Welcome to Project Management 1

Timetable of the day

12:15-13:00: Introduction to the course
13:00-13:45: Group formation
13:45-14:45: Lecture on project management in general
14:45-15:30: Discussion of ideas for project
15:30-15:45: Wrap-up and instructions for the next week

Introduction to the course, assessment and lecture plan

Philip Beske-Janssen

- PhD on Sustainable Supply Chain Management
- Research interest in Sustainable Supply Chain Management, Circular Economy and Sustainability related topics

Associate Professor, SDU
2024– Odense DK

Assistant Professor, Copenhagen Business School
2018–2024 Copenhagen DK

Postdoc, Leuphana University of Lüneburg
2015–2018 Lüneburg DE

Research Assistant, PhD University of Kassel
2007–2014 Kassel DE

Young Graduate Trainee, European Space Agency
2005–2006 Noordwijk NL

Interships and Freelancer
2001–2005

Master Studies, University of Oldenburg
1998–2005 Oldenburg DE

My expectations for you

- Self-driven and being here to learn
- Active during lectures and presentations
- Curious and helping the learning expand
- Supporting each other’s learning journeys even with different starting points and learning styles
- Put yourself in the spotlight
- Creating a social atmosphere exceeding the classroom

What do you hope to take away from the course?

What is your experience with project management?

→ Have any of you ever been involved in a project before?

→ Have any of you ever managed a project before?

→ Discuss with your neighbor – then plenary

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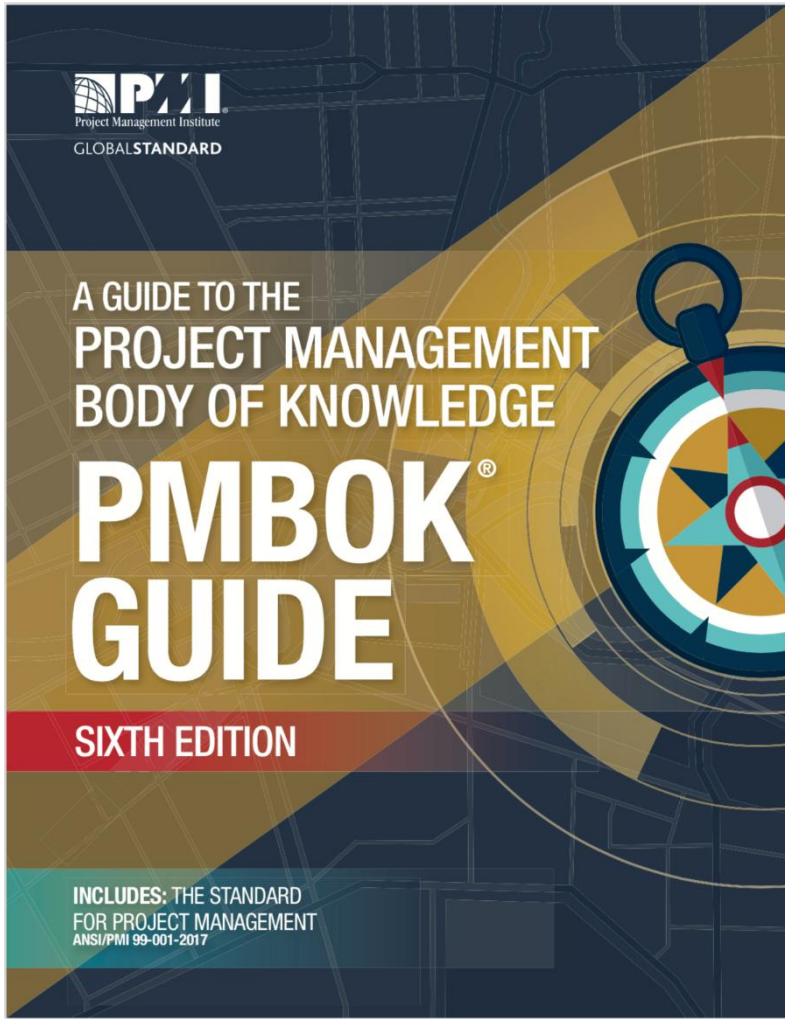
The course content will be based on the Project Management Body of Knowledge (PMBOK Guide 6th edition) as well as models delivered through lecture slides.

The Danish university system emphasizes critical and independent thinking, so you are very welcome to add your own resources to the course materials in order to fulfill the learning objectives.



Themes in the book

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project	13.1 Identify	13.2 Plan	13.3 Manage	13.4 Monitor	

Purpose of the course

Obtain insights into the project management discipline and its concepts and assumptions

Learn how to **analyze projects and project processes** to be able to contribute to the accomplishment of all types of projects

Independently **utilize this knowledge** to work out project mandates with matching analyses and plans, and be able to evaluate project descriptions, analyses and plans worked out by others.

Be an active member of a project

Learning objectives

→ By the end, the student should be able to:

- Identify and implement different aspects of projects: The technical, the organizational, the business and the political aspects
- Develop teamwork in working groups
- Describe the roles to be played in teamwork
- Describe roles to be filled in teamwork
- Become aware of cultural differences

- Assess project management organization within company organizations
- Analyze a project and its elements
- Make the master plan of a project
- Planning and execution of projects including related tools, e.g., Gantt Charts, Network, etc.
- Budget planning and controlling of projects

- Being able to define important project parameters including scope and organizational influences of projects
- Being able to apply project planning and execution tools
- Behave and act as project team member as well as project manager

Course format and assessment

LECTURES

PROJECT WORK BASED ON LECTURES

A GROUP-BASED PROJECT ASSESSED THROUGH A ***REPORT (25%)*** AND A ***PRESENTATION (25%)***

MCQ (50%)

Operationalization of learning objectives

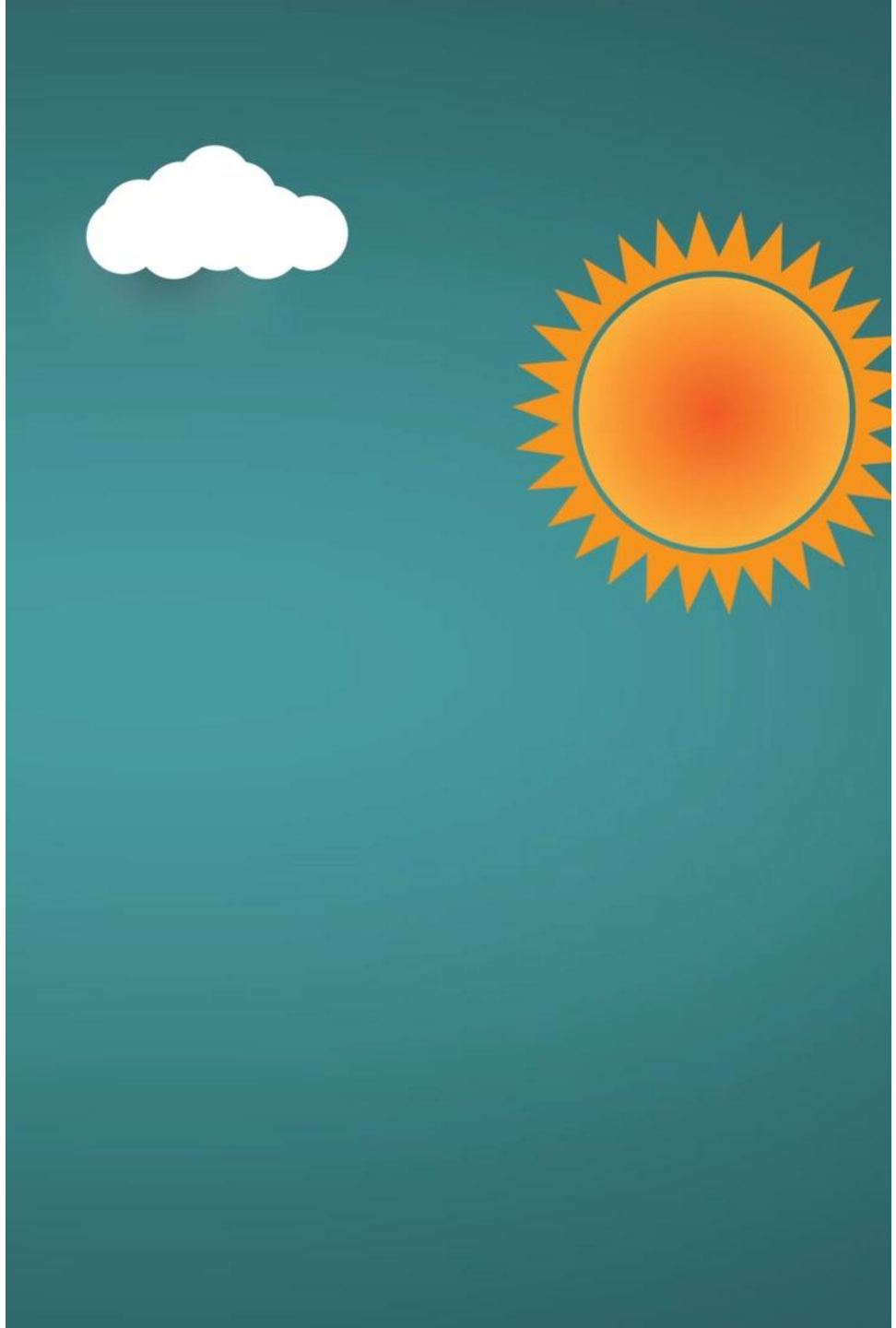
- Book provides the foundation
- Dry but comprehensive
- Inspired by Harvard University case teaching and problem-based teaching use a uniting case throughout the course
- ‘Electric Car’ and your own case
- Fun and adds life to the dry book
- Links theory/concepts to real world

Connection between lectures, exercises and group project

THE LEARNING APPROACH IS THAT YOU WILL LEARN HOW TO TRANSLATE THEORY AND MODELS INTO YOUR OWN GROUP PROJECT

YOU WILL WATCH PRESENTATIONS FROM YOUR PEERS TO GET INSPIRATION

YOU WILL GET FEEDBACK FROM ALL WHEN YOU PRESENT AND THE AVAILABILITY FOR DEDICATED FEEDBACK FROM ME



Project report

- → Make up your own project! Sky is the limit.
- → Imagine you are in the first phase of a project, and you have to describe your project
- → REFLECT on the use of models
- → Max. 15 pages (put bigger figures and excel sheets in appendix)

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The project report content

- **Executive summary**
  - → Description of the project
  - → The status of the project (you write about the current status of the project; in most of your group projects, you are more likely to be in the initiating phase aiming to specify and approve the project)
  - → Main actions that you have completed in the initiating phase (submit the project charter for approval; fund raising is underway and we made the first meeting and presented the charter....)
  - → Challenges (it could be something like fund raising or maintain the cost within budget or exceed time and scope or find human resources...)
- **Project charter**
- **Organization:** here you present the structure in organogram form, and you explain why you choose this structure
- **Stakeholders:** you present all your stakeholders with the matrix of power/interest and the matrix of influence and you write about your strategy to deal with stakeholders
- **Scope:** you explain the scope (scope statement) in details, and you present the WBS in list format and in graphic format
- **Schedule:** Give details of the plan in Gantt chart and with the Critical path method
- **Cost:** Budget and estimation/simulation of the earned value in the first months of the project
- **Risk / Quality**
- **Resources / Procurement**
- **Communication**

The project - Examples

Inspiration from former students

- Drive Me (all in one)
  - The group has decided to make **an application that fulfills almost all requirements to make the day-to-day life easier**. This application will be a way to book a ride, deliver food or deliver groceries to the doorstep, it will try to combine all these things into one application.
- Walk Left, Drive Right
  - This campaign is about **making people go on the left side of the road**, and any vehicles to drive on the right side of the road. This will be done by posters, merchandise (safety vests, reflexes, bicycle lights ect.)
- The sensor shirt to track vitals
  - The idea is to **integrate sensors into a single wearable product** and allow the data from the **sensors to be easily used for medical monitoring applications and increasing sports performance**. Scope was the construction of a prototype.
- The Spanish Tapas Bar
  - The students were missing Spanish food in Odense so they decided to **open a Spanish tapas bar**. This includes planning for the location, for staff, for commercialization, procurement of ingredients, furniture,….

Project report - inspiration

- Case used as reference/inspiration during the course – many themes have examples from the electric car case
- In addition you will find previous project reports as examples and inspiration on itslearning

- "*Your team is part of the Random Electric Car Club. The Club has decided to enter into a national competition to build a battery powered car that will compete to see who can go the furthest in four hours with a single passenger.*
- *Your team has been selected to enter the competition on behalf of the club.*
- *The competition will be conducted at a location that is approximately 300 miles away from the current location of your club*
- *the car must be built from locally sourced, commercially available material etc…*
- *In order to fund the car, the Club must raise the money itself from sponsors and other sources.*

The final presentation – feedback for report

Use Powerpoint (one to two slides for each group member)

All group members should participate in the presentation

The presentation contains a summary of:

- Project description
- Project organization
- Project stakeholders
- Project charter
- Project Scope Statement
- Project schedule (Gantt chart and Critical Path)
- Project cost
- Project risk
- Project quality

Group formation and project definitions

Group based project

The groups will facilitate your learning and reflection, as well as be the team mates for the final presentation and report

The groups select a project of their own choice for the course – preferably a current real project one member is involved in.

Criteria for group formation

→ 5-7 participants

→ Diversity of participants

→ Excited about project

- You work on the project during each session

What is a project that you would have loved to have been a part of?

Go to different corners depending on your interest:

- App
- Prototype of e.g. a robot
- Service offering
- Physical product

What characterizes a good learning project?

By selecting an authentic project, you will get more learning opportunities

Should be possible to gather the necessary data for the report

You should be excited about the

Launch of the project should be feasible in the near future – building a Danish colony on the moon might be too complex…

Write your groups in the Google Sheets

- Return at 13:45

https://docs.google.com/spreadsheets/d/1gKv8RFloqaHYRlr4CYcmsyKOmecjGpo54BklE5nat-c/edit?usp=sharing

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Projects in general, project organization and project manager

Why project management?

→ Companies are confronted with uncertainty, fluctuations, new demands, different risks, and new consumer demands
→ Companies are never being but always becoming
  → Introducing new products
  → Redesigning their global supply chains
  → Making new CSR guiding principles
  → Engage in strategy development

→ **All these activities are organized as projects and require specific management**

Table 1-2. Comparative Overview of Portfolios, Programs, and Projects

Organizational Project Management			
	Projects	**Programs**	**Portfolios**
Definition	A project is a temporary endeavor undertaken to create a unique product, service, or result.	A program is a group of related projects, subsidiary programs, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.	A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.
Scope	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a scope that encompasses the scopes of its program components. Programs produce benefits to an organization by ensuring that the outputs and outcomes of program components are delivered in a coordinated and complementary manner.	Portfolios have an organizational scope that changes with the strategic objectives of the organization.
Change	Project managers expect change and implement processes to keep change	Programs are managed in a manner that accepts and adapts to change as	Portfolio managers continuously monitor changes in the broader

Some of the major characteristics of a project

A project…

- has an established objective.
- has a defined life span with a beginning and an end.
- involves several departments and professionals.
- often involves doing something which has not been done before.
- has specific time, cost and performance requirements.

Why do I need to know what a project is?

Project management is different from normal operations
Project team
New team, get to know each other
Establish goals
Distribute tasks
High degree of uncertainty
Specific management tools
Conventional production teams
Know each other
Already established goals
Incremental changes
Already shared knowledge of tasks and persons

Examples of project – note that routine and repetitive work is not considered a project

Project examples	Examples of repetitive work
• Develop a new fitness program for senior citizens. • Create your project report. • Change the production to meet compliance. • Create a promotion plan for the new iPhone. • Implement a new performance measurement system. • Design, planning, and erection of apartment building. • Change of the present organizational structure.	• Adjuring the fitness level of the senior citizens. • Taking class notes. • Attaching tags to the manufactured products. • Routine manufacture of the new iPhone. • Putting the KPI numbers into the dashboard.

Project Management Approaches

	Traditional PM	Lean PM	Agile PM
Guiding values	Balance time, scope and costs → quality	Create flow efficiency and minimize waste	Produce high value fast
Principles	Plan all elements of a project with clear specifications, manage and monitor closely	• Focus on value - as defined by the customer • Visualize the value stream • Increase process throughout • Improve continuously	Short feedback loops (iterations), Fast learning, Small teams, Quality focus
Tools	Everything from this course (PMBOK)	PDCA (Plan, Do, Check, Act) VSM (Value Stream Mapping) Kanban, A3 etc.	Agile/Scrum meetings Self-organization
Decision making	Top down, clearly defined	Wait for the last responsible moment to make decisions (JIT)	Delegate to, teamwork, flexibility

Project Management Approaches?

https://lightbureau.com/projects/the-great-belt-bridge/ https://templates.rjuuc.edu.np/en/app-development-website-template.html , https://www.electronicspecifier.com/products/design-automation/new-id-buzz-is-named-electric-car-of-the-year

Which approach is the right one?

1. Project requirements:

→ If project requirements are unclear or tend to change, choose the agile methodology versus if conditions are clearly defined and can be planned upfront, choose PMBOK

→ **2. Technology involved:**

→ New technology or experimentation, choose agile versus no new technology, choose PMBOK

→ **3. Unwanted risks and threats:** risks can be addressed sooner in the agile approach versus PMBOK is more rigid, choose PMBOK when projects are less prone to risks

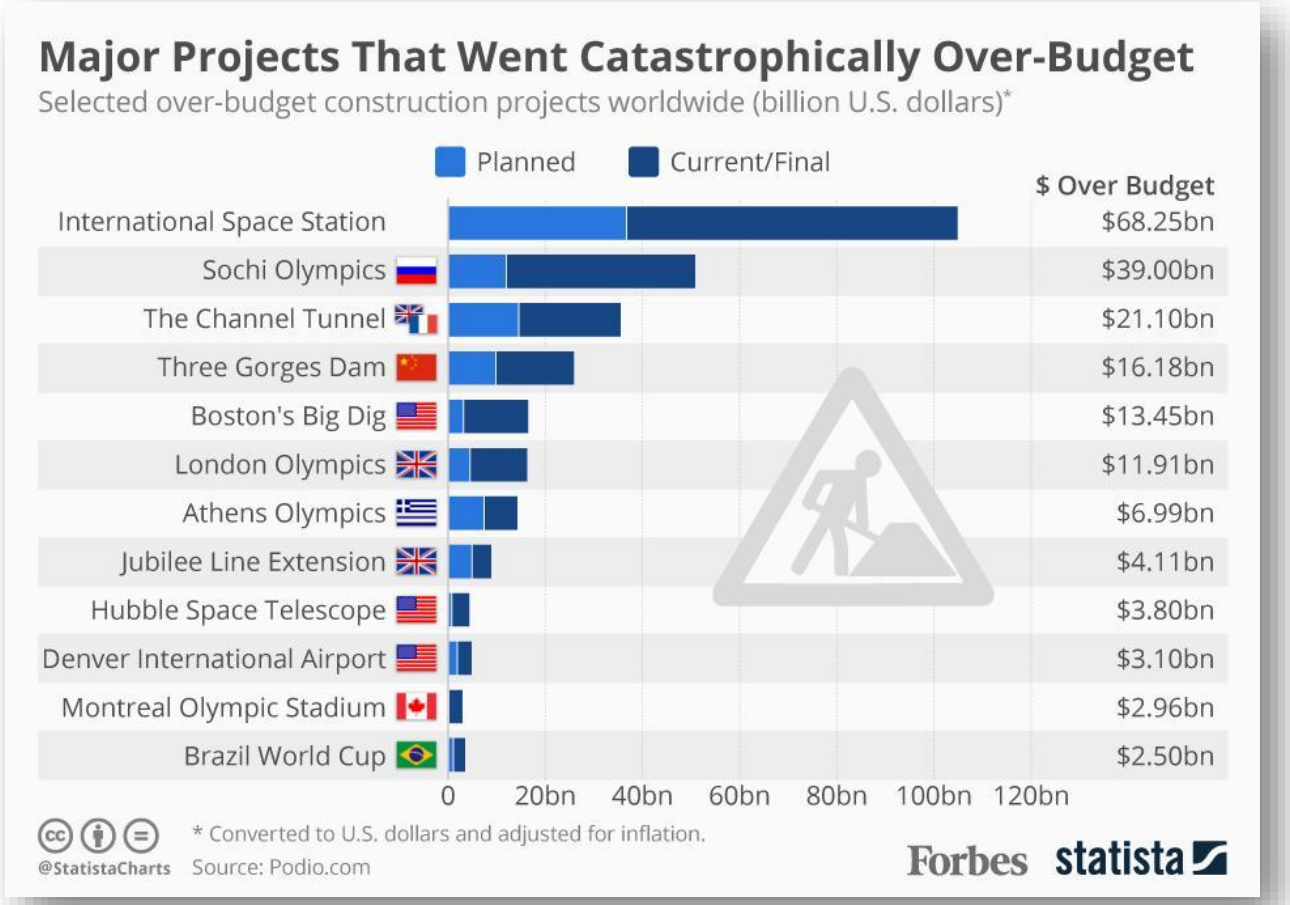
→ **4. Availability of ressources:** limited number of experienced team members in agile PM versus broader complex teams in PMBOK

There are many ways to differentiate projects.

Project type	Description/ Example
Change project	Change procedures in an organization.
Technical project	Building a prototype of a car.
Development project	Developing new software, product or service.
Analysis project/ feasibility study	Analysing something in depth. Can be used as a preliminary project.
Delivery project	Delivering heavy equipment to a customer.
Adaptation project	Adapting a standard solution to customer specifications.
Roll-out/ implementation project	Rolling out something which was developed in a previous project, e.g. an IT system.
Construction project	Building a house.
Negotiation project	Finding agreement among several potential solutions and perspectives.
Strategic project	Creates the conditions and opportunities for future results.
Operative project	Creates results here and now.

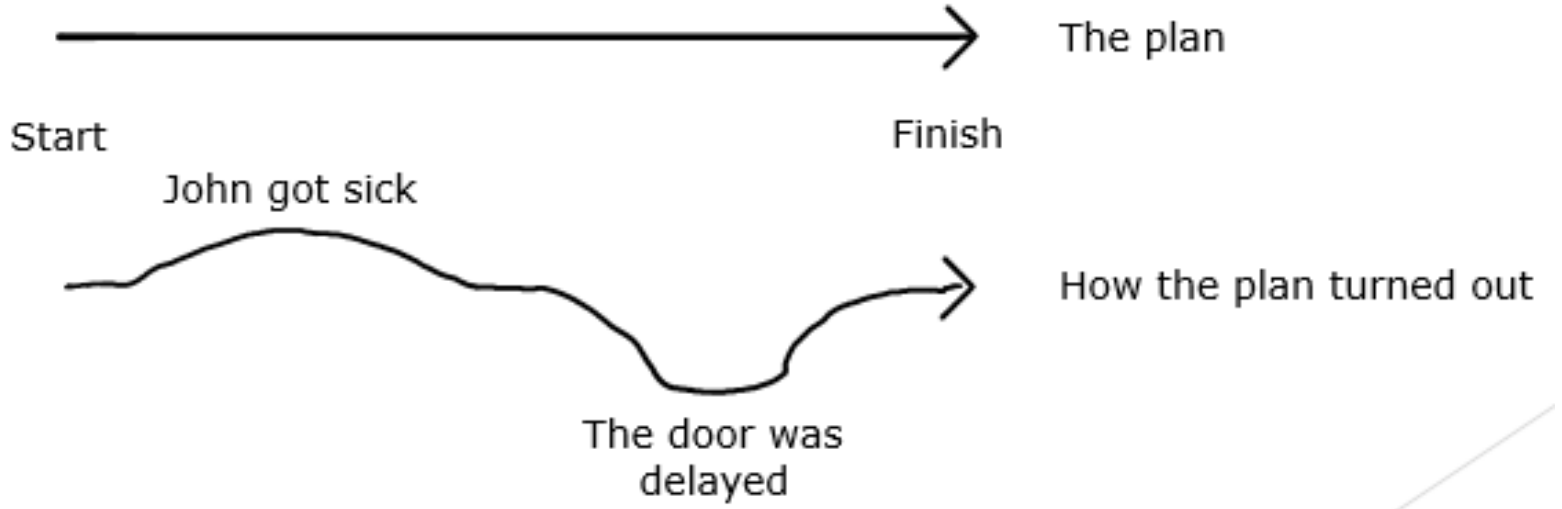
Projects are challenging

A few examples of projects going off track



The most important lesson of project management is to always expect change

”The Project Management processes are presented as discrete processes with defined interfaces while, in practice, they overlap and interact in ways that cannot be completely detailed in the PMBOK® Guide”
→ Things never truly work out as planned



The sooner challenges are identified and problems are solved the better…. and cheaper

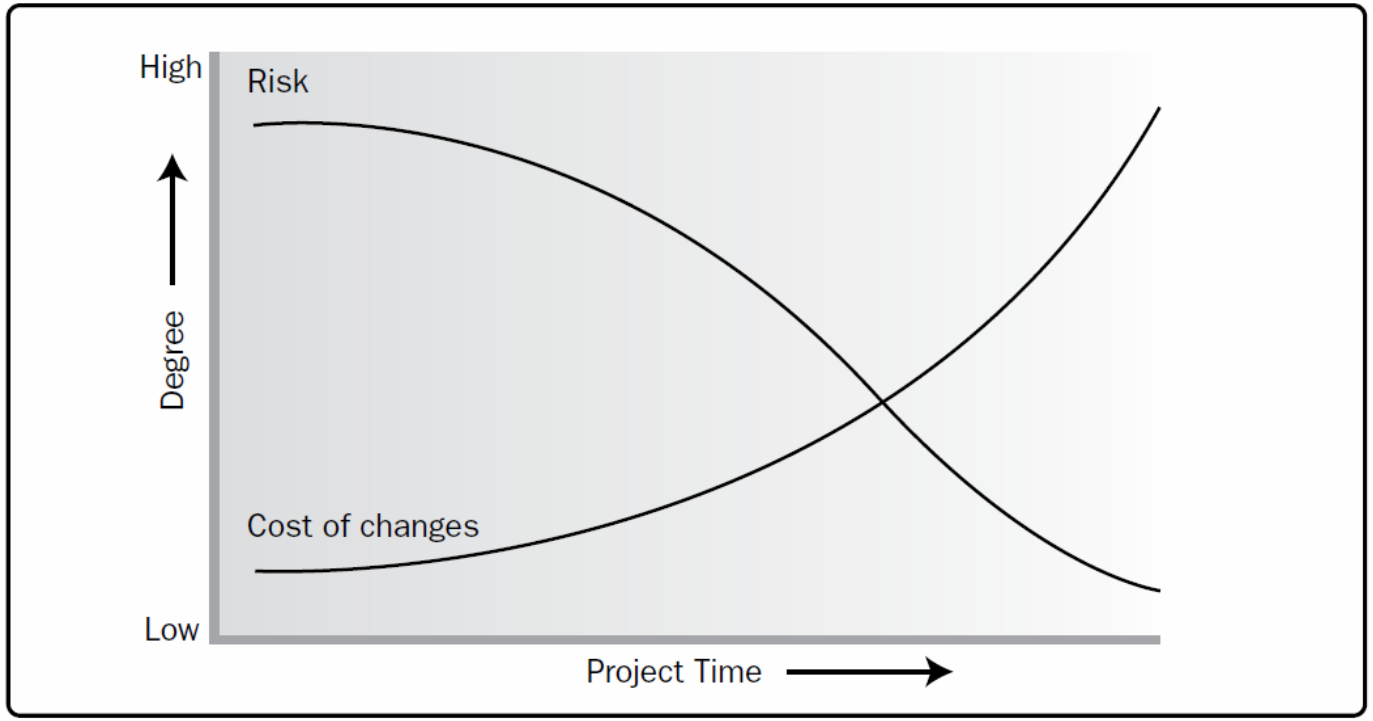


Figure 1-3. Impact of Variables Over Time

Because of the constant need of adjustments, project management is constantly looping

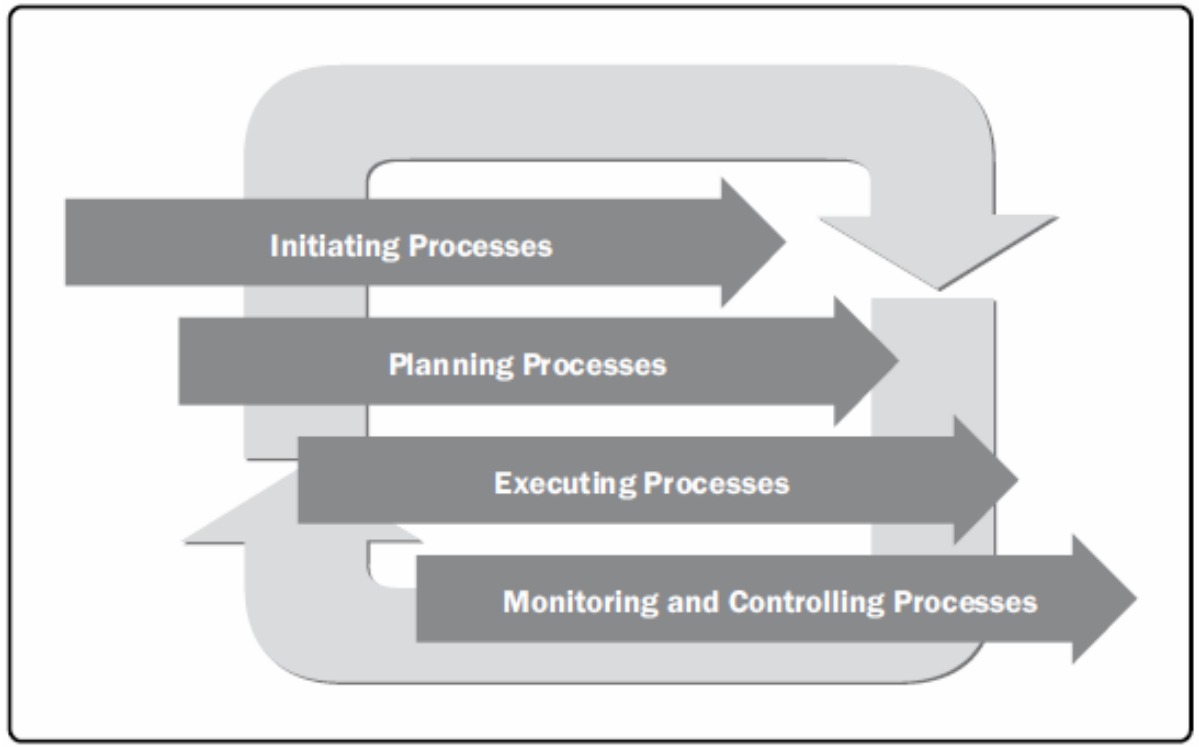
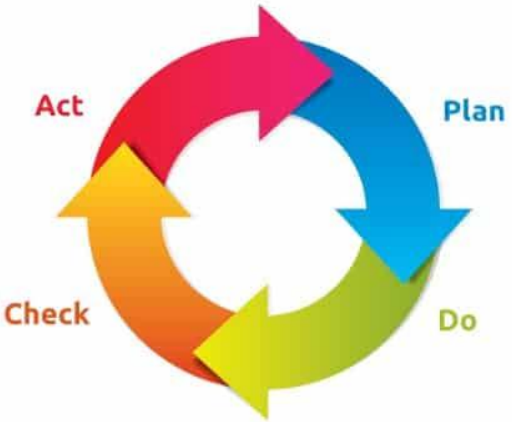
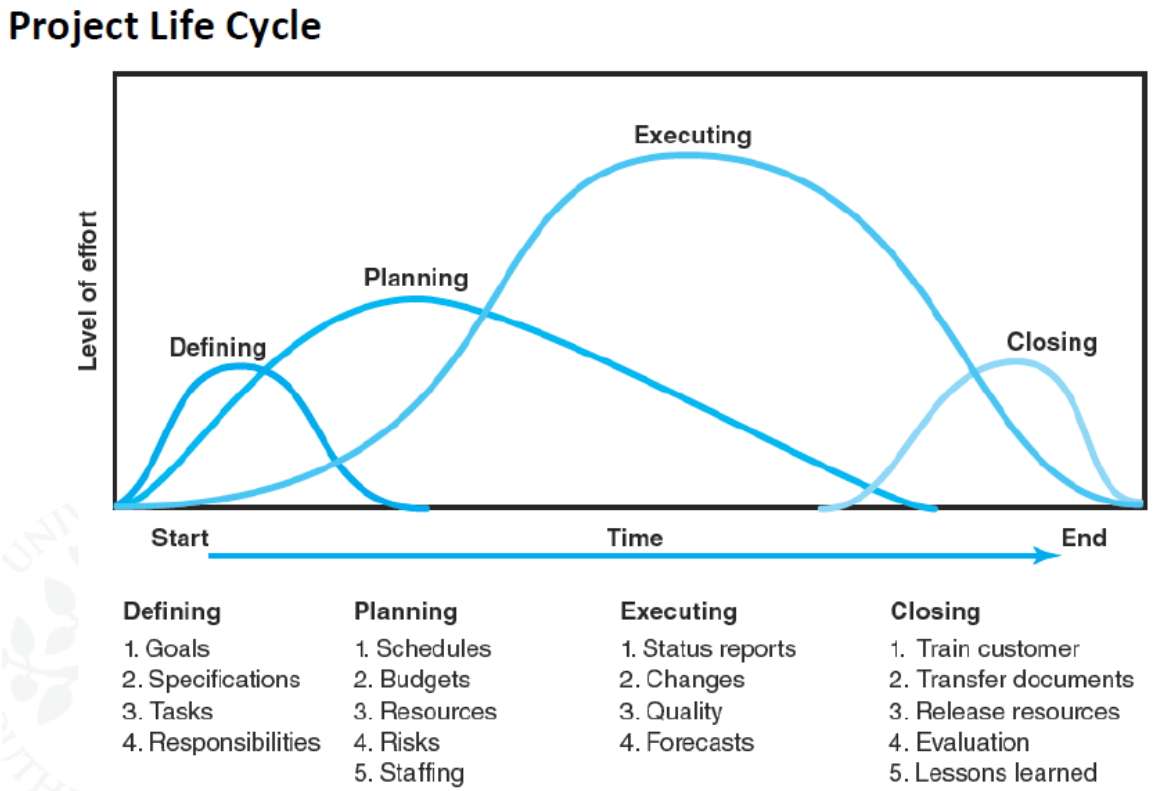


Figure X3-3. Relationship of Process Groups in Continuous Phases



https://www.revolutionlearning.co.uk/plan-check-act-pdca/

The phases of the project life cycle are overlapping each other (which leads to additional changes)



The human factor as a challenge for smooth projects.

→ People resist change and may fight internally.

→ Communication is complicated and there are often more stakeholders than expected.

→ Team members have very different backgrounds and way of working.

→ The actual boss is someone else.

→ Resources and time is scarce and pre-defined.

Finding the right project management structure is key

The different organizational structures have their own benefits and limitations

→ Functional Organizations.

→ Dedicated Project Teams.

→ Matrix Structure:
- → Weak matrix.
- → Balanced matrix.
- → Strong matrix.

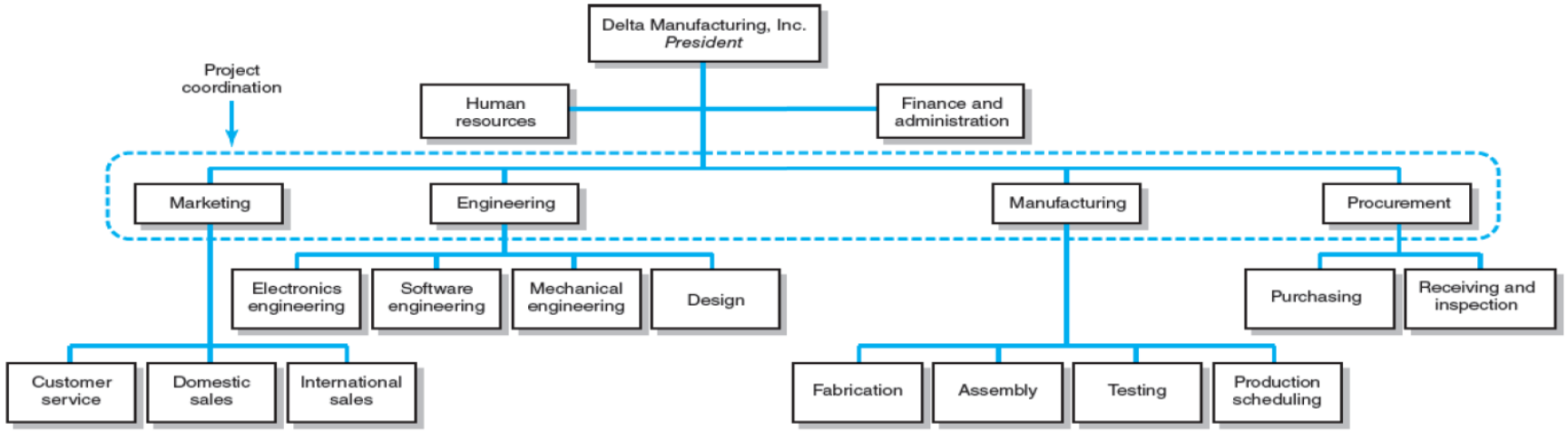
Organizing project with the Functional Organization

Top management decides to implement the project, and the different segments of the project are distributed to the appropriated areas.

Coordination is maintained through normal management channels.

It is commonly used when one functional area plays a dominant role in completing the project or has a dominant interest in the success of the project.

An example of the Functional Organization



An example of the Functional Organization

Advantages and disadvantages of using Functional organization

Advantages

- Flexibility.
- In-depth expertise.
- Easy post-project transition.

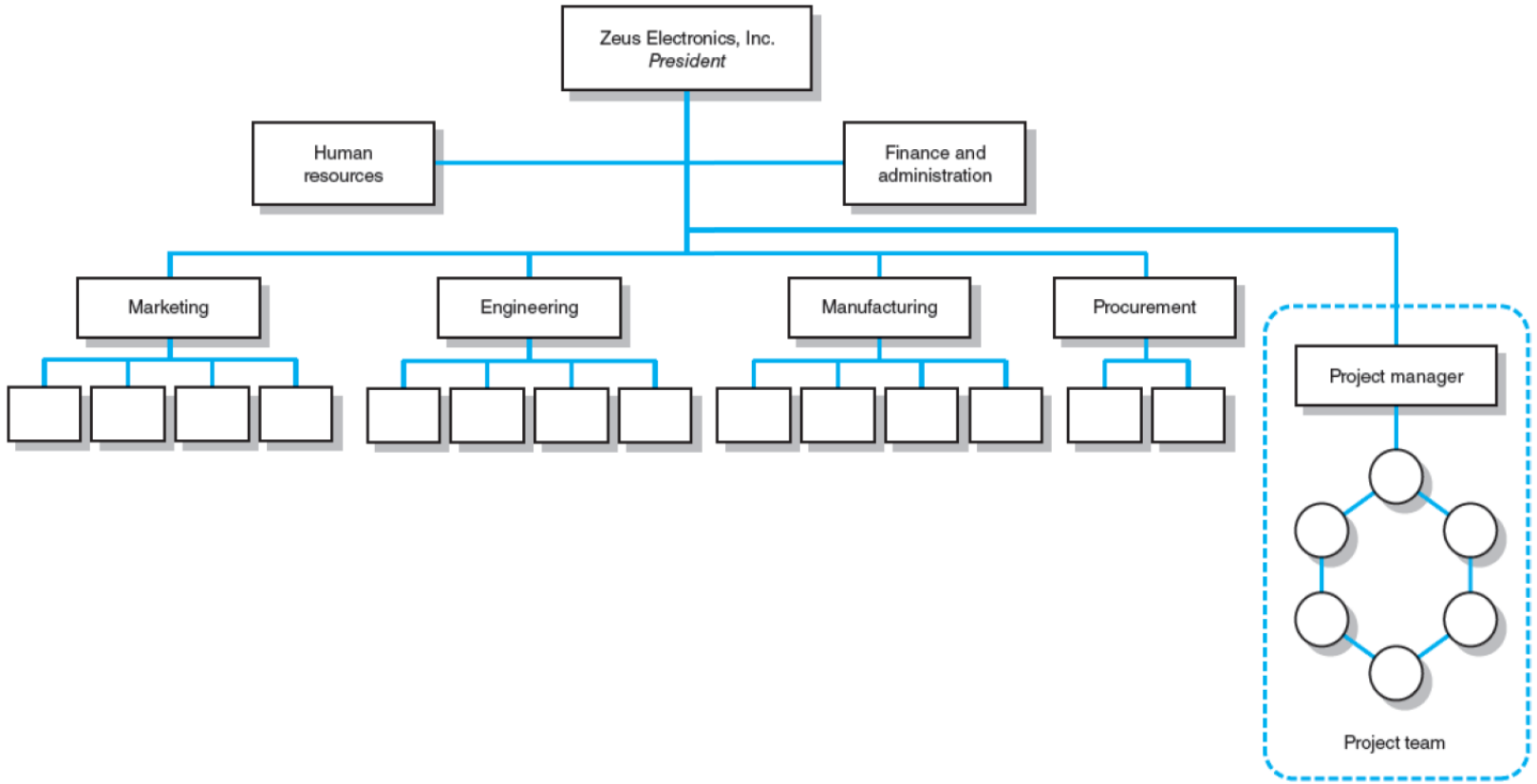
Disadvantages

- Lack of focus.
- Poor integration.
- Lack of ownership.

Organizing project with dedicated project teams

- Dedicated Project Teams operate as units separate from the rest of the parent organization.
- A full-time project manager is designated to pull together a core group of specialists who work full time on the project.
- The project manager recruits necessary personnel from both within and outside the parent company.
- In a projectized organization where project are the dominant form of business, the entire organization is designed to support project teams.
- A we-they attitude can emerge between project team members and the rest of the organization.

An example of Dedicated Project Teams



Advantages and disadvantages of using Dedicated Project Teams

Advantages

- Simple.
- Fast.
- Cross-functional integration.

Disadvantages

- Expensive.
- Internal strife.
- Lack of overall organizational integration.
- Difficult post-project transition.

“X-Y position indicator for a display system”

https://www.scoopnest.com/user/qikipedia/639126059305332736

Organizing project within a Matrix organization

Matrix management is a hybrid organizational form in which horizontal project management structure is overlaid on the normal functional hierarchy.

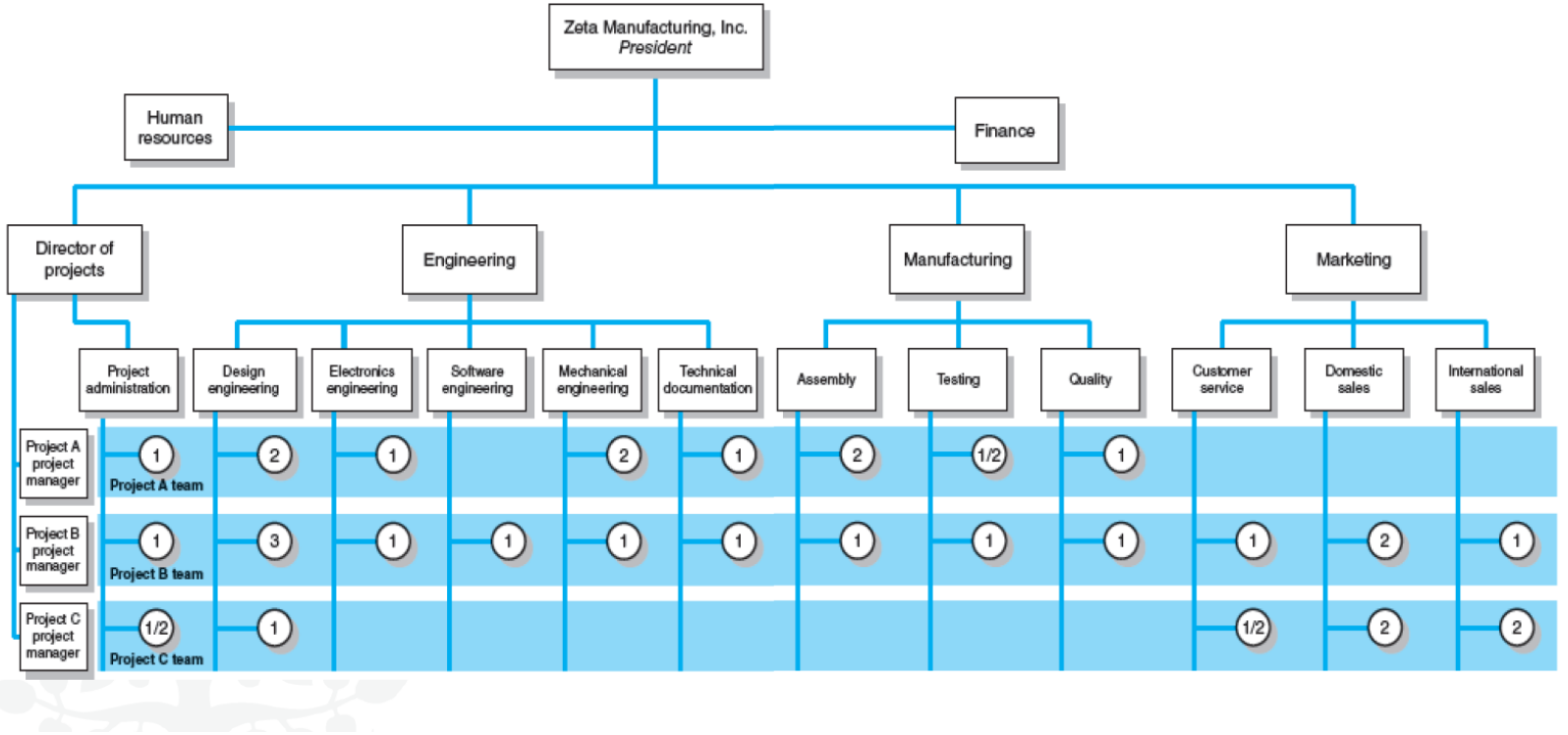
- There are usually two chains of command – one along functional lines and the other along project lines.
- Project participants report simultaneously to both functional and project managers.

The matrix structure is designed to utilize resources optimally.

- Individuals work on multiple projects as well as being capable of performing normal functional duties.
- It attempts to achieve greater integration by creating and legitimizing the authority of a project manager.
- It provides dual focus between functional/technical expertise and project requirements.

An example of a Matrix organization

Matrix Organization Structure



Different matrix form – weak matrix

- This form is very similar to a functional approach with the exception that there is a formally designated project manager responsible for coordinating project activities.
- Functional managers are responsible for managing their segment of the project.
- The project manager acts as a staff assistant who draws the schedules and checklists, collects information on the status of the work, and facilitates project completion.

Different matrix form – balanced matrix

→ The project manager is responsible for defining what needs to be accomplished.

→ The project manager establishes the overall plan for completing the project, integrates the contribution of the different disciplines, set schedules, and monitors the progress.

→ The functional managers are concerned with how it will be accomplished.

→ The functional managers are responsible for assigning personnel and executing their segment of the project according to the standards and schedules set by the project manager.

Different matrix form – strong matrix

- The project manager controls most aspects of the project, including scope trade-offs and assignment of functional personnel. The project manager controls when and what specialists do and has final say on major project decisions.

- The functional managers have title over their people and are consulted on a need basis. The functional managers serve as subcontractors for the project.

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Matrix (Strong) Project Organization Structure

Advantages and disadvantages of using a Matrix Organization

Advantages

- Efficient.
- Strong project focus.
- Easier post-project transition.
- Flexible.

Disadvantages

- Dysfunctional conflict (two bosses).
- Infighting.
- Stressful.
- Slow.

What is the right Project Management Structure? Short answer --> it depends..

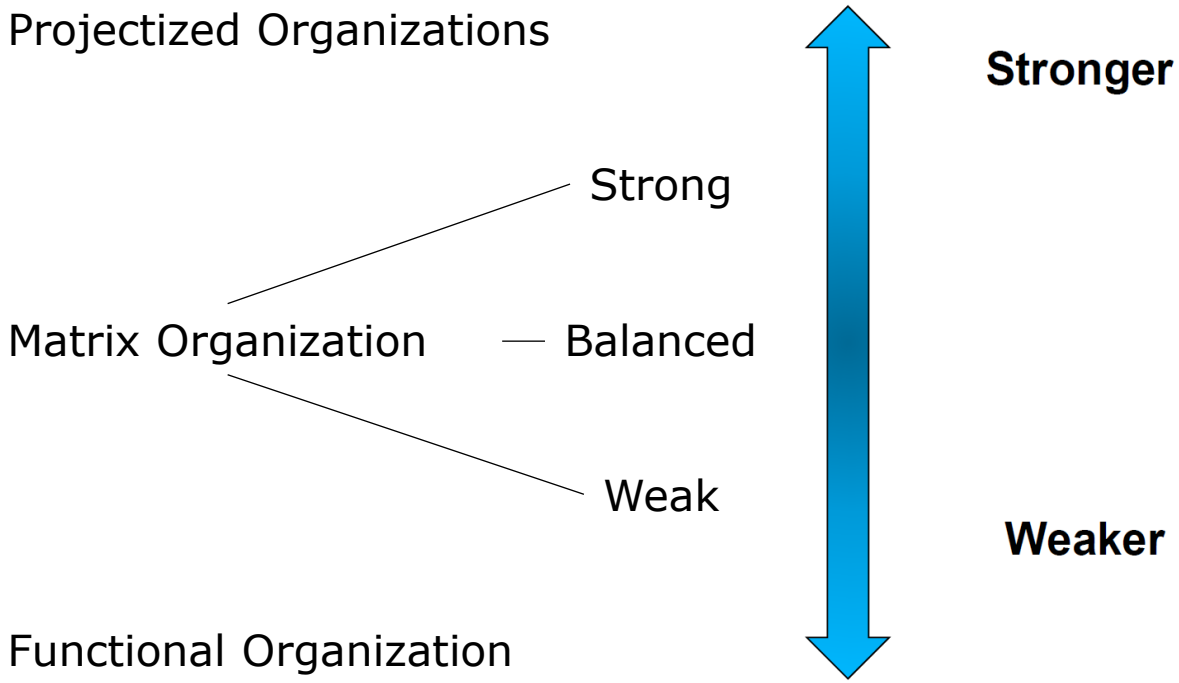
Organization considerations:

- How important is the project management to the success of the firm?
- What percentage of core work involves projects?
- What level of resources are available?

Project Considerations:

- Size of projects?
- Strategic importance?
- Novelty and need for innovation?
- Need for integration (number of departments involved)?
- Environmental complexity (number of external interfaces)?
- Budget and time constraints?
- Stability of resource requirements?

The project managers influence on the different organizational setups



The role of the project manager is quite diverse and requires many skills

The project manager…

→ Manages temporary, non-repetitive activities and frequently acts independently from the formal organization.

→ Arranges resources for the project.

→ Is the direct link to the customer.

→ Works with a diverse troupe of characters.

→ Provides direction, coordination, and integration to the project team.

→ Is responsible for performance and success of the project.

→ Must induce the right people at the right time to address the right issues and make the right decisions.

Project Management is Interface Management

The environment: Coordination with environment systems etc.

Top management: Commitment to decisions made. Ensure decisions before next phase.

Customer, project owner: Ensuring fulfillment of needs. Achievement of acceptance and handing over.

Participants: Commitment to tasks and responsibilities. Ensure communication between project participants, and work coordination.

Suppliers: Commitment to contractual obligations. Ensure quality of deliveries.

Stakeholders: Information and hearing – communication.

The project manager’s sphere of influence

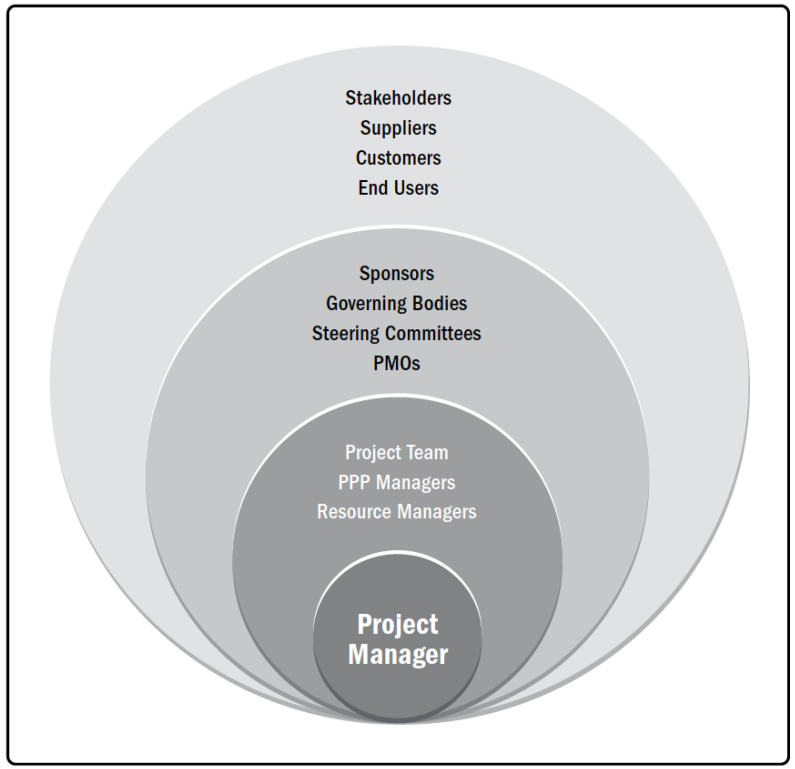


Figure 3-1. Example of Project Manager’s Sphere of Influence

The project manager as a leader

→ A key to success is the project manager’s ability to effectively deal with:

- → Functional managers.
- → Project sponsors.
- → Organization executives.
- → Clients and outside entities.
- → Support personnel across the organization.
- → The project team.

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Brainstorming

What characterizes a good learning project?

By selecting an authentic project, you will get more learning opportunities

Should be possible to gather the necessary data for the report

You should be excited about the project

Brainstorming and prioritizing

Identify your own personal strengths – theoretical knowledge, personal competences, experience-based skills

Brainstorm – write down all ideas

Evaluate feasibility

Can it be done in one year?
Is it realistic?
Would you as a group be able to complete it in the planning stage?

Prioritize

Before the next module, you will have…

Defined your project – what are you working on?

Done so using a structured brainstorm

Remember feasibility!

Worked with todays lecture

As a minimum, produce an organizational diagram

Some groups will present their project next time

Tak for i dag!