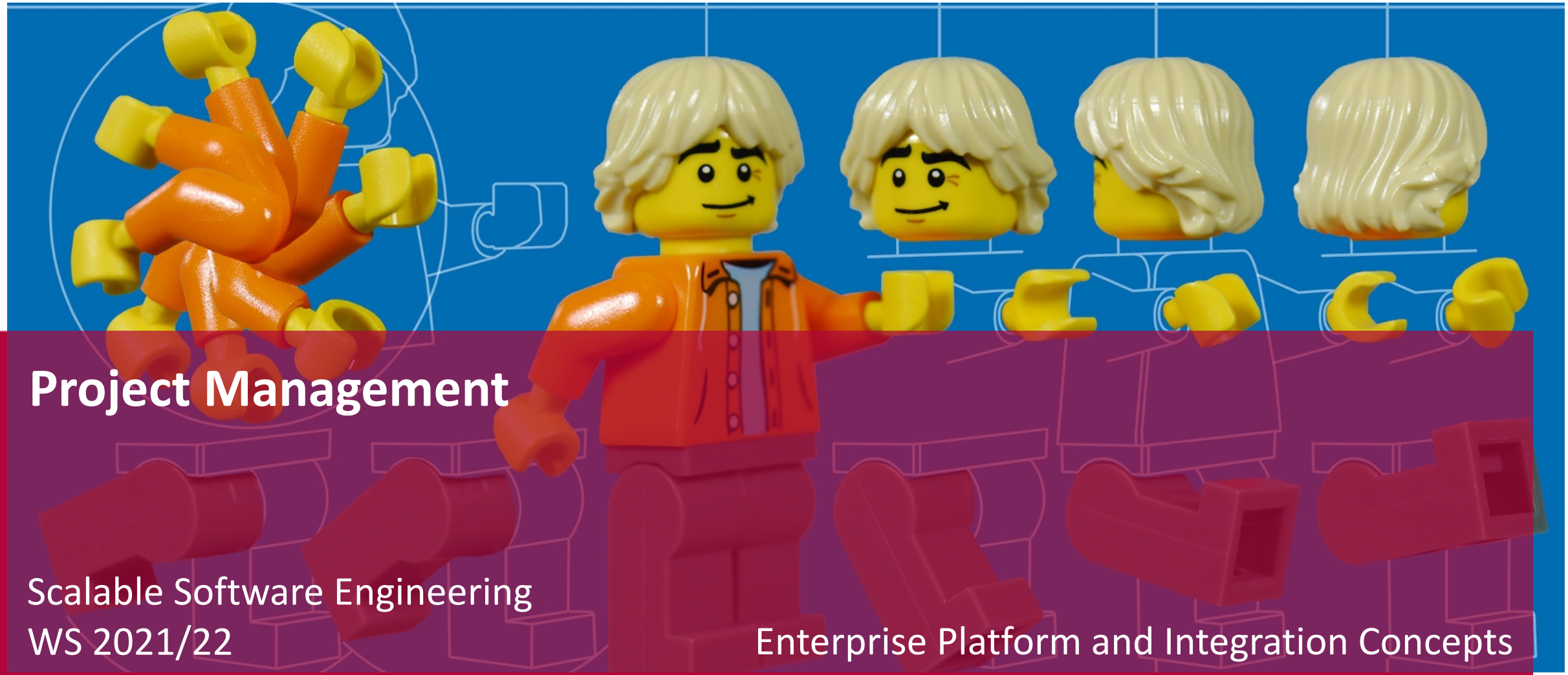


Project Management

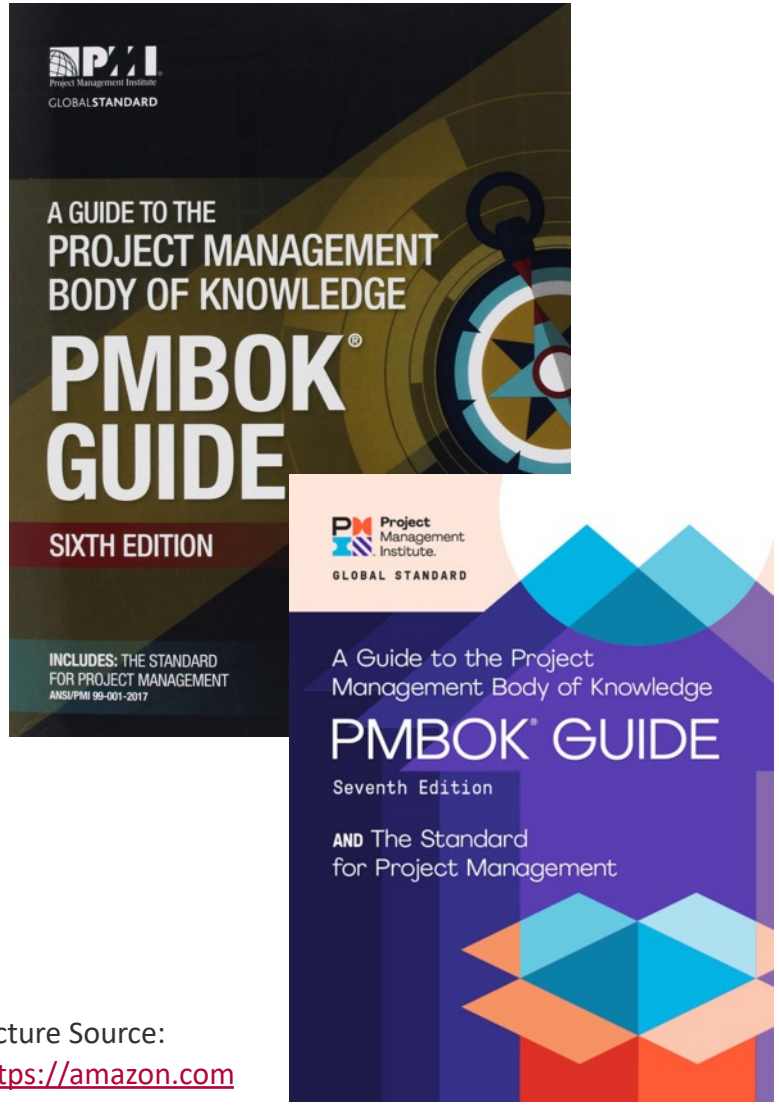
Scalable Software Engineering
WS 2021/22

Enterprise Platform and Integration Concepts


If not stated otherwise, images are taken from the SAP image library

Agenda

- **Introduction to Project Management**
  1. **Integration Management**
  2. **Scope Management**
  3. **Schedule Management**
  4. **Cost Management**
  5. **Quality Management**
  6. **Resource Management**
  7. **Communications Management**
  8. **Risk Management**
  9. **Procurement Management**
  10. **Stakeholder Management**



Picture Source:
https://amazon.com

Project Management Body of Knowledge (PMBOK)

Project Management Institute (PMI)

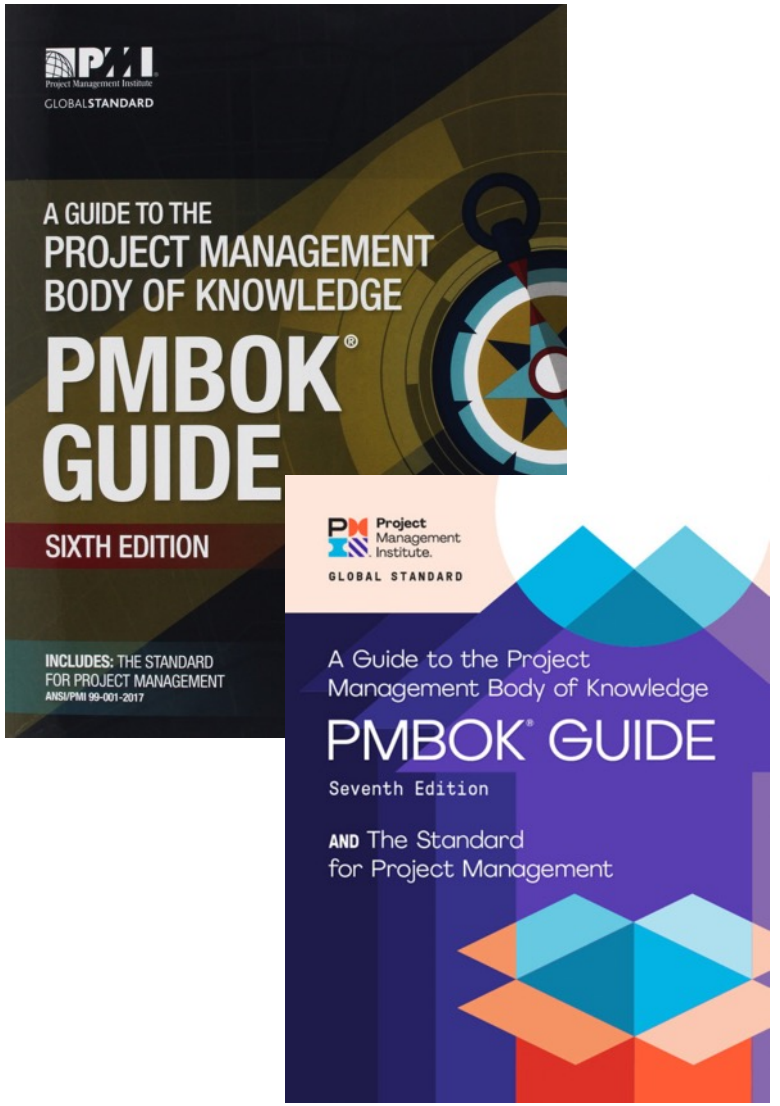
- More than 600,000 members
- Publisher of PMBOK Guide
- Project Management Professional (PMP) certificate
- Alternatives: IPMA, PRINCE2

PMBOK Guide 6th Edition (750+ pages)

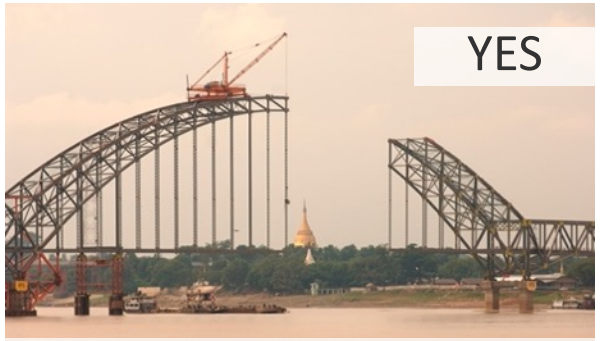
- Basic source for effective project management
- Focus on methods, processes, and common terminology
- Incl. ANSI Standard (Best Practices)

PMBOK Guide 7th Edition (250+ pages)

- New in 2021 and complements the 6th edition
- Focus on principles and values to enable more flexibility



What Is a Project?



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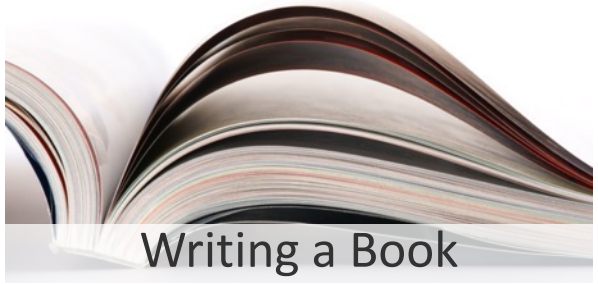


What Is a Project?

The PMI defines project as:

> *"It's a **temporary** endeavor undertaken to **create** a **unique** product, service or result."*

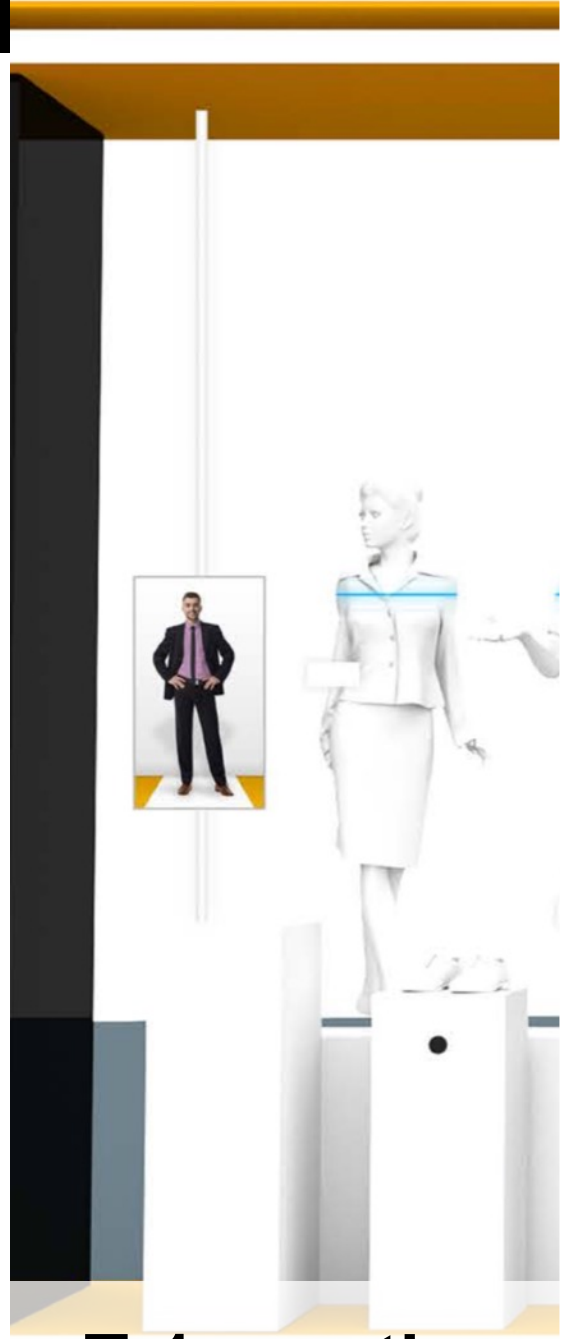
Further properties

- Executed on all organizational layers
- Clear goals with defined start and end dates
- Creation of business value and enablement of business transformation

Showcase
Machine Learning

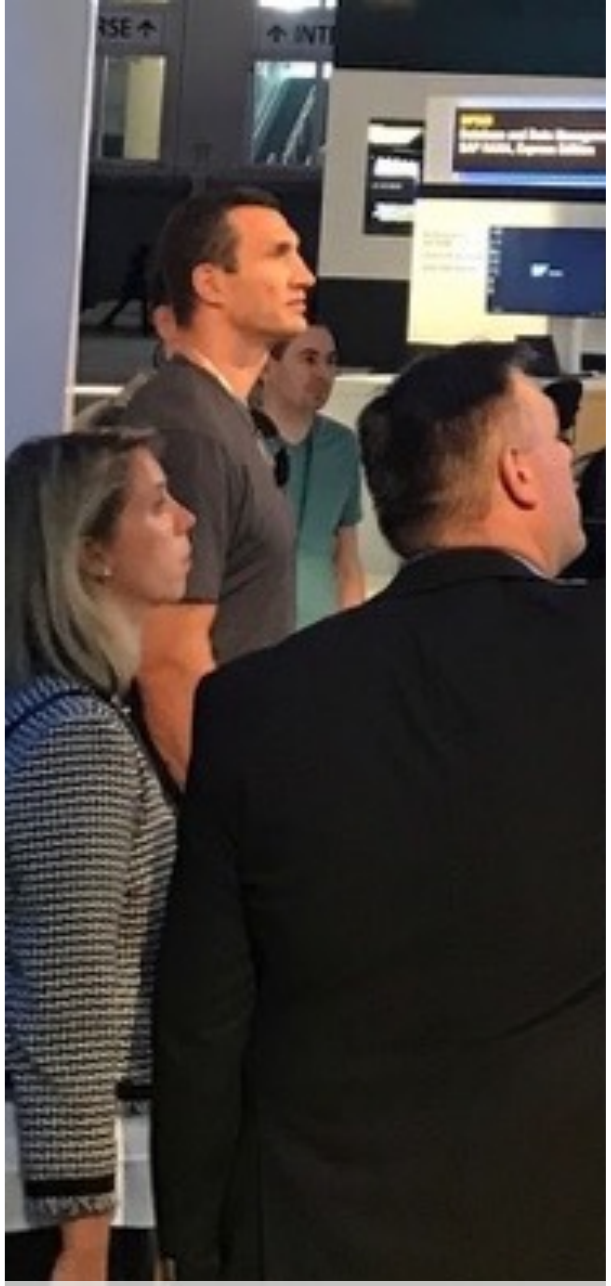
Example Project

Sapphire Fashion Showcase



T-1 month

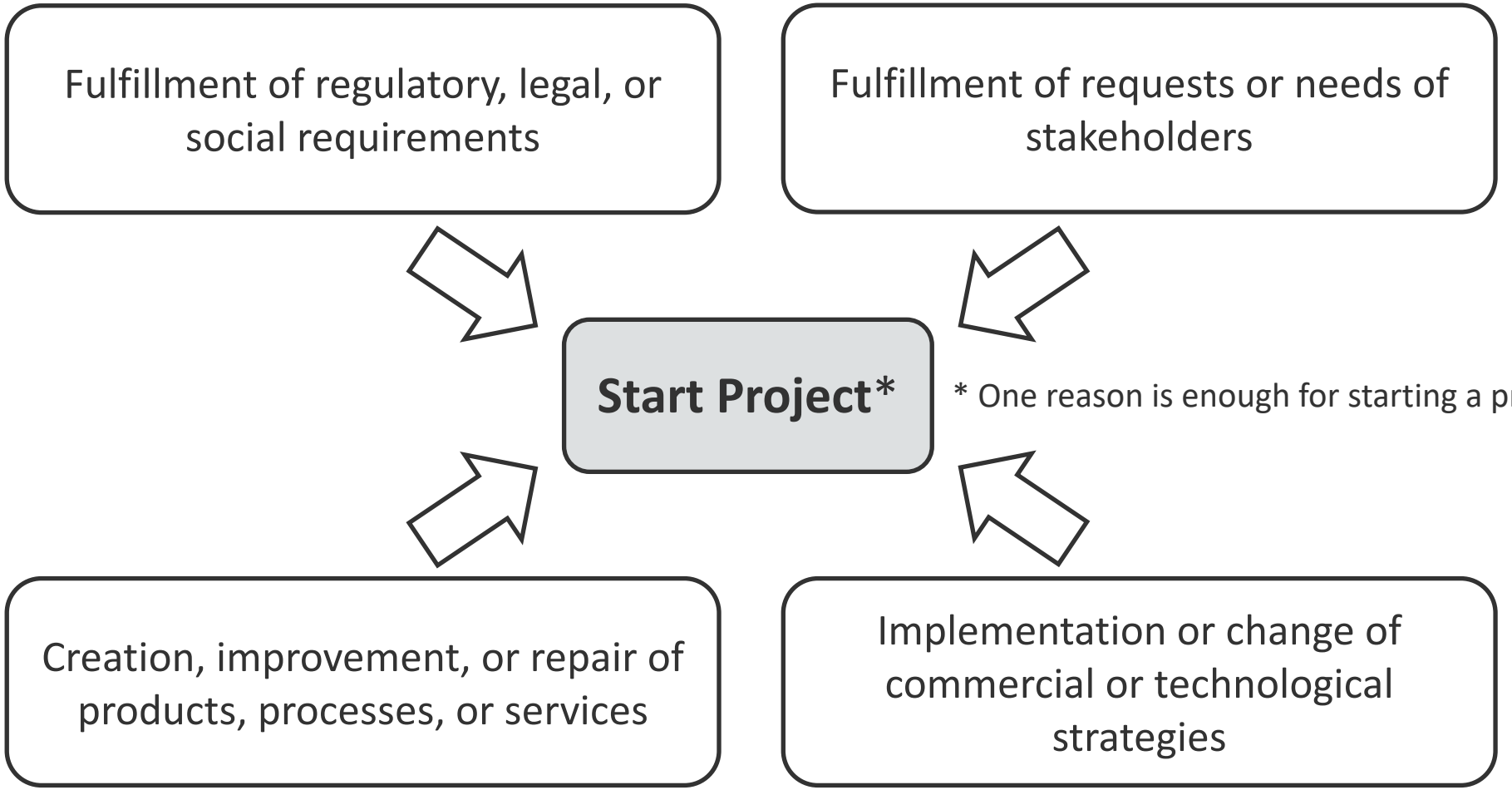
T-1 day



SAPPHIRE’17

30+ * reused

Why to Start a Project?



Example: Create a compelling showcase presenting ML at SAP

What Is Project Management?

The PMI defines project management as:

> *"It is the use of specific knowledge, skills, tools and techniques to deliver something of value to people."*

- Application and integration of selected project management processes
- Effective and efficient execution of projects in order to:
  - Reach business goals and/or fulfill stakeholders' expectations
  - Deliver right products at the right time
  - Solve business challenges
  - Optimize resource management
  - Identify and react on risks
  - Manage change

What Is a Project Manager?

The PMI defines project manager as:

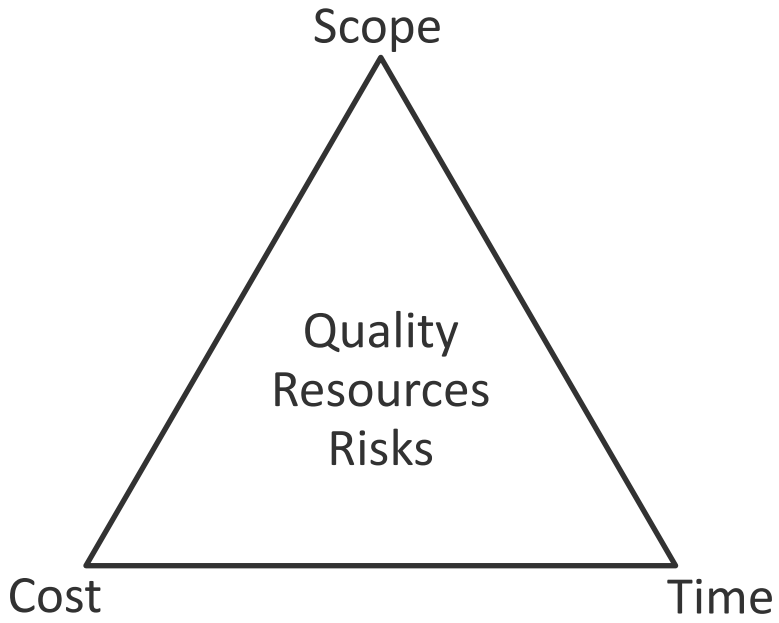
> *"A person named by the organization to lead the project and being responsible for reaching the project's goals."*

Project Management includes:

- Identification of project requirements
- Stakeholder communication and expectation management
- Resource management
- Handle competing project constraints

Competencies:

- Technical project management
- Leadership
- Strategic and business management



Example: Strategic Projects

Highest priority

Spontaneous and short in time

High quality expected

Large influence on business

Any topic and sometimes political

Broad project descriptions

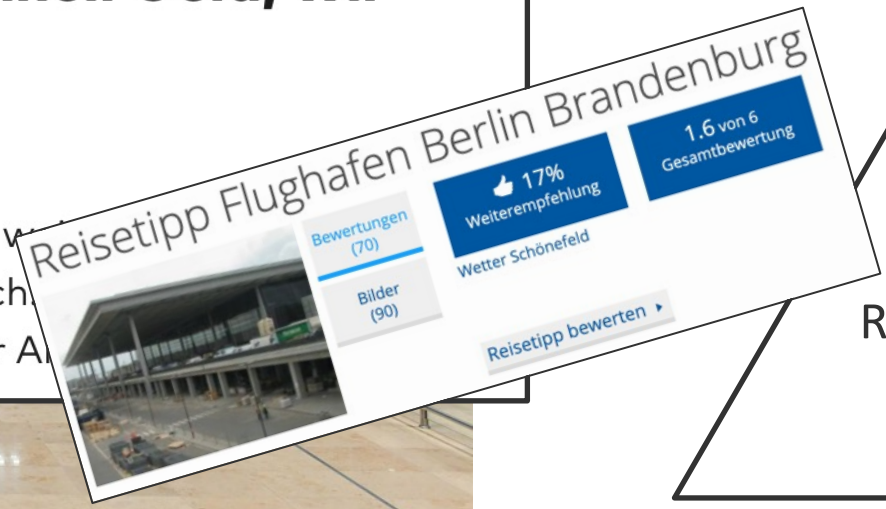
Most often no resource issues

What Is a Successful Project?

Flughafen BER – „Wir brauchen schnell Geld, wir brauchen Cash“

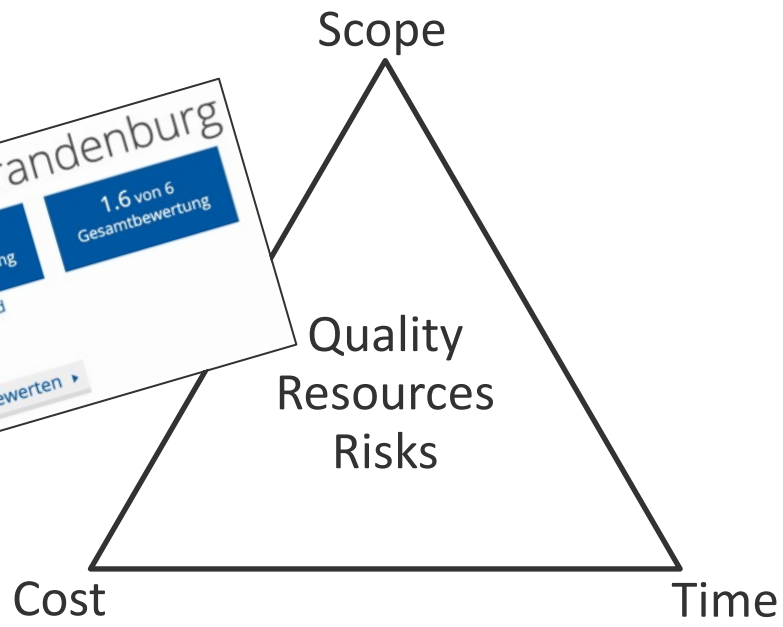
Veröffentlicht am 30.10.2021 | Lesedauer: 2 Minuten

Bis 2026 brauche die Flughafengesellschaft des BER w…
sagt die neue Flughafenchefin Aletta von Massenbach…
Auch zum Chaos in den Herbstferien an dem Berliner A…



Planned: 60 Million passengers per year

Real: 45 Million passengers per year (and 12 Million still with former terminal)



Planned: 2 Billion €

Real: 6 Billion €

Planned: 2011

Real: 2020

Sources: https://www.zdf.de/nachrichten/wirtschaft/flughafen-ber-milionen-verlust-100.html
https://de.wikipedia.org/wiki/Bau_des_Flughafens_Berlin_Brandenburg
https://www.holidaycheck.de/pr/bewertungen-flughafen-berlin-brandenburg-willy-brandt-ber
https://www.welt.de/wirtschaft/article234741452/Flughafen-BER-Wir-brauchen-schnell-Geld-wir-brauchen-Cash.html

Goals

> *A project can be in time, in scope and in budget but still failed because of missing goals or other business reasons. The same can be true vice versa.*

Key performance indicators (KPIs) for time, cost, scope, and quality monitor success criterias for a project

But don’t forget about reaching goals

- Clarify with all stakeholders what is expected (and what not!)
- Document goals (follow SMART criteria)

The BER missed all KPIs but in the end there is a new airport!

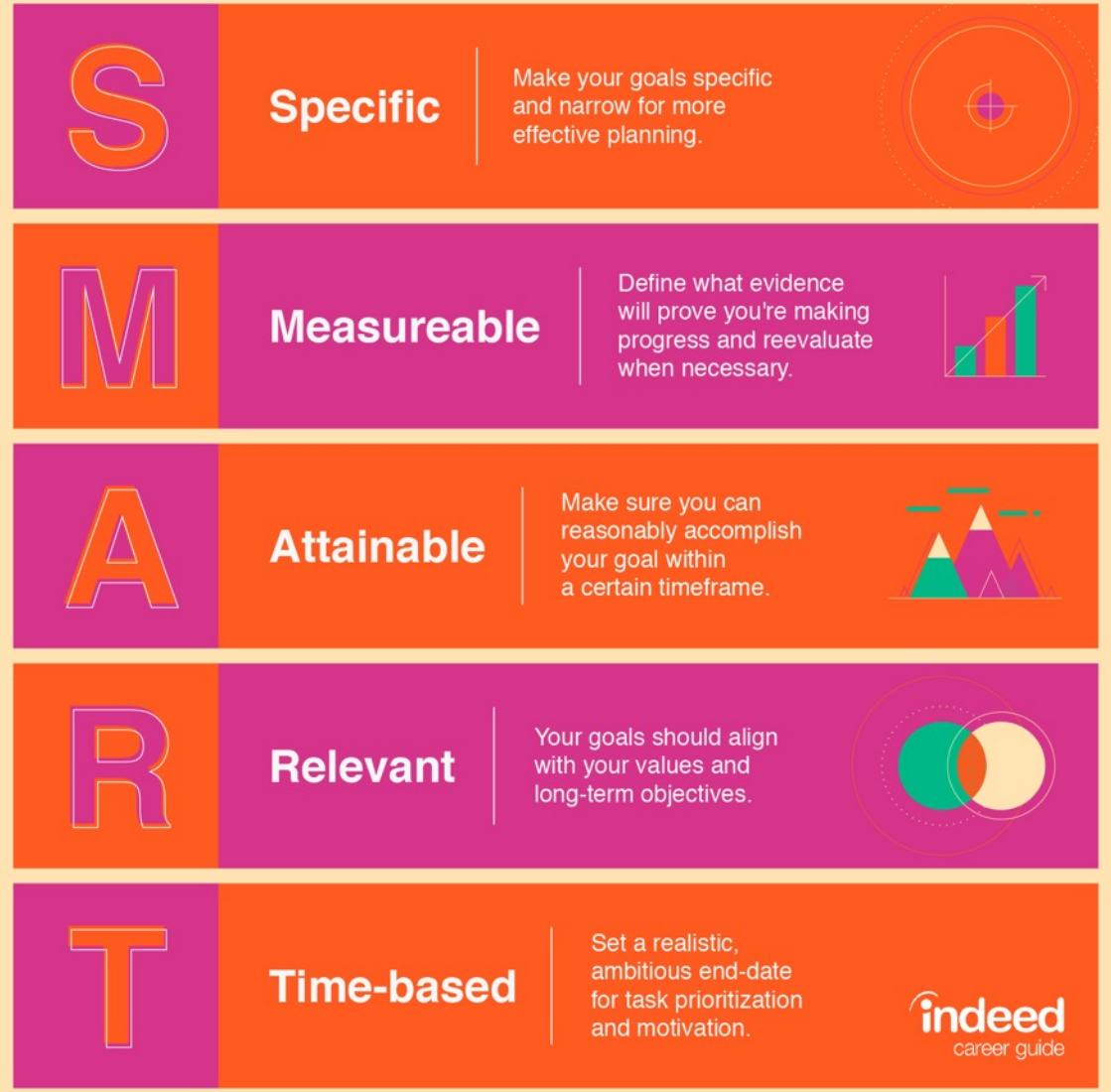
Reaching goals is (most often) more important than project KPIs!

SMART Goals

Each goal should follow the SMART principle

Answer the following questions (from the beginning):

- How does success looks like in this project?
- How do we measure success?
- Which factors can influence the success?



Source: https://www.indeed.com/career-advice/career-development/smart-goals

Aside: Vision and Mission

A **vision statement** is an inspirational statement of an idealistic emotional future of a company or group.

> *Example vision: "To help the world run better and improve people's lives."*

A **mission statement** is a short statement of why an organization exists, what its overall goal is, identifying the goal of its operations.

> *Example Mission: "From back office to boardroom, warehouse to storefront, desktop to mobile device – SAP empowers people and organizations to work together more efficiently and use business insight more effectively to stay ahead of the competition."*

Make sure that your project relates to vision and mission

Sources: https://mission-statement.com/sap/

Stakeholders

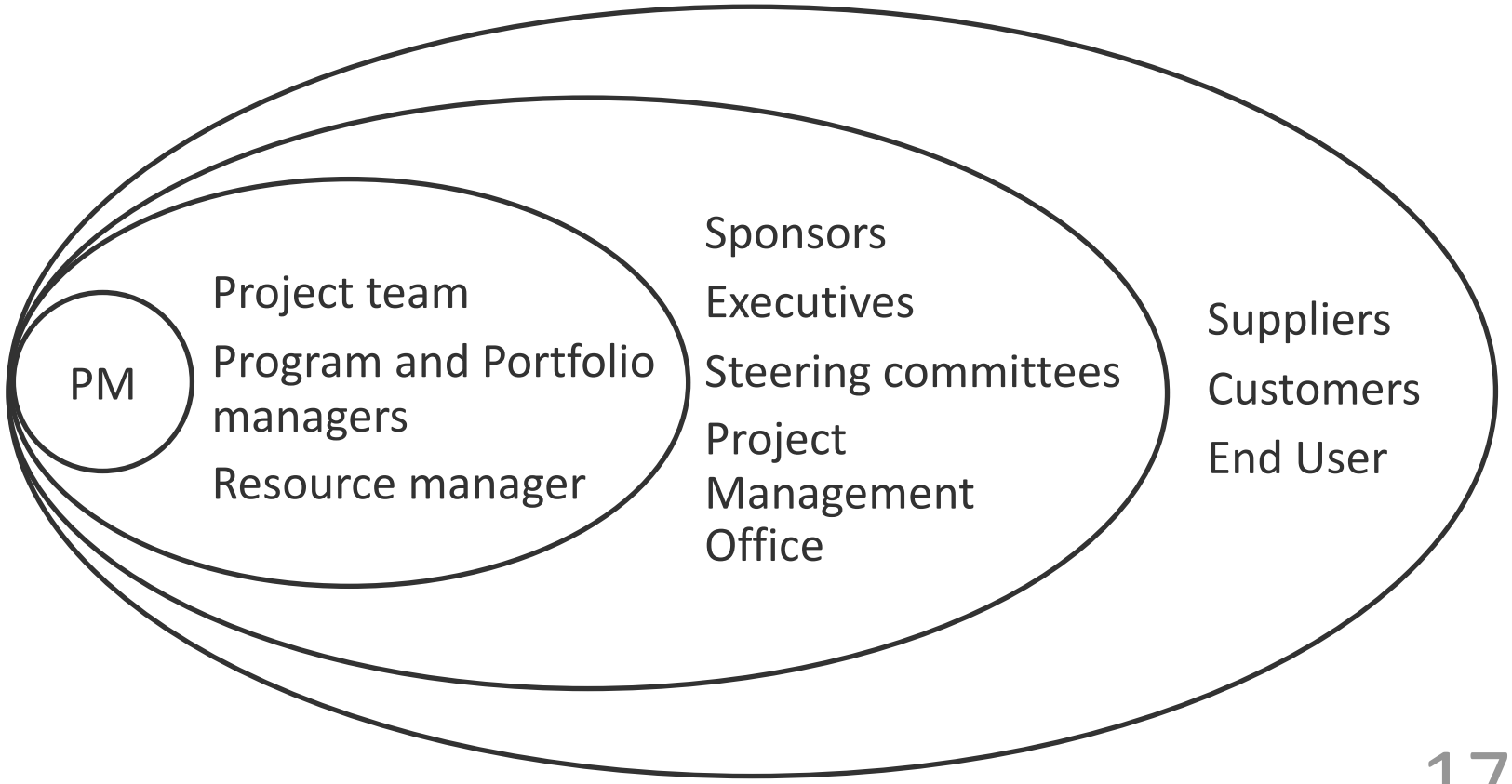
> *A stakeholder is a single person, group, or organization, who influence a project (also negative), profit from its results, or want to somehow involved with it.*

Internal stakeholders, e.g.:

- Sponsor
- Program manager
- Project team members

External stakeholders, e.g.:

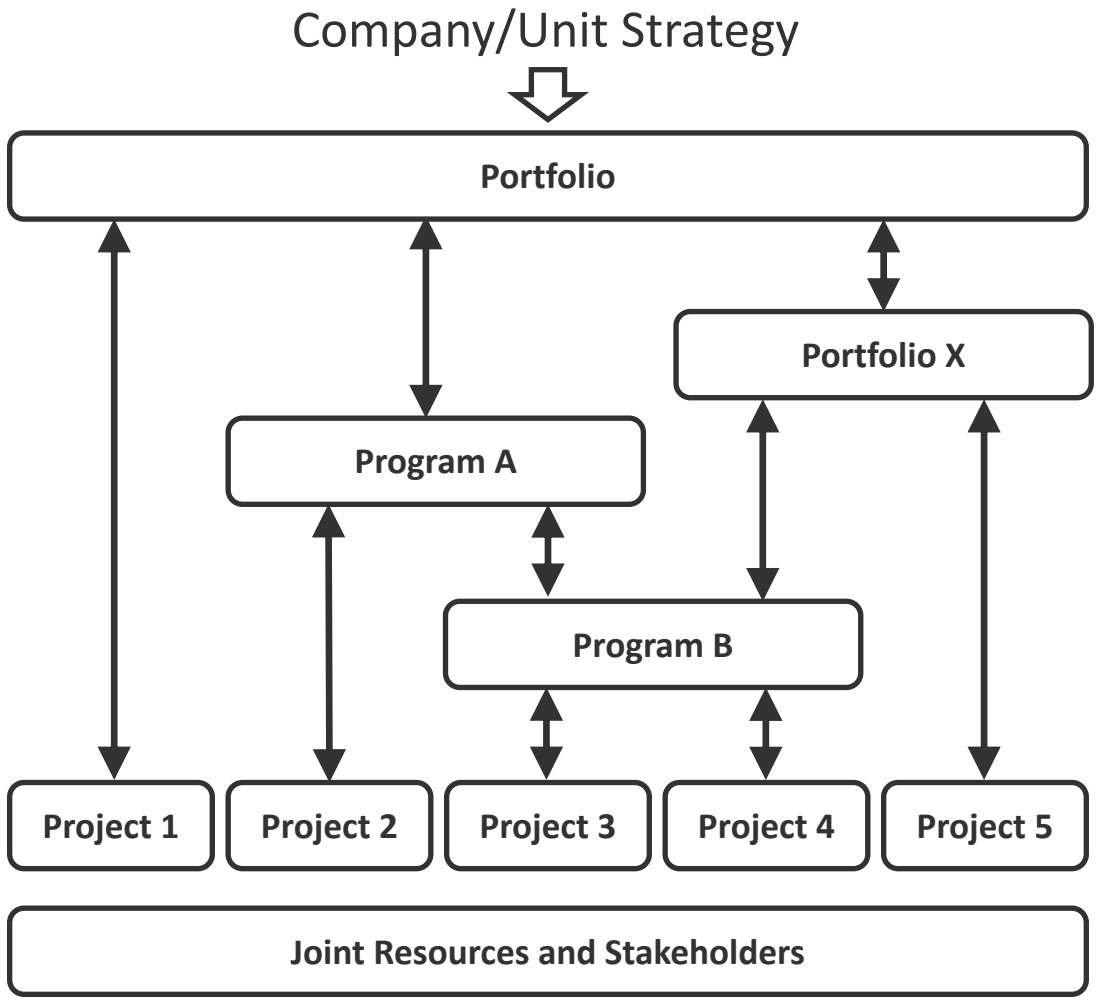
- Customer
- End users
- Government
- Competitors
- Shareholders



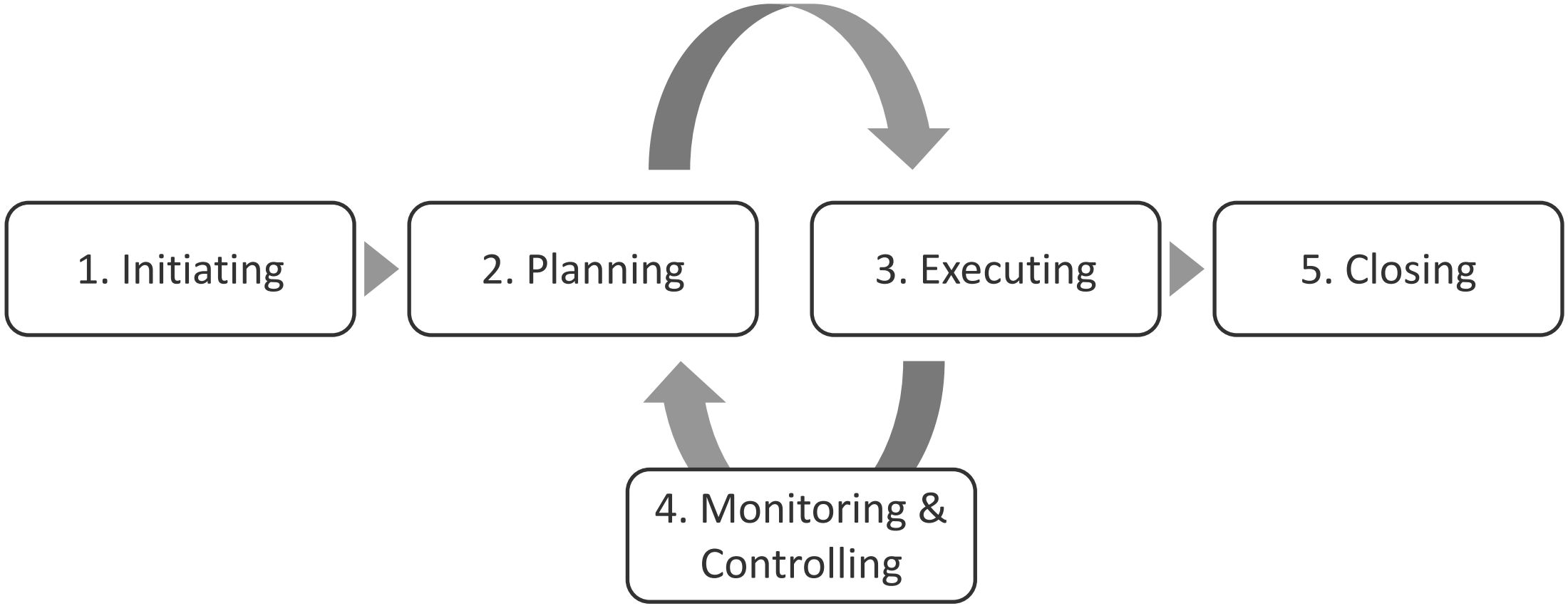
Project-, Program-, and Portfoliomanagement

Portfolio is a collection of projects, programs, and subsidiary portfolios with a focus on having the right projects and programs

Program is a group of similar projects or subsidiary programs with a focus on right execution



Project Lifecycle



Knowledge Areas for Project Management Processes

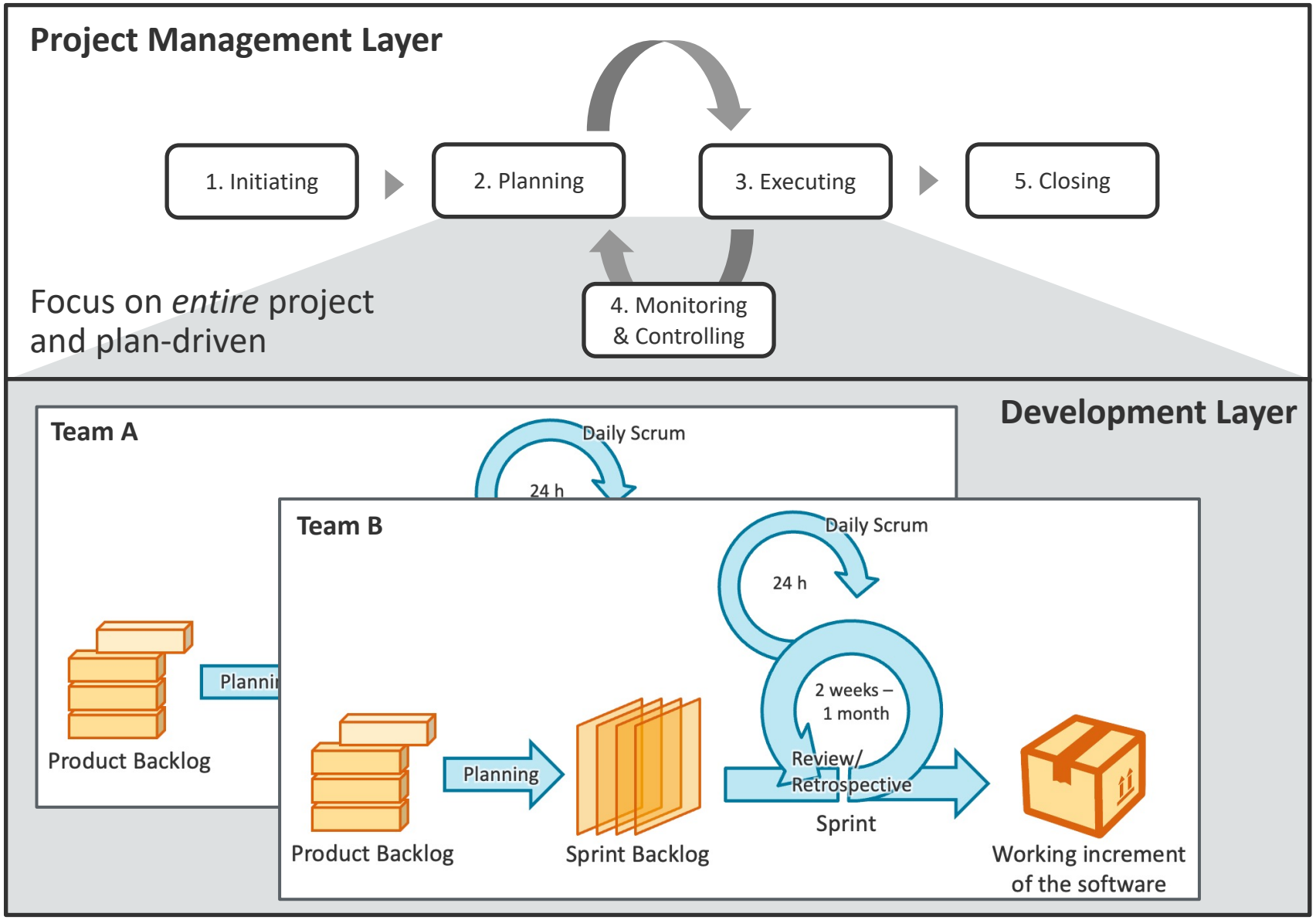
1. **Integration Mgt:** Identify, define, combine, unify and coordinate processes through the project lifecycle
2. **Scope Mgt:** Ensure that the project works on the right things (and only on these)
3. **Schedule Mgt:** Ensure that the project delivers on time
4. **Cost Mgt:** Ensure that the project stays within budget
5. **Quality Mgt:** Ensure quality expectations of stakeholders
6. **Resource Mgt:** Identification, provisioning, and management of required resources
7. **Communications Mgt:** Creation, collection, distribution, storage, accessing, monitoring and deletion of project information
8. **Risk Mgt:** Analysis of risks, execution and monitoring of prevention mechanisms
9. **Procurement Mgt:** Procurement of external resources, results, or services
10. **Stakeholder Mgt:** Involvement of all stakeholders

Project Lifecycle x Knowledge Areas

* Matrix is not complete. Terms in boxes are examples. No details means (project phase x knowledge area).

	1. Initiating	2. Planning	3. Executing	4. Monitoring	5. Closing
Integration	Project Charter	Project Management Plan	Manage project and knowledge	Control project work and change	Close project and follow ups
Scope		Structure project		Validate and control	
Schedule		Milestone plan			
Cost		Estimate budget			
Quality		Define expectations			
Resource		Estimate resources	Team management		
Comms					
Risk		Analysis & prevention			
Procurement					
Stakeholder	Identify	Engage			

Scrum Meets Project Management



Adaption of Project Management Tools

> ***If your only tool is a hammer, every problem looks like a nail.***
>
> - Law of the instrument, a cognitive bias that involves an over-reliance on a familiar tool.

"The right tool for the right job"
"Don't bring a knife to a gun fight."
"You're only as good as the tools you use"
"A fool with a tool is still a fool!"

Good project managers do only what is necessary to get a job done!

- Requires a lot of experience and cannot be taught in a lecture
- Every project is different
- Reflect yourself and question if you need a tool or not
- Neither overengineer a project nor underestimate it
- PMBOK covers 132 methods but there are even more outside…

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Knowledge Area
Integration Management

Agenda

Introduction to Project Management

1. **Integration Management:** Identify, define, combine, unify and coordinate processes through the project lifecycle
2. **Scope Management**
3. **Schedule Management**
4. **Cost Management**
5. **Quality Management**
6. **Resource Management**
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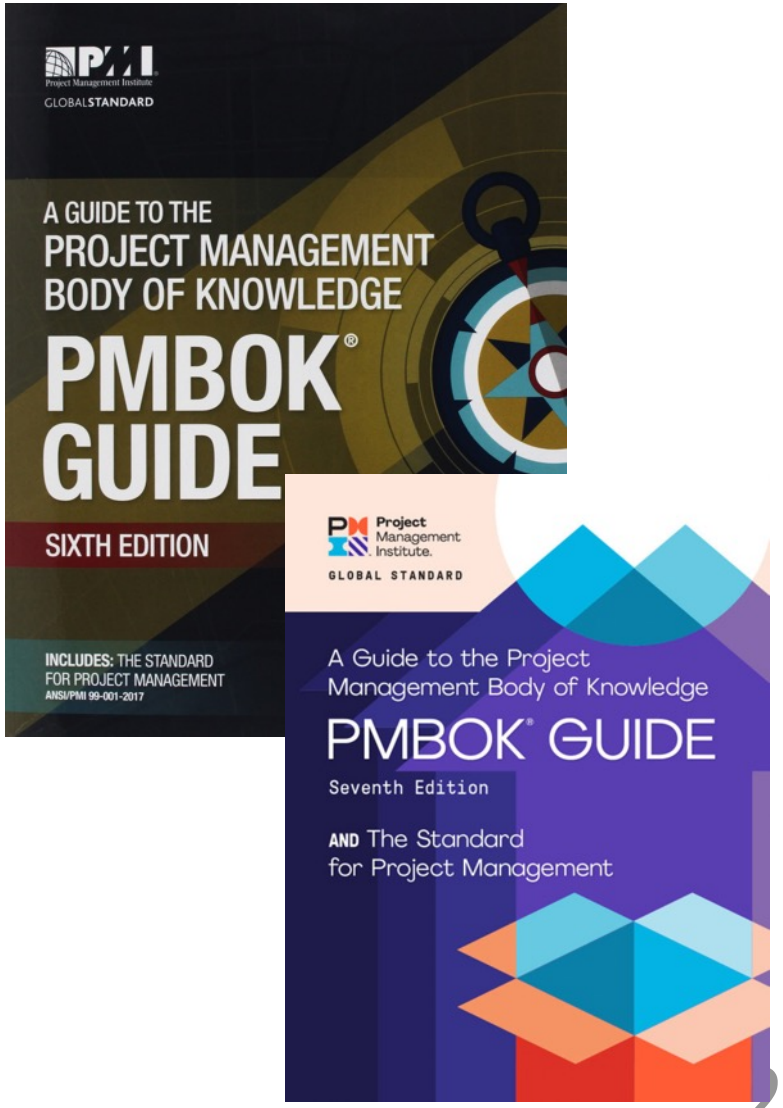


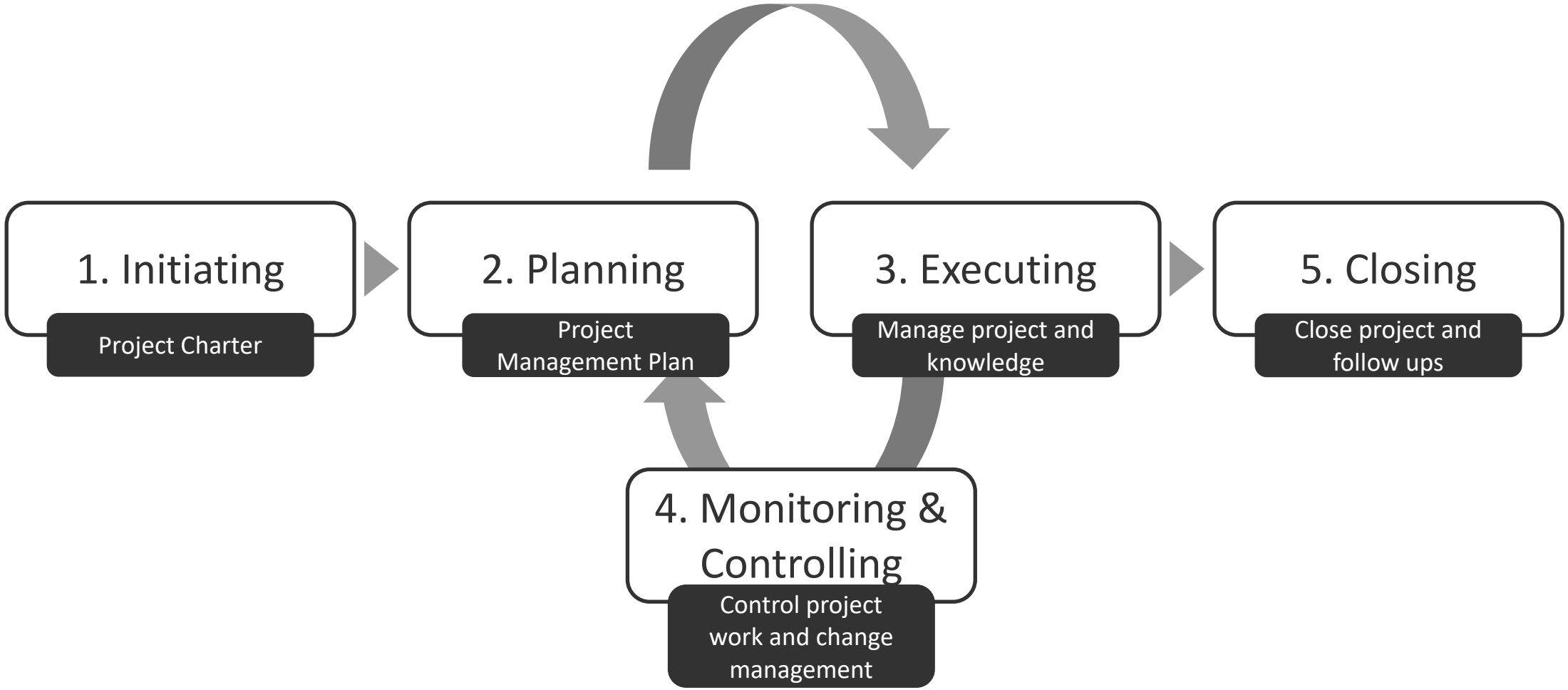
Principles of Integration Management

The project manager brings all results from the knowledge areas together and offers a full picture on the project

- Align schedule, scope, and cost with the project life cycle
- Create a project management plan to reach the goals
- Ensure the project has all the required resources and knowledge
- Adapt processes to project needs and plans to change
- Make decisions, resolve conflicts, and handle contracts
- Monitor and control project status
- Collect, analyze, and share project information with relevant stakeholders
- Finish all project tasks

A project manager cannot delegate these tasks

Project Lifecycle for Integration Management



Project Charter

> “Develop a document that approves the projects, delegates power to the project manager and ensures access to organization’s ressources”

Start of a project by external sponsor or documents such as a business case

- A project charter is *not* a contract
- Ensure project sponsor has access to ressources
- Collect input for project charter via
  - Brainstorming
  - Focus and expert groups
  - Interviews with important stakeholders

TEMPLATE Project Charter

Subject to Change, <DATE>

Objectives	**Timeline and Key Milestones**
…	• …

In Scope	**Out of Scope**	**Project Organization**
• …	• …	**Lead** … **Stakeholder** …

Business Needs	**Benefits**
• …	• …
Assumptions	**Constraints/Risks**
• …	• …

Effort Estimation & Budget	**Total**	**GFA**	**IT**	**3rd Party**

Sapphire Fashion Showcase

Subject to Change, 01.03.2017

Objectives	**Timeline and Key Milestones**
Create a compelling showcase for Sapphire presenting Machine Learning (ML) at SAP.	• 01.04.2017 Finalize Mock-up • 01.05.2017 Finish software development • 16.05.2017 Sapphire Showfloor Live

In Scope	**Out of Scope**	**Project Organization**	
• Integrate 1-2 SAP Machine Learning solutions in a real customer case • Show relation to SAPs core product (e.g., SAP S/4HANA) • Interactive booth instead of pure displays	• A real productive solution (Mock-ups are ok) • Building new ML solutions	**Lead** Michael **Project Manager** Bernhard	**L1 Manager** Jürgen **Stakeholder** Supervisory Board Executive Board

Business Needs	**Benefits**
• SAP has several ML solutions as part of their products but most of them are boring (only better numbers). • Build a showcase that highlights the potential of ML for business users	• Convince customers to move to the intelligent enterprise and invest into data-driven solutions
Assumptions	**Constraints/Risks**
• Booth will be moderated by SAP • Easy onboarding to showcase for visitors and presenters	• Use-case is too far away from SAPs core business • Solution is too general and not realizable afterwards

Effort Estimation & Budget	**Total**	**GFA**	**IT**	**3rd Party**
	---	---	---	---

Project Management Plan

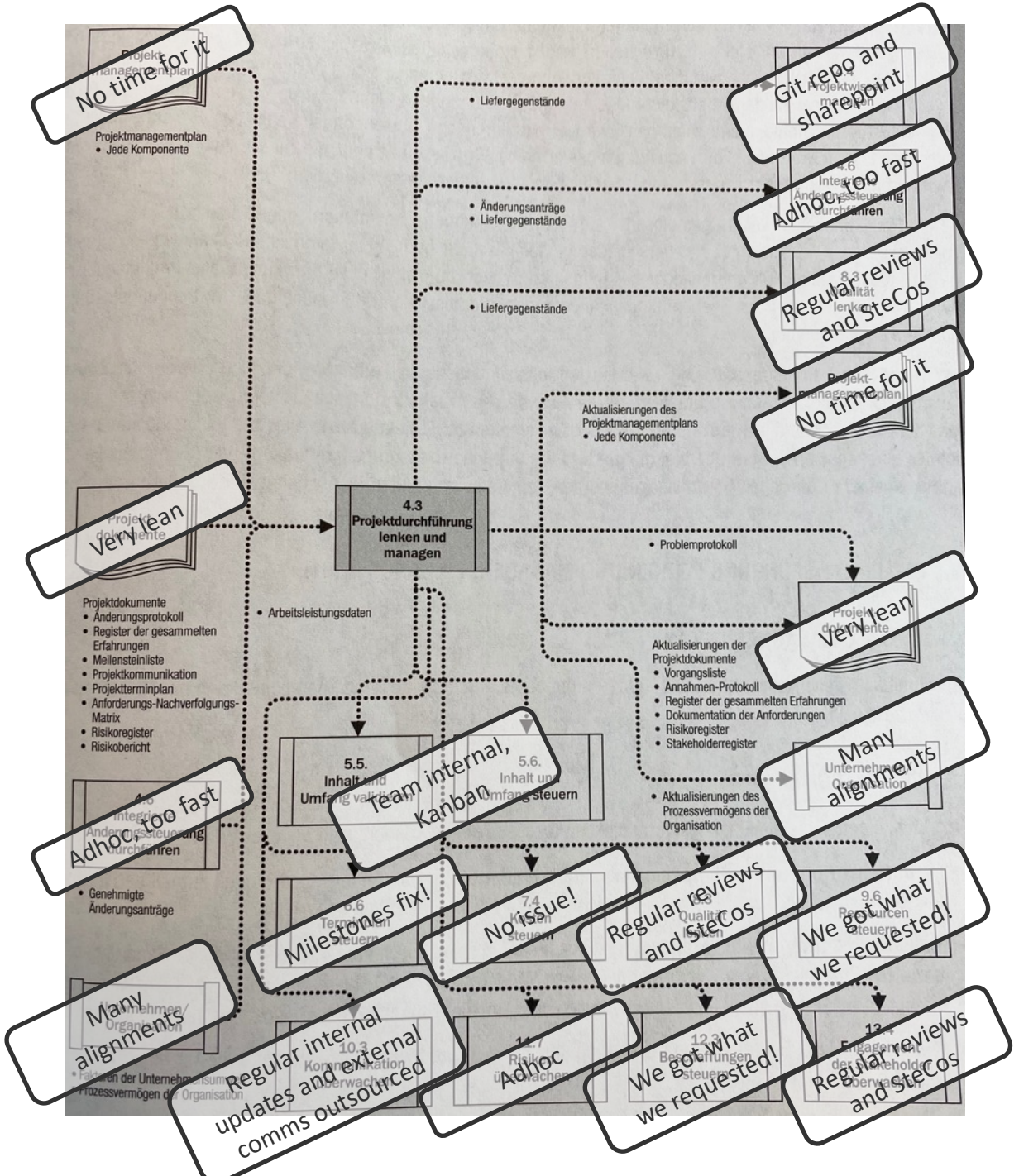
> *Definition, preparation, and coordination of all planning components and their consolidation into a project management plan*

A summarizing and comprehensive document as foundation for all future project tasks

- At least, defines scope, time, and costs
- More documents are defined by knowledge areas
- There is no one template but it strongly depends on your organization, existing checklists, other projects and the project's complexity
- Plan is updatable but requires a change management process

Project Execution

- Use only tools that are required in your project
- Pay attention that you are not overengineering your project management!
- Rule of thumb: Be pragmatic and also question your project manager from time to time



ML Showcase

Knowledge Management

Ensure that competencies, experiences, and expertise can be used during and after a project

- It's not only about documenting and storing knowledge
- Explicit (codified in documents) vs. implicit (only in heads) knowledge
  - Explicit often misses context
  - Implicit is not documented
- Ensure a trustful environment that people are motivated to share knowledge
- Should be done continuously
- Start with personal interactions and switch to virtual later

Some tools (besides presentations and storing files): Networking, virtual coffees, focus groups, shadowing, workshops, or story telling

After Sapphire, we noticed deficits in our knowledge management

Monitoring and Controlling

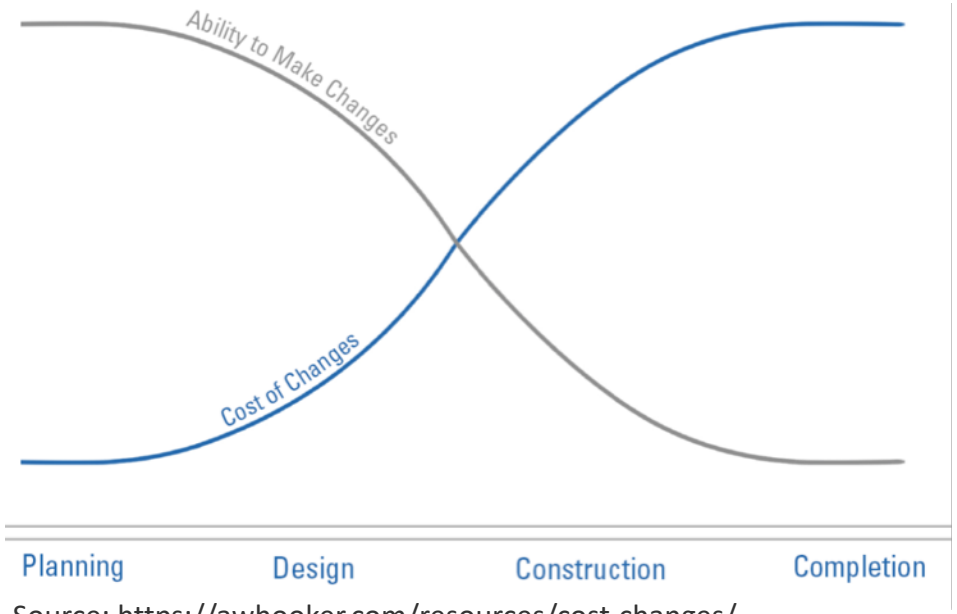
Collect, measure, and evaluate to identify project items that need attention and to start corrective actions

- Target-actual comparison (project state with project management plan)
- Recommendation of project changes
- Review of project risks
- Deliver information for reporting purposes
- Monitoring of approved changes
- Ensure that the project is still fulfilling the business case

Change Management

Change is not a gut decision but should be an aligned process too

- *Written* change request by any stakeholder (triggered external) at any time
- Review of change requests and evaluate consequences of change
- Revise project plans (Costs, schedule,…)
- Approval by responsible person(s) (PM, Executive, Change Control Board)
- Communicate decision and execute (disagree but commit)



Source: https://awhooker.com/resources/cost-changes/

Change is the only constant

Project Closing

Archive knowledge, finish latest project work, and release ressources

- Don’t underestimate the closing of projects
- Check project management plan to ensure all tasks are finished!
- Final report and retrospective with team
- Try to receive feedback from *all* stakeholders
- Celebrate independent of success-level
- Plan handover and follow-ups

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Knowledge Area
Scope Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management: Ensure that the project works on the right things (and only on these)

3. Schedule Management

4. Cost Management

5. Quality Management

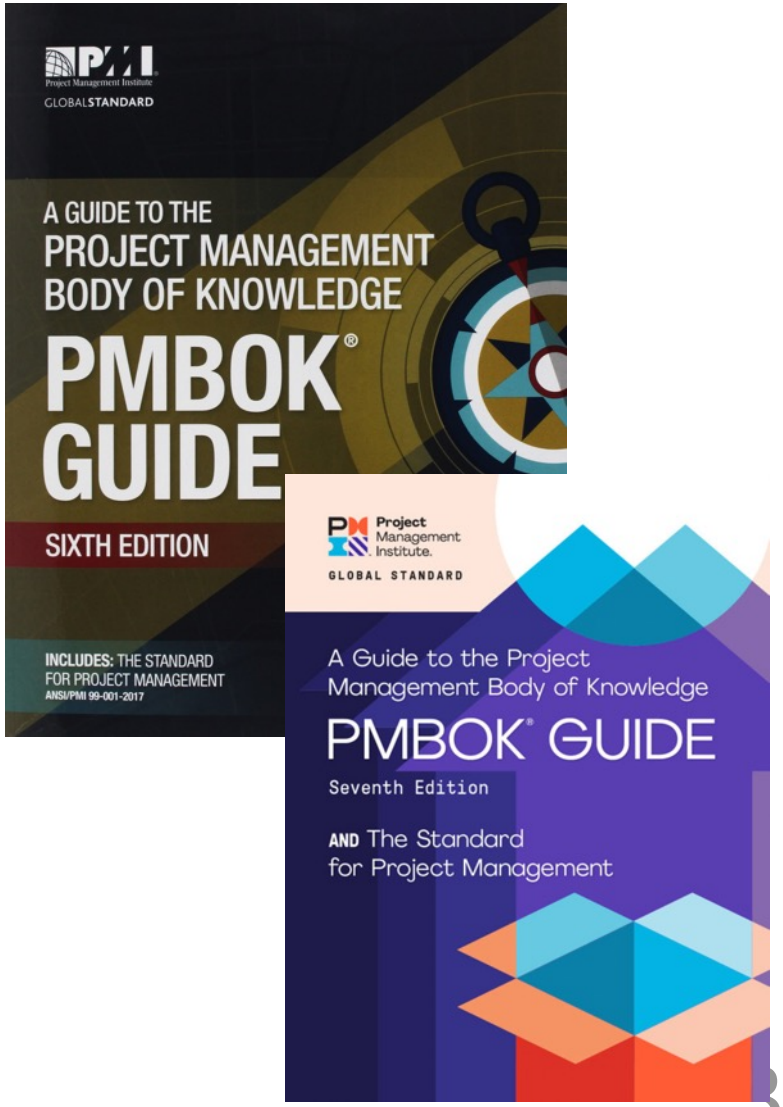
6. Resource Management

7. Communications Management

8. Risk Management

9. Procurement Management

10. Stakeholder Management

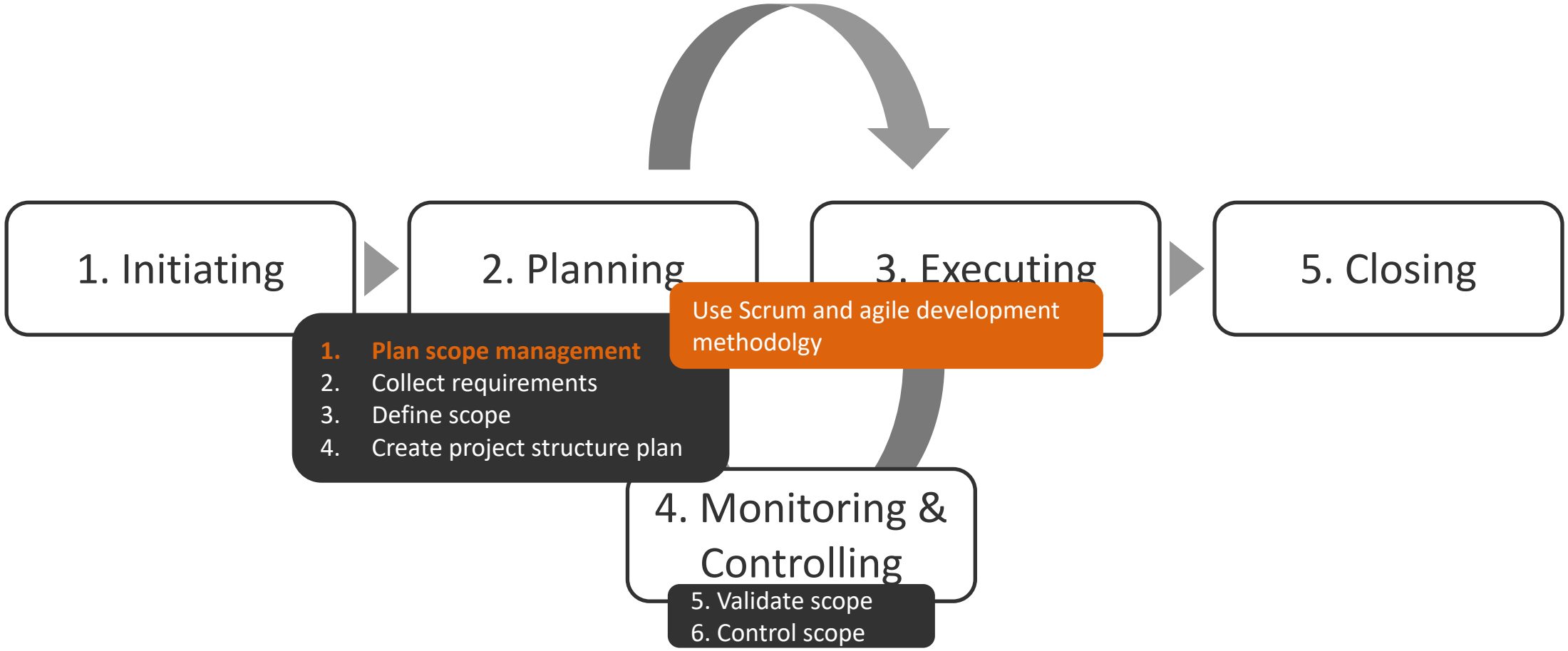


Principles of Scope Management

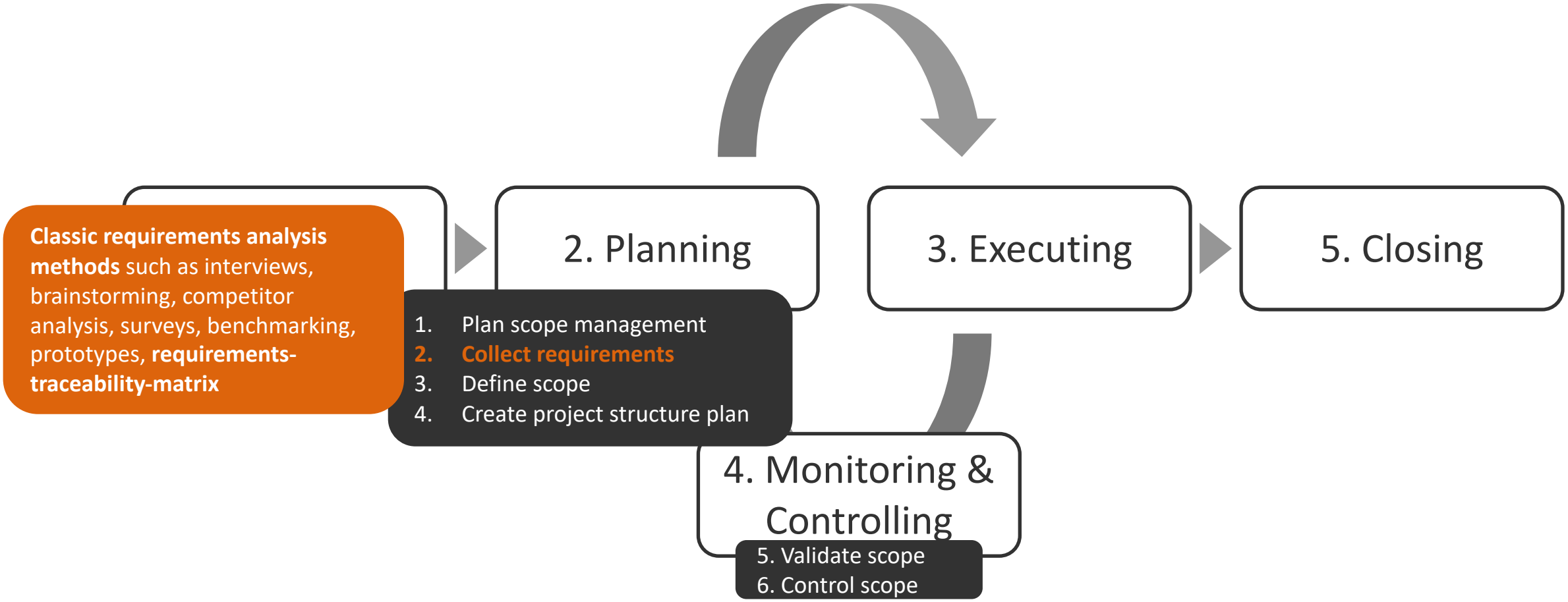
Ensure that the project works on the right things (and only on these)

- Scope is defined on product- or project-level
  - Anticipated (full scope defined at the beginning, everything else is change)
  - Adaptive/agile (scope defined per iteration)
  - Result is defined in product requirement document or project management plan
- Ensure that also out-of-scope items are defined
- In agile development, we can stick to user stories, iteration planning, backlogs etc.

Project Lifecycle for Scope Management



Project Lifecycle for Scope Management



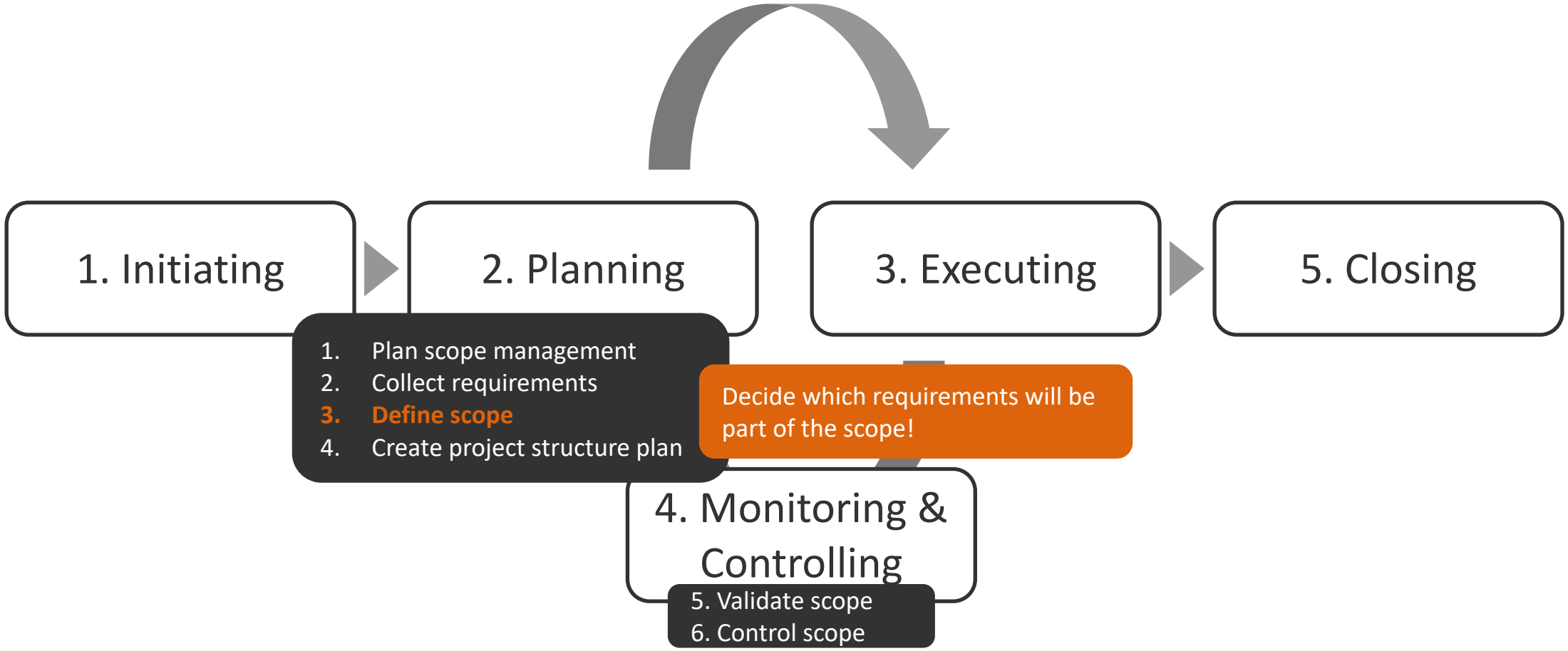
Requirements-Tracability-Matrix

Project Manager:	Bernhard	**Project ID:**	ICN-SP-51
Project Lead:	Michael	**Project Title:**	Sapphire Fashion Showcase

ID	Category	Requirement	Priority	Source	Business Objective	Deliverables	Test Case	Owner	Status
1	Shopping Window	Recognize emotions of visitor	Very High	SVB/Klaus	Showcase AI in Business	PoC on Github incl. deploy script	1001	Thomas	In progress
2	ERP Mockup	Show how the collected data influences S/4HANA	High	S/4HANA team	Connect showcase with SAP portfolio	PowerPoint with S/4 screenshots	Evaluate with S/4	Stephan	Finished
3	Sapphire Setup	Connect with social media account of visitor	Medium	Comms	Connect showcase with SAP portfolio	Generated QR code connected with LinkedIn	---	---	Out of scope

- Overview helps you to keep track of large projects (Big Excel or dashboards)
- Required for change management and reporting
- Adapt template to your project needs!

Project Lifecycle for Scope Management



Project Structure Plan

1. Plan scope management
2. Collect requirements
3. Define scope
4. **Create project structure plan**

Project structure plan (PSP) is a hierarchical partitioning of the project scope

- Split delivery items into smaller components which are easier to handle
- It is complete - 100% rule per layer (neither missing nor needless items)
- On the lowest level, work packages are defined (e.g., user stories, EPICs)
- Work packages can have different templates, size, and complexity

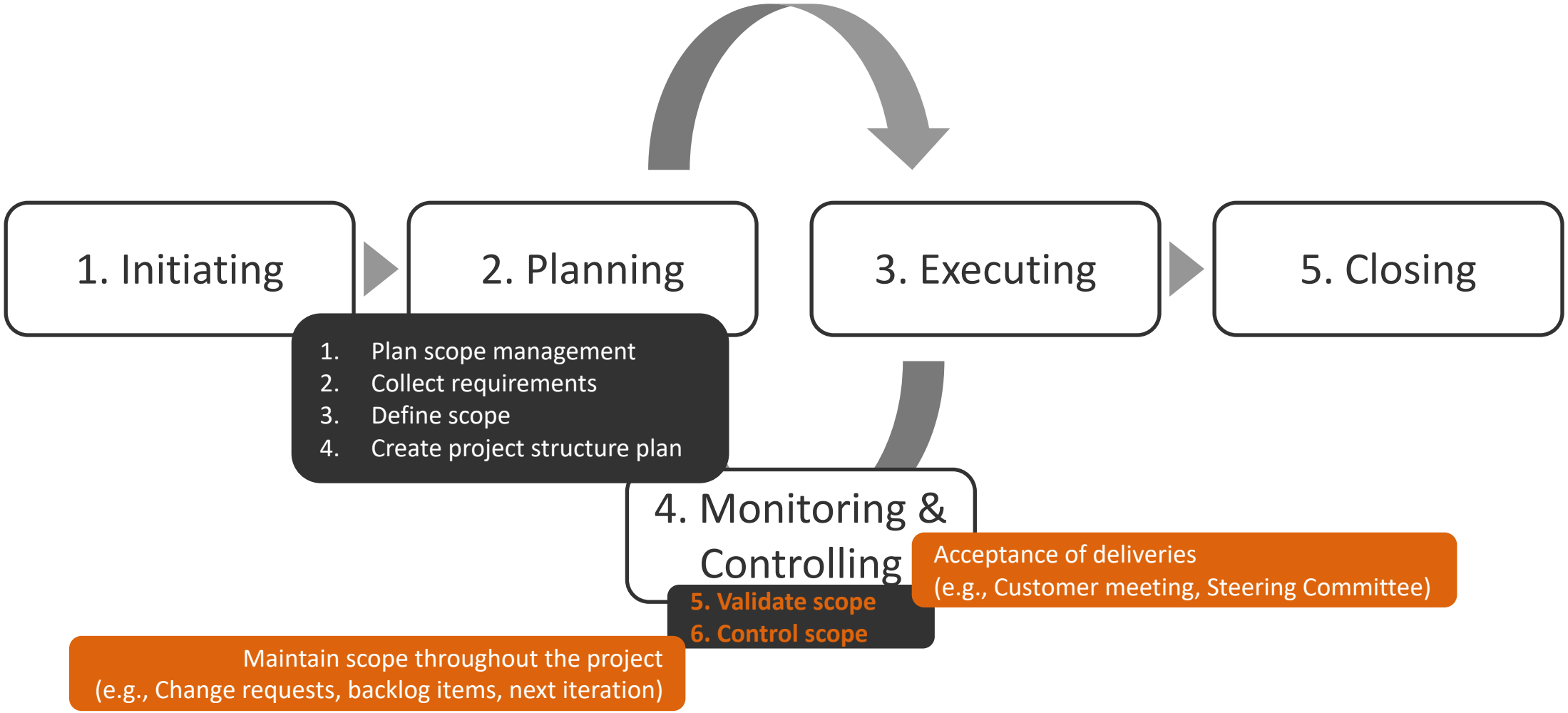
Setup a PSP

- Top down method or bottom up approach
- Can be based on phases, objectives, deliveries, or teams
- Pay attention for dividing it to fine-granular (as well to coarse-grained)
- Future deliveries can be added later

Project Structure Plan (Delivery-based)

1. Plan scope management
2. Collect requirements
3. Define scope
4. **Create project structure plan**

Project Lifecycle for Scope Management



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Knowledge Area
Schedule Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management: Ensure that the project delivers on time

4. Cost Management

5. Quality Management

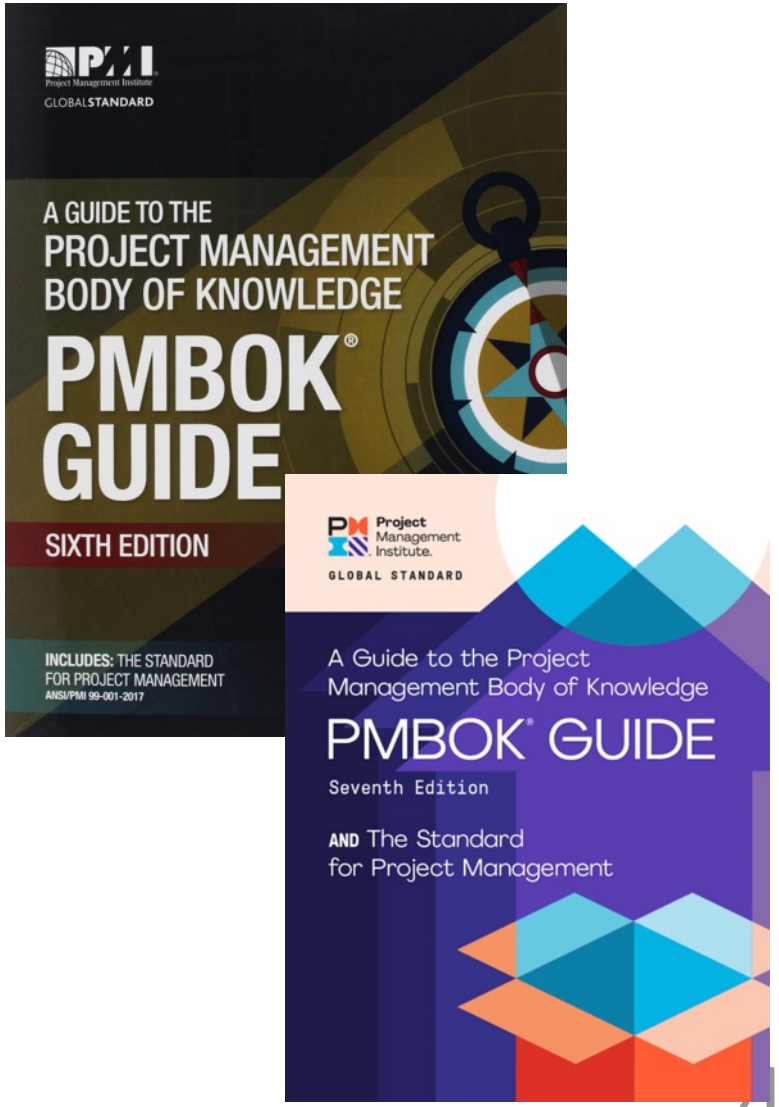
6. Resource Management

7. Communications Management

8. Risk Management

9. Procurement Management

10. Stakeholder Management



Principles of Schedule Management

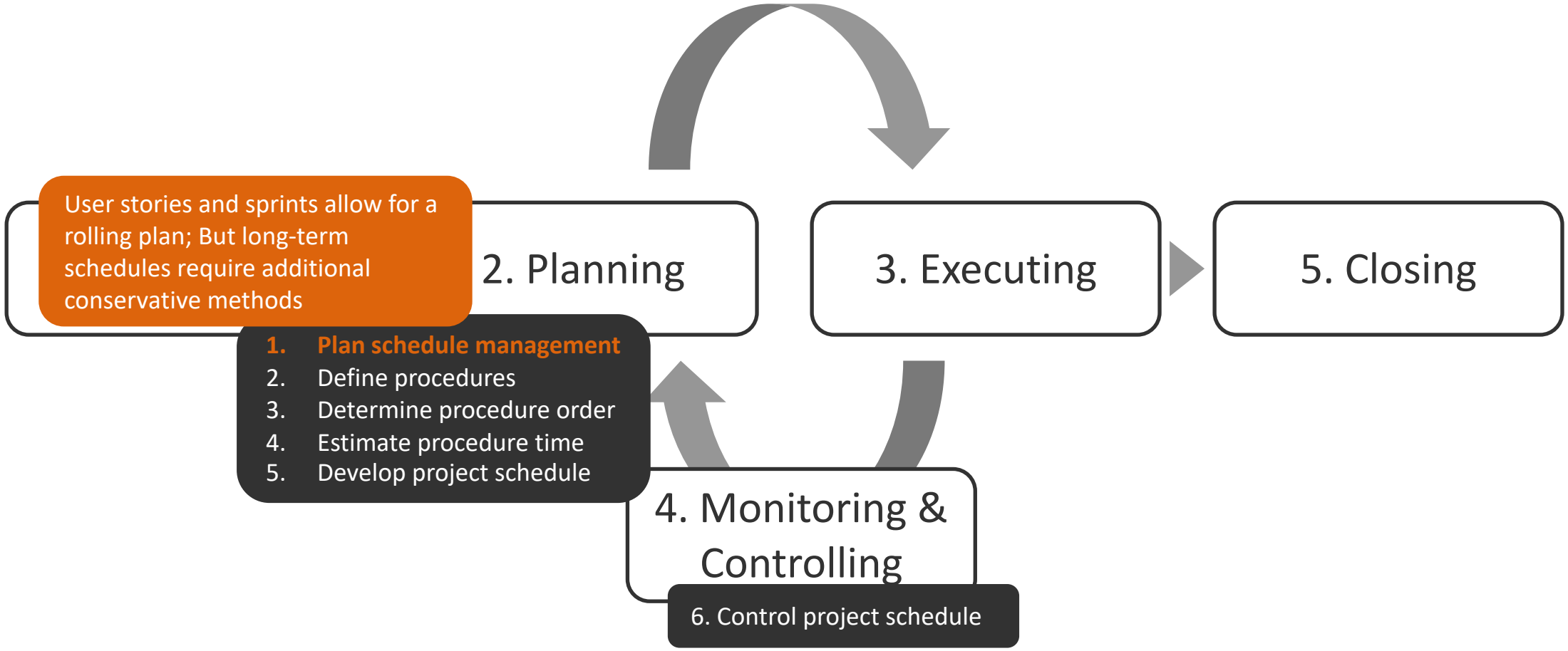
Ensure that the project delivers on time

- Create a detailed *project schedule* how and when a project delivers on scope items (incl. milestones as essential points or events in a project)
- Communicate and manage expectations with stakeholders
- Foundation for reporting and steering the project

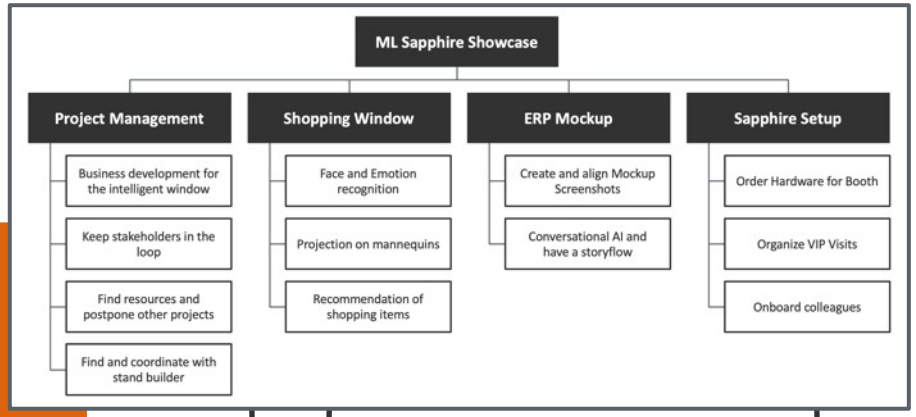
- Keep the project schedule flexible in order to adapt it to new insights, risks, or results
- Don’t underestimate the dependencies between procedures, resources, and domain knowledge – in large projects, a team is required to set realistic deadlines

Example: Semiconductor crisis in automobile industry

Project Lifecycle for Schedule Management



Project Lifecycle for Schedule Management



1. Initiating

2. Plan

ing

5. Closing

Based on the project structure plan, split scope items into procedures for estimation, planning, execution, and controlling

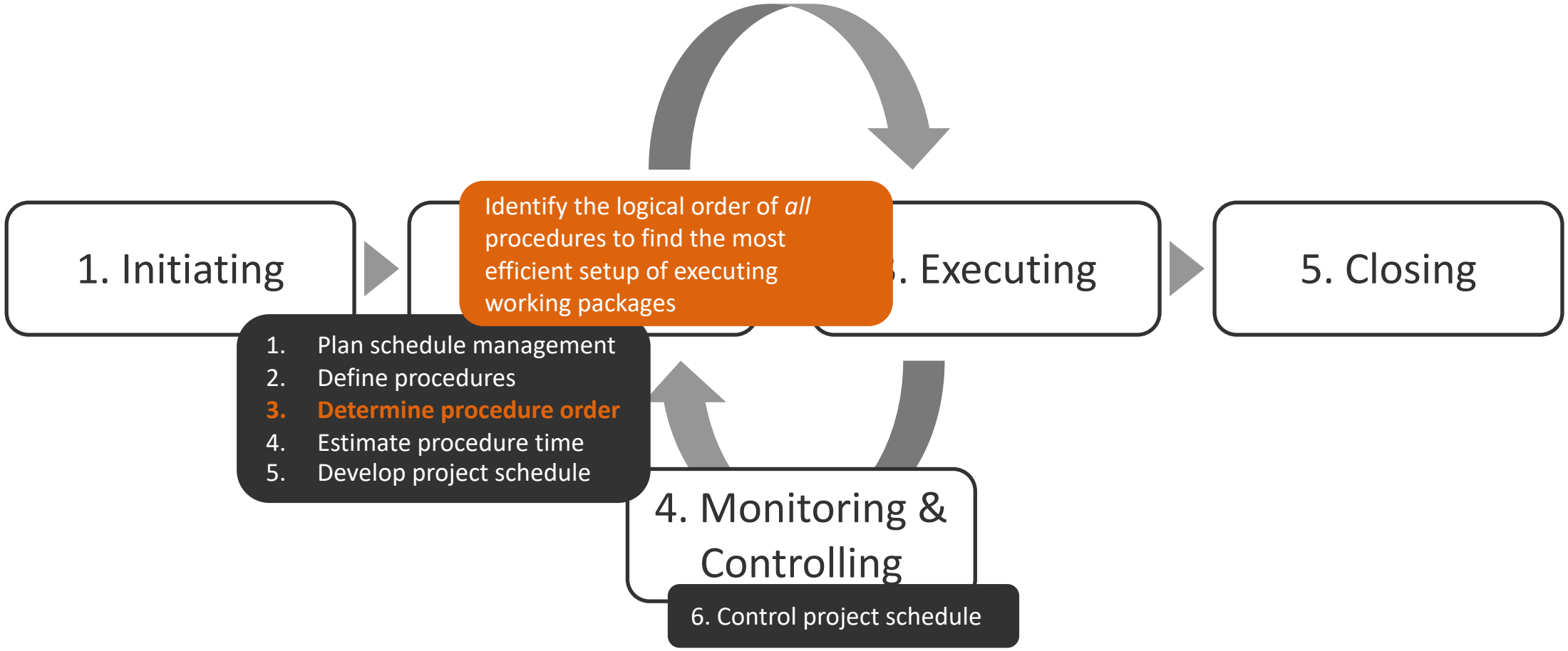
- Involve team for better results
- Identify milestones

1. Plan schedule management
2. **Define procedures**
3. Determine procedure order
4. Estimate procedure time
5. Develop project schedule

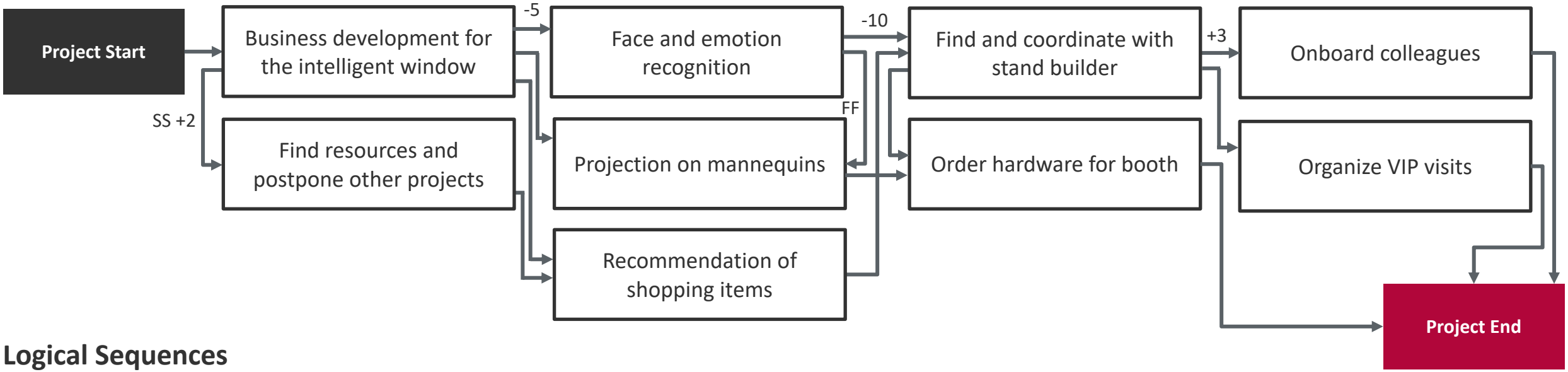
4. Monitoring & Controlling

6. Control project schedule

Project Lifecycle for Schedule Management



Precedence Diagramming Method



Logical Sequences

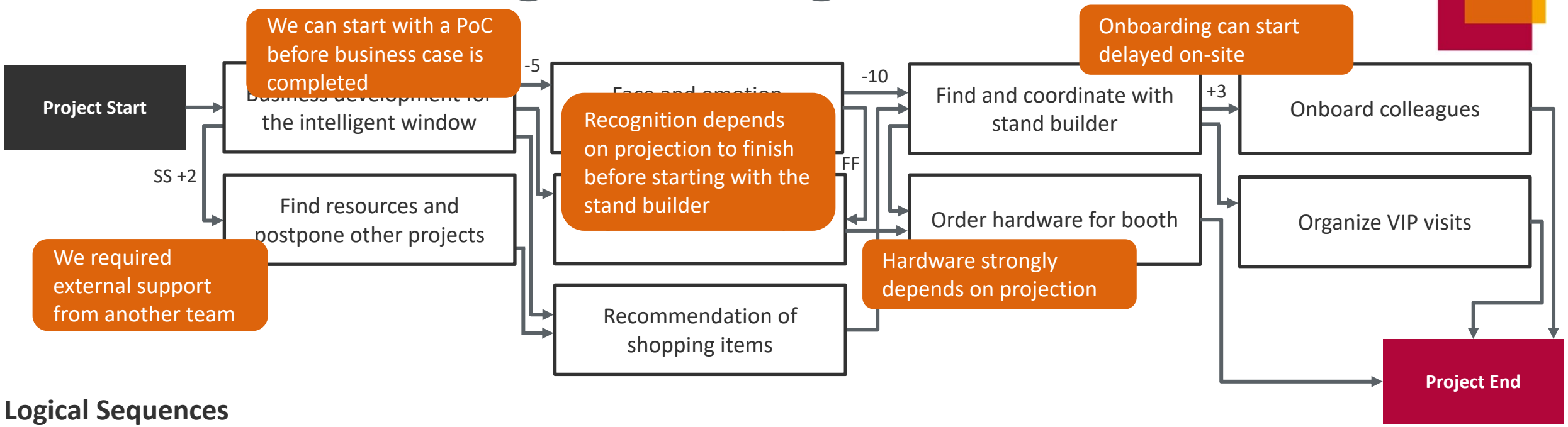
- Finish-to-Start (FS, normal)
- Finish-to-Finish (FF, successor can only finish after predecessor is done)
- Start-to-Start (SS, successor cannot start before predecessor started)
- Start-to-Finish (SF, successor cannot finish before predecessor started)

Numbers

- Lead time (negative, successor can start earlier)
- Follow-up time (positive, delay until successor has to start)

Think about dependencies and best practices!

Precedence Diagramming Method



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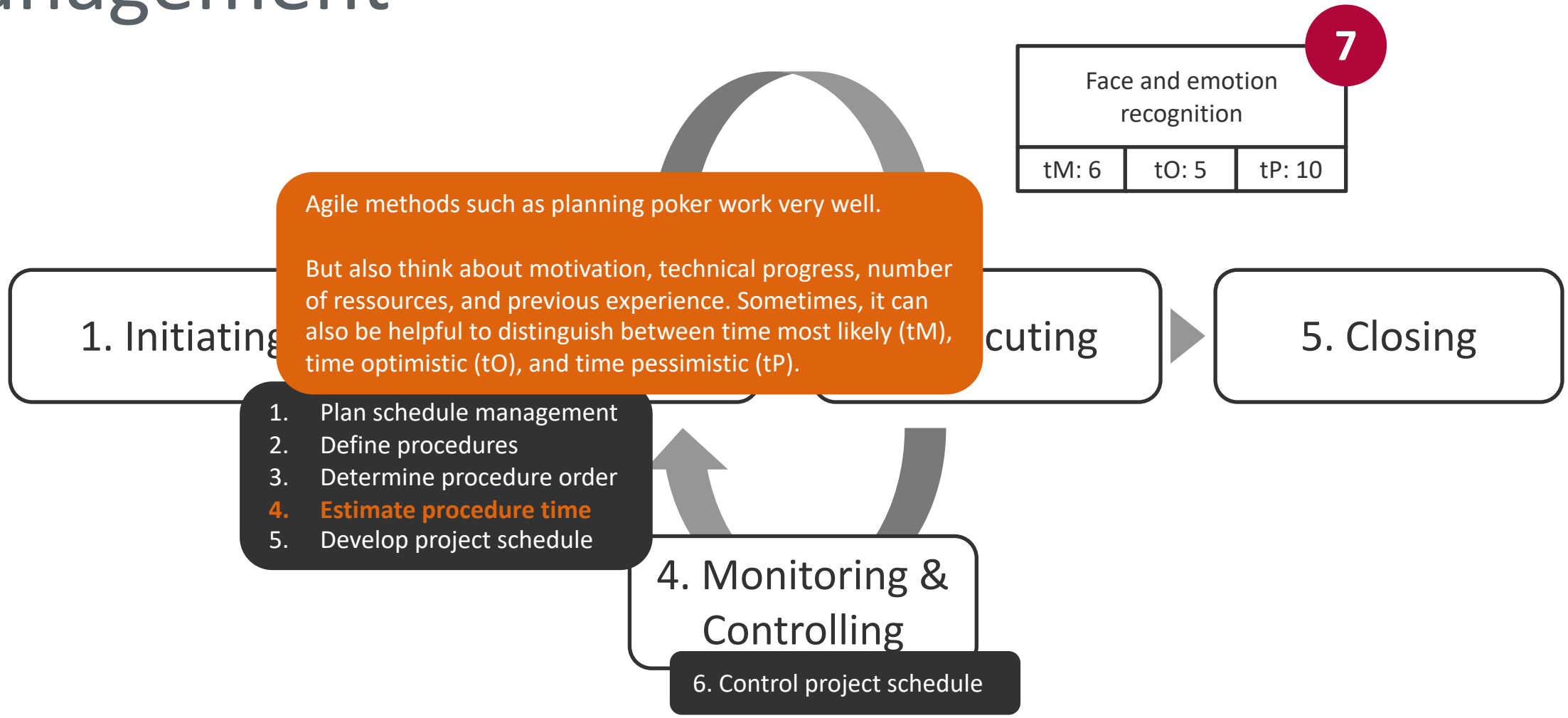
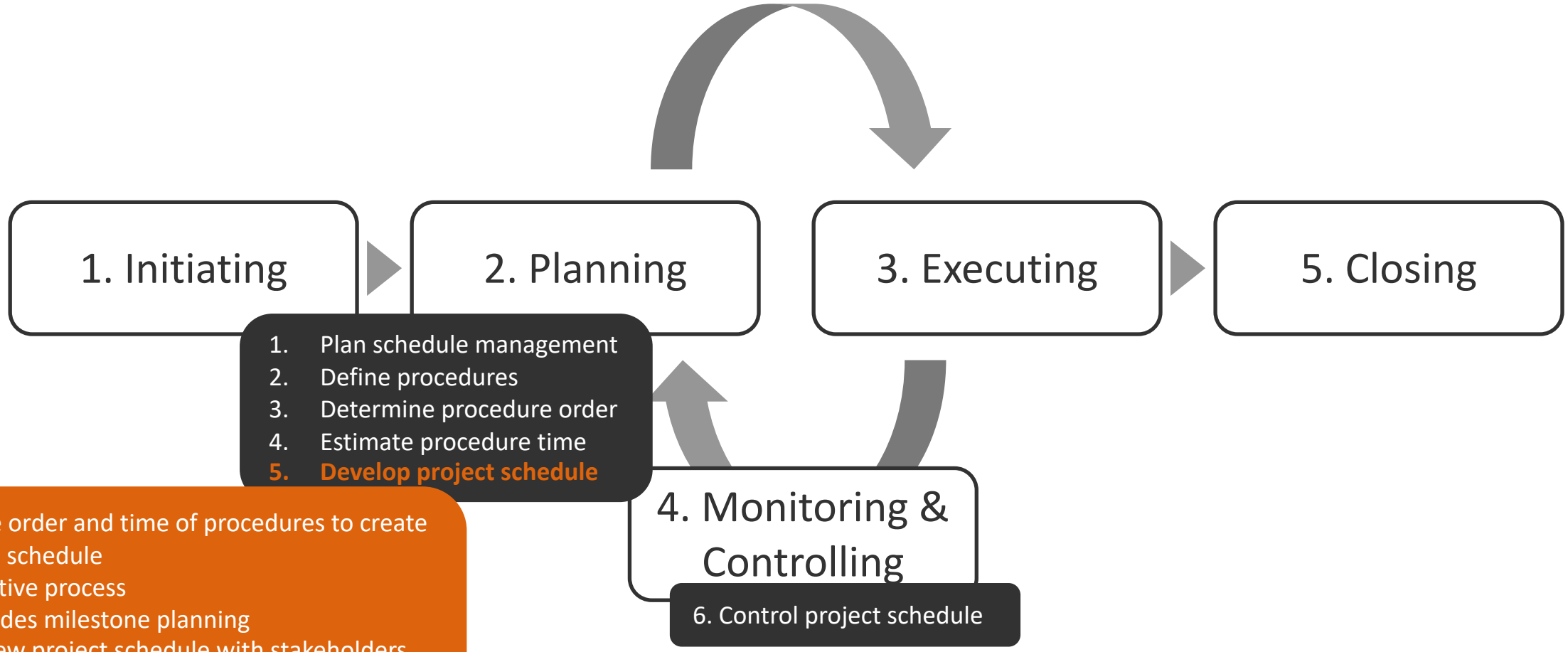
Project Lifecycle for Schedule Management



Project Lifecycle for Schedule Management

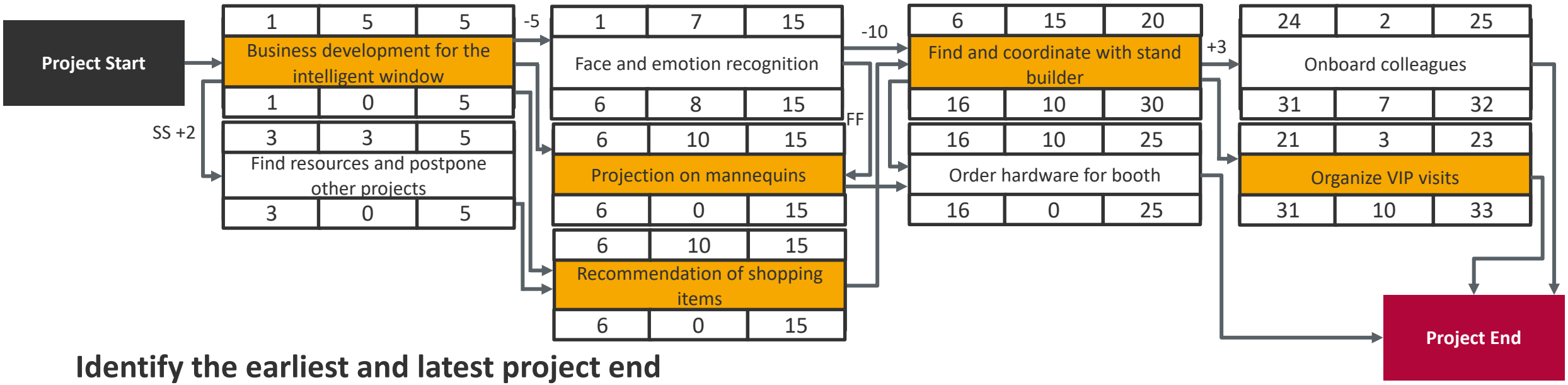


Combine order and time of procedures to create a project schedule

- Iterative process
- Includes milestone planning
- Review project schedule with stakeholders

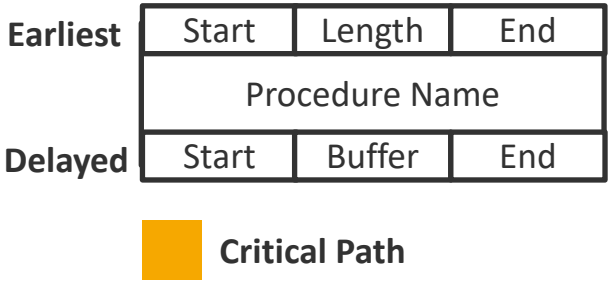
Agile release planning is limited to the current release and the product roadmap (w/o timing)

Critical Path Method

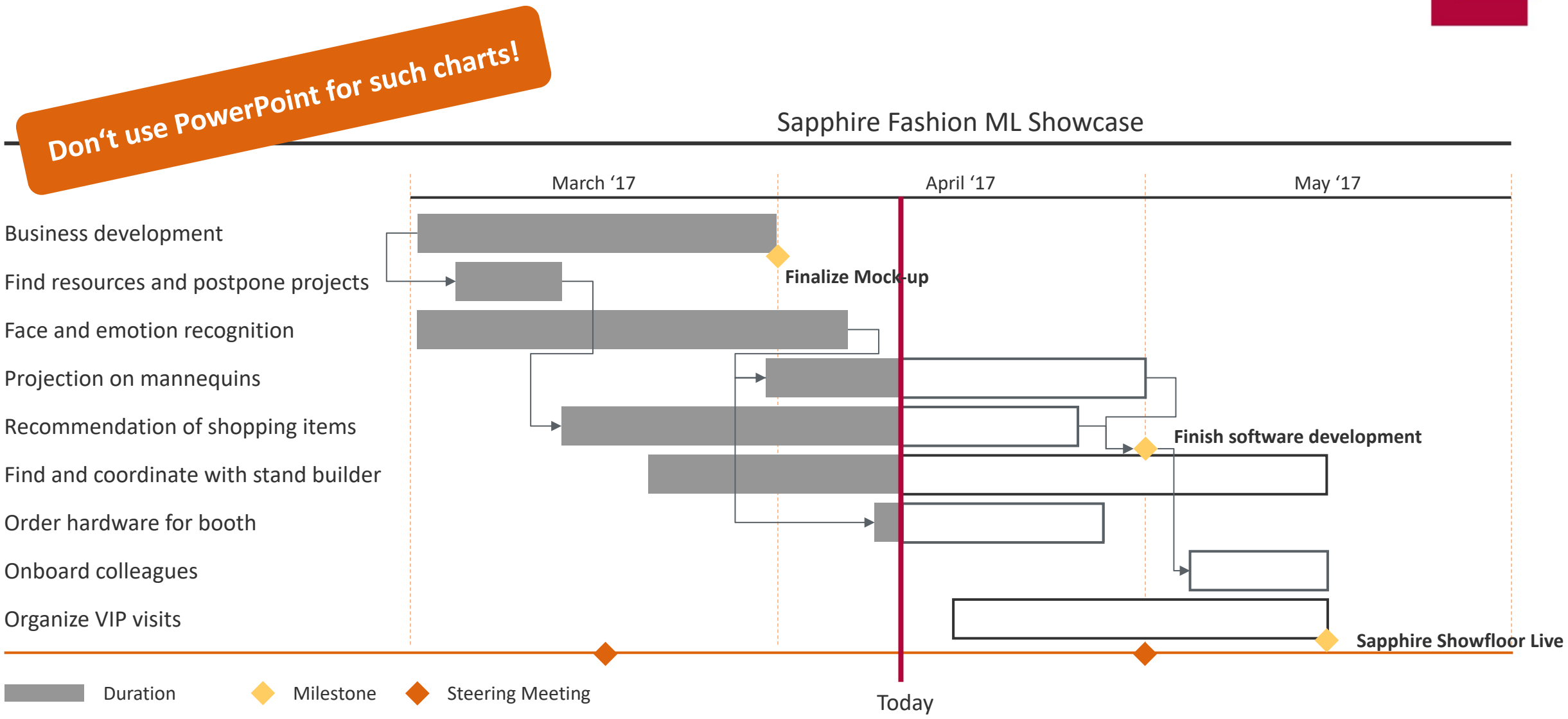


Identify the earliest and latest project end

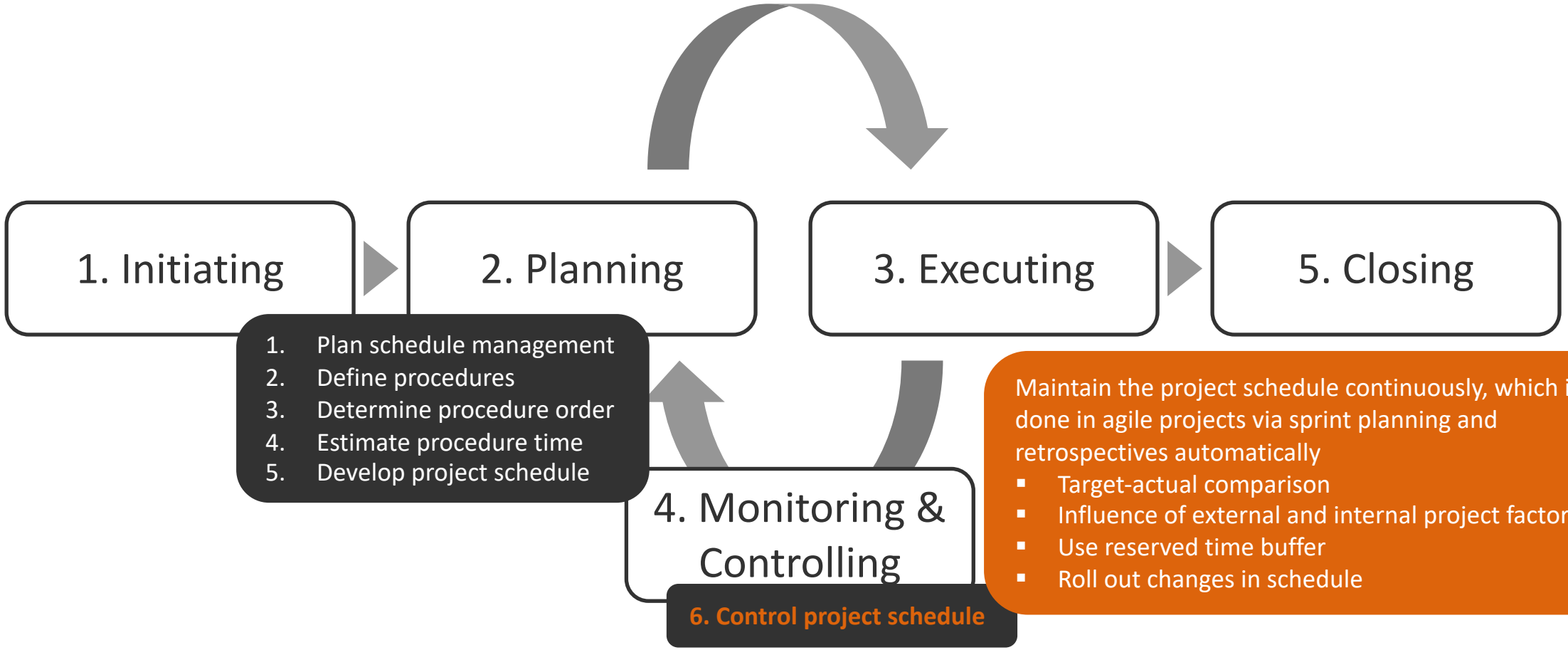
- Assume no resource restrictions in the beginning, adapt schedule later
- Identify riskful paths and acceleration possibilities (What-if analysis and simulation)
  - Crashing (adding ressources) leads to higher costs
  - Fast tracking (overlap working packages) increases risk
  - Change estimates, lead and follow-up times



Project Schedules via Gantt Chart



Project Lifecycle for Schedule Management



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Knowledge Area
Cost Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management: Ensure that the project stays within budget

5. Quality Management

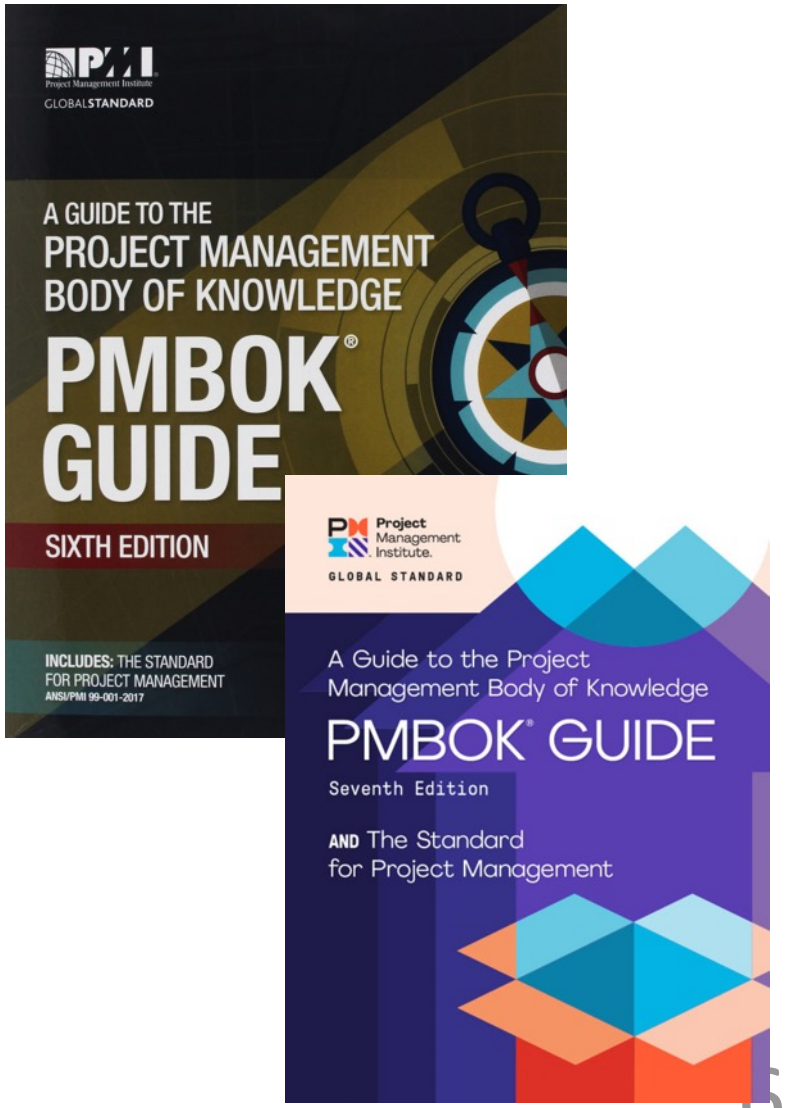
6. Resource Management

7. Communications Management

8. Risk Management

9. Procurement Management

10. Stakeholder Management



Principles of Cost Management

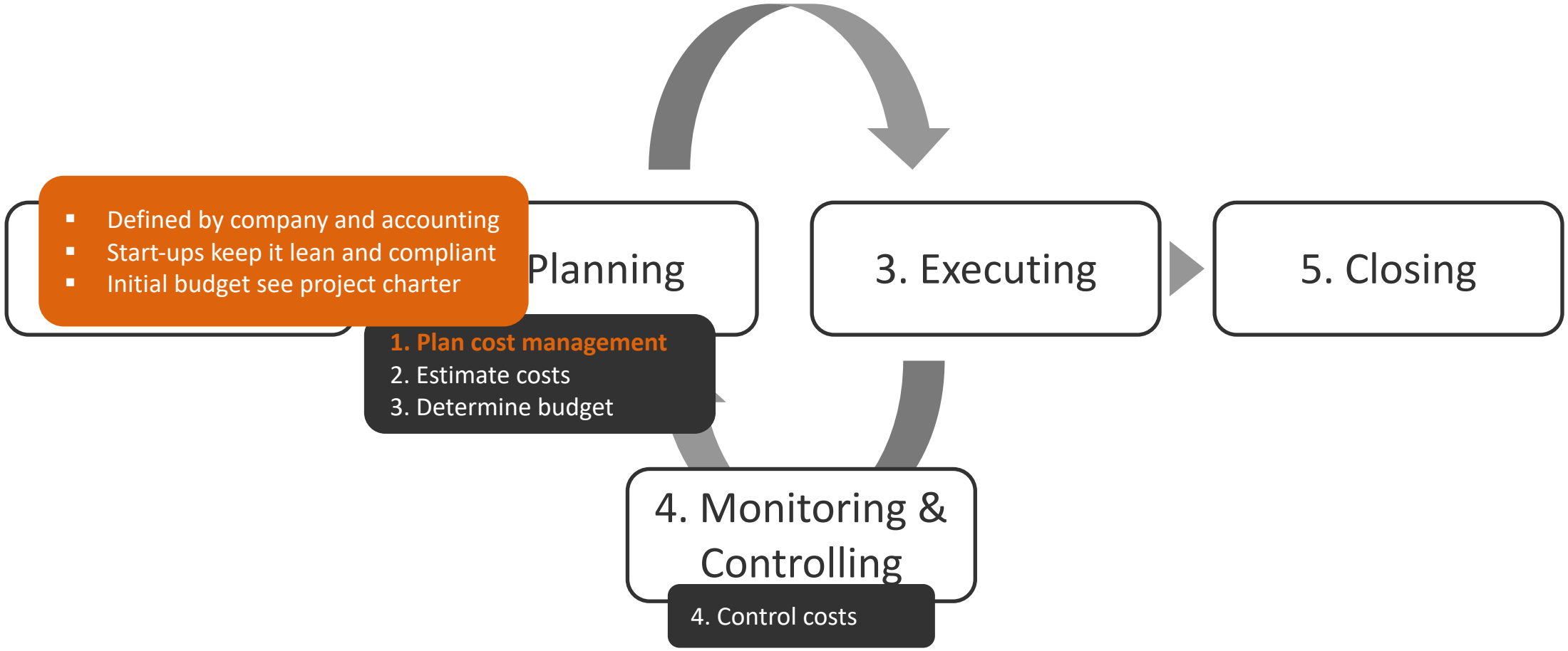
Ensure that the project stays within budget

1. Costs for resources which are required to finish the project
2. Influence of project decisions on (repeatable) costs for usage, maintenance, and support of deliveries, e.g., limit quality assurance to save primary costs
3. Forecasting cost-benefit of final product *can* be part of the project itself

Budgeting is a topic on its own

- Usually, guidance from company (templates, budget presets, controller,…)
- Different stakeholders, different cost measurements, e.g., personal costs (FTEs), internal vs. external costs, types of budgets
- Agile projects often apply simplified estimates, have more iterations and only a high-level forecast BUT struggle with long-term, risks, and exceptions

Project Lifecycle for Cost Management



Cost Basis

1. Plan cost management
2. **Estimate costs**
3. **Determine budget**

Forecast the project's financial needs and get approval for budget

- Based on project structure plan
- Iterative process incl. refinements
- Estimate ***all costs*** of a project
- Look for alternatives to save costs

Add risk costs - the known unknown

No.	Description	Plan	Type	Risk	Risk reason
4	Sapphire Setup	€ 136.500,00		€ 11.000,00	
4.1	Order hardware for booth	€ 136.000,00		€ 10.000,00	Higher setup costs
	Projector	€ 12.000,00	Material		
	Mannequin	€ 4.000,00	Material		
	Computer	€ 5.000,00	Material		
	Displays	€ 10.000,00	Material		
	Booth	€ 100.000,00	External costs		
	IT Setup	€ 5.000,00	External costs		
4.2	Organize VIP visits	€ -		€ 1.000,00	Add. expenses of VIPs
	gues	€ 500,00		€ -	
		€ 500,00	(internal) Labor costs		

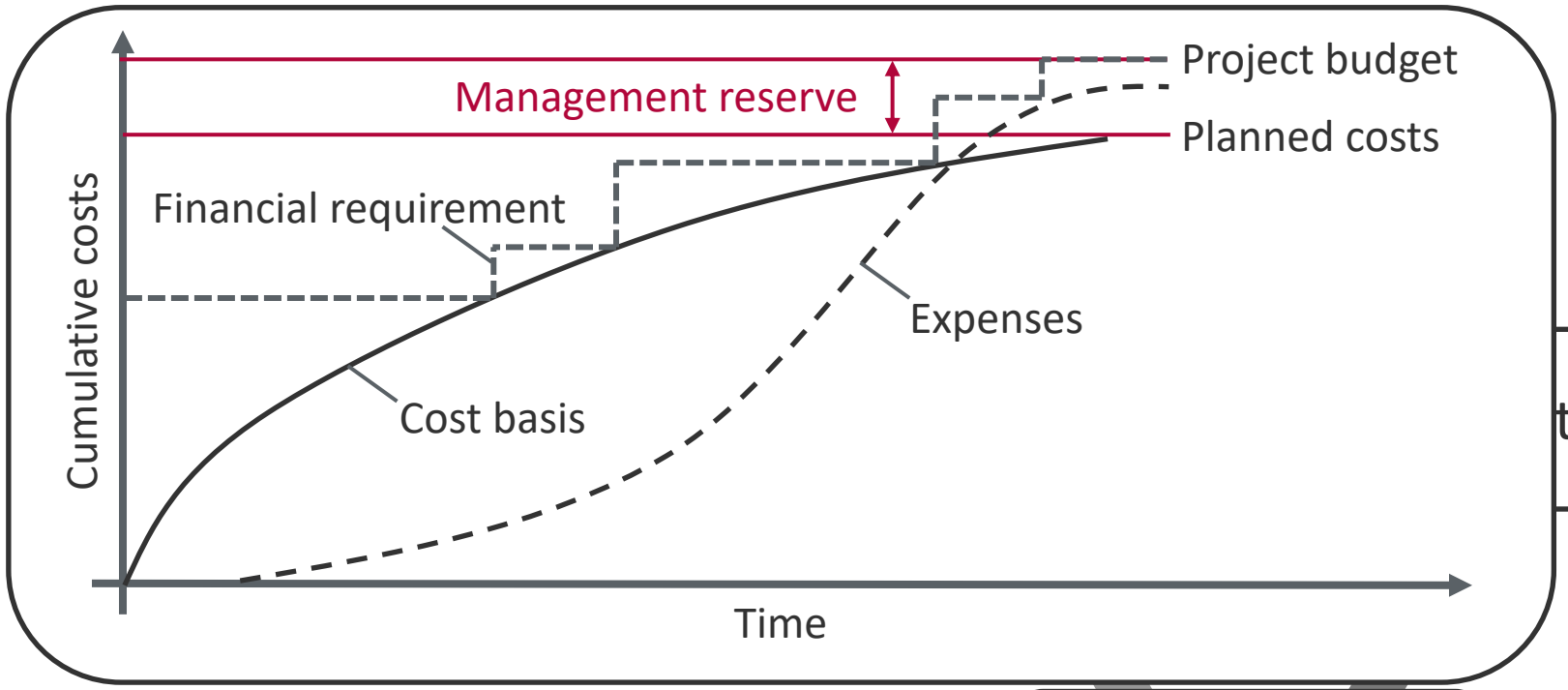
Sum up estimated costs

Project Budget = cost basis + risks costs + mgt. reserve = 160k€

Always have a management reserve! (Should be unknown to project manager)

Excel is a powerful tool

Project Lifecycle for Cost Management



ting

5. Closing

4. Monitoring & Controlling

4. Control costs

Maintain cost basis and continuously compare target-actual costs and delivered results

- Control and adapt cost basis
- Ensure budget stays in limits
- Budget increase is part of a change request (Much effort)!

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Knowledge Area
Quality Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management

5. Quality Management: Ensure quality expectations of stakeholders

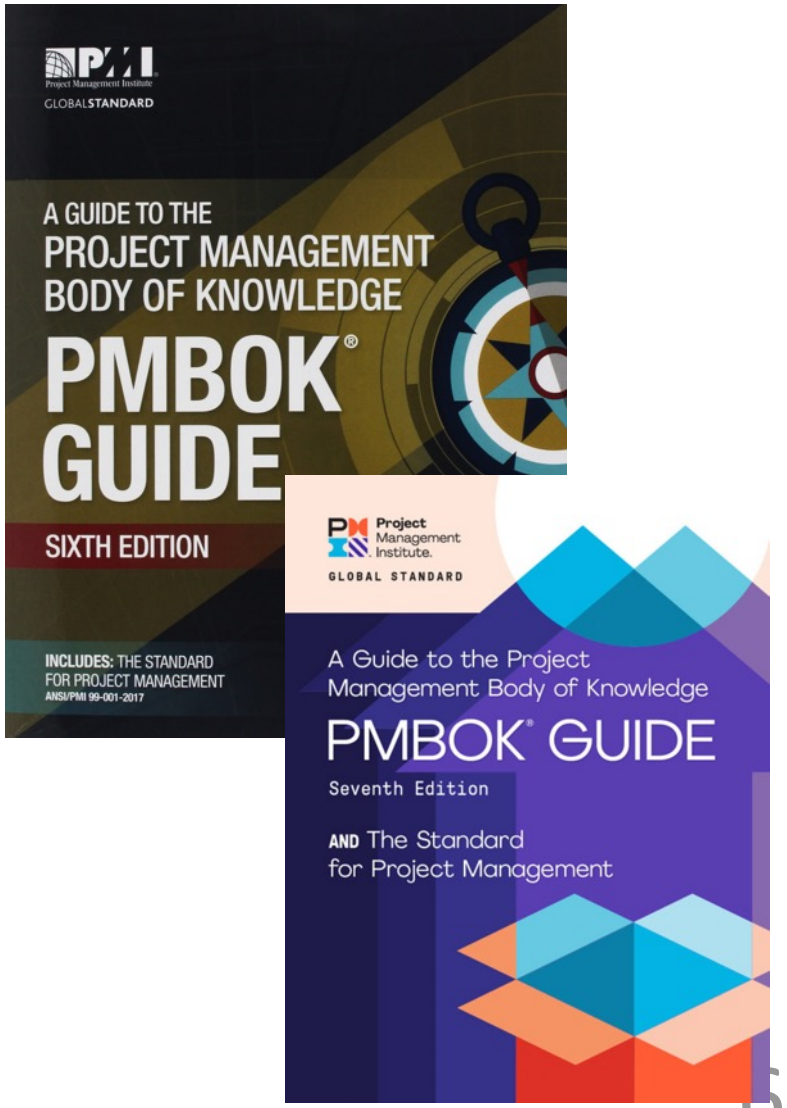
6. Resource Management

7. Communications Management

8. Risk Management

9. Procurement Management

10. Stakeholder Management



Principles of Quality Management

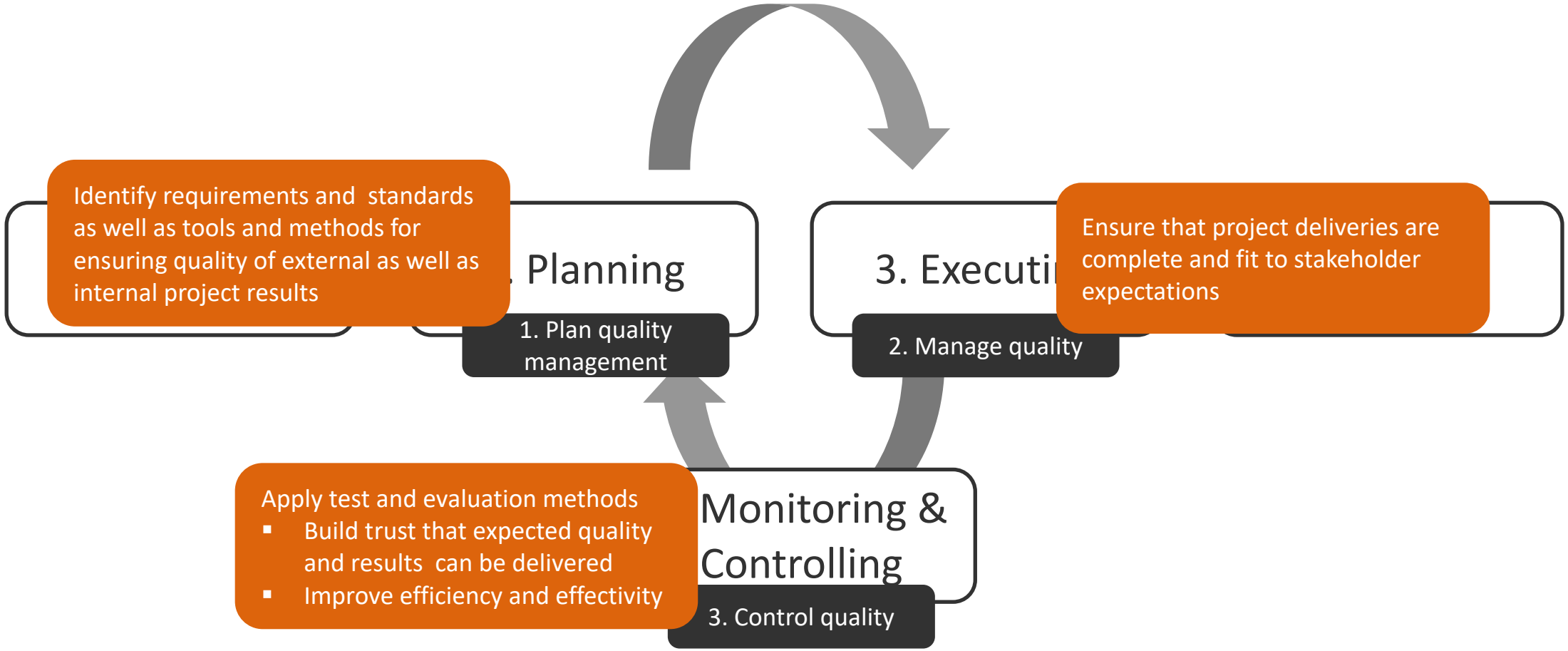
Ensure quality expectations of stakeholders

- Non-fulfilment of quality can lead to project fail
- Quality management involves *all* stakeholders
- Prefer prevention over inspection (The earlier you find an issue the cheaper)
- Continuously improve project management and processes as well (retrospectives)
- Ensure enough resources for quality assurance
- Quality is measurable and should be reported

- Quality (degree of how a requirement is fulfilled) vs.
  product class (same functionality different implementation)

Quality expectations are part of the definition of done

Project Lifecycle for Quality Management



Quality Key Performance Indicator (KPI)

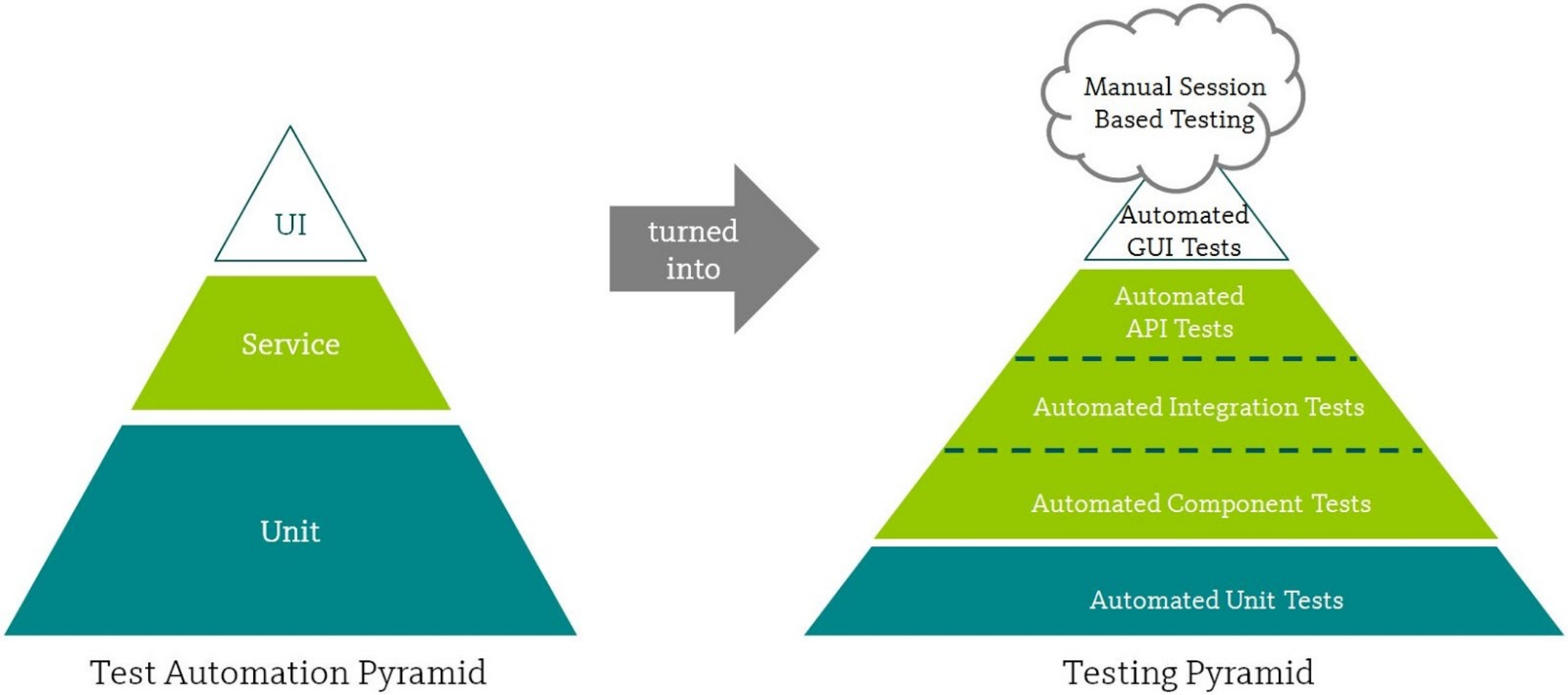
> *A quality KPI defines a project or product attribute which will be verified during process "control quality".*

Examples

- Number of (non-)delivered features, tasks, or work packages
- Service level agreements (Up-time, run-time, latency, throughput)
- Failure rate of product or number of failures per line of code
- Customer satifcation (Net-Promoter-Score (NPS))
- Test coverage

Keep in mind that KPIs will have tolerances

Test Pyramid?!



Source: http://thatsthebuffettable.blogspot.com/2016/03/why-i-still-like-pyramids.html

Quality Costs

Conformity costs

Costs to prevent failures

Prevention costs

(Produce a high quality product)

- Training
- Document processes
- Necessary resources
- Time to do it right

Appraisal costs

(Estimate quality)

- Execute tests
- Inspection
- Crash and chaos tests

Non-conformity costs

Costs due to failures

Internal failures

(Identified by project team)

- Rework
- Trash

External failures

(Identified by customers)

- Liabilities
- Warranties
- Business losses

Checklists

Example: Creation of a new Strategic Project

- ❑ Create Strategic Projects Ticket (based on template)
- ❑ Create new ticket in L1 unit portfolio (link to project ticket)
- ❑ Save mission initial e-mail
- ❑ Add new project to goals and OKRs (Objectives and Key Results)
- ❑ Communicate new project in next team meeting (team and management)
- ❑ Find people who want to work on it (adapt ticket in strategic projects)
- ❑ Create Follow-ups (e.g., put slides or add demo link to our JAM page, add a new Kaleidoscope entry, LinkedIn Post)
- ❑ Define how to measure success (not only done)
- ❑ Opt. create project charter and setup project

Sounds obvious but will help a lot! Or you will forget something.

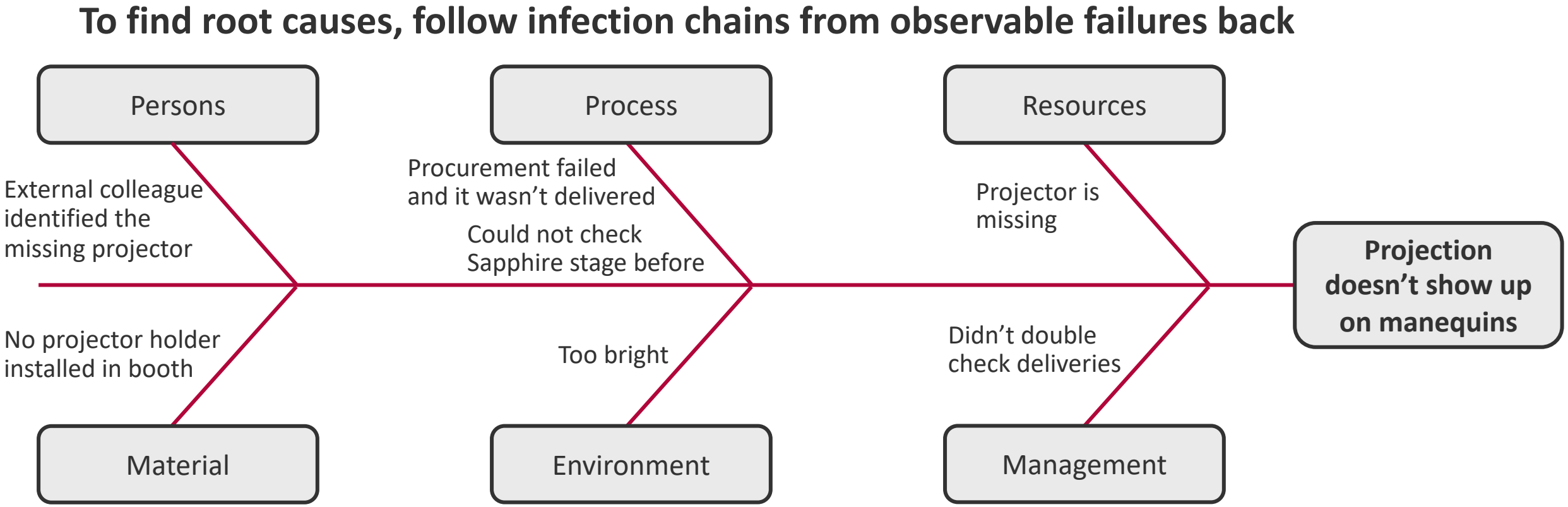
Remark: **Audits** are structural and independent processes which will use (public) checklists to ensure compliance with company or outside practices

Root Cause Analysis

Remember

Projection doesn’t show up on manequins

Root Cause Analysis



If you remove a root cause, then all observable failures are gone and won't happen again – if not, it was not the (only) root cause.

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Knowledge Area
Resource Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management

5. Quality Management

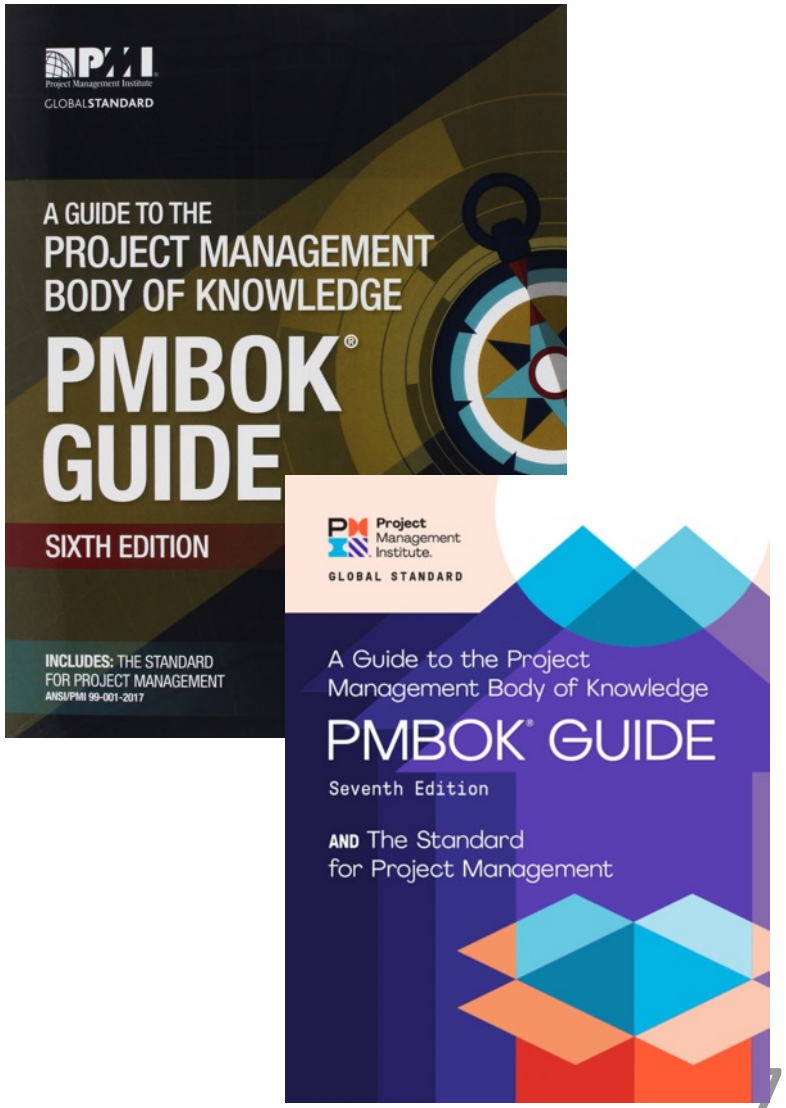
6. Resource Management: Identification, provisioning, and management of required resources

7. Communications Management

8. Risk Management

9. Procurement Management

10. Stakeholder Management



Principles of Resource Management

Identification, provisioning, and management of required resources

Ensure that right resources are available at the right time and at the right place

Human resources

- Project team consists of persons with different roles and responsibilities
- Humans are different (skills, character, needs, history and future)
- Leading is more than managing (motivation, empowerment, role model, development of an effective group, and trust to get the job done)

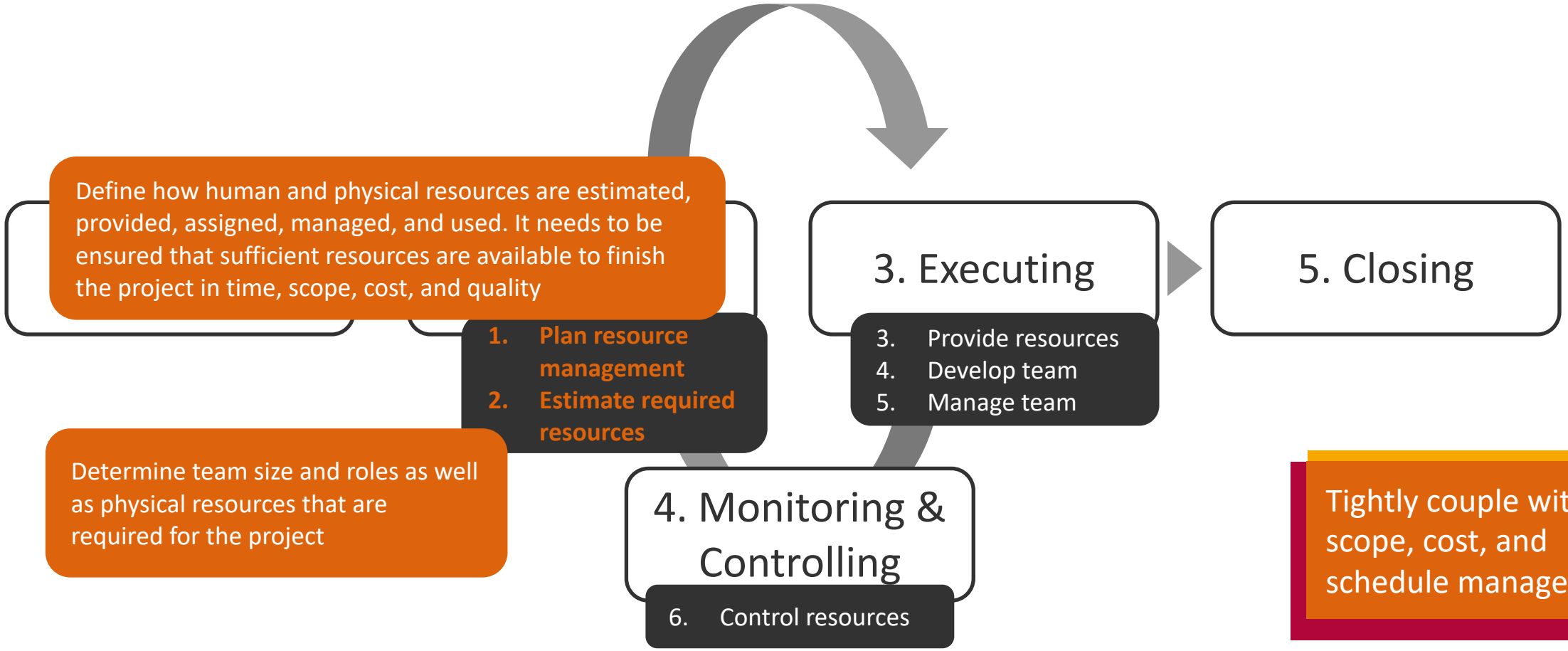
Physical resources

- Material, equipment, digital assets, utilities,…
- Efficient and effective use of resources (today and in the future)
- Risk source

Use lightweight methods in projects which are difficult to predict

You are a resource!

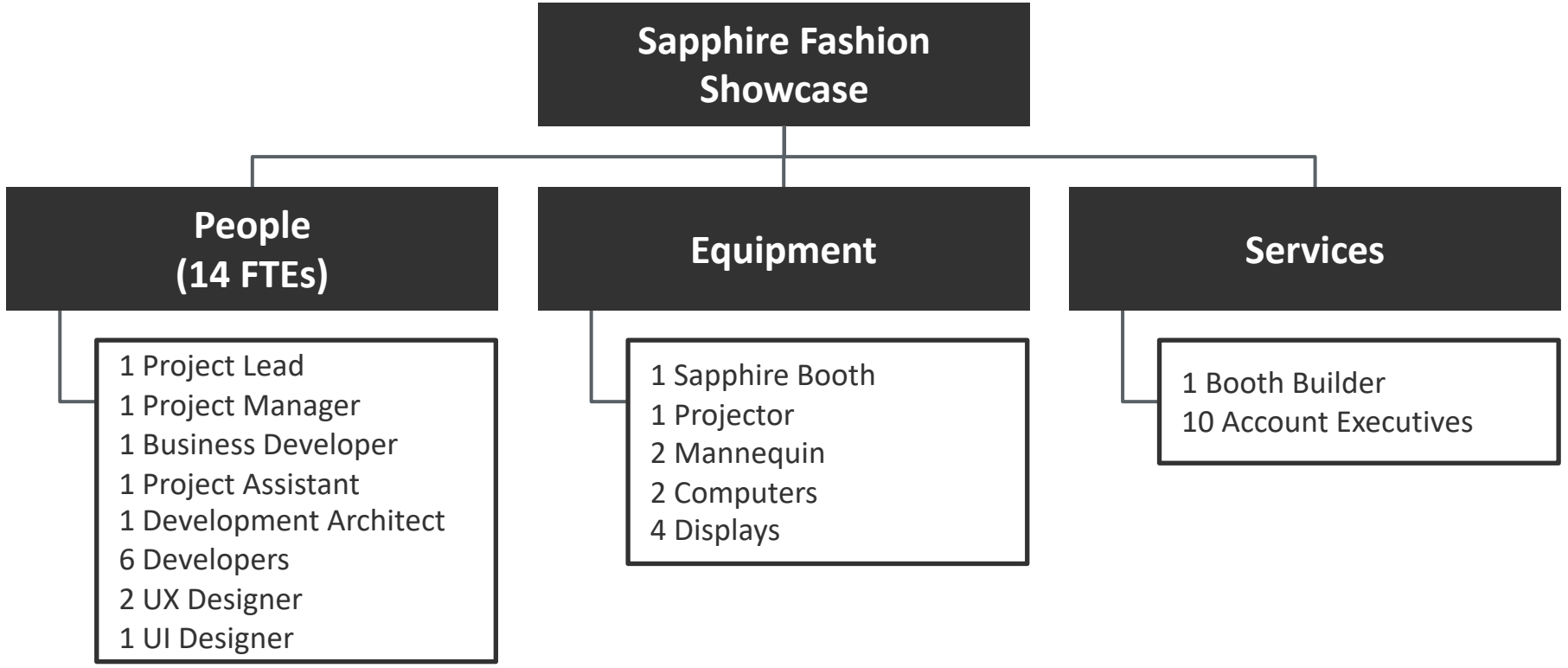
Project Lifecycle for Resource Management



Resource Structure Plan

Identify required resources per project or working package

- Hierachical view on categories and types of resources (Excel is the tool of choice)
- Required for acquiring and monitoring resources

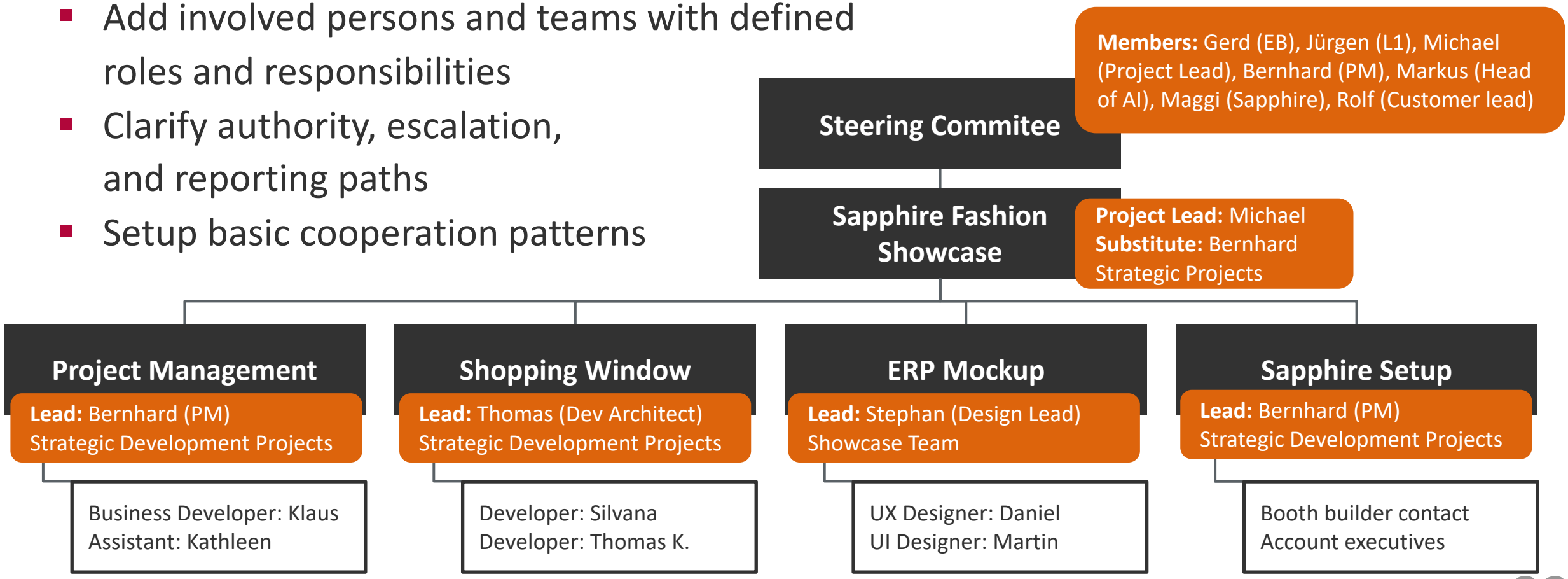


For software development, we focus on human resources

Project Organigram

Based on Project and Resource Structure Plan (Alternative as table)

- Add involved persons and teams with defined roles and responsibilities
- Clarify authority, escalation, and reporting paths
- Setup basic cooperation patterns



Responsibility Assignment Matrix (RACI Chart)

Assign project resources and their responsibilities to each working package

- R = Responsibility, A = Accountable, C = Consult, I = Inform
- Transparency for the entire project team in order to prevent conflicts, uncertainties, and overloading of resources
- High maintenance effort and confusing for finest level of granularity

Working Package	Steering Committee	Jürgen (L1 Manager)	Michael (Lead)	Bernhard (PM)	Strategic Dev Team	Showcase Team
Business development for the intelligent window	I	A	R	R	I	I
Face and emotion recognition		I	A	R	R	I
Create ERP Mockup		I, C	I	I	I	A, R
Order hardware for booth		A	R			C

Ideally, only one R and A in one resource per task
Preferably few C and I

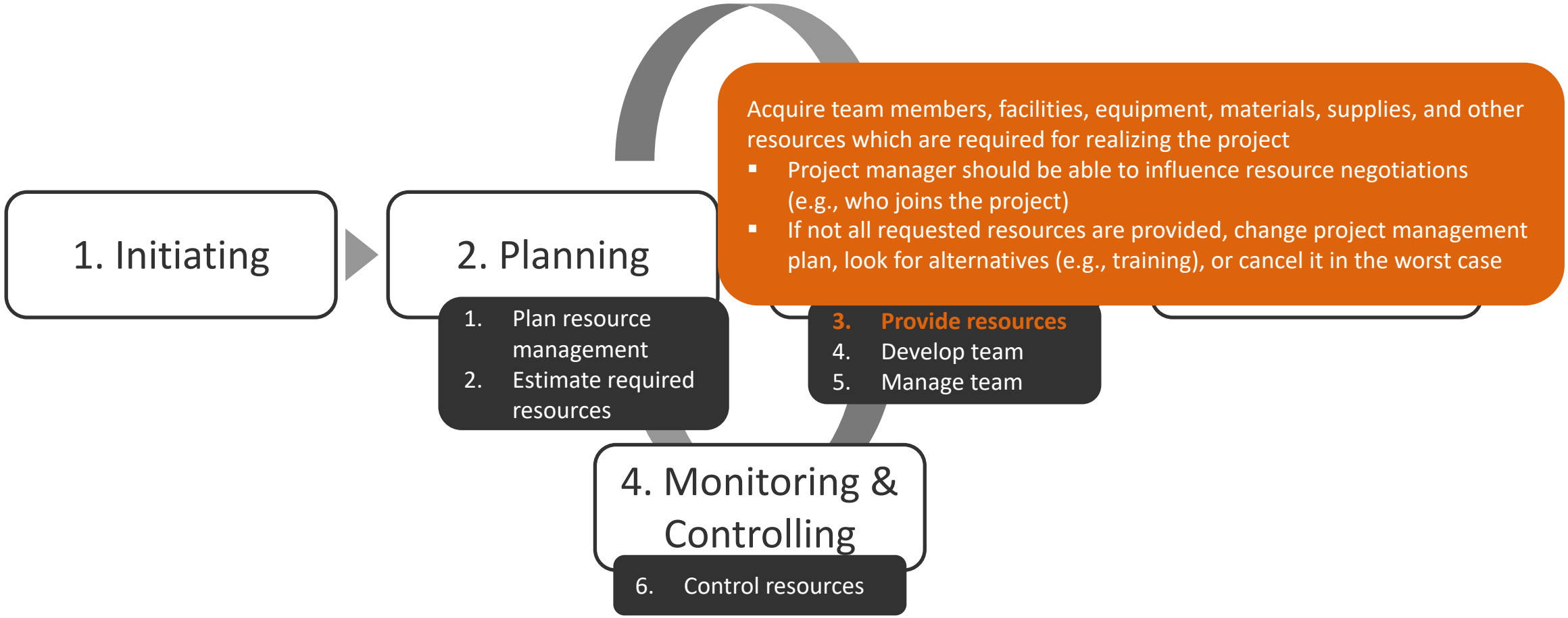
Resource Calendar

Define when and where resources are available

- Physical resources will include a lot of logistic
- Human resource planning requires the identification of part-time requirements, working days and times, weekends, vacations, and public holidays
- Plan for substitutes or adapt estimations
- Ensure that reporting can take place

	CW9	CW10	CW11	CW12	CW13	CW14	CW15	CW16	CW17
Michael									
Bernhard									
Thomas									
Stephan									

Project Lifecycle for Resource Management



Compilation of Project Team

Selection criteria to be considered:

- Availability
- Cost
- Skills, experiences, and knowledge
- Mindset and attitude
- Diversity
- Remote working

> "You can't always get what you want
> But if you try sometime *you'll find*
> You get what you need"
>
> - The Rolling Stones

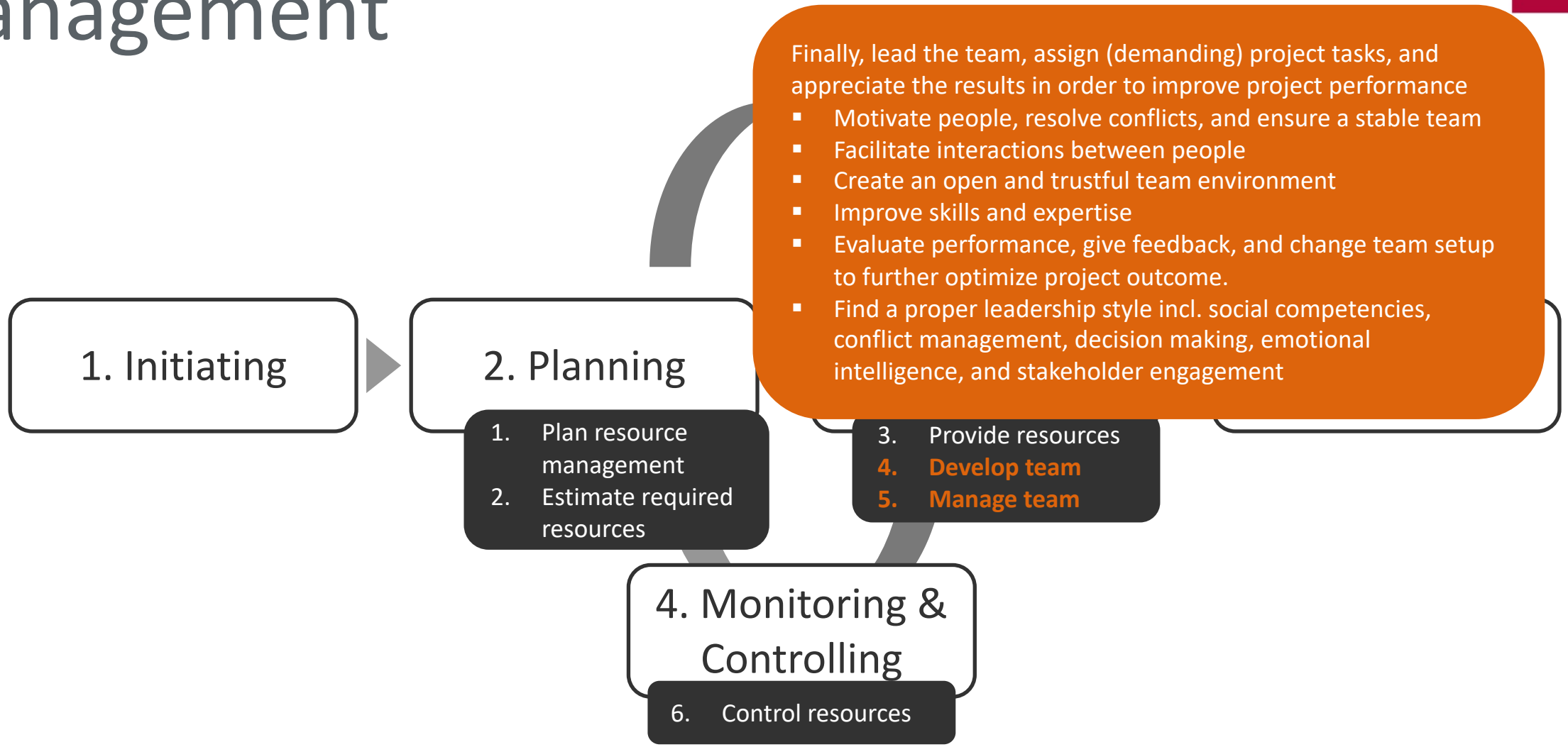
There is always an (even internal) competition around employees.

So, you will need a lot of **negotiation and political skills** to ensure that scarce resources will be **assigned to and stay with** your project!

Pro tip: Talk with potential team members instead with just their managers

Another one: Be selective!

Project Lifecycle for Resource Management



How to Build a Great Team?

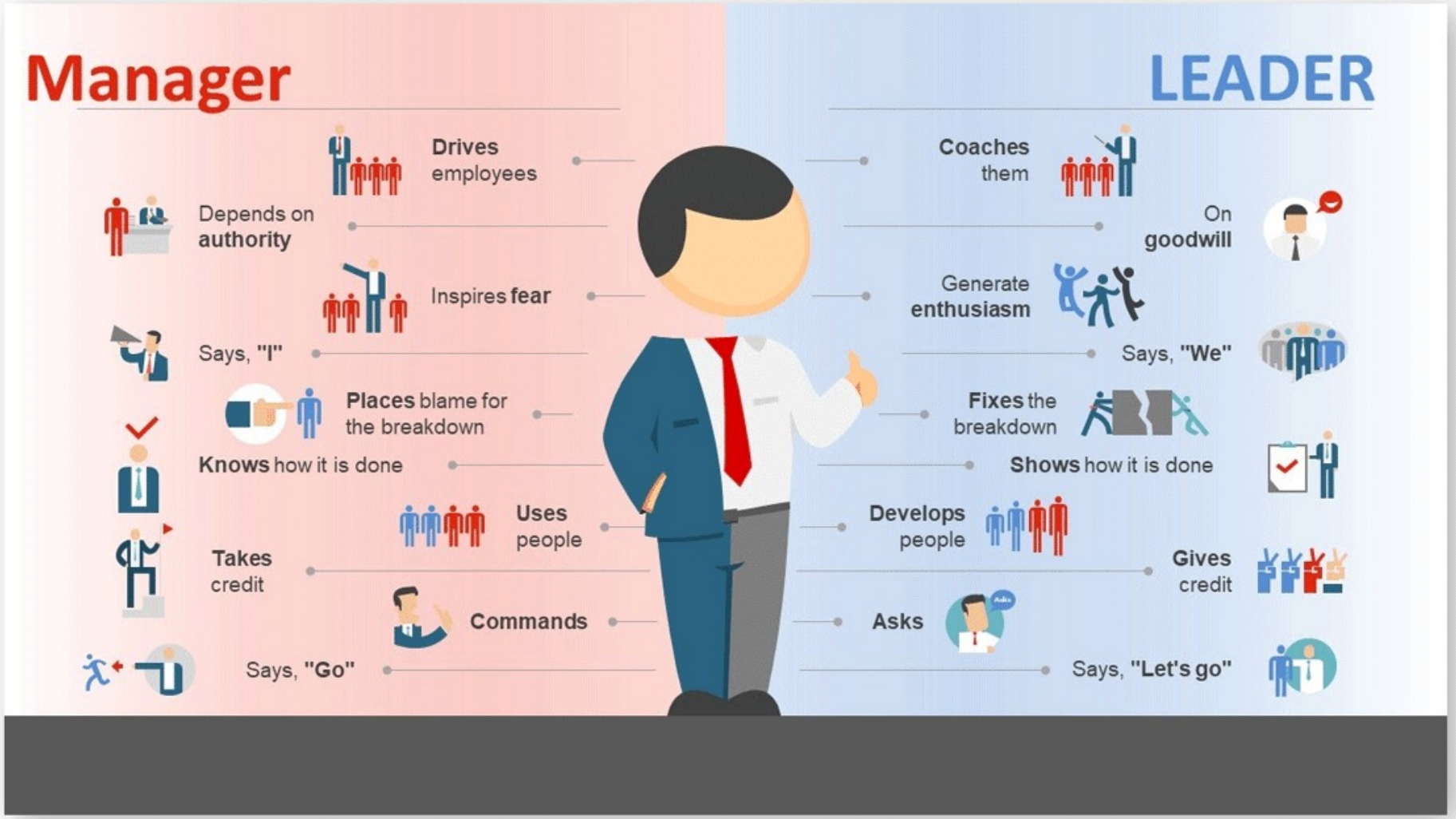
Development of an effective project team is one of the primary responsibilities of a project manager

- Create a dynamic, cohesive, and collaborative team culture
- Open and effective communication
- Team building events
- Build *trust* between all team members
- Constructive feedback and resolving of conflicts
- Foster joint solution thinking and decision making
- Transparent knowledge exchange
- Identify and close skill gaps of all team members

But be neither a best buddy (there will be tough decisions) nor a badass boss (there is no I in team)!

Teamwork is a critical success factor

Leader vs. Manager

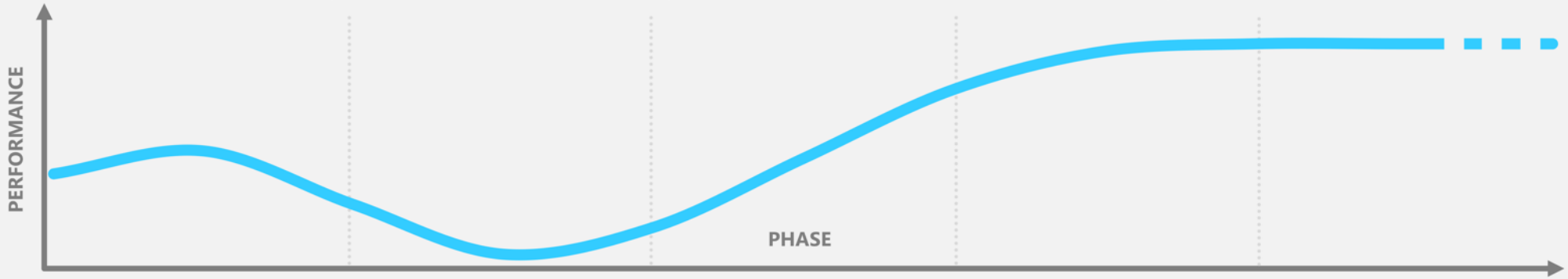


Sources: https://entrepreneurcaribbean.com/2020/02/26/leadership-versus-management/
https://slidemodel.com/leadership-vs-management-key-differences/leader-vs-manager-key-comparison/

Phases of Team Development

Forming, Storming, Norming, Performing, and Adjourning — based on group development model by Bruce Tuckman

All phases are necessary and inevitable for a team to grow, tackle problems, find solutions, plan work, and deliver results.



	FORMING	STORMING	NORMING	PERFORMING	ADJOURNING
CHARACTERISTICS	• Displaying eagerness • Socializing • Generally polite tone • Sticking to safe topics • Unclear about how one fits in • Some anxiety & questioning	• Some resistance • Lack of participation • Conflict based on differences of feelings & opinions • Competition • High emotions • Starting to move towards group norms	• Purpose & goals are well-understood • More confident • Improved commitment • Members are engaged and supportive • Relief, lowered anxiety • Developing cohesion	• High motivation, trust & empathy • Individuals defer to team needs • Effectively producing deliverables • Consistent performance • Demonstrations of interdependence & self-management	• (Also referred to as the Transitioning or Mourning phase) • Shift to process orientation • Sadness • Recognition of team & individual efforts • Disbanding
STRATEGIES	• Taking the 'lead' • Being highly visible • Facilitating introductions • Providing the 'big picture' • Establishing clear expectations • Communicating success criteria • Ensuring response times are quick	• Requesting & encouraging feedback • Identifying issues & facilitating their resolution • Normalizing matters • Building trust by honoring commitments	• Recognizing individual & team efforts • Providing learning opportunities & feedback • Monitoring the 'energy' of the team	• 'Guiding from the side' (minimal intervention) • Celebrating successes • Encouraging collective decision-making & problem-solving	• Recognizing change • Providing an opportunity for summative team evaluations ('lessons learned') • Providing an opportunity for individual acknowledgments • Celebrating the team's accomplishments (an 'after-party')

Graffius, Scott M. (2021). Phases of Team Development. Digital Object Identifier (DOI): 10.13140/RG.2.2.22040.42246.

v21010407

Team Building

Conduct activities that encourage the inner team spirit and create an open and trustful environment

- From daily stand-ups to external and professional events
- Especially important for remote teams, organize regular retreats
- Informal communication and activities are very important for building trust and good working relationships
- Each project should start with a kick-off
- Work together in the same room
- (Public) appreciations and rewards

Qualification and Training

Talent management is critical for a project success

- Professional trainings such as HPI academy
- Massive open online courses such as openHPI
- Pair programming
- Mentoring, Coaching, or Shadowing
- Informal education, e.g., observations, conversations, performance evaluations

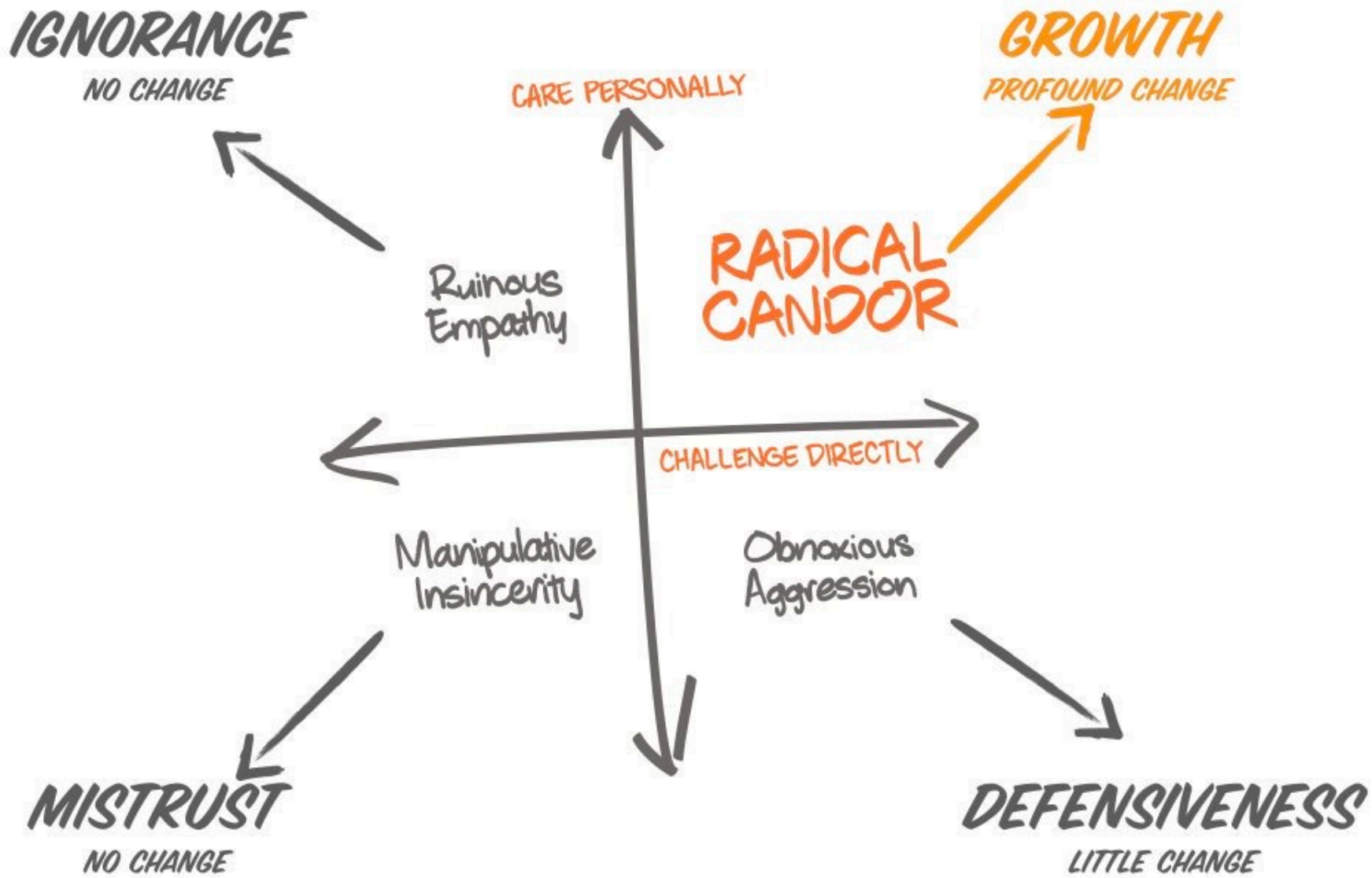
Include expected training costs into budget (time and money)

It's not only about formal education!

Performance Evaluations

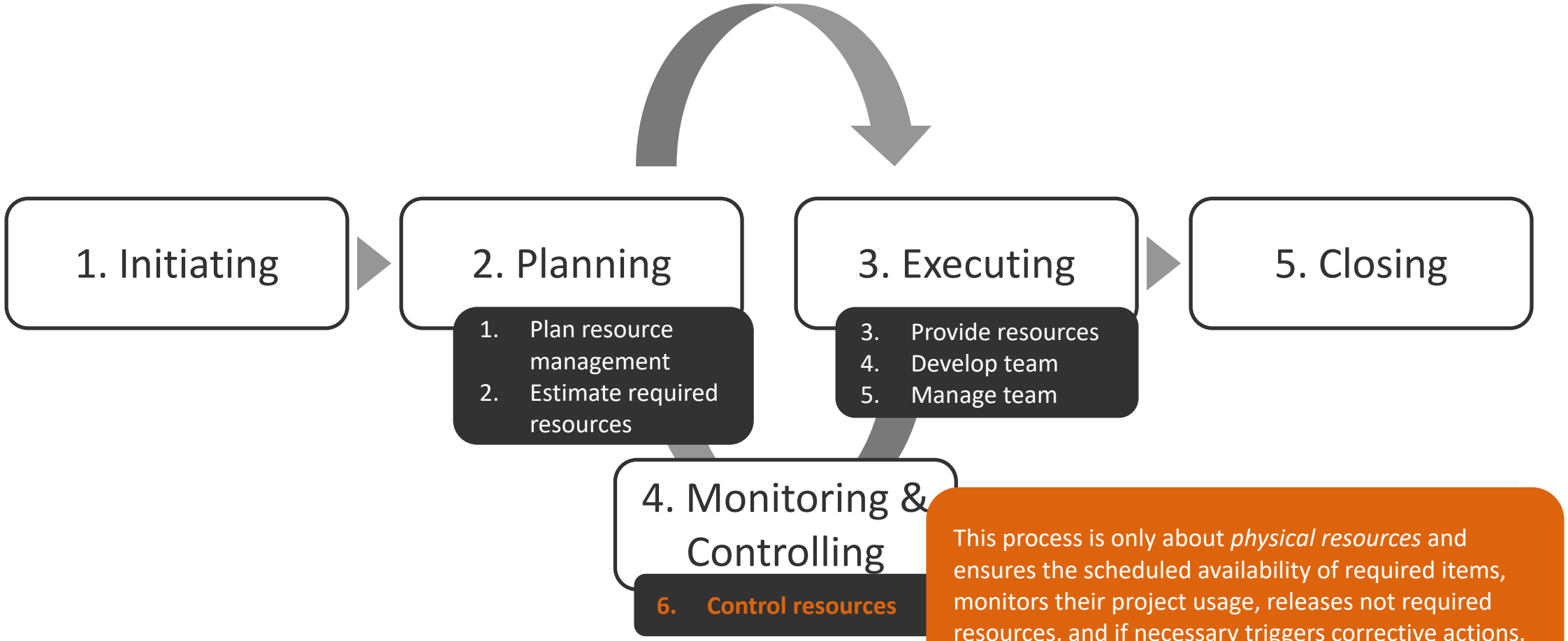
Analyze strentghs and weaknesses of team members, entire team, project, organization, and y*ourself!*

- Surveys
- 1:1 meetings
- Structured interviews
- Performance tests
- Skip-level meeting
  - Upper-level manager talks directly with team
  - Without project manager
  - Three questions: What do you like, what you don’t like, and what you hate?)



Source: Kim Scott. Radical Candor: How to Get What You Want by Saying What You Mean.

Project Lifecycle for Resource Management



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Knowledge Areas
Communication Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management

5. Quality Management

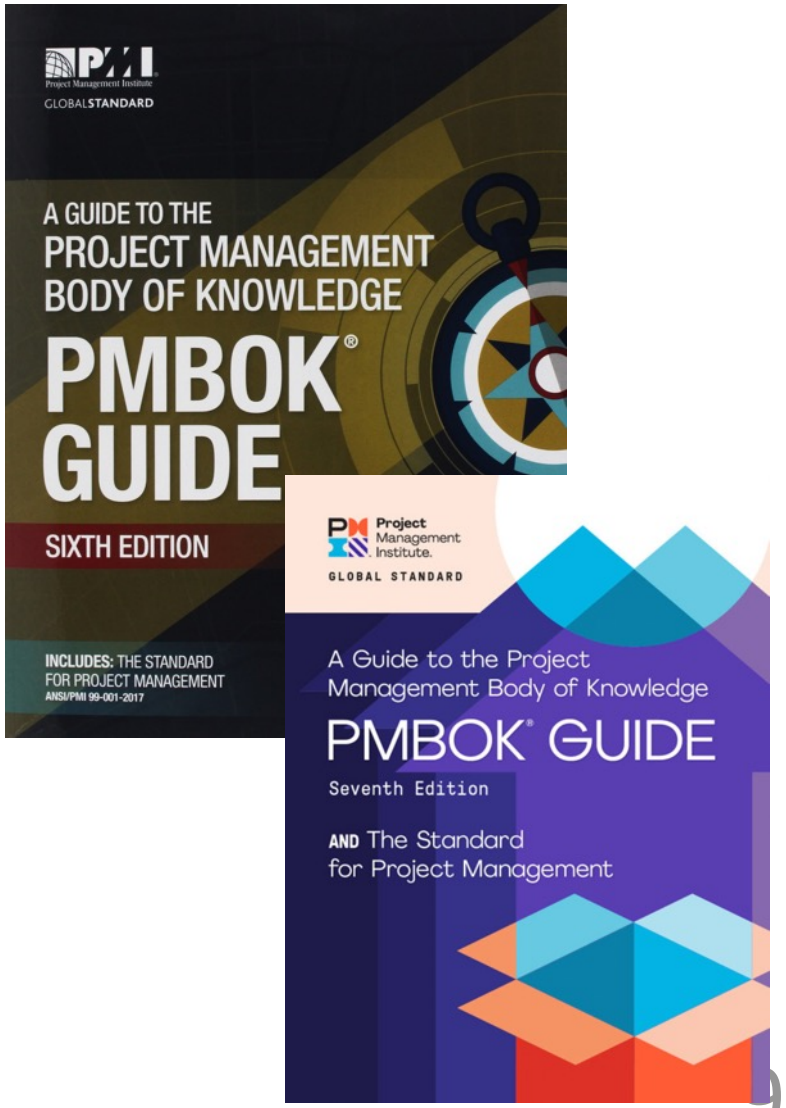
6. Resource Management

7. Communications Management: Creation, collection, distribution, storage, and deletion of project information

8. Risk Management

9. Procurement Management

10. Stakeholder Management



Principles of Communication Management

Creation, collection, distribution, storage, and deletion of project information

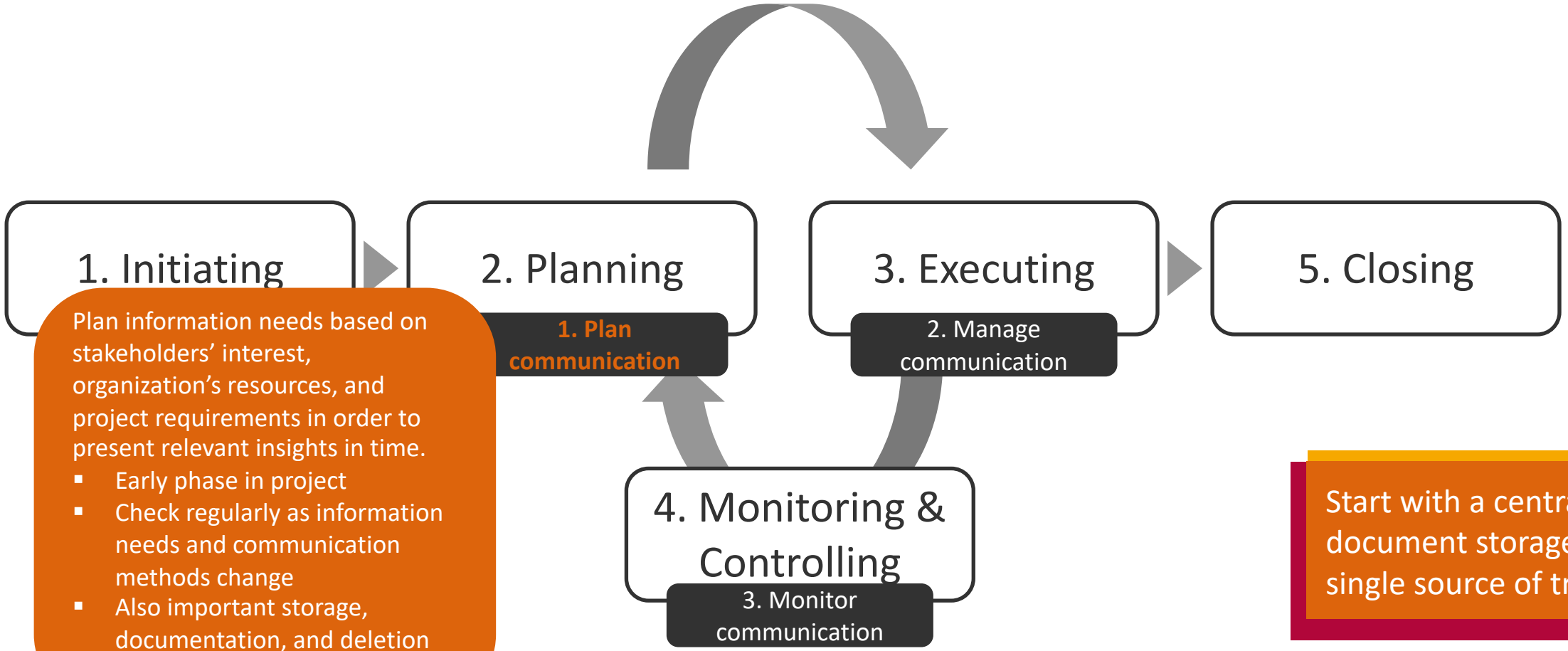
Ensure information needs of stakeholders, while preserving project requirements

- Most time-consuming task in project management
- Build relationships for project success
- Train your communication skills
  (Motivation, coaching, convincement, negotiations, conflict resolution)

Communication is the (not) intended exchange of information

- Form: Written, verbal, (in-)formal, gestures, via media, wording
- To whom: Intern/extern, hierarchical direction, (in-)official
- Kind: Meetings, presentations, e-mails, social media, reports, and documentation

Project Lifecycle for Communication Management



Communication Management Plan

Stakeholder	Communication need	Information requirements	Frequency	Method	Responsible Person	Last Update
Board	Keep them informed that project works	1 slide, blockers?	On request	Phone call	Michael (Project lead)	N/A
L1 Manager (Jürgen)	Needs to make sure that project will be delivered as requested by SVB	Project progress and risks	Regular, once per month	Written update in monthly reporting	Michael (Project lead)	April update (15.04.)
Project Lead (Michael)	Steers the project and needs all relevant information	Evaluate ideas, Project progress and risks	Regular, weekly, steering meeting, ad-hoc if necessary	Steering meeting (in-person) and ad-hoc	Bernhard (Project manager)	22.04.
Project Team Member	Overall project picture and alignment with other work packages	Contiously exchange with team members	Weekly Sprint meetings, bi-weekly project team meeting	In-person (virtual) meetings	Bernhard (Project manager)	

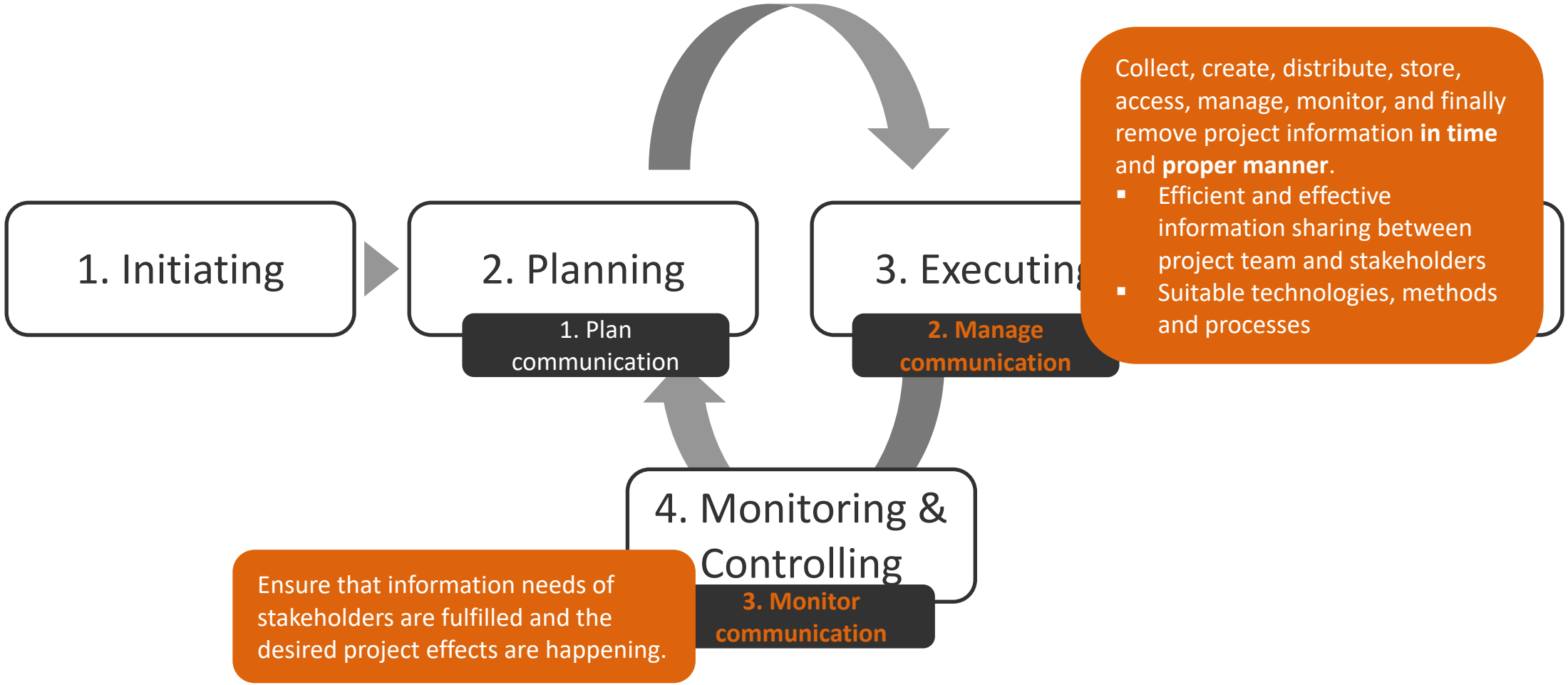
Further information, e.g., form, language, escalations, next update

Meeting and Reporting Plan

Meeting	Purpose	Participants	Frequency	Responsible Person	Prepartion Lead
Steering Meeting	Present progress with Executives and discuss blockers and risks	Project Lead L1 Manager One Executive Board Member	2 weeks after start, 2 weeks before Sapphire	Michael (Project lead)	Bernhard (Project manager)
Weekly Sprint Meeting	Define next steps of project work stream	Sub-teams per work stream	Weekly, Monday morning	Bernhard (Project manager)	Product Owners
Project Team Meeting	Ensure that the entire project team knows what the other work streams are doing	All project members	Bi-weekly, Wednesday, 13h CET	Bernhard (Project manager)	Bernhard (Project
L1 Reporting	Report briefly on overall progress and mark risks and blockers	L1 Manager and his/her office, maybe will be forwarded to Executive Board	Monthly, mid of month	Michael (Project lead)	

Use such tables as checklists and set reminder in schedule!

Project Lifecycle for Communication Management



Meeting Management

Effective meetings are needed to reach project goals:

- Agenda and optional pre-reads should be sent *before*
- Meeting should stay in time!
- Ensure that the right people attend (and no one more)
- Stick to the topic (moderator can help)
- Resolve expectations, problems, and conflicts during the meeting
- *One person* should write a protocol to document Actions/Information/Decisions incl. due dates and responsible persons

Decline or delegate meetings if things are unclear, not on your level

Ask yourself after a meeting, how could it be improved.

Many meetings can be a waste of time.

Michael's Reporting Survival Guide

Why do we need a survival guide?

- Understand expectations and needs by Executives better
- Present results in a compact, pragmatic, and consumable way
- Reduce revisions and be prepared for questions
- Get what you want, by saying what you need
- Learn from examples
- Take all advices with a grain of salt

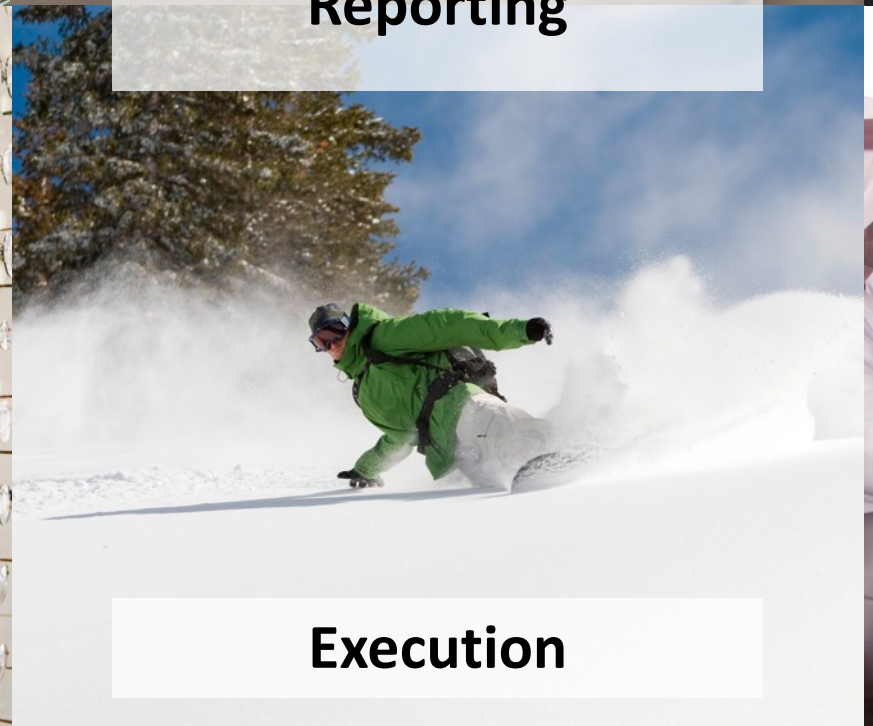
Executives are the most difficult audience because they are low on time, have often a strong opinion (even w/o having much background), they decide about your project


Guided Update


Preread


Verbal


Portfolio


Reporting
Execution


Protocol

Example: Protocol

Engineering SLT - Meeting Protocol

Name of the Meeting Monthly Engineering SLT Call **Location** Monthly Call **Date** Oct 15, 2019

Participants

Guest

Not in attendance

Keep formal WHICH MEETING, WHEN, WHO participated and WHO NOT!, Guests, Confidential level

Minutes

Protocol includes Actions/Infos/Decisions

#	D/I/A	Topic	Details	Due Date	Responsible
1	I	Opening			
2	A	Opening		Oct 25	All,
3	A	Opening	Call for content for Q4 Engineering SLT offsite (Nov 20-21) – provide specific topics/content to	Oct 30	All,

Keep it compact, imperative and try to answer W* questions so that context is clear even weeks after meeting. Many AIs will be forwarded to non-participants who miss the context

Think about due dates and responsible person (have one main stakeholder!)!

Focus on results (and blockers)

Most important message first

As much as needed, as less as possible

Add key messages if content explodes

Show progress with Key Performance Indicators

L1 Management Update
Central Engineering I/III

Example: CTO Reporting

December 2019

Executive Summary :

Strategic Projects (Michael P.)	• Al **TechEd keynotes** delivered with very positive feedback. **DKOM keynote** prep on track. • **Hasso's ICIS keynote** s now based on his own outline! We delivered extended abstract, revised full paper, and prep slides together with Gerrit's team. • **SAP Graph** presented at T&I AHM and TechEd BGN; Revised strategy and team setup and set goals for 2020 (1.Build solid Graph runtime and tooling, and 2. Enable rapid API development including sandboxing for the Intelligent Enterprise E2E scenarios). Interest after Teched remains high (730 applications for private beta (only 265 by SAP colleagues)) - newsletter created to keep interested persons informed.	

Highlight important terms

Work of ~50 FTEs for one month condensed in ½ slide

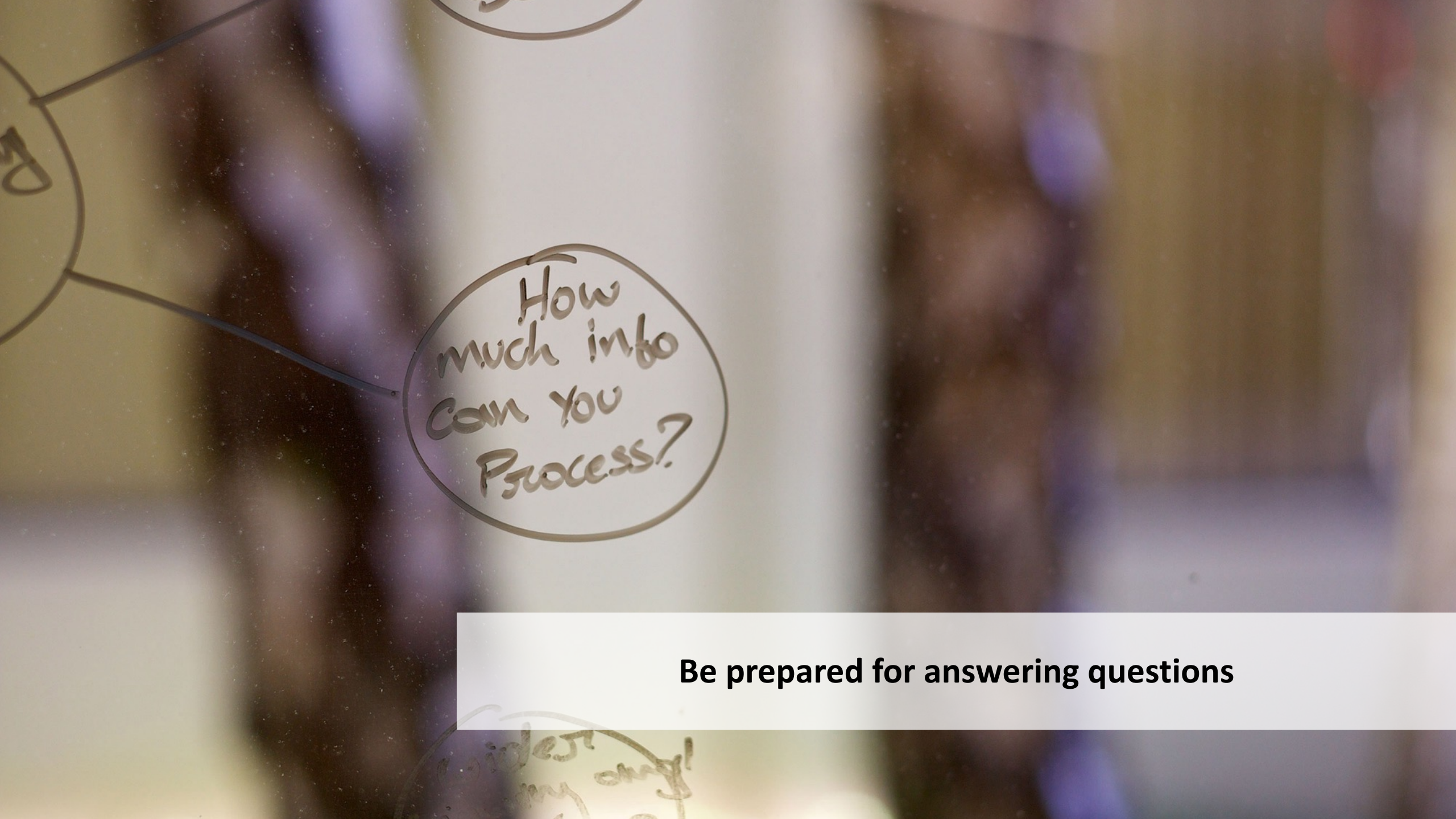
Questions should be answered afterwards

KPIs to show success, risk as well as proposed solution


Be honest – No water melons!

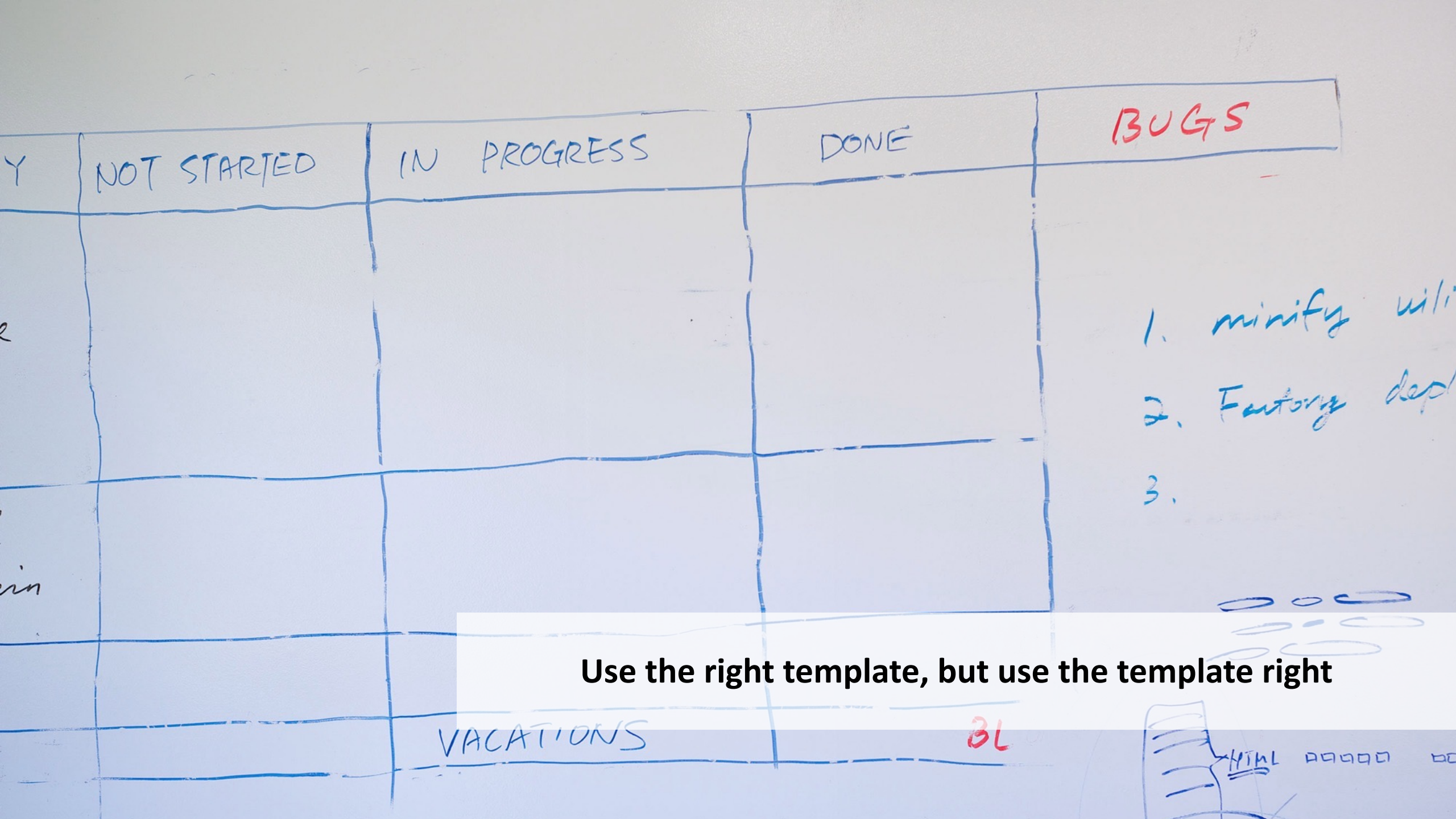
Be aware of traffic lights?!


You are just the messenger



Be prepared for answering questions


“I don’t know yet” is a valid answer



Use the right template, but use the template right

Cleaning up

Project “Sapphire Fashion Showcase”

Status as of April 10, 2017

Sapphire Project Reporting

Project Lead	Michael	**Report Date:**	April 10, 2017 Week 14	**Overall status 5 week rolling trend by CW**	14	15	16	17	18
Management Attention Required	**NO**				G	G	G	Y	Y

Scope	**Key Message / Status**
Create a compelling showcase for Sapphire presenting Machine Learning (ML) at SAP. • Integrate 1-2 SAP Machine Learning solutions in a real customer case • Show relation to SAPs core product (e.g., SAP S/4HANA) • Interactive booth instead of pure displays	Business case (Fashion Showcase) has been defined, presented and approved by Steering Committee. Most difficult software artefact is done (Face and emotion recognition) all other are in good shape. Discussion with stand builder have started but required capacity still unclear. 

Key Deliverables	**Responsible**	**Due Date**	**Status**	**Complete**
Business development for the intelligent window	Klaus (Business Developer)	31.03.	Business model approved by steering committee	
Shopping window incl. face and emotion recognition, projection on mannequins and recommendation of shopping items	Bernhard (Project Manager)	01.05.	Most critical part (face recognition) implemented; other software development on track.	
ERP Mockup incl. ConversationalAI control	Stephan (Team Lead ERP)	01.05.	UX designed, control flow defined, to be implemented	
Sapphire setup incl. booth and organization of VIP visits	Bernhard (Project Manager)	15.05.	Negotiations with stand builder started; Unclear if they have capacity for us on top	

Key Issues & Decision Needs	**Plan of Action**	**Responsible**	**Due Date**
• Clarify budget constraints for Sapphire booth	• Decide on our upper budget limit for the booth	• Executive board	15.04.2017

Use spell checkers!

Double-check before submitting

Exceptions

Hasso Plattner Institut
IT Systems Engineering | Universität Potsdam

Knowledge Areas
Risk Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management

5. Quality Management

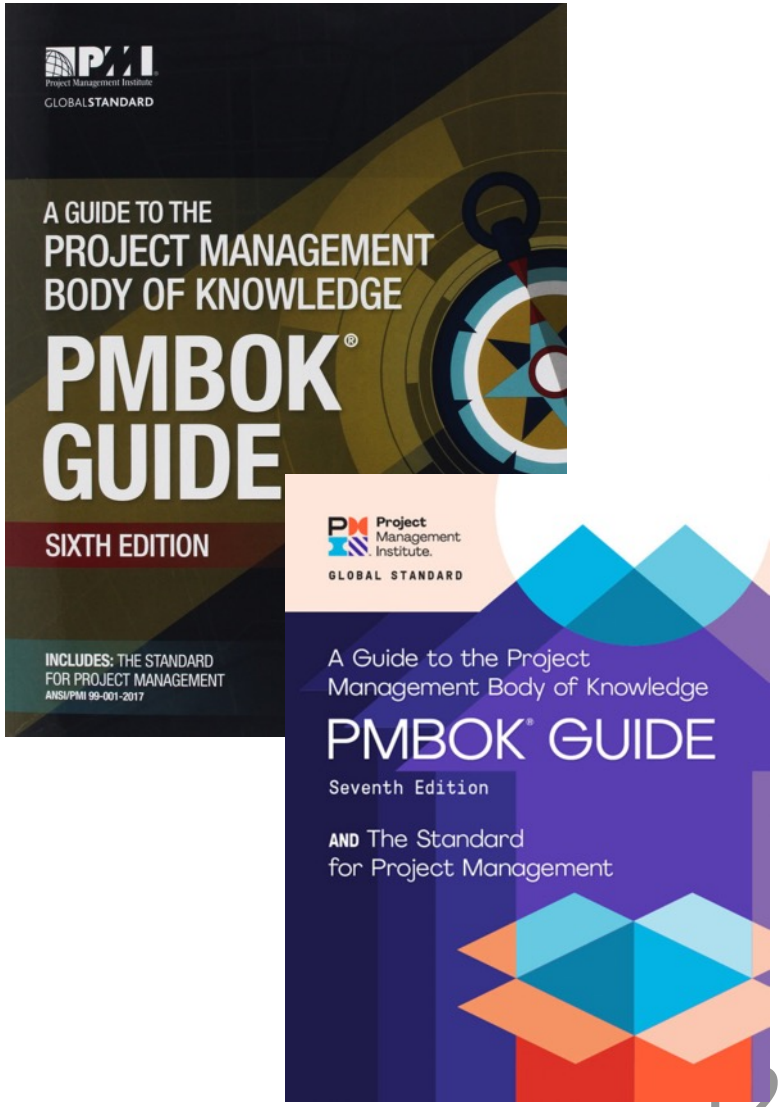
6. Resource Management

7. Communications Management

8. Risk Management: Analysis of risks, execution and monitoring of prevention mechanisms

9. Procurement Management

10. Stakeholder Management



Is This a Risk for a Project?

Source: https://gallantgold.com/tag/noreen-wise/

Principles of Risk Management

Analysis of risks, execution and monitoring of prevention mechanisms

Increase probability of positive risks and decrease probabilities of negative risks

- All projects have risks and if they are ignored the plan will differ and outcome is at risk
- Project constraints, assumptions and stakeholders expectations can change at any time
- Keep them tolerable (define clear risk thresholds)

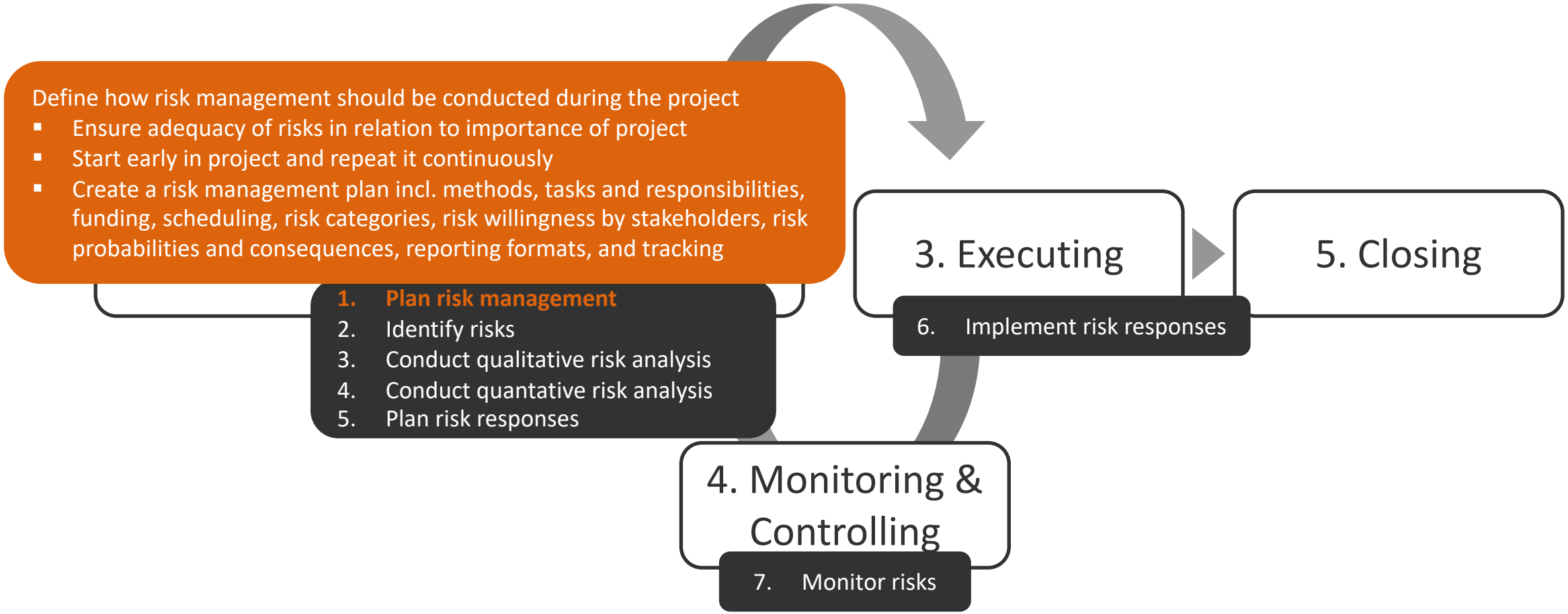
Individual project risk

An uncertain event or condition that, if it happens, will influence positive (*Chance*) or negative (*Threat*) one or more project goals

Overall project risk

Sum of uncertainties from all sources and their influence on stakeholder expectations

Project Lifecycle for Risk Management



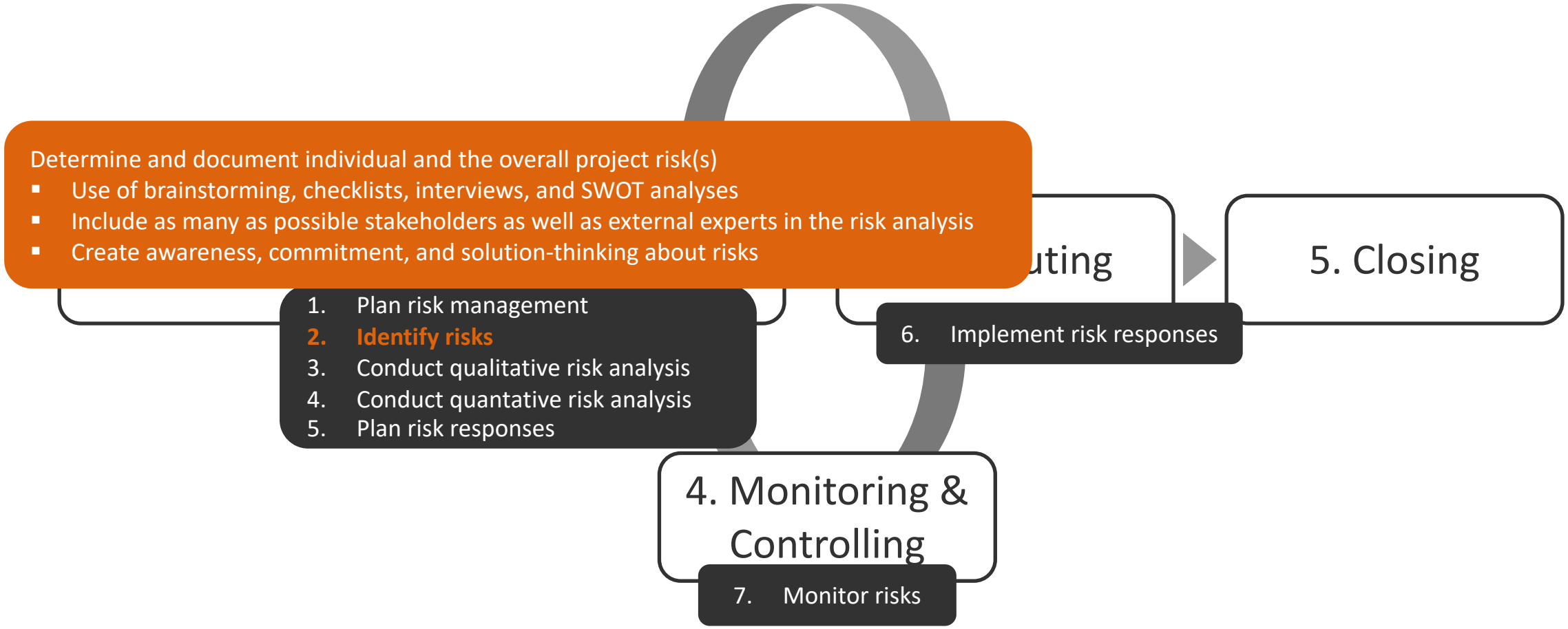
Risk Categories (Examples)

Risk Structure Plan Level 0	Risk Structure Plan Level 1	Risk Structure Plan Level 2
0. All sources of project risks	1. Technical risks	1.1 Definition of scope
		1.2 Technical interfaces
		etc.
	2. Management risks	2.1 Project management
		2.2 Organisation
		etc.
	3. Commercial risks	3.1 Contract conditions
		3.2 Internal procurement
		etc.
	4. External risks	4.1 Legislation
		4.2 Foreign exchange rates
		etc.

Definition of Risk Probability and Impact (Example)

Range	Probability	Time	Cost	Quality
High	>50%	> 3 months	> 100,000 €	Disruptive changes to functionality
Medium	25-50%	1-3 months	10,000-100,000€	Major changes to functionality
Low	5-25%	< 1 month	< 10,000 €	Minor changes to functionality
Null	<5%	No delay	No change	No change

Project Lifecycle for Risk Management



Software Risk Checklists

Source: https://www.softwaretestinggenius.com/risk-assessment-and-analysis-checklist/

Checklist For Assessment of Different Type of Risks - (Sample Checklist)

(A) Product Size Risks

Following generic risks are associated with the product size

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Estimated size of the product in LOC or FP?		
2)	Degree of confidence in estimated size estimate?		
3)	Estimated size of product in number of programs, files, transactions?		
4)	Percentage deviation in size of product from average for previous products?		
5)	Size of database created or used by the product?		
6)	Number of users of the product?		
7)	Number of projected changes to the requirements for the product? Before delivery? after delivery?		
8)	Amount of reused software?		

Note: In each case, the information for the product to be developed must be compared to past experience. If a large percentage deviation occurs or if numbers are similar, but past results were considerably less than satisfactory, risk is high.

(B) Business Impact Risks

Following generic risks are associated with the Business Impact

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Affect of this product on company revenue?		
2)	Visibility of this product by senior management?		
3)	Reasonableness of delivery deadline?		
4)	Number of customers who will use this product and the consistency of their needs relative to the product?		
5)	Number of other products/systems with which this product must be interoperable?		
6)	Sophistication of end users?		
7)	Amount and quality of product documentation that must be produced and delivered to the customer?		
8)	Governmental constraints on the construction of the product?		
9)	Costs associated with late delivery?		
10)	Costs associated with a defective product?		

Note: In each case, the information for the product to be de
compared to past experience. If a large percentage deviation occurs or if numbers are similar, but past results were considerably less than satisfactory, risk is high.

These lists are not complete but a good start for software projects

Software Risk Checklists

Source: https://www.softwaretestinggenius.com/risk-assessment-and-analysis-checklist/

(C) Customer Related Risks

Following generic risks are associated with different customers

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Have you worked with the customer in the past?		
2)	Does the customer have a solid idea of what is required? Has the customer spent the time to write it down?		
3)	Will the customer agree to spend time in formal requirements gathering meetings to identify project scope?		
4)	Is the customer willing to establish rapid communication links with the developer?		
5)	Is the customer willing to participate in reviews?		
6)	Is the customer technically sophisticated in the product area?		
7)	Is the customer willing to let your people do their job–that is, will the customer resist looking over your shoulder during technically detailed work?		
8)	Does the customer understand the software engineering process?		
Note: If the answer to any of these questions is "No," further investigation should be done to assess the risk.			

(D) Process Related Risks

Following are the Process related issues

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Does your senior management support a written policy statement that emphasizes the importance of a standard process for software development?		
2)	Has your organization developed a written description of the software process to be used on this project?		
3)	Are staff members "signed-up" to the software process as it is documented and willing to use it?		
4)	Is the software process used for other projects?		
5)	Has your organization developed or acquired a series of software engineering training courses for managers and technical staff?		
6)	Are published software engineering standards provided for every software developer and software manager?		
7)	Have document outlines and examples been developed for all deliverables defined as part of the software process?		
8)	Are formal technical reviews of the requirements specification, design and code conducted regularly?		
9)	Are formal technical reviews of test procedures and test cases conducted regularly?		
10)	Are the results of each formal technical review documented, including defects found and resources used?		
11)	Is there some mechanism for ensuring that work conducted on a project conforms with software engineering standards?		
12)	Is configuration management used to maintain consistency among system/software requirements, design, code, and test cases?		
13)	Is a mechanism used for controlling changes to customer requirements that impact the software?		
14)	Is there a documented statement of work, software requirements specification, and software development plan for each subcontract?		
15)	Is a procedure followed for tracking and reviewing the performance of subcontractors?		
Note: If majority of the above questions is answered "No," software process is weak and risk is high.			

HPI

These lists are not complete but a good start for software projects

Software Risk Checklists

Source: https://www.softwaretestinggenius.com/risk-assessment-and-analysis-checklist/

Following are the Technical issues

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Are facilitated application specification techniques used to aid in communication between the customer and developer?		
2)	Are specific methods used for software analysis?		
3)	Do you use a specific method for data and architectural design?		
4)	Is more than 90 percent of your code written in a high order language?		
5)	Are specific conventions for code documentation defined and used?		
6)	Do you use specific methods for test case design?		
7)	Are software tools used to support planning and tracking activities?		
8)	Are configuration management software tools used to control and track change activity throughout the software process?		
9)	Are software tools used to support the software analysis and design process?		
10)	Are tools used to create software prototypes?		
11)	Are software tools used to support the testing process?		
12)	Are software tools used to support the production and management of documentation?		
13)	Are quality metrics collected for all software projects?		
14)	Are productivity metrics collected for all software projects?		

Note: If majority of the above questions is answered "No," software process is weak and risk is high.

(E) Technology Related Risks

Following generic risks are associated with the technology to be built

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Is the technology to be built new to your organization?		
2)	Do the customer's requirements demand the creation of new algorithms, input or output technology?		
3)	Does the software interface with new or unproven hardware?		
4)	Does the software to be built interface with vendor supplied software products that are unproven?		
5)	Does the software to be built interface with a database system whose function and performance have not been proven in this application area?		
6)	Is a specialized user interface demanded by product requirements?		
7)	Do requirements for the product demand the creation of program components that are unlike any previously developed by your organization?		
8)	Do requirements demand the use of new analysis, design or testing methods?		
9)	Do requirements demand the use of unconventional software development methods, such as formal methods, AI-based approaches, artificial neural networks?		
10)	Do requirements put excessive performance constraints on the product?		
11)	Is the customer uncertain that the functionality requested is "do-able?"		

Note: If the answer to any of these questions is "Yes," further investigation should be done to assess the risk.

These lists are not complete but a good start for software projects

Software Risk Checklists

Source: https://www.softwaretestinggenius.com/risk-assessment-and-analysis-checklist/

(F) Development Environment Risks

Following generic risks are associated with development environment

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Is a software project management tool available?		
2)	Is a software process management tools available?		
3)	Are tools for analysis and design available?		
4)	Do analysis and design tools deliver methods that are appropriate for the product to be built?		
5)	Are compilers or code generators available and appropriate for the product to be built?		
6)	Are testing tools available and appropriate for the product to be built?		
7)	Are software configuration management tools available?		
8)	Does the environment make use of a database or repository?		
9)	Are all software tools integrated with one another?		
10)	Have members of the project team received training in each of the tools?		
11)	Are local experts available to answer questions about the tools?		
12)	Is on-line help and documentation for the tools adequate?		

Note: If a majority of the above questions are answered "No," the software development environment is weak and risk is high.

(G) Risks Associated with Staff Size and Experience

Following generic risks are associated with Staff Size and Experience

Sr.	Check Point / Defect Statement	Check Mark (√) the Appropriate Column	
		Yes	No or N/A
1)	Are the best people available?		
2)	Do the people have the right combination of skills?		
3)	Are enough people available?		
4)	Are staff committed for entire duration of the project?		
5)	Will some project staff be working only part time on this project?		
6)	Do staff have the right expectations about the job at hand?		
7)	Have staff received necessary training?		
8)	Will turnover among staff be low enough to allow continuity?		

Note: If the answer to any of these questions is "No," further i
be done to assess the risk.

These lists are not complete but a good start for software projects

Risk Register

Main tool for risk management and following activities

- List of identified risks, assessment, and mitigations
- Describe as much as necessary, as less as possible
- Be clear about cause and effect
- Unified template; further attributes are possible

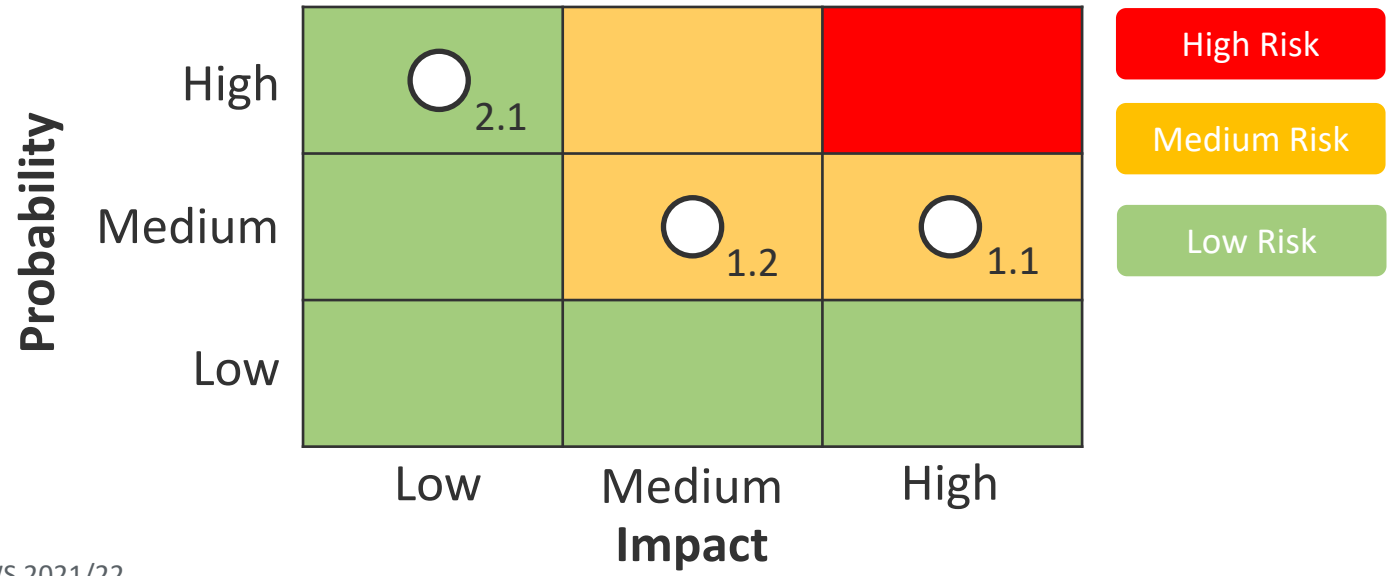
ID	Category	Risk	Probabilty	Impact	Mitigation	Responsible
1.1	Scope	Business case is not convincing enough for SVB, EB, or VIP customers				Michael
1.2	Scope	Supporting team for ERP Mockup does not deliver in time				Bernhard
2.1	Staff	Long-time sick leave of one or more developers would lead to a delay				Michael

Project Lifecycle for Risk Management

This is a very subjective process. Be aware of preoccupation.

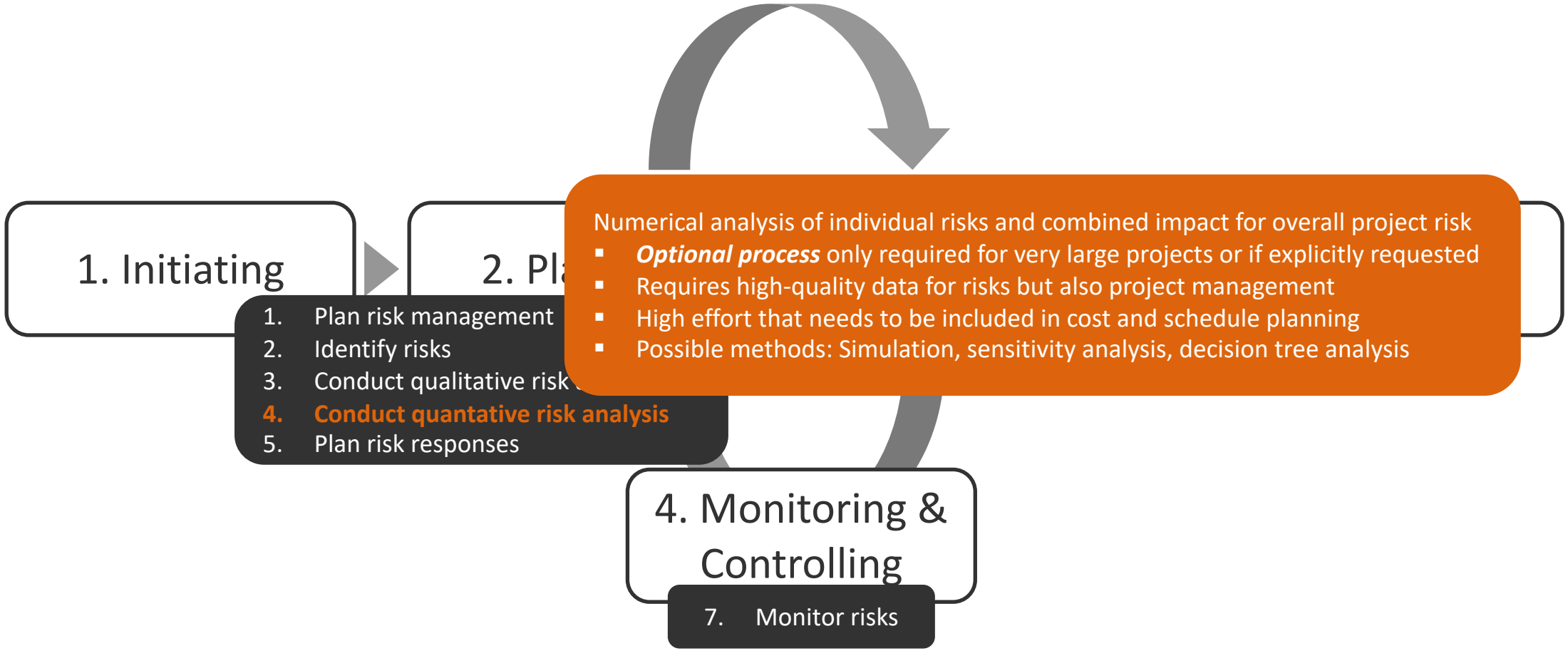
Probability and Impact - Risk Matrix

ID	Category	Risk	Probabilty	Impact	Mitigation	Responsible
1.1	Scope	Business case is not convincing enough for SVB, EB, or VIP customers	Medium	High		Michael
1.2	Scope	Supporting team for ERP Mockup does not deliver in time	Medium	Medium		Bernhard
2.1	Staff	Long-time sick leave of one or more developers would lead to a delay	Low	High		Michael



Probability and impact will change during project progression

Project Lifecycle for Risk Management



Project Lifecycle for Risk Management

Risk Response Strategies

Threats

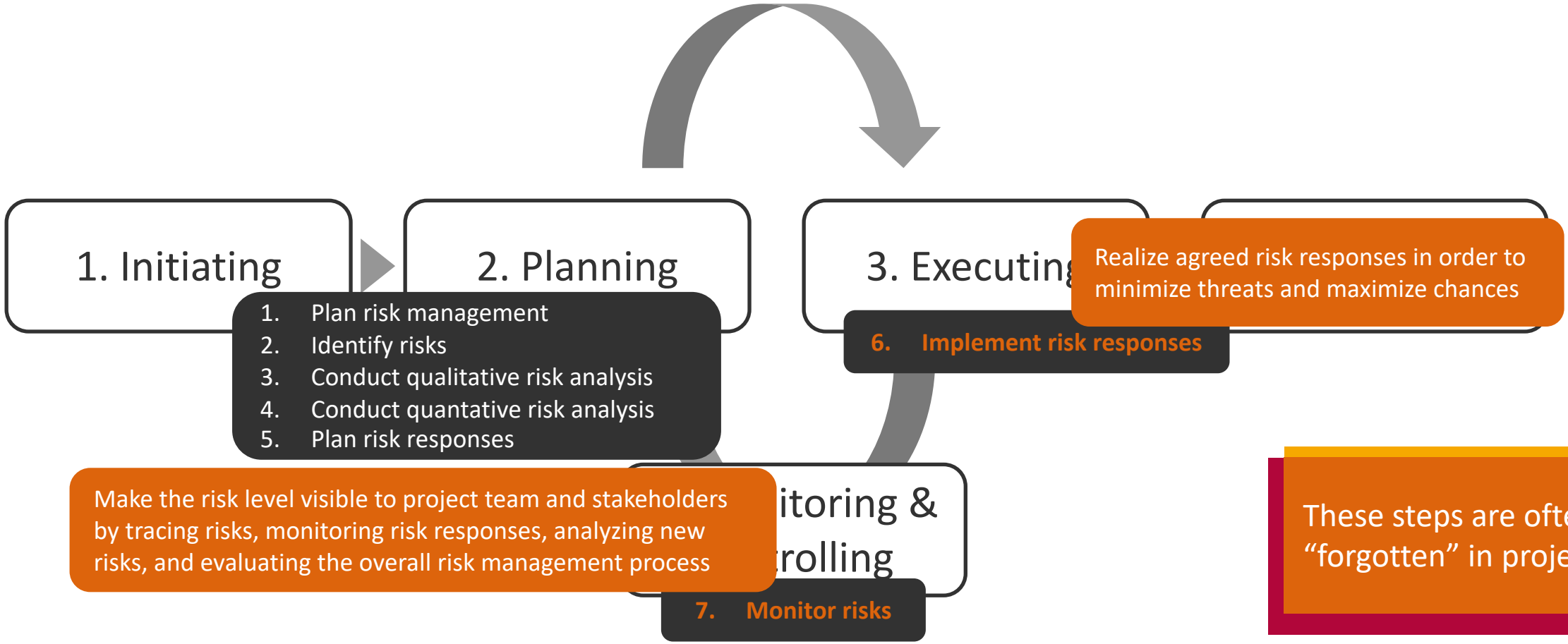
- Escalate: Resolve outside project
- Prevent: Neutralize threat
- Transfer: Third-party responsibility
- Lower: Minimize probability or impact
- Accept: Do nothing

Chances

- Escalate: Resolve outside project
- Use: Improve your project
- Share: Third-party responsibility
- Increase: Maximize probability or impact
- Accept: Do nothing

ID	Category	Risk	Probabilty	Impact	Mitigation	Responsible
1.1	Scope	Business case is not convincing enough for SVB, EB, or VIP customers	Medium	High	Find another business developer and create a new story (reuse existing technology pieces)	Michael
1.2	Scope	Supporting team for ERP Mockup does not deliver in time	Medium	Medium	a) Remove part from showcase b) Build new PowerPoint Mockup if time allows	Bernhard
2.2	Staff	Long-time sick leave of one or more developers would lead to a delay	Low	High	a) Overstaffing would come also with more overhead b) Escalate, find replacement and onboard ASAP.	Michael

Project Lifecycle for Risk Management



These steps are often “forgotten” in projects!?

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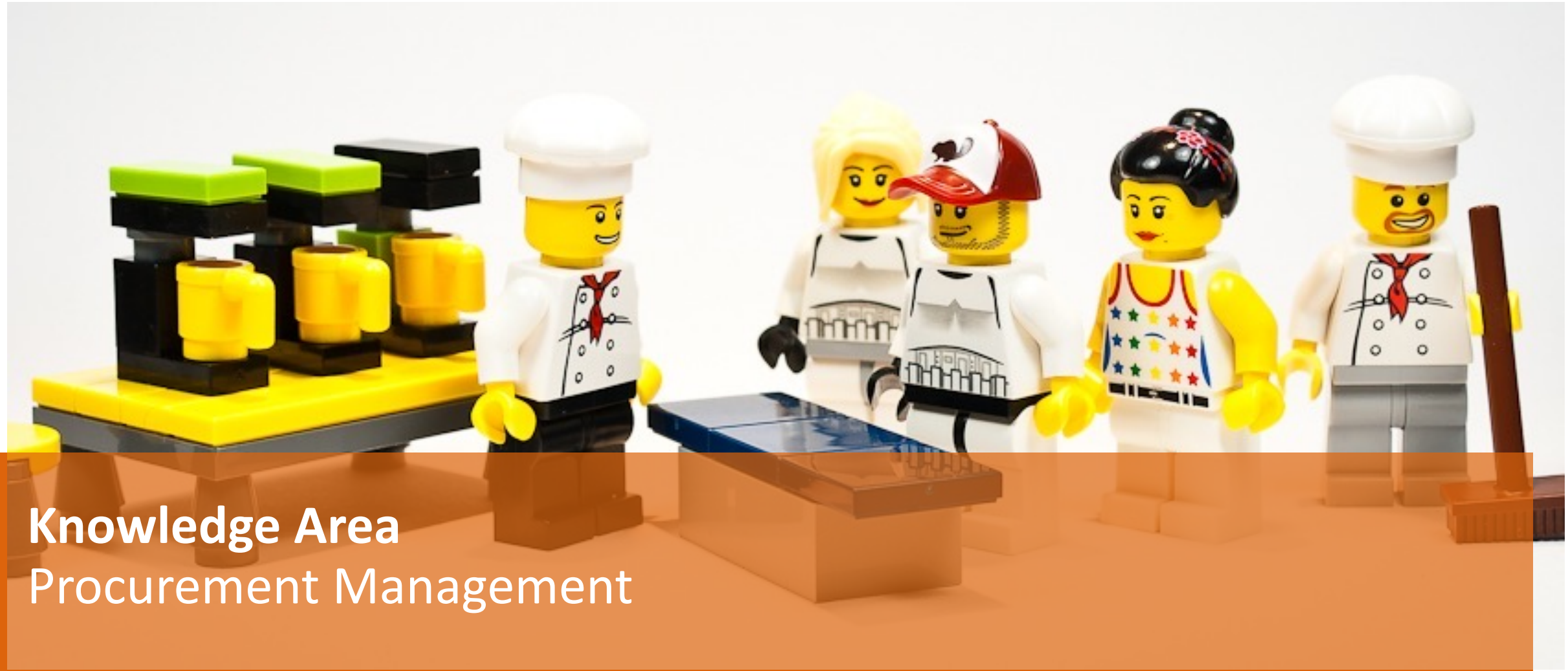


Knowledge Area
Procurement Management

Agenda

Introduction to Project Management

1. Integration Management

2. Scope Management

3. Schedule Management

4. Cost Management

5. Quality Management

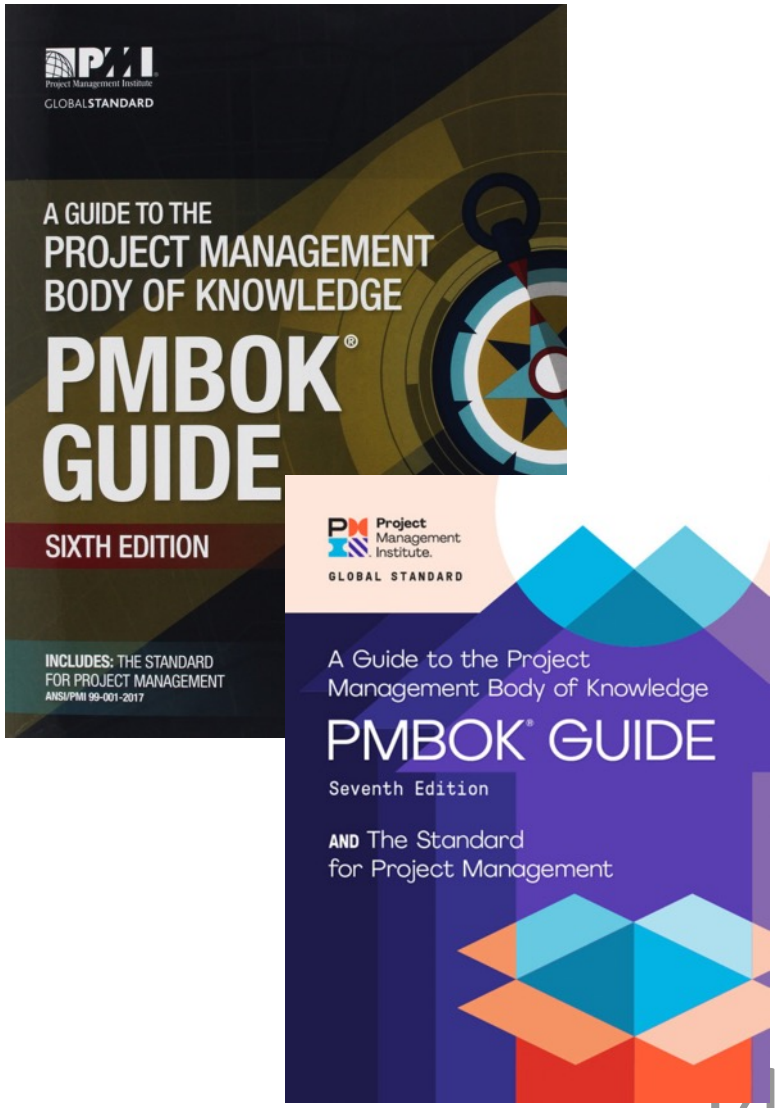
6. Resource Management

7. Communications Management

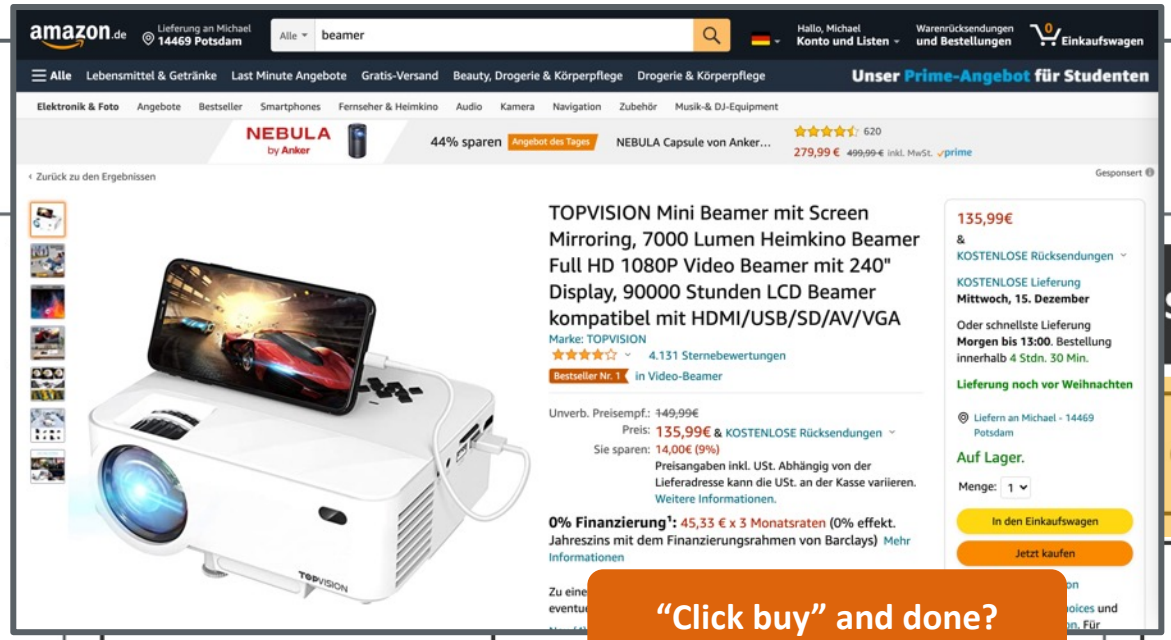
8. Risk Management

9. Procurement Management: Procurement of external resources, results, or services

10. Stakeholder Management



Why Should It Be Difficult to Buy Something?



Project Management

- Business development for the intelligent window
- Keep stakeholders in the loop
- Find resources and postpone other projects
- Find and coordinate with stand builder

Will we find this on Amazon?

- Recommendation of shopping items

Sapphire Setup

- Order Hardware for Booth
- Organize VIP Visits

“Click buy” and done?

What happens if, it is not delivered in time?
What if, it doesn’t work as expected?
What if, the power is not strong enough?
Who will install it for us?
Will it work together with the rest of our hardware?
Does the price work within our budget?
Will it work 24/7?
Am I allowed to buy this?
Do we have the time to evaluate alternatives?
…

Principles of Procurement Management

Procurement of external resources, results, or services

- Creation and management of contracts, letters of intent, or service level agreements etc.
- Be aware of legal constraints (e.g. compliance rules, non-disclosure agreements, local laws, publicly-funded projects)

Vendee and supplier relationship from simple ordering to complex contracts

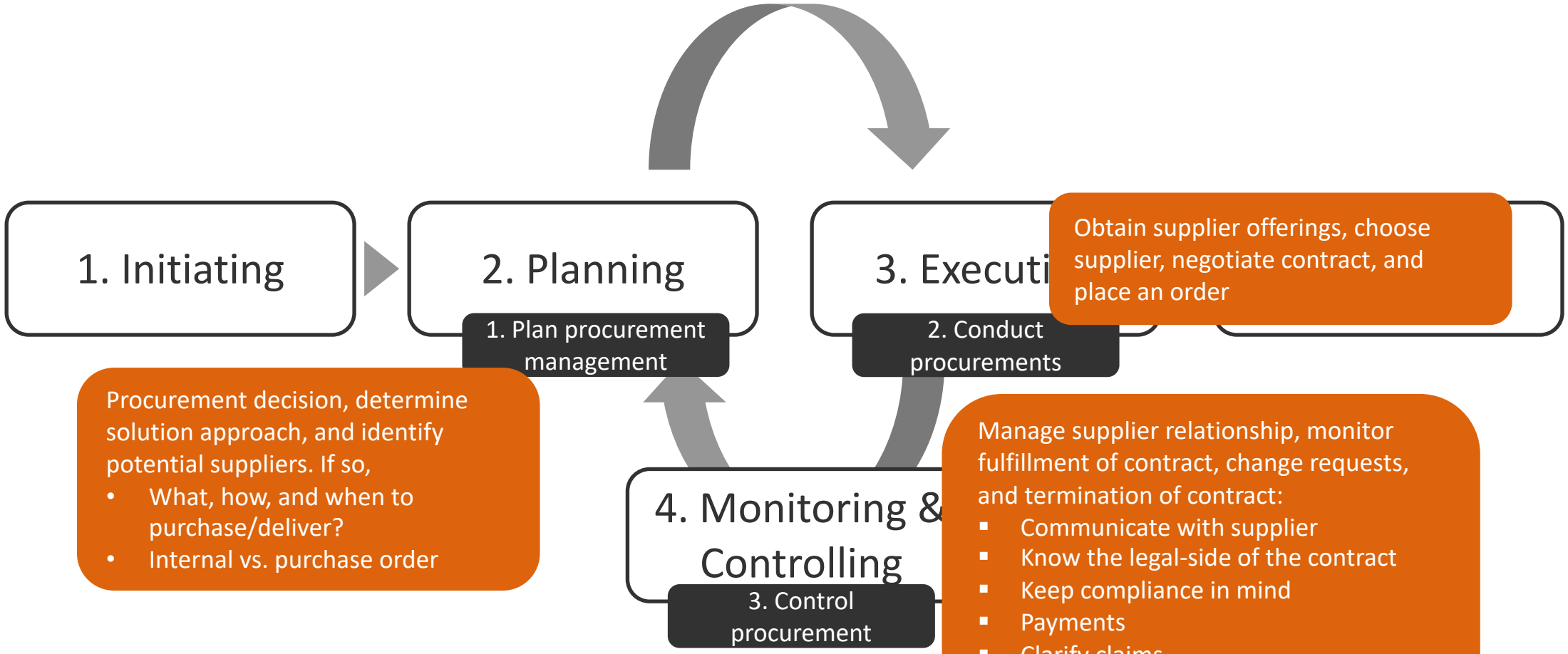
- Clear description of deliveries, conditions, and results
- Everything that is not stated in a contract cannot be expected

If possible, involve company's procurement and legal unit

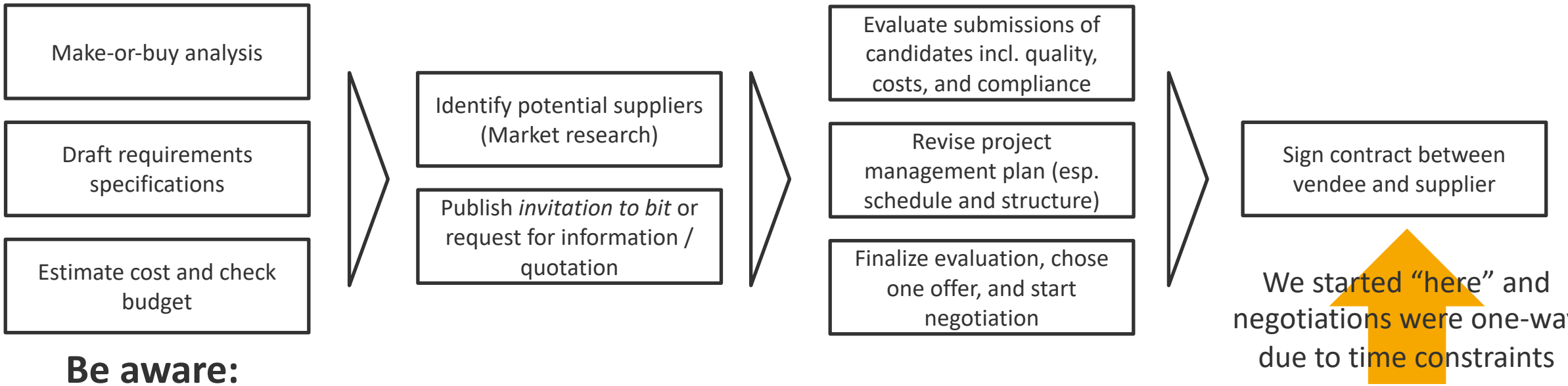
- Approval process, e.g., who is allowed to sign which contract?
- Management of contract lifecycles
- Procure from an internal company unit

If you buy something, you could be the stake-holder of another project

Project Lifecycle for Procurement Management



How to Procure Something? Typical Process Steps



Be aware:

- Specifications need to be more formal than user stories, complete and precise, difficult to change later due to contracts
- Organizations often define this process and guide the project
  (Pre-selected suppliers, formal regulations, different form of contracts (fixed price, reimbursement of expenses, time- or material-based)

For the showcase, we had to accept the existing supplier

Selected Contract Items

A bullet-proof contract is the foundation to take legal actions:

- Requirements specification and important deliveries
- Schedule and milestones
- Pricing and terms of payment
- Performance report
- Non-disclsoure agreements and Intellectual Property(IP)-regulations
- Inspection, quality and acceptance criteria
- Warranty and future product support
- Bonus-malus regulation
- Assurances and guaranties
- Permissions for subcontractors
- General business terms
- Change management
- Termination clause

Procurement and legal departments support you here!

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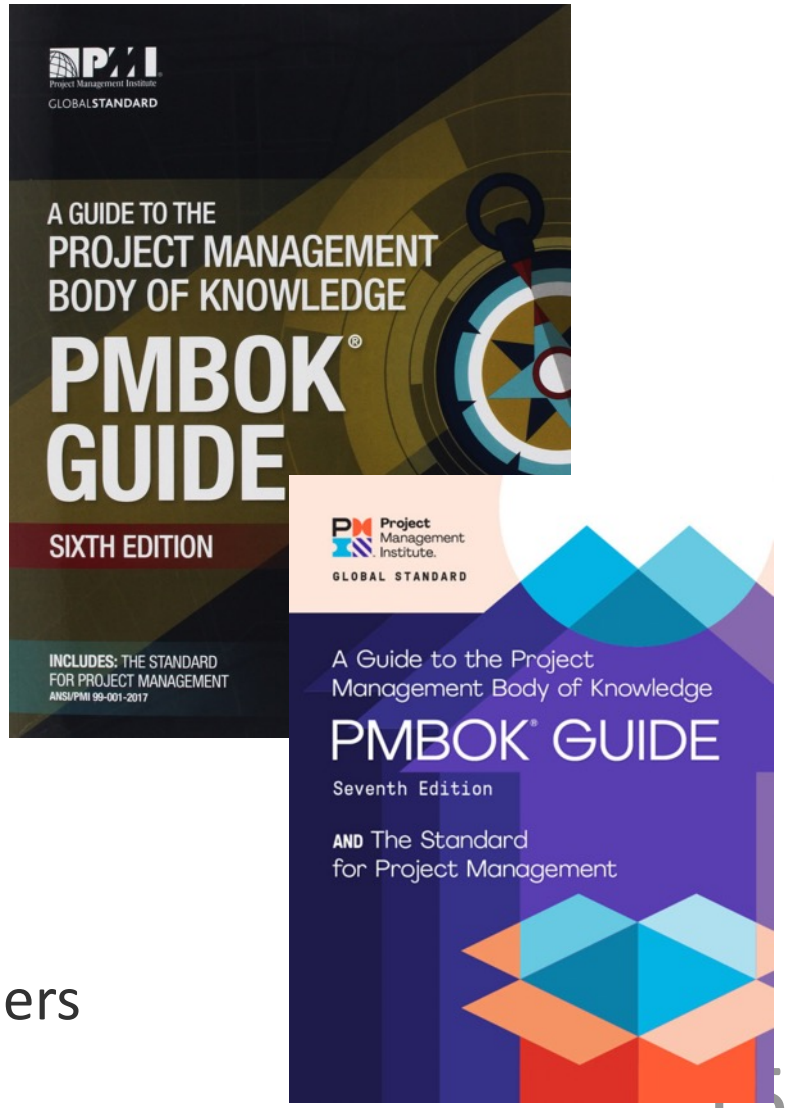
Knowledge Area
Stakeholder Management

Agenda

Introduction to Project Management

1. **Integration Management**
2. **Scope Management**
3. **Schedule Management**
4. **Cost Management**
5. **Quality Management**
6. **Resource Management**
7. **Communications Management**
8. **Risk Management**
9. **Procurement Management**
10. **Stakeholder Management:** Involvement of all stakeholders



Repetition: Stakeholders

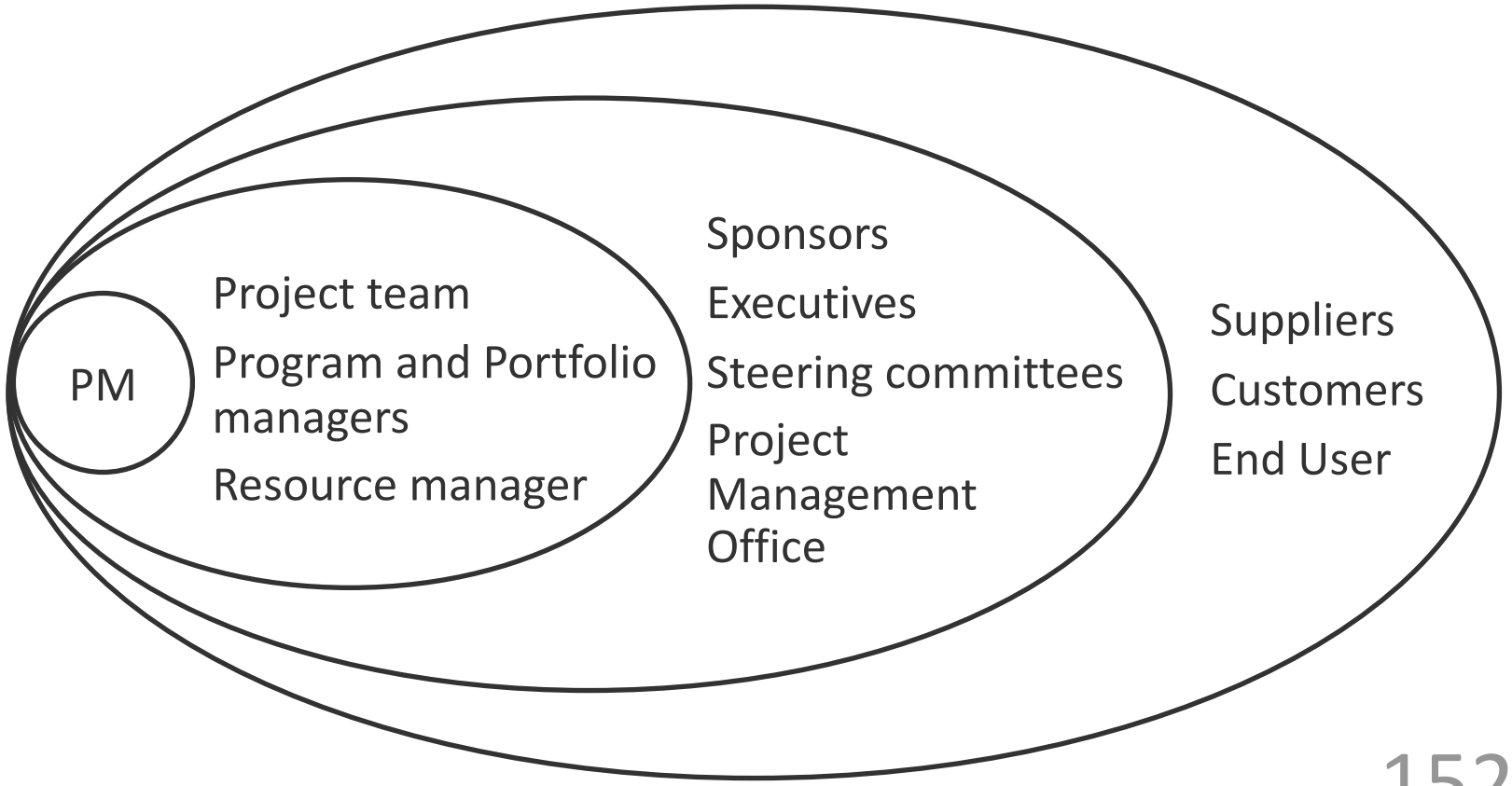
> *A stakeholder is a single person, group, or organization, who influence a project (also negative), profit from its results, or want to somehow involved with it.*

Internal stakeholders, e.g.:

- Sponsor
- Program manager
- Project team members

External stakeholders, e.g.:

- Customer
- End users
- Government
- Competitors
- Shareholders



Principles of Stakeholder Management

Involvement of *all* stakeholders

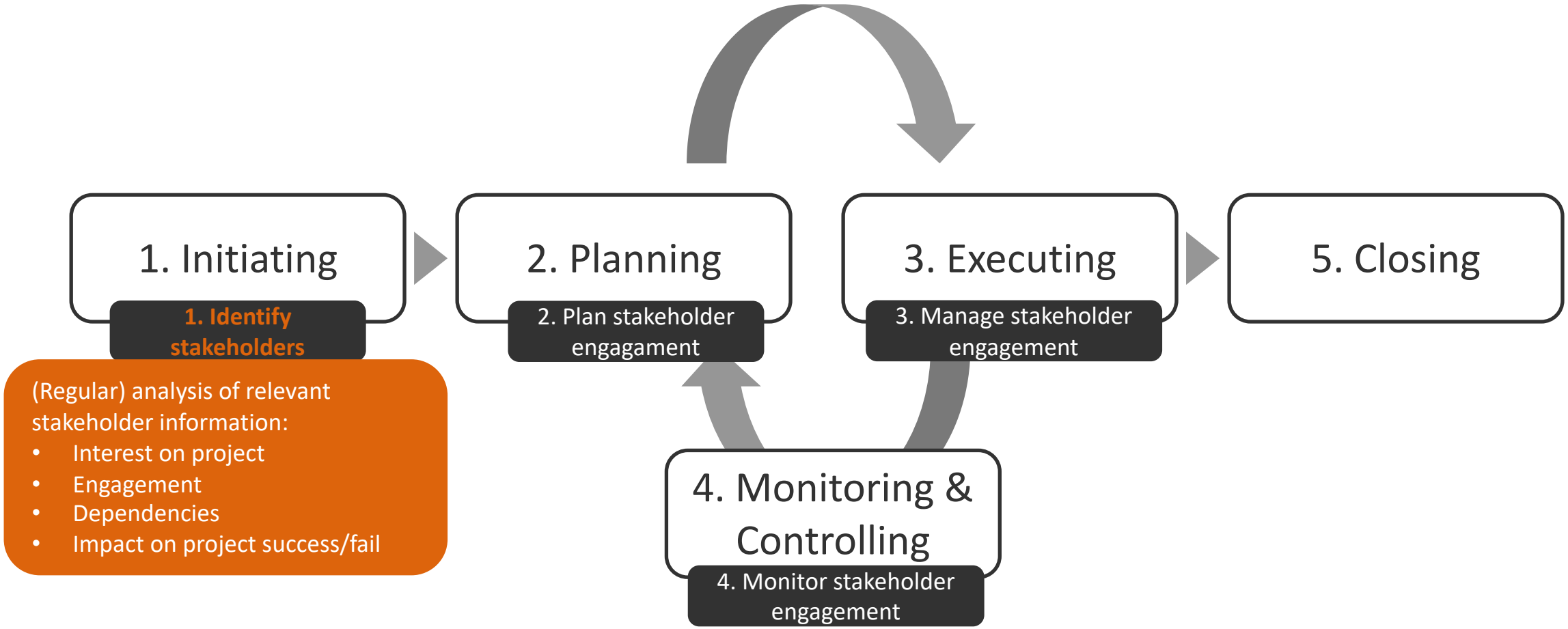
Determine all persons, groups, or organizations that can influence the project or are involved with it (positively as well as negatively).

- Analyze stakeholders' expectations
- Prioritize stakeholders as not each one is equally important
- Integration of stakeholders into decisions and their execution

Stakeholders can make a project successful or fail

- Stakeholder satisfaction should be part of project goals
- Continuously understand expectations, problems, conflicting interests, and engage them
- Stakeholders are coming and going
- *Agile projects live on continuous transparency and joint work with their stakeholders*

Project Lifecycle for Stakeholder Management



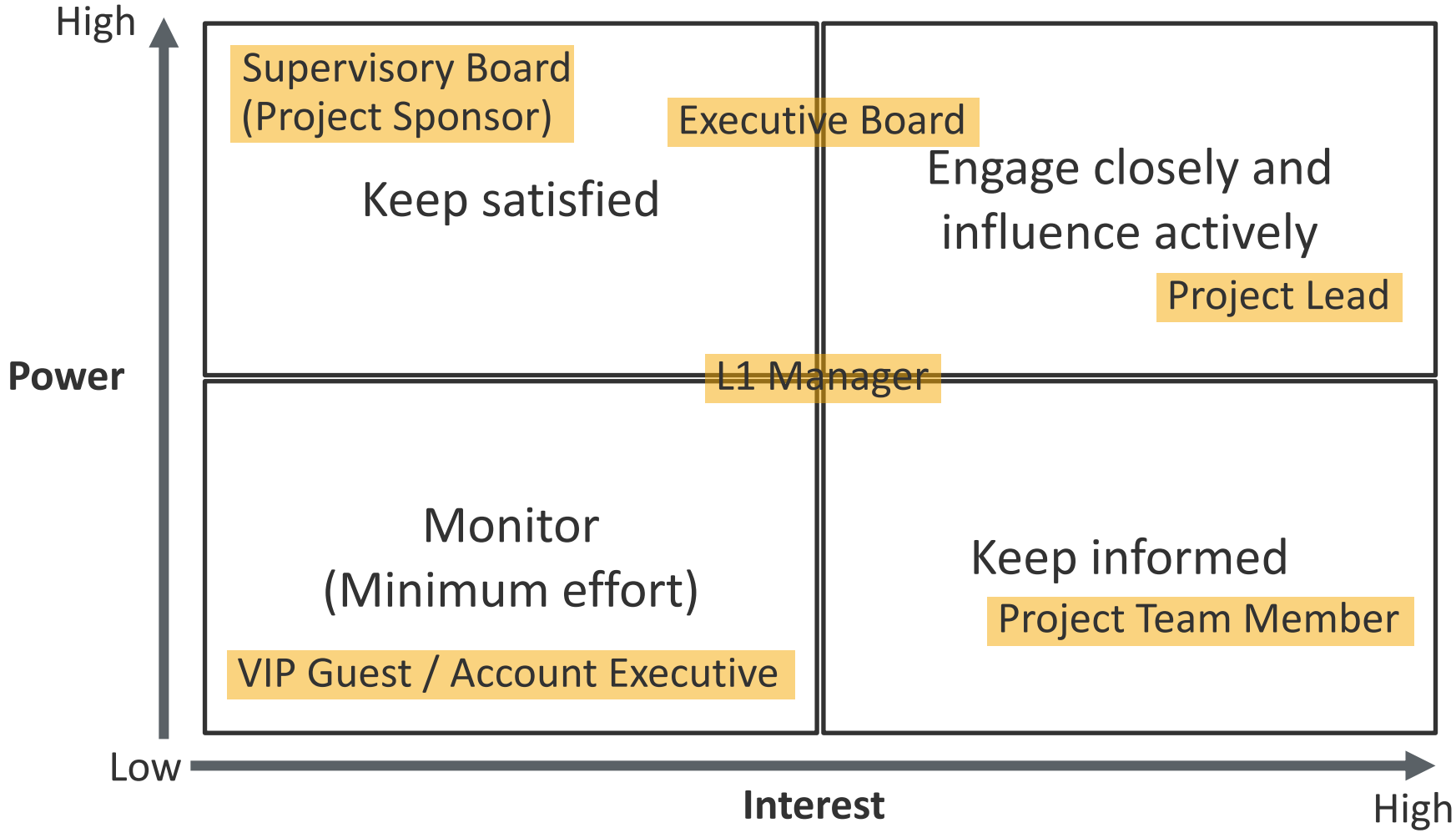
Stakeholder Register

Stakeholder	Project Role	Requirements	Expectations	Power	Interest
Michael (Strategic Projects Manager, internal)	Project lead	Handle this project on top of keynote preparation	Satisfy our executives and customers	Everything that is necessary to make this project succesful	Satisfy our executives and deliver a great showcase
Supervisory Board (Chairman, internal)	Project sponsor	“Create a compelling showcase presenting Machine Learning at SAP”	High quality showcase with a strong business case/story	Highest committee at SAP	Convince customers and make more deals with this proof point
Showcase Guest (VIP, external)	Visitor	Content should keep him 5 min engaged	Should be convinced on SAP AI expertise	Public visibility and/or influence on deal decision	Entertainment but also making the connect to business

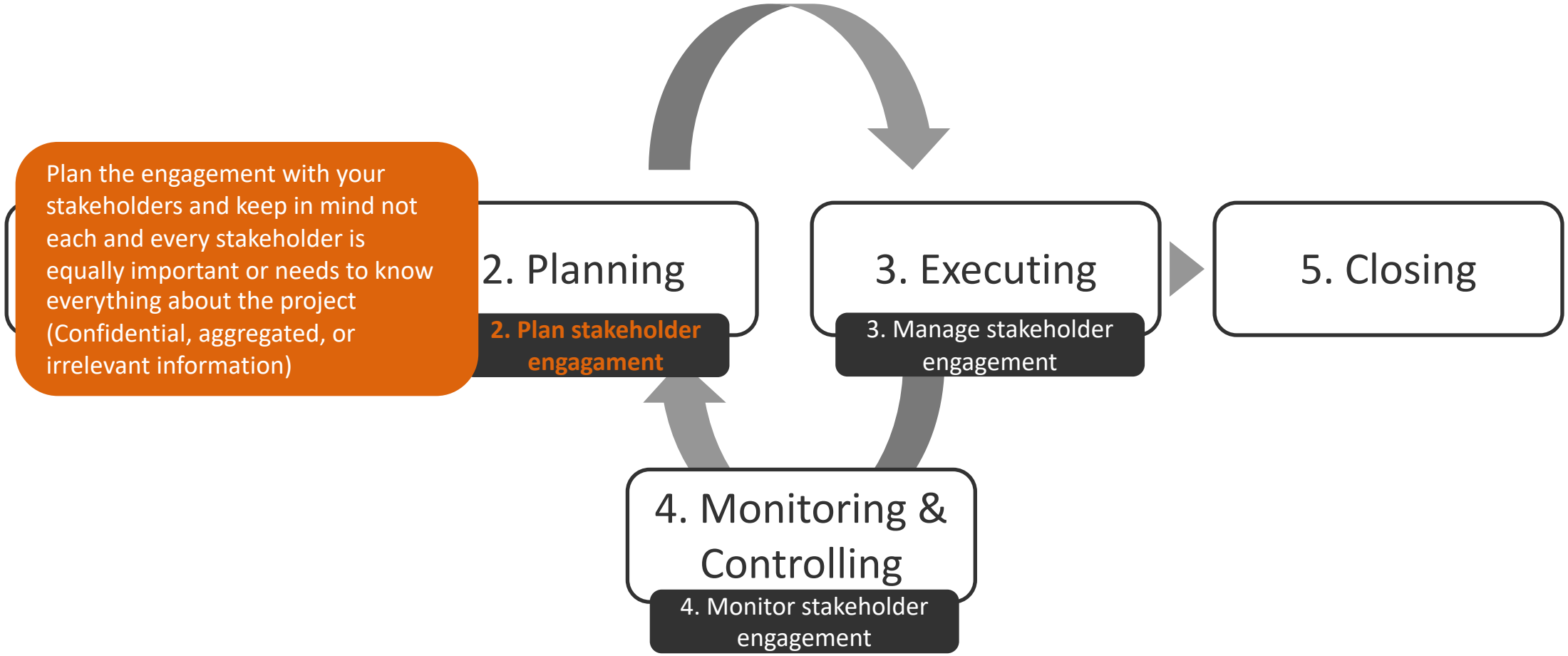
More attributes:

- Identification: **Name**, **Position**, Contact Information, **Project role**/task
- Assessment: **Requirements**, **Expectations**, Influence, Contributions, Knowledge
- Classification: **Internal/External**, **Power**, **Interest**,…

Stakeholder Analysis
Power-Interest Matrix



Project Lifecycle for Stakeholder Management



Stakeholder Engagement Matrix

Stakeholder	Power/Interest	Unaware	Resistant	Neutral	Supportive	Leading
Project Lead	high / high					C D
Supervisory Board	high / low	C			D	
Executive Board	high / medium			C	D	
L1 Manager	medium / medium		C		D	
VIP Guest / Account Executive	low / low	C		D		
Project Team Member	low / high			C	D	

Hard to get time with them

Just another project on top

Can be fixed later

Convince them for the project

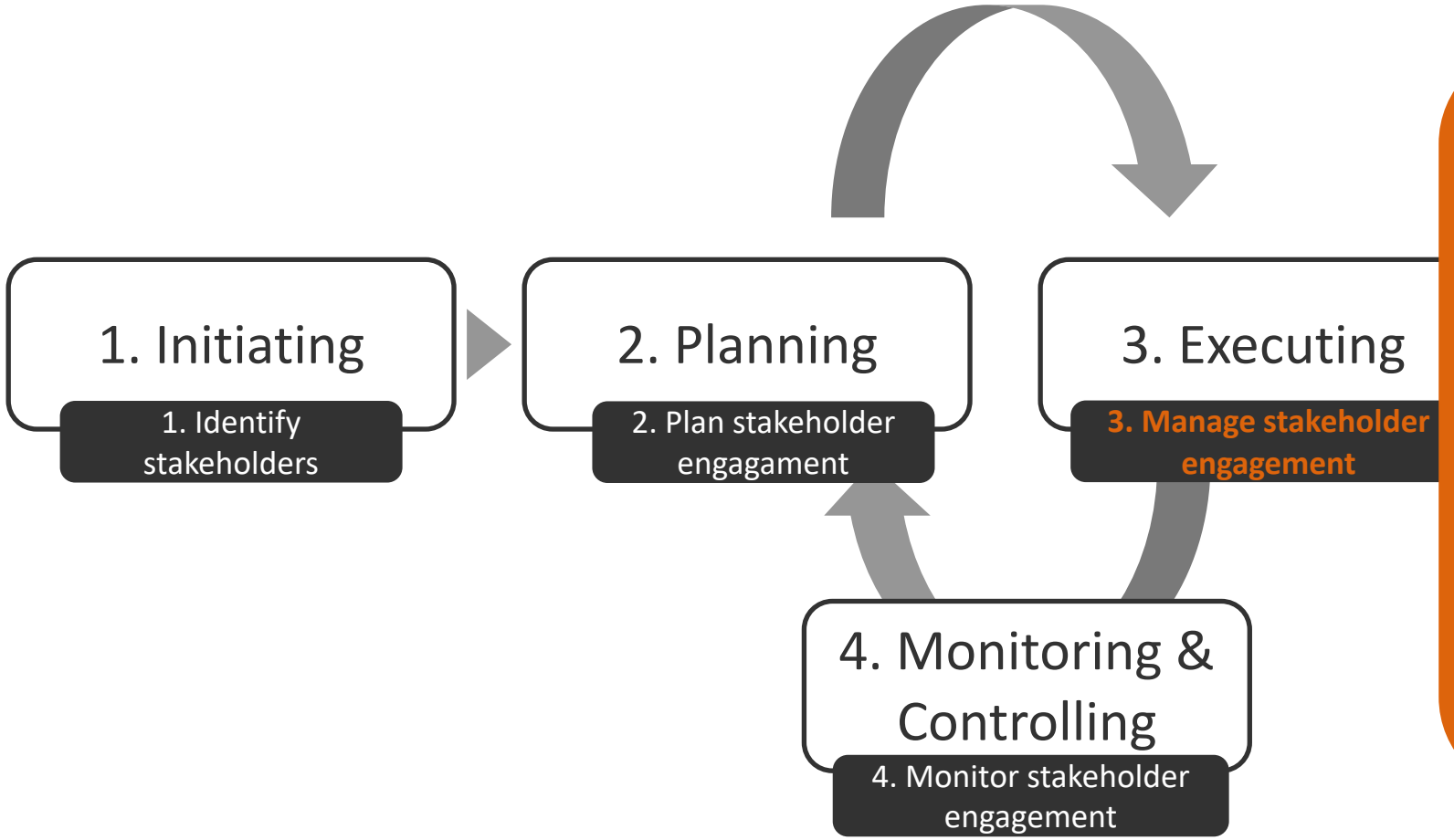
Everything is fine

C – Current

D – Desired

The gap describes the need for improving stakeholder engagement

Project Lifecycle for Stakeholder Management



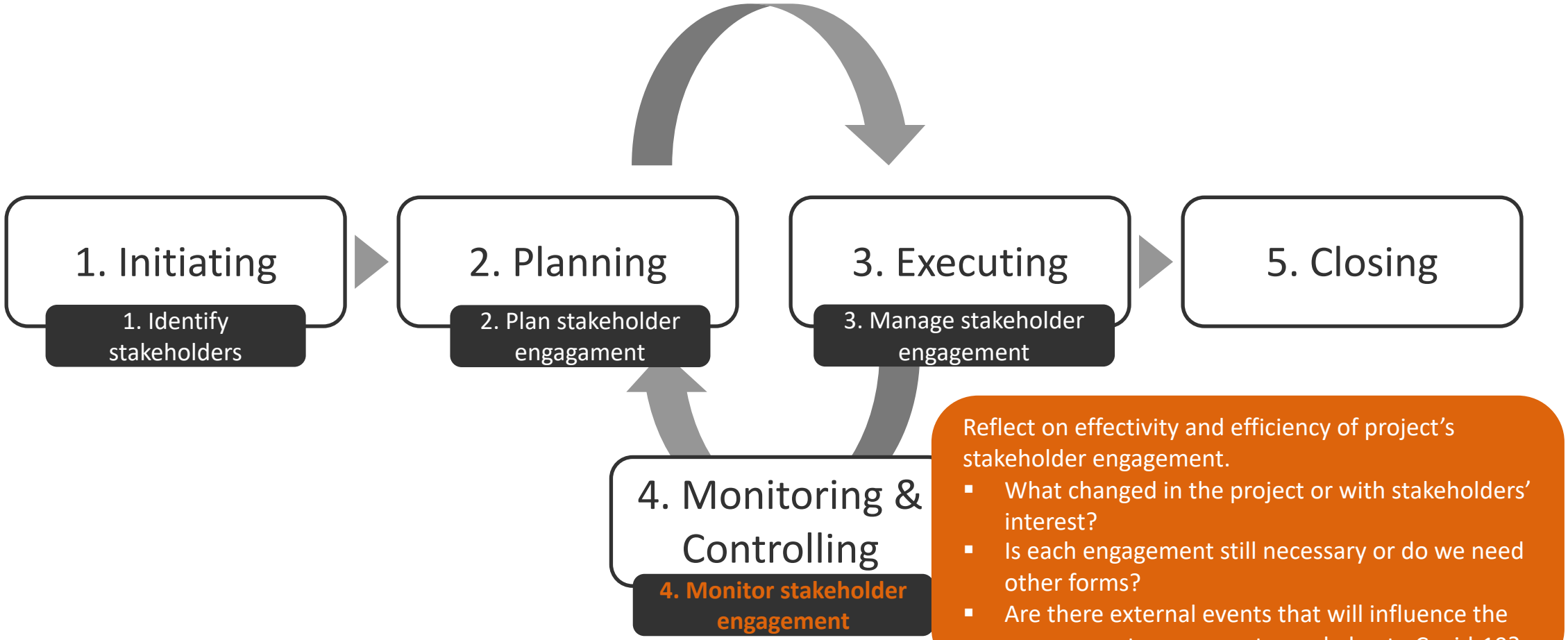
Communicate with stakeholders and work together in order to continuously understand expectations, problems, and (conflicting) interests

- Increase support
- Decrease resistant
- Resolve challenges

Useful PM skills:

- Conflict management
- Cultural insights
- High emotional intelligence
- Negotiating and communication skills
- Political Understanding

Project Lifecycle for Stakeholder Management



Stakeholder Management Plan

Based on stakeholder register and communication plan plus the following columns:

- Best way to manage
- Action Items

Stakeholder	Project Role	…	Best Way to Manage	Action Items
Michael (Strategic Projects Manager, internal)	Project lead		Slack for short requests Mail for official communication Phone if it is really urgent	▪ Setup weekly workstream reporting ▪ Grant access to Github
Supervisory Board (Chairman, internal)	Project sponsor		Top-down communication Expect short-notice inquiries	▪ Build a one slide pitch deck ▪ Define blockers and risks
Showcase Guest (VIP, external)	Visitor		Via account executive (AE)	▪ Present showcase to AE and plan time during VIP tour at Sapphire

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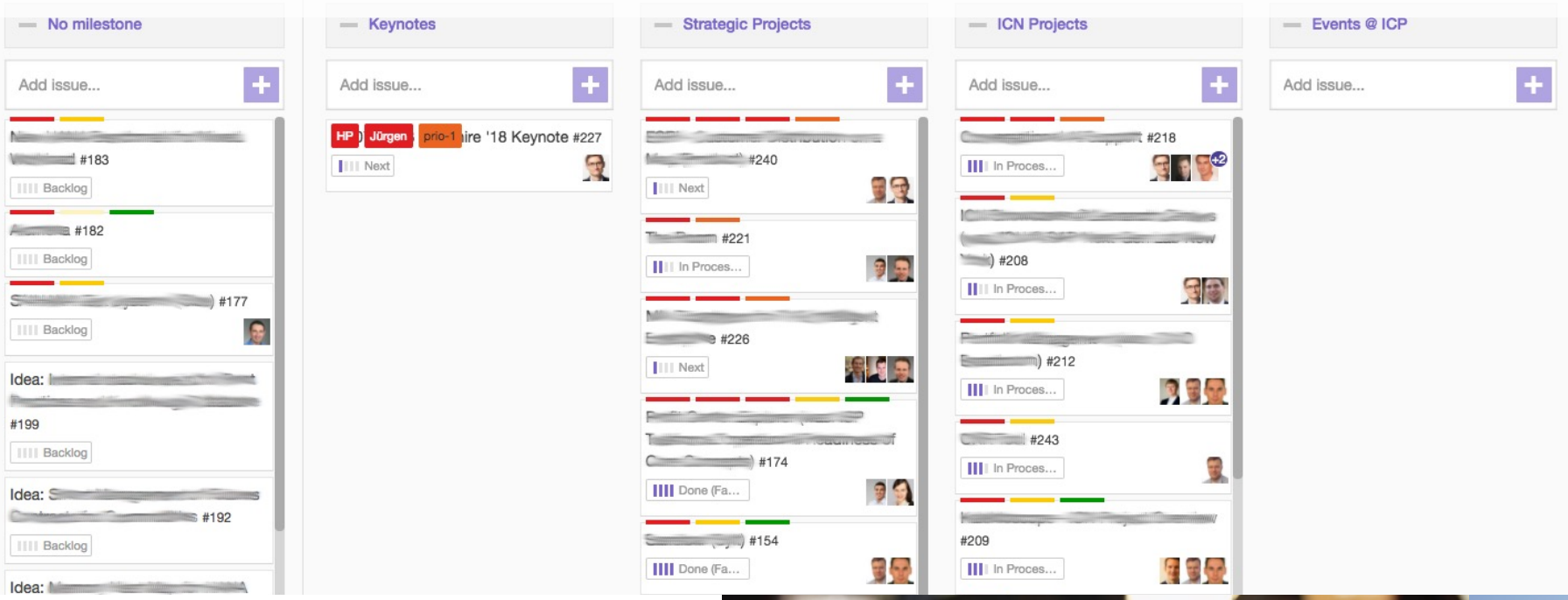
Project Management
Personal Recommendations and Conclusion

Transparent projects overview



Per project

Start: End:
Project Lead:
Contributors:
Mission:
Status:
Ticket:
Task:
Resources:
Contacts:
Result:

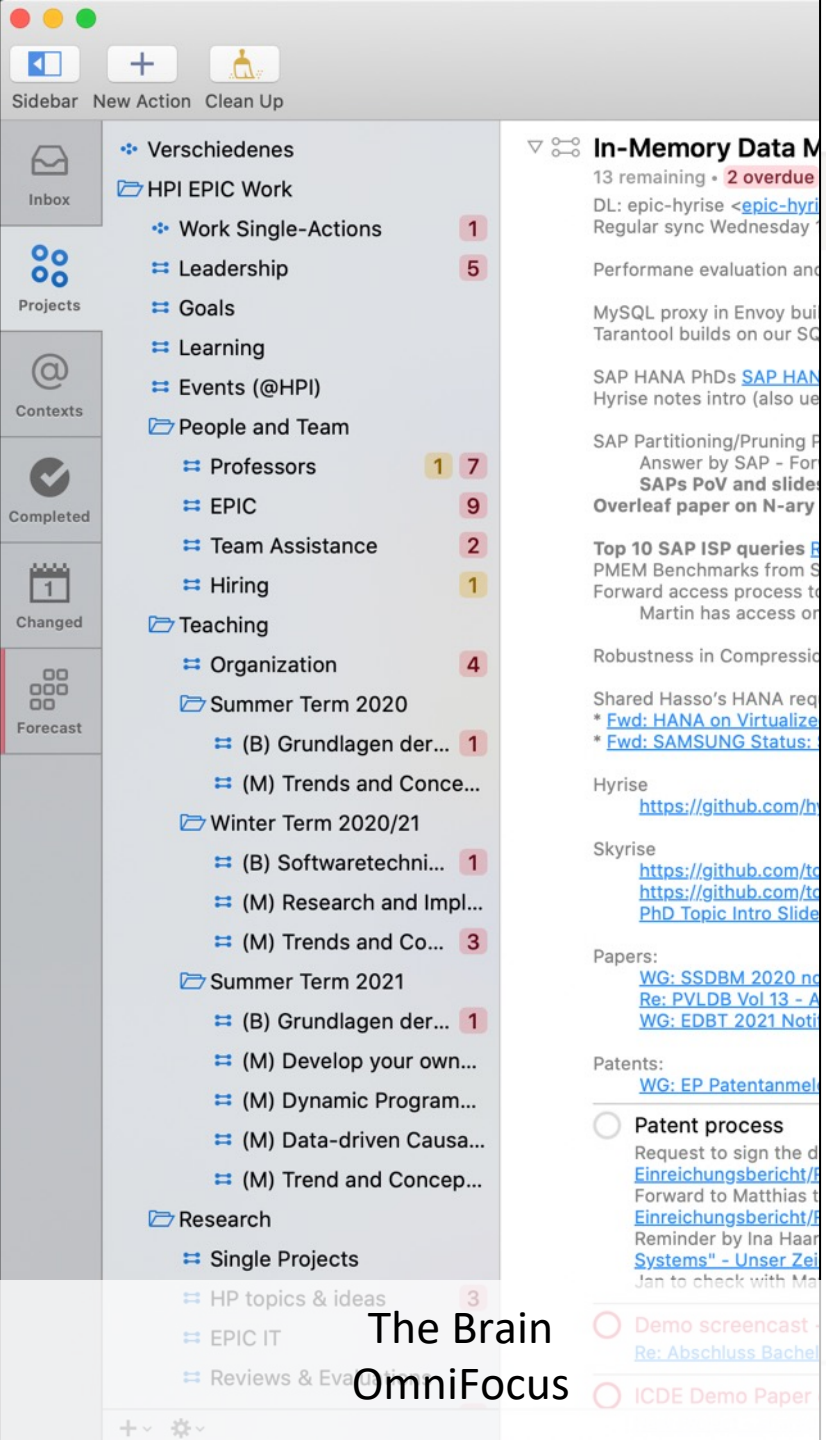
Relevance: 3 | 2 | 1

General Organization	
Setup biweekly sync meeting with key contributors & stakeholders	2
Create dedicated DLs (core team, demo support, …)	1
Identify and list core contacts *e.g. event, stage, and customer lead ; don't rely on wannabe experts, directly contact the responsible persons and make them aware, always define a main person from the keynote team who stays in contact*	3
Track all contributors *Note down name and email (optional: direct manager) + short description of the contribution for every contributor. Doing this later on increases the chances of missing someone.*	1
Involve SAP colleague as early as possible *Especially take care of non-POT located colleagues and find main contact*	2
Keep the file management infrastructure clean and lean *Try to separate large files (e.g. videos) from the main content, make contribution for external team members as easy as possible, but insist on using ONE file sharing approach*	3
Define an overall standard for file naming *Ideally start with <year><month><day>[…]*	3
Be prepared for general o[illegible] issues *Lack of (fast) internet connec[illegible]t happen, try to organize a calm project room if possible, be prepared exchange things by USB sticks etc.*	2

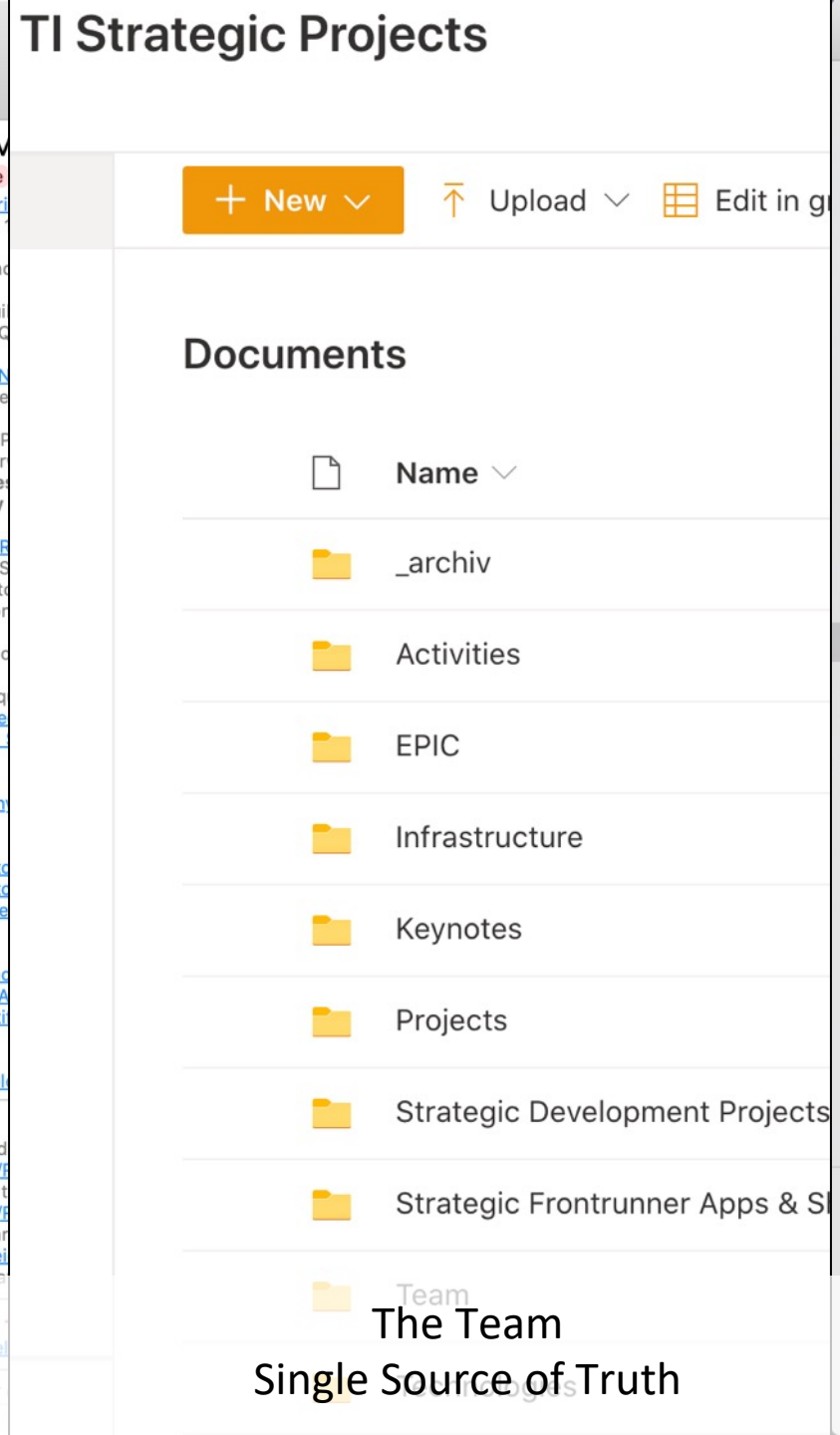
Checklists

Scrum and Agile Development

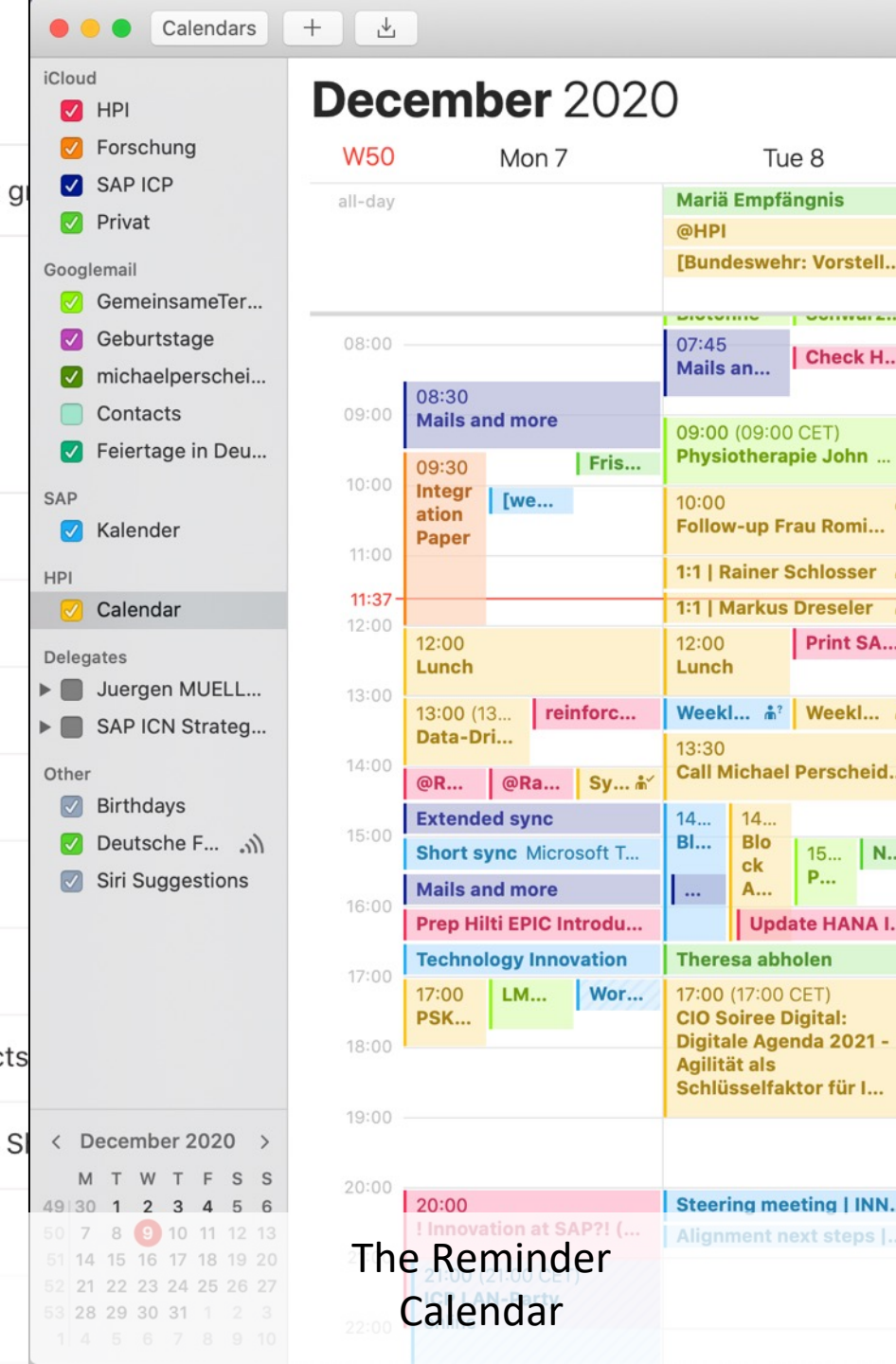
Kick-offs



The Brain
OmniFocus

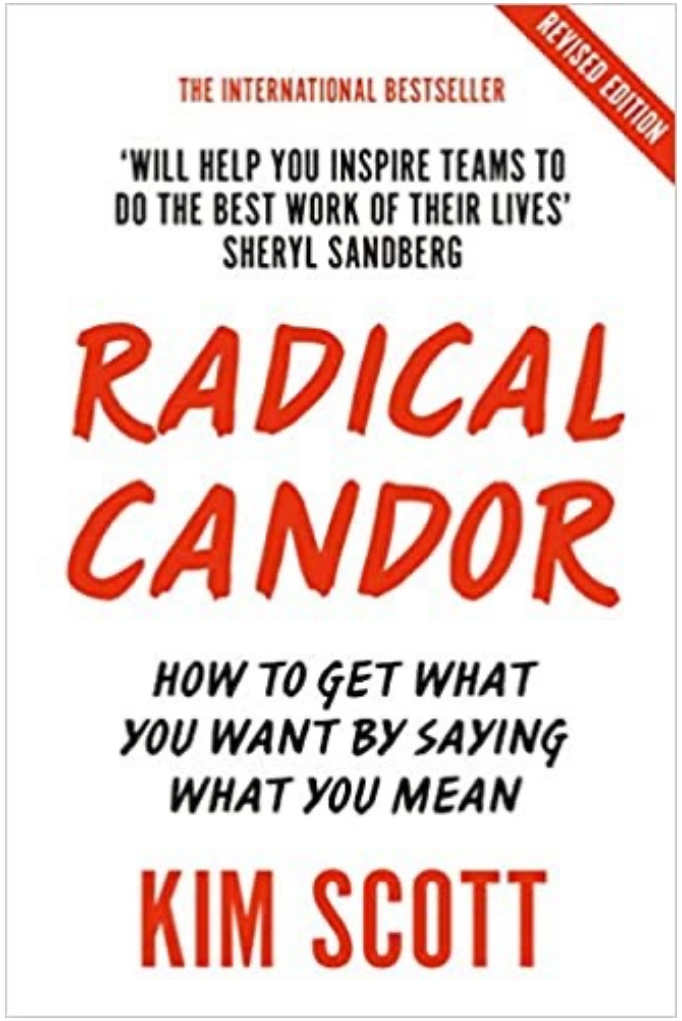


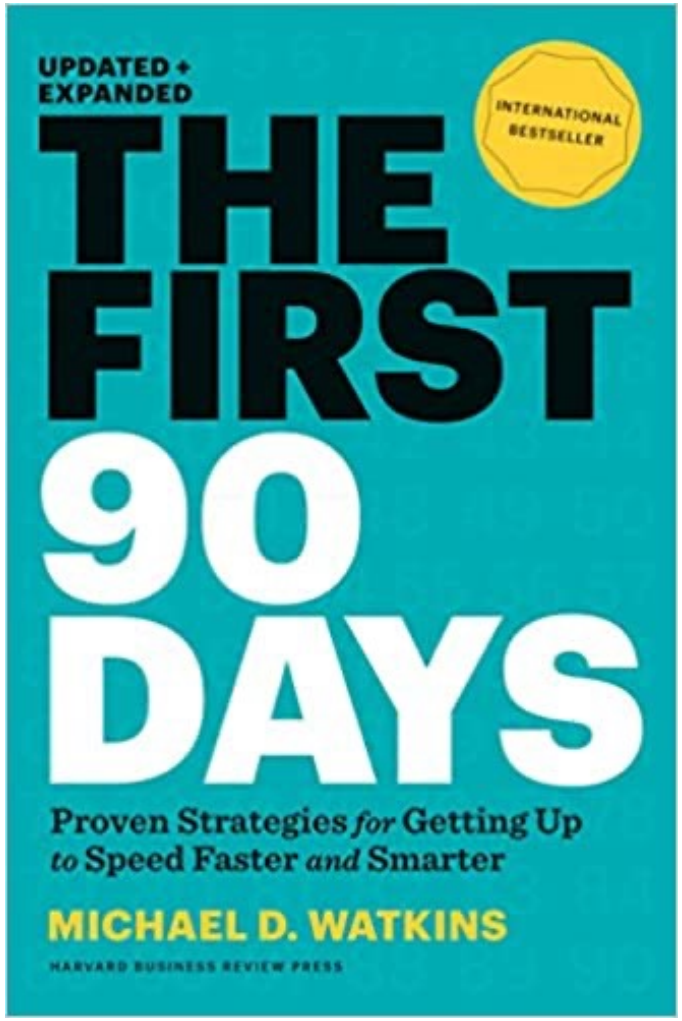
The Team
Single Source of Truth



The Reminder
Calendar

Reading Tips



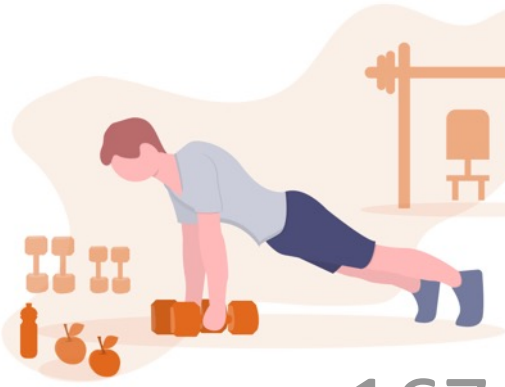


Personal Recommendations

- **Structure your working day**
  - Meetings just 25/50 minutes
  - Ensure breaks
  - Use meeting requests
  - Block working and private time
- **Centralize document storage** (incl. collaborative editing)
- **Prioritize your communication channels**
  - Mail (can wait), VIP Mail, Discord/Slack (short requests), Meetings, mobile (decide who has this number, don't be pushy), short messages (outside working hours or important notes during meetings)
  - Turn on video
  - Limit notifications (each one is an interruption)!

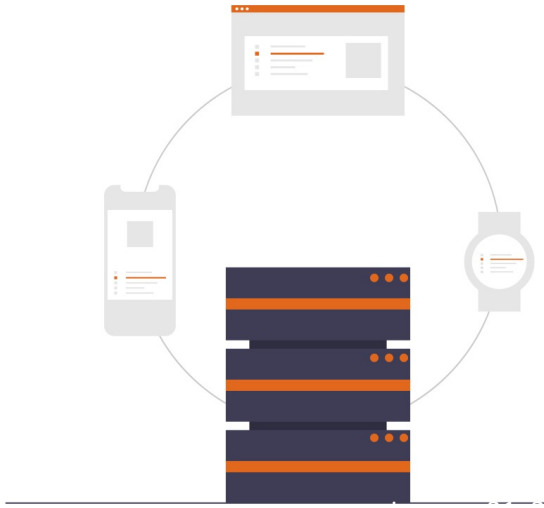
Personal Recommendations

- **Take care of your physical health**
- **Take care of your mental health**
  - Virtual coffees and off-work events with colleagues
  - Keep a good routine going
- **How to lead a remote team**
  - 1:1s are the most important management method
  - Check in with your team regularly
  - Don’t be afraid to overcommunicate
  - Request (more often) feedback
    (about employees, yourself, team and company)!
  - Keep having fun, learn *serious* small talk and *active listening*



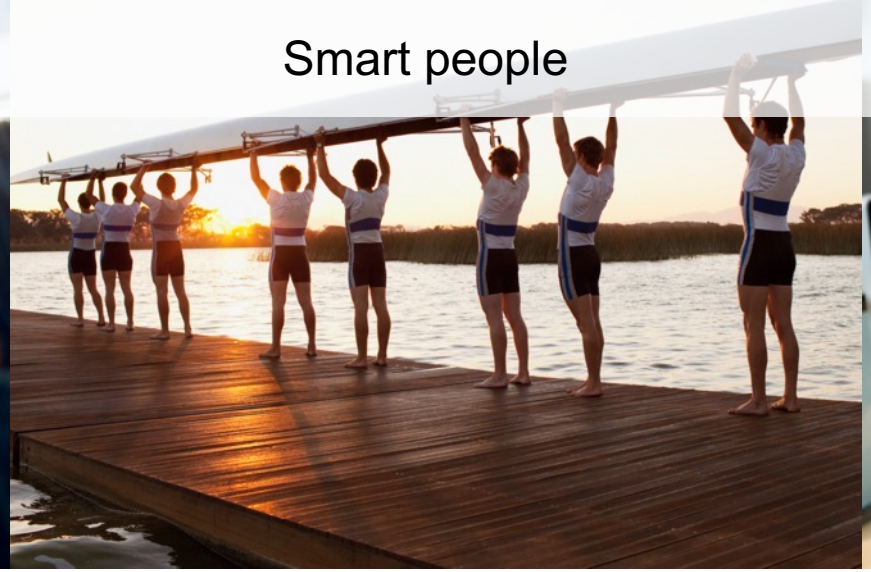
Recommendations for Remote Work

- **Provide the right hardware**
  - Paperless office
  - Ergonomic desk, monitors, keyboards, wireless earphones
  - Where to keep your backup disk?
  - Always have a good internet connection (upload is the key!)
  - Don't forget remote work security (stable VPN)



Transparency

Smart people

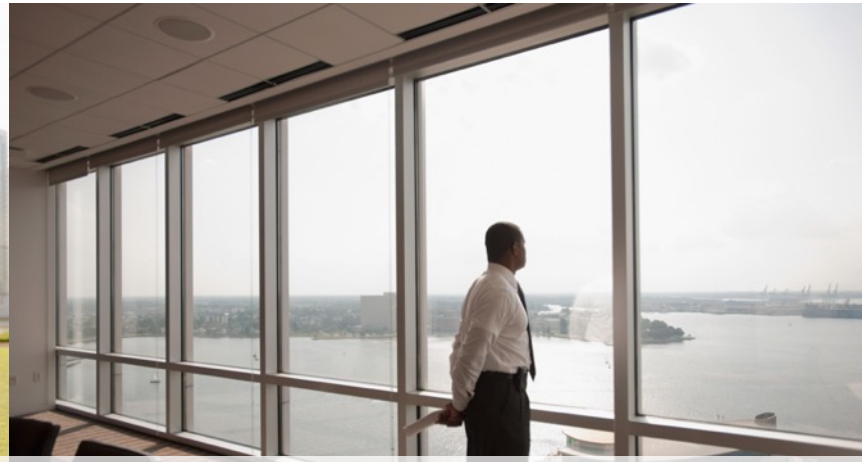


Reporting

Lessons Learned: “Structured Agility”

Throwaway

Pragmatism



Expect the unexpected