EASITRAIN Training: Project Management Part 2

Minutes & Additional Slides

21-22 March 2018

Martina Huemann
enable2change

Contents

- Project scheduling methods
- Resource and cost planning: overview
- Design of project organisations
- The role of the project manager, project owner, project team members
- Specific challenges and potentials of research projects
- Project leadership in research projects
- Examples of research projects
- Summary and assignment for Vienna module

Working Approach

- Inputs, case studies
- Group works
- Feedback, reflections, discussions
- Training on the Project
  - Working situations as in a real project
  - Benefit for own practice
  - Basis for standard plans
- Cyclic learning approach
  - Theoretical inputs
  - Application on your cases
  - Common reflection
  - Further inputs
- Documentation: additional slides, flip charts

Trainer

- Professor, Head of Project Management Group in the Department Strategy & Innovation, Academic Director Professional MBA: Project Management
- Co-founder and manager of the enable2change network, some 20 years experience as trainer and consultant
- Board member of project management austria

2

Project Scheduling

Project Scheduling

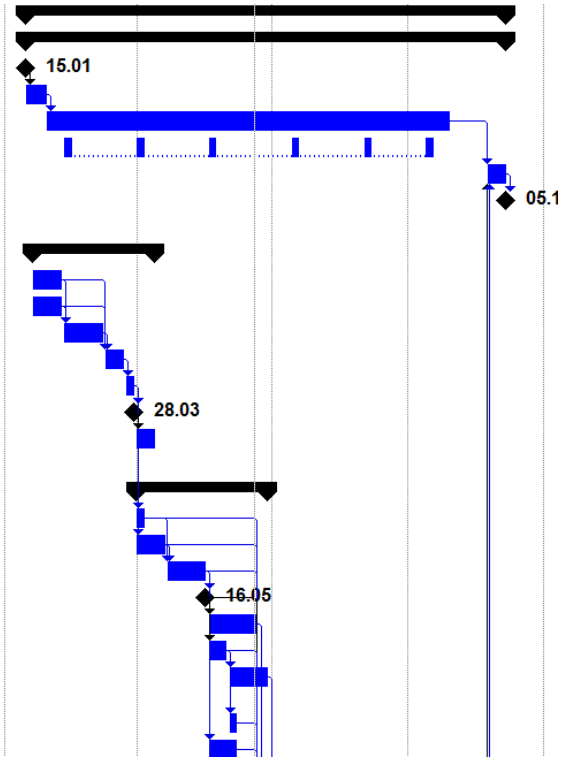
- Depth and detail of scheduling depends on the complexity, dynamic and context of the project
  - Milestone plan
  - Networked Bar Chart
  - CPM Schedule
- Milestone plan
  - Most important events in the progress of the project
  - 2 standard milestones:
    - project assigned
    - project approved
- Networked barchart
  - Shows the durations of the single work packages /phases
  - Additional detailing can be provided with dependencies and leads/lags

Project Milestone Plan: Example

WBS-Code	Milestone	Planned date	Adapted date per ...	Is date
1.1.1	project assigned	15.01.2014		
1.2.6	presentation to project sponsor performed	28.03.2014		
1.3.4	"process landscape new" developed	16.05.2014		
1.3.11	discrete concepts finalized	27.06.2014		
1.4.5	(complete) concept with essential stakeholders coordinated	22.08.2014		
1.4.9	next steps decided	03.10.2014		
1.5.5	first implementation measures performed	14.11.2014		
1.1.6	project approved	05.12.2014		

Networked Bar Chart: Example

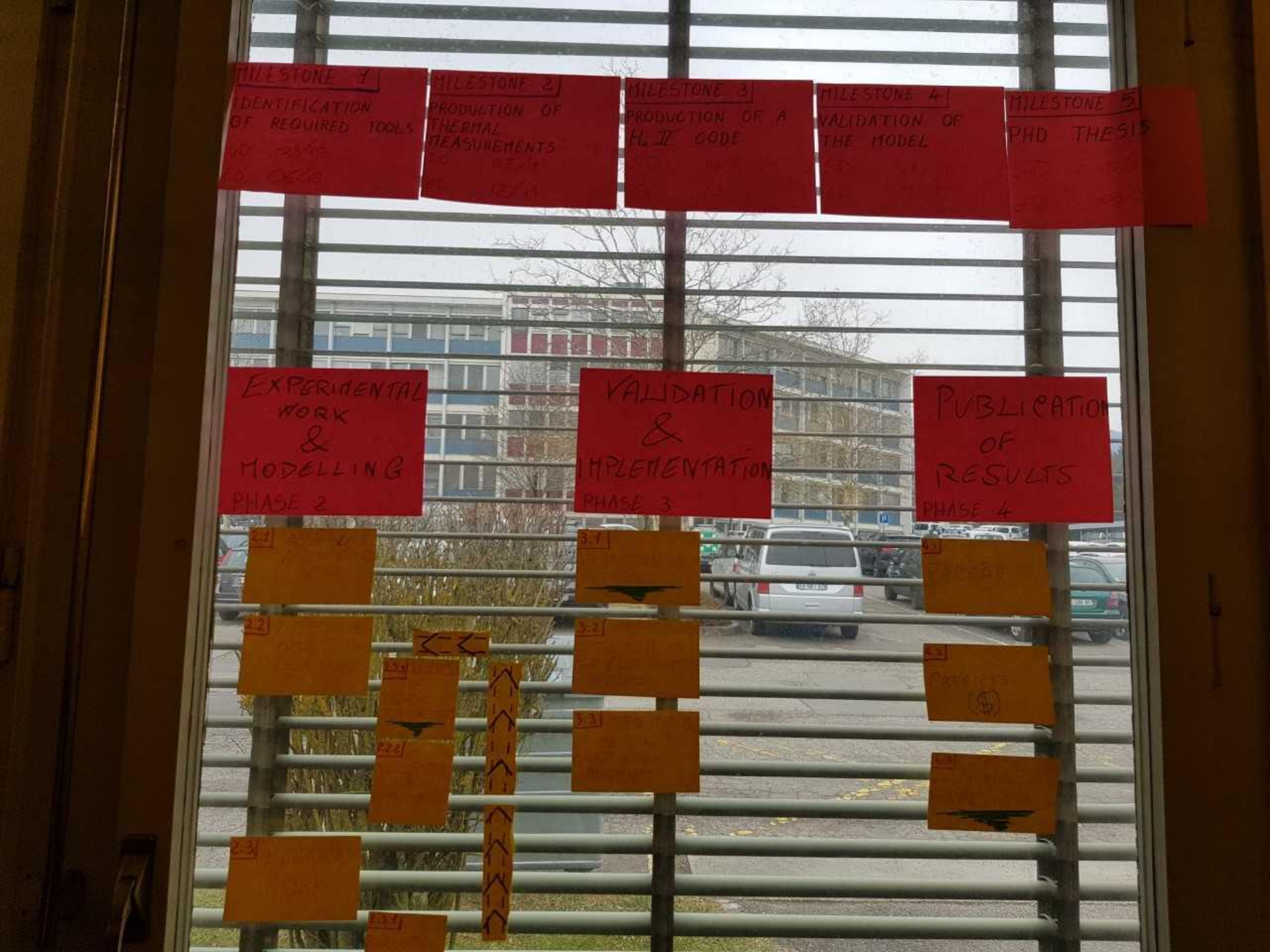
1	**concept and first implementations in a transformation**	**Wed 15.01.14**	**Fri 05.12.14**
1.1	**project management**	**Wed 15.01.14**	**Fri 05.12.14**
1.1.1	project assigned	Wed 15.01.14	Wed 15.01.14
1.1.2	project start	Wed 15.01.14	Tue 28.01.14
1.1.3	project coordination	Wed 29.01.14	Tue 28.10.14
1.1.4	project controlling	Mon 10.02.14	Fri 17.10.14
1.1.5	project close down	Mon 24.11.14	Fri 05.12.14
1.1.6	project approved	Fri 05.12.14	Fri 05.12.14
1.2	**is analysis of optimization potentials**	**Mon 20.01.14**	**Fri 11.04.14**
1.2.1	performance SWOT company	Mon 20.01.14	Fri 07.02.14
1.2.2	performance SWOT selected departments	Mon 20.01.14	Fri 07.02.14
1.2.3	performance of a market analysis	Mon 10.02.14	Fri 07.03.14
1.2.4	analysis and interpretation of selected KPIs	Mon 10.03.14	Fri 21.03.14
1.2.5	summary and presentation of results	Mon 24.03.14	Fri 28.03.14
1.2.6	presentation to project sponsor performed	Fri 28.03.14	Fri 28.03.14
1.2.7	performance of first communication measures to employees	Mon 31.03.14	Fri 11.04.14
1.3	**development of a concept for the new-positioning of the company**	**Mon 31.03.14**	**Fri 27.06.14**
1.3.1	definition of possible new clients and markets	Mon 31.03.14	Fri 04.04.14
1.3.2	identification and short description of new or adapted services	Mon 31.03.14	Fri 18.04.14
1.3.3	development of a "process landscape new"	Mon 21.04.14	Fri 16.05.14
1.3.4	"process landscape new" developed	Fri 16.05.14	Fri 16.05.14
1.3.5	rough description of (new or adapted) processes	Mon 19.05.14	Fri 20.06.14
1.3.6	development of a optimized organisation chart	Mon 19.05.14	Fri 30.05.14
1.3.7	adaption of job descriptions, negotiation with management/employee representations	Mon 02.06.14	Fri 27.06.14
1.3.8	deduction of new qualification programs and training concept	Mon 02.06.14	Fri 06.06.14
1.3.9	rough specification of necessary changes in the existing infrastructure (IT,	Mon 19.05.14	Fri 06.06.14



Project Scheduling: Best Practice

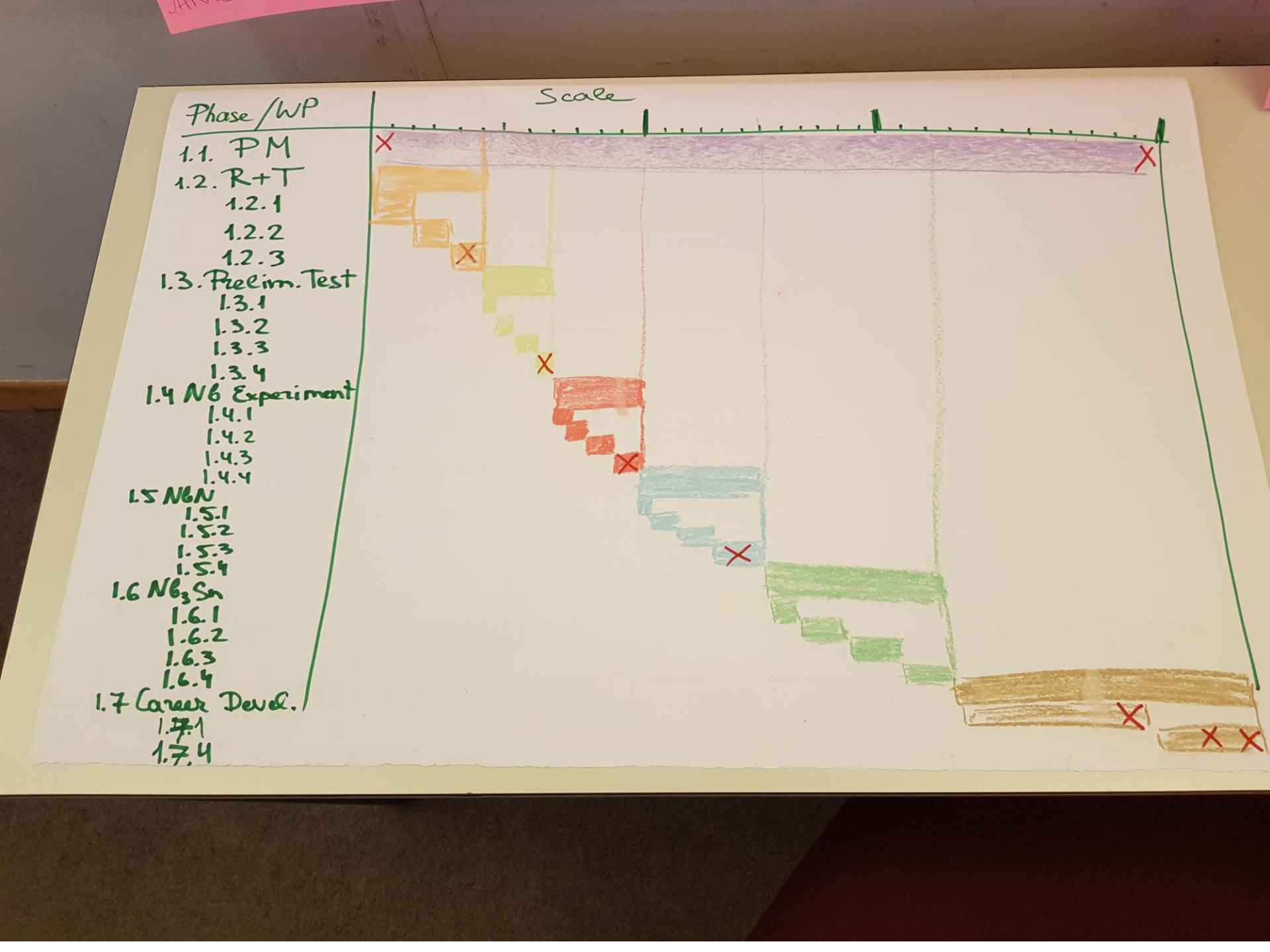
- Milestone plan
  - Milestones should be scheduled in regular intervals
  - Event-oriented formulation (no duration)
  - Clear relation to work packages: start or at end of a work package
- Networked bar chart
  - Dependencies when meaningful
  - Adequat detailing – relation to project controlling
  - No black boxes
- Visualisation
- Appropriate level of scheduling according to the target group


Advanced surface coating techniques for superconducting radiofrequency cavities
PREPARATION OF SAMPLES
Cavities
Water rinsing
Mechanical Polishing
Electro-chemical Polishing
Collaboration with ESR-09 Jean Francois
Quartz
Cleaning
SPUTTERING PROCESS
4Days
TEAM
Chamber Heating System Vacuum pumps Targets Cavities
Mounting of each sample
Sputtering process
Optimization of the parameters
Improvement on chamber heating system
ANALYSIS
Cavities
RF Measurements
Use of cryostat
Q. Measurements
Collaboration with ESR-08 Dmitry
Quartz
SEM Analysis
Collaboration with ESR-01 Dorothea
RRR Measurements
Thickness measurements using profilometer
XRD Analysis
Interpretation
LOOP "X"
Preparation of a sample
Sputtering process
Try different materials
Analysis
Interpretation
COMPARISON
between the samples of different loops
of results obtained by ESR1 & ESR8
Milestone 1
Deposition of the first 5 6GHz cavities of Nb/Cu
01-08-2019
3 months /cavity
3 months / preparation and finishing
1 month per Cavity
Milestone 2
Characterization of cavities and samples by different techniques at LNL HZB (ESR8), CERN (ESR-1)
2 months per Cavity
Milestone 3
Deposition and characterization of several cavities produced with different forming process in order to identify the role of the initial substrate.
31-01-2


MILESTONE 1
IDENTIFICATION OF REQUIRED TOOLS
MILESTONE 2
PRODUCTION OF THERMAL MEASUREMENTS
MILESTONE 3
PRODUCTION OF A H. II CODE
MILESTONE 4
VALIDATION OF THE MODEL
MILESTONE 5
PHD THESIS
EXPERIMENTAL WORK & MODELLING
PHASE 2
VALIDATION & IMPLEMENTATION
PHASE 3
PUBLICATION OF RESULTS
PHASE 4


PADEX
↑Phase
PI1
Phase 1
1.1
1.2
Phase 2
2.1
2.2
2.3
Phase 3
3.1
3.2
3.3
Phase 4
4.1
4.2
4.3
M1
M2
M3
M4
300 h
04/18
04/20


- Objective
on of technological
ESR5
PHD PROJECT
IMPACT
low
medium
high
DEFINITION RESEARCH Question
LITERATURE REVIEW
FINDING NICHE/ CONTRIBUTION
DEVELOP MODEL/ CONCEPT
DATA COLLECTION
CHOOSING METHODOLOGIES
SPECIFY SAMPLES/ SAMPLING METHODS
CONDUCTING OF EXPERIMENTS/ METHODS
ANALYSIS
ANALYSING DATA
DEDUCTING FINDINGS
COMPARE RESULTS WITH EXISTING LITERATURE
DISCUSSION OF RESULTS
CONFIRMATION OF RESEARCH QUESTION
LIMITATIONS
DISCUSSING FURTHER RESEARCH SUGGESTIONS
MILESTONE 1
DEVELOPING MODEL/ CONCEPT
JAN 2019
MILESTONE 3
CONDUCTING OF EXPERIMENTS/ METHODS
April 2020
MILESTONE 4
DATA ANALYSIS
JUNE 2020
MILESTONE 5
CONFIRMATION OF RESEARCH QUESTION
AUGUST 2020


Phase/WP
Scale
1.1. PM
1.2. R+T
1.2.1
1.2.2
1.2.3
1.3. Prelim. Test
1.3.1
1.3.2
1.3.3
1.3.4
1.4 Nb Experiment
1.4.1
1.4.2
1.4.3
1.4.4
1.5 NbN
1.5.1
1.5.2
1.5.3
1.5.4
1.6 Nb_3Sn
1.6.1
1.6.2
1.6.3
1.6.4
1.7 Career Devel.
1.7.1
1.7.4

Milestones of ESR 14

WBS Code	Milestone	Plan Date
1.1.1.	Project Start	1
1.2.3.	Research + Training	5
1.3.4.	Preliminary Test Lessons Learnt	8
1.4.4.	NB Experiment Results	12
1.5.4.	NBN Experiment Results	18
1.6.4.	Nb_3Sn Experiment Results	26
1.7.1.	Results Analysis	32
1.7.4	PhD Completion + Submission	34
1.1.4	Project Close Down	36


ESR8
Project Management
Project start
Project Coordination
Project controlling
Project closing down
Intro. Knowledge transfer
6
EASitrain march school
1 month
Learning phase, reading
2 mounth
Skill building
2month
Finishing (reverse time)
1month
Secondments at research Institutes
10
Vienna School, FCC week
1 month
Film Produkt sec. (Franc)
Cav. Produkt ser. (Germ)
Coating (CERN)
2 mounth
Measurements & research
7
Modernisation of the resonator
3 months
Sample 1. measurements
1 month
Sample 2. measurement
1 month
Sample 3 measurement
1month
Sample 4 measurement
1 month
Data Evaluation and Publication
7
Data evaluation of sample 1
1 month
Publication of previous data
1 month
Publication of modernisation of resonator
1 month
Data eval. of sample 2 to 4
3 months
Publication of results sample 2-4
1 month
Writing a PhD Thesis
8
Writing PhD thesis phase 1
3 months
Writing PhD thesis Phase 2
3 months
Correction and thesis defense
2 months

Project Resources, Project Costs

Project Resources

- Objective
  - To determine and display the required project resources over time and
  - To determine the over- and under-allocation of project resources with the project resources available
- Specific consideration of scarce resources
- Typical resources are
  - Personnel with different qualifications
  - Equipment
  - Finance
  - Materials
- Based on work breakdown structure

(pm baseline, 2009:34)

Project Costs

- Project resource plan is the basis for the project cost plan
- Objective: To plan and document project costs and to provide a clear overview on project costs and their development
- Typical cost types
  - Personnel costs
  - Material costs
  - Equipment costs
  - Administrative and sales costs
  - Other costs
  - Etc.
- Based on work breakdown structure

(pm baseline, 2009:35)

Project Resource and Cost Plan: Best Practice

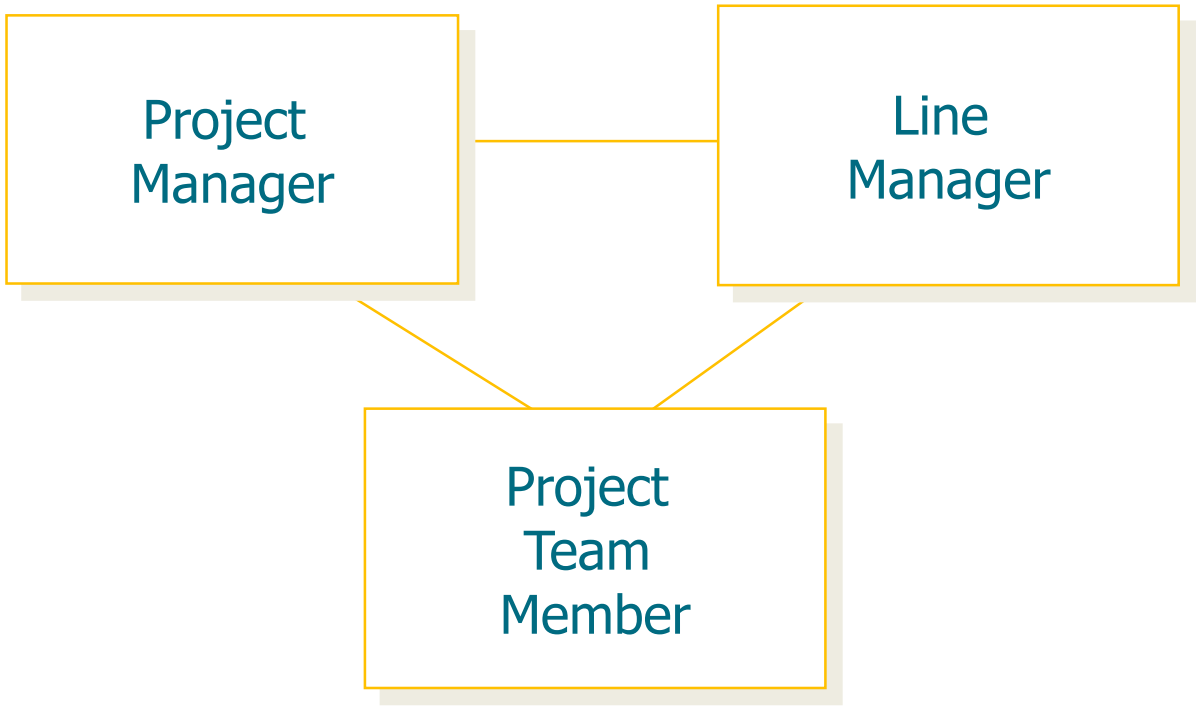
- Complete depiction of all needed project resources and costs
- In order to have
  - An appropriate basis for project decisions
  - A basis for evaluating project success
- If structured according to the WBS, there exists more transparency in project controlling

Project Organisation

Elements of Project Organisation

- Project organisation chart
- Project roles
- Project communication structures
- Project responsibility matrix

Formal authorities in projects



Distribution of authorities

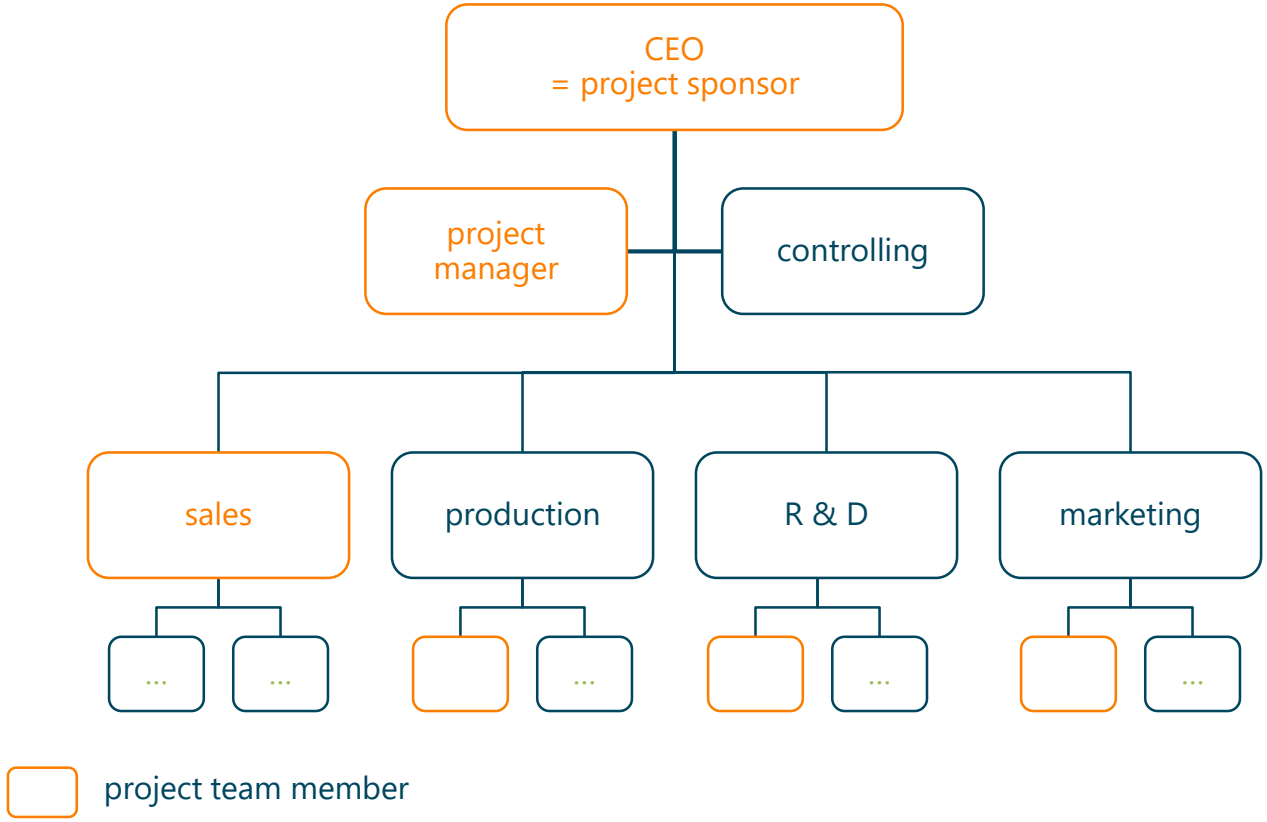
	Project Manager	Line Manager
What?	▲ ■	●
How well?	▲	■ ●
Who?	▲	■ ●
How?	▲	■ ●
How much?	▲ ■	●
When?	▲ ■	●

▲ Pure-line Project Organization

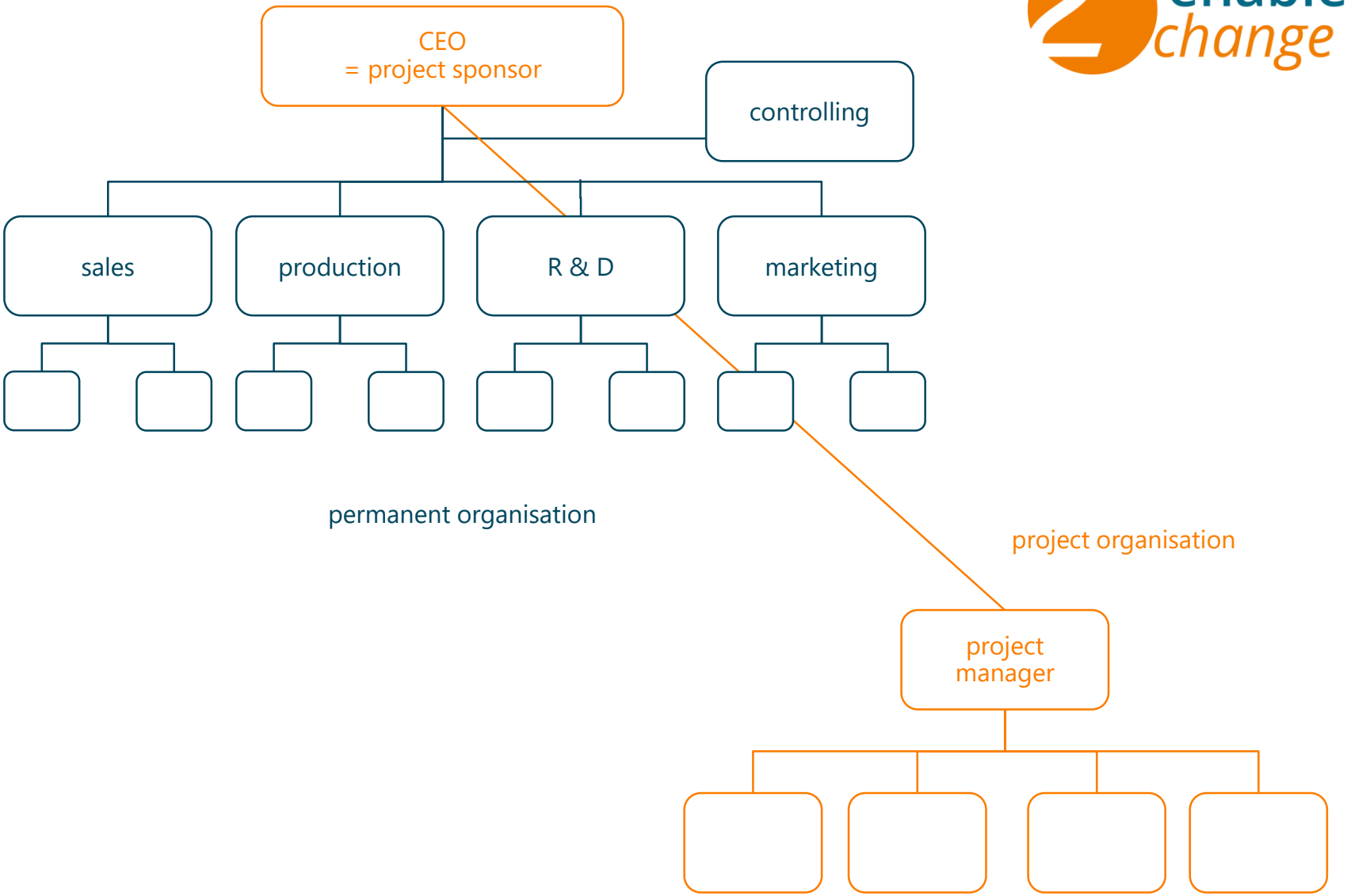
■ Matrix-Project-Organization

● Influence Project-Organization

Projects are embedded in an organisational context

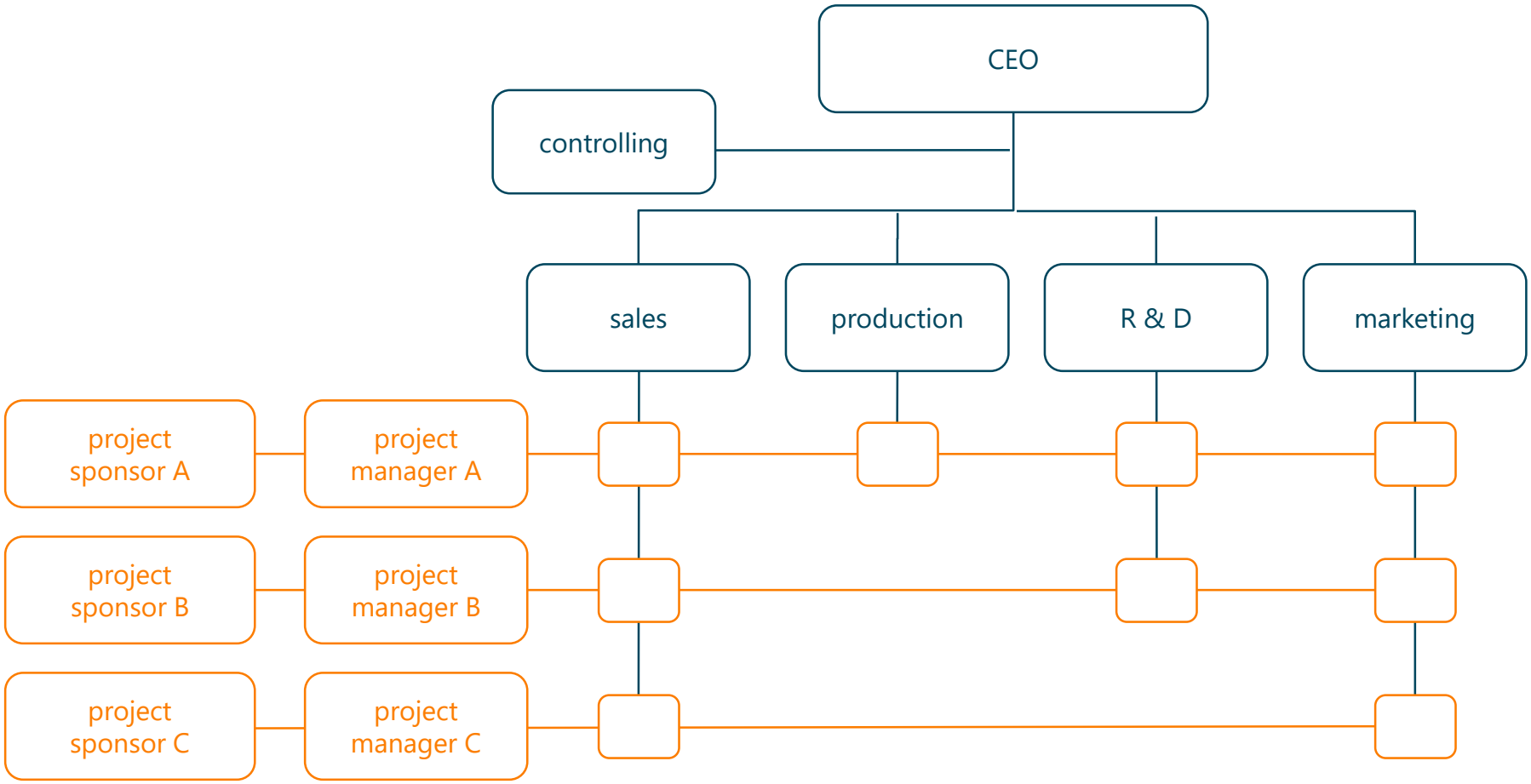


(Gareis, 2005:71)



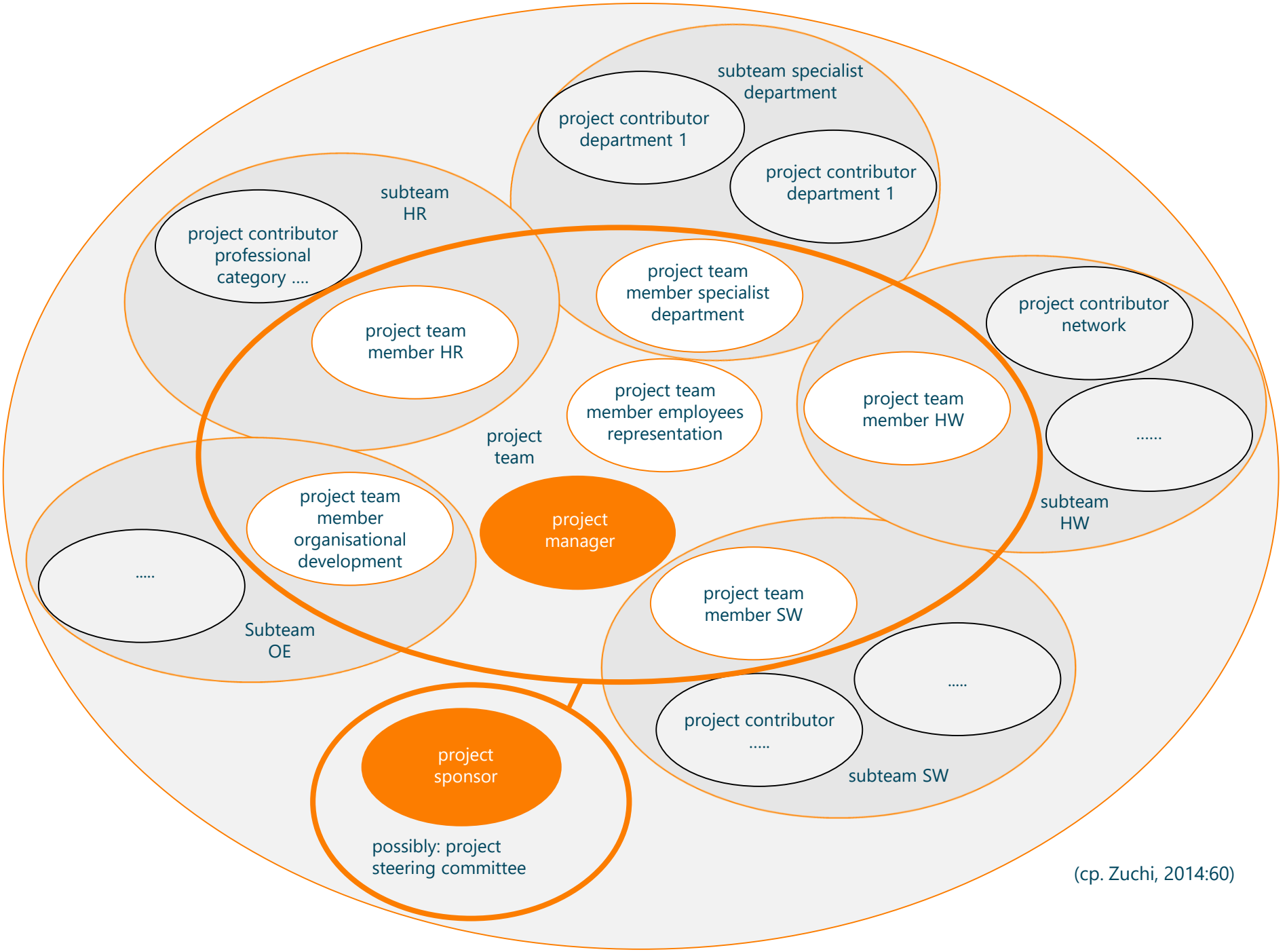
(Gareis, 2005:72)

Pure Project Organisation



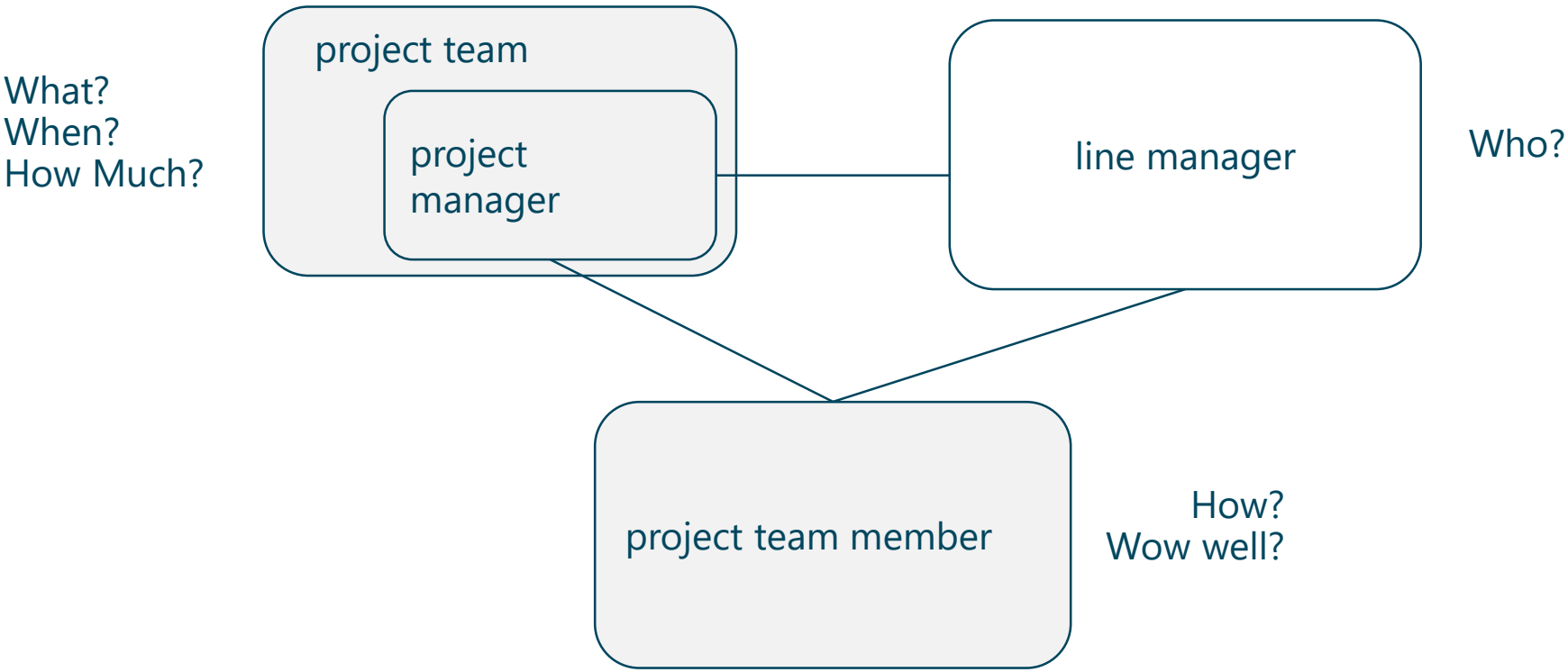
(Gareis, 2005:73)

Matrix Project Organisation



(cp. Zuchi, 2014:60)

Empowerment



Project Communication Structures

meeting	contents	participants	frequency
project start workshop	information on the project status, big project picture, project planning, decisions	project sponsor (partly), project manager, project team member	once, 1-1,5 days
project sponsor meeting	project status and project preview, issues and risks, necessary decisions	project sponsor, project manager, selected project team member (if appropriate)	according to project length and complexity: every 4th-5th week
project team meeting (controlling-workshop)	project status and project preview, issues and risks, agreements and decisions	project manager, all project team member, possibly selected external stakeholders	according to project length and complexity: every 4th-5th week, and when needed
subteam meetings	subteam related contents (status, problem solving)	subteam members, (if appropriate) PM and/or selected external stakeholders	when needed
project close down workshop	reflection, feedback, agreements on open to dos in the project and for the post project phase	project manager, all project team member	once, 0,5-1 days

(Gareis, 2006:294)

Projekt Responsibility Matrix

		Project sponsor	Project manager	Project team member A	Project team member B	Project team member C	…
WBS code	phase / work package						
1.1	project management						
1.1.1	project start	D	R	M	M	M	
1.1.2	project coordination		R	M	M	M	
…	…						

- Possible functions: R .. responsibility, C .. co-operation, D .. decision, I .. information
- RACI Matrix (responsible, accountable, consult, inform)

Project Organisation: Best Practice

- Clearly defined functional roles
  (representatives of business units/companies versus needed expertise)
- Empowerment (as the company culture allows it)
  - Decisions regarding personnel (who?) => line manager
  - Decisions regarding PM (what? how much? when?) => PM together with the project team members
  - Decisions regarding the content (how? how well?) => experts
- Integration of all roles (and persons)
  - Project view versus invester/supplier view
- Clear orientation for planned communications (event driven leadership)
- Distinct allocations of functions (as basis for detailed resource estimations)
- (Adequat) cultural elements for developing a common identity

Informal Roles

Informal Roles

- Insister
- Harmonizer
- Controller
- Worker
- Analyst
- Conflict Preventer

Project Management as Process

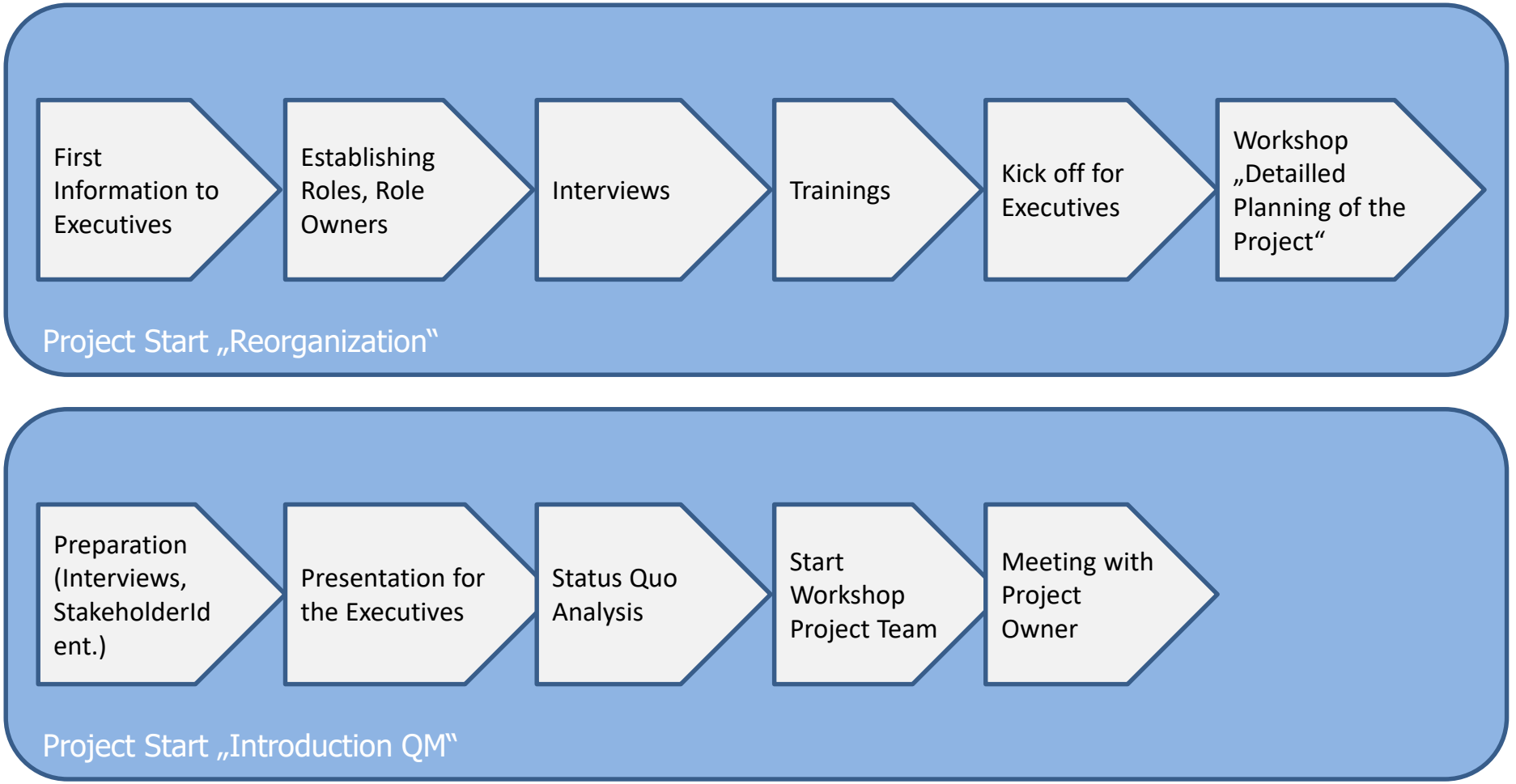
Project Start: Challenges

- No project assignment
- Different understandings by the project owner/sponsor(s) and the project manager
- Different level of information of the participants
- Time pressure, high demand for starting the work
- No acceptance for “long” planning
- Social insecurity, people do not know each other (in their new roles)
- Demand for orientation for everybody, even if not transparent

Project Start: Objectives

- Communication of the „big project picture“ to all members of the project organisation
- Information transfer from the pre-project phase into the project
- Development of adequate project plans
- Design of the project organisation, team building
- Development of a project culture
- Initial project marketing
- Definition of the structures for project controlling and project close-down

source: Happy Projects!, 2005, page 141


First Information to Executives
Establishing Roles, Role Owners
Interviews
Trainings
Kick off for Executives
Workshop „Detailled Planning of the Project“
Project Start „Reorganization“
Preparation (Interviews, StakeholderIdent.)
Presentation for the Executives
Status Quo Analysis
Start Workshop Project Team
Meeting with Project Owner
Project Start „Introduction QM“

Project Leadership

Trivial System: Machine	Complex System: Living Organism
•Predictable •Not depending on the context •Possible to influence directly •Result of influence clear •Applications of standards	•Not predictable •Depending on the context •Not possible to influence directly •Results of influence unclear •Allowance of contradictions

Management and Leadership

- Traditional management functions
  - Plan, organize, lead, control
- Systemic leadership functions
- Leadership
  - Part of the management functions
  - Interventions versus individuals and teams

- Intervention: A goal-determined communication

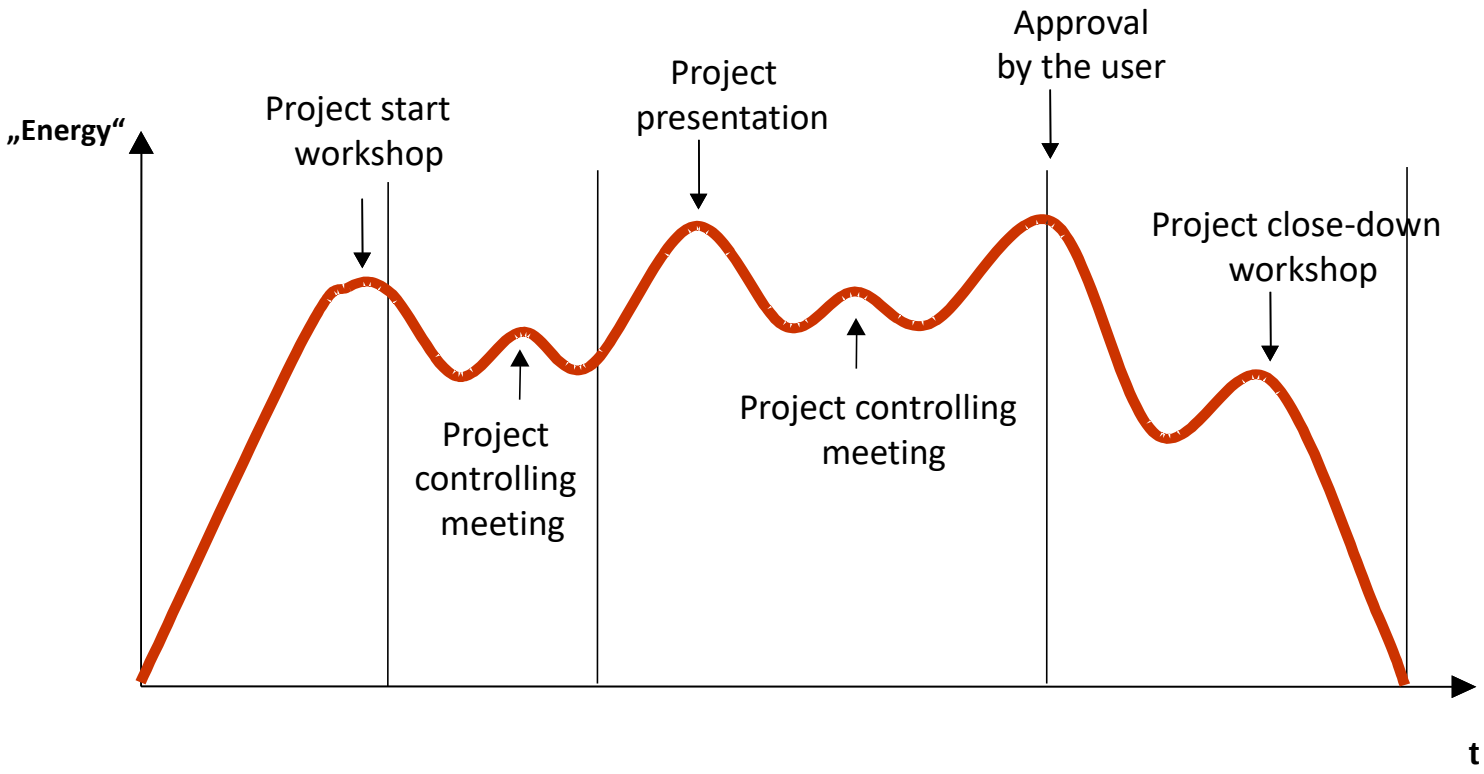
Leadership in Projects

- Providing (context) information
- Providing conditions to motivate the members of the project organisation
- Agreeing on objectives
- Controlling progress and giving feedback
- Making decisions
- Solving conflicts
- Reflecting to promote learning of individuals and teams

Leadership Roles in Projects

- Project owner
- Project manager
- Project team

Event-oriented Leadership



Self Understanding

Self-Understanding of the Project Manager: Statements

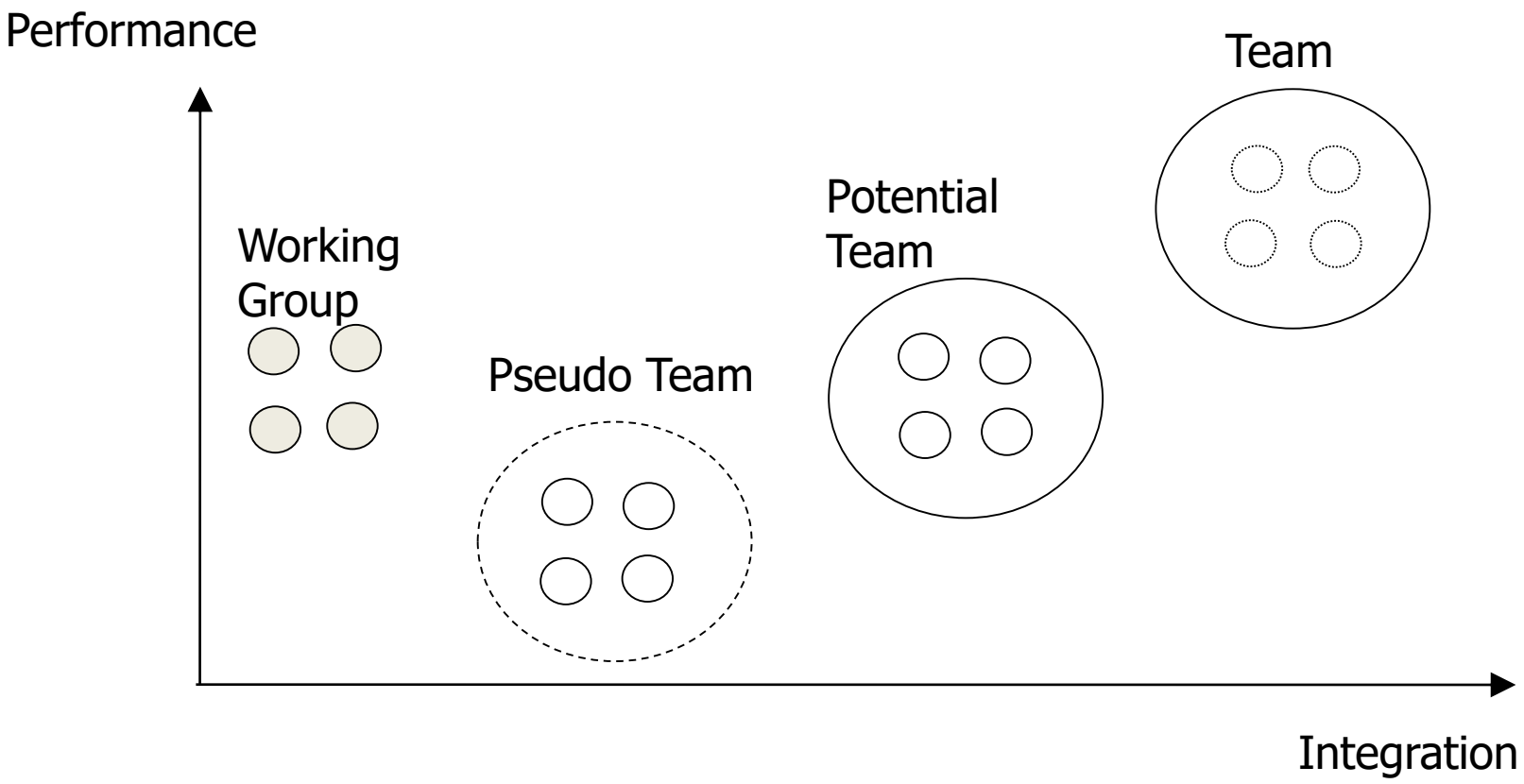
- Project managers are managers, not administrators.
  - Drivers, achievers, team players, service providers, leaders, …
- Project managers are not the best technical experts.
  - Project management professionals, generalists, business-oriented, marketing-oriented, …
- Project managers require social competences.
  - Moderating, presenting, solving conflicts, leading teams, communicating with relevant environments, reflecting, …

Self-Understanding of the Project Manager: Statements II

- Project managers come in different forms.
  - Part time or full time, project manager only or in combination with a contents-related role, for different project types, …
- Project managers are part of a project management community.
  - Project management exchange, of experience groups, peers in the company, project management associations, …

Teams

Team-Performance (Katzenbach)



Group versus Team

	Team "We are a Team"	Group "I am in a Group"
Task orientation	Individual objectives less important than team objectives	Individual objectives dominate
Responsibility	Common responsibilty for the results	Individual responsibility for individual results
Coherence	High coherence; trust and team spirit	Little coherence
Interdependencies	Strong, relying on each other	Weak

Traditional Teamwork

- Common location of project team members
- Intensive personal contacts
- Project team members know each other well
- Co-operation over a longer period of time
- Common lunches, coffee breaks

Virtual Teams

- Distribution of team members in different locations, in different time zones
- Little personal contacts
- Little common working experience

Co-operation in Virtual Teams

- Trust, based on professionalism of project team members
- Commonly accepted working standards and rules
- Appropriate IT- and telecom-infrastructure
- Comprehensive project documentation
- Plus: A few common workshops

2

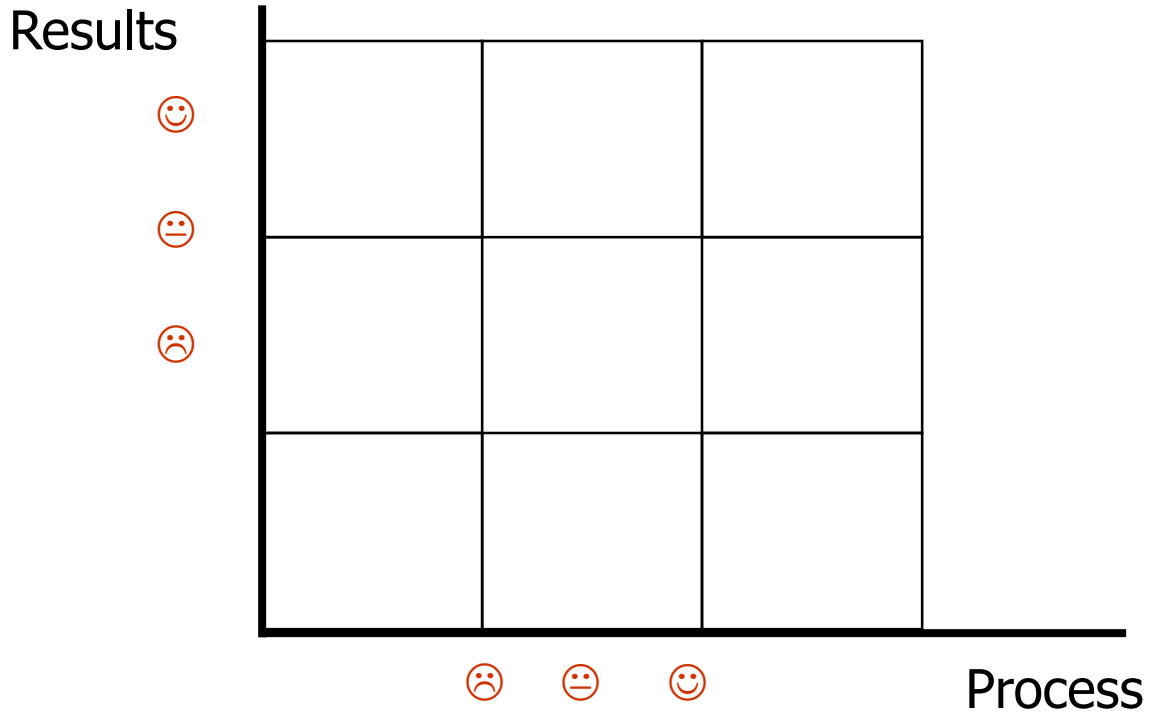
Selected Methods

Reflection and Feedback in Projects

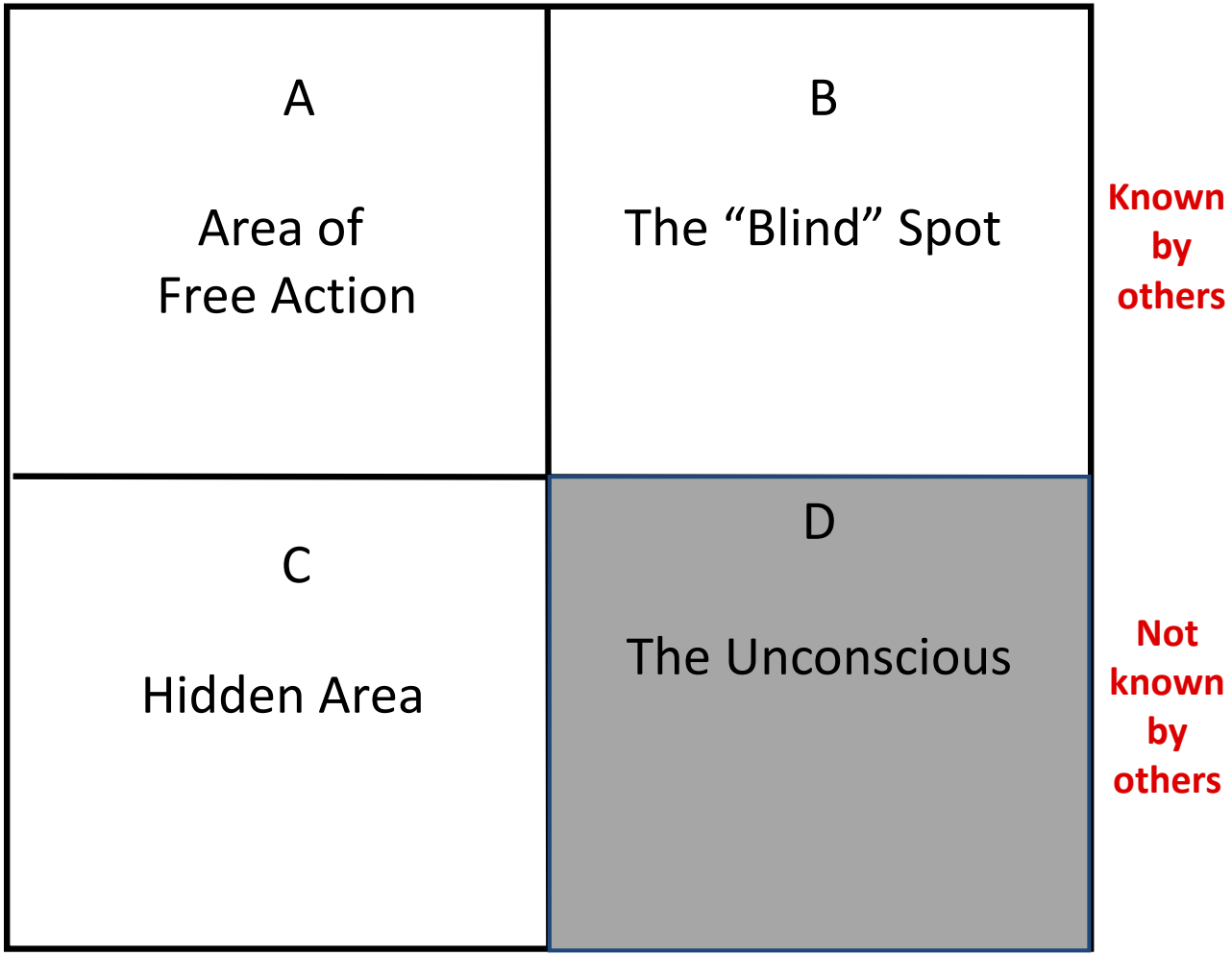
- Reflection: Objectives
  - Reflection by a social system (e.g. the project team)
  - Basis for learning, for further development
- Reflection: Working forms
  - “Flash light”, smilies, associative methods

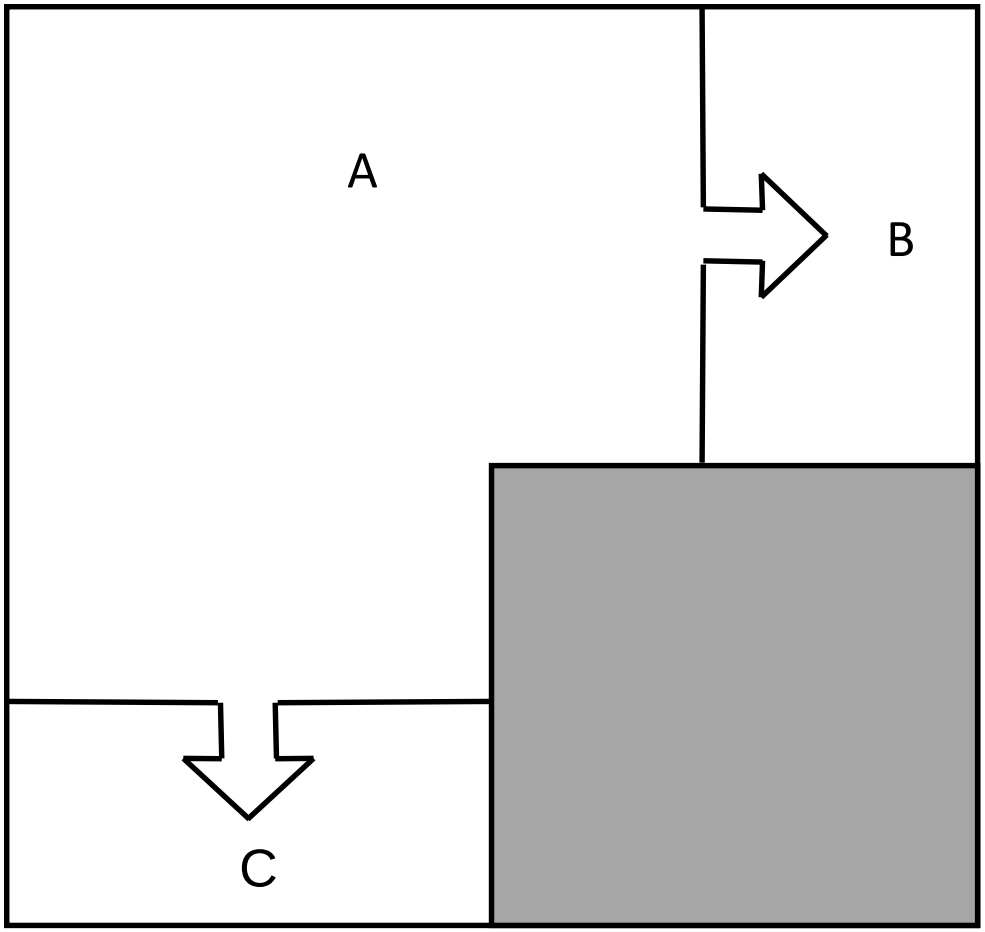
- Feedback: Objectives
  - Feedback is directed versus someone, something
  - Informal or formal feedback
  - Basis for learning, for further development
- Feedback: Working forms
  - Questionnaire, meeting

Reflection: Status per …



Johari-Window




A
B
C

Feedback Rules

- Rules to give feedback
  - Be concrete, clear and on time
  - Be constructive, positive and possibly negative statements
  - Consider the situation, the timing
  - Be aware of the consequences of your feedback
- Rules to take feedback
  - Ask, to clarify the feedback
  - Don`t argue
  - Accept the feedback as a subjective statement
  - Be grateful for the feedback

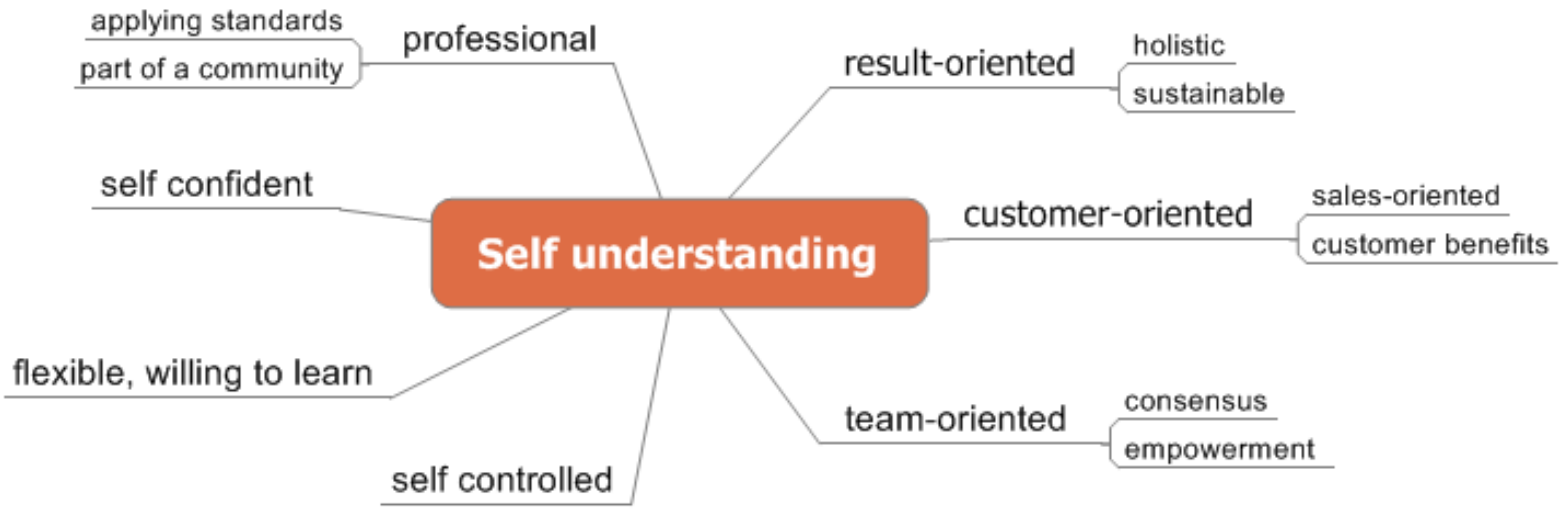
GW: Feedback

- Objectives
  - Experience a formal feedback situation: Giving and taking
- Tasks
  - Find a student to give feedback about your observations of him/her in class
  - Prepare for the feedback situation
  - Give feedback to each other student by applying the feedback rules (3`)
  - Criteria for feedback: Contribution to the discussion, making presentations, giving feedback to other students, socialize with other students, …?
- Form
  - Groups of two, not friends!
  - Duration: 10`
  - Plenary: Experiences gained

Social Competence, Self Competence, Self Understanding


Social competence: Communication methods
Team building
Get to know each other
Agreement on rules for teamwork
Outdoor event
Social event
Group dynamics
Diversity management
Associative methods
Sculpture
Role play
Picture
Feedback & Reflection
Feedback
One to one feedback
360° feedback
Performance evaluation
Story telling
Reflection
Project management
Project scope, objectives, schedule, costs, income, risks
Project organization, culture, personnel, infrastructure
Project context
Facilitation & presentation
Facilitation
Facilitation of large groups
World Cafe
Open Space
Future workshop
Facilitation of small groups
Query
Discussion
Presentation
Lecture
Interactive presentation
Conflict management
Provision for a conflict
Prevention of a conflict
Resolution of a conflict
Mediation
Interpersonal communication & negotiation
Interpersonal communication
Negotiation
Questioning
Interview
Nonverbal communication
Virtual communication
Letter/ e-mail
Telephone call
Teleconference
Video conference
Chat
Problem solving
Analysis
Fishbone diagram
Morphological analysis
SWOT analysis
Force field analysis
Decision making
Reflecting Team
Reflecting Positions
Systemic constellation
Utility analysis
Decision tree
Creativity
Brainstorming
Method 635
Delphi method
Scenario technique
Managing emotions of others
Observation


Self competence: Methods
work plan
TO DO list
setting priorities
self observation & self reflection
self reflection
self observation
Time management
Short-term
Medium-term
Life planning
Stress management
Relaxation
Self motivation
Managing of own emotions


Self understanding
professional
applying standards
part of a community
result-oriented
holistic
sustainable
customer-oriented
sales-oriented
customer benefits
team-oriented
consensus
empowerment
self controlled
flexible, willing to learn
self confident

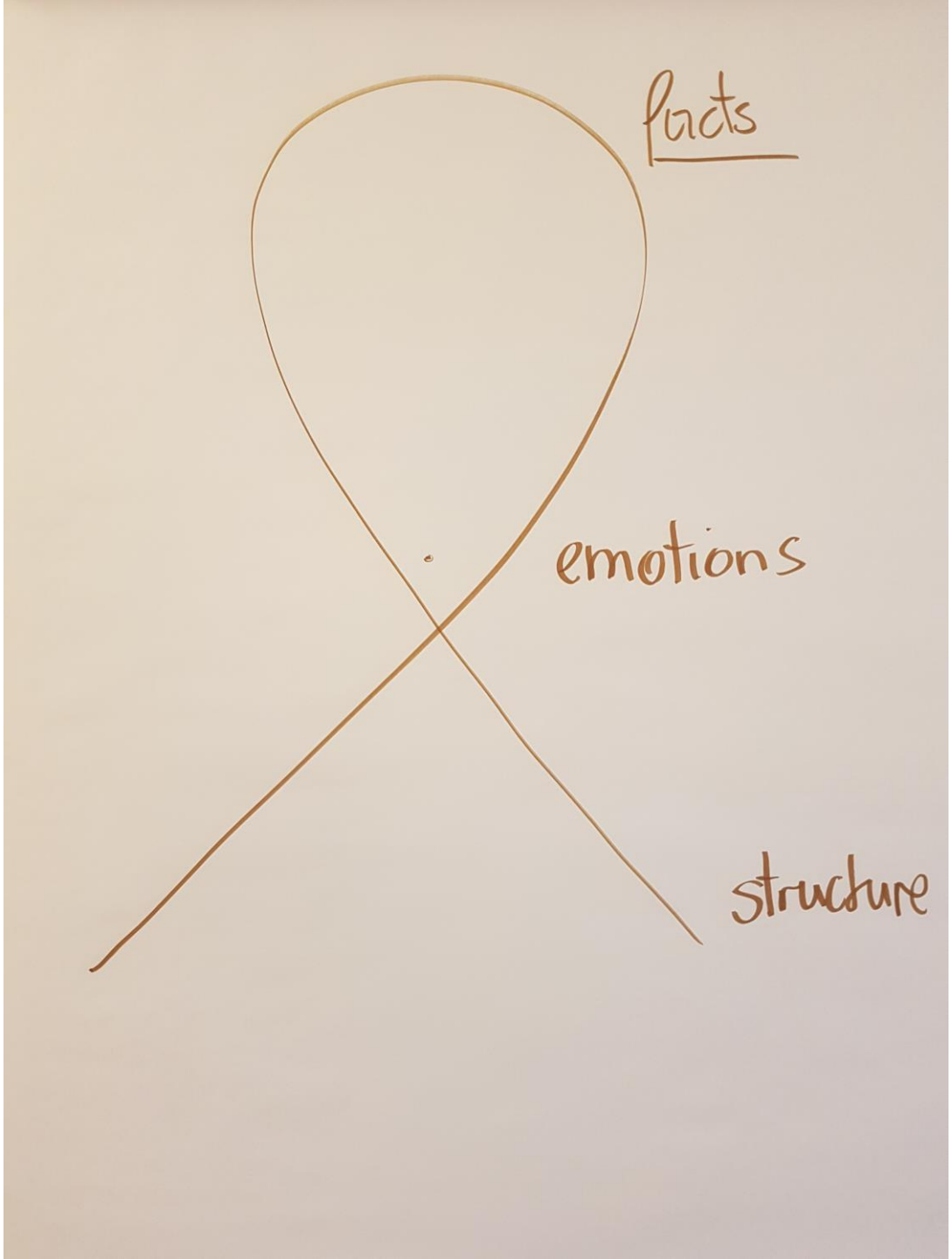
Observation

- Process
- Observation criteria
- Setting

└ Purpose!

Interviewing

- Process
  - Preparation
  - Interview
    - Starting
    - Questio
    - Closing
  - Follow up
- Questions
- Red line => Purpose
- Interview Style
- Setting


facts
emotions
structure

! enable change

Martina Huemann
martina.huemann@enable2change.at