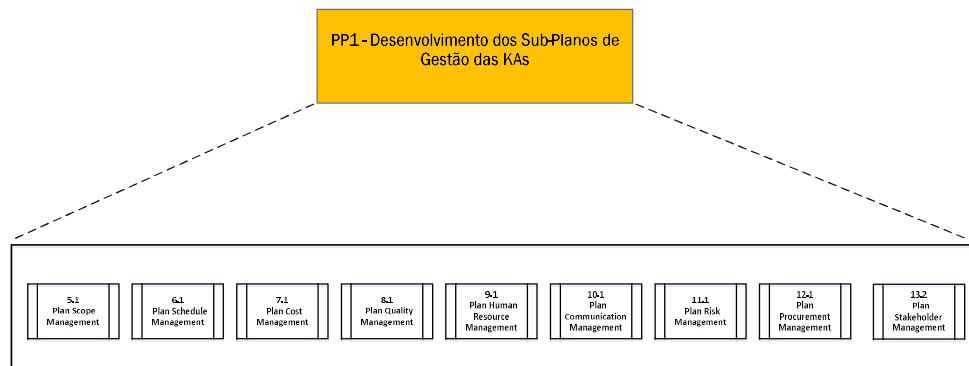
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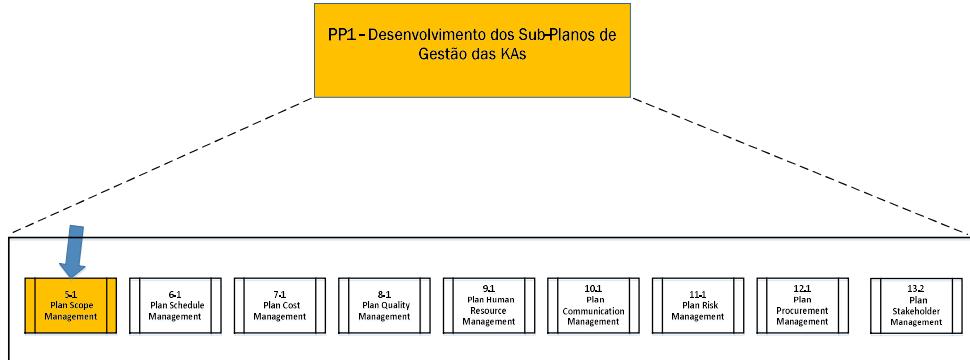
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◆ 5.1 Plan Scope Management



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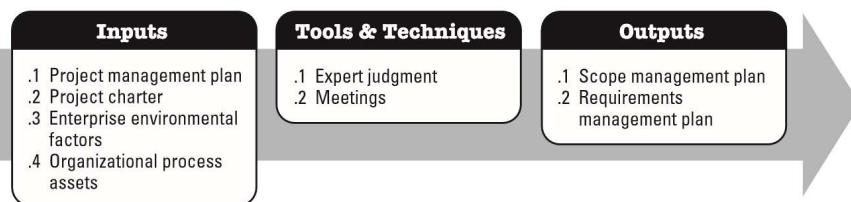
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Processos do Planeamento (PMBOK)



➤ 5.1 Plan Scope Management

- ◆ Plan Scope Management is the process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled. The key benefit of this process is that it provides guidance and direction on how scope will be managed throughout the project.



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➤ 5.1 Plan Scope Management

5.1.3 Plan Scope Management: Outputs

5.1.3.1 Scope Management Plan

The scope management plan is a component of the project or program management plan that describes how the scope will be defined, developed, monitored, controlled, and verified. The scope management plan is a major input into the Develop Project Management Plan process, and the other scope management processes. The components of a scope management plan include:

- Process for preparing a detailed project scope statement;
 - Process that enables the creation of the WBS from the detailed project scope statement;
 - Process that establishes how the WBS will be maintained and approved;
 - Process that specifies how formal acceptance of the completed project deliverables will be obtained; and
 - Process to control how requests for changes to the detailed project scope statement will be processed.
- This process is directly linked to the Perform Integrated Change Control process (Section 4.5).

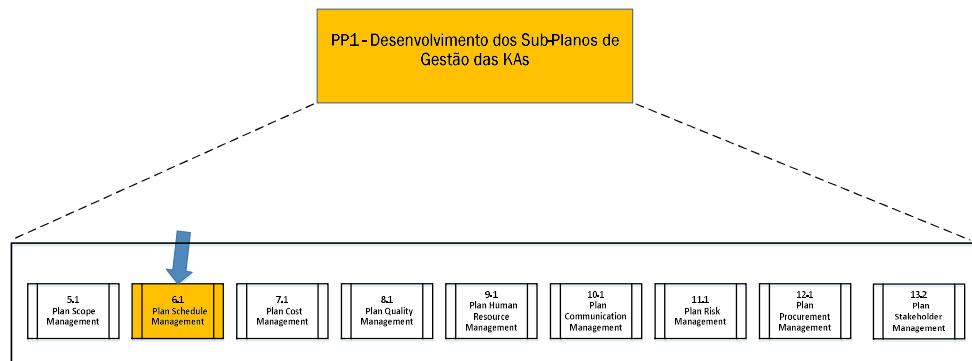
The scope management plan can be formal or informal, broadly framed or highly detailed, based on the needs of the project.

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◆ 6.1 Plan Schedule Management



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◆ 6.1 Plan Schedule Management

Plan Schedule Management is the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule. The key benefit of this process is that it provides guidance and direction on how the project schedule will be managed throughout the project.



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◆ 6.1 Plan Schedule Management

6.1.3 Plan Schedule Management: Outputs

6.1.3.1 Schedule Management Plan

A component of the project management plan that establishes the criteria and the activities for developing, monitoring, and controlling the schedule. The schedule management plan may be formal or informal, highly detailed or broadly framed, based upon the needs of the project, and includes appropriate control thresholds.

For example, the schedule management plan can establish the following:

- **Project schedule model development.** The scheduling methodology and the scheduling tool to be used in the development of the project schedule model are specified.
- **Level of accuracy.** The acceptable range used in determining realistic activity duration estimates is specified and may include an amount for contingencies.
- **Units of measure.** Each unit used in measurements (such as staff hours, staff days, or weeks for time measures, or meters, liters, tons, kilometers, or cubic yards for quantity measures) is defined for each of the resources.
- **Organizational procedures links.** The WBS (Section 5.4) provides the framework for the schedule management plan, allowing for consistency with the estimates and resulting schedules.
- **Project schedule model maintenance.** The process used to update the status and record progress of the project in the schedule model during the execution of the project is defined.
- **Control thresholds.** Variance thresholds for monitoring schedule performance may be specified to indicate an agreed-upon amount of variation to be allowed before some action needs to be taken. Thresholds are typically expressed as percentage deviations from the parameters established in the baseline plan.

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◆ 6.1 Plan Schedule Management

6.1.3 Plan Schedule Management: Outputs

6.1.3.1 Schedule Management Plan

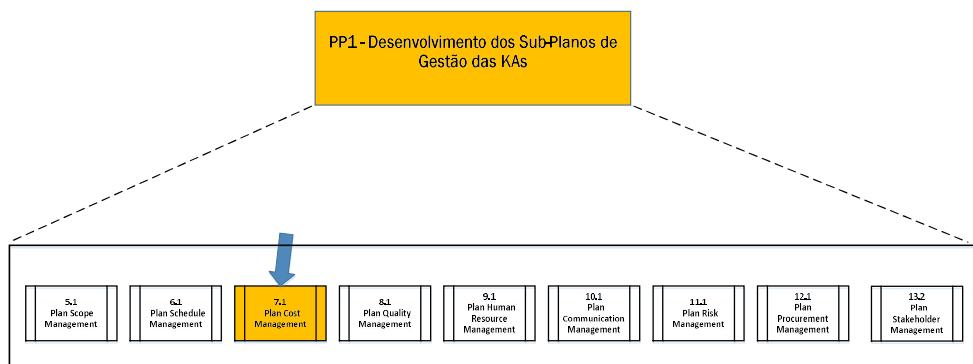
- **Rules of performance measurement.** Earned value management (EVM) rules or other physical measurement rules of performance measurement are set. For example, the schedule management plan may specify:
 - Rules for establishing percent complete,
 - Control accounts at which management of progress and schedule will be measured,
 - Earned value measurement techniques (e.g., baselines, fixed-formula, percent complete, etc.) to be employed (for more specific information, refer to the *Practice Standard for Earned Value Management*) [9],
 - Schedule performance measurements such as schedule variance (SV) and schedule performance index (SPI) used to assess the magnitude of variation to the original schedule baseline.
- **Reporting formats.** The formats and frequency for the various schedule reports are defined.
- **Process descriptions.** Descriptions of each of the schedule management processes are documented.

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◆ 7.1 Plan Cost Management



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◆ 7.1 Plan Cost Management

Plan Cost Management is the process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs. The key benefit of this process is that it provides guidance and direction on how the project costs will be managed throughout the project.



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◆ 7.1 Plan Cost Management

7.1.3 Plan Cost Management: Outputs

7.1.3.1 Cost Management Plan

The cost management plan is a component of the project management plan and describes how the project costs will be planned, structured, and controlled. The cost management processes and their associated tools and

For example, the cost management plan can establish the following:

- **Units of measure.** Each unit used in measurements (such as staff hours, staff days, weeks for time measures; or meters, liters, tons, kilometers, or cubic yards for quantity measures; or lump sum in currency form) is defined for each of the resources.
- **Level of precision.** The degree to which activity cost estimates will be rounded up or down (e.g., US\$100.49 to US\$100, or US\$995.59 to US\$1,000), based on the scope of the activities and magnitude of the project.
- **Level of accuracy.** The acceptable range (e.g., ±10%) used in determining realistic activity cost estimates is specified, and may include an amount for contingencies;
- **Organizational procedures links.** The work breakdown structure (WBS) (Section 5.4) provides the framework for the cost management plan, allowing for consistency with the estimates, budgets, and control of costs. The WBS component used for the project cost accounting is called the control account. Each control account is assigned a unique code or account number(s) that links directly to the performing organization's accounting system.

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◆ 7.1 Plan Cost Management

7.1.3.1 Cost Management Plan

- **Control thresholds.** Variance thresholds for monitoring cost performance may be specified to indicate an agreed-upon amount of variation to be allowed before some action needs to be taken. Thresholds are typically expressed as percentage deviations from the baseline plan.
- **Rules of performance measurement.** Earned value management (EVM) rules of performance measurement are set. For example, the cost management plan may:
 - Define the points in the WBS at which measurement of control accounts will be performed;
 - Establish the earned value measurement techniques (e.g., weighted milestones, fixed-formula, percent complete, etc.) to be employed; and
 - Specify tracking methodologies and the earned value management computation equations for calculating projected estimate at completion (EAC) forecasts to provide a validity check on the bottom-up EAC.
- **Reporting formats.** The formats and frequency for the various cost reports are defined.
- **Process descriptions.** Descriptions of each of the other cost management processes are documented.
- **Additional details.** Additional details about cost management activities include, but are not limited to:
 - Description of strategic funding choices,
 - Procedure to account for fluctuations in currency exchange rates, and
 - Procedure for project cost recording.

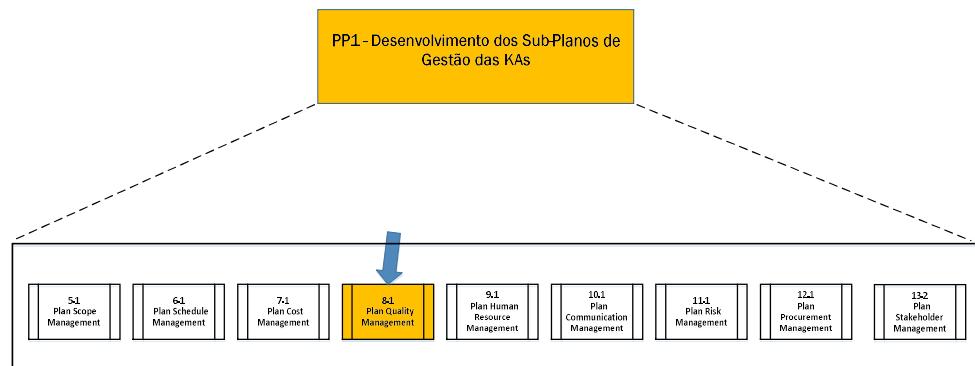
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◆ 8.1 Plan Quality Management



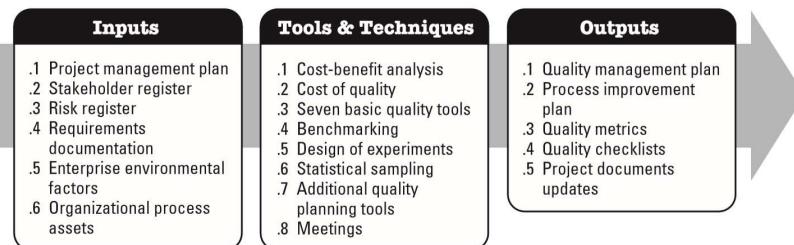
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◆ 8.1 Plan Quality Management

Plan Quality Management is the process of identifying quality requirements and/or standards for the project and its deliverables, and documenting how the project will demonstrate compliance with relevant quality requirements. The key benefit of this process is that it provides guidance and direction on how quality will be managed and validated throughout the project.



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◆ 8.1.2 Plan Quality Management: tools and techniques

8.1.2.1 Cost-Benefit Analysis

The primary benefits of meeting quality requirements include less rework, higher productivity, lower costs, increased stakeholder satisfaction, and increased profitability. A cost-benefit analysis for each quality activity compares the cost of the quality step to the expected benefit.

8.1.2.2 Cost of Quality (COQ)

Cost of quality includes all costs incurred over the life of the product by investment in preventing nonconformance to requirements, appraising the product or service for conformance to requirements, and failing to meet requirements (rework). Failure costs are often categorized into internal (found by the project) and external (found by the customer). Failure costs are also called cost of poor quality. Figure 8-5 provides some examples to consider in each area.

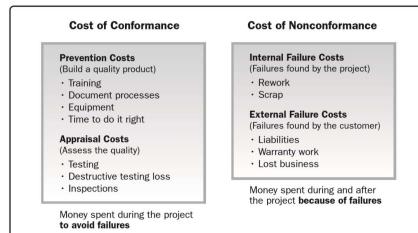


Figure 8-5. Cost of Quality

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◆ 8.1.2 Plan Quality Management: tools and techniques

8.1.2.3 Seven Basic Quality Tools

The seven basic quality tools, also known in the industry as 7QC Tools, are used within the context of the PDCA Cycle to solve quality-related problems. As conceptually illustrated in Figure 8-7, the seven basic quality tools are:

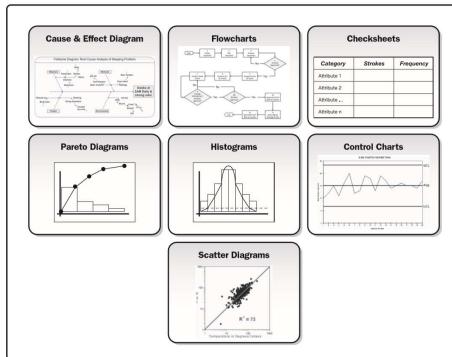


Figure 8-7. Storyboard Illustrating a Conceptual Example of Each of the Seven Basic Quality Tools

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◆ 8.1.2 Plan Quality Management: tools and techniques

8.1.2.4 Benchmarking

Benchmarking involves comparing actual or planned project practices to those of comparable projects to identify best practices, generate ideas for improvement, and provide a basis for measuring performance.

Benchmarked projects may exist within the performing organization or outside of it, or can be within the same application area. Benchmarking allows for analogies from projects in a different application area to be made.

8.1.2.5 Design of Experiments

Design of experiments (DOE) is a statistical method for identifying which factors may influence specific variables of a product or process under development or in production. DOE may be used during the Plan Quality Management process to determine the number and type of tests and their impact on cost of quality.

8.1.2.6 Statistical Sampling

Statistical sampling involves choosing part of a population of interest for inspection (for example, selecting ten engineering drawings at random from a list of seventy-five). Sample frequency and sizes should be determined during the Plan Quality Management process so the cost of quality will include the number of tests, expected scrap, etc.

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◆ 8.1.2 Plan Quality Management: tools and techniques

8.1.2.7 Additional Quality Planning Tools

Other quality planning tools are used to define the quality requirements and to plan effective quality management activities. These include, but are not limited to:

- **Brainstorming.** This technique is used to generate ideas (defined in Section 11.2.2.2).
- **Force field analysis.** These are diagrams of the forces for and against change.
- **Nominal group technique.** This technique is used to allow ideas to be brainstormed in small groups and then reviewed by a larger group.
- **Quality management and control tools.** These tools are used to link and sequence the activities identified (defined in Section 8.2.2.1).

8.1.2.8 Meetings

Project teams may hold planning meetings to develop the quality management plan. Attendees at these meetings may include the project manager; the project sponsor; selected project team members; selected stakeholders; anyone with responsibility for Project Quality Management activities namely Plan Quality Management, Perform Quality Assurance, or Control Quality; and others as needed.

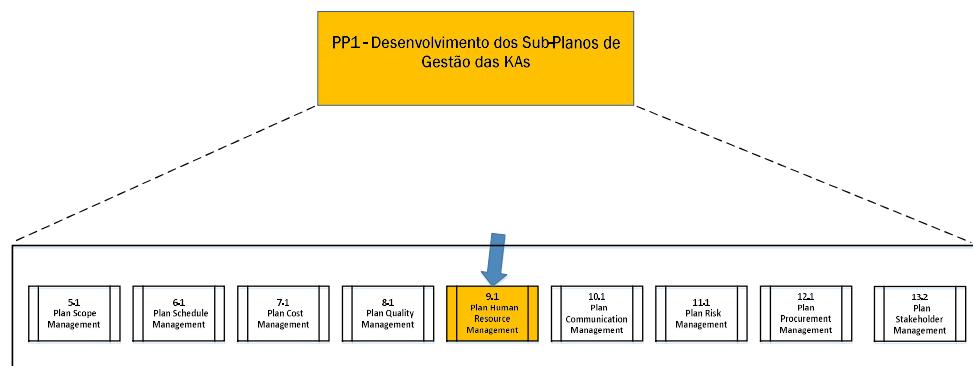
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◆ 9.1 Plan Human Resource Management



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◆ 9.1 Plan Human Resource Management

Plan Human Resource Management is the process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan. The key benefit of this process is that it establishes project roles and responsibilities, project organization charts, and the staffing management plan including the timetable for staff acquisition and release.



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◆ 9.1 Plan Human Resource Management

9.1.2 Organization Charts and Position Descriptions

Various formats exist to document team member roles and responsibilities. Most of the formats fall into one of three types (Figure 9-4): hierarchical, matrix, and text-oriented. Additionally, some project assignments are listed in subsidiary plans, such as the risk, quality, or communications management plans. Regardless of the method utilized, the objective is to ensure that each work package has an unambiguous owner and that all team members have a clear understanding of their roles and responsibilities. For example, a hierarchical format may be used to represent high-level roles, while a text-based format may be better suited to document the detailed responsibilities.

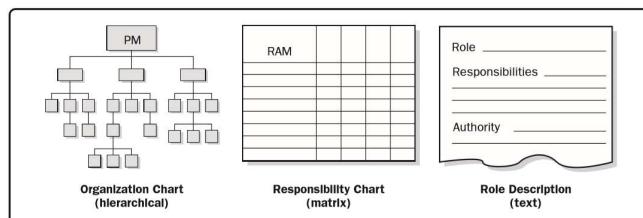


Figure 9-4. Roles and Responsibility Definition Formats

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◆ 9.1 Plan Human Resource Management

Matrix-based charts. A responsibility assignment matrix (RAM) is a grid that shows the project resources assigned to each work package. It is used to illustrate the connections between work packages or activities and project team members. On larger projects, RAMs can be developed at various levels.

Activity	Person				
	Ann	Ben	Carlos	Dina	Ed
Create charter	A	R	I	I	I
Collect requirements	I	A	R	C	C
Submit change request	I	A	R	R	C
Develop test plan	A	C	I	I	R

R = Responsible A = Accountable C = Consult I = Inform

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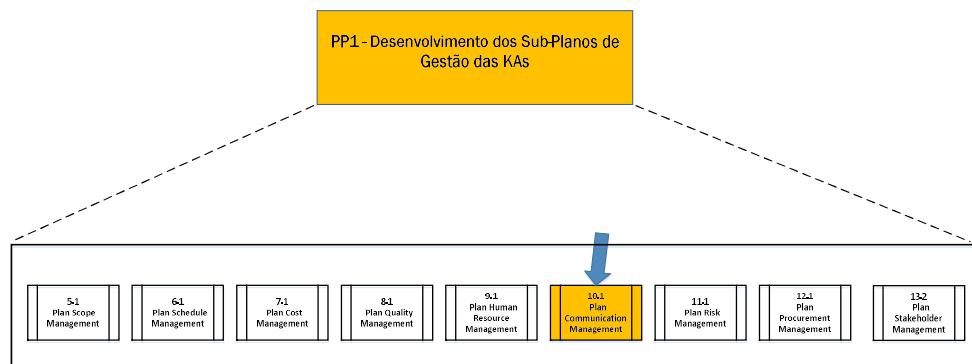
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◆ 10.1 Plan Communication Management



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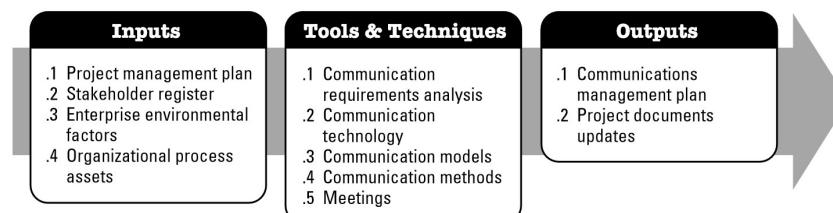
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◆ 10.1 Plan Communication Management

Plan Communications Management is the process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets. The key benefit of this process is that it identifies and documents the approach to communicate most effectively and efficiently with stakeholders.



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◆ 10.1 Plan Communication Management

On most projects, communication planning is performed very early, such as during project management plan development. This allows appropriate resources, such as time and budget, to be allocated to communication activities. Effective communication means that the information is provided in the right format, at the right time, to the right audience, and with the right impact. Efficient communication means providing only the information that is needed.

While all projects share the need to communicate project information, the information needs and methods of distribution may vary widely. In addition, the methods of storage, retrieval, and ultimate disposition of the project information need to be considered and appropriately documented during this process. Important considerations that may need to be taken into account include, but are not limited to:

- Who needs what information, and who is authorized to access that information;
- When they will need the information;
- Where the information should be stored;
- What format the information should be stored in;
- How the information can be retrieved; and
- Whether time zone, language barriers, and cross-cultural considerations need to be taken into account.

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10.1.3.1 Communications Management Plan

The communications management plan is a component of the project management plan that describes how project communications will be planned, structured, monitored, and controlled. The plan contains the following information:

- Stakeholder communication requirements;
- Information to be communicated, including language, format, content, and level of detail;
- Reason for the distribution of that information;
- Time frame and frequency for the distribution of required information and receipt of acknowledgment or response, if applicable;
- Person responsible for communicating the information;
- Person responsible for authorizing release of confidential information;
- Person or groups who will receive the information;
- Methods or technologies used to convey the information, such as memos, e-mail, and/or press releases;
- Resources allocated for communication activities, including time and budget;
- Escalation process identifying time frames and the management chain (names) for escalation of issues that cannot be resolved at a lower staff level;
- Method for updating and refining the communications management plan as the project progresses and develops;
- Glossary of common terminology;
- Flow charts of the information flow in the project, workflows with possible sequence of authorization, list of reports, and meeting plans, etc.; and
- Communication constraints usually derived from a specific legislation or regulation, technology, and organizational policies, etc.

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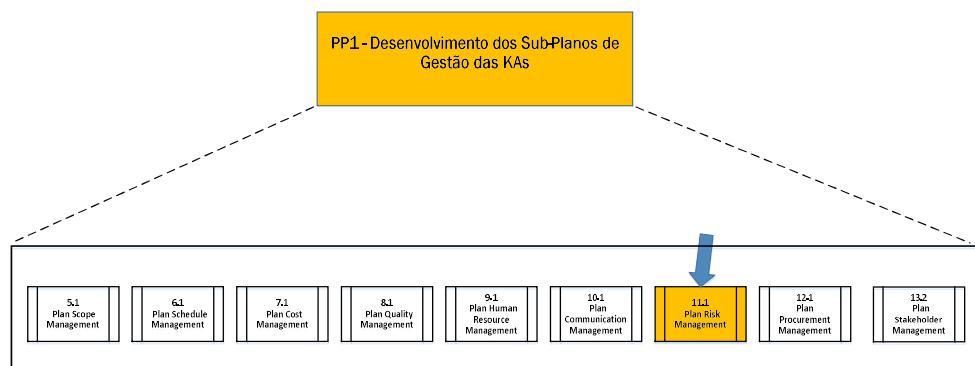
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◆ 11.1 Plan Risk Management



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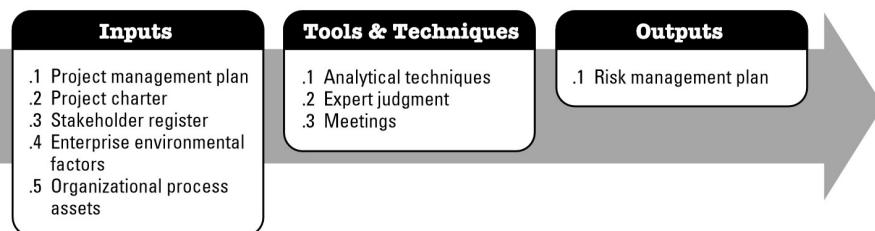
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◆ 11.1 Plan Risk Management

Plan Risk Management is the process of defining how to conduct risk management activities for a project. The key benefit of this process is it ensures that the degree, type, and visibility of risk management are commensurate with both the risks and the importance of the project to the organization. The risk management plan is vital to communicate with and obtain agreement and support from all stakeholders to ensure the risk management process is supported and performed effectively over the project life cycle.



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◆ 11.1 Plan Risk Management

11.1.3 Plan Risk Management: Outputs

11.1.3.1 Risk Management Plan

The risk management plan is a component of the project management plan and describes how risk management activities will be structured and performed. The risk management plan includes the following:

- **Methodology.** Defines the approaches, tools, and data sources that will be used to perform risk management on the project.
- **Roles and responsibilities.** Defines the lead, support, and risk management team members for each type of activity in the risk management plan, and clarifies their responsibilities.
- **Budgeting.** Estimates funds needed, based on assigned resources, for inclusion in the cost baseline and establishes protocols for application of contingency and management reserves.
- **Timing.** Defines when and how often the risk management processes will be performed throughout the project life cycle, establishes protocols for application of schedule contingency reserves, and establishes risk management activities for inclusion in the project schedule.

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◆ 11.1 Plan Risk Management

11.1.3 Plan Risk Management: Outputs

11.1.3.1 Risk Management Plan

- **Risk categories.** Provide a means for grouping potential causes of risk. Several approaches can be used, for example, a structure based on project objectives by category. A risk breakdown structure (RBS) helps the project team to look at many sources from which project risk may arise in a risk identification exercise. Different RBS structures will be appropriate for different types of projects.
- **Definitions of risk probability and impact.** The quality and credibility of the risk analysis requires that different levels of risk probability and impact be defined that are specific to the project context. General definitions of probability levels and impact levels are tailored to the individual project during the Plan Risk Management process for use in subsequent processes.

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◆ 11.1 Plan Risk Management

11.1.3 Plan Risk Management: Outputs

11.1.3.1 Risk Management Plan

Defined Conditions for Impact Scales of a Risk on Major Project Objectives (Examples are shown for negative impacts only)					
Project Objective	Relative or numerical scales are shown				
	Very low /0.05	Low /0.10	Moderate /0.20	High /0.40	Very high /0.80
Cost	Insignificant cost increase	< 10% cost increase	10 – 20% cost increase	20 – 40% cost increase	> 40% cost increase
Time	Insignificant time increase	< 5% time increase	5 – 10% time increase	10 – 20% time increase	> 20% time increase
Scope	Scope decrease barely noticeable	Minor areas of scope affected	Major areas of scope affected	Scope reduction unacceptable to sponsor	Project end item is effectively useless
Quality	Quality degradation barely noticeable	Only very demanding applications are affected	Quality reduction requires sponsor approval	Quality reduction unacceptable to sponsor	Project end item is effectively useless

This table presents examples of risk impact definitions for four different project objectives. They should be tailored in the Risk Management Planning process to the individual project and to the organization's risk thresholds. Impact definitions can be developed for opportunities in a similar way.

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◆ 11.1 Plan Risk Management

11.1.3 Plan Risk Management: Outputs

11.1.3.1 Risk Management Plan

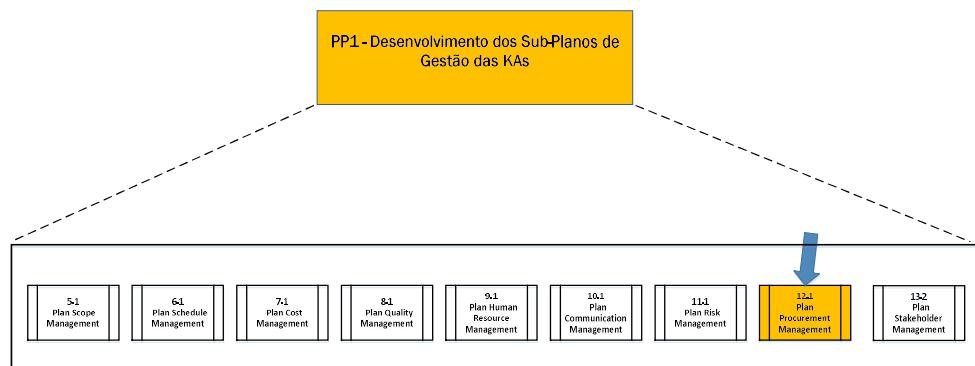
- **Probability and impact matrix.** A probability and impact matrix is a grid for mapping the probability of each risk occurrence and its impact on project objectives if that risk occurs. Risks are prioritized according to their potential implications for having an effect on the project's objectives. A typical approach to prioritizing risks is to use a look-up table or a probability and impact matrix. The specific combinations of probability and impact that lead to a risk being rated as "high," "moderate," or "low" importance are usually set by the organization.
- **Revised stakeholders' tolerances.** Stakeholders' tolerances, as they apply to the specific project, may be revised in the Plan Risk Management process.
- **Reporting formats.** Reporting formats define how the outcomes of the risk management process will be documented, analyzed, and communicated. It describes the content and format of the risk register as well as any other risk reports required.
- **Tracking.** Tracking documents how risk activities will be recorded for the benefit of the current project and how risk management processes will be audited.

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◆ 12.1 Plan Procurement Management



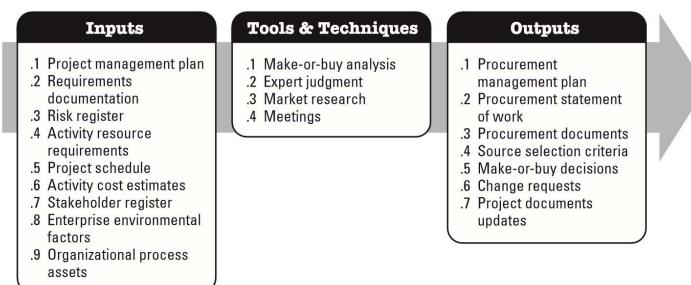
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◆ 12.1 Plan Procurement Management

Plan Procurement Management is the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers. The key benefit of this process is that it determines whether to acquire outside support, and if so, what to acquire, how to acquire it, how much is needed, and when to acquire it.



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◆ 12.1 Plan Procurement Management

12.1.3.1 Procurement Management Plan

The procurement management plan is a component of the project management plan that describes how a project team will acquire goods and services from outside the performing organization. It describes how the procurement processes will be managed from developing procurement documents through contract closure. The procurement management plan can include guidance for:

- Types of contracts to be used;
- Risk management issues;
- Whether independent estimates will be used and whether they are needed as evaluation criteria;
- Those actions the project management team can take unilaterally, if the performing organization has a prescribed procurement, contracting, or purchasing department;
- Standardized procurement documents, if needed;
- Managing multiple suppliers;
- Coordinating procurement with other project aspects, such as scheduling and performance reporting;
- Any constraints and assumptions that could affect planned procurements;

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◆ 12.1 Plan Procurement Management

12.1.3.1 Procurement Management Plan

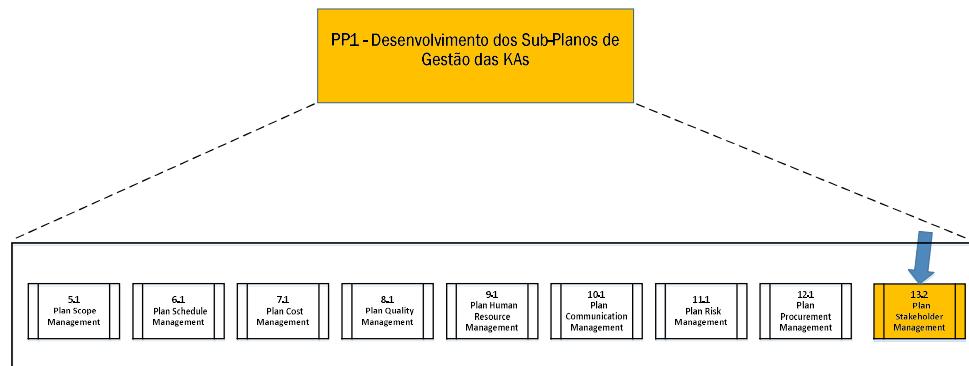
- Handling the long lead times to purchase certain items from sellers and coordinating the extra time needed to procure these items with the development of the project schedule;
- Handling the make-or-buy decisions and linking them into the Estimate Activity Resources and Develop Schedule processes;
- Setting the scheduled dates in each contract for the contract deliverables and coordinating with the schedule development and control processes;
- Identifying requirements for performance bonds or insurance contracts to mitigate some forms of project risk;
- Establishing the direction to be provided to the sellers on developing and maintaining a work breakdown structure (WBS);
- Establishing the form and format to be used for the procurement/contract statements of work;
- Identifying prequalified sellers, if any, to be used; and
- Procurement metrics to be used to manage contracts and evaluate sellers.

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◆ 13.2 Plan Stakeholder Management



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◆ 13.2 Plan Stakeholder Management

Plan Stakeholder Management is the process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success. The key benefit of this process is that it provides a clear, actionable plan to interact with project stakeholders to support the project's interests.



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◆ 13.2 Plan Stakeholder Management

13.2.2.3 Analytical Techniques

The current engagement level of all stakeholders needs to be compared to the planned engagement levels required for successful project completion. Stakeholder engagement throughout the life cycle of the project is critical to project success.

The engagement level of the stakeholders can be classified as follows:

- **Unaware.** Unaware of project and potential impacts.
- **Resistant.** Aware of project and potential impacts and resistant to change.
- **Neutral.** Aware of project yet neither supportive nor resistant.
- **Supportive.** Aware of project and potential impacts and supportive to change.
- **Leading.** Aware of project and potential impacts and actively engaged in ensuring the project is a success.

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◆ 13.2 Plan Stakeholder Management

13.2.2.3 Analytical Techniques

Stakeholder	Unaware	Resistant	Neutral	Supportive	Leading
Stakeholder 1	C			D	
Stakeholder 2			C	D	
Stakeholder 3				D C	

Figure 13-7. Stakeholders Engagement Assessment Matrix

Through this analytical process, gaps between the current and desired engagement levels can be identified. Actions and communications required to close these gaps can be identified by the project team using expert judgment.

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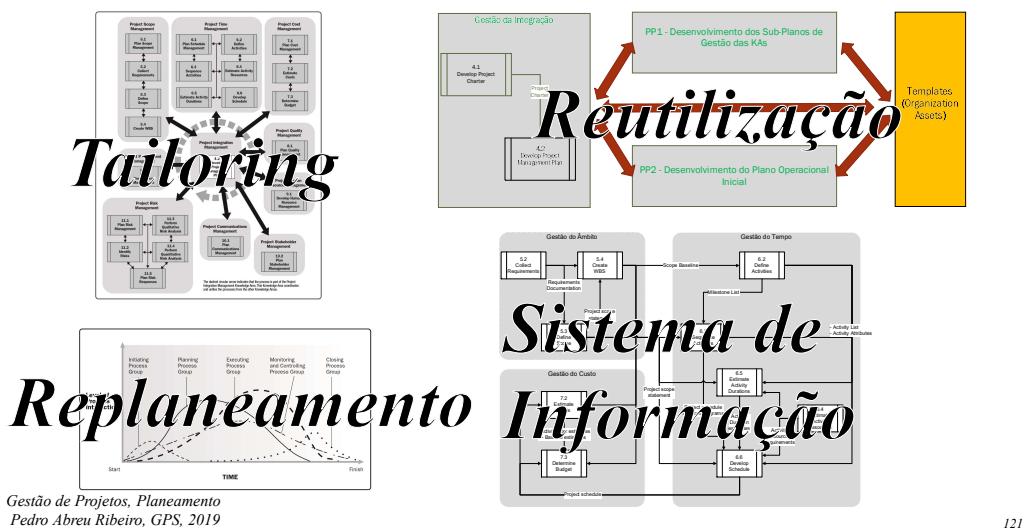


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 - ✓ Procedimento para o Planeamento (P-Plan)
 - ✓ 4.2 Develop Project Management Plan
 - ✓ PP2 - Desenvolvimento do Plano Operacional Inicial
 - ✓ Procedimento para o Desenvolvimento do Plano Operacional
 - ✓ Gestão de Âmbito
 - ✓ Gestão do Tempo
 - ✓ Gestão do Custo
 - ✓ PP1- Desenvolvimento dos Sub-Planos de Gestão das KAs
- **Conclusões**

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◆ Conclusões



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