Fundamentals of Project Management

Content

1. What is a project?

An Industrial Standard (DIN) provides us with the following definition:

„An enterprise which is mainly defined by a uniqueness of conditions in its entirety ."
like e.g. set target, temporal, financial, personnel or other limitations, differentiation from other projects and organization structures typical for a project.

The definition given by the PMI:

„A project is a temporary endeavor undertaken to create a unique project or service"

Projects are:

- **temporary,** every project has a definite beginning and a definite end,
- having a clearly defined **goal**,
- **unique**, the product or service created is different from all others created before,
- having clearly defined, limited **resources,**
- **complex**, sometimes **risky**,
- often of **great importance** for the executing company,
- normally executed by **at least more than one person,**
- **progressively elaborated**, proceeding in steps and worked out with care and detail
- **planned, executed** and **controlled**

2. What is Project Management?

„Project Management is the application of knowledge, skills, tools, and techniques to meet project requirements and is accomplished through the use of the processes such as: ***initiating***, ***planning***, ***executing***, ***controlling*** and ***closing*** of projects"

2.1. Benefit of Project Management

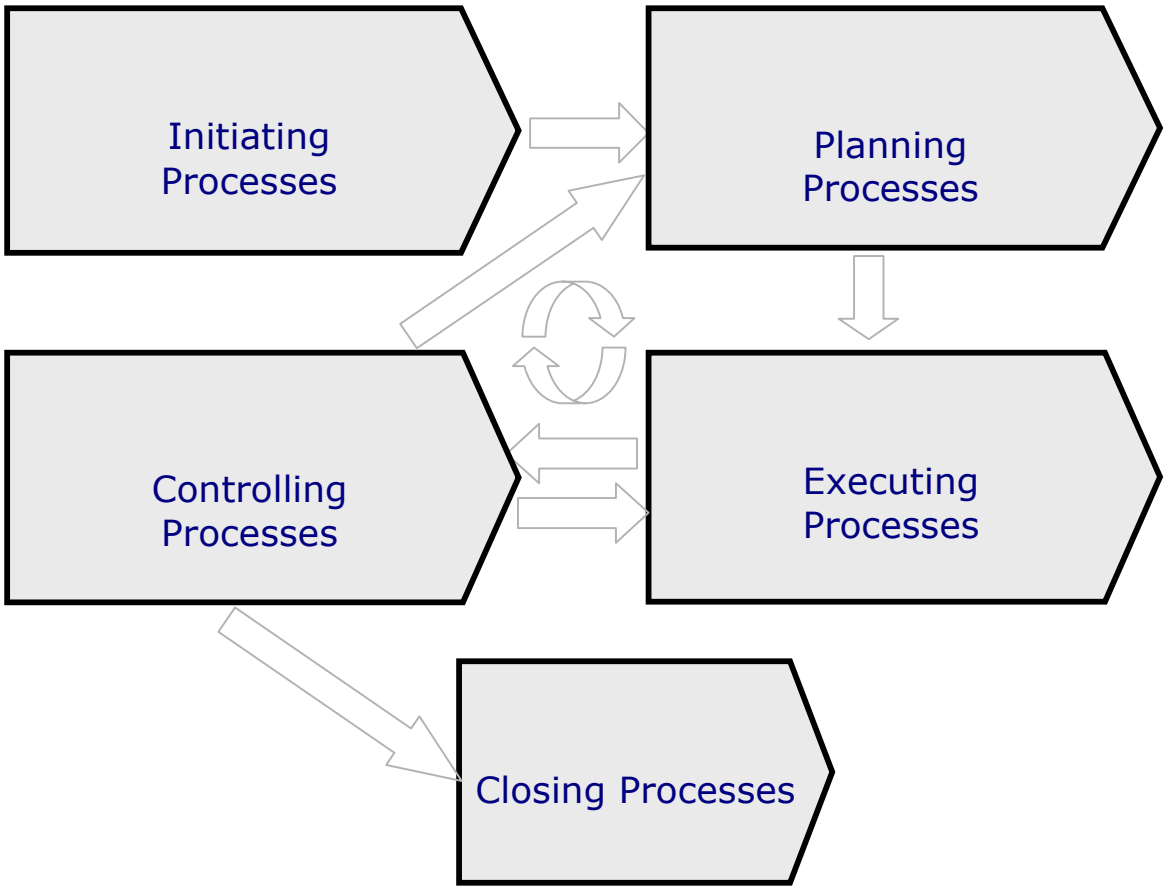
- High quality of problem solving by an approach that integrates all areas and functions
- Securing the acceptance of solutions by teamwork and targeted Project Marketing
- Speedy realization and close fidelity to planning (scope, quality, time, resources, costs)
- Optimization of costs
- Transparency und comprehensibility through Project Documentation
- Individual and organizational learning by reflection and group-dynamic synergy
- Benefit of Project Management as a costumer focused instrument of marketing (customer initiates projects)
- Cooperative relations with customers, clients, suppliers and partners
- Securing of gained capacities for post project phase by Project Documentation

2.2. The 9 knowledge areas of Project Management

2.3. Main tasks

- Inducing project decision and project order
- Defining limits and context of project
- Planning of project results
- Distributing tasks, defining project roles and responsibilities
- Project Human Resources management
- Planning of project schedule
- Planning of project costs and resources
- Project communication and documentation
- Defining values and rules for the project

2.4. The 5 Process Groups of a Project



3. Initiating the Project

The initiation of a project is the process of formal authorization of a new project, or the start of a new phase within a running project.

Projects emerge from changes in the company environment, or through the realization of company goals and strategies. Typical events, that may initialize a project, are for instance:

- a new need in the market or the customers
- a customer request
- a business objective
- the exploitation of a technical advantage
- a legal requirement
- a social need

Within larger projects the Initiation phase is a project in itself. The focus is mainly on the description and argumentation, why and with which business consequences a project should be executed.

Output of the Initiation process are the Project Charter and the identification/assignment of the project manager responsible for the project.

The Project Charter includes

- business needs / objectives, why doing the project,
- product description, what should be done,
- critical success factors, how to measure the final success,

All these entities have to be formulated SMART.

Furthermore it includes

- assumptions (all that is seen as given by the project team at the actual moment)
- constraints (everything that reduces the freedom of action of the project teams)

With the release of the project description a project leader has to be nominated.

3.1. Project Charter (acc. to best practice example)

- **Business context**

Explain the business context, background, its rationale and main drivers **Strategic alignment**: explain how this requirement is aligned with the business strategy

- **Mission and / or objectives of the project**

Business objectives related with the project, or objectives to which it will contribute.

- **Project scope / output / deliverables**

Description of the requirement; what is in and out of the scope; describe the external or internal customer and their business need; the main requested functionalities; the major deliverables (any measurable, verifiable outcome, result or item that must be produced; use product / process descriptions, workflows and diagrams if necessary **Alternatives**: if existing, describe other ways or workaround to reach the project objective.

- **Project Benefits**

Describe the added-value brought by this project to internal / external customers and describe the overall business benefits to the company (quantitative and qualitative); the Key Performance Indicators (will be used to estimate the success of the project at its completion); how to measure them; potential Return On Investment (ROI).

- **Critical success factors**

Definition in which way the project's success will be measured from a business point of view; often minimal goals or requirements for reaching the business targets.

- **Constraints**

Internal: everything limiting the project team's freedom of action; dependencies with other projects; boundaries External: legal requirements; external constraints from industry or business standards

- **Assumptions**

Factors which are adopted as given or true, although they are not yet certain

- **Project organization & responsibilities**

Project manager, members of core team, project sponsor(s), major requested actors

- **Project SWOT analysis**

Describe the Strengths, Weaknesses, Opportunities and Threats related to the project's output.

4. Stakeholder Analysis

Stakeholders are all persons or organizations actively influencing and involved in the project or affected by the project execution or completion.

The stakeholder analysis will help the project manager to determine and manage their requirements, to recognize the social environment and manage these factors appropriately.

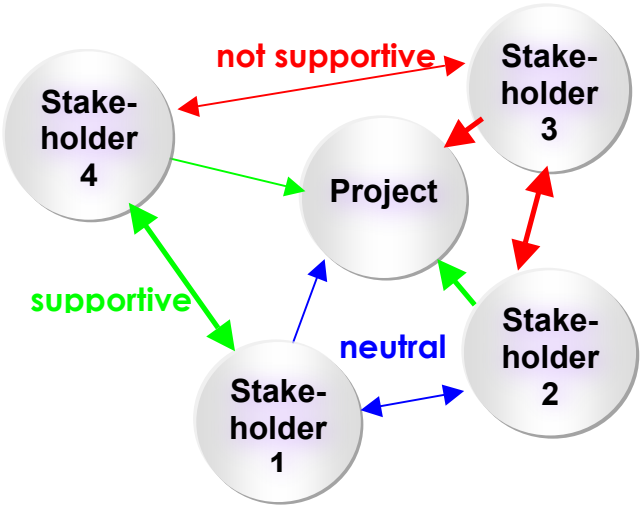
The analysis will provide answers for the following questions:

- Who is participating?
- Who has which attitude towards the project?
- What relations do the stakeholders have among each others?
- What do I have to do as a project manager, to get certain stakeholders on board?

Value of the analysis:

- It will be possible to develop the stakeholders from a given actual role into a desired role in a consistent and comprehensible way.
- All consultants involved in the projects and those who will join the project during its course will have easy access to the communications structures.
- Risks will be identified in time and countermeasures can be evaluated.

The stakeholder-analysis is a team-internal and strictly confidential document!



4.1. Roles of the Stakeholders:

Positive roles

- **Advocate**
  works within the Project and has a detailed knowledge of it; limited power of decision
- **Supporter**
  supports and sells the project
- **Sponsor**
  resources provider + decision taker
  Highlander principle:
  „There can be only One“
  ideally involved in the project

Problematic roles

- **Sceptic**
  niggler, critic
- **Obstructer**
  project blockers, even up to active mobbing
- **Opponent**
  no interest in the project or even opposing interests. Can endanger the project, has the formal power to do so; doesn't necessarily communicate his objections openly

4.2. Detailed steps of conducting a Stakeholder Analysis:

- Identification of all relevant stakeholders with name and function
- Depiction in diagram:
  - close relation to the project = close placement
  - not so close relation to project = placement at an appropriate distance
- Allocation of specific roles, as they are perceived at the current moment
- Drawing lines of relations between project team, stakeholder and the project
  blue = neutral / undisclosed relation
  red = negative attitude
  green = positive attitude
- Immediate action necessary?
- Expectations of stakeholders towards the project (requirements)?
- Communication activities to get the buy-in of and manage stakeholders developed on their communication requirements:

4.3. Communications Plan

The Communications Plan will be based on the stakeholder analysis as well as the actions generated from the results of the insights of the analysis.

Target Stakeholder	Key Message or Information	Objectives	Frequency	Communication medium	Feedback Expected
Project Customer	Extensive Status Report	Info	biweekly	Written report	In the space of one week
Leading Board	Extensive Status Report	Info	Monthly	Written report	In the space of one week
User	Roadshow	Promotion of Objectives and Product	Singular	Public Event	immediately
Project Customer	Status of Project	Report& Decision	Monthly	Joint Meeting	immediately
Project Employees	Status of Project, further procedure	Report & Support	as necessary	Joint Meeting	In the space of three days
...	...		...	...	...
...	...		...	...	...

5. Scope Statement

The Scope Statement documents and describes the specific content and the outcome of the project – everything delivered to the customer at the end; say a certain product, a technical solution, a study, analysis or the examination of a hypothesis.

- **Project justification**

Evaluation and review of the Project charter's background & business goals

- **Project Objectives**

The quantifiable criteria that must be met for the project to be considered successful

- **Project Results**

Description of the major deliverables (any measurable, verifiable outcome, result or item that must be produced) during each phase of the project. **Alternatives**: if existing, describe other ways or workaround to reach the project objective.

- **Project Content**

A detailed description of the work to do to create the above deliverables

- **Project boundaries**

Everything not part of the project will be listed here

- **Project Constraints**

Continue to identify and document constraints (see project charter)

- **Project Assumptions**

Continue to identify and document assumptions (see project charter)

6. Work Breakdown Structure & Work Packages

The next step to be taken is the creation of a Work Breakdown Structure. The **W**ork **B**reakdown **S**tructure (WBS) is the core of the project plan and a central element of project management. It defines **what has to be done in order to produce the results and content that are defined in the Scope Statement.** What are the necessary Work Packages (WP`s)?

A Work Package defines a sharply outlined, partial task of the whole project.
It describes

- **what has to be done,**
- **with what result**
- **with what investment of time (PDs**) --> basis for costing
- **in what period of time** --> basis for scheduling

6.1. Objectives of Structuring:

- Creating **Transparency**
- Subdividing major deliverables into smaller, more manageable components
- Decomposing the scope in **Work Packages**
- Pointing out connections and **Interfaces**
- Basis for **Project Management** and **Project Controlling**
- Basis for **Risk Analysis**
- Basis for planning of **Schedule**
- Basis for planning of **Resources & Cost**

Furthermore, it is important that:

- there is only one person responsible for each work package
- there is a clear distinction from other work packages
- the realization should be possible independent of other work packages.

The general rule for the size of one single work package is:
Max. 80-100 working hours, but at least one person day (8 working hours)

6.2. Steps to create a Work Breakdown Structure

Viewing a project as one single piece of activity is like eating a seven-course dinner in one bite. Just like eating a dinner, we complete a project in smaller chunks of activities--and that's where the Work Breakdown Structure (WBS) comes in. A WBS provides a consistent and visible framework to complete any project. But the questions come: "How many tasks should a project have?" and "How much detail should be covered by WBS?" The following guidelines will help you with this activity. The objective of WBS is to organize and comprehend a project by breaking it into progressively smaller pieces until it is a collection of meaningful and manageable tasks or work packages. Develop the task list from the project definition, including ownership and deliverables.

Step 1: Break down the project into major components

- Structure the project and generate the detailed task list
  - Look at whatever information you have about the project that you are planning.
  - Gather information from prior project post-mortems, other engineers and project managers.
  - Identify or define the project goals and objectives, the scope, etc.
- WBS standards and approach
  - Apply a standard approach to WBS. If your organization collects historical data to form a cost database, the WBS approach should be consistent with the organization's long-term data collection needs.
  - Use a standard WBS format or group of formats across all projects and communicate definitions; this saves re-learning project lessons and can lay the groundwork for successful data gathering to aid future cost estimates.
  - When you set up a project WBS, think about how you will be using it later in projects.
  - Design the WBS, schedule format, manager assignments and charge numbers at the same time. The schedule will likely be formatted along the structure of the WBS, so this will be the structure for estimating costs and tracking earned-value performance.
  - If a WBS is extensive and if the category content is not obvious to the project team members, it may be useful to write a WBS dictionary, which may describe what is in each WBS element.
  - A sample format is given below:
- A WBS for a large project will have multiple levels of detail:
  - Break down major tasks into steps and sub steps required to accomplish the task.
  - Depending on the complexity of the task, these steps or subtasks can be further broken down.
  - The number of levels depends upon the size and complexity of the project.
  - All components may not break down to same number of details.
  - The process of defining steps should continue until you are certain nothing major has been forgotten and accurate estimates can be applied to the lowest level or activity.
  - The lowest WBS element or task should be linked to a well-defined functional.
  - WBS elements are usually numbered, and the numbering system may be arranged any way you choose.
- Major components can be grouped by:
  - Product or service deliverables
  - Project/system phases
  - Organizational responsibilities
  - Time phases
  - Geographical location
  - SDLC phases
- The number of levels of detail depends on:
  - Size of project--smaller projects would have fewer levels
  - Risk/complexity--more risk would have more levels
  - Similarity with past projects--more similarity means fewer levels
  - Possible changes to requirements--the higher the possibility, the more levels
  - When tasks are performed--if earlier, the activity more the levels
- Each lowest level element of the WBS should be:
  - **Manageable**
    - Specific authority and responsibility assigned to each element
    - Only one owner could be assigned to the element
  - **Independent**
    - Minimum interfacing with and dependence on other tasks
    - Clearly defined deliverables are evident
    - Quality can be assured through performance criteria associated with each deliverable
  - **Integratable**
    - The total project is accounted for by the set of tasks
    - Whether WBS as three levels or seven, work packages should add up through each WBS level to form the project total
  - **Measurable**
    - Results measured in terms of progress by completion of tasks
    - The work can be readily tracked and monitored
    - Each task is small enough so that estimates are credible

- For each task identify and define:
  - Approval cycles/Review Cycles/Project Meetings
  - Management/user/customer interfaces
  - Quality standards and QA process
  - Training

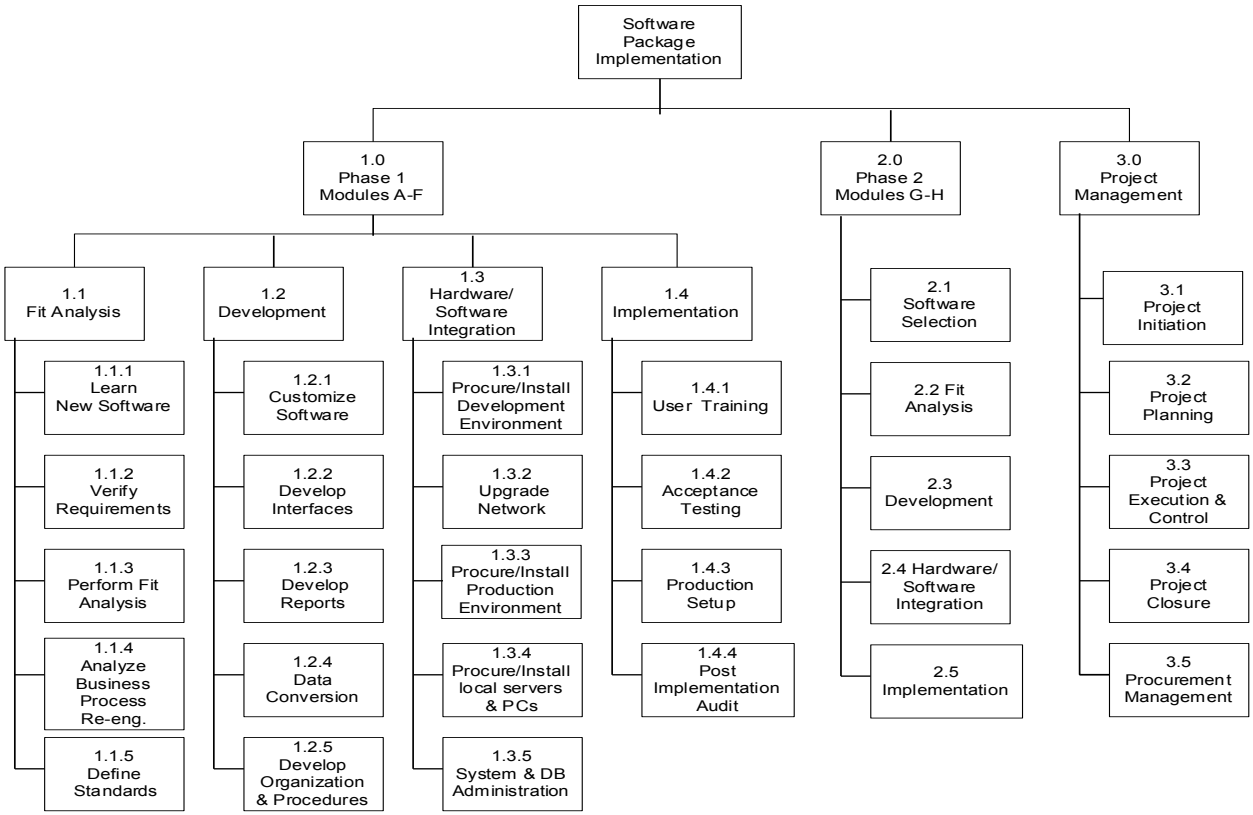
Step 2: Assess skills and assign ownership to each task/lowest element

- To assess skills consider:
  - Strength and weaknesses
  - Knowledge and experience
  - Attitude, work ethics and discipline
  - Communication skills, people skills, team skills
  - Interests, desire and commitment
- From the perspective of project consider:
  - What skills are needed? What are available?
  - What level of training is required?
  - How many people are needed? What experience? What expertise?
  - How much productivity would be affected by joining or leaving (vacation) of a person?
  - Who are critical persons? Critical expertise? Critical roles?
  - What software/hardware is required? What is available?

Step 3: Specify deliverable for each task

- Identify deliverables and milestones for each task and component
  - Tasks need to have clearly and concisely defined deliverables
- Establish performance standards upon which the deliverable will be measured
  - Deliverables must be clearly measurable

WBS EXAMPLE
SOFTWARE PACKAGE IMPLEMENTATION



Work Breakdown Structure & Work Packages

WP #	WP Title	Description of Work Packages (including results)	Estimated Investment	Estimated Duration	Estimated Costs	Person responsible

Description of Work Packages

Project Master Data

Project Title: _____ **Date:** _____

Project Manager: _____

WP-Title:	**WBS-Code:**	
Description of Work:		**Responsible:**
Deliverables:		
Dependencies with other WP's :		

7. Planning of Resources

- Analysis of actual state (personal encounter) of persons involved with the PM
- Determination of
  - capacities available for the project per employee
  - qualification of employee
- Planning of employee's further training with relevance to the project

Practice:

- Which workload coming from his daily tasks or another project does an employee bring into the project (maintenance work, tasks of his special field etc.)?
- What loss of time (seen from the project's point of view) has already been planned (training, vacations and so on)?
- What level of knowledge does the employee have in general and with reference to the project?
- How does the employee himself judge his position within and his contribution to the project?
- What are his reasons for participating in the project (motivation!)?

8. Planning of equipment & material

- Examples are:
- Rooms and work materials
  - team room
  - desks
  - chairs
  - PC's / Network
  - cables
  - communication devices (phones, fax and so on)
- meeting room
  - necessary furnishing and infrastructure
- visualization devices (overhead projector, screen, video projector, flipchart, notice boards)
- machine and production capacities
  - capacities needed during realization phase
  - capacity for tests
  - special devices

P = participate
A = accountable
R = review
I = information provider
S = sign off

9. People allocation (Responsibilities Assignment Matrix)

RAM

Title of Project:
Date:

Project Roles / Work Package (example)	Customer /Project Board	Project Leader	Team member 1	Team member 2	Expert A	Expert B	Employee 1	Employee2	Consultant
Assess needs of Customer									
Market analysis									
Sales forecast									
Marketing Concept									
Development									
Test									

10. Scheduling

After coordinating the work breakdown structure with your stakeholders and the potential owners of work packages, you need to set up the sequence of the project activities.
Following steps are necessary:

1. Document the scheduling assumptions.
2. Estimate task dependencies and duration (logical dependencies)
3. Determine the critical path and task float (Network Diagram)
4. Determine calendar dates and create the ideal schedule
5. Adjust resource assignments and incorporate schedule adjustments (resources dependencies)
6. Chart schedule (Gantt Chart)
7. Final approval and distribution.

The actual calculation is an industrious and uninspired piece of work which can excellently be done by software. Nevertheless, errors occurring within the dependencies can neither be detected nor corrected by software.

11. Network Diagram (Sequence of Tasks / Work packages)

The network diagram will help you to develop the flow of the execution. It shows the path of the project, lists beginning and end dates, and names the responsible party for each task:

- Shows the sequences and relationships among tasks necessary to complete a project.
- Identifies relationships of milestones in the project that can be used for monitoring progress and completion.
- Shows the interrelationships of tasks in different parts of the task list and work breakdown structure (WBS).
- Establishes a vehicle for scheduling tasks.
- Helps reduce uncertainty in the project by breaking it into many small phases that have been analyzed and sequenced before starting any work.
- A network diagram helps you understand how the work should really go together so you can then develop a reliable and realistic schedule for your project.
- Network diagrams reveal the workflow, not just the work.
- Network diagrams simply sequence the work tasks and identify their relationships in time and can demonstrate the sequence of tasks and relationships among tasks in different milestones in the work breakdown structure (WBS).

Earliest an activity can start, based upon project logic

Early Start

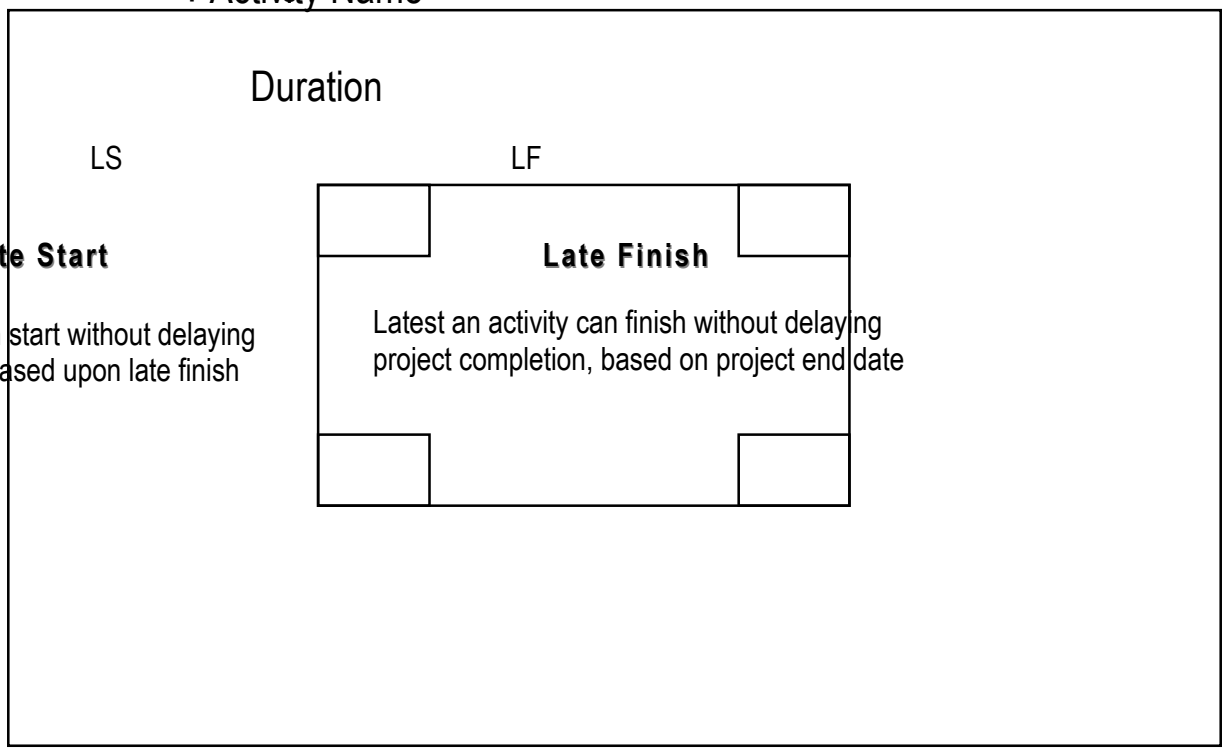
ES

Earliest an activity can finish, based upon early start

Early Finish

EF

11.1. Time planning and float

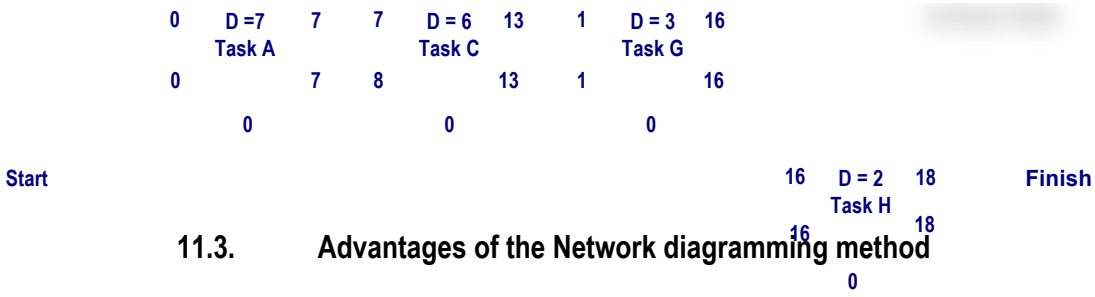


atest an activity can start without delaying roject completion, based upon late finish

11.2. Calculation of the Critical Path

Critical Path: the longest time period from start to completion of a project; also the shortest total length of the project; any delay on the critical path will delay the final date of the project.

- A **forward pass** through the network (beginning at project start) determines Early Start and Early Finish for each activity
  - Established: Project start date
  - Project start date is the early start date for the first network activity
  - Work left to right, top to bottom of the network
  - When an activity has multiple predecessors (P), select the highest Early Finish date as Early Start date of successor (S)
  - Calculations
  - ES + Duration = EF
- A **backward pass** through the network (beginning at project finish) determines Late Finish and Late Start for each activity
  - Established: Project finish date (from last activity in forward pass)
  - Project finish date is the Late Finish date for last network activity in the backward pass
  - Work right to left, top to bottom of network
  - When a predecessor (P) has multiple successors (S), select the lowest Late Start date as the Late Finish of the predecessor
  - Calculations
  - LF - Duration = LS

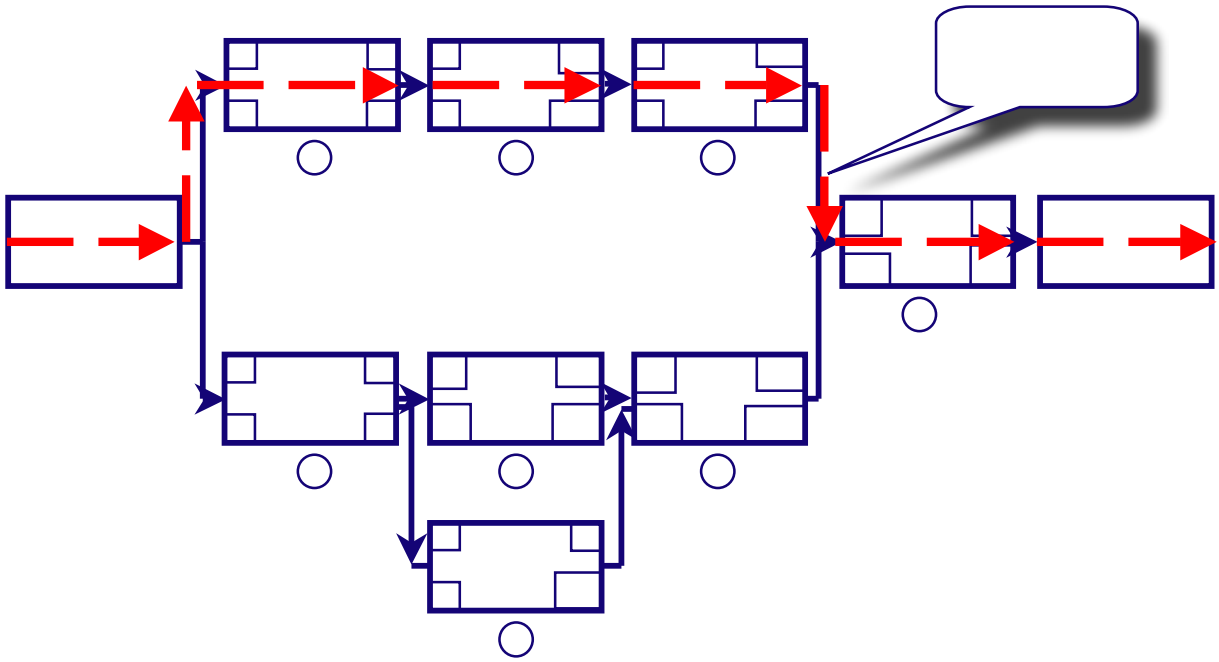


11.3. Advantages of the Network diagramming method

- Realistic calculation of end and intermediate dates
- Immediate recognition of critical processes
- Complicated dependencies are easily shown
- The development of a network diagram forces all participants to think through the flow of the project in a logical way
- A network diagram contributes significantly to the determination of the expectable need of resources
- A detailed project controlling is getting possible knowing the critical data (critical path, scenario's…)

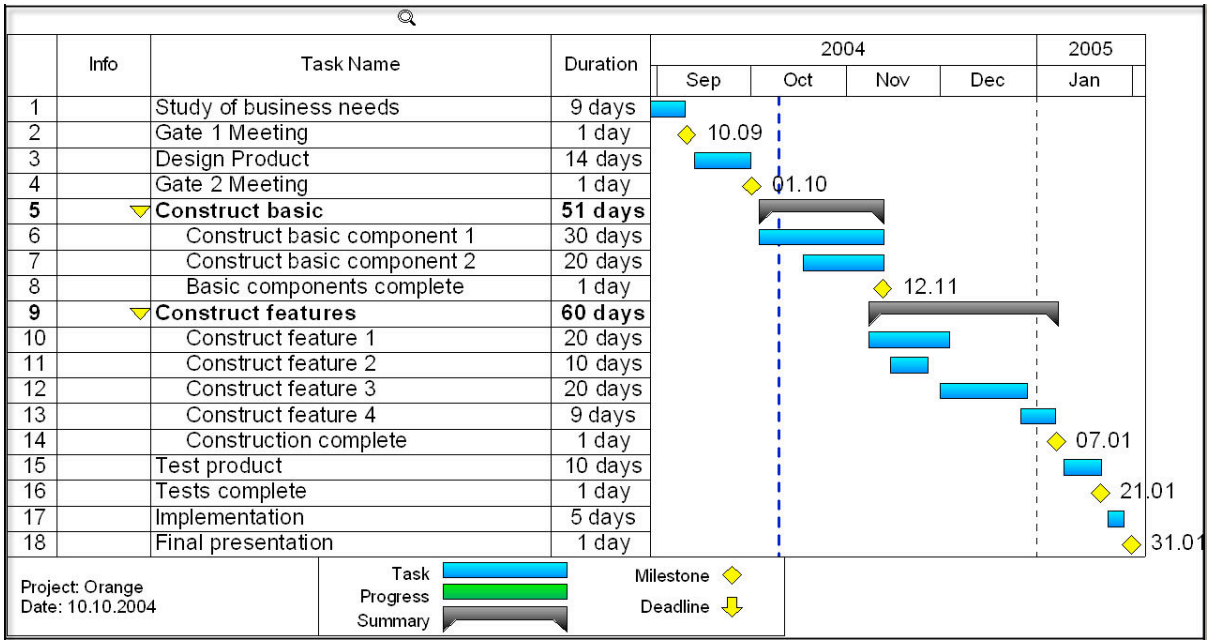
11.4. Disadvantages of the Network planning Technique

- The application of the network technique has its **price**. It requires a high **effort,** which may not be necessary in small projects.
- A **too detailed** degree of planning will make it a **cumbersome** tool.



11.5. Schedule: Gantt Chart & Milestones

After the completion of a network plan, transfer every single process or work package into a so called "Gantt-chart".



	Info	Task Name	Duration
1		Study of business needs	9 days
2		Gate 1 Meeting	1 day
3		Design Product	14 days
4		Gate 2 Meeting	1 day
5		**Construct basic**	**51 days**
6		Construct basic component 1	30 days
7		Construct basic component 2	20 days
8		Basic components complete	1 day
9		**Construct features**	**60 days**
10		Construct feature 1	20 days
11		Construct feature 2	10 days
12		Construct feature 3	20 days
13		Construct feature 4	9 days
14		Construction complete	1 day
15		Test product	10 days
16		Tests complete	1 day
17		Implementation	5 days
18		Final presentation	1 day

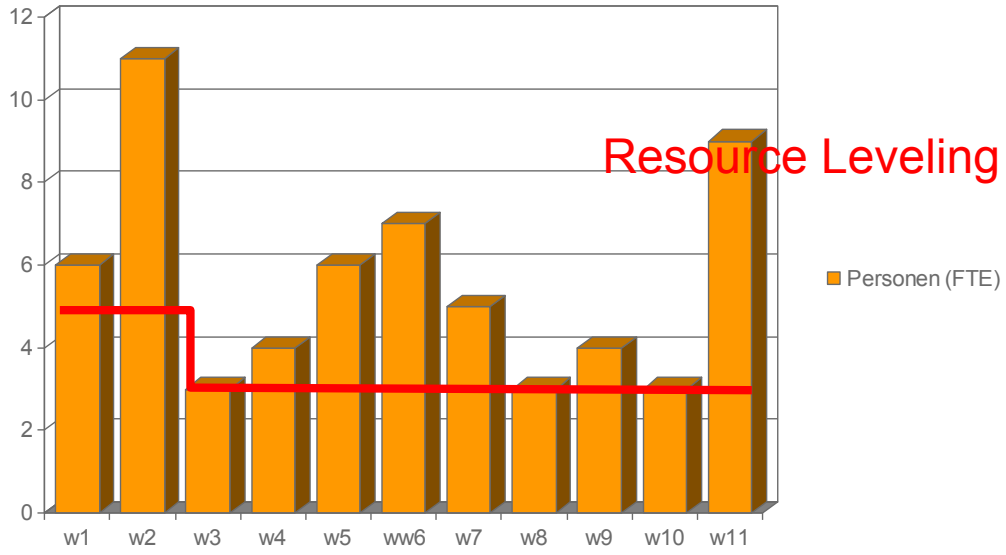
The vertical axis shows the work-package (or its number), the horizontal axis is a calendar.
This will create a schedule.
Consider this as the *most optimistic* schedule for your project. It will be the absolute minimum schedule, and your project can not be executed in less time.
Important events and activities can be defined as **milestones** which will help to focus the attention of the different stakeholders on their points of interest.
The customer will be able to know at what time he can expect what important deliverables; at what time important decisions needs to be made; at what time they might plan a phase review.
For the sponsor, however, most major milestones are relevant.

- Milestones can be:
  - The beginning or end of a project phase
  - Important deliverables
  - Fundamental decisions

The controlling and steering of the project execution will be done using the Milestone Trend Analysis as a management tool.

11.6. Plan of resources (people, equipment and material)

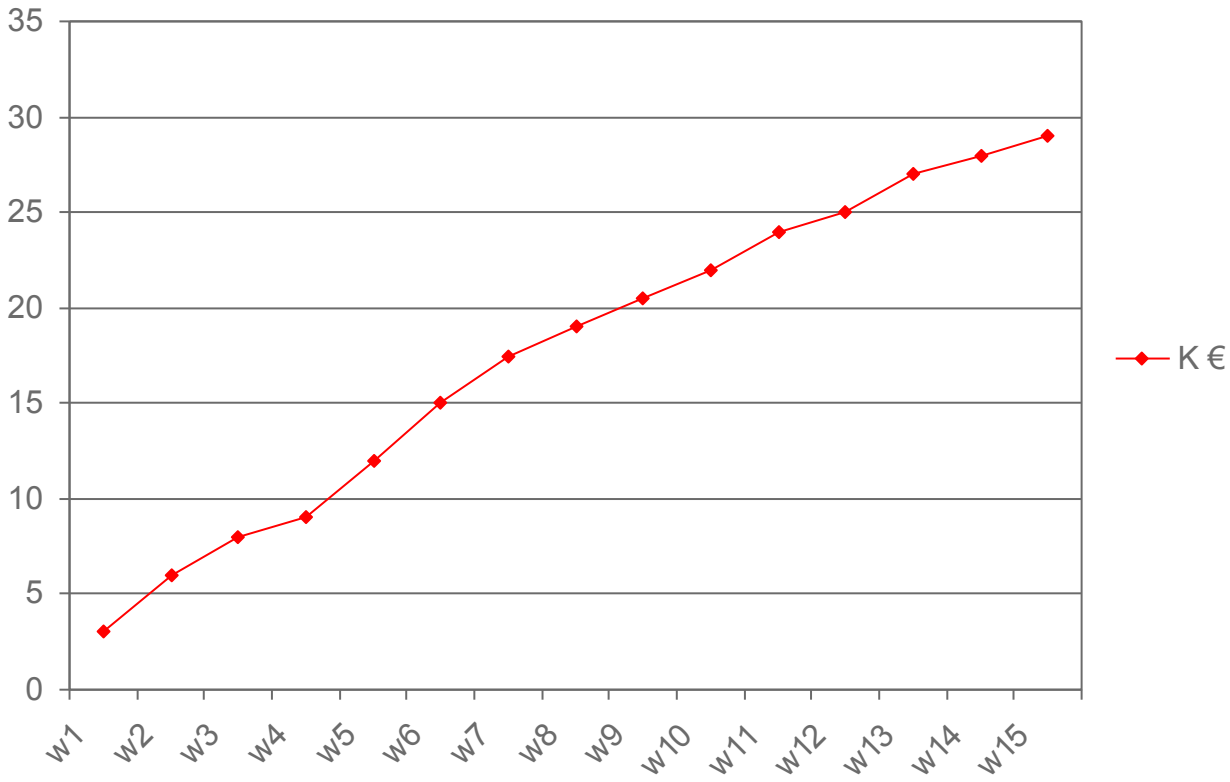
- Many schedules do not deal with conflicting availability of resources, potential overuse of key resources, and conflicting projects and priorities.
- Some team members will have too much work and will be oversubscribed, and others won't have enough to do.
- The amount of work each team member is assigned is called resource loading.
- Scheduled work should be redistributed from resources with too much work to those not fully booked.
- Skills and availability must be considered.
- If necessary, adjust your project schedule and budget to accommodate necessary changes
- How many hours per day is each resource available?
- Can employees really work eight hours a day?
- Usually a workday consists of only 6.5 hours of productive work time.
- Is an assigned resource allocated to multiple projects for multiple project managers?
- Take people's other responsibilities into consideration when designing your schedule.
- Make sure you have a contingency built in to cover for these people if they can't give your project the time or attention it needs
- Add up your department's entire project commitments.
- Identify the appropriate workload.
- Visually demonstrate the difference between the projection and the actual work in the work queue.
- Have you factored in time lost to anticipated interruptions?
  - Expect downtime. There will always be bad weather, holidays, vacations, flu outbreaks, and other personal business that people must attend to outside of work.
- Have you factored in sufficient time for administrative overhead?
  - Allow time for company meetings, travel, completing reports, and the ubiquitous meetings.
  - Allow time for reviewing deliverables and reports, too.
- Are you using specialized skill sets appropriately?
  - Do team member assignments match skills and task requirements accurately?
  - Have you considered the productivity of a resource as well as skills?



12. Costs and expected cash flow

If your planning has been „methodically clean“ up to now, the costs and the cash flow (when do we need which amount of money for payments) will be „a piece of cake” and a waste product from all the results you achieved so far. If this is not the case, you will run into a problem at this point, if not beforehand. Every project is an investment, and every investment has at least a costs side to it. The investor will want to know what the project will cost. Even if a project is completely executed with your own employees and without materials, the employees engaged in the project could do something completely different in the meantime, work on a different project. Even if the preparation of a cost / benefit analysis is not part of the project manager’s responsibility, you will have to deliver the input for the most „primitive“ form of investment calculation - the cost comparison method - and that is the budgeted costs planned for the project.

The **Cost Baseline** is calculated in cumulating the budgeted value of the work packages on the time line (Time Baseline)



Example: Cost Planning

Project Master Data

Title Project: _____ **Date:** _____
Project Manager: _____

Budget Information

Work Package	Labour days	Rate / Daily Rate	Labour Costs	Costs of Material	Travel Expenses	Other Expenses	Total Costs
Total Budget							

13. Quality Management

Quality is defined as:

"the degree to which a set of inherent characteristics fulfill requirements (conformance to requirements)".

The underlying priciple of custmer satisfaction requires a combination of **conformacne to requirements** and **fitness for use** (the product or service must satisfy real needs).
"

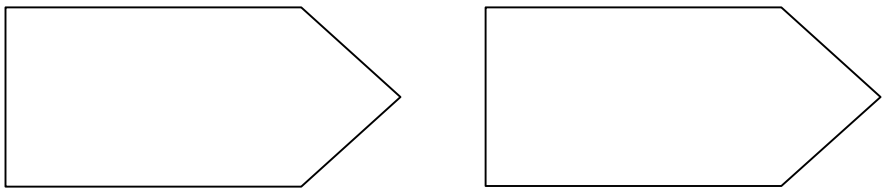
Quality has to be defined in connection with the objectives of the project and the nature of the product.

- The description of the deliverable is the basis for quality planning.
- The quality planning describes the quality objectives to be reached and their required levels
- The quality criteria have to be defined in a measurable form.
- The single elements of the project product should be examined individually. The same quality objective with the same criteria may not be necessary in all product areas.
- Quality criteria have to be transparent for everyone involved.

14. Project Team / Human Resources Management

14.1. Duties of the Project Manager

- **Transfer of knowledge** coming from the processes of defining objectives and developing ideas
- Creation of **acceptance** for project objectives
- Development of **project plans**
- Creation of **project organization**
- Development of **project culture**
- etc.



14.2. Competences of the Project Manager

- Competence on methodology and knowledge areas of PM
- Competence concerning product and industrial sector, entrepreneurial competence
- for international Projects: cultural competence and language skills
- Not necessary: special knowledge for completion of product success (for example: technical knowledge for the solution of a problem).

14.3 Competences of Project Team

- Ensure use of synergy of teamwork
- Common social competence to create common visions
  - identification with objectives
  - common synergetic „Drive"
    the wish for a cooperative, not a competitive solution of conflicts
  - willingness to keep up the individual and group willingness to learn

15. Organizational Structure and Project Management

Line Organization

Power and decision are in the line, the project leader (manager) is a coordinator and prepares decisions

Advantages

- Power and influence are kept within the departments
- Minimal organizational changes and investments
- Many projects can be realized (due to resources available)

Disadvantages

- Project Management do not provide full advantage / Project Manager partly powerless
- Double role of project leader (expert in special field and coordinator)
- Success of Project Manager dependant on departments' willingness to participate

Matrix Organization

The line decides: Who – How – With what,
The project leader decides: What – When

Advantages

- Faster (re-) action in and with projects
- Enforces entrepreneurial way of thinking in all areas

Disadvantages

- Matrix causes additional conflict potential
- Employee serves two superiors
- Splitting of power and responsibilities

Project Organisation

The project leader as "small entrepreneur" has his own resources and therefore all competencies

Advantages

- Fastest and most powerful form of PM
- A clear responsibility of the project leader
- Clear structure of management and organization in project

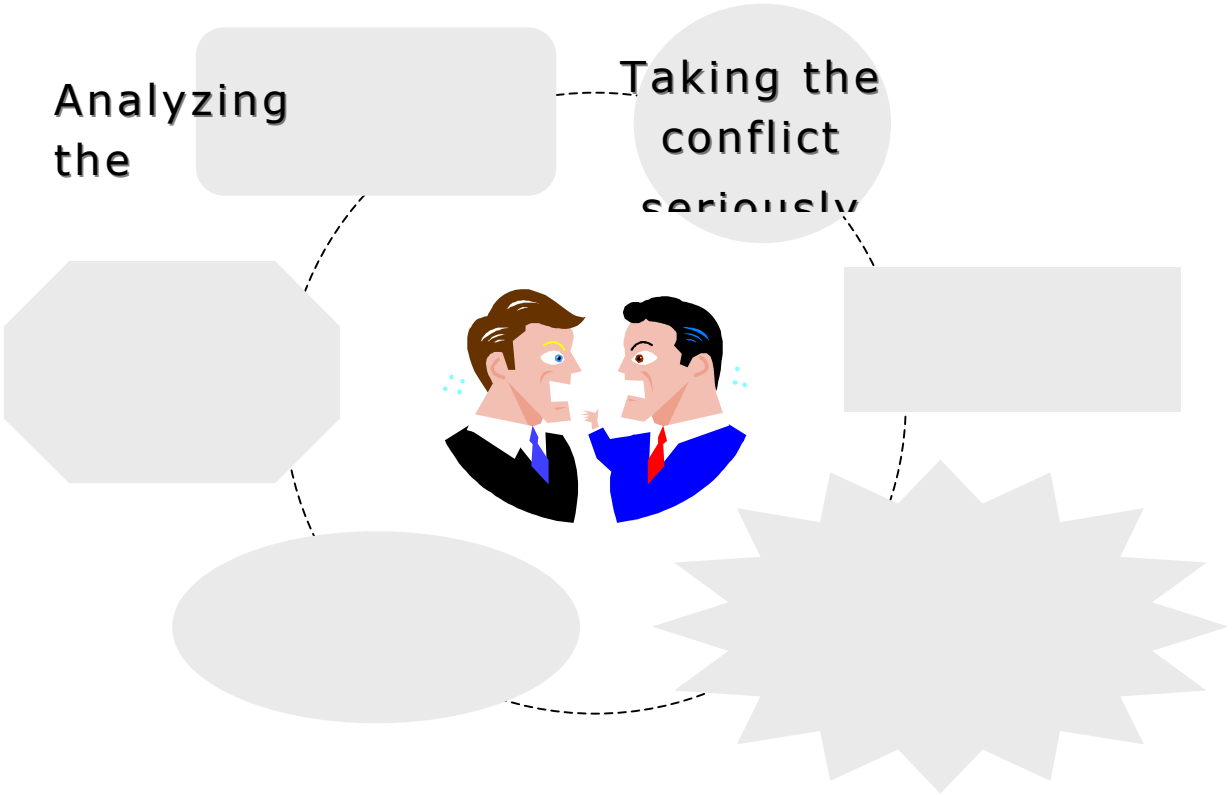
Disadvantages

- Most expensive form of PM, large investments
- Risk of project-line-competition
- Dissolution of "small business " after end of project

16. Conflict Management

A genuine way of dealing with conflicts is an investment in a future work environment, with less tensions, beyond expertise and hierarchies,.

Permanently ignoring conflicts will always come back as an increasing problem!



Conflicts are...

- a social battle for values, status, power, objectives, influence, love and means,
- expressions of suppressed energy and an indicator of identification and motivation,
- bothersome, unpleasant and inconvenient, sometimes a tiresome loss of energy,
- chances for development, improvement and coping with underlying crises,
- interpersonal tensions, or tensions between partners, groups and/or organizations.

16.1. Basic Strategies of Conflict resolution

Style	Description	Effect
Avoiding (Withdrawing)	Retreats from actual or potential conflict situation	Does not solve the problem
Accommodating (Smoothing)	Emphasizes areas of agreement rather than areas of difference	Provides only short-term solutions
Compromising (Bargaining)	Searches and bargains for solutions that bring a degree of satisfaction to all parties	Provides definitive resolution
Forcing (Dictating)	Pushes one viewpoint at the expense of others; offers only win/lose solutions	Hard feelings may come back in other ways
Collaborating (Consensus)	Incorporates multiple viewpoints and insights; leads to consensus and commitment	Provides long-term resolution
Confronting (Problem Solving)	Treats conflict as a problem to be solved by examining alternatives; requires give-and-take and open dialogue	Provides ultimate resolution

Accept
Avoid
Mitigate
Transfer

17. Risk Management

As complex projects contain multiple undisclosed factors, it is an important task of the project management to predict future risks.

The risk is defined as the risk event, the probability of its occurrence and the impact expected.

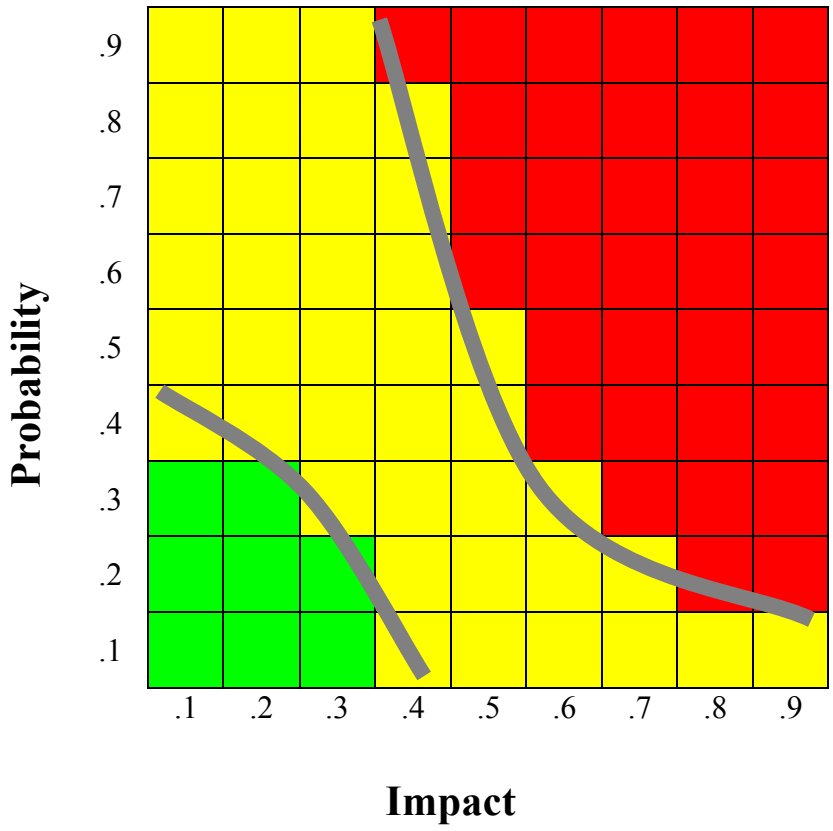
Risk Identification

- Going through your work packages & the stakeholder analysis, list all risk factors systematically

Assessment of Risk

- Create a risk matrix by evaluating the risks with reference to their probability of occurrence and the expected impact (low, medium, high or any scale valid in your organization).

Risk Matrix



Risk minimizing and risk response

- For the risks within the critical area (outside the tolerance limits) you will have to develop countermeasures, which will decrease the probability of occurrence or the impact of the risk
- Define work packages / procedures, which define the monitoring and reporting of the risks recognized.
- Add the actions related to the response to the schedule (additional activities) and nominate an owner (responsible to follow up the risk response and keep aware of the triggers.

Risk Register

Risk Nr.	Risk Category	Risk Event Description	Immediate Consequences	Prob.	Impact	Prio	Strategy	Risk Response	owner

18. Project Controlling

... means a constant **checking** and **evaluation** of **cost effectiveness** in all phases of the project

During the execution of the project, the **controlling processes** are of decisive significance. The project manager is primarily responsible for the controlling.

The controlling processes include:

1. Ensuring the completion of the project objectives
2. Leading / coaching the participants to the project
3. Coordinating all resources / stakeholders involved in the project
4. Making decisions
5. Informing and Reporting

19. Change Management

During the planning phase, the project manager and the stakeholders agree on a process, in order to ensure the control of necessary changes in the project according to:

- Objectives (Scope)
- Costs
- Dates and deadlines
- Quality

It will be defined:

- Who is authorized:
  - to create change requests,
  - who has to check them
  - to accept the change requests
- in which time frame this has to happen,
- what will happen, if the time limit is transgressed.

Accepted ☐ Rejected ☐

Change Request

Project basic data:

Project Name: _____ **Date** _____
Project Manager: _____

Change Request

Date of Application: _____
Applicant: _____ Function: _____

Description of Change: _____

_____

_____

_____

_____

Impact on Scope _____

Impact on Quality: _____

Impact on Resources: _____

Impact on Costs: _____

Impact on Schedule: _____

Reviewer Information

Reviewer Name: Function:
Project Result Title _____
Recommendation

Comment: _____

_____

_____

Date:

Accreditor Information

Accreditor Name: _____ Function: _____
Decision:

Comment: _____

_____

Signed:: _____
Date: _____

20. Project Closing

The product or end result described in the requirement specification has been delivered and accepted.

Now the project is about to be closed:

Administrative Closing (closing of cost accounts, final payments, etc.)

Compare planning with actual results

Feedback within the group (based on the project final report)

The outcome of these reports ("Lessons Learned") to be used for next project.

20.1. Lessons Learned Report

Date: (Enter the date of the report)

To: (Address the report to the Executive Sponsor and/or Executive Steering Committee)

From: (Enter the Project Manager name)

Subject: Lessons Learned Report for (enter the project name)

CC: (Copy Project Management Support Office)
(Copy Project Team members, or make available on a server accessible to the team)

Summary

Summarize the lessons learned and/or recommendations for future projects. Highlight the key factors that influenced successes/failures. If recommendations are made, describe major benefits for each of the recommendations.

General Project Information

Satisfied the Original Functional & Performance Requirements (check one): Exceeded_____ Completely_____ Mostly_____ Somewhat_____ None_____	
Baseline Budget:	Final Project Cost:
Baseline Duration:	Actual Duration:
Project Sponsor:	Departments Involved:
Steering Committee Members (if applicable):	

The baseline budget and schedule are the ones that were developed by the project team based on the implementation strategy approved by the executive management of the project. The baseline budget and schedule may or may not be the same as the ones in the original funding proposal.

Major Lessons Learned

This section should include lessons that contributed to successes and failures of the project. Examples include an innovative method to obtain and sustain user buy-in, a new procurement strategy that shortened the duration of the project, and a new organization structure that improved project management effectiveness.

Lessons learned should be categorized. Refer to the Lessons Learned Checklist for a suggested list of categories.

For each of the lessons learned, please include the following:

- Description: the issue, what happened, and the results
- Analysis: root causes of the problem, and key factors that influenced the results
- Recommendation (if applicable):
  - Examples of recommendation: a new implementation strategy, a new requirements validation method, a policy change, or a different organization structure
  - What could have been done to avoid the problem and/or improve performance
  - Justification: how the recommendation can help, additional cost if any, applicability in terms of types of project that can use the recommendation

Attachments:

Supporting project documents

excerpts from contracts, org chart, status reports, schedules, budgets, etc.

Feedback from Stakeholders

letters, memos, acceptance letters, operational reports, etc.

21. Additional Content

21.1. Meeting Culture

Seven principles to conduct meetings

1. Always have purpose for a meeting: prepare every meeting with
    a. Invitation (written) including
    b. Objective
    c. Topics
    d. Expected Result
    e. Responsibility
    f. Time needed

2. Every meeting starts and finishes as scheduled
3. Assign protocolist and time keeper at the beginning
4. Invidual/internal discussions and interuptions are cut offf. Advice: document questions during presentation and answer at the end
5. Do not disturb: switch off mobiles, notebooks; instruct offices/assistants
6. No miscellaneous/other points – it cannot be prepared
7. Each topic is completed with a clear decision and assignment, documented in a (hand)written protocol; copy received by participant at the end of the meeting

Meeting Protocol

Meeting .....
Date .....
Participants .....
cc .....

Decision	Responsible	Due Date

Whole Message Model

Observation
➡ objective
➡ I see, hear,....

Meeting Invitation

Meeting:..... From:
Location:.....
Date:..... To:
Content:.....
Time (from - to):.....

Vants
➡ expectation of future behavior
➡ I want you to do...!

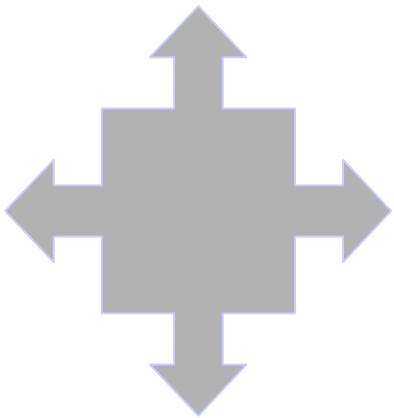
Messag e

Thoughts
➡ subjective
➡ I think, conclude,..

Topic	Objective	Written Preparation Who? What?	Result	Time

Feelings
➡ emotional
➡ I am happy, pleased, angry,...

21.2. Communication Model



No of participants: 3 – 12

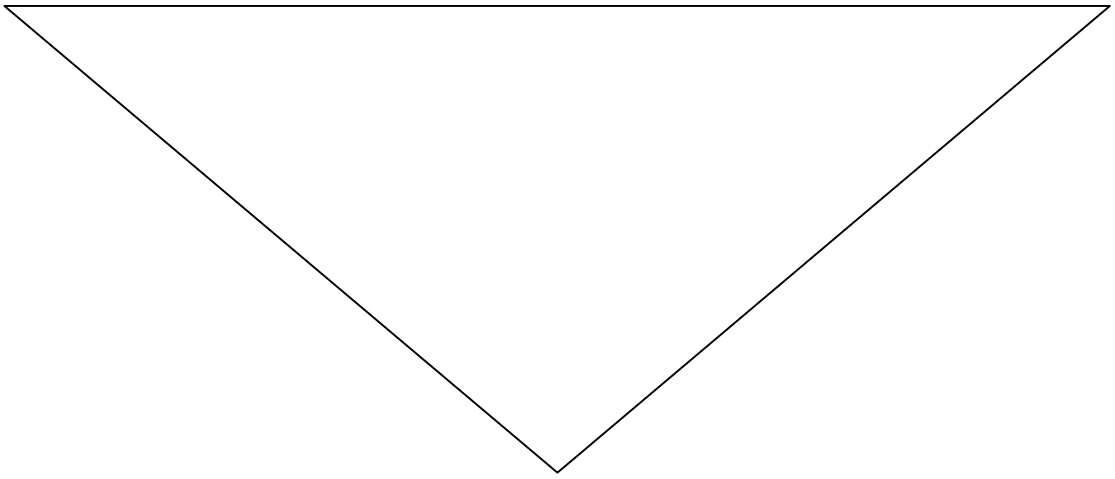
Heterogeneous group
Prepare support tools/materials
(Flipchart, pinboard, cards, markers, ...)

21.3. Creativity Techniques

Rules for creativity sessions

- Quantity first, not quality geht zunächst vor Qualität
- Seperate collecting and developing of ideas from assessment
- Don't talk down ideas
- Stick to the rules
- Team size 6 – 8 is optimal
- No communication blockers
- No session without moderator
- Be as detailed and accurate as possible
- Ideas of others are food for thought to me

Brainstorming rules



Rules

For participants	**For the moderator**
No criticism	keeping the rules
	documents ideas
Quantity first	
Thinking out of the box is required	activates
	Asks questions
Continue development of ideas	connects to already existing ideas
	creates ideas himself

22. My notes