

IT QM Part2 Lecture 2

SIEMENS



Lectures at the University of Bratislava/Spring 2008

- 21.02.2008** **Lecture 1 Impact of Quality-From Quality Control to Quality Assurance**
- 28.02.2008** **Lecture 2 Organization Theories-Customer satisfaction-Quality Costs**
- 06.03.2008** **Lecture 3 Leadership-Quality Awards**
- 13.03.2008** **Lecture 4 Creativity-The long Way to CMMI level 4**
- 03.04.2008** **Lecture 5 System Engineering Method-Quality Related Procedures**
- 10.04.2008** **Lecture 6 Quality of SW products**
- 17.04.2008** **Lecture 7 Quality of SW organization**

- 30.09.2008** **Vorlesung 1 Der weite Weg zu CMMII-Level 4**
- 07.10.2008** **Vorlesung 2 System Entwicklungsprozess + Planung**
- 14.10.2008** **Vorlesung 3 Verfahren 1 (CM, Reviews, Aufwandsabschätzung (Function Point))**
- 16.10.2008** **Vorlesung 4 Verfahren 2 (Wiederverwendung, Dokumentation, Case- Tools)**
- 13.11.2008** **Vorlesung 5 Qualität von SW 1 (Testen, Q-Bewertung, Quality in Use,)**
- 27.11.2008** **Vorlesung 6 Qualität von SW 2 (Quality Function Deployment, Zertifizierung von
Hypermedia-Links bei InternetApplikationen, Technology Management Process)**
- 11.12.2008** **Vorlesung 7 Qualität einer SW-Organisation (ISO 9001, CMMI, BSC)**
- CMMI: Capability Maturity Model**
- BSC: Balanced Scorecard**

- Impact of Quality
 - Quality wins
 - Quality deficiencies
- Standards
 - Quality definition
- Evolution from quality control to TQM
 - Shewhart, Deming, Juran, Feigenbaum, Nolan, Crosby, Ishikawa
- Evolution of organization theory
 - i.e. Taylorism, System Dynamics, System Thinking, Quality Assurance
- Product liability
- Customer satisfaction
 - Criteria, two-dimension queries, inquiry methods

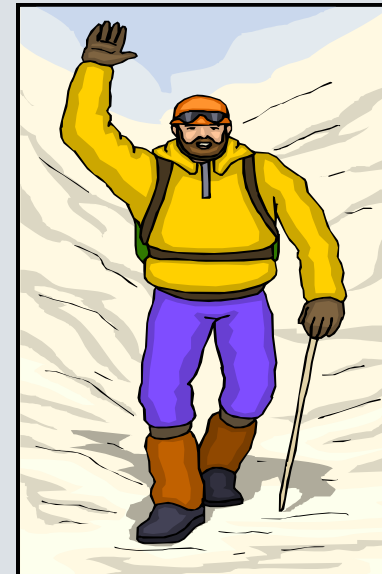
- Quality costs
 - Failure prevention, appraisal, failure, conformity, quality related losses, barriers
- Leadership
 - Behavior, deal with changes, kinds of influencing control, conflict resolution, syndromes to overcome when introducing changes
- Audits
- Quality awards
- Creativity techniques
 - Mind Mapping, Progressive Abstraction, Morphological Box, Method 635, Synectics, Buzzword Analysis, Bionic, De Bono
- Embedded Systems
- FMEA-Failure Mode Effect Analysis

- SEM
 - Overview
 - Tailoring
 - Phase Organization
 - Areas of responsibility
- PM
 - Overview
 - Planning (Component, Organization, Volume, Course of the Project, Risk)
 - Tender and Commissions
 - Procurement of HW and SW
 - Project Checks and Project Control (Progress, Effort, Cost)
 - Coordination, Organization, Administration
 - PROWEB

- „No matter how long the journey, it always starts with the first step“

SEM: PSE System Development Method

(German: **S**ystem**e**ntwicklungs**m**ethode)



SEM/System Development Method/2

Major Milestones in SEM History

- QA working group set up 5 / 83
- EHB (Develop. Manual) introduced (= Overview SEM) 12 / 83
- EVHB (Develop. Proc. Manual) introduced 6 / 85
(1st fully written method)
- First SEM seminar held 10 / 85
- Object-oriented SEM (prototype) 6 / 92
- SEM version 3.0 (last paper version) 8 / 92
- ÖNORM ISO 9001 certificate since 10 / 93
- 1st CMM assessment of PSE 10 / 93
- 100th SEM seminar 10 / 95
- stdSEM (1st hypertext version) 10 / 97
- ooSEM 7 / 99
- prodSEM/hsSEM 12 / 01
- e-SEM 11 / 02
- 200th SEM seminar 12 / 02

SEM/System Development Method/3

Two points of view

Method ... from Greek *methodos* [*meta* (=after) & *hodos* (=way)] a way, technique, or process of or for doing something (excerpt from <http://www.britannica.com/>)

Development method:
Reflections on how to proceed



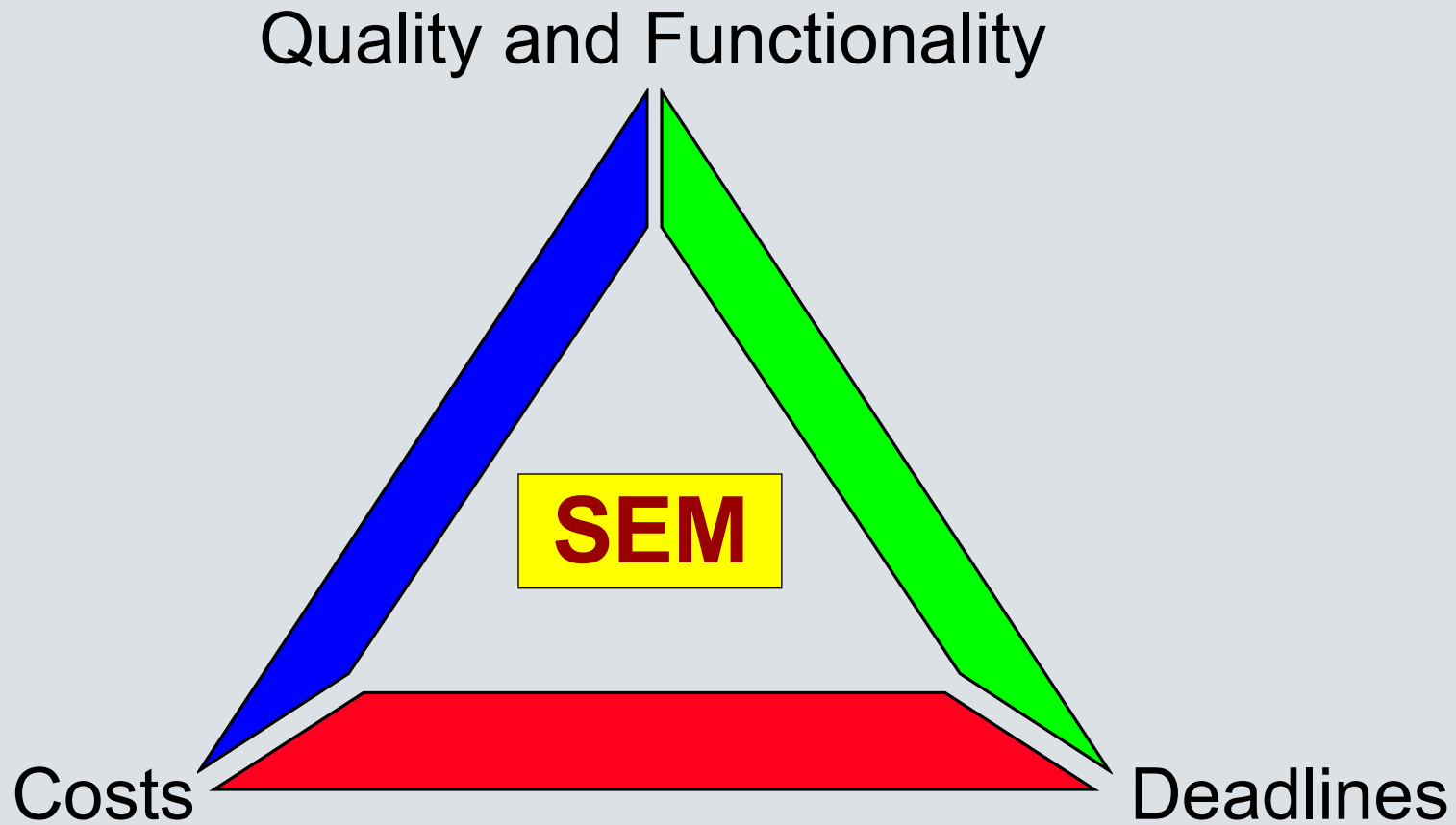
Development:
Solving the specified technical task

SW Requirements
specification



SEM/System Development Method/4

Triangle of Tensions in SW Development



- Phases
- per phase

- Preconditions

- Activities

- Results



technical

Quality assurance

Project control

SEM/System Development Method/5 Phase Organization

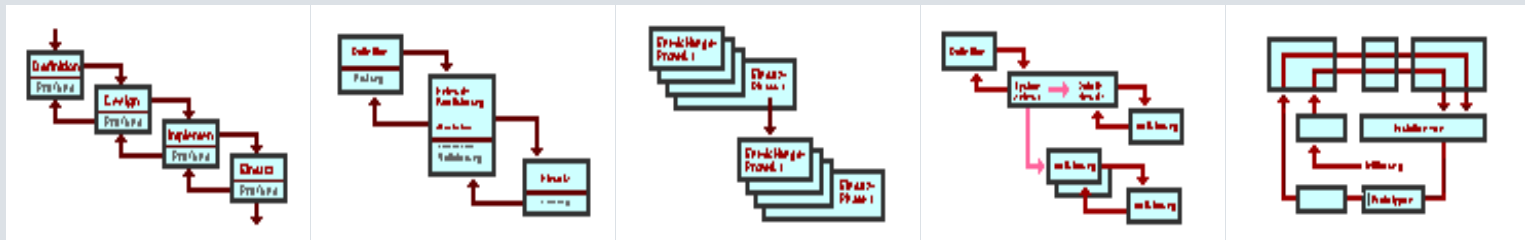
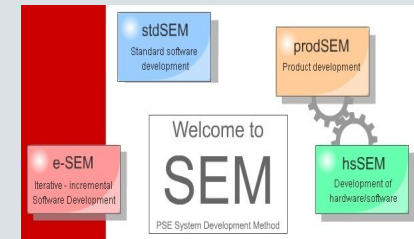
- Aligned with the situation of the PSE
- project-specific adaptable
- entrance in each phase possible, if conditions are fulfilled
- selection of the phases project-specifically
 - omitting of phases must be justified
- points are check list for course of project

SEM/System Development Method/6

Hypertext stdSEM

- The "electronic manual" is accessible on-line by each employee
 - uniform interface for different operating systems
- Cross-linking with other current applications of the Intranet is possible
- Download of documents is possible
- Printing is always possible from each workstation
- No organizational expenditure
 - With distribution and new versions
 - Always actual
- Integrable in "programmer's workbench"

- Select a derived method of SEM
- Select a life cycle approach ...



- Degree of obligation of results

What results must be produced?

must should may

- Select entry in whatever execution phase to start
- Skipping of sub phases
- Overlapping of phases
- Project organization (roles and responsibilities)
- Adaptation of milestones
- Structuring of documents
- Merging of documents
- Splitting into subdocuments

- All documents and results have within stdSEM a certain degree of obligation:
- **Must:**
 - A **Must**-regulation is mandatory
 - Such documents and results must be developed.
- **Should:**
 - A **Should**-regulation is an intended definition.
 - If such a regulation in a project is not obeyed, a reason is necessary in the QA plan.
- **May:**
 - A **May**-regulation is a recommendation.
 - It is not necessary to reason,
 - if such a regulation is not kept.
 - Nevertheless you should consider yourselves whether this document or result may be omitted easily.

- Definition of the phase organization

- Is defined in principle in SEM
- Must be project-specifically adapted

- Enforced by

- The project management

- Point in Time

- Provisional structure already during project initiation
- Exact definition effected with the development of the project structure
- Detailed planning of the organization of the individual phases takes place during the advance planning in the predecessor phase

SEM/System Development Method/11

Areas of responsibility

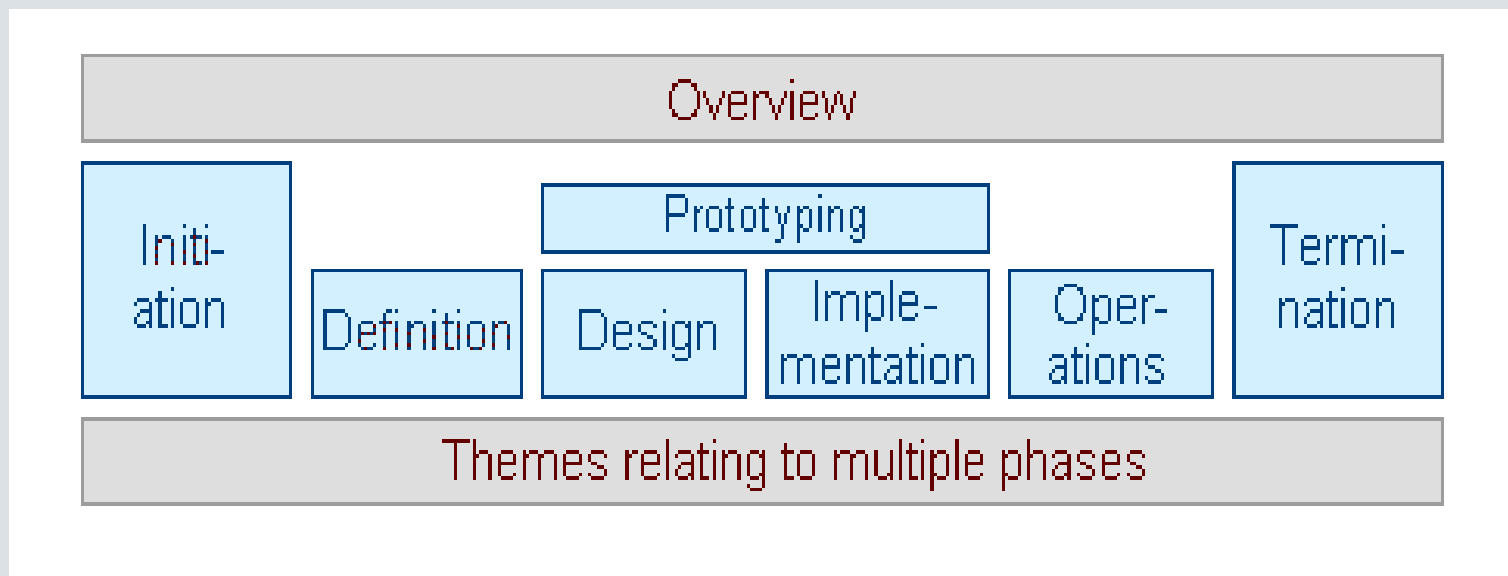
- Product development
- Project management
- Configuration management
- Quality assurance
- Reuse
- System Engineering

- Technical support
- ...

- multi-level subdivisions possible

SEM/System Development Method/12

Phases/Overview



SEM/System Development Method/13

Initiation Phase

stdSEM Initiation - Microsoft Internet Explorer provided by chello broadband n.v.

Adresse http://sem.siemens.at/stdsem_e/p_init/home.htm

stdSEM

Initiation | Definition | Prototyping (Design | Implementation) | Operations | Termination

Where am I? | Help | Search | Home

Initiation Phase

Start here → **Initiation** ← **Start here**
 Phase orientation: Goals, mandatory results, procedures, etc.

technical | project-control | quality assurance

P0: Project kick-off

Pre-conditions	Impulse	Preliminary requirements	
Activities	Analysis of preliminary requirements	Conducting of risk analysis Conducting of preliminary project planning Decision on the project enterprise	Analysis of QA requirements
Results	Specification of proposed solution	Preliminary project plan Project decision report	Preliminary-QA plan

P1: Project enterprise decided

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 Contact: [SEM Webmaster](#)

Trusted sites

SEM/System Development Method/14

Definition phase/1

stdSEM Definition - Microsoft Internet Explorer provided by chello broadband n.v.

Adresse http://sem.siemens.at/stdsem_e/p_defi/home.htm

stdSEM

Initiation **Definition** Prototyping Design Implementation Operations Termination

Where am I? Help Search Home

Definition phase

Definition
Phase orientation: Goals, mandatory results, procedures, etc.

	technical	project-control	quality assurance
Pre-conditions	Preliminary requirements Specification of proposed solution	Project decision report Preliminary project plan Project order	Preliminary QA plan
Activities	Subphase "Definition of the requirements" Goal: Requirements defined with adequate clarity Definition of the goal Analysis of the domain Collection and elaboration of requirements Ordering of the requirements Checking of the requirements Building a domain model Producing a user requirements specification T21: Requirements defined and checked	Kick-off activities Risk evaluation Coordinating of user requirements specification with client	Review of user requirements specification
	Subphase "Definition of the product" Goal: Product defined with adequate clarity Checking of the requirements Elaboration of product features Building an OOA model Planning of RR Definition of external interfaces	Drawing up the project agreement Planning the project Planning the CM Setting up the basis CM system	Review of the OOA model Review of the software requirements specification Review of the project plan Planning the QA process
	tivities		

Project management
Quality assurance
Configuration management
Reuse & reusability
Small projects

Trusted sites

SEM/System Development Method/15

Definition phase/2

stdSEM Definition - Microsoft Internet Explorer provided by chello broadband n.v.

Adresse http://sem.siemens.at/stdsem_e/p_defi/home.htm

<p>Small projects</p>	<p>Activities</p> <ul style="list-style-type: none"> Building a domain model Producing a user requirements specification <p>T21: Requirements defined and checked</p> <p>Subphase "Definition of the product"</p> <p>Goal: Product defined with adequate clarity</p> <ul style="list-style-type: none"> Checking of the requirements Elaboration of product features Building an OOA model Planning of RR Definition of external interfaces Definition of all project processing conditions Making feasibility studies Creating prototype(s) Producing a software requirements specification <p>T22: Product defined and checked</p> <p>Subphase "Drawing up a tender"</p> <p>Goal: Tender submitted</p> <ul style="list-style-type: none"> Checking of the requirements Selecting and defining the contractual framework Defining the services Estimating the effort Balancing price / performance Producing the tender document 	<p>client</p> <ul style="list-style-type: none"> Drawing up the project agreement Planning the project Planning the CM Setting up the basis CM system Setting up the project infrastructure Coordinating the requirements specification with the client <p>Submitting the tender</p> <p>Project checks and control</p>	<ul style="list-style-type: none"> Review of the OOA model Review of the software requirements specification Review of the project plan Planning the QA measures Review of the QA plan Review of the feasibility studies <p>Review of the tender</p>			
				<p>T23: Tender defined, checked and submitted</p>	<p>P2: Project plan drawn up and checked</p>	<p>Q2: QA plan drawn up and checked</p>
				<p>Results</p> <ul style="list-style-type: none"> User req. spec. SW req. spec. Tender RR plan OOA model 	<ul style="list-style-type: none"> Domain model Feasibility studies Prototype(s) 	<ul style="list-style-type: none"> Project agreement Project plan CM plan Basis CM system

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Trusted sites

SEM/System Development Method/16

Software Requirements Specification

The screenshot shows a Microsoft Internet Explorer browser window. The title bar reads "stdSEM Definition tE2 Software Requirements Specification - Microsoft Internet Explorer provided by chello broadband n.v.". The address bar shows the URL "http://sem.siemens.at/stdsem_e/p_defi/te2.htm". The page content is titled "Software Requirements Specification" and includes sections for Purpose, Content, Notes, and a Hint for development of object-oriented software. A navigation sidebar on the left contains links for Contents, Document checklist, WinWord template, and F.A.Q. At the bottom of the page, there are two boxes: "Activities leading to this result:" with links to "Producing a software requirements specification" and "Review of software requirements specification", and "Follow-up activities (in this phase):" with a link to "What next?". A red arrow labeled "Already done?" points left from the second box, and another red arrow labeled "What next?" points right from the first box.

stdSEM Definition tE2 Software Requirements Specification

File Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten Wechseln zu Links

Adresse http://sem.siemens.at/stdsem_e/p_defi/te2.htm

Software Requirements Specification

Purpose
Recording the binding basis for development work, which also represents the basis for product acceptance.

Content
Description of the product in terms of its functions, interfaces and other features. In addition, those project execution elements requested by the client and / or which are relevant to him must also be defined.

Notes
Since the software requirements specification is the most important technical document for the development work, it must be **reviewed**. It is also important to try to agree the software requirements specification with the client, otherwise considerable problems could occur during product acceptance.

If a user requirements specification or another requirements document is available, the contents of the software requirements specification must correspond to the requirements contained therein, i.e. the functions and the behavior of the product as described in the software requirements specification must clearly correlate to the corresponding requirements defined in the user requirements specification (traceability).

Hint for development of object-oriented software:
In addition, the user requirements specification must be consistent with the OOA model. In the majority of cases this is ensured since relevant parts of the model are used in the software requirements specification.

Activities leading to this result:

- [Producing a software requirements specification](#)
- [Review of software requirements specification](#)

Follow-up activities (in this phase):

[What next?](#)

Already done?

Fertig Trusted sites

- **Introduction**
- 1.1 Purpose of the document
- 1.2 Validity of the document
- 1.3 Definitions of terms and abbreviations
- 1.4 Relationship with other documents
- 1.5 Overview of the document

SEM/System Development Method/18

Software Requirements Specification/Content/2

- **2 General description of the product**
- 2.1 Relationship with existing projects
- 2.2 Relationship with earlier and follow-up projects
- 2.3 Purpose of the product
- 2.4 Delimitation and embedding of the product
- 2.5 Overview of the required functionality
- 2.6 General restrictions
- 2.7 Hardware and software specifications
- 2.8 Product users

Detailed description of the required product features

- 3.1 Scope of delivery
- 3.2 Sequences (scenarios) of interactions with the environment
- 3.3 User goals
- 3.4 Required functions of the product
 - 3.4.1 <function designation a>
 - 3.4.1.1 Effect of <function designation a>
 - 3.4.1.2 Dependencies/constraints
 - 3.4.2 <function designation b>
- 3.5 External interfaces of the product
 - 3.5.1 User interfaces
 - 3.5.2 System interfaces
 - 3.5.2.1 <interface a>
 - 3.5.2.2 <interface b>

SEM/System Development Method/20

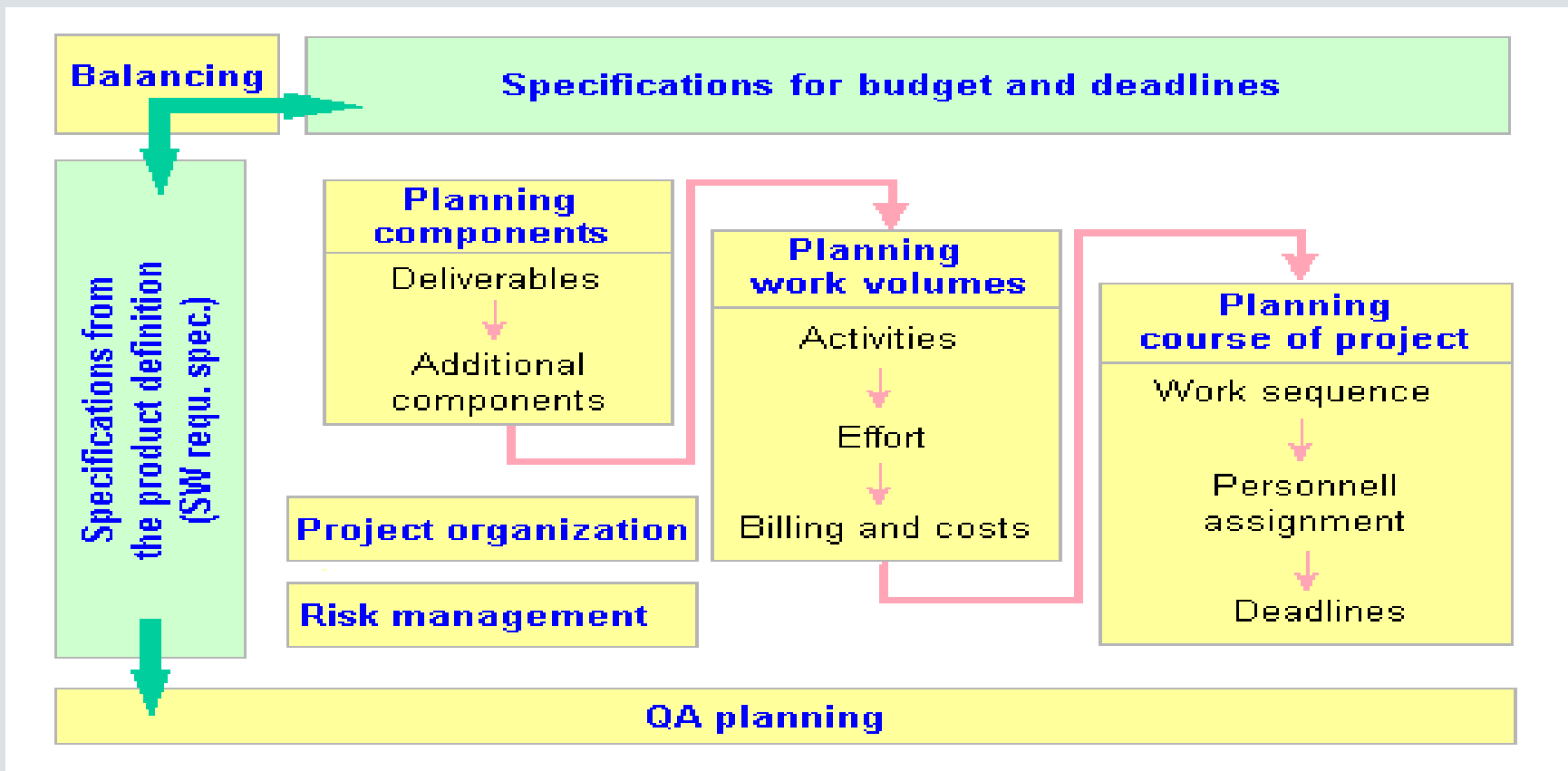
Software Requirements Specification/Content/4

- 3.6 Other product features required
 - 3.6.1 Performance
 - 3.6.2 Resource
 - 3.6.3 Security
 - 3.6.4 Safety
 - 3.6.5 Portability
 - 3.6.6 Reliability
 - 3.6.7 Maintenance
 - 3.6.8 Reuse
 - 3.6.9 Usability
 - 3.6.10 Environment

- **Specifications for project management**
- 4.1 Implementation requirements
- 4.2 Ready-to-use and bought-in components
- 4.3 Subcontractors
- 4.4 Acceptance conditions
- 4.5 Terms of delivery
- 4.6 Requirements for use
- 4.7 Warranty
- **5 Obligations of the client**
- **6 Literature**
- 7 Annex

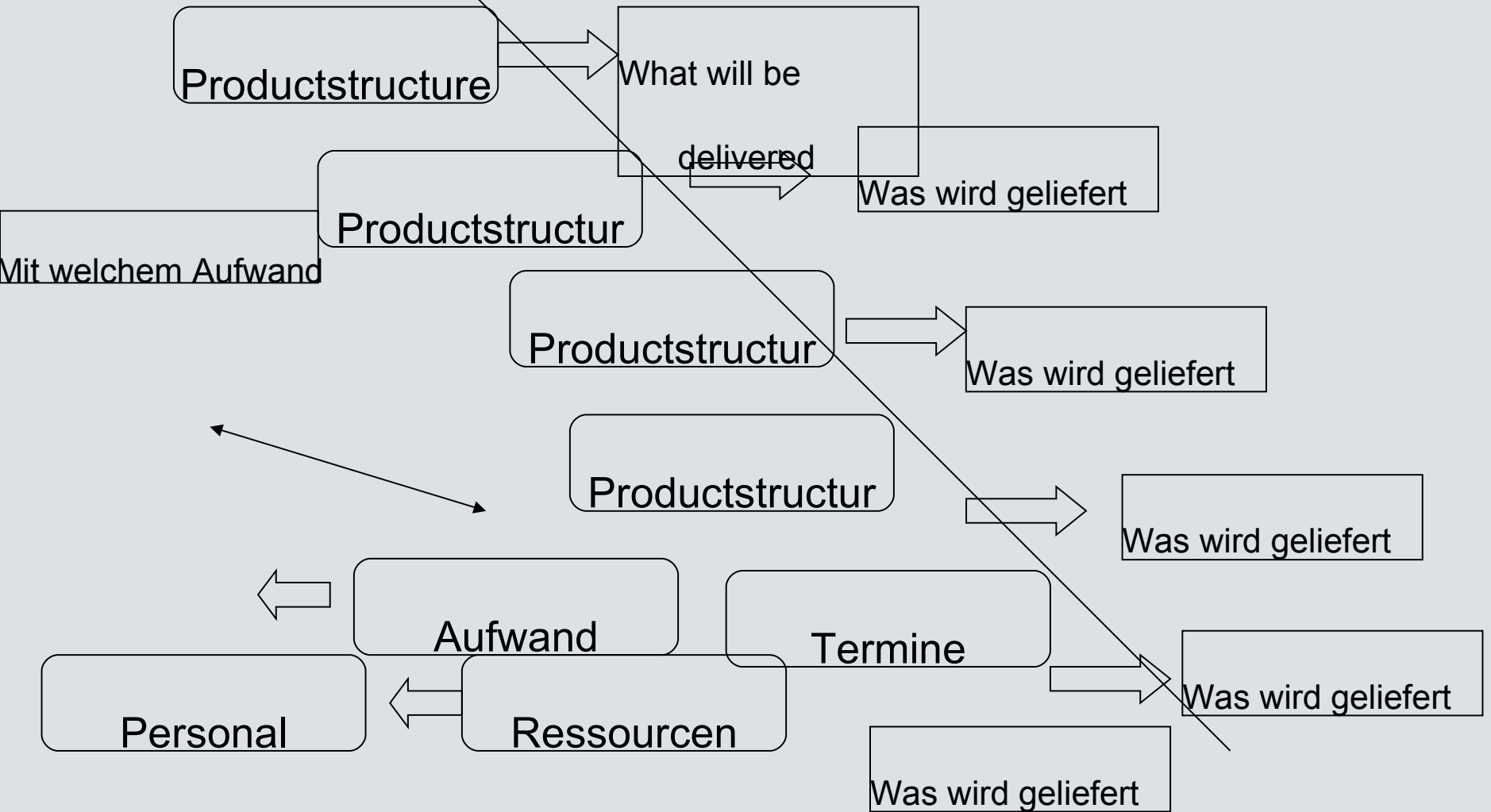
- **Project planning**
- **Project checks and project control**
- **Processing the tender and commissioning**
- **Commissioning subcontractors**
- **Procurement of hardware and software_**

Overview



Project management/3

Project planning/2



- Processing of tenders and commissioning cannot generally be regulated in stdSEM.
- Instead, there are numerous super ordinate procedures in the Divisions / Business Units.
- stdSEM only regulates the most important obligations covered by the project.

- The tender is processed in the Definition phase
 - not in the Initiation phase, where only a basic Y/N is decided!
- The required activities are described in full in the "Drawing up the tender" sub phase, which also provides templates and sample documents for tenders.

Project Management/5

Commissioning of Subcontractors

Technical

Project Control

Quality Assurance

	Technical	Project Control	Quality Assurance
Activities	<p>Dividing up the tasks for own development / subcontracting</p> <p>Creation of an order description / user requirements specification for subcontractors</p> <p>Possible coordination of the subcontractor software requirements specification</p>	<p>Planning of subcontracting</p> <p>Possibly performing a call for tender</p> <p>Possibly checking the subcontractor's tender</p> <p>Commissioning the subcontractor</p> <p>Project checks and control</p> <p>Performance of the product acceptance test</p>	<p>Review of user requirements specification</p> <p>Possibly checking the subcontractor's QA system</p> <p>Possibly agreed reviews of intermediate results</p>
Results	<p>Order description / user requirements specification for subcontractors</p> <p>Possibly software requirements specification for subcontractor</p> <p>Accepted product</p>	<p>Order to subcontractor</p>	<p>Acceptance records</p>

Project Management/6

Procurement of Hardware and Software

- Procurement of hardware and software should already have been prepared and planned during project planning
 - Planning of components

- When performing procurement
 - it is important to distinguish whether procurement takes place within PSE
 - or whether the client is to be responsible for procurement and will then provide us with the hardware and software.

Project planning/1

"Yes, just you make your plan, just be a shining light; and then make still a second plan, but neither one will work"...

Brecht, The Threepenny Opera



Project planning/2

Arguments against project planning

- Only the weak need a plan, genius rules over chaos.
- Planning means replacing coincidence with mistake.
- Planning is hard labor for the mind.
- Reality never works according to plan.
- Once you have presented a plan, it is easy to prove in the aftermath that your plan was at fault.



Project planning/3

Thomas Watson, president of IBM, 1943

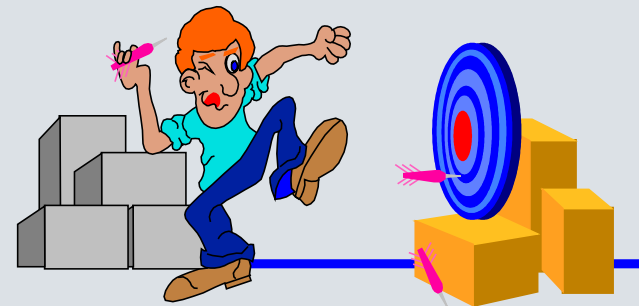
The world-wide demand for computers won't amount to more than 5



Project planning/4

Why have project planning?

- Project planning means defining the course of the project
- Project planning constitutes a feasibility study of the project from an organizational and a commercial point of view. (Drawing up a SW requirements specification includes a feasibility study from the technical point of view.)
- Teamwork is not possible without prior planning.
- Wherever you want to efficiently reach a goal, you need an adequate plan.



Project planning/5

Planning is not an end in itself

- A plan should be a tool that supports the project.
- Structuring and abstraction are meant to make things clearer and easier to understand.
- All the information required for the project needs to be represented.
- Don't bother with insignificant details.

Project planning/6 Clarity

is achieved through:

- Abstraction ⇒ "represent less detail"
- Structuring ⇒ "arrange everything in an orderly fashion"

Project planning/7

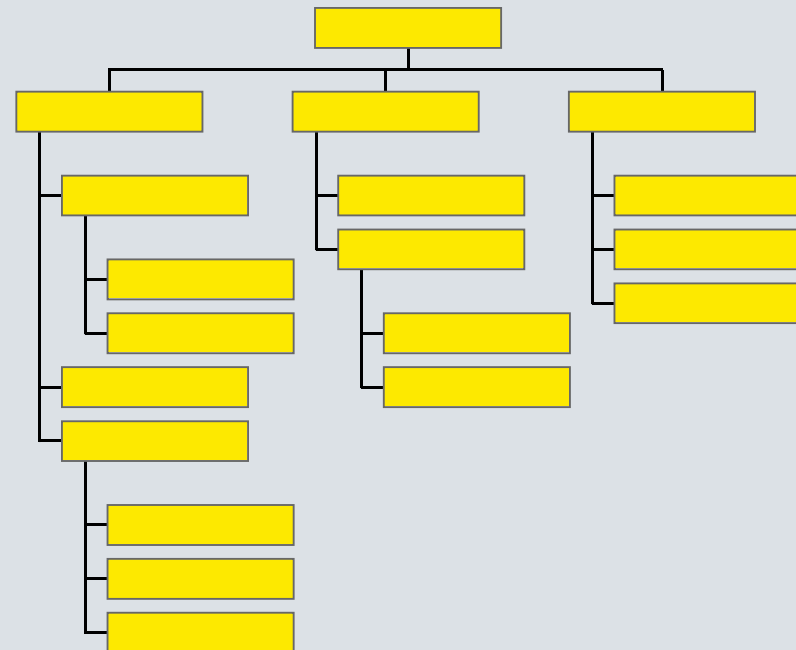
Abstractions in the project plan

- Abstraction (in the same way as structuring) is meant to provide clarity of information.
- The abstractions provided by SEM represent different views of the project, where each abstraction considers a particular part of the whole information, while skipping other parts.
- By leaving out parts of the information total, it is possible to represent the remaining part of the information in a more clear-cut and easily understandable manner.
- Examples of different views (abstractions) in the project plan :
 - Deliverables: only the components that will be delivered
 - Activities: all of the activities (but: nothing but activities)
 - Effort: only effort and not costs

Project planning/8

Structuring in the project plan

- is meant to increase the clarity of the information presented
- different criteria can be used to structure information
- frequently on several levels



Project planning/9

Structuring criteria

Structuring by, for example:

- functions
- phases
- releases
- project organization
- task (HW, SW, documentation)
- type of creation (self-developed, subcontracted)
- place of creation (Vienna, Bratislava, Munich)
- ...

Project planning/9

Project plan/Structure of the document template

- 1. Introduction
- 2. Key data of the project
- 3. Project organization (persons responsible and contact persons)
- 4. Component planning
- 5. Project volume
- 6. Course of the project
- 7. Risk management
- 8. Project monitoring and control

Project planning/10

Project organization

- **Areas of responsibility with persons responsible**
- persons responsible (who take care of things), **not** organizational units, **not** personnel deployment
- persons responsible tend to project execution
- all tasks covered, no overlapping, detailed
- at least 2 persons responsible for each project: QA manager must not be responsible for project management or product development
- to be defined on a project-specific basis
- include also contacts outside the project
- as an organization chart or as a list

Project planning/11

Component planning

- Components are everything which is created or must be available during the course of the project.
- Represented according to two criteria:
 - first, deliverables
 - then, additional components
- Logical and non-physical entities
- Sequence is important since the deliverables (together with the selected development method) determine the additional components

Project planning/12

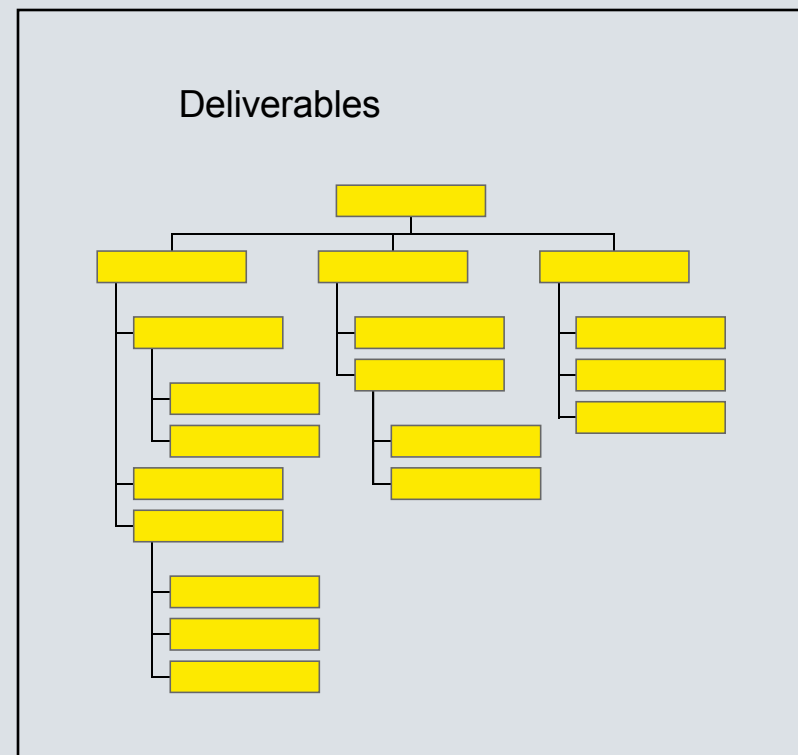
Component planning

- The sum of all components provides the basis for the next stage in the planning sequence
 - ⇒ planning the work volume, ...
- Basis for defining the configuration items in Configuration Management (CM)
- Missing components result in missing activities, missing efforts, costs, deadlines, ...
 - ⇒ increased probability of project failure

Project planning/13

Deliverables/1

- All those parts supplied to the client in accordance with the software requirements specification ⇒ the **product**
- Examples:
 - software
 - hardware
 - user documentation
 - training documents
 - consulting services
 - SEM documents
 - program sources
 - test records
 - ...

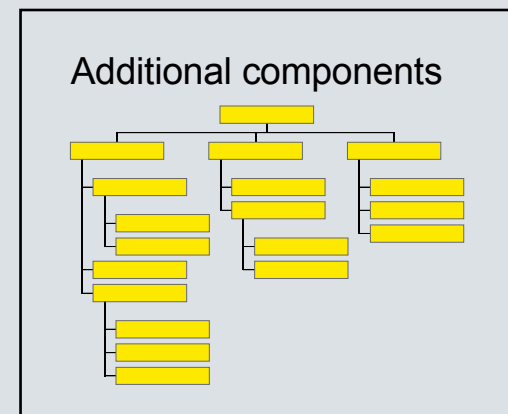


- **How do I get the plan of deliverables right?**
How do I get the plan of deliverables wrong?
- Plan of deliverables right:
 - contains everything that will be delivered (nothing is missing)
 - contains nothing that will not be delivered (in excess)
- Plan should be helpful (for the project), too
 - clear structure
 - nature of the product clearly discernible \Leftrightarrow well-suited for deriving components (and, subsequently, activities)
 - Applies analogously to additional components and activities

Project planning/15

Deliverables/3 Additional components

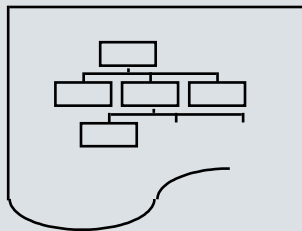
- All those parts which are not supplied to the client but which must be generated or available during the course of the project
- Input: deliverables, development method and other specifications (by QA, RR, organization, ...)
- Examples
 - all the required tools, SW, HW
 - SEM documents
 - monthly reports
 - self-developed utilities
 - test data
 - simulators provided by the client
 - ...



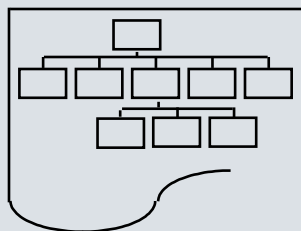
Project planning/16

From deliverables to activities

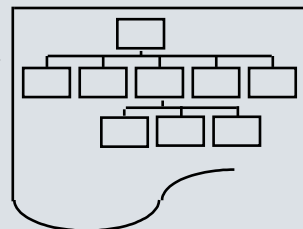
Deliverables



Additional components



Activities



What is the nature of the product?

⇒ Deliverables

What else do I need on my way to the product?

⇒ Additional components

What do I have to do to arrive at the components?

⇒ Activities

Project planning/17

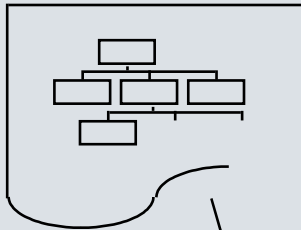
Project volume

- Activities
- Effort
- Charge rates and costs
- Mostly done with a planning tool from here
- All the information linked together in a database
 - network planning technology

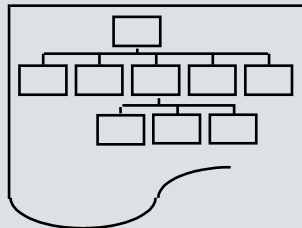
Project planning/17

Project planning using network planning tools

Deliverables



Additional components



Effort

24	Activity 1
10	Activity 1A
8	Activity 1A1

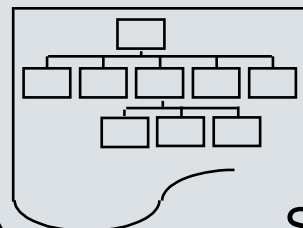
Personnel deployment

Name	Activity

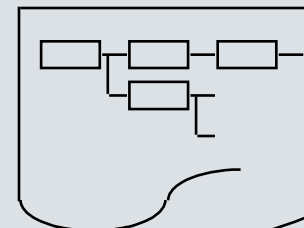
Milestones, deadlines

Milestone	Deadline

Activities



Sequence of tasks



Project planning/18

Activities

- All the activities that are required to achieve the project result (product)
- Derived from the components
- Activities need to be defined in such a way that it is easy to plan and track them and that they are suitable for determining the related effort
- Components - activities need not have a 1:1 relation (e.g. SW req. spec. results in two activities: draw up SW req. spec. and review/correct SW req. spec.)
- derived directly (e.g. Test plan \Rightarrow activity Drawing up the test plan)
- derived indirectly (e.g. activity Training, CM)

Project planning/19

Effort

- Total effort, broken down by types of effort
 - Personnel effort is based on activities
 - Other effort is based on components
-
- This is the topic that causes most of the problems in project planning ⇒ see next lecture

Project planning/20

Difference between effort and costs

- Effort - quantity structure
- Cost - financial resources required
- need not be 1:1

e.g.:

effort: 3 special computers with equipment ...

cost: 0.- EUR (computers provided by client)

or 100,000.- EUR (have to be purchased for the project)

or xxx. EUR rent (from another department)

Project planning/21

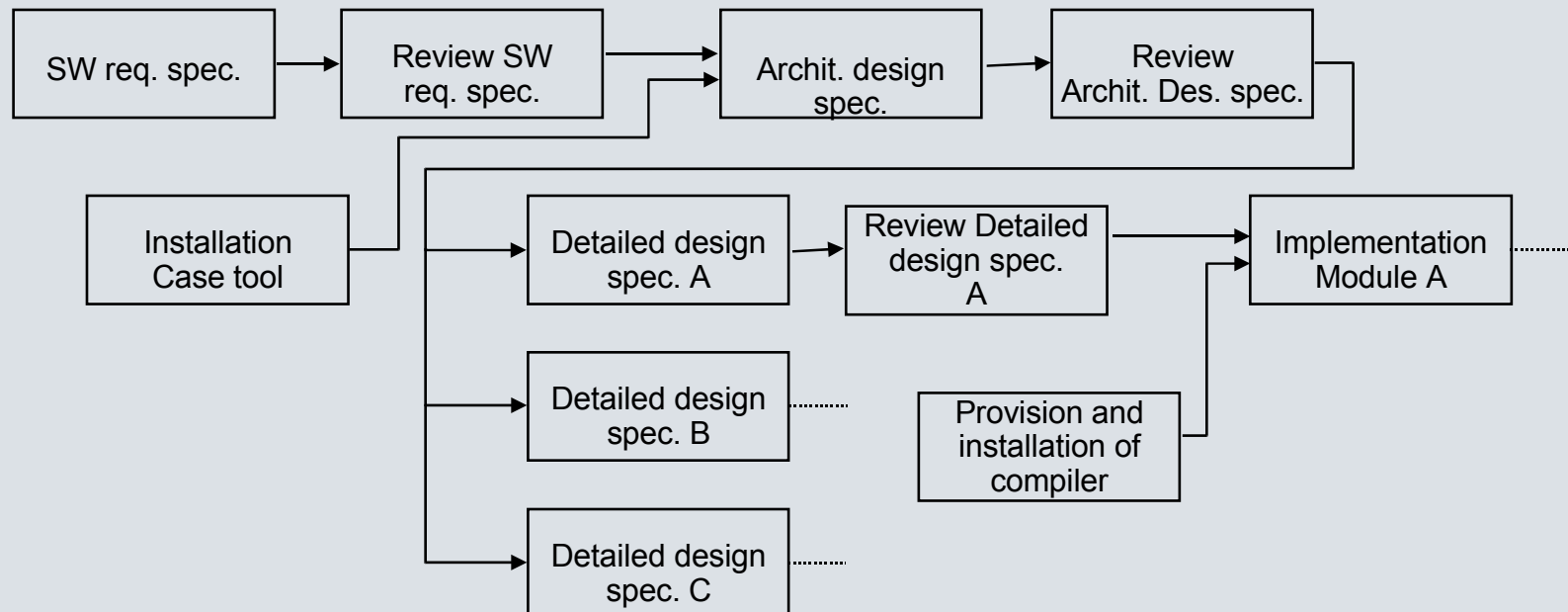
Course of the project

- Sequence of tasks
- Personnel deployment
- Deadlines / milestones

Project planning/22

Sequence of tasks

- sequence of and relationships between activities
- dependency required in technical terms, e.g. coding - component test
- Example from a sequence of tasks



Project planning/23

Personnel deployment

- also referred to as human resources planning or personnel assignment
- Assign staff to activities (by mouse-click, if a tool is used)
- Take into account:
 - absences
(e.g. training, review, vacations, sick leave, etc.)
 - max. utilization (e.g. 90%)
 - know-how of project staff
- Then, you will (in most cases) automatically get
 - personnel deployment plan
 - utilization rate per staff member
 - personnel deployment over time (manpower histogram)
 - personnel list

Project planning/24

Deadlines

- Good deadline planning requires a lot of experience and intuition
- Deadlines result from the various data collected about individual activities, taking account of:
 - buffers
 - external supplies
 - utilization
 - ...

Project planning/25

Risk management

- preventive measures
 - remedial measures
- for unusual risks existing
in the project
- Plan in its own right, enters as input into "normal" planning (project organization, activities, effort, ...)
 - Frequent risks in software projects include:
 - Personnel absences
 - Loss of operating resources
 - Loss of data
 - ...
 - Disaster
 - Delays in delivery of outsourced goods
 - Delay in deadlines
 - Measures should be as concrete as possible

Project planning/26

Review of the project plan

- According to stdSEM, the project plan **must** be reviewed
- Sections or subsections should be reviewed individually and in the order of creation
- e.g.: first review of deliverables, then creation (or completion) of additional components

- Tip: Also refer to the "Checklist for Reviewing of Project Plan" in stdSEM

Project planning/27

Problem: Specifications

- ☹️ Deadlines and costs (and sometimes even the functional scope) are specified by the client
- ☹️ The client wants extensions everywhere and that free of charge (and they should have been completed "yesterday"!)
- ☹️ Effort figures are "dressed up" to suit the "requested deadlines"
- ☹️ The project team plans effort, and the management agrees on deadlines

Project planning/28

Problem: Updates

- ☹ Individual subplans of the project plan are no longer being updated ("only milestones are important")
- ☹ Updates make plans useless (200% utilization of a staff member)
- ☹ No plans are being updated at all
- ☹ Developers have their own "up-to-date" plans hidden in their desks
- ☹ Updating results in a "loss" of planned values (planned/actual comparison no longer possible)

Project planning/29

Problem: Human resources planning

- ☹ The project manager includes "no name" staff ("NN") in the plans and hopes to get the right person when the time comes
- ☹ Staff are included in plans with 100% utilization rates, even though there are normally a number of non-project-related activities to be performed by each staff member (general training, membership in various bodies, work on other projects, e.g. reviews; and, in addition, of course vacations, sick leave)
- ☹ Superiors always tend to rely on especially well-qualified staff members for "urgent work at short notice"

Project planning/30 Summary

good, adequate planning

- introduces clarity into the project
- makes for a coordinated approach
- ensures efficiency of work
- reduces project costs and helps to meeting deadlines
- implies no overhead

inadequate planning

- creates chaos
- brings trouble into the project
- squanders resources
- costs time and money
- prevents the success of good technical work

Project Checks and Project Control/1

Overview/1

General principles

Effort and cost check

Deadline and milestone check

Check of development results

Performing control measures

Coordination, organization, administration

My project



What does this actually mean?

Holding project meetings

Coordinating with client

Entering data in PROWEB

Monitoring effort

Monitoring PROWEB entries (PROWEB-INFO)

Drafting monthly reports, progress reports

Drafting quality reports

Revising the project plan

Performing phase terminations

Releasing development results

Performing milestone trend analyses

Project Checks and Project Control/2

Project monitoring and control

Project control is

- a planned/actual comparison (project plan versus reality) and
- the implementation of required control measures.

Project monitoring points

- Reporting
- Control measures

Project Checks and Project Control/3 Effort and Cost Check

- Holding project meetings
- Entering data in PROWEB
- Monitoring PROWEB entries
- Monitoring effort
- Drafting monthly reports, progress reports

Project Checks and Project Control/4

Deadline and Milestone Check

- Performing milestone trend analyses
- Holding project meetings
- Entering data in PROWEB
- Monitoring PROWEB entries (QDA)
- Monitoring effort
- Drafting monthly reports, progress reports

Project Checks and Project Control/5

Check of Development Results

- Releasing development results
- Performing phase terminations
- Performing milestone trend analyses
- Holding project meetings
- Entering data in PROWEB
- Monitoring PROWEB entries
- Monitoring effort
- Drafting monthly reports, progress reports

Project Checks and Project Control/6

Performing Control Measures

- Revising project plan
- Monitoring PROWEB entries
- Coordinating with client
- Drafting quality reports
- Drafting monthly reports, progress reports
- Performing phase terminations
- Holding project meetings

Project Checks and Project Control/7

Coordination, Organization, Administration

- Coordinating with client
- Drafting quality reports
- Drafting monthly reports, progress reports
- Holding project meetings

PROWEB (PROject controlling via WEB)

- Tool to systematically collect and evaluate technical and commercial data of all PSE projects

plan

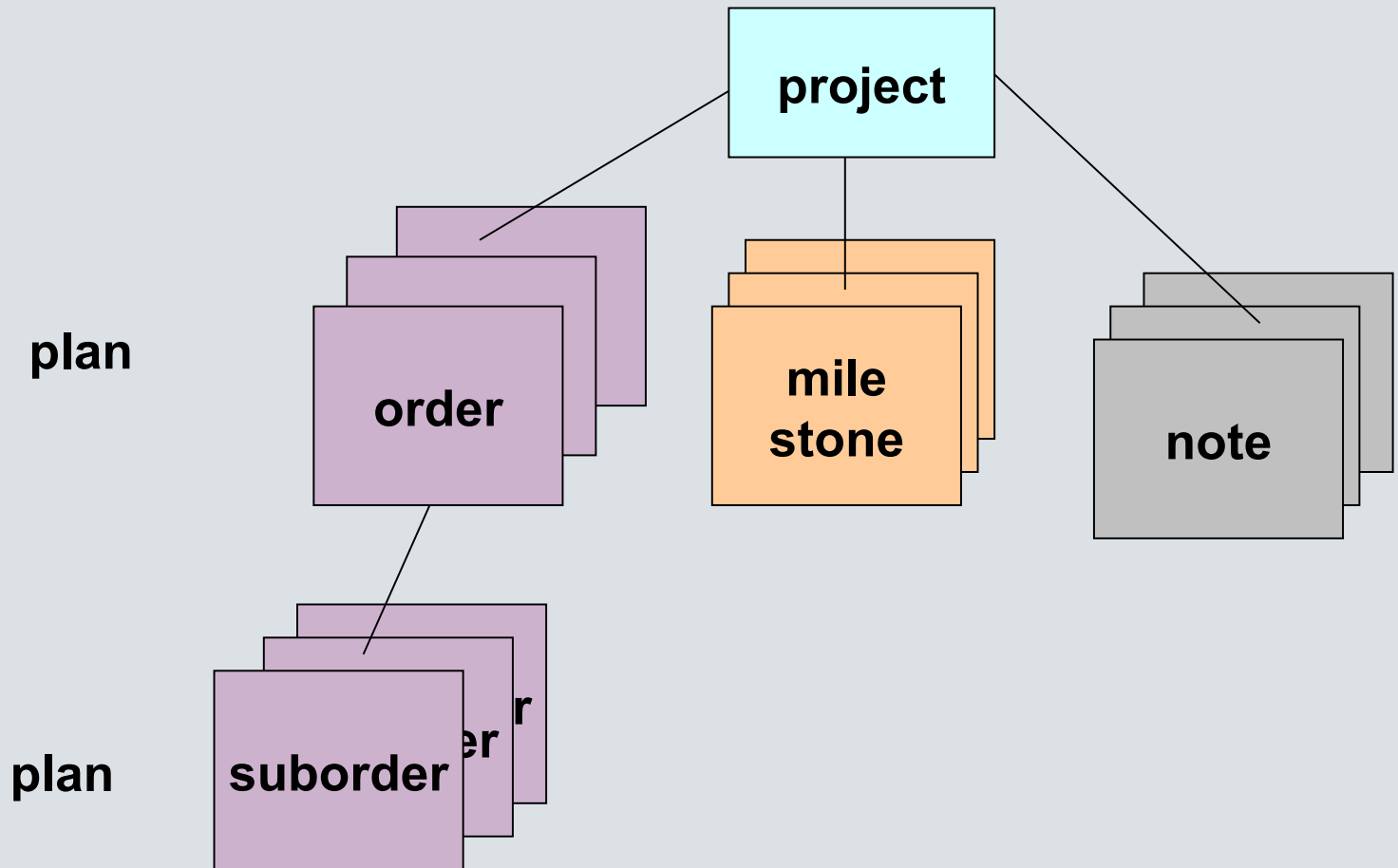
actual

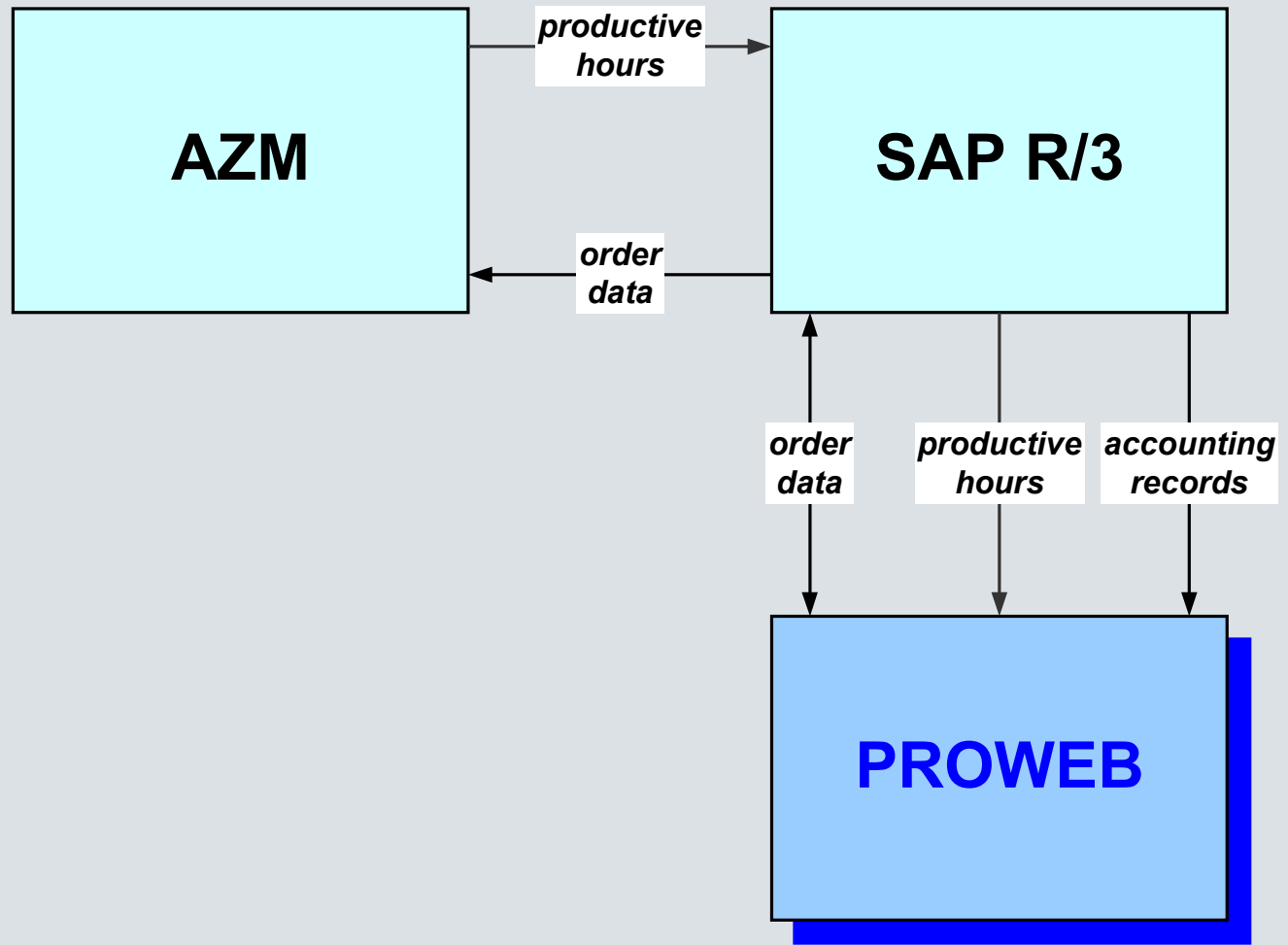


- Project
 - Controlling and monitoring performed by PL / PM and QA managers
 - Deadlines, effort, quality
 - Project specific reports

- Business segment (GS) / business unit (GF)
 - Cumulated evaluations to find critical projects in organizational units
 - Assists in management decisions

- PSE group
 - Metrics and Q data for Balanced Score Cards (BSC) and process improvements
 - Standard evaluations and (interfaces to get) specific evaluations
 - Process optimization





Critical Marking in PROWEB

- **R = Risk: manually** set to "critical": means that the R-Critical flag was set at the project form in the key data tab
 - if special attention by management necessary
 - maybe on special GG/GF instructions
- **A = Effort critical:**
set by PROWEB, if the actual effort is higher than the planned effort.
- **T = Dead line critical:**
set by PROWEB, if a milestone has no actual date and the planned date is in the past
- **K = cost critical:**
set by PROWEB, if the actual costs are higher than the planned costs.
- **B = critical with respect to order amount:**
set by PROWEB, if the planned sales volume or the actual sales volume is higher than the order value or there is no order value keyed in so far.


Available Kind of Reports

Project	Order
<p>Overview</p> <p>Effort Deadline Chart (EDC, ATD)</p> <p>Cost Chart (CC, KUD)</p> <p>Milestone Trend Analysis (MTA)</p> <p>Month Overview</p> <p>Planned/Actual Effort</p> <p>Planned/Actual Costs</p> <p>Error Detection Rate</p> <p>Error Rate</p>	<p>Overview</p> <p>Order Sheet</p> <p>Month Overview</p> <p>Accounting Records</p> <p>Cost Chart (CC, KUD)</p> <p>Planned/Actual Effort</p> <p>Planned/Actual Costs</p>

PROWEB Controlling

- BSC GG Compliance with Effort/Deadline Estimates
 - BSC ROA Compliance with Effort/Deadline Estimates
 - BSC GG IHR-hours
 - BSC ROA IHR-hours
 - BSC Business Type
 - BSC Innovative- and Central-projects
-
- Quarterly Meeting
 - Innovative Projects
 - Central (nonprofit) Projects
 - Effort/Deadline Overview
 - Open Phase Results
 - Current Orders
 - Sales Margin
 - Payment Plan

Example: Quarterly Meeting



SIEMENS

English

Intranet

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 [Contact](#)

PSE PROWEB

Project | Order | Note/Report | Metrics | **Controlling**

Home | > Controlling > Quarterly Meeting

> PROWEB Navigator

Output:

Project: **No selection**

GF/KF (GG/KB) [Select]

Quarterly Meeting Reporting Date: Apr 1, 2005

MCS CN

Project	MCS CN Projects				Effort				Milestone Deadline Exceeded		
	RCrit	ACrit	TCrit	KKrit	Actual [Hrs]	EActual [Hrs]	Planned [Hrs]	Actual Planned [%]	Open MSs	Last MS Reached [Days]	First Open MS [D]
B-NC-COC05	●	▲	●	●	577.09	1,267.00	1,158.00	109.41		ALL MSs reached	All MSs completed
B-NC-CR-DART-05	●	▲	●	▲	370.54	1,234.00	863.00	142.99		ALL MSs reached	All MSs completed
B-NC-CS10W05	●	▲	●	▲	2,982.98	5,516.00	5,065.00	108.90		ALL MSs reached	All MSs completed
B-NC-CS21W05	●	▲	●	▲	6,524.40	10,805.00	9,670.00	111.74		ALL MSs reached	All MSs completed
B-NC-CS30W05	●	▲	●	▲	8,407.96	14,869.00	13,423.00	110.77		ALL MSs reached	All MSs completed
B-NC-CS40-05	●	▲	●	▲	48,808.57	62,421.00	59,342.00	105.19		ALL MSs reached	All MSs completed
B-NC-CS40-DART-05	●	▲	●	▲	1,436.91	1,685.00	1,520.00	110.86		ALL MSs reached	All MSs completed
B-NC-CS50-05	●	●	▲	●	20,095.46	79,922.00	86,273.00	92.64		32	All MSs completed
B-NC-TTSUPPCN05	●	▲	●	▲	2,584.69	4,955.00	4,744.00	104.45		ALL MSs reached	All MSs completed
B-PD-CR-DART-05	●	▲	●	●	275.49	1,267.00	1,237.00	102.43		ALL MSs reached	All MSs completed
B-PD-CR05	●	●	●	▲	896.97	2,144.00	2,379.00	90.12		ALL MSs reached	All MSs completed
B-PD-PS-REISE-CN05	●	●	●	▲	Plan missing					ALL MSs reached	All MSs completed
B-PD-PS50-DART-05	●	●	●	▲	9,333.97	24,293.00	24,647.00	98.56		ALL MSs reached	All MSs completed

- Project Overview
- Effort/Deadline Chart
- Cost Turnover Chart
- MTA (Milestone Trend Analysis)
- Month Overview
- Month Overview
- Planned/Actual Effort
- Planned/Actual Effort
- Planned/Actual Effort (Chart)
- Planned/Actual Costs
- Planned/Actual Costs
- Error Detection Rate
- Error Rate

→ Close All Windows

Open a new listbox for each order

Caution! Danger of window inflation with this function !!!

Dr.witnaim

IT QM Bratislava

**Thank you
for your attention!**



Primäre Flächenfarbe:

R 255
G 255
B 255

Sekundäre Flächenfarben:

R 215 G 225 B 225	R 170 G 190 B 195	R 130 G 160 B 165
R 220 G 225 B 230	R 185 G 195 B 205	R 145 G 155 B 165

Akzentfarben:

R 255 G 210 B 078	R 245 G 128 B 039	R 229 G 025 B 055	R 000 G 133 B 062	R 000 G 084 B 159	R 000 G 000 B 000
R 255 G 221 B 122	R 248 G 160 B 093	R 236 G 083 B 105	R 064 G 164 B 110	R 064 G 127 B 183	R 064 G 064 B 064
R 255 G 232 B 166	R 250 G 191 B 147	R 242 G 140 B 155	R 127 G 194 B 158	R 127 G 169 B 207	R 127 G 127 B 127
R 255 G 244 B 211	R 252 G 223 B 201	R 248 G 197 B 205	R 191 G 224 B 207	R 191 G 212 B 231	R 191 G 191 B 191
R 255 G 250 B 237	R 254 G 242 B 233	R 252 G 232 B 235	R 229 G 243 B 235	R 229 G 238 B 245	R 229 G 229 B 229