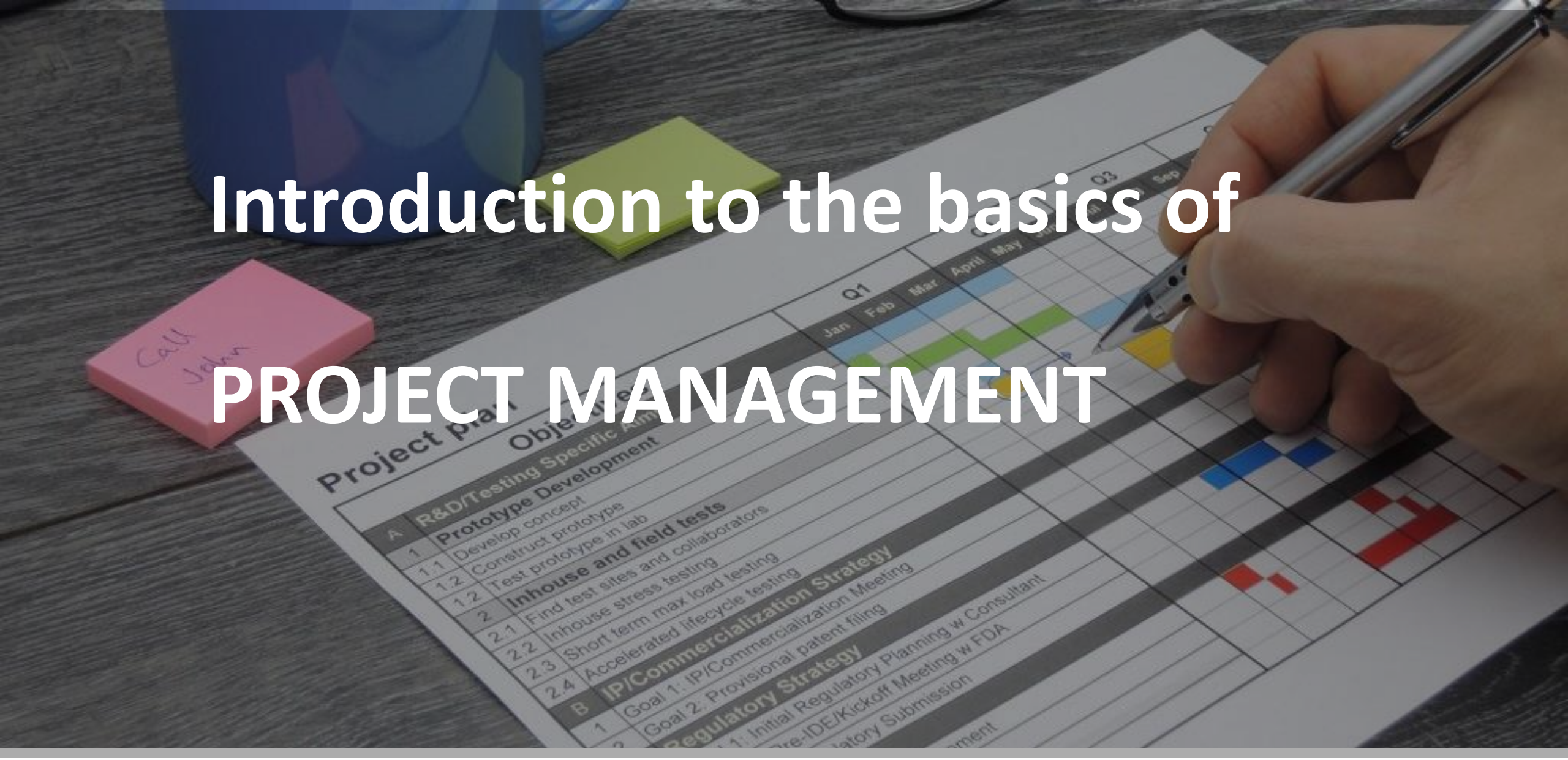
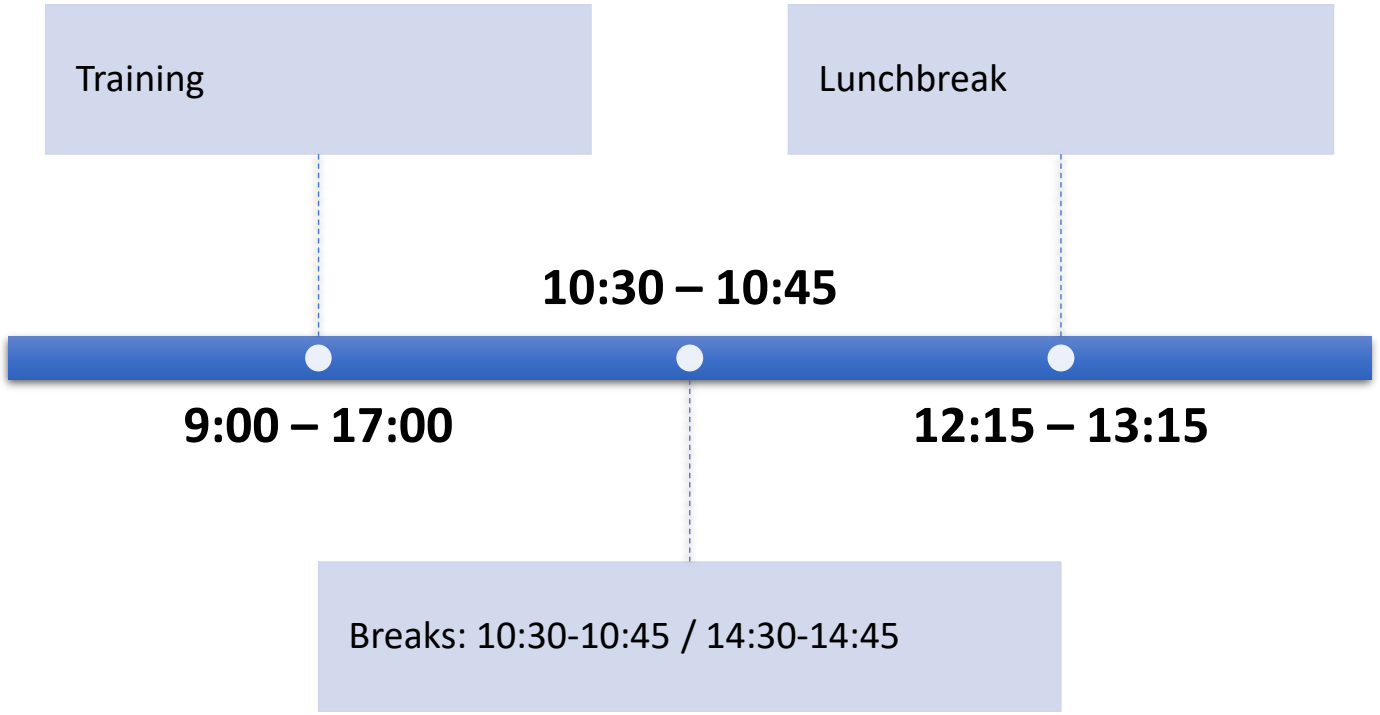

Introduction to the basics of
PROJECT MANAGEMENT

AGENDA

Organization



Intro of Participants 5min Canvas 30sec/person

NAME

ROLE

PM EXPERIENCE

SPECIAL PM SCHOOL (IPMA/PMI/PRINCE2/ SCRUM/SAFE)

EXPECTATIONS

Overview

Nr.	Themen
1	Project Management Frameworks & Processes
2	Integration Management
3	Scope Management
4	Schedule Management
5	Cost Management
6	Quality Management
7	Resource Management
8	Communications Management
9	Risk Management
10	Procurement Management
11	Stakeholder Management
12	Professional and Social Responsibility

INTRODUCTION

PROJECT MANAGEMENT ORGANIZATIONS

PMI, IPMA/GPM, PRINCE2, SCRUM, SAFe, PM²

PMI	IPMA*/ GPM	PRINCE2	SCRUM	SAFe	PM²
Project Management Institute	Gesellschaft für Projektmanagement	Axelos**	- Scrum.org - ScrumAlliance	Scaled Agile Inc.	European Commission

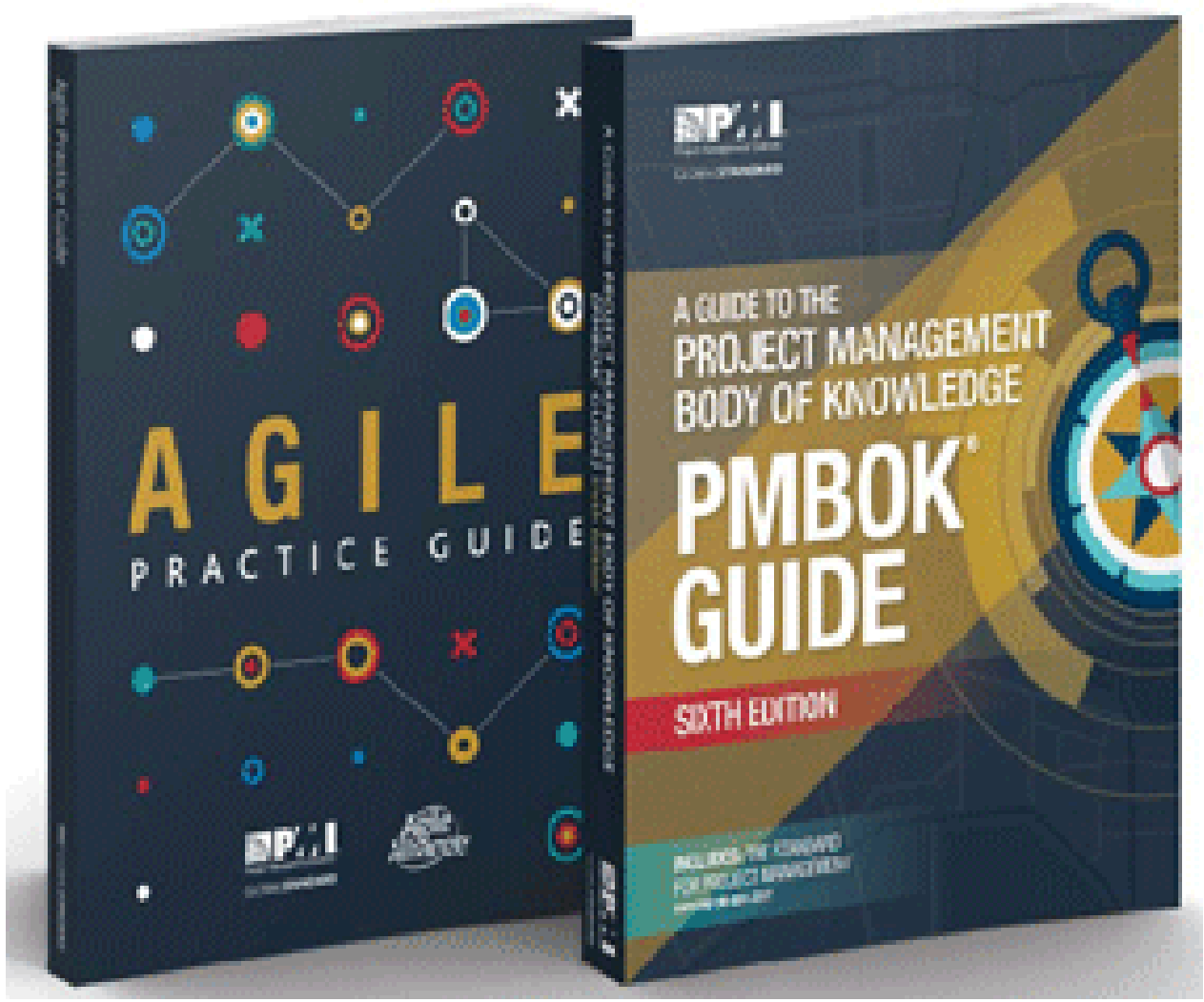
* International Project Management Association

** earlier „Office of Government and Commerce“

INTRODUCTION

PMBOK© GUIDE 6.0

Overview and Structure of the PMBoK© Guide



PMBoK and PMBoK Guide

- **PMBoK is defined as a term that describes the knowledge within the profession of project management and includes proven traditional practices that are widely applied as well as innovative practices that are emerging in the profession.**
- **The PMBok Guide identified a subset of the PMBoK that is generally recognized* as good practice**.**

- The PMBoK Guide is a globally accepted Standard for Project Management
- New ISO 21500-Norm is 100% wrt the PMI-Project Management-Model
- Within the US it is also the national standard (ANSI/PMI 99-001-2004)
- Project Management activities are described process (by process groups) as well as knowledge oriented (by knowledge areas)
- Every Project Management process is being described alongside its inputs, outputs, tools & techniques used by it

* Generally recognized means the knowledge and practices described are applicable to most projects most of the time, and there is consensus about their value and usefulness

** Good practice means there is general agreement that the application of knowledge, skills, tools, and techniques to project management processes can enhance the chance of success over many projects in delivering the expected business values and results

Generally recognized means the knowledge and practices described are applicable to most projects most of the time, and there is consensus about their value and usefulness

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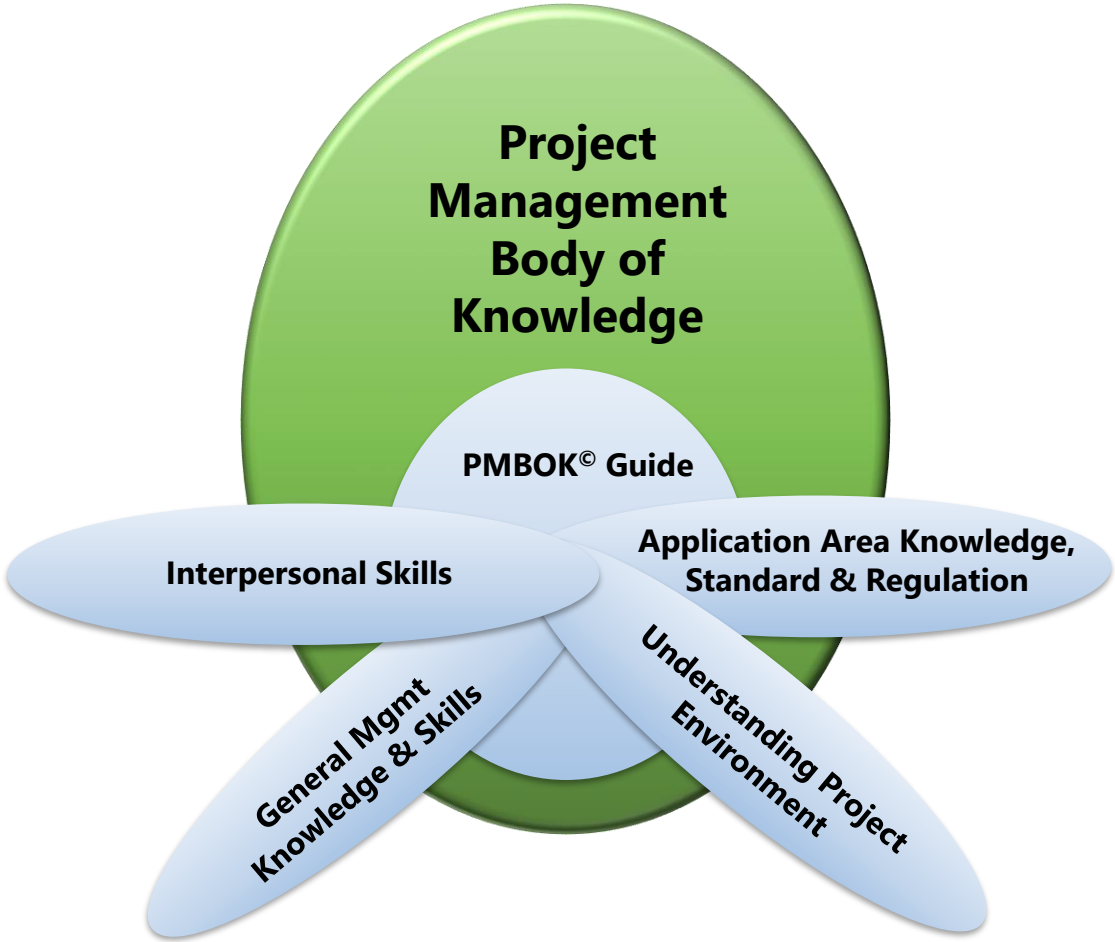
PMBoK and PMBoK Guide



Source: PMBoK Guide (PMI)

Structure PMBOK© Guide

Part 1: A Guide to the Project Management Body of Knowledge

Section 1 Introduction

Definition Project

Integration into Programmes and Portfolios

Section 2 The Environment in which Projects Operate

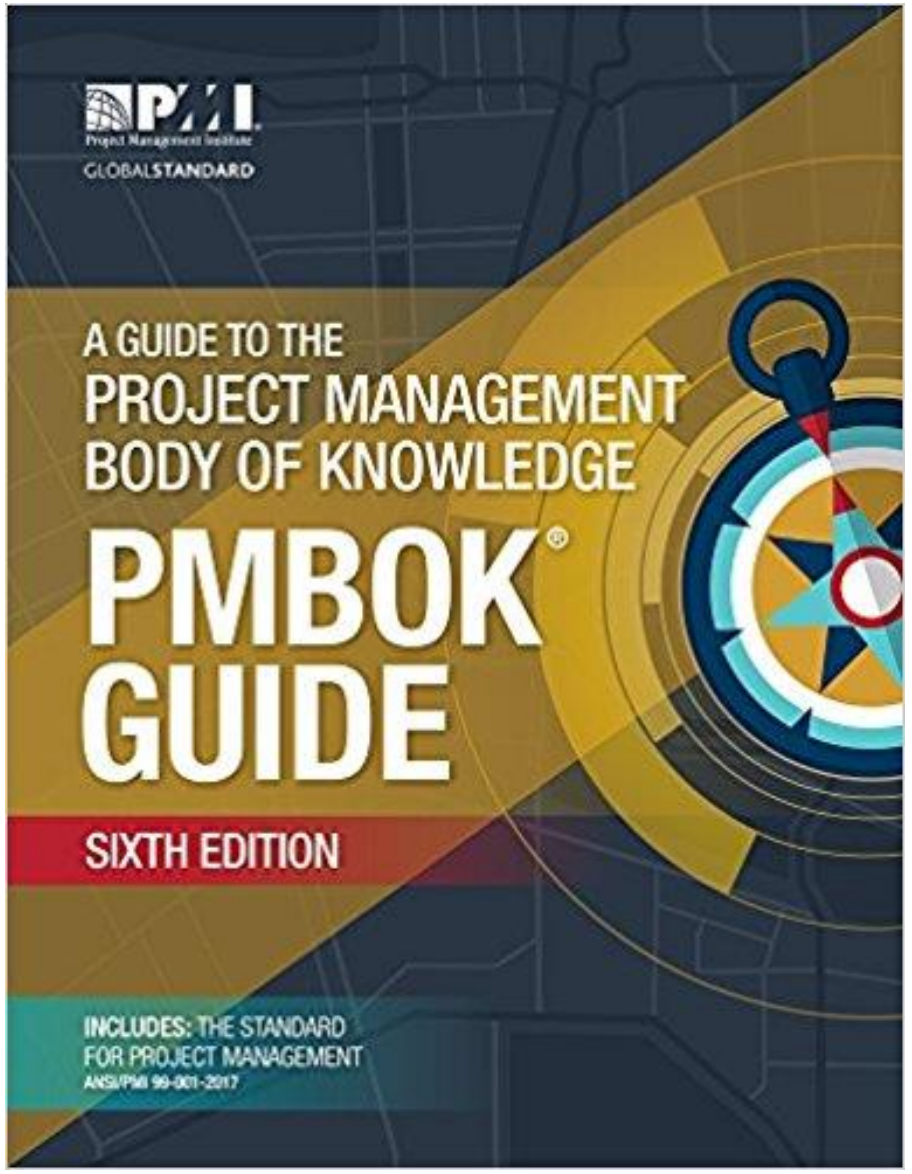
Project lifecycle

Organizational forms

Section 3 The Role of the Project Manager

Required skills of a Project Manager

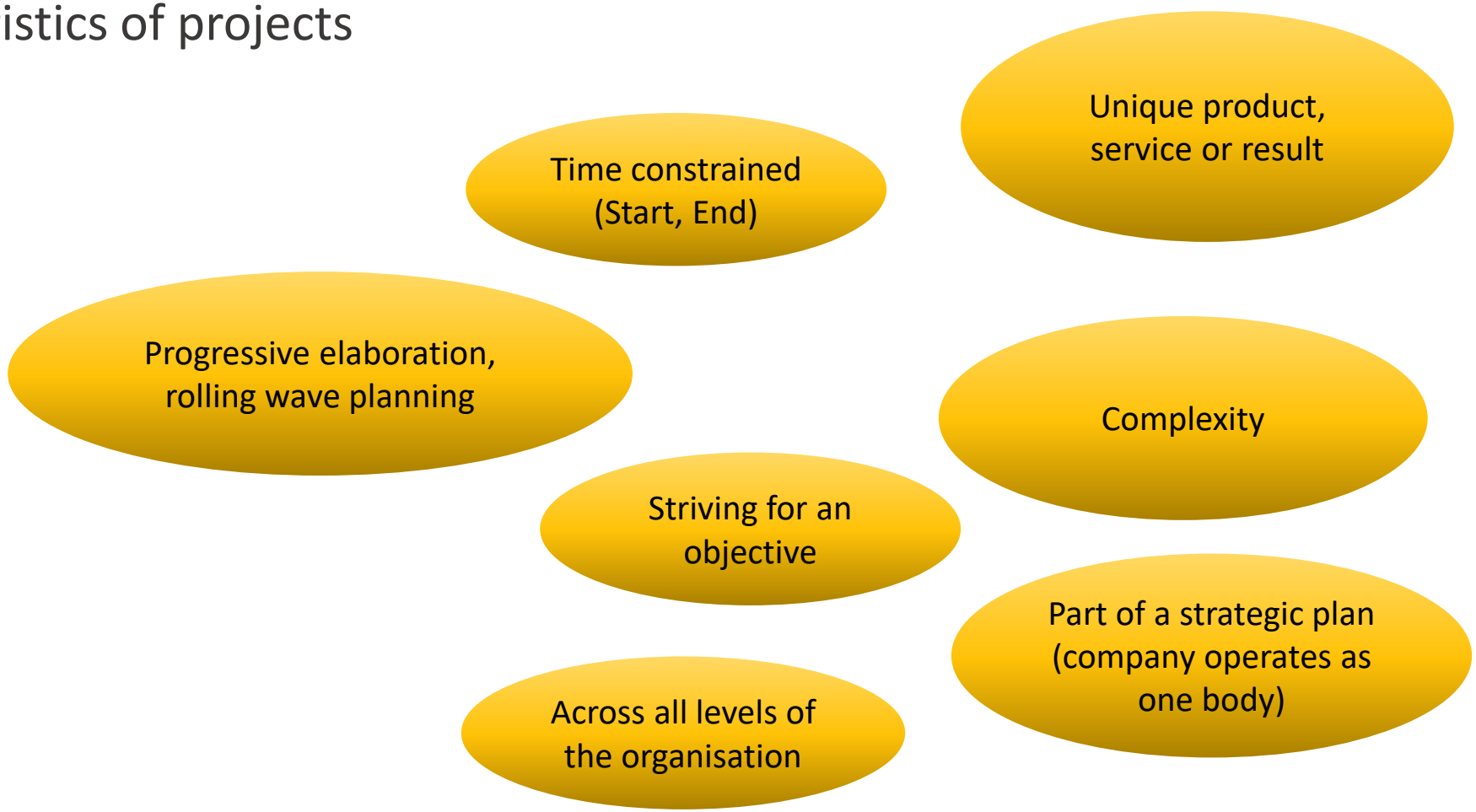
Impact of a Project Manager



PM BASICS

What makes up a project?

Characteristics of projects



Characteristics of a Project

- Objective – usually a defined outcome (product, service, etc.)
- Complexity – demand for variety of skills from a wide range of disciplines
- Uniqueness – projects are never exactly the same
- Unknowns – elements of unsecurity and risks
- Endpoint – at the end of a project all activities come to a halt
- Life-cycle – a project consists of various phases with a defined end
- Plan – list of tasks, schedules, milestones, risk assessment, unforeseeen issues

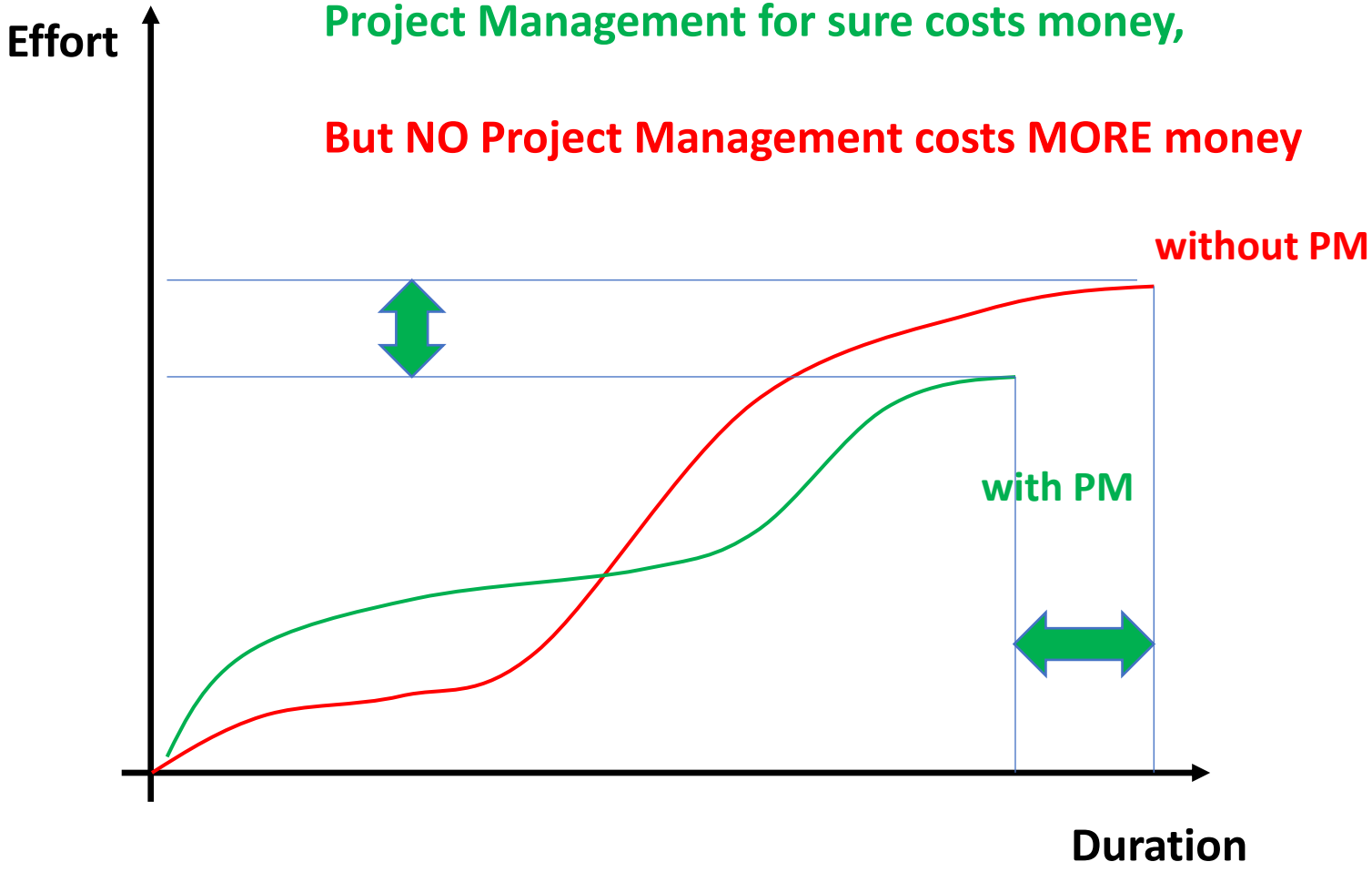
Philosophy and Delineation

- Philosophy of Project Management
  - Objective is constant, the Path is NOT
  - Iterative (rolling/progressive planning)
  - Planning as detailed as possible (too often plans are too detailed at the start causing unnecessary changes to the plan)
- Common things of Project and Operational Management
  - Human beings, limited resources
  - Planned, executed and controlled
  - Interfaces
- Main differences between Project and Operational Management
  - In operational management there is a „ramp-up“ phase to make processes more robust. Production / output is low in this phase (low rate initial procution, LRIP).
  - Project Managers can‘t afford such deterioration and have to anticipate and become pro-active (get „ahead-of-the-curve“).

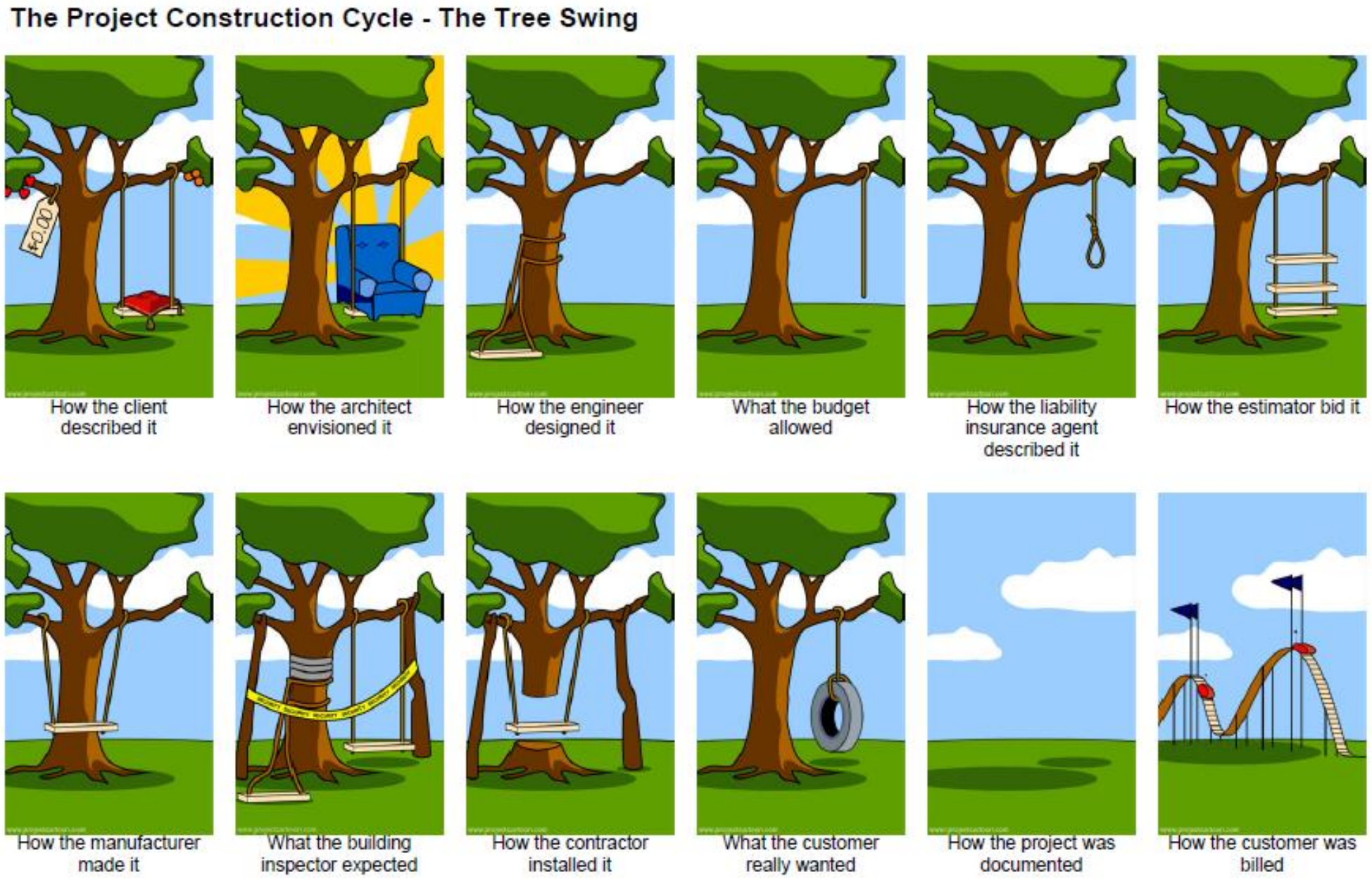
WHY Project Management?

Conclusion:

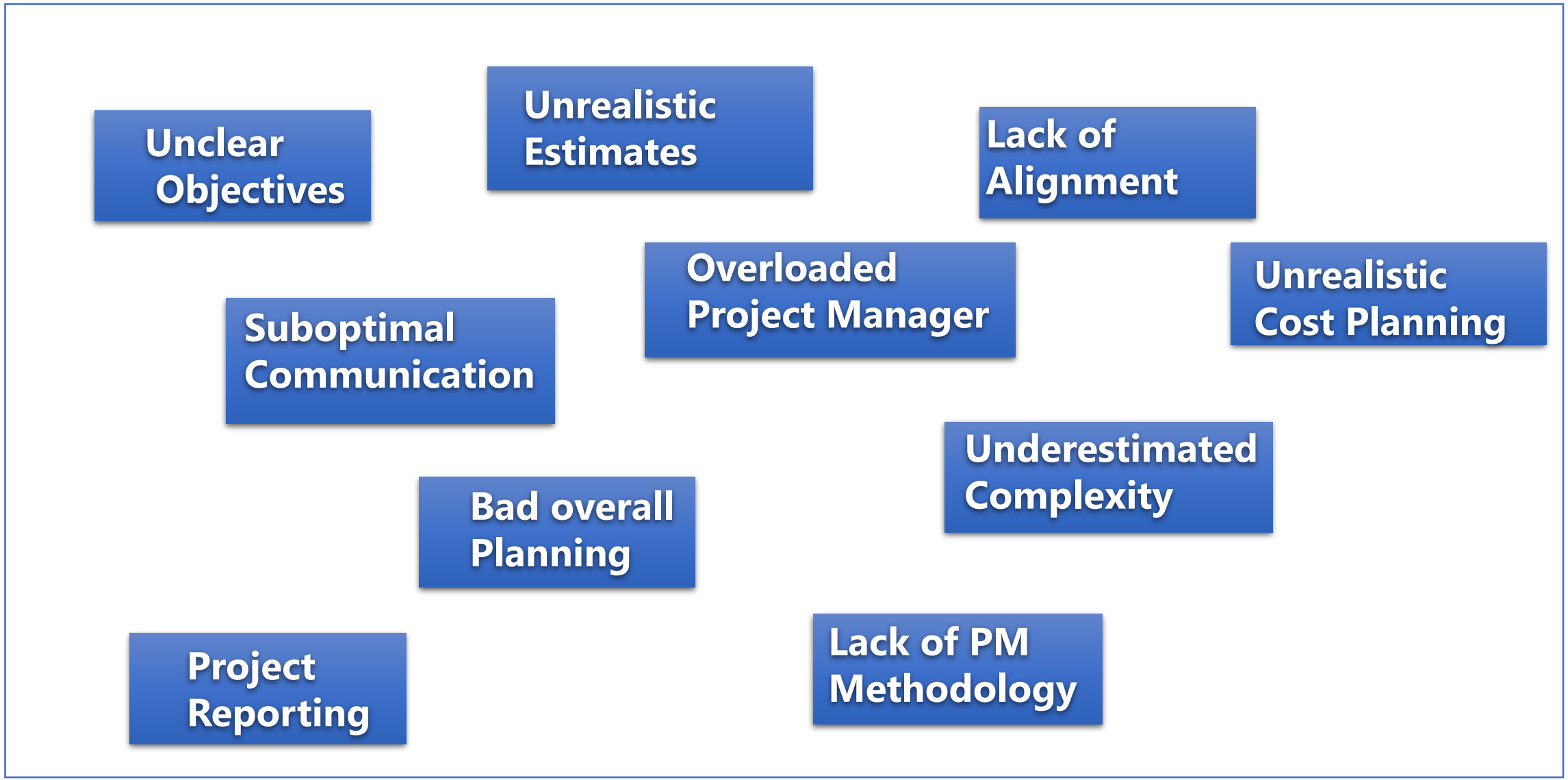
- less effort
- shorter duration



Why Project Management?



„THE 10 BIGGEST PROBLEMS IN PROJECT MANAGEMENT“


Unclear Objectives
Unrealistic Estimates
Lack of Alignment
Overloaded Project Manager
Unrealistic Cost Planning
Suboptimal Communication
Underestimated Complexity
Bad overall Planning
Lack of PM Methodology
Project Reporting

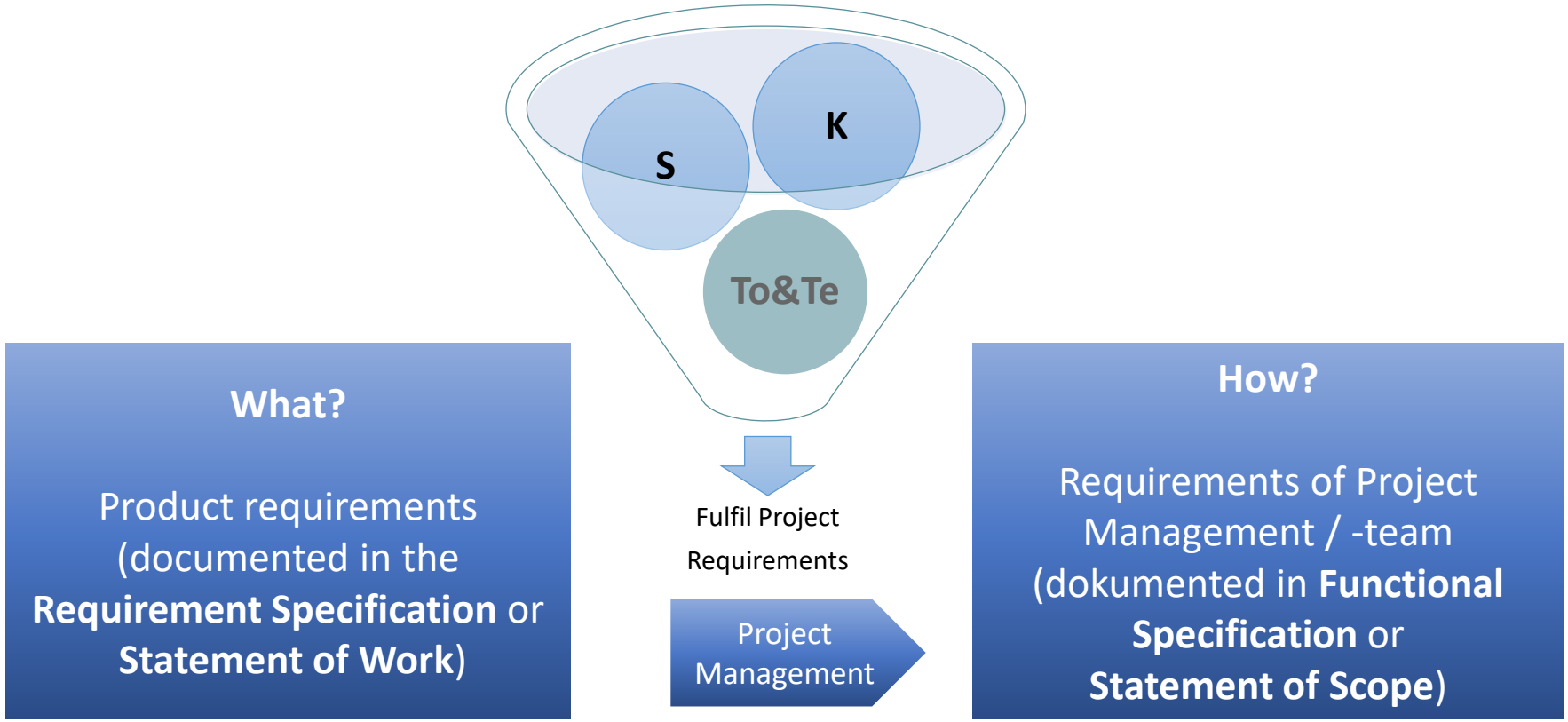
Project Manager – Harold Kerzner
(https://en.wikipedia.org/wiki/Harold_Kerzner)

2009: *Project Management: a systems approach to planning, scheduling, and controlling*

“Project management is the art of creating the illusion that any outcome is the result of a series of predetermined, deliberate acts when, in fact, it was dumb luck.”

Project Management

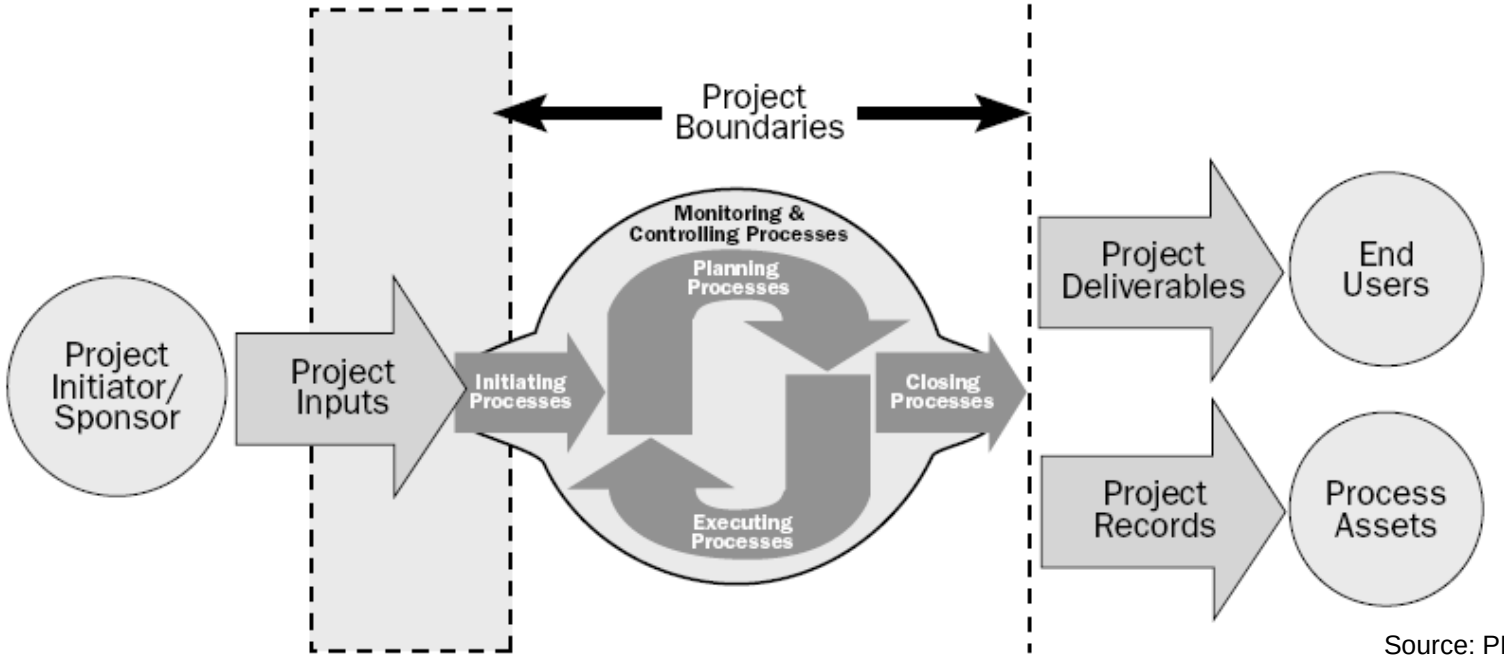
„Project Management projects the application of Knowledge (K), Skills (S), Tools and Techniques (To&Te) on project activities in order to fulfil project requirements.“ (PMI)



The Project Manager

Tasks and Responsibilities of the Project Manager

- Responsible for the project, but not for the product (subject matter experts)
- Coordinates interfaces and dependencies between the 5 process groups

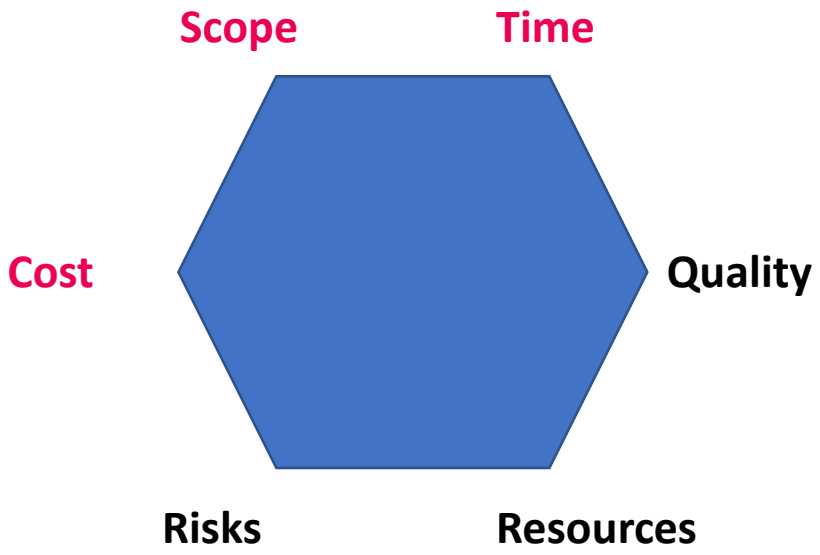


Source: PMBoK Guide (PMI)

The Project Manager – Tasks & Responsibilities

Manages **proactively** the „magic hexagon“ (also called „triple constraints“)

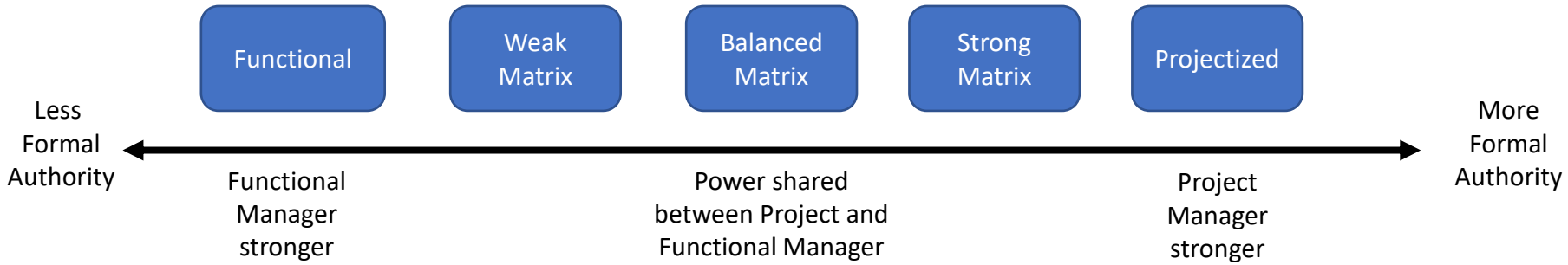
Scope
Time
Cost
Quality
Resourcen
Risks



The „magic“ of the magic hexagon is a consequence of the complex connections between the constraints influencing each other.

The Project Manager

Authorities of a Project Manager by organization type (Crowe, 2011: 18)



Management skills required from a Project Manager

- Leadership
- Communication
- Negotiation
- Problem solving
- Motivating, Impacting
- Decision making

The Project Manager

Project Manager

Has control over project and is ultimately accountable to achieve the project goals

“large and in charge”, i.e. formally mandated to

- make use of organizational resources
- make use of approved funds
- make decisions e.g. prioritization of changes

Key function of a PM in project integration is problem solving and decision making between subsystems

It is PM‘s responsibility to balance competing needs of stakeholders

While managing a project PM is applying all 49 processes to satisfy the project goals!

Effective Project Managers

- have a mix of functional, inter-personal („soft“) and conceptual skills
- can make use of these skills efficiently, e.g. when analyzing new situations
- act according to the respective situation and above all forward-looking/proactive

The Project Manager

https://www.youtube.com/watch?v=dQp-z4AUZ78

Life Cycles

- For a successful project two life cycles are pivotal - the project life cycle and the project management life cycle.

- Project Life Cycle
  - Not general since dependent from the organization and industry in which the project takes place
  - e.g. software development: business requirements -> functional/technical specification -> realizsation -> testing -> integration
  - e.g. construction industry: feasibility -> planning -> design/concept -> building -> hand-over -> commissioning
  - To improve management it is quite common to define certain phases
  - To verify delivery items there are usually phase or stage gates and/or milestones which should also used to reflect reflect on the business cases
  - Phases can be sequential, overlapping/concurrent (fast tracking, simultaneous engineering, congruent engineering) or iterative

- **The project manager is in charge of the integration of phases both at product and at project management level.**

Project Life Cycle

Progressive elaboration is a characteristic of projects that accompanies the concepts of temporary and unique.

One characteristic of a project is the so-called **Progressive Elaboration**.

- Typical example is the project scope (so the work to be accomplished) which can usually at the beginning of a project only be described quite generally; with increasing knowledge and understanding throughout the project the project team can then elaborate on the project scope.

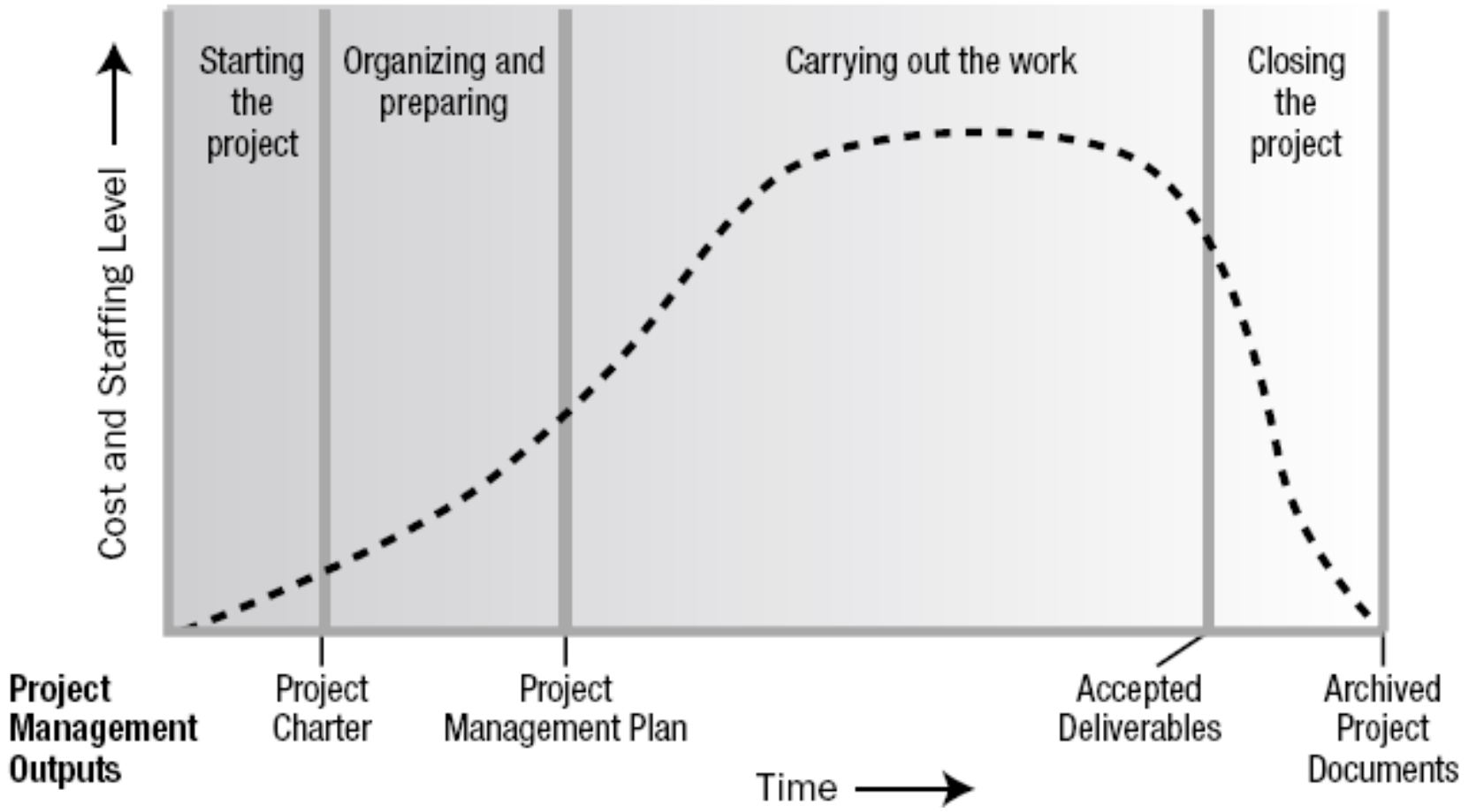
Important note: this should **not** be mixed up with the so-called **Scope Creep**

- Scope Creep: slowly evolving changes of the scope in smaller seemingly harmless steps which can in summary lead to loss of control

Relationships between Project Phases

- **Sequential**
  - Next phase begin if the preceding phase has been closed
  - „Phase Gates“, „Decision Points“
- **Overlapping**
  - Next phase begins whilst the preceeding phase still runs
  - „Fast-tracking“
  - Risk of rework
- **Iterative**
  - Next phase will only be planned when the delivery items of the preceeding phase have largely been completed
  - e.g. first „Proof of Concept“, only then the build of the final solution will be planned

Project Management Life Cycle



Quelle: PMBoK Guide (PMI)

Project Management Life Cycle

Project Management Life Cycle and Process

- General
- i.e. Initiation -> Planning -> Execution -> Closure -> Monitoring & Controlling (= Process Groups)
- Always to be considered by Project Manager

Besides many more life cycles like e.g. the contract life cycle the most significant one is the Product Life Cycle.

Product Life Cycle

- Generally consists of sequential non-overlapping product phases/stages, i.e. typically „Introduction“, „Growth“, „Maturity“, („Saturation“), „Decline“
- One Product Life Cycle can include multiple Project Life Cycles.

Project Management Office - PMO

The Project Management Office (PMO), or Program Management Office, Project Office, Program Office

- Organizational Unit
- Varying authority and mandate depending on the organization
- Delivers Project Management Services for one or many projects like e.g. controls common resources, aligns project goals with organizational goals, provides Project Management (PM) methods, standards and templates, monitors compliance of the projects with these standards, controls communications between projects, provides software and other tools, training, coaching, mentoring, executes reviews/audits, supports preparation for certifications, provides PM analysts for projects in the organization, owns project results
- PMO Lead is also known as CPO (Chief Project Officer)

Project Stakeholder

Stakeholder

- Interested organizations or persons with different goals (some of which are aligned with project goals, some not)
- Internal or external (anyone not being part of the project team
- active, if part of the value chain
- passive, if not part of the value chain
- continuous identification and active management of stakeholders required and key to project success

Definition of the term „Deliverable/s“

„A project creates unique deliverables which are products, services, or results.“

Product or Artefact: something quantifiable, can be an object or component of an object.

Service: capability to perform business functions

Result: results or documents which e.g. summarizes new insights gained from research projects

Wrt to phases which are as per PMBoK Guide taking place in sequential order the term „Deliverable“ is defined as the result of work done the existance of which is a precondition to start the new phase.

In a narrower sense the term „Deliverable/s“ is used as a synonym for the result of a project. „External Deliverables“ are results of completed work which have to undergo examination by the sponsor and/or customer.

Definition of the terms „Issue“ and „Risk“

- **Issues in particular „open issues“ – facts/situations to be dealt with**
- **Risk – something which can go not as per plan**

- **Issue vs Risk**
  - Risk can result in an Issue if the Risk materializes (becomes reality)
  - Issue is the consequence of a RIsk

- **Conflict in a team**
  - Special issue is insufficient performance of a team member or insufficient collaboration within the team

More terms…

- **PMIS**
  - Project Management Information System (PMIS) is a central repository for project documents and other content, nowadays often a Web-Portals like Confluence or other Wikis. Essential element is a role model with respective permissioning.

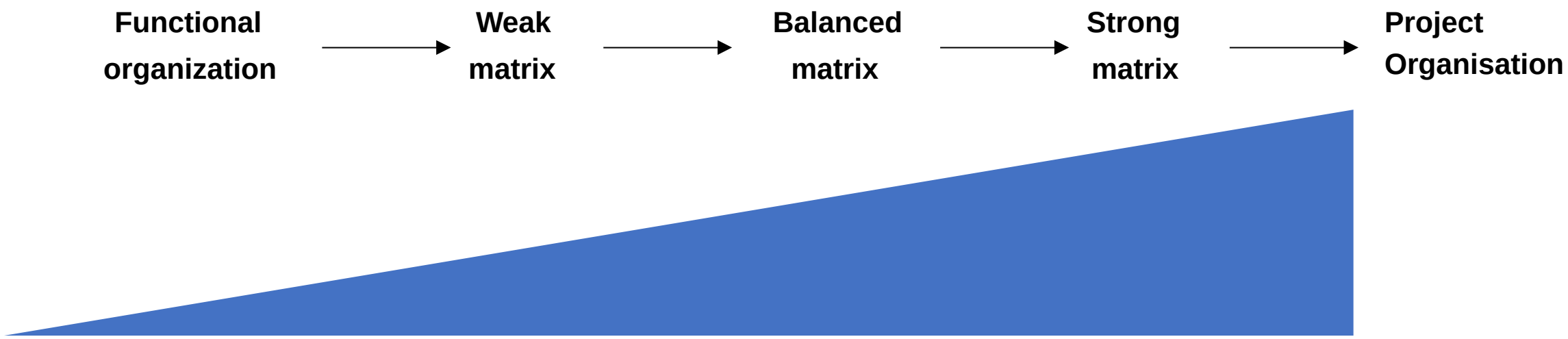
- **RAM / RACI**
  - Members of the project teams are being assigned tasks through a so-called Responsibility Assignment Matrix (RAM).
  - Responsible: responsible for the execution, driving force; can be delegated.
  - Accountable: responsible for the result/outcome; cannot be delegated.
  - To be Consulted: team member will be asked for input, mainly for specialist opinion; input is required for result/outcome.
  - To be Informed: team member to be informed

… still more terms…

- **Constraints (restrictions, limitations)**
  - „Guardrails“ of the project which can be defined during Initiation of the project and then become an Input to the project. Constraints can also be identified after Initiation and will then be an Output of the Planning.
  - Constraints cannot be changed by the project and will impact the project result since they will enforce or exclude certain activities.

- **Assumptions**
  - are the basis for planning and activities the correctness of which need to be verified throughout the project.
  - express the learning curve during the project:
    - in an early phase of the project assumptions have to be made and documented; later when there is certainty regarding the assumptions the planning needs to be adjusted.

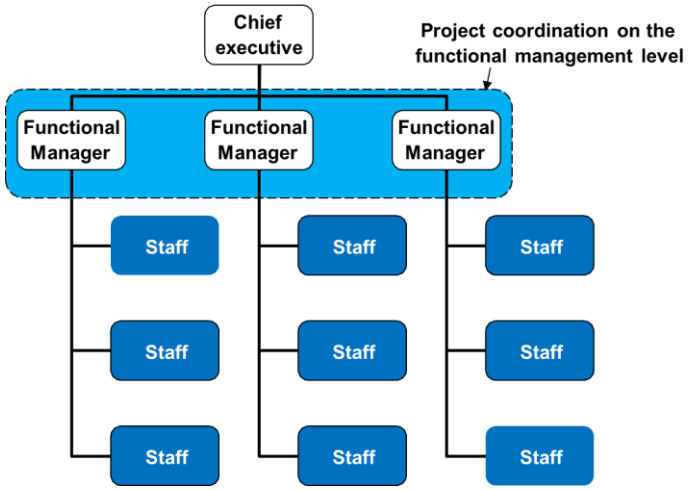
Authority of Project Manager



Organizational setup of the company

- **Organizational setup has impact on:**
  - Authority of the Project Manager
  - Ressource availability
  - Controlling of project budget
  - Roles of Project Manager and Project Team Members
- **Types of organizational setup:**
  - Functional organization
  - Matrix organization (weak, balanced, strong)
  - Projectized organization
  - Composite organization (Mixed form with parallel hierarchies)
- **Important aspects:**
  - Position of Project Manager vs Line Manager
  - Pros and Cons of organizational types

Functional organization (classical Line Organization)

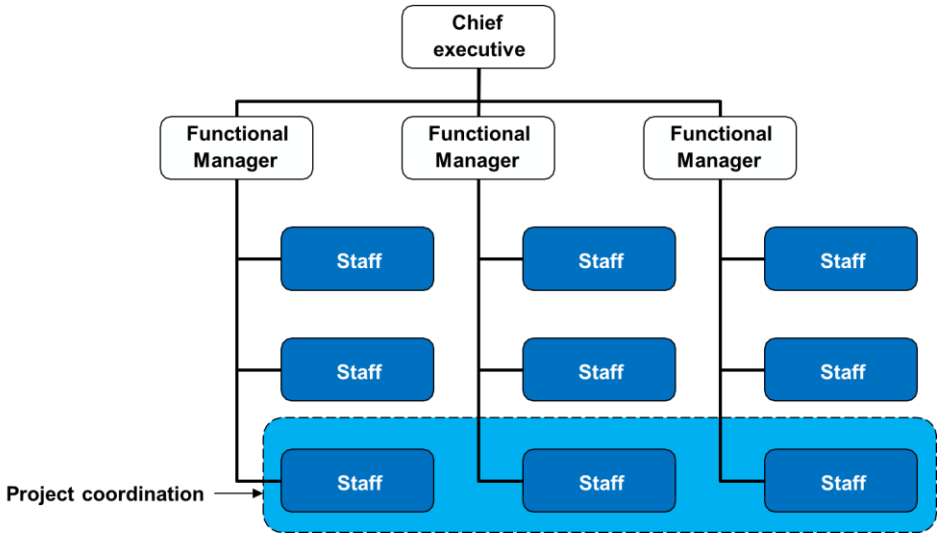


„Silo“

Quelle: PMBoK Guide (PMI)

Pros	Cons
Simplified cost and resource management	No responsibility for project goals
Flexible deployment of staff	Complicated decision paths
Continuity in functional areas	No single point of contact
Established communication channels	High coordination efforts
Concentration of expert knowledge	Ideas aligned to department

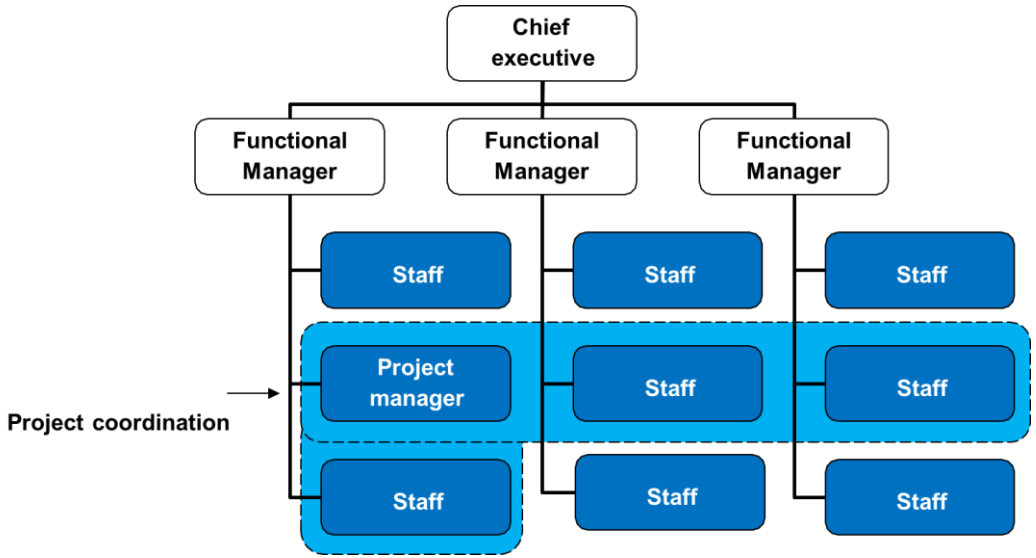
Weak Matrix organization



Quelle: PMBoK Guide (PMI)

Pros	Cons
Analogue to „Functional Organization“	Projects are not necessarily managed by functional manager
	Project Manager is more a „Project Expediter“ (Communicator/coordinator across departmental silos) or „Project Coordinator“

Balanced Matrix organization

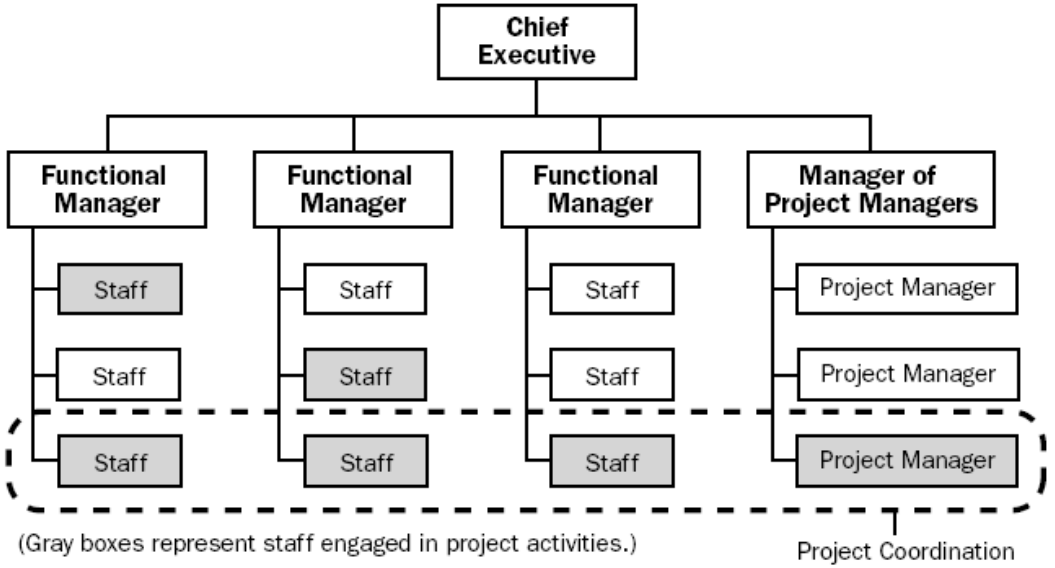


„2 bosses“

Quelle: PMBoK Guide (PMI)

Pros	Cons
Employee responsibility with PM	2 supervisors per resource
Functional authority	High potential for conflict between project and line
Line organization has to support project	Employees stay in their „functional home“
	Duplicate reporting (project AND line)

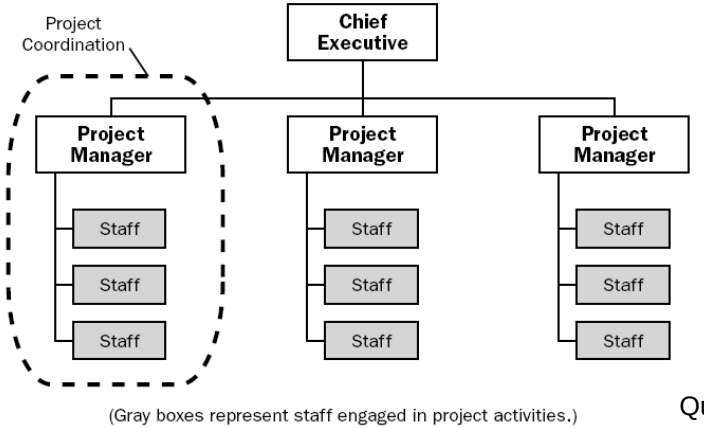
Strong Matrix organization



Quelle: PMBoK Guide (PMI)

Pros	Cons
Project Manager and project team members work full-time on project	Second reporting line for project team members (PM and LM)
Project Manager has full budget control	

Projectized organization



„no home“

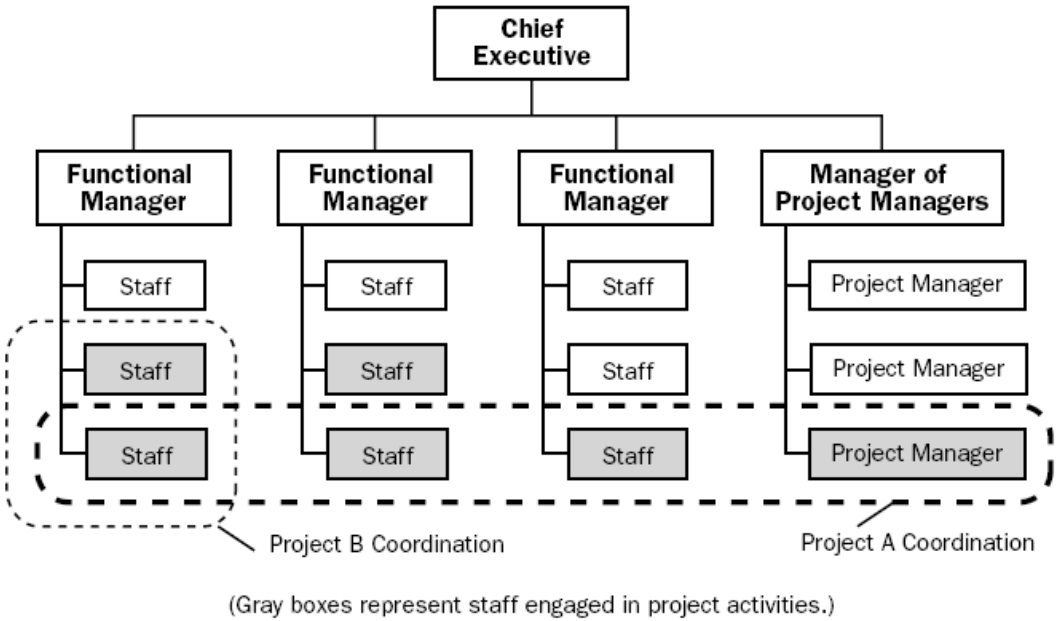
Quelle: PMBoK Guide (PMI)

Pros	Cons
Project Manager has maximum authority	Employees have fear of integration
Most efficient Project Organization	High cost
Optimal communications	Fewer career options for project team members
Single Point of Contact	
High flexibility	
Employees stay longer in the project	

Composite organization

- Mix of before mentioned organization types

- Functional organization with autonomous project teams besides the normal hierarchy



Quelle: PMBoK Guide (PMI)

Comparison of Organization Types

Organization Structure / Project Characteristics	Functional	*Matrix*			Projectized
		Weak Matrix	Balanced Matrix	Strong Matrix	
Project Manager's Authority	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Resource Availability	Little or None	Limited	Low to Moderate	Moderate to High	High to Almost Total
Who controls the project budget	Functional Manager	Functional Manager	Mixed	Project Manager	Project Manager
Project Manager's Role	Part-time	Part-time	Full-time	Full-time	Full-time
Project Management Administrative Staff	Part-time	Part-time	Part-time	Full-time	Full-time

Quelle: PMBoK Guide (PMI), 2008: 28

Organizational Process Assets (OPA)

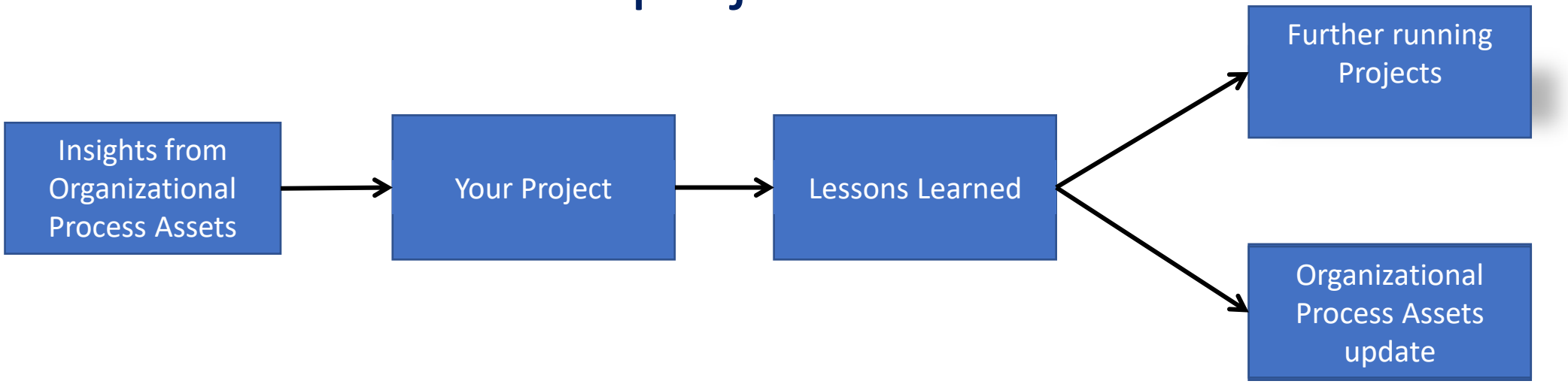
- Processes, practices and guidelines
- Formal and informal approaches, guidelines, policies, tools and templates
  - e.g. for quality assurance, continuous improvement, procurement, people management, change control, (information) security and more
- **Input to many processes**
- Knowledge base
- The organization will have information available such as historic records and lessons learned from earlier projects which are part of a knowledge base available to anyone in the organization.
- Historic information:
  - activities, gained knowledge, WBSs, benchmarks, reports, risks and risk plans, estimates, resources, project management plans, communications
- Term „Process Assets“ is being used to reflect that such artefacts have been worked out whilst achieving organizational goals. These are also investments made by the organization which are expected to generate business short-, mid- and long-term.

Organizational Process Assets

- Lessons Learned should cover three topics to be of value:
  - technical aspects of the project: what was good or bad how we've performed the work to create the product?
  - project management: what was good or bad with the creation of WBSs, risk planning, etc.?
  - management: what was good or bad in the communication and leadership demonstrated by the project manager?

Note: There are still project managers who don't recognize the value of Lessons Learned

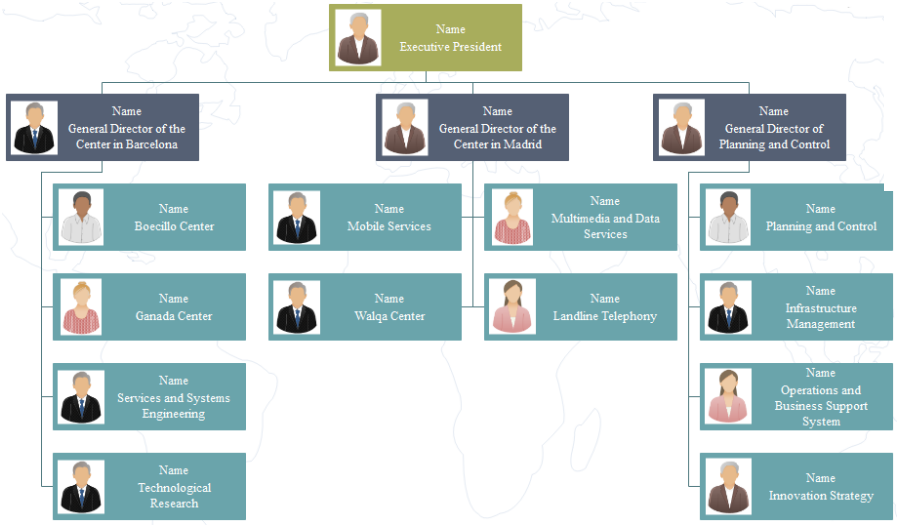
Lessons Learned on a project



- Lessons Learned are both input to and output of projects
- Input: improve project
- Output: improve organization and future projects
- Results should be shared with the project team and the organization as part of the communications process.

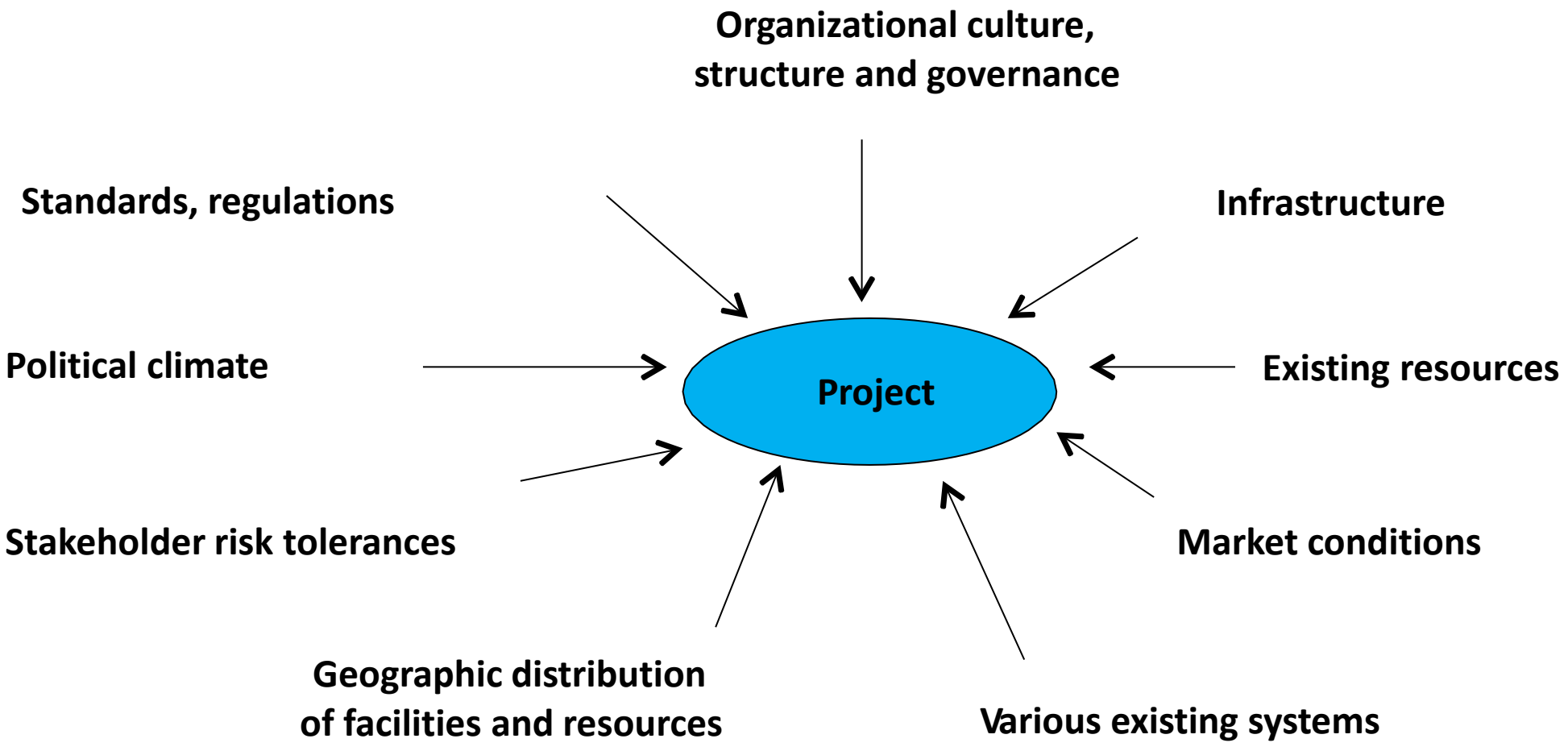
Enterprise Environmental Factors

- Relates to constraints which are not controlled by the project team and can impact the project.
- Could as well be internal or external to the organization.



Project

Enterprise Environmental factors

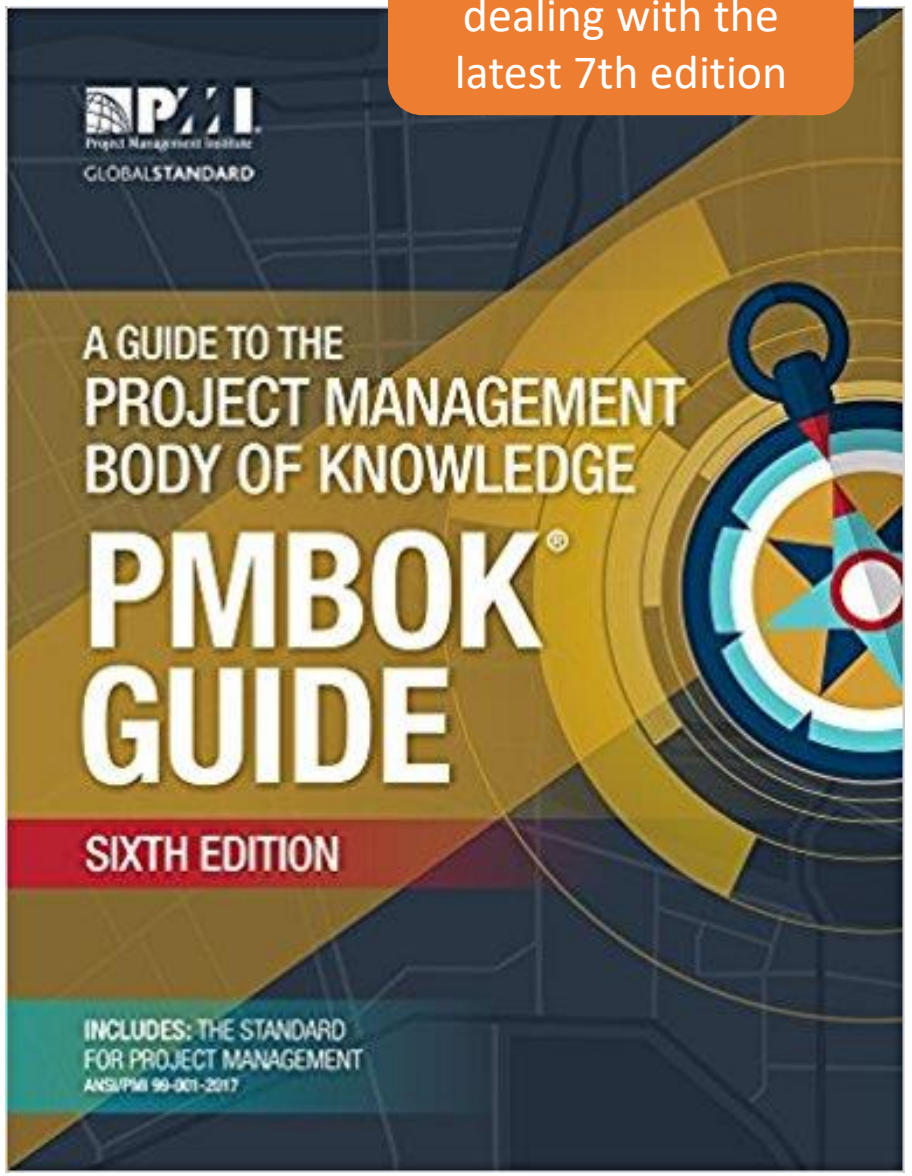


Structure PMBOK© Guide

Description of all 10 Knowledge Areas and all 49 Process Groups

Section 4: Integration Management
Section 5: Scope Management
Section 6: Schedule Management
Section 7: Cost Management
Section 8: Quality Management
Section 9: Resource Management
Section 10: Communications Management
Section 11: Risk Management
Section 12: Procurement Management
Section 13: Stakeholder Management

NOTE – we‘re NOT dealing with the latest 7th edition

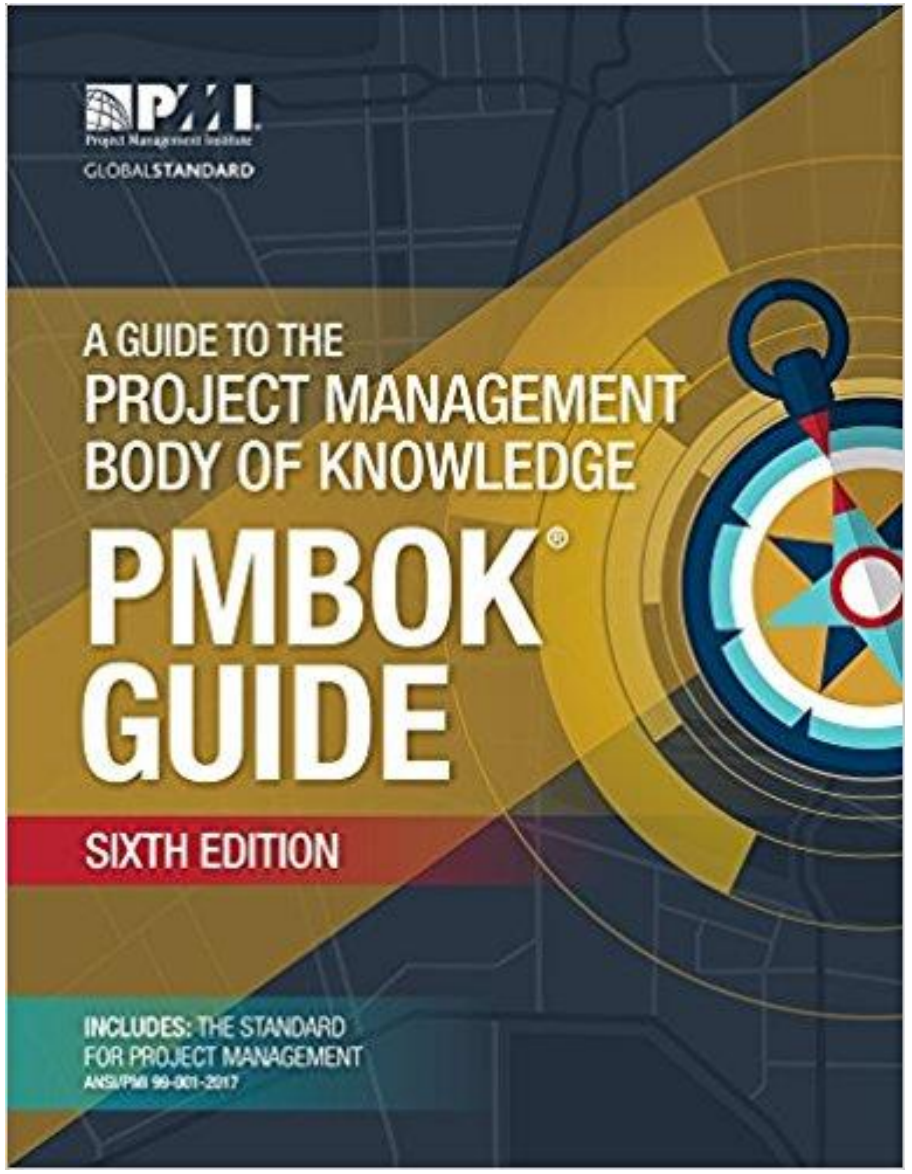


Structure PMBOK© Guide

Part 2: The Standard for Project Management

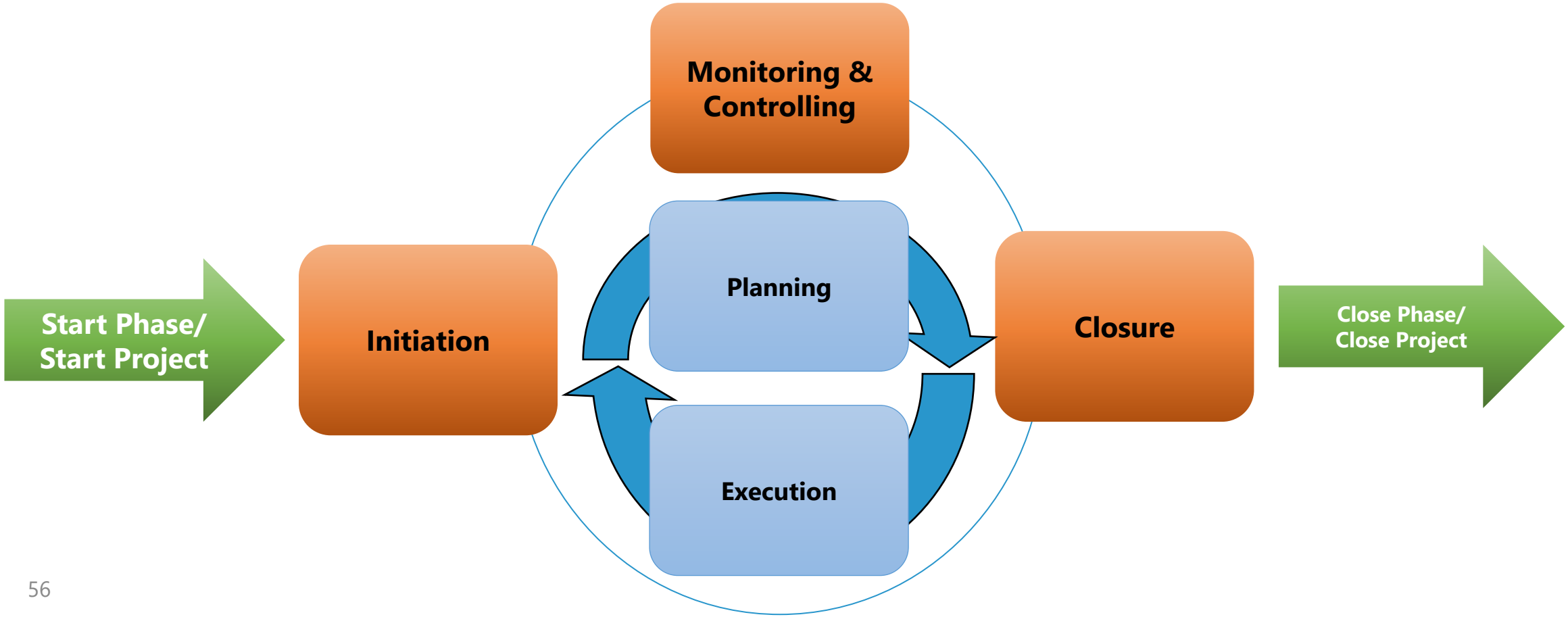
Compilation of all Process Groups with processes

Initiating
Planning
Executing
Monitoring & Controlling
Closing

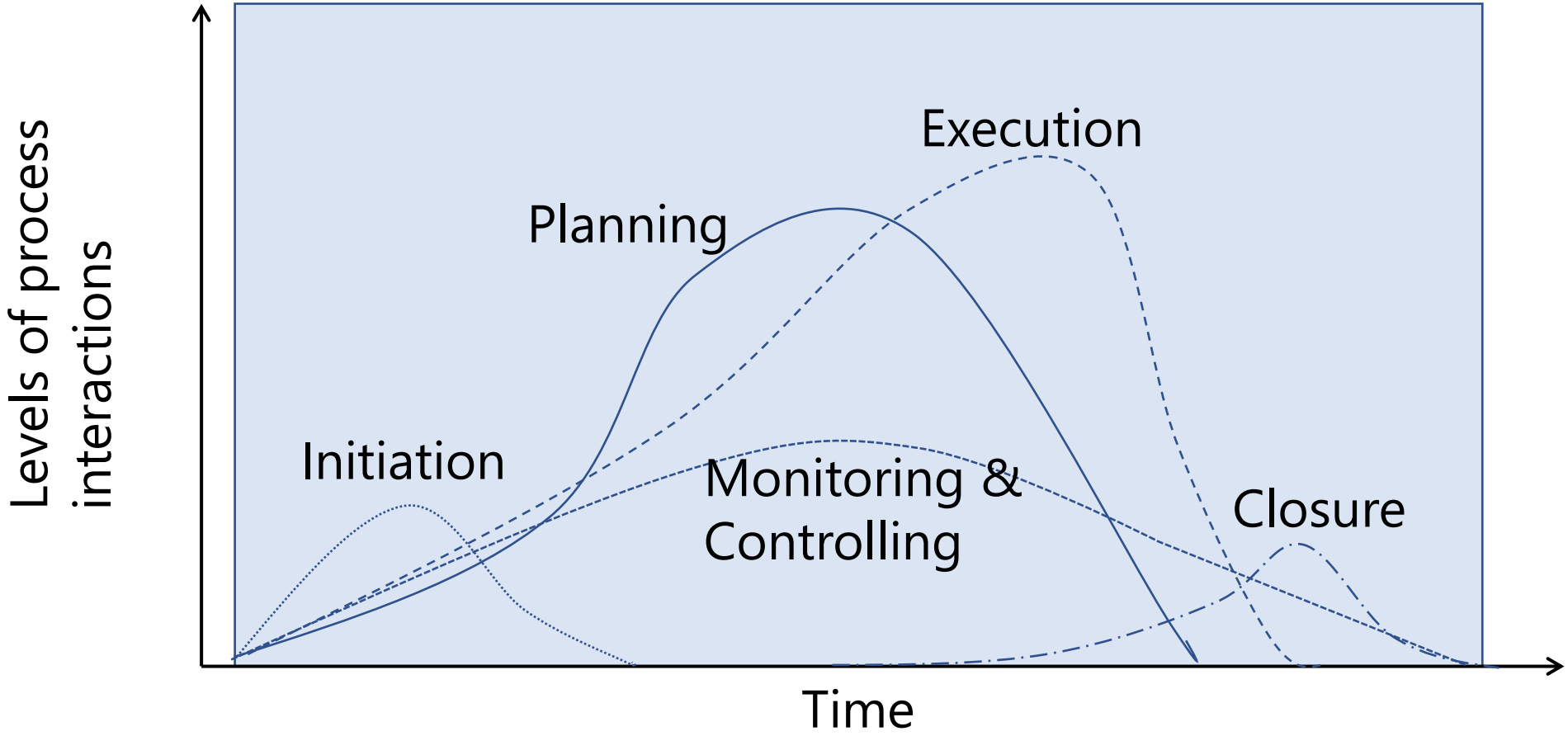


Project Management as Control System

- Process Groups are run through in a logical order. Process Groups are NOT the same as Project Phases. Process Groups are run through multiple times and are guardrails for the application of proper project management.



Process Groups during the Project Life Cycle



Source: PMBoK

PMBOK®Guide 6.0 Processes, Process Groups and Knowledge Areas

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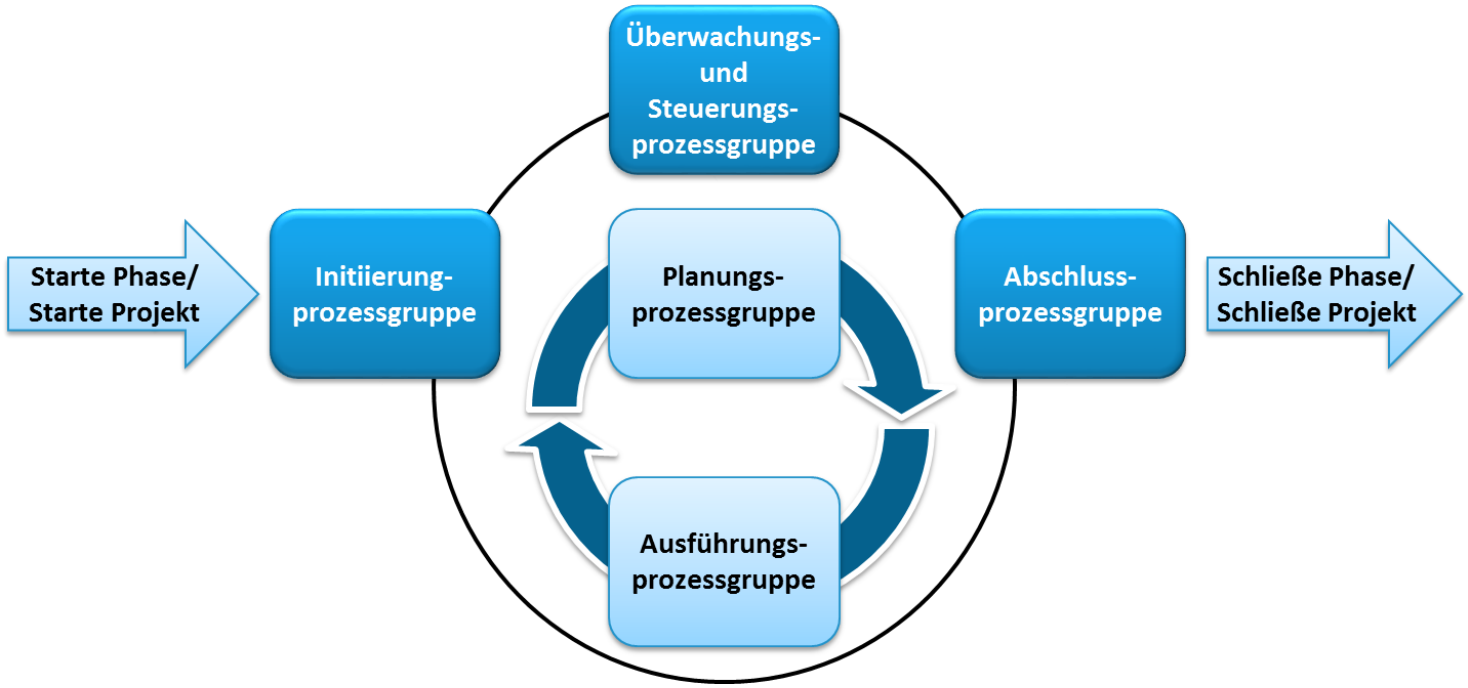
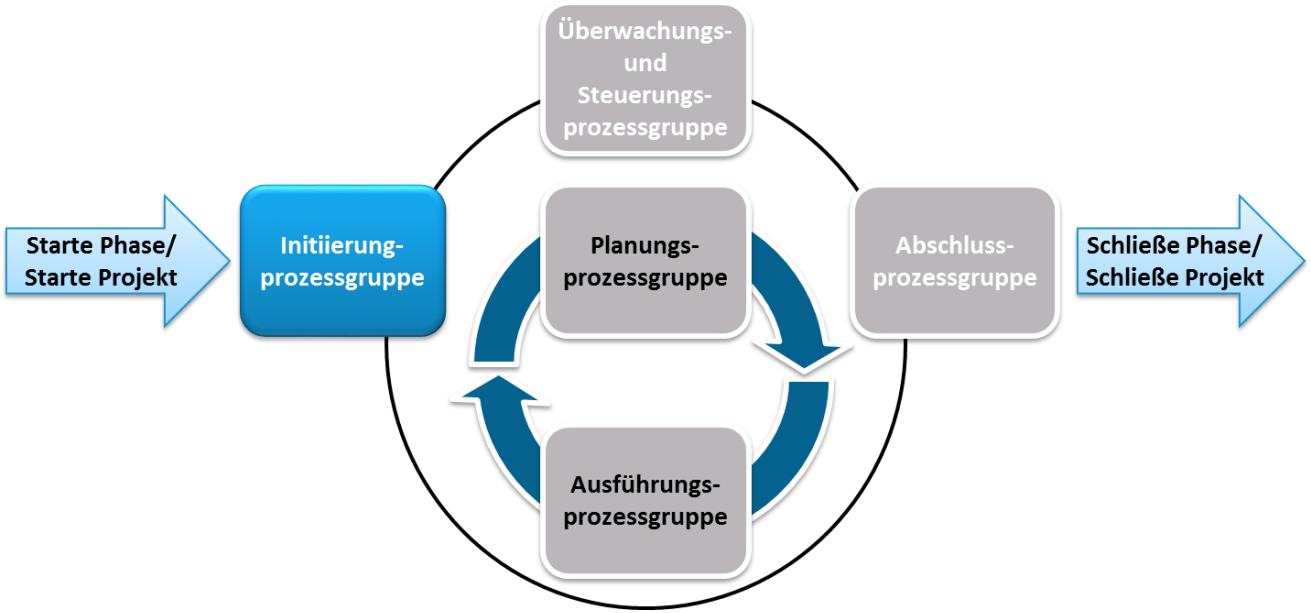
Overview 5 Process Groups



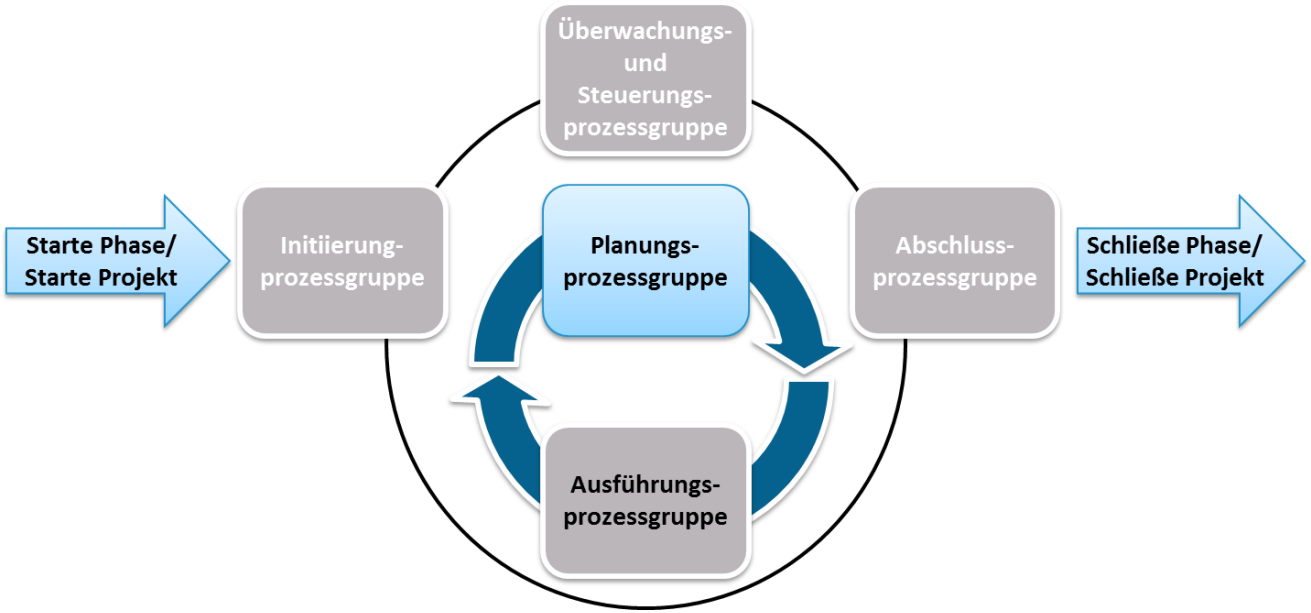
Overview 5 Process Groups

- **Process Group 1: Initiation**
- **Contains 2 processes touching 2 Knowledge Areas**
  - Develop Project Charter Knowledge Area: Integration Management
  - Identify Stakeholder Knowledge Area : Stakeholder Management
- **Both Processes are executed very early in the Project Life Cycle**
- **However:**
  - every Project Phase might require its' own Initiation
  - Stakeholders and their interests should continuously be observed throughout the complete Project Life Cycle



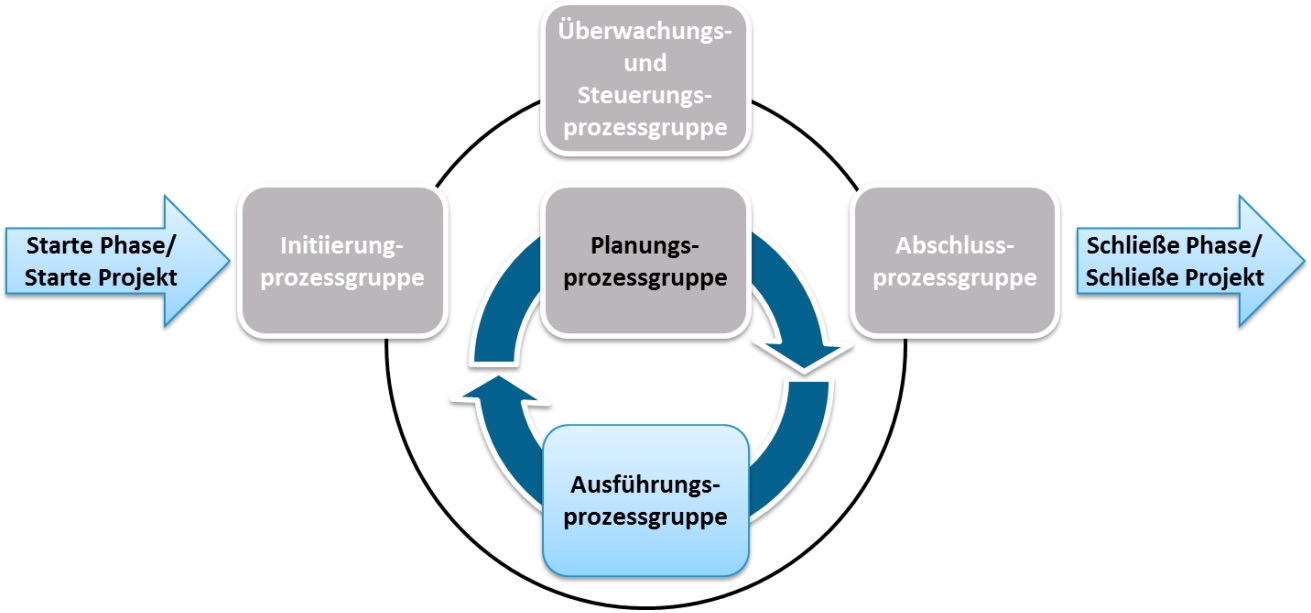
Overview 5 Process Groups

- **Process Group 2: Planning**
- **Largest Process Group**
- **Contains 24 processes touching all Knowledge Areas**
- **Most work is done or most resources are required in Process Group Execution**
- **Outputs of the Planning Processes are often inputs to the subsequent Processes**
- **Order of Processes in general :**
  - 1. Scope-related Processes
  - 2. Schedule-related Processes
  - 3. Cost-related Processes



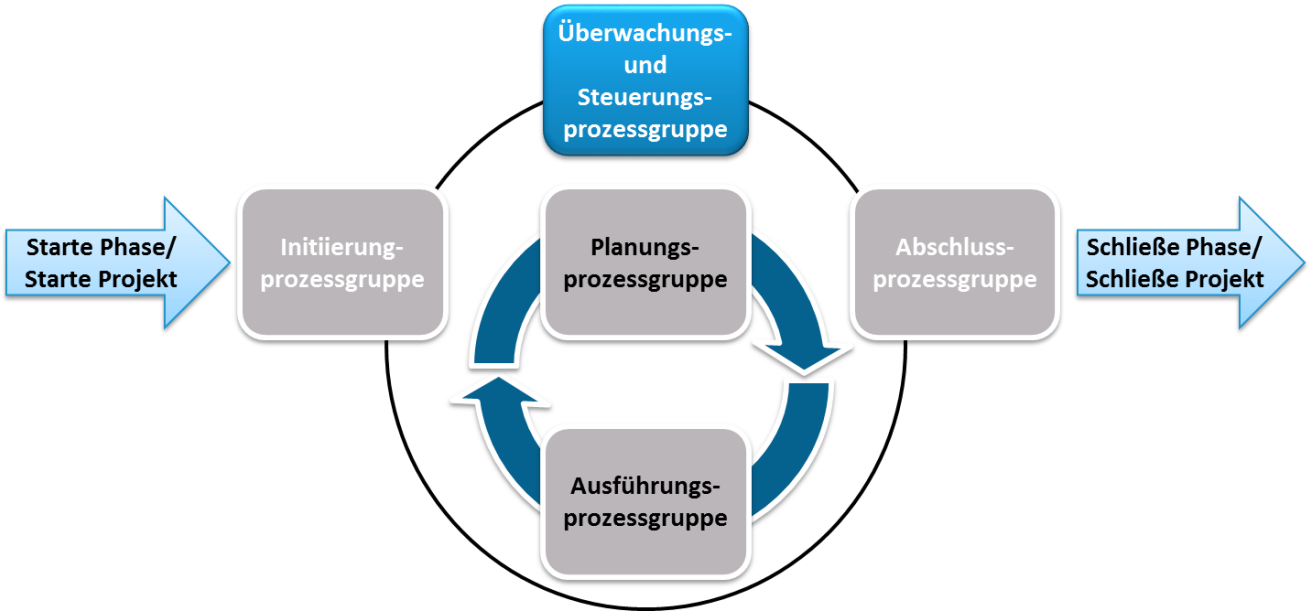
Overview 5 Process Groups

- **Process Group 3: Execution**
  - **Contains 10 processes touching 7 Knowledge Areas** (Integration, Quality, Resource, Communication, Risk, Procurement, Stakeholder Management)
  - Most work is done here
  - Project Management Plan is beign executed – parts are being built, airplanes are being assembled, documents are being written and shared...
  - Additionally procurement, team building as well as quality assurance and sharing of information happen



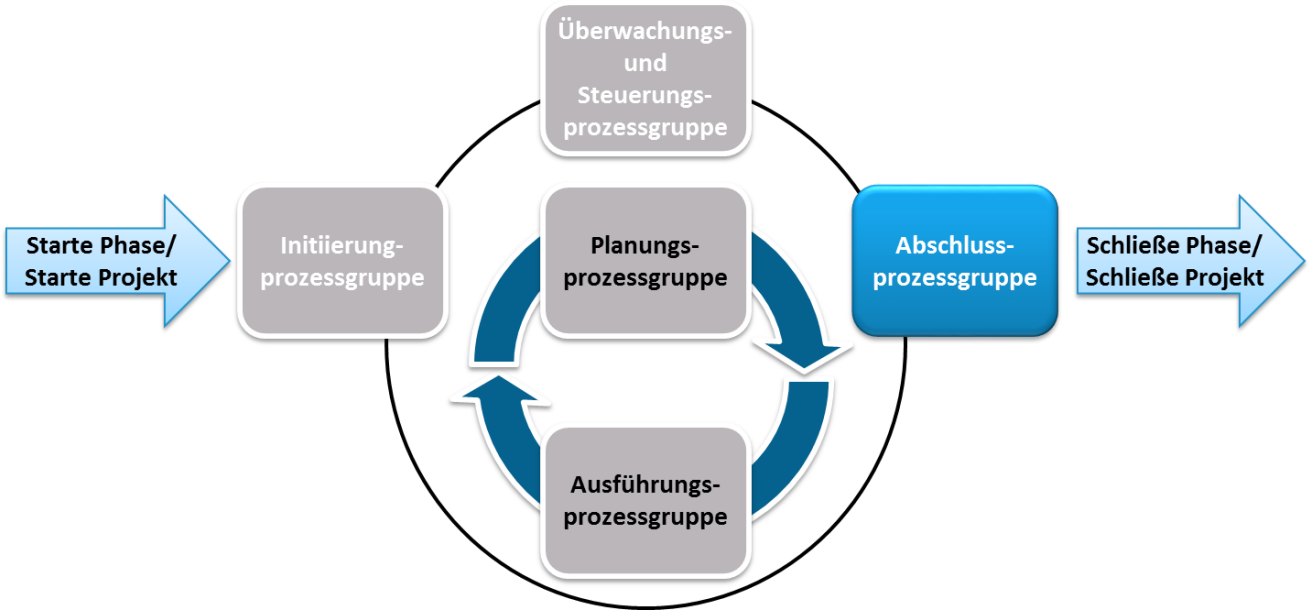
Overview 5 Process Groups

- **Process Group 4: Monitoring & Controlling**
  - **Contains 12 processes touching 10 Knowledge Areas**
  - Processes of this Process Group guarantee that the work gets done as per plan by comparing true results with the Project Management Plan.
  - Though these Processes are retrospective the resulting corrective measures are directed towards the future and therefore NOT reactive.
  - Monitoring & Controlling has impact on future results



Overview 5 Process Groups

- **Process Group 5: Closure**
  - Contains 1 very important Process
    - Close Project or Phase
    - Knowledge Area: Integration Management
  - Takes place AFTER product/service/result has been verified and handed-over to the satisfaction of the customer
    - Project documentation has to be updated, Project team has to be released and Lessons Learned have to be performed and documented/archived (close project or phase)
    - These records are particularly important for future projects.



Process Groups and Knowledge Areas

Conclusion

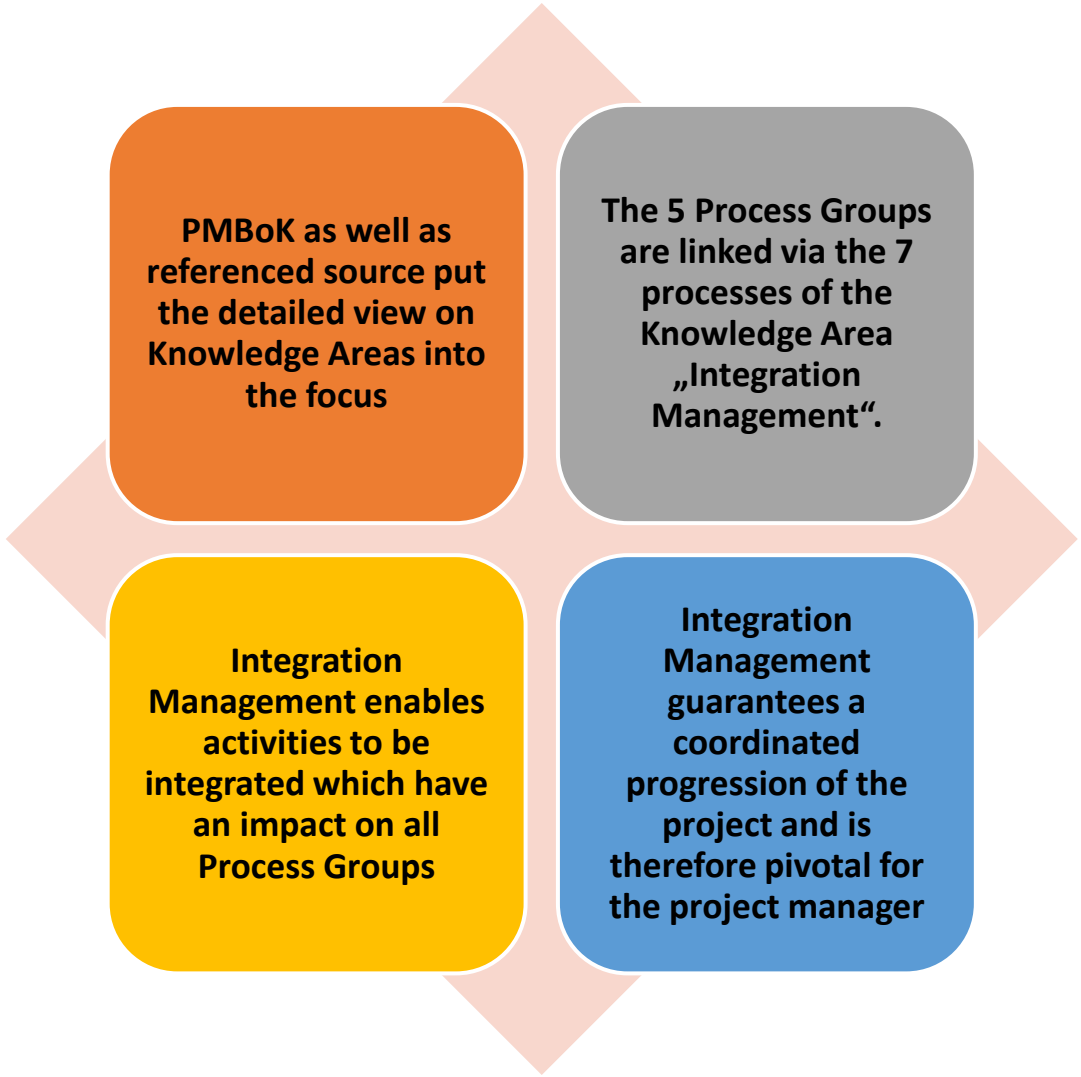
Each process has „two homes“: Process Group and Knowledge Area

The 5 Process Groups are not passed through sequentially but iteratively

Each of the 49 processes can be executed more than once per Project Phase

It is rather that the Scope of the project is continuously assessed and developed throughout the Project Life Cycle.

Process Groups and Knowledge Areas



Project Management as Control System

Any Process Group can become relevant in any of the Project Phases below!

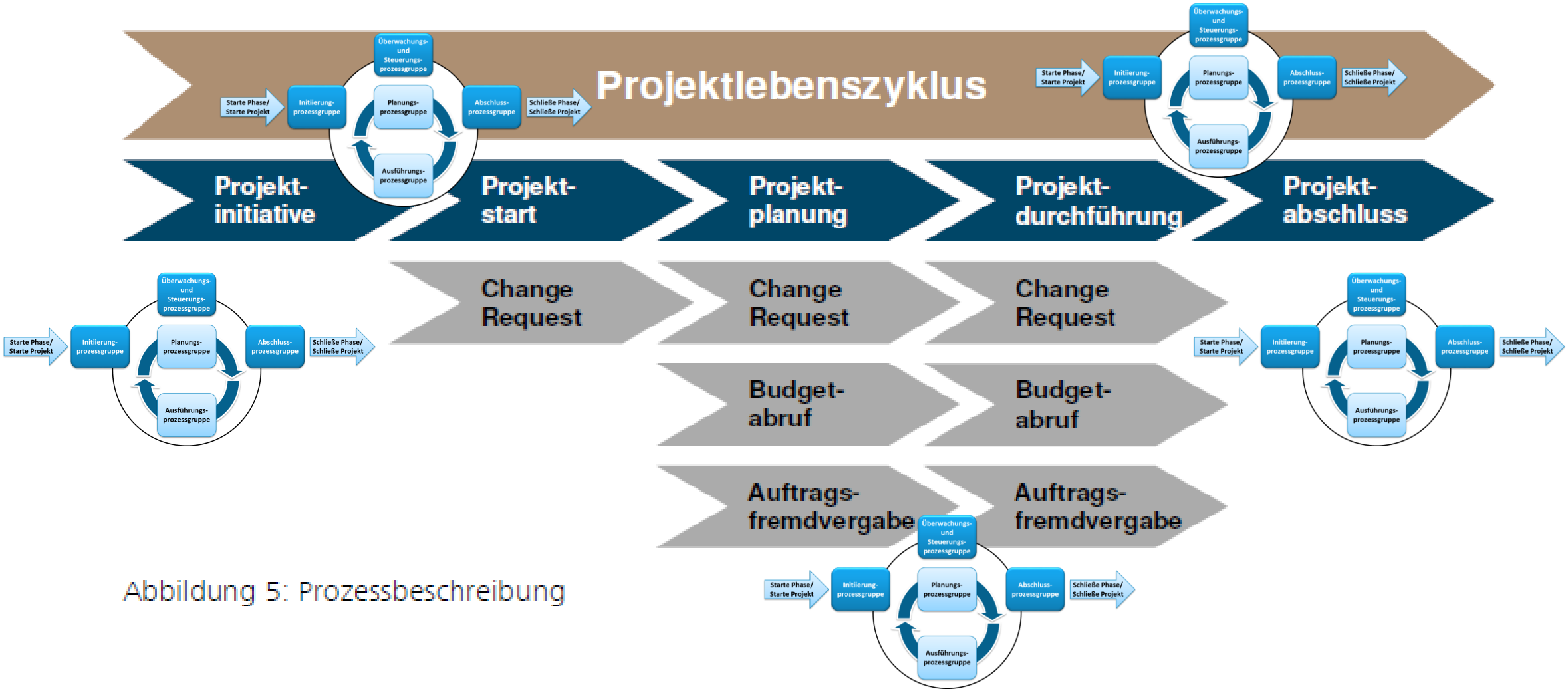


Abbildung 5: Prozessbeschreibung

Project Management as Control System

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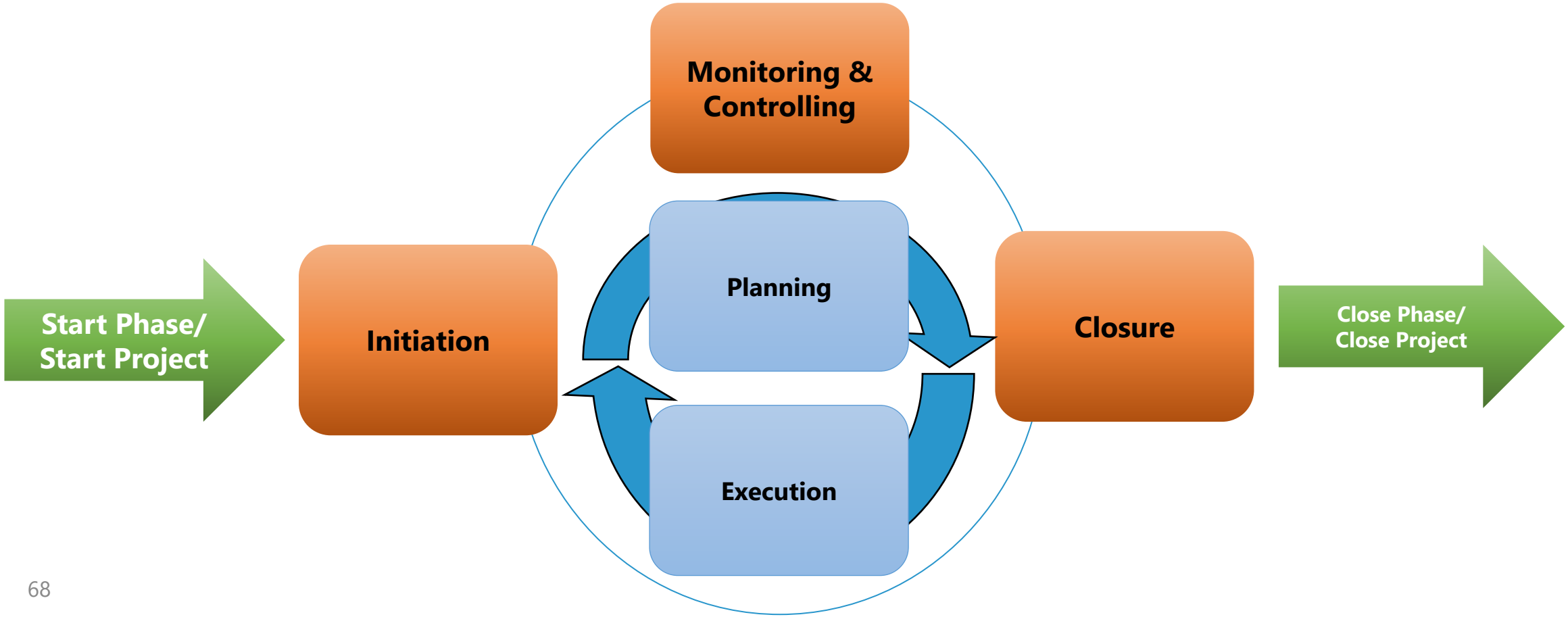

PMBOK®Guide 6.0 Processes, Process Groups and Knowledge Areas

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KNOWLEDGE AREA
INTEGRATION MANAGEMENT

What is Integration Management?

- **Integration Management** in projects is about the processes and activities required to **identify**, **define**, **combine**, and **coordinate** the various processes and project-related activities as part of the project management process groups
- Those 7 processes of Integration Management represent the general Project Life Cycle.

PMBOK®Guide 6.0 Processes, Process Groups and Knowledge Areas

	Wissensgebiete (49)	Projektmanagement Prozessgruppen				
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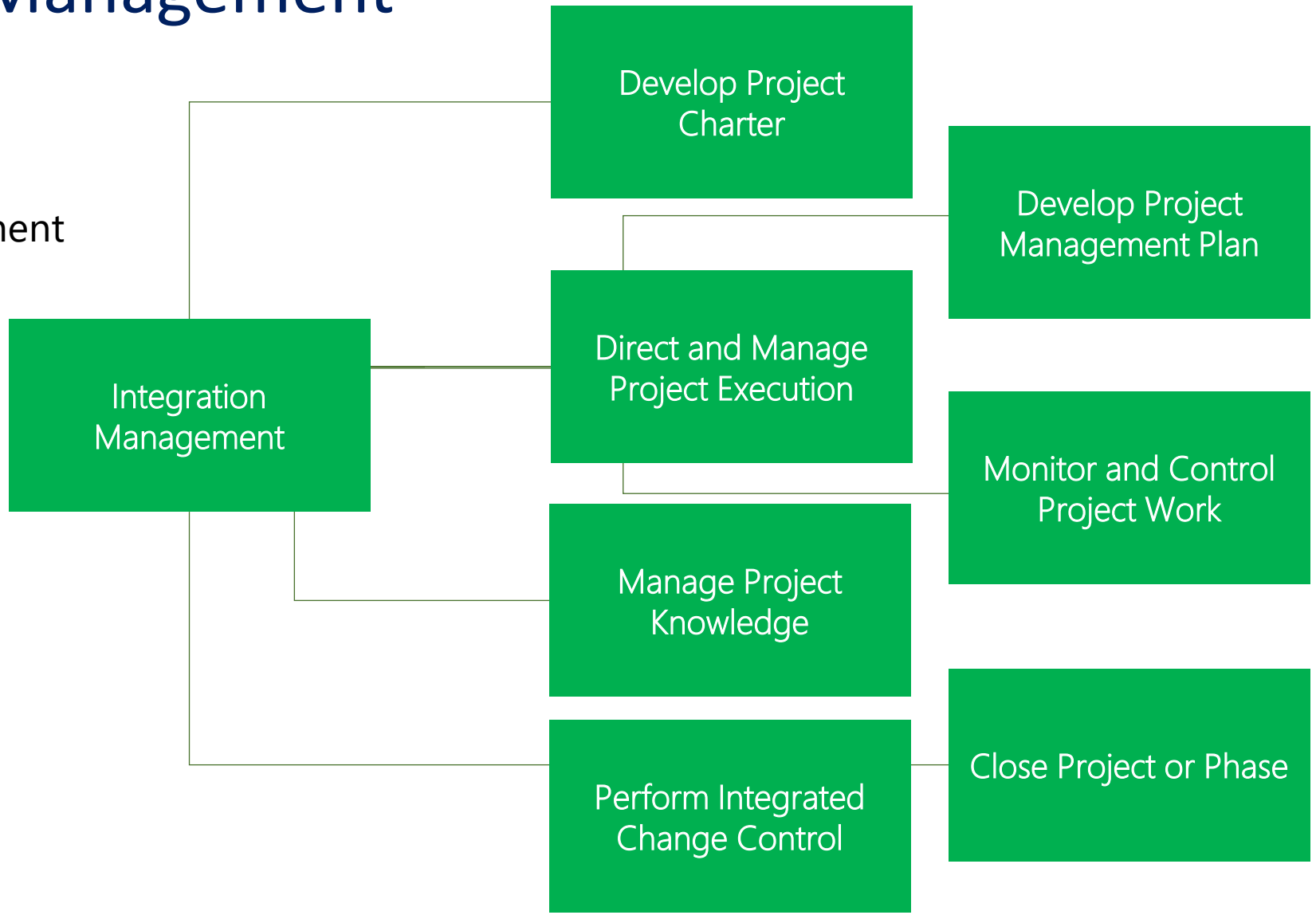
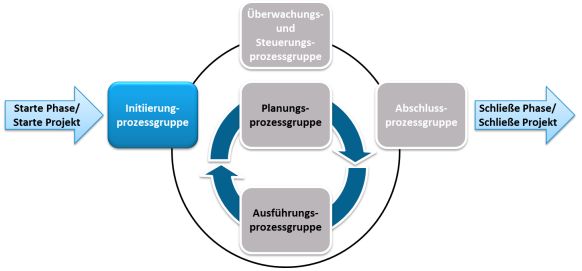
Integration Management

- The 7 processes of Integration Management (incl. significant results/deliverables)



Objectives



Components of an Objective

Definition of and orientation towards Objectives are the crucial success factors in Project Management.

Scope

Defined scope to achieve objective

Fixed date to achieve objective

Objective

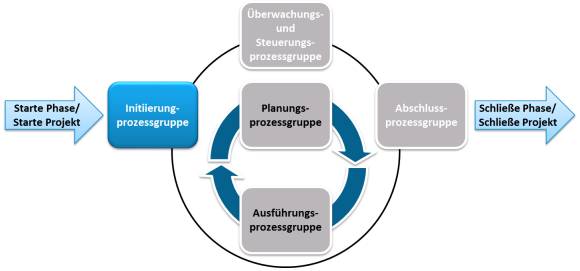
Management of the „Triple Constraints“

Fixed budget to achieve objective

Time

Cost

Description of Objectives

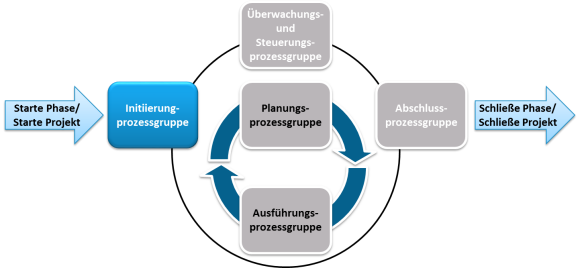


- **An Objective appropriate for a Project has the following characteristics:**
- Achievable
- Comprehensive
- Consistent
- Unambiguous
- Verifiable
- Does not contain solution
- Document
- Agreed between sponsor and project manager
- Accepted by the project team wrt all of the above

„SMART“
(specific, measurable, assignable, realistic, time-related)

The Project Manager should have the project objectives „in the drawer“.
Objectives should be visualized in the „project room“.

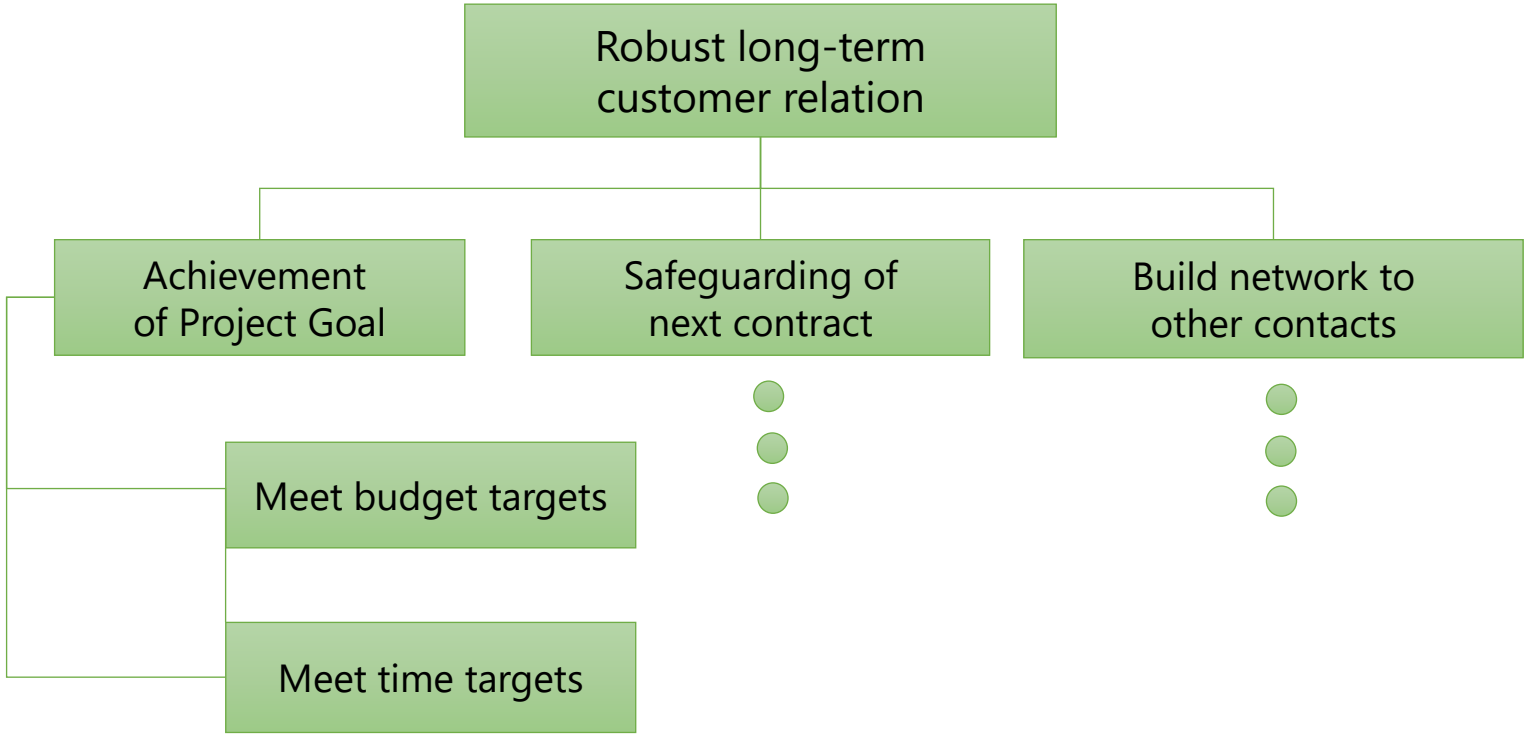
Objective Map



- In analogy to a Project Plan also goals/objectives should be structured:

- Official Project Goals do not necessarily coincide with the main goal which typically is of more strategic nature

- Achievement of the offizial Project Goals is a pre-requisite for further objectives



Project Controlling

Project Controlling is part of Project Management. According to DIN 69901 Project Controlling is defined as *„Ensuring the achievement of project goals by: target/actual comparison, statement of deviations, assessment of consequences and proposal of corrective action, participation in planning of measures and controlling of the execution.“*

Whilst Project Management also deals with human resource planning, selection and leading of team members Project Controlling focuses on planning the resource demand of the project and measuring if project goals and cost targets are complied to.

Necessity of Project Planning and Project Controlling

In 70 % of all IT projects Schedule, Cost and Quality targets are not achieved (Gartner)

50 % have a budget overrun (Gartner)

66 % of all projects fail, 52 % are cancelled/closed without success, 82 % are closed later than planned (CHAOS)

In less than 40 % of these projects the set business goals are still not achieved one year later (KPMG)

Standish group CHAOS Report

35% successful projects
19% failures
46% non-performing projects – i.e. over budget, behind schedule and scope not fulfilled

Why Project Planning?

1. Without planning there is no transparency regarding necessary activities, required time and resources.
2. Good planning ensures that project goals are achieved
3. Methodological problems will have to be resolved during the planning phase
4. The plan is the map to verify that the project goal can be achieved.
5. Planning facilitates early detection of deviations.
6. Achievement of interim project goals is a strong motivator.
7. Good planning can be used for project marketing to „sell“ success to the sponsor.

Project Planning: Core task of the Project Manager

Through a methodological approach the project complexity will be resolved and the respective challenges treated holistically, put in a logical structure and be made transparent.

The Project Scope will be broken down into smaller parts so that work packages are being defined which can be managed by a single project team member.

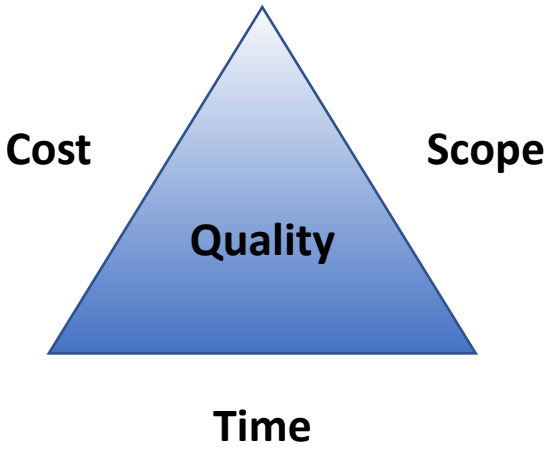
Through this logical structure sub-tasks can constantly be coordinated and combined to a larger entity.

For a meaningful time planning work packages which are functionally connected and timely dependent will be assembled to phases.

Cost, time and result planning is achieved through assessment of the individual work packages in the respective phase.

The traditional Triple Constraints: Time, Scope, Cost

- Time Constraint refers to available time until project completion.
- Cost Constraint refers to the budget available to the project.
- Scope Constraint refers what work needs to be done to produce the project result.



- Known as Project Management Triangle in which each side represents a constraint.
- You cannot change one side of the Triangle without impacting the other two.
- A variation is the consideration of Quality or sometimes Performance adding **Quality as a 4th Constraint**

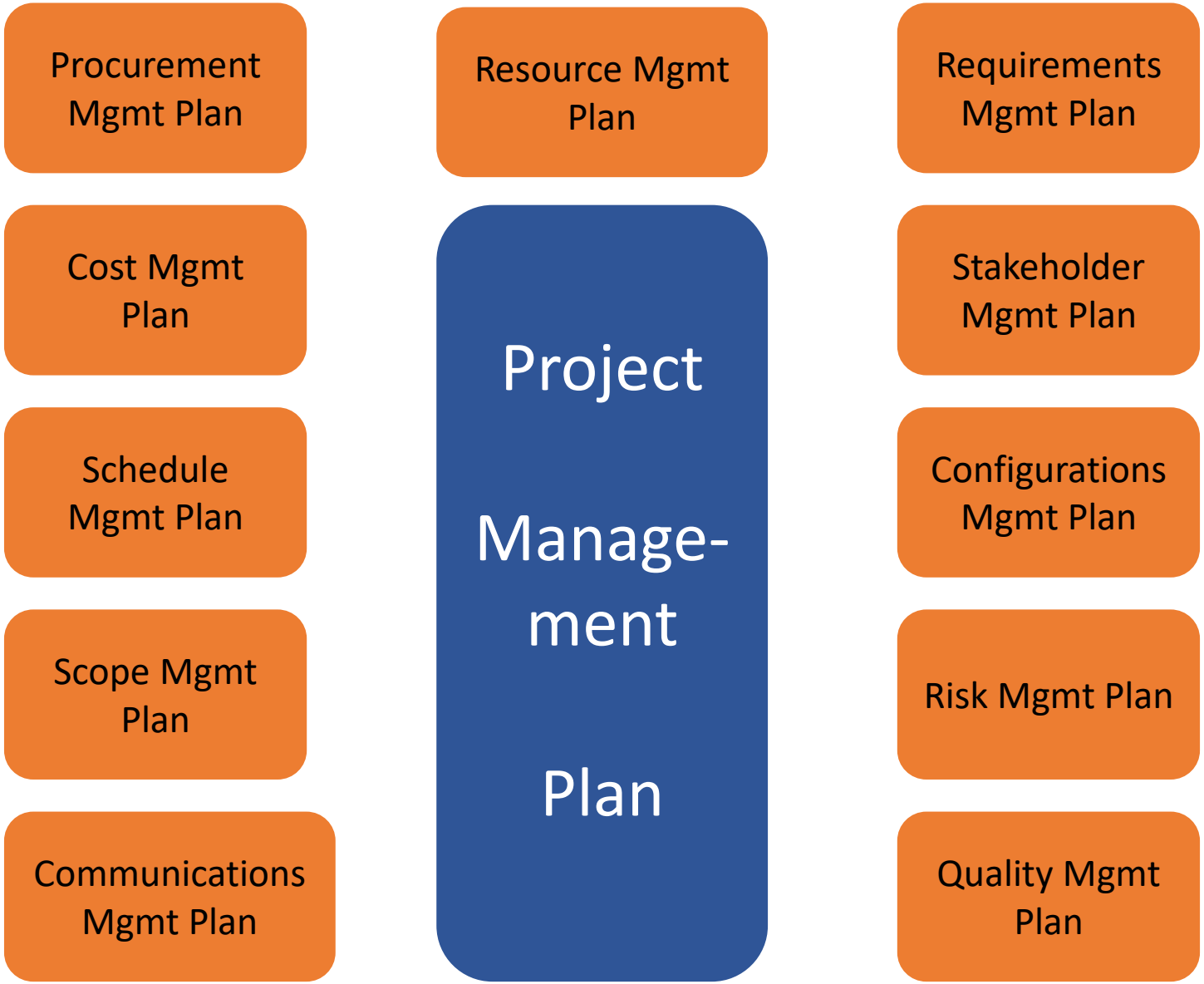
Necessity of Project Planning & Controlling

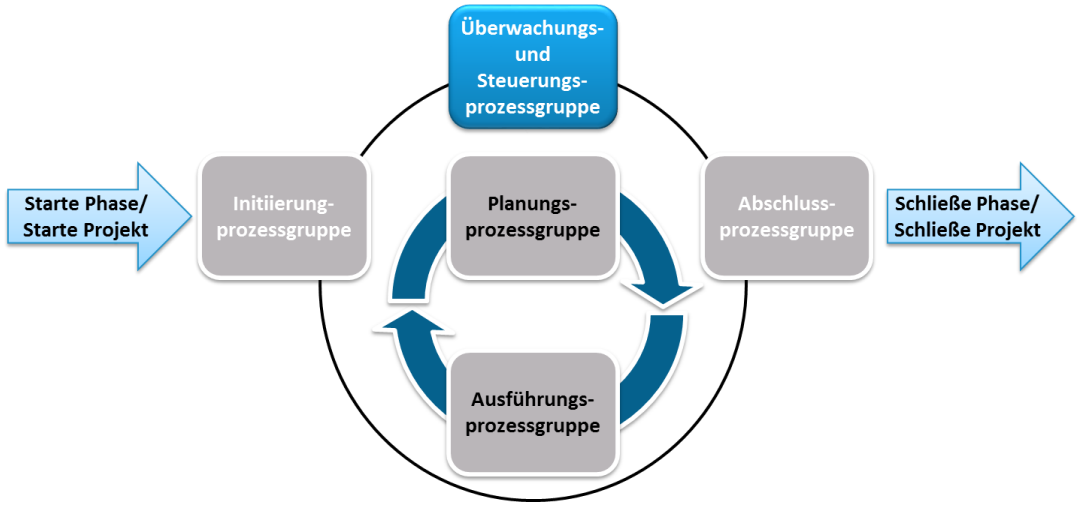
The larger and more complex a Project is

- the more **Planning** has to reduce complexity and increase transparency
- the more the progress report should be based on **objective** assessment
- the more progress has to be measured **systematically**

The Project Management Plan

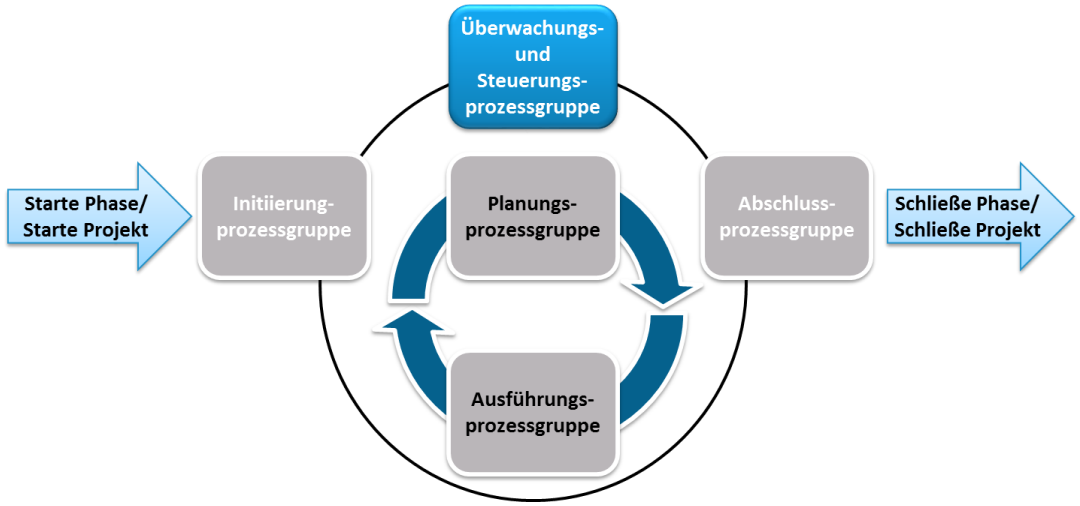
How shall the various activities of Project Management be executed?





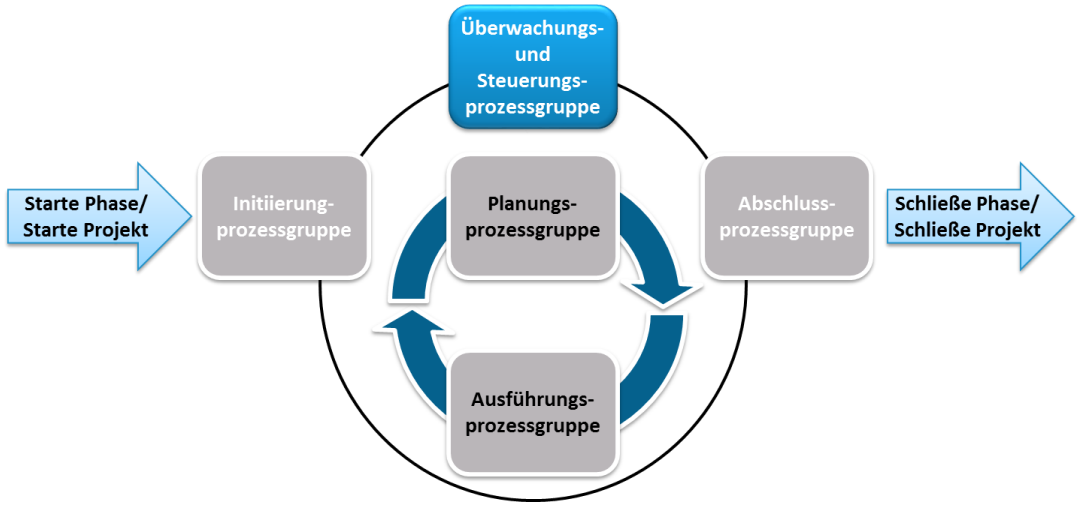
Project Monitoring and Controlling

- Refers to all project work and compares true with planned results (both deliverables as well as how these were obtained)
- Generally Monitoring and Controlling processes
  - **Comparison**
  - **Variance Analysis (Target versus Actual Value)**
- Process makes sure that actuals meet targets
- Process facilitates to take corrective actions and identification of risks



Project Monitoring and Controlling

- Performance Reports (input type „actual“)
- Can be considered consolidated and analyzed pieces of information
- Documente and presentations containing structured and comprehensive work performance data, KPIs, milestones, etc. … progress analyses and project status
- Important information about what to monitor and control
- Through forecasts the possibility for interception and corrective actions is given



Outcomes of Project Controlling

- Work Performance Information (WPI)
  - Focus on WHAT has been achieved, e.g. status of deliverables
  - Can be considered as non-interpreted raw data
  - WPI acts as input value for many other processes like e.g.
    - Change Requests
    - Updates of the Project Management Plan
    - Updates of project documents in general

Project Controlling

- **Project Controlling is a core process** of Project Management which starts in the planning phase and supports all subsequent project phases.

- Project Controlling is a tool to **Inform and Lead** providing executives/leaders/managers **crucial support** for planning, controlling and monitoring in all areas and at all levels.

- Project Controlling is **A MUST** due to unforeseeable situations and events:
  - Changes in project goals and requirements
  - Failures can impact task execution
  - Planning/design errors
  - Deviation from assumptions

Success Factors in Projects (GPM Study 2014)

Roles & Competencies

- Role definitions and competencies within the project organization have to be working smoothly to act impactful

Manage expectations

- Mutual agreement of expectations is more important than experiences brought in by external partners

Flat Hierarchies

- Fast decisions through flat hierarchies

Transparency

- All project activities have to be transparent

Organization & Change Management

- Areas like team work, team motivation, project direction and decisions are only subjectively crucial for project success, whereas areas like project organization, conflict management and change management are extremely impactful

SMART Objectives

- Definitions of project objectives (goals) have to be clear, measureable and comprehensible

Success Factor „climate“

- Successful project manager create a good atmosphere in the project team

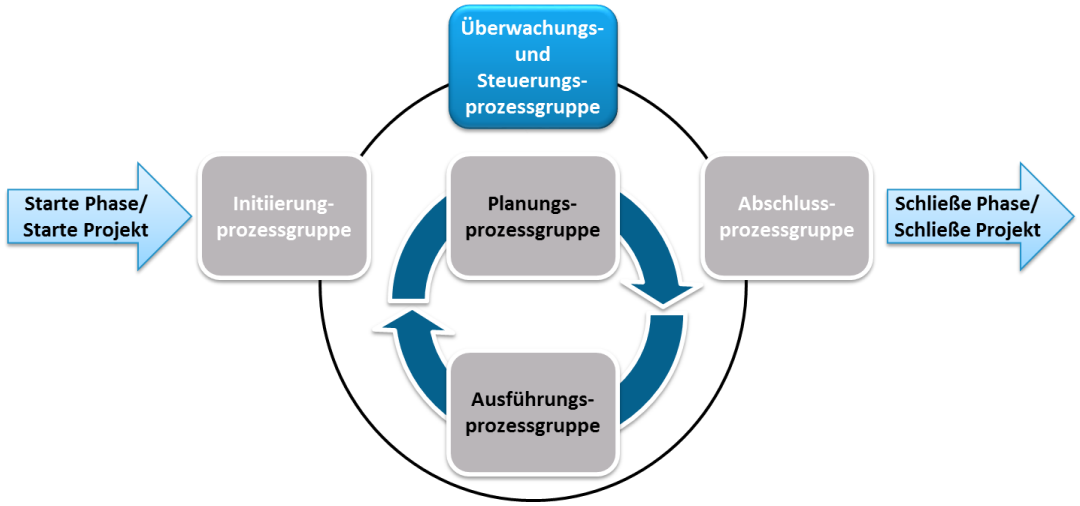
Risk Management

- Baseline for good project management is effective and detailed risk management; there is an adverse impact when not considered

Monitoring & Control

- M&C plays a central role whereas directing and deciding has only medium impact

Why is Change Request Management necessary?

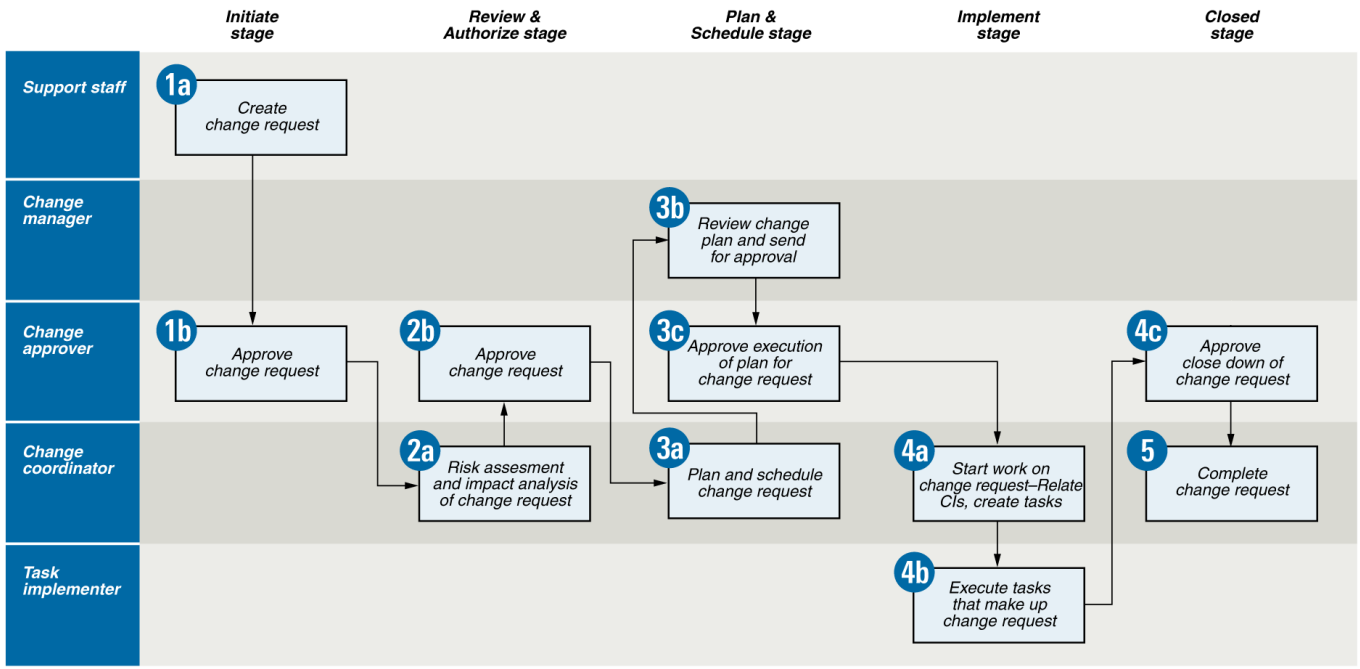


- **Theory:**
  At the beginning of a project the Project Charter is clearly defined, i.e. requirements wrt processes and systems. These requirements will be fulfilled step by step and at the end of the project the customer is totally satisfied.

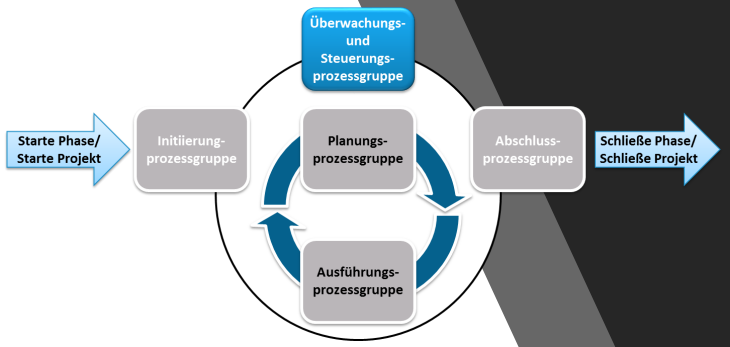
- **Reality:**
  Unless the project is trivial at the beginning not all requirements are on the table, some existing ones will change, sone new ones will appear.

- **Potential impact:**
  Without Change Request Management the customer will not be satisfied with the project results which will lead to rework with a fatal impact on costs. If the worst comes to worse the project fails.

Change Request Management Process (example from real life)



Unavoidable reasons for Change Requests



- Organizations change – there are insights in new products/projects and new solutions are required.
- Markets change – competitors come up with new products which require immediate adaption.
- Technologies change - new hardware or software appears on the market in the course of the project.
- IKI WISI-Effekt (I´ll Know It When I See It).
  End users often don’t know what they want, but know exactly what they don’t want when they see the freshly developed software product.
- At the beginning of a project not all requirements can be defined with the required level of detail.
- Defined requirements turn out to be unrealistic, i.e. too expensive to implement e.g. to achieve requested system performance.

Avoidable reasons for Change Requests

Project are not clearly defined and cannot be verified.

Project goals are unrealistic (some managers try to achieve the impossible to get the maximum from the project).

Project goals contradict each other.

Problems which could occur

- Deadlines are not met
- Costs are exceeding
- Quality is poor
- Lack of “the big picture” – small changes in one area might have an even larger effect somewhere else
- Insufficient communication of changes leads to misaligned activities in sub-projects/workstreams.
- Too many changes without taking the chance to define a 2nd release or start a new project

What needs to be done in case of Change Requests?

- Clarify responsibilities
- Change Requests have to be documented
- Impact of Change Requests has to be determined
  - Impact on other sub-projects
  - Time
  - Cost
  - Quality
- If need be Change Requests have to authorized
- For this Impact as well as Alternatives have to be made transparent to the decision making body
- Decision and execution of Change Requests has to be documented

Project Closure Securing Gained Knowledge – Lessons Learned

Practical tips for the Closure of a Phase or the whole Project

- Secure ALL project dokumentation incl. Lessons Learned in a comprehensible way (!!)
- Information sharing for future projects
- 1:1 conversations with project team members for their future development, training, certification
- Where applicable personal performance review and employer reference
- Closing ceremony or small party
- Discharge of the Project Manager through respective governance body -> offizial Project Closure

Projektabschluss Securing Gained Knowledge – Lessons Learned

- At the end of each Project Phase – and not only Project Closure – a well-prepared Lessons Learned workshop should be conducted
- Purpose is in particular to avoid reoccurrence of mistakes in future phases…
- … but also to secure gained knowledge for future projects.

Lessons Learned from <Project Name>					
Experience	Impact & Recurrence (H/M/L for each)	Rank	Lessons Learned	Best Practice or Problem?	Actions Required Implement Lesso Learned

7 Processes Integration Management

	INTEGRATION
4.1	**Projektauftrag entwickeln**
	EINGANGSWERT
1.	Geschäftsdokumente
2.	Vereinbarungen
3.	Faktoren der Unternehmensumwelt
4.	Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
1.	Fachurteil
2.	Erfassung von Daten
3.	Sozialkompetenz und teambezogene Fähigkeiten
4.	Meetings
	AUSGANGSWERTE
1.	Projektauftrag
2.	Annahmen-Protokoll

	INTEGRATION
4.2	**Projektmanagementplan entwickeln**
	EINGANGSWERT
1.	Projektauftrag
2.	Ausgangswerte aus anderen Prozessen
3.	Faktoren der Unternehmensumwelt
4.	Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
1.	Fachurteil
2.	Erfassung von Daten
3.	Sozialkompetenz und teambezogene Fähigkeiten
4.	Meetings
	AUSGANGSWERTE
1.	Projektmanagementplan

	INTEGRATION
4.3	**Projektausführung lenken und managen**
	EINGANGSWERTE
1.	Projektmanagementplan
2.	Projektdokumente
3.	Genehmigte Änderungsanträge
4.	Faktoren der Unternehmensumwelt
5.	Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
1.	Fachurteil
2.	Projektmanagement-informationssystem
3.	Meetings
	AUSGANGSWERTE
1.	Liefergegenstände
2.	Arbeitsleistungsdaten
3.	Problemprotokoll
4.	Änderungsanträge
5.	Aktualisierungen des Projektmanagementplans
6.	Aktualisierungen der Projektdokumente
7.	Aktualisierungen des Prozessvermögens der Organisation

	INTEGRATION
4.4	**Projektwissen managen**
	EINGANGSWERTE
1.	Projektmanagementplan
2.	Projektdokumente
3.	Liefergegenstände
4.	Faktoren der Unternehmensumwelt
5.	Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
1.	Fachurteil
2.	Wissensmanagement
3.	Informationsmanagement
4.	Sozialkompetenz und team-bezogene Fähigkeiten
	AUSGANGSWERTE
1.	Register der gesammelten Erfahrungen
2.	Aktualisierungen des Projektmanagementplans
3.	Aktualisierungen des Prozessvermögens der Organisation

	INTEGRATION
4.5	**Projektarbeit überwachen und steuern**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Arbeitsleistungs-informationen 4. Vereinbarungen 5. Faktoren der Unternehmensumwelt 6. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Datenanalyse 3. Entscheidungsfindung 4. Meetings
	AUSGANGSWERTE
	1. Arbeitsleistungsberichte 2. Änderungsanträge 3. Aktualisierungen des Projektmanagementplans 4. Aktualisierungen der Projektdokumente

7 Processes Integration Management

	INTEGRATION
4.5	**Projektarbeit überwachen und steuern**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Arbeitsleistungs-informationen 4. Vereinbarungen 5. Faktoren der Unternehmensumwelt 6. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Datenanalyse 3. Entscheidungsfindung 4. Meetings
	AUSGANGSWERTE
	1. Arbeitsleistungsberichte 2. Änderungsanträge 3. Aktualisierungen des Projektmanagementplans 4. Aktualisierungen der Projektdokumente

	INTEGRATION
4.6	**Integrierte Änderungssteuerung durchführen**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Arbeitsleistungsberichte 4. Änderungsanträge 5. Faktoren der Unternehmensumwelt 6. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Werkzeuge zur Änderungssteuerung 3. Datenanalyse 4. Entscheidungsfindung 5. Meetings
	AUSGANGSWERTE
	1. Genehmigte Änderungsanträge 2. Aktualisierungen des Projektmanagementplans 3. Aktualisierungen

	INTEGRATION
4.7	**Projekt oder Phase abschließen**
	EINGANGSWERT
	1. Projektauftrag 2. Projektmanagementplan 3. Projektdokumente 4. Abgenommene Liefergegenstände 5. Geschäftsdokumente 6. Vereinbarungen 7. Beschaffungsdokumente 8. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Datenanalyse 3. Meetings
	AUSGANGSWERTE
	1. Aktualisierungen der Projektdokumente 2. Übertragung des endgültigen Produkts, der endgültigen Dienstleistung oder des endgültigen Ergebnisses 3. Abschlussbericht 4. Aktualisierungen des Prozessvermögens der Organisation

Knowledge Area
Stakeholder Management

What is Stakeholder Management?

Stakeholder Management is about effectively engaging Stakeholders in project decision and execution

Continuous identification and active management is crucial for successful Stakeholder Management

The Project Manager continuously has to communicate with them to manage their impact on the project

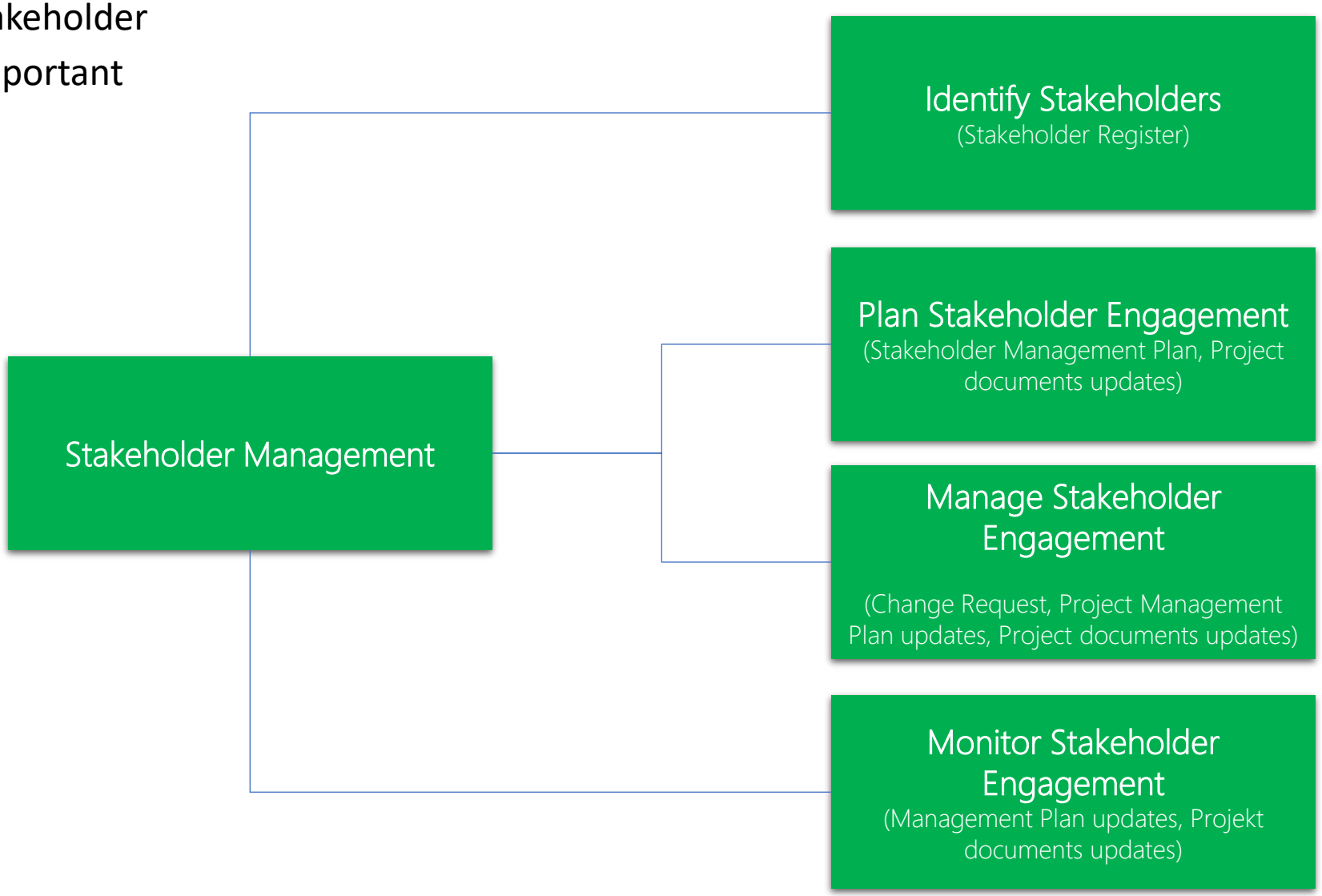
PMBOK®Guide 6.0 Processes, Process Groups and Knowledge Areas

	Wissensgebiete (49)	Projektmanagement Prozessgruppen				
		Initiierung 2	**Planung** 24	**Ausführung** 10	**Überwachung & Steuerung** 12	**Abschluss** 1
	**Integrations-management (7)**	Projektauftrag entwickeln	Projektmanagementplan entwickeln	Projektausführung lenken und managen Projektwissen managen	Projektarbeit überwachen und steuern Integrierte Änderungssteuerung durchführen	Projekt oder Phase abschließen
	**Inhalts- und Umfangs-management (6)**		Inhalts - und Umfangsmanagement planen Anforderungen sammeln Inhalt und Umfang definieren Projektstrukturplan (PSP) erstellen		Inhalt und Umfang validieren Inhalt und Umfang steuern	
	**Termin- management (6)**		Terminmanagement planen Vorgänge definieren Vorgangsfolge festlegen Vorgangsdauer schätzen Terminplan entwickeln		Terminplan steuern	
	**Kosten- management (4)**		Kostenmanagement planen Kosten schätzen Budget festlegen		Kosten steuern	
	**Qualitäts-management (3)**		Qualitätsmanagement planen	Qualität managen	Qualität durchführen	
	**Ressourcen-management (6)**		Ressourcenmanagement planen Ressourcen für Vorgänge schätzen	Ressourcen beschaffen Team entwickeln Team managen	Ressourcen steuern	
	**Kommunikations-management (3)**		Kommunikationsmanagement planen	Kommunikation managen	Kommunikation überwachen	
	**Risikomanagement (7)**		Risikomanagement planen Risiken identifizieren Qualitative Risikoanalyse durchführen Quantitative Risikoanalyse durchführen Risikobewältigungsmaßnahmen planen	Risikobewältigungs-maßnahmen umsetzen	Risiken überwachen	
	**Beschaffungs-management (3)**		Beschaffungsmanagement planen	Beschaffungen durchführen	Beschaffungen steuern	
	**Stakeholder-management (4)**	Stakeholder identifizieren	Engagement der Stakeholder planen	Engagement der Stakeholder managen	Engagement der Stakeholder überwachen	

Designed by Frank Tassone, PMP

Stakeholder Management

- The 4 processes of Stakeholder Management (incl. Important results/deliverables)

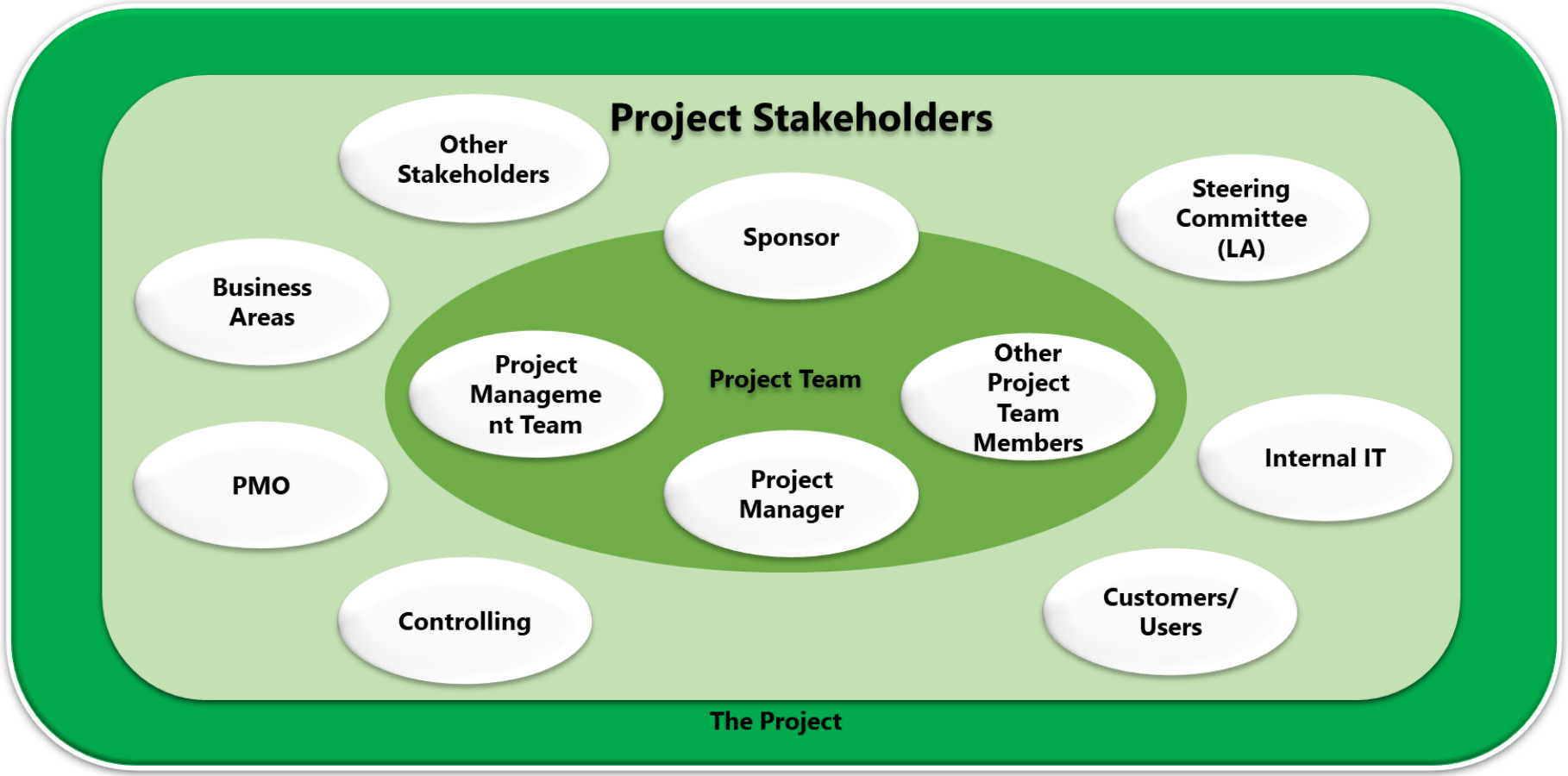


Stakeholder

„A Stakeholder is a person, a group of people, or an organization that has an interest in your project or is affected by its outcome, directly or indirectly. It may include project team members, project sponsors, organization members, and people outside of your organization. Quelle: PMBoK

- Interested organizations or persons with different objectives (some of which are aligned with project goals, some not)
- Internal or external (anyone not being part of the project team)
- Active, if part of the value chain
- Passive, if not part of the value chain
- continuous identification and active management of stakeholders required and key to project success

Stakeholder



Stakeholder

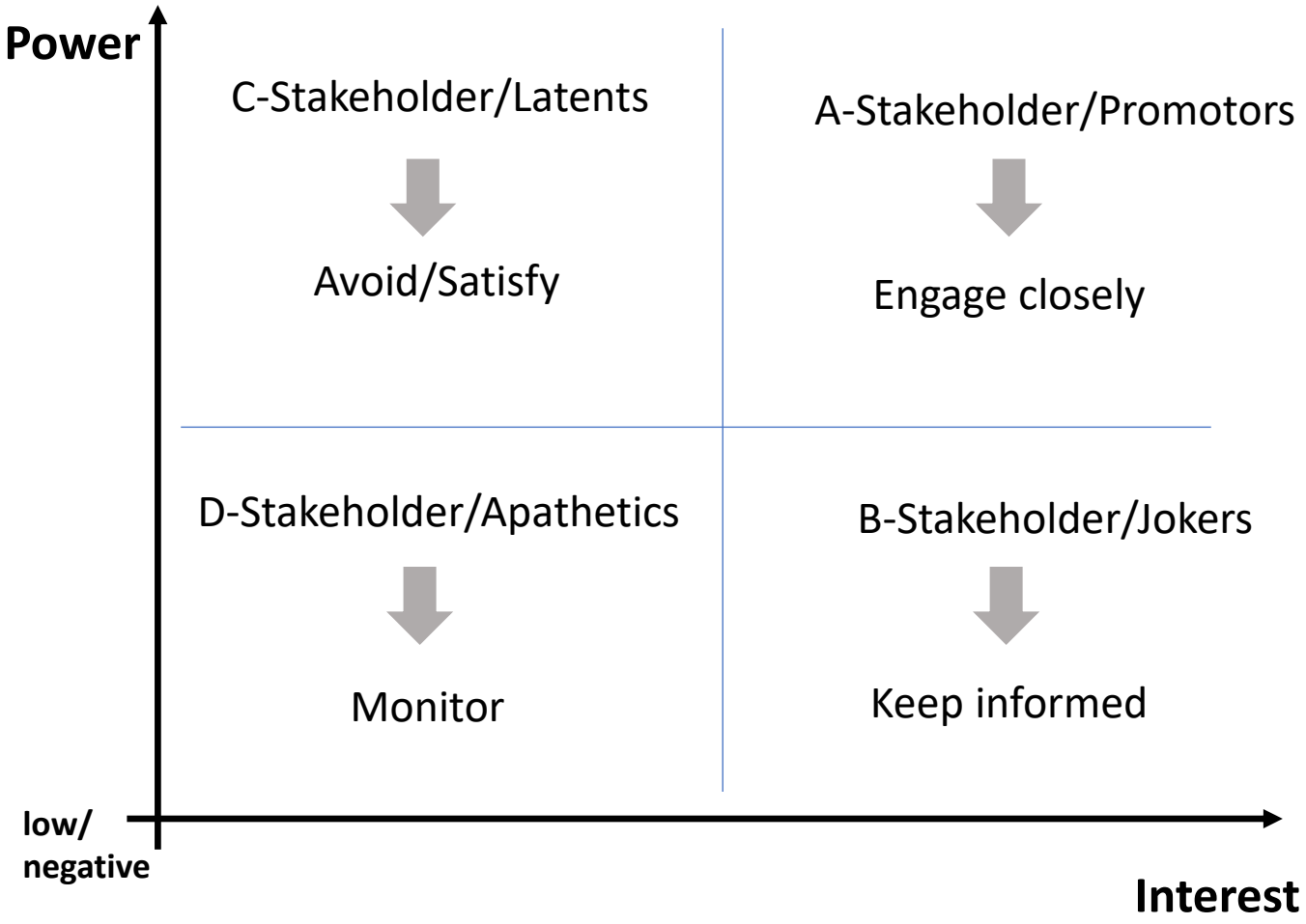
Stakeholder "Project Team"

- Sponsor
- Project Management Team
  - Project Manager
  - Supporting resources, e.g. department „Project Management"
- further members / resources (e.g. external developers)

Stakeholder Sponsor/Customer

- Single person or Group
- Project role
  - owns budget
  - owns Business Case (BC) - owner of Project Charter
  - prevents unnecessary changes in the project
  - prioritizes projects
  - Escalation point (supports in particular if resolutions of serious conflicts between Project Manager and Customer)

Stakeholder Management Matrix



Stakeholder Management Matrix

A-Stakeholder – Promotors

- Inform regularly and detailed
- Align on solution proposals and decisions
- Openly communicate pros and cons

B-Stakeholder – Jokers

- Inform timely and comprehensively
- Collect opinions
- Take comments/concern serious

C-Stakeholder – Latents

- Inform regularly above all positively
- Raise positive interest through selective information also to avoid negative interest
- Avoid confrontation

D-Stakeholder – Apathetics

- Strategy -> minimal effort, i.e. inform only if really required
- Take comments/concern serious
- Open communication on demand

4 Processes Stakeholder Management

	STAKEHOLDER
13.1	**Identify Stakeholders**
	INPUTS
	1. Projektauftrag 2. Geschäftsdokumente 3. Projektmanagementplan 4. Projektdokumente 5. Vereinbarungen 6. Faktoren der Unternehmensumwelt 7. Prozessvermögen der Organisation
	TOOLS & TECHNIQUES
	1. Fachurteil 2. Erfassung von Daten 3. Datenanalyse 4. Datendarstellung 5. Meetings
	OUTPUTS
	1. Stakeholderregister 2. Änderungsanträge 3. Aktualisierungen des Projektmanagementplans 4. Aktualisierungen der Projektdokumente

	STAKEHOLDER
13.2	**Plan Stakeholder Engagement**
	INPUTS
	1. Projektauftrag 2. Projektmanagementplan 3. Projektdokumente 4. Vereinbarungen 5. Faktoren der Unternehmensumwelt 6. Prozessvermögen der Organisation
	TOOLS & TECHNIQUES
	1. Fachurteil 2. Erfassung von Daten 3. Datenanalyse 4. Entscheidungsfindung 5. Datendarstellung 6. Meetings
	OUTPUTS
	1. Stakeholderengagementplan

	STAKEHOLDER
13.3	**Manage Stakeholders**
	INPUTS
	1. Projektmanagementplan 2. Projektdokumente 3. Faktoren der Unternehmensumwelt 4. Prozessvermögen der Organisation
	TOOLS & TECHNIQUES
	1. Fachurteil 2. Kommunikationsfähigkeiten 3. Sozialkompetenz und teambezogene Fähigkeiten 4. Grundregeln 5. Meetings
	OUTPUTS
	1. Änderungsanträge 2. Aktualisierungen des Projektmanagementplans 3. Aktualisierungen der Projektdokumente

	STAKEHOLDER
13.4	**Monitor Stakeholder Engagement**
	INPUTS
	1. Projektmanagementplan 2. Projektdokumente 3. Arbeitsleistungsdaten 4. Faktoren der Unternehmensumwelt 5. Prozessvermögen der Organisation
	TOOLS & TECHNIQUES
	1. Datenanalyse 2. Entscheidungsfindung 3. Datendarstellung 4. Kommunikationsfähigkeiten 5. Sozialkompetenz und teambezogene Fähigkeiten 6. Meetings
	OUTPUTS
	1. Arbeitsleistungs-informationen 2. Änderungsanträge 3. Aktualisierungen des Projektmanagementplans 4. Aktualisierungen der Projektdokumente

KNOWLEDGE AREA
SCOPE MANAGEMENT

SCOPE MANAGEMENT

What is Scope Management ?

Scope Management contains the processes which guarantee that all required work (and not more) in the project are taken care of in order to bring the project to a successful end.

It defines the **Scope of the Project.**

PMBOK®Guide 6.0 Processes, Process Groups and Knowledge Areas

	Wissensgebiete (49)	Projektmanagement Prozessgruppen				
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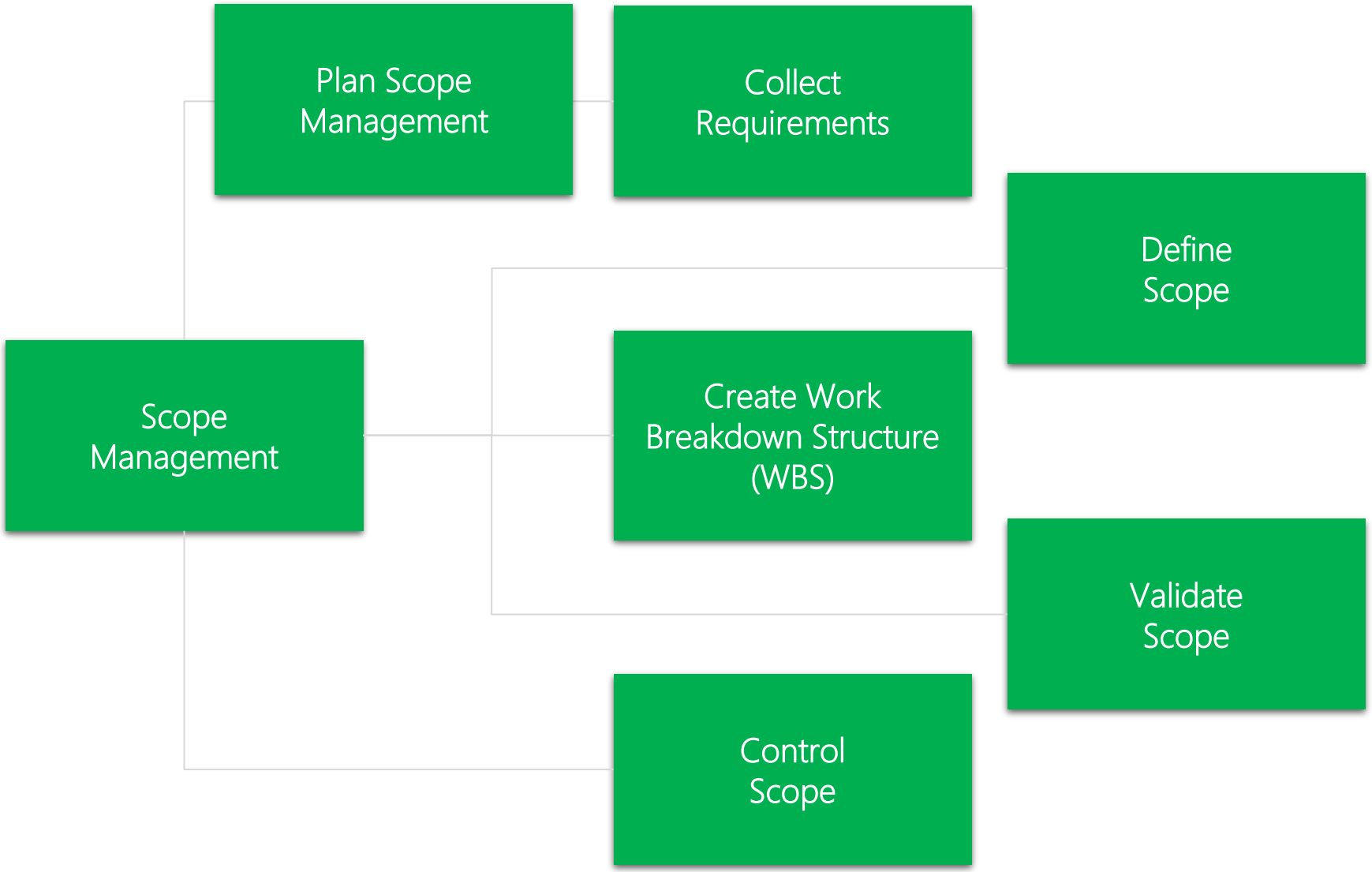
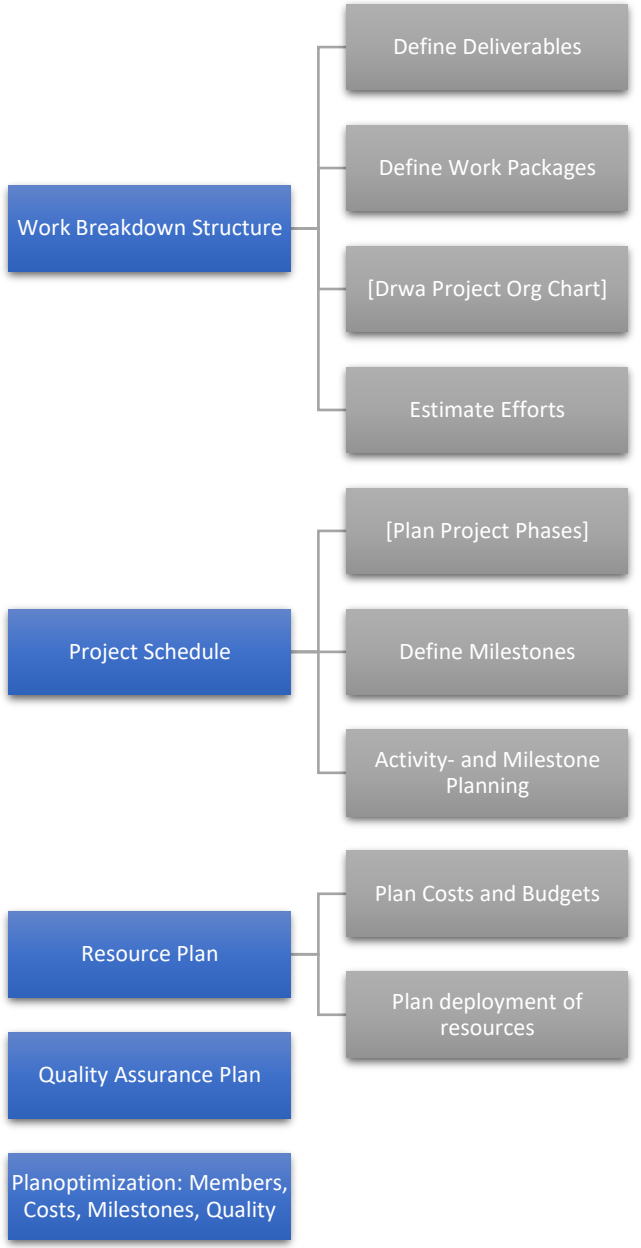
	**Kosten- management (4)**		Kostenmanagement planen Kosten schätzen Budget festlegen		Kosten steuern	
	**Qualitäts-management (3)**		Qualitätsmanagement planen	Qualität managen	Qualität durchführen	
	**Ressourcen-management (6)**		Ressourcenmanagement planen Ressourcen für Vorgänge schätzen	Ressourcen beschaffen Team entwickeln Team managen	Ressourcen steuern	
	**Kommunikations-management (3)**		Kommunikationsmanagement planen	Kommunikation managen	Kommunikation überwachen	
	**Risikomanagement (7)**		Risikomanagement planen Risiken identifizieren Qualitative Risikoanalyse durchführen Quantitative Risikoanalyse durchführen Risikobewältigungsmaßnahmen planen	Risikobewältigungs-maßnahmen umsetzen	Risiken überwachen	
	**Beschaffungs-management (3)**		Beschaffungsmanagement planen	Beschaffungen durchführen	Beschaffungen steuern	
	**Stakeholder-management (4)**	Stakeholder identifizieren	Engagement der Stakeholder planen	Engagement der Stakeholder managen	Engagement der Stakeholder überwachen	

Designed by Frank Tassone, PMP

Scope Management

- Scope Management contains all those processes which guarantee that all required work (and only those) contributing to the success of the project is achieved




Work Breakdown Structure
Define Deliverables
Define Work Packages
[Drwa Project Org Chart]
Estimate Efforts
Project Schedule
[Plan Project Phases]
Define Milestones
Activity- and Milestone Planning
Resource Plan
Plan Costs and Budgets
Plan deployment of resources
Quality Assurance Plan
Planoptimization: Members, Costs, Milestones, Quality

The Work Breakdown Structure (WBS)

Definition:

Grafical display of all activities required to achieve the Project Goal

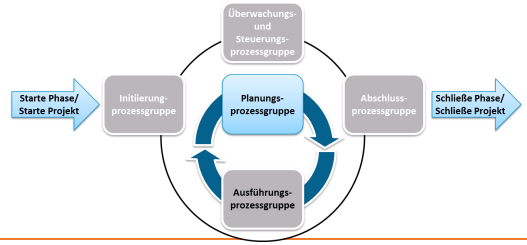
Objectives:

- **Reduce complexity**
- **Allocate responsibilities**
- **Communication within the project**

Properties:

- **Basic element of the WBS is the Work Package**
- **Foundation of all further project activities**
- **Foundation of all further planning**

Work Breakdown Structure WBS



– Project Phases –

Initiation | Project Start | ... | Closure

Basic Planning/ Phase Model

Project Manager

Sub-project A | Sub-project B | Sub-project C | Sub-project D

Project Org Chart

WBS-Element Initiative

WBS-Element Sub-project A

WBS-Element Sub-project B

WBS-Element Projektstart

WBS-Element Sub-project A

WBS-Element: Work Package 1.A.1

WBS-Element: Work Package 1.A.2

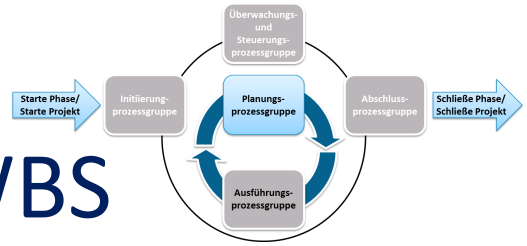
WBS-Element: Work Package 1.B.1

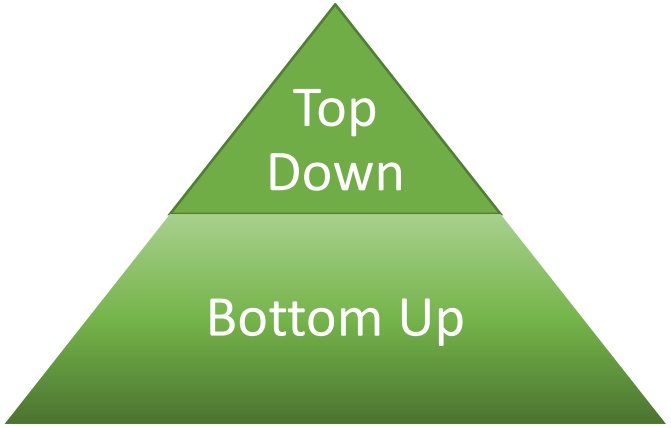
WBS-Element: Work Package 2.A.1

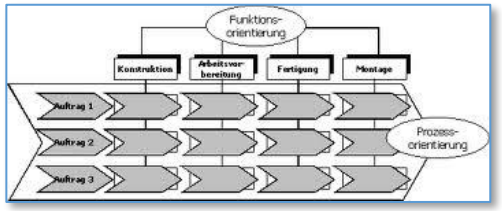
Work Breakdown Structure / WBS

etc.

Background: Creation of a WBS







Ways of Creation:

- **Top-down:** Scope will be broken down to **Deliverables** and then to Work Packages
- **Bottom-up:** creative collection of all necessary activities and as a next step **Structuring** these activities

Possible Structuring options:

Object-/Product oriented:
starting with the objective of the project

Process-/Phasen-/Function-oriented
starting with the way towards achievement of project objectives

ARBEITSPAKETBESCHREIBUNG		
PSP-Code:	AP-Bezeichnung:	AP-Verantwortung:
Ziele:	■ … ■ … ■ …	
Inhalte:	■ … ■ … ■ …	
Ergebnisse:	■ … ■ … ■ …	
Ressourcen:	■ … ■ … ■ …	
Starttermin:		Endtermin:

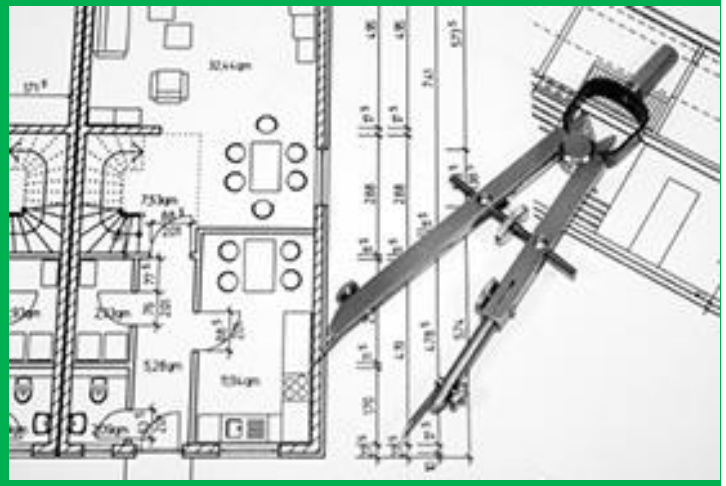
Did we achieve what has been specified?

- Not more, not less
- No „gold-plating“
- No „scope-creep through informal channels“

Result

- Accepted results of work e.g. approved concept
- New requirements -> Change Request Process

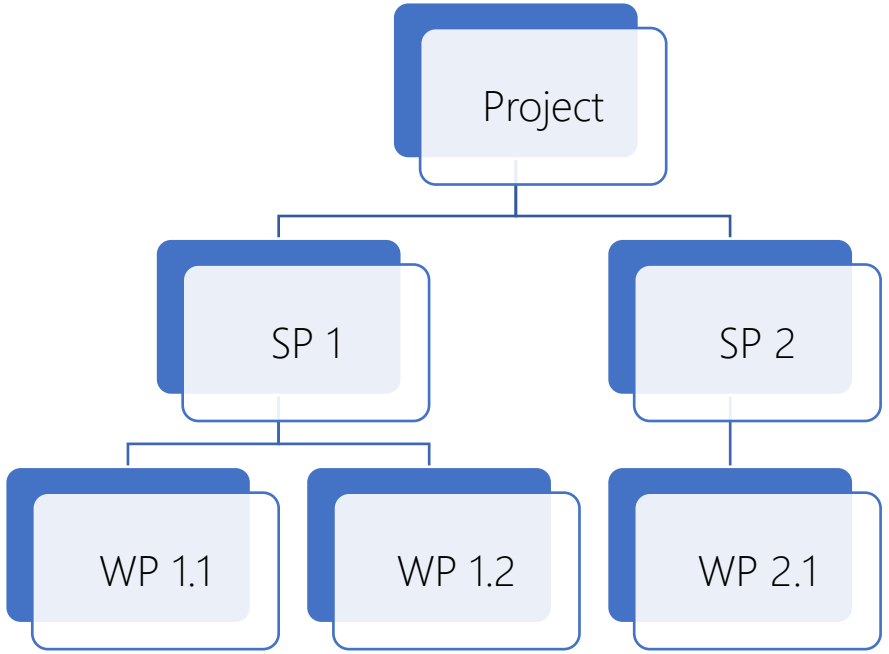
Example
Build a House



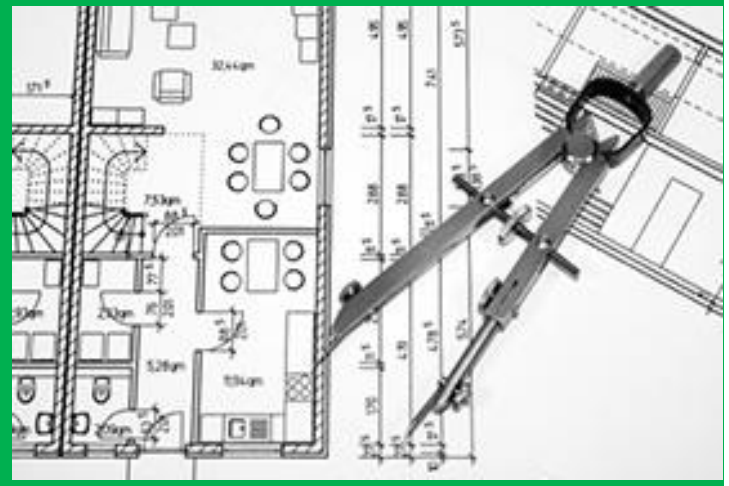
Imagine you would want to build a house and need to structure your work packages.

Think about how you could define your project structure alongside the following organizsational criteria
Organisationsmerkmalen strukturieren.

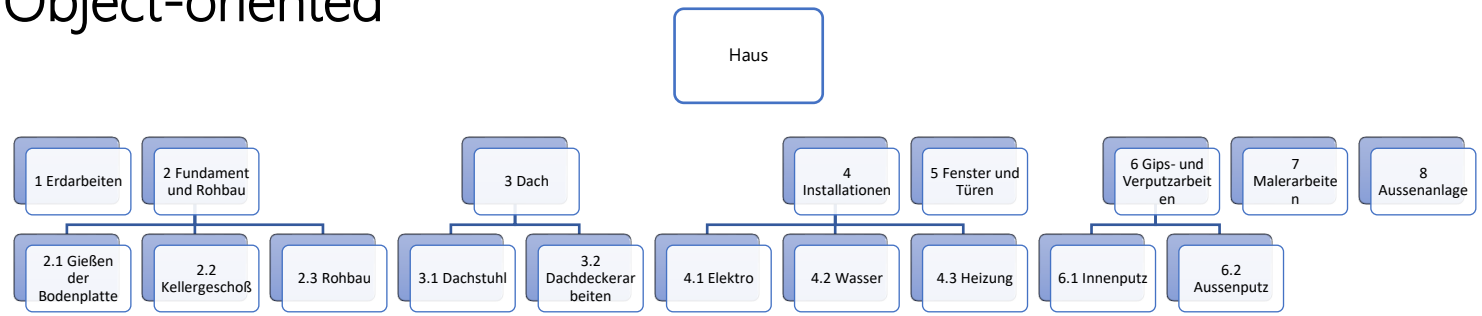
Object-oriented **Phase-oriented** **Function-oriented**



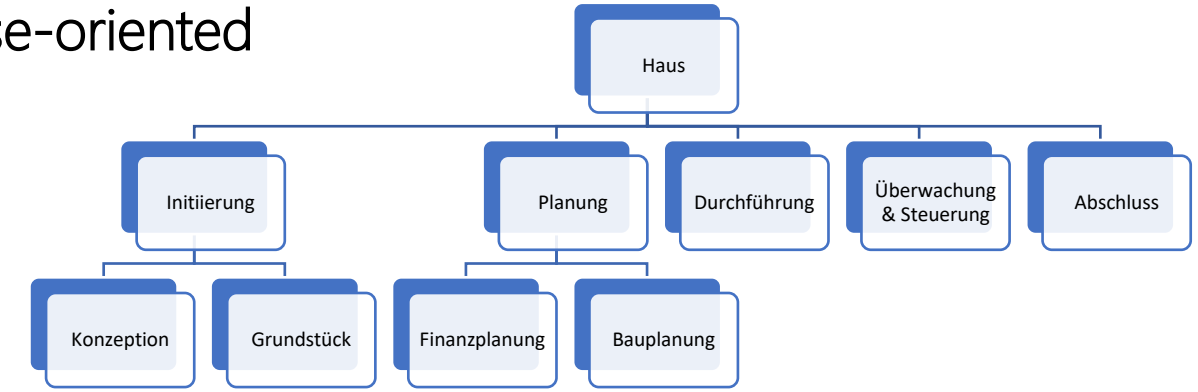
Example
Build a House



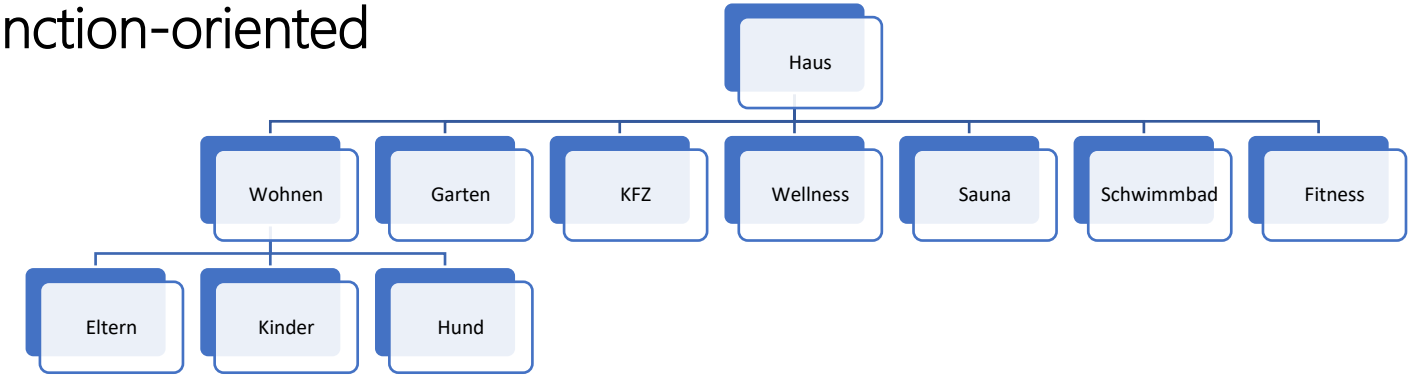
Object-oriented



Phase-oriented



Function-oriented



6 Processes Scope Management

	SCOPE
5.1	**Plan Scope Management**
	EINGANGSWERTE
	1. Projektauftrag 2. Projektmanagementplan 3. Faktoren der Unternehmens-umwelt 4. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Datenanalyse 3. Meetings
	AUSGANGSWERTE
	1. Inhalts- und Umfangsmanagementplan 2. Anforderungs-managementplan

	SCOPE
5.2	**Collect Requirements**
	EINGANGSWERTE
	1. Projektauftrag 2. Projektmanagementplan 3. Projektdokumente 4. Geschäftsdokumente 5. Vereinbarungen 6. Faktoren der Unternehmensumwelt 7. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Erfassung von Daten 3. Datenanalyse 4. Entscheidungsfindung 5. Datendarstellung 6. Sozialkompetenz und teambezogene Fähigkeiten 7. Kontextdiagramm 8. Prototype
	AUSGANGSWERTE
	1. Dokumentation der Anforderungen 2. Anforderungs-Nachverfolgungs-Matrix

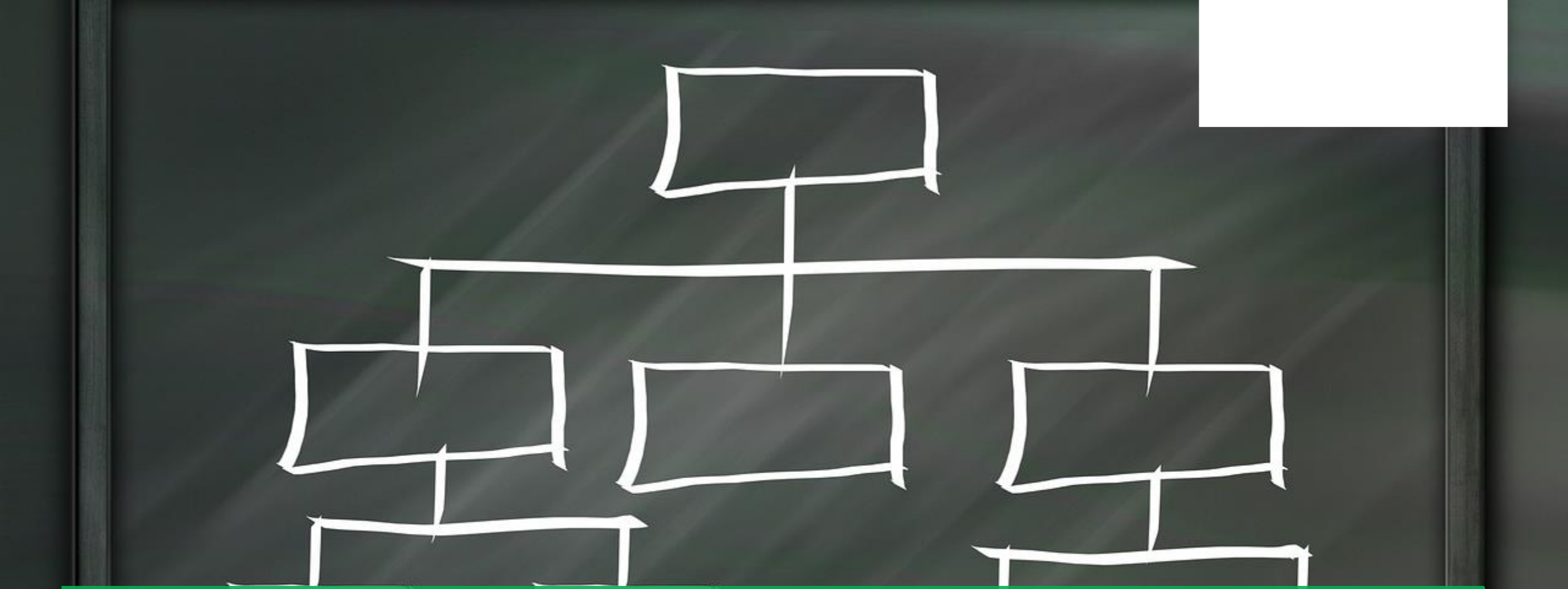
	SCOPE
5.3	**Define Scope**
	EINGANGSWERTE
	1. Projektauftrag 2. Projektmanagementplan 3. Projektdokumente 4. Faktoren der Unternehmensumwelt 5. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Datenanalyse 3. Entscheidungsfindung 4. Sozialkompetenz und teambezogene Fähigkeiten 5. Produktanalyse
	AUSGANGSWERTE
	1. Beschreibung des Projektinhalts und -umfangs 2. Aktualisierungen der Projektdokumente

	SCOPE
5.4	**Create WBS**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Faktoren der Unternehmensumwelt 4. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Fachurteil 2. Zerlegung
	AUSGANGSWERTE
	1. Inhalts- und Umfangsbasisplan 2. Aktualisierungen der Projektdokumente

	SCOPE
5.5	**Validate Scope**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Verifizierte Liefergegenstände 4. Arbeitsleistungsdaten
	WERKZEUGE UND METHODEN
	1. Inspektion 2. Entscheidungsfindung
	AUSGANGSWERTE
	1. Abgenommene Liefergegenstände 2. Arbeitsleistungs-informationen 3. Änderungsanträge 4. Aktualisierungen der Projektdokumente

6 Processes Scope Management

	SCOPE
5.6	**Control Scope**
	EINGANGSWERTE
	1. Projektmanagementplan 2. Projektdokumente 3. Arbeitsleistungsdaten 4. Prozessvermögen der Organisation
	WERKZEUGE UND METHODEN
	1. Datenanalyse
	AUSGANGSWERTE
	1.Arbeitsleistungs-informationen 2. Änderungsanträge 3. Aktualisierungen des Projektmanagementplans 4. Aktualisierungen der Projektdokumente



EXERCISE – SCOPE MANAGEMENT

See you soon!