Management of SW Projects

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Definition: Project

A project is a **temporary** endeavor to create a **unique** product, service or result.

Characteristics

- it has to be **planned**
- runs in a **defined time period** and
- has **defined resources.**

Project Management Tasks

plan

check

coordinate

administrate

organize

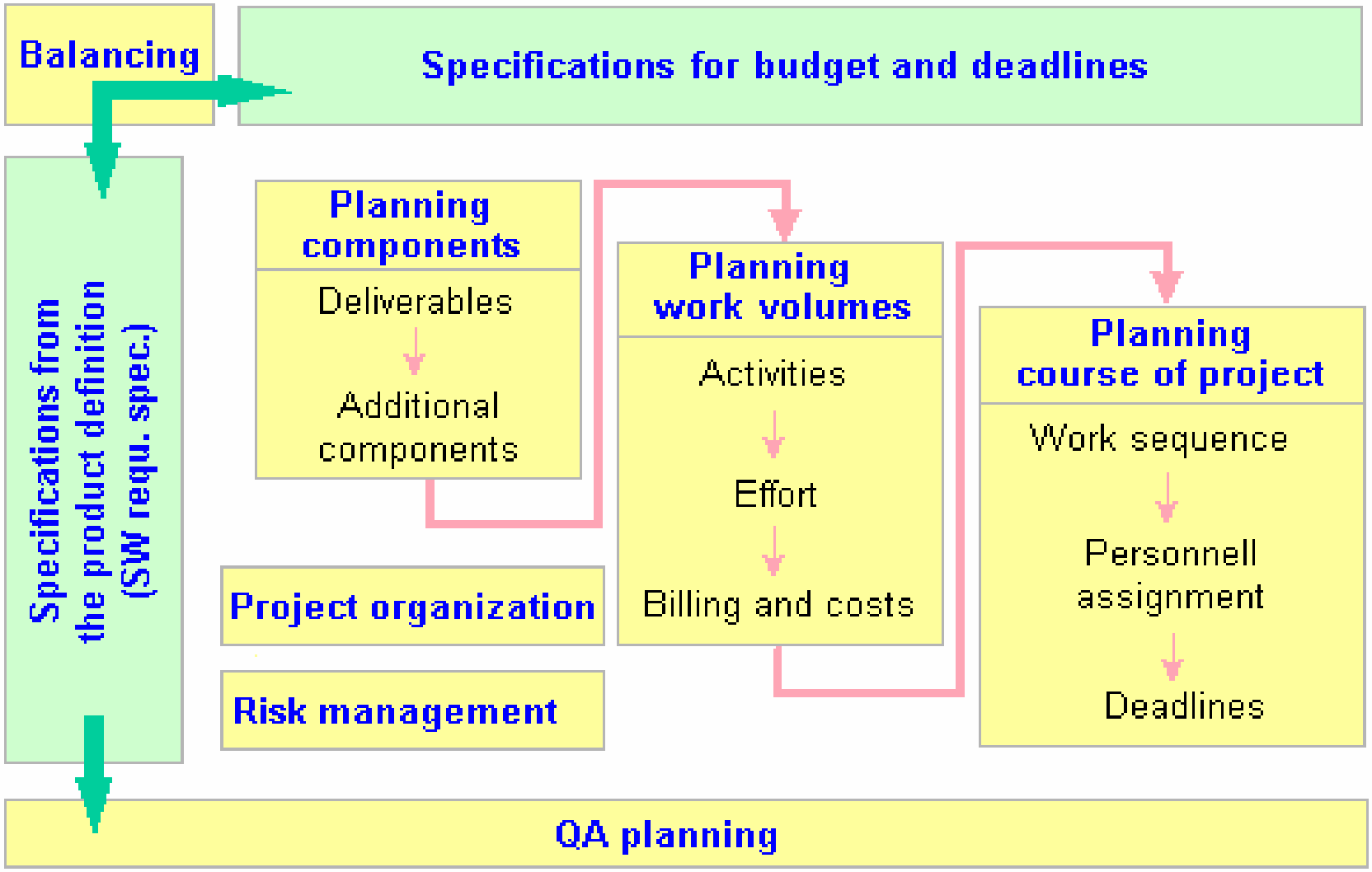
lead, motivate

Topics of my lecture

- Specific characteristics of management of software development, agile development, time boxing
- Management philosophy in high tech areas
  frame conditions for creative work
  motivation, soft facts
- Look from the point of view of a project manager on:
  quality assurance / quality management
  reviews
  effort estimation, requirements,
  configurations management...
- Success factors of SW-projects

Project planning process

Siemens stdSEM



What to plan?

You planned a project in your exercise
What did you plan?

Who has the following tasks in the task list of the project plan:

- _implement configuration management
- _run CM
- _write a quality assurance plan
- _review of the requirement specification
- _reviews of designs
- _reviews of plans (PM-, Test-, CM-, …)
- _when did you plan the task “write a test plan”
- _communication e.g.. Kick off meeting

What is quality management?

- QM is a management philosophy
- It has its roots in Japan about 1950 Deming /Juran

- Key ideas:

  Market success through customer satisfaction

  Product improvement through process improvement

  Increasing productivity by avoiding mistakes

  Continuous Improvement Process

  Statistical methods

Management philosophies

R.Zultner

Quality management	**:**	***Management by Objectives***
Process orientation	:	*result orientation*
Focus on system	:	*achievement of objectives*
Methods	:	*Coincidence, personality*
Eliminate causes	:	*Eliminate errors*
Quality first	:	*Profit first*

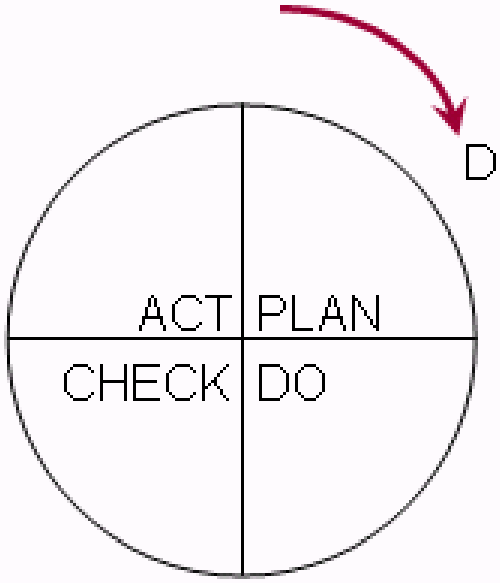
Quality ⇒ Customer satisfaction

Customer satisfaction ⇒ market success

Market success ⇒ Profit

Continuous improvement process (Kaizen)

Deming Wheel



Ken Schwaber:

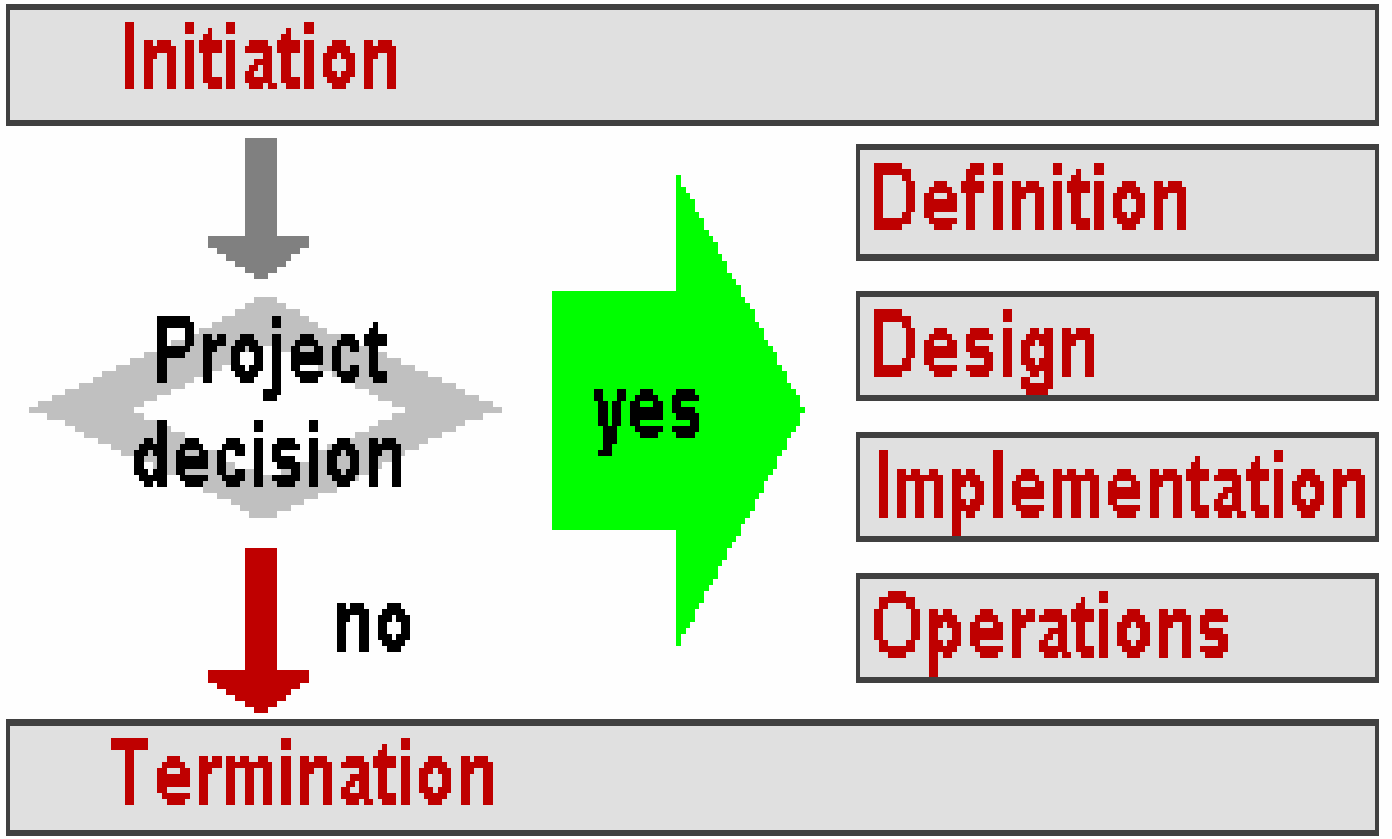
As a ScrumMaster, you are responsible for:

.....

Improving the engineering practices and tools so each increment of functionality is potentially shippable.

Phase model

Siemens: stdSEM



The problem is not the process itself but the way it is applied

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.
Through this work we have come to value:

- Individuals & interactions over processes & tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

That is, while there is value in the items on the right,
We value the items on the left more.

Agile Alliance, 2001
www.agilealliance.org

Agile development

Predictive vs. adaptive processes

Iterative incremental development

Documentation of agile processes

Working in teams

Concentration on the project

Predictive vs. adaptive processes

Creative work like software development is
not predictive like routine work

Therefore planning is different

Plan regularly
(adapt plans when circumstances change)

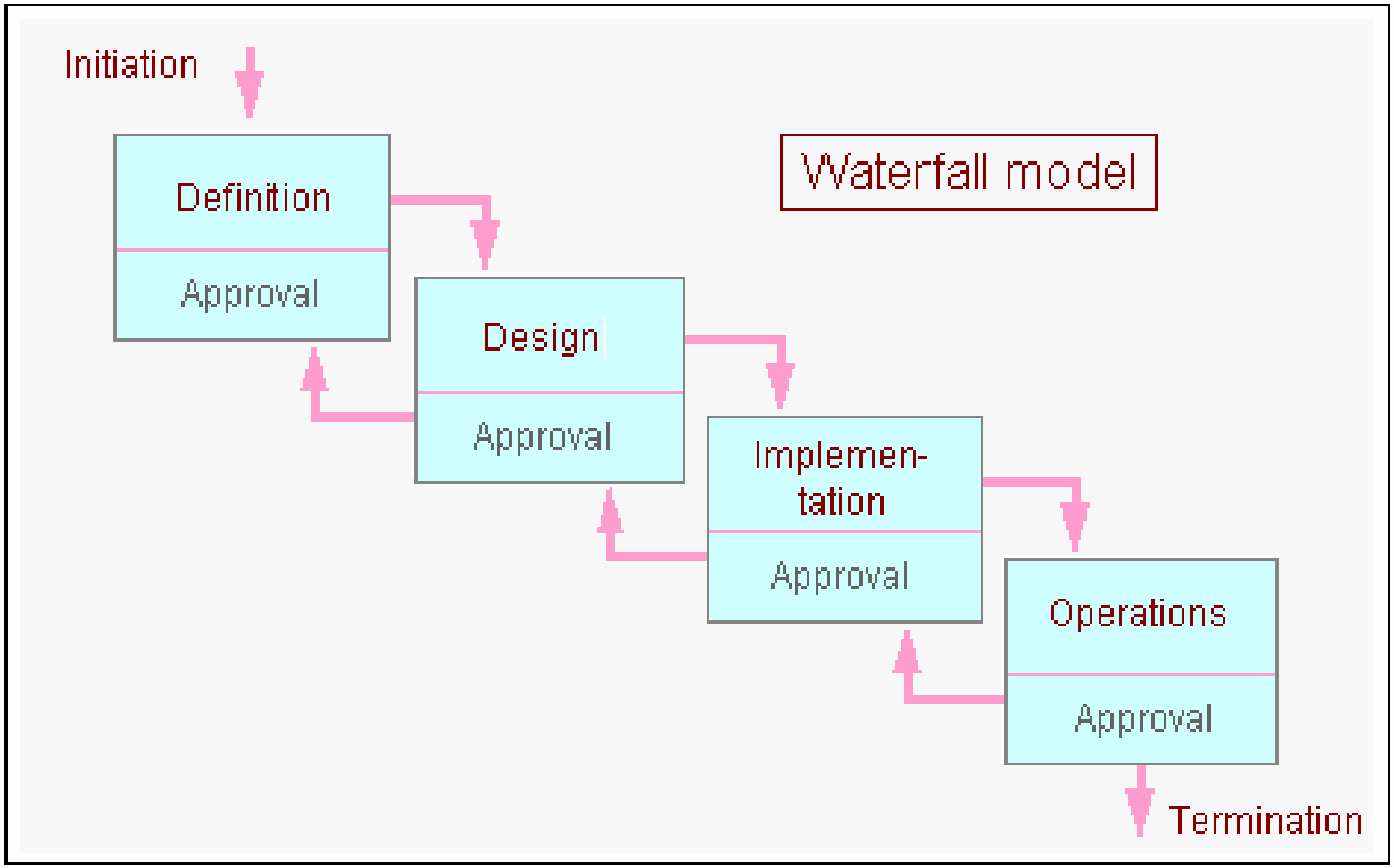
Agile project management methods (e.g.SCRUM)

ISO/IEC 90003 Software engineering – Guidelines for the application of ISO 9001:2000 to computer software

7.1.1 Software life cycle

“Processes, activities and tasks should be performed using life cycle models suitable to the nature of a software project, considering size, complexity, safety, risk and integrity. ISO9001:2000 is intended for application irrespective of the life cycle models used and is not intended to indicate a specific life cycle model or process sequence.

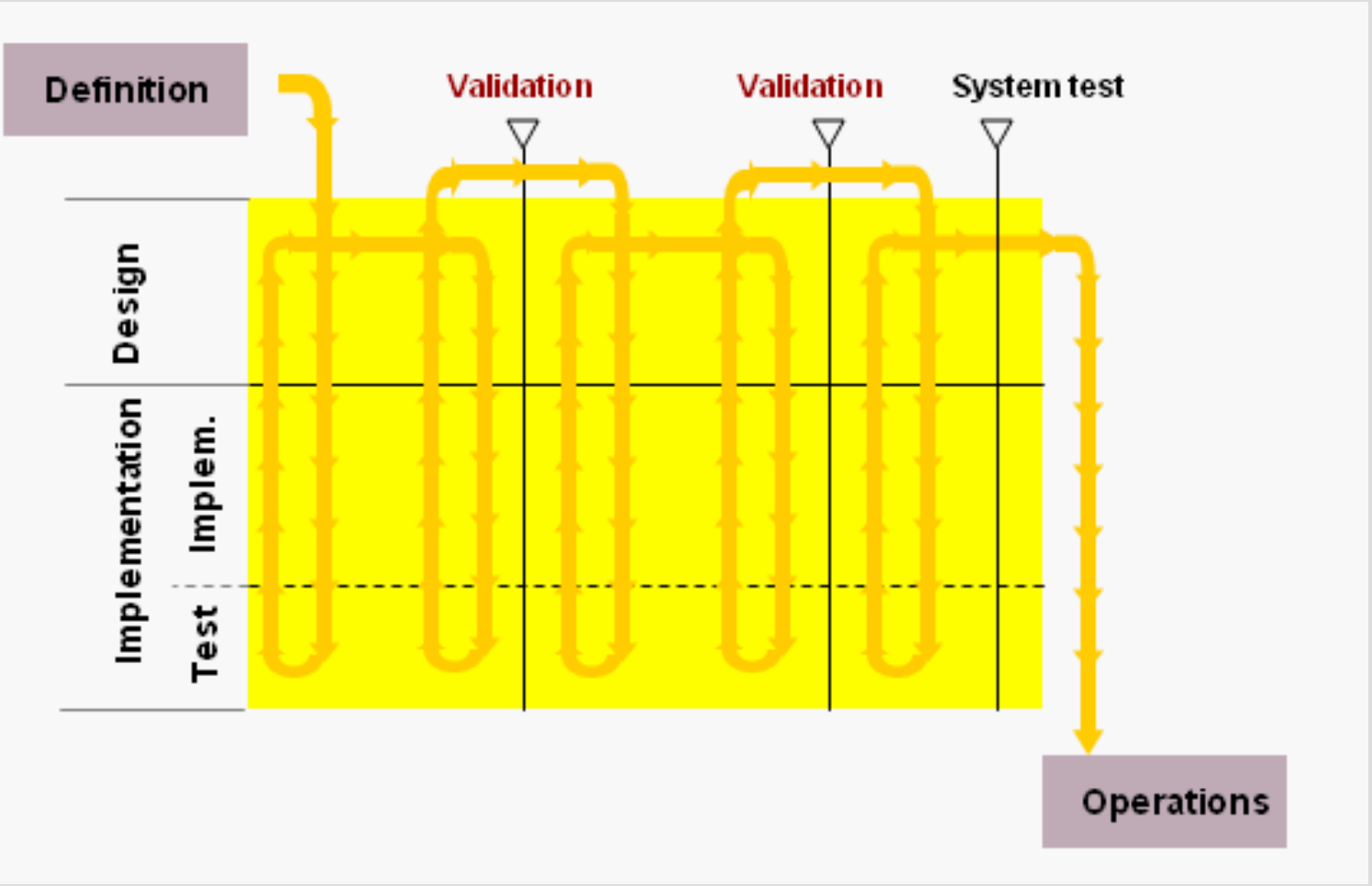
Design and development can be an evolutionary process and procedures may therefore need to be changed or updated as the project progresses, after consideration of changes to related activities and tasks.”


Initiation
Definition
Approval
Design
Approval
Implemen-
tation
Approval
Operations
Approval
Termination
Waterfall model

Requirements in i/i development

Siemens: e-SEM

Requirements definition also during validation



Documentation of agile processes

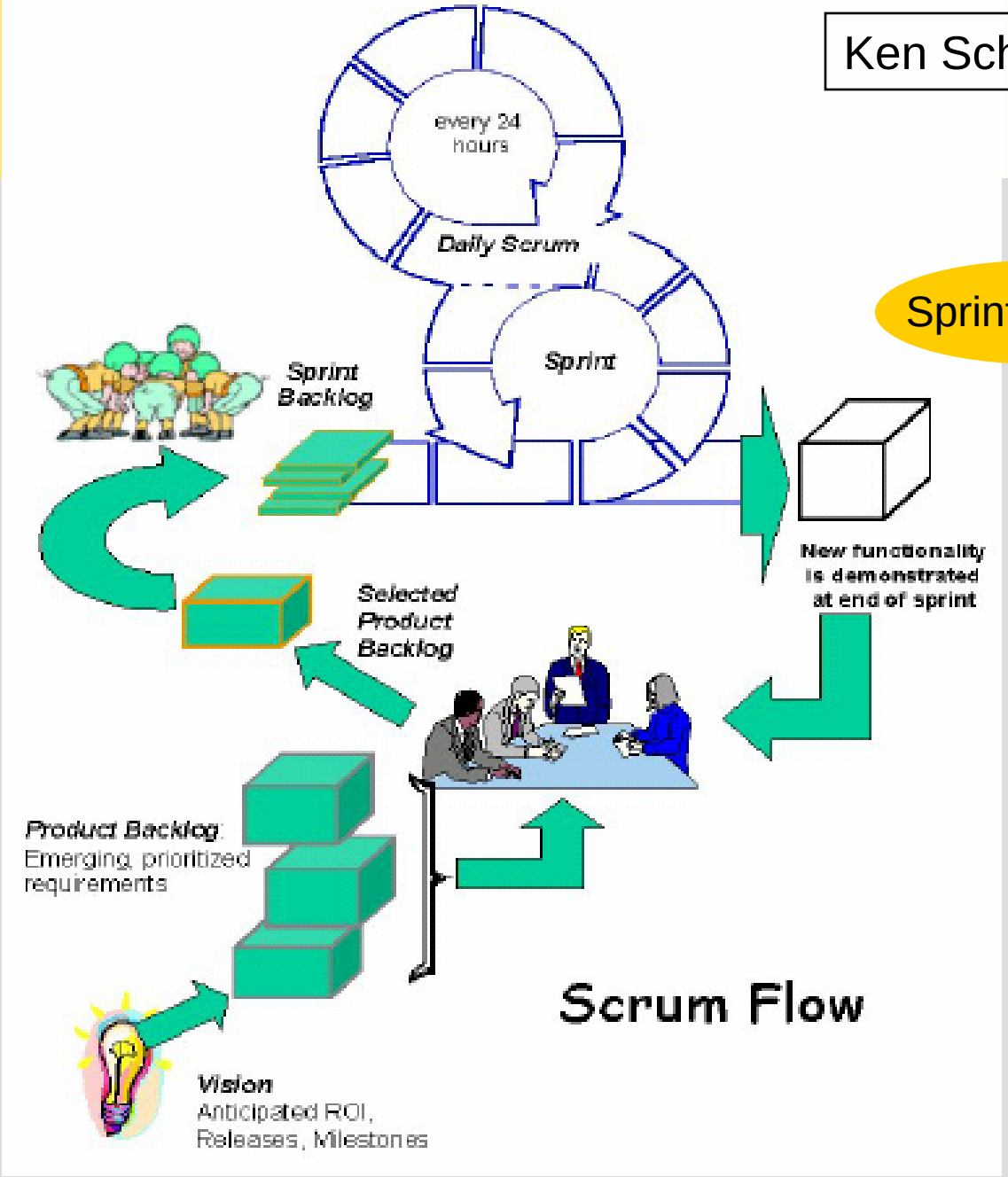
Agile processes are well documented
(Key practices, set of rules,...)

More emphasis on talent, skill and training
(not simply filling out templates of a process)

Process documentation may also consist of training matrial

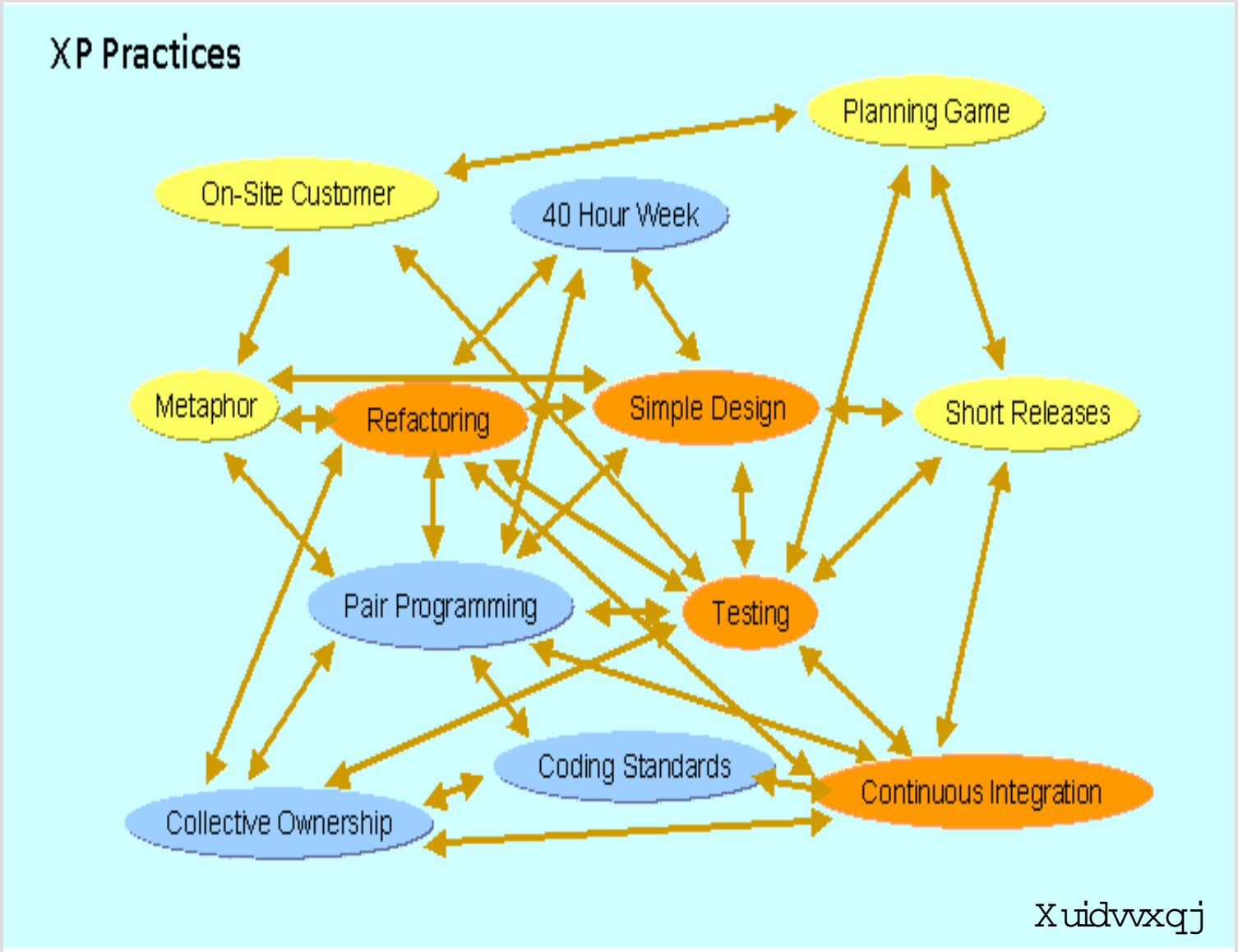
Values and not bureaucracy are guiding the application of rules and the collaboration in teams

Ken Schwaber

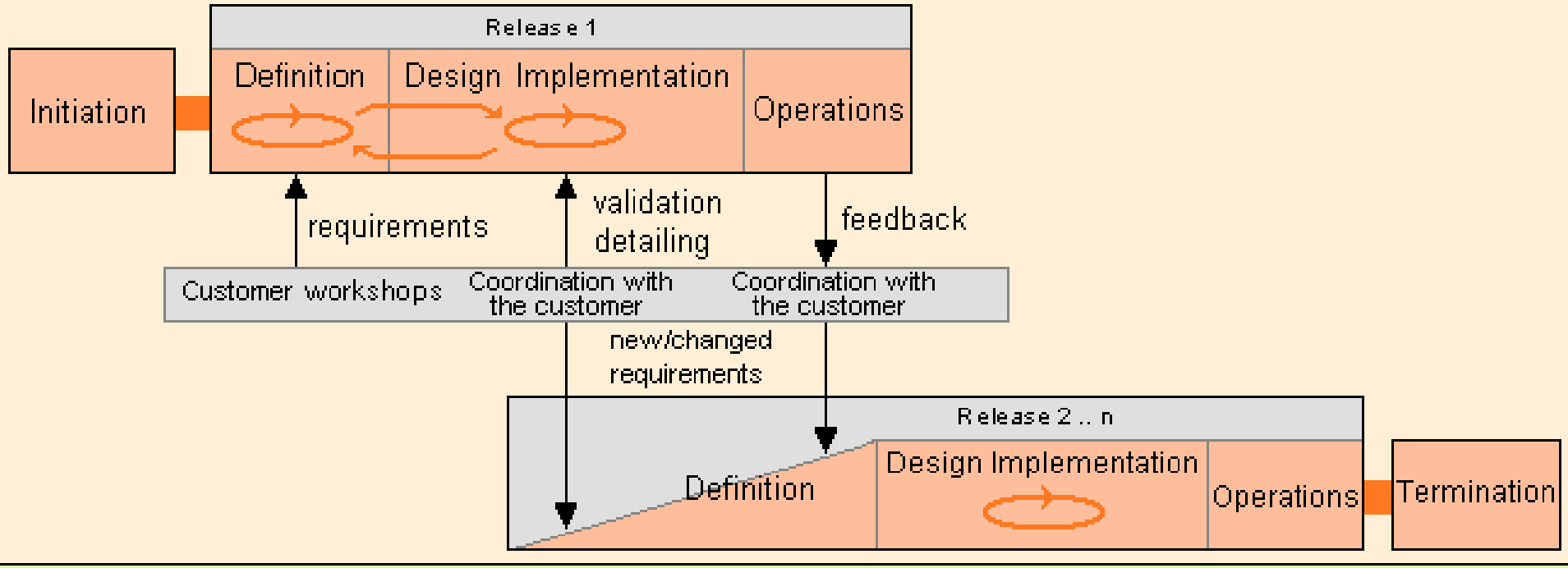


Sprint Review

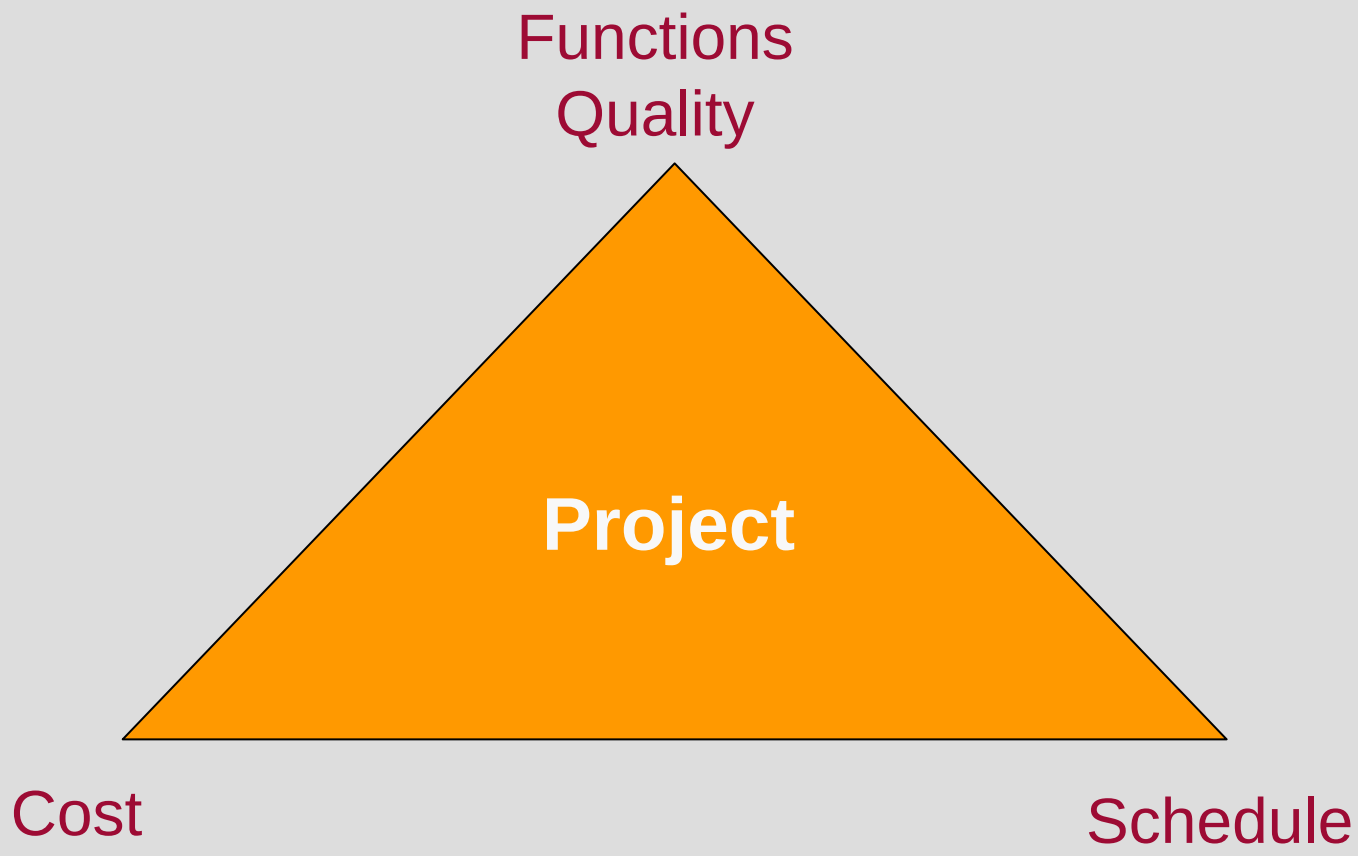
SQZ


XP Practices
Planning Game
On-Site Customer
40 Hour Week
Metaphor
Refactoring
Simple Design
Short Releases
Pair Programming
Testing
Coding Standards
Continuous Integration
Collective Ownership

Iterative incremental development process e-SEM



Stress field of development



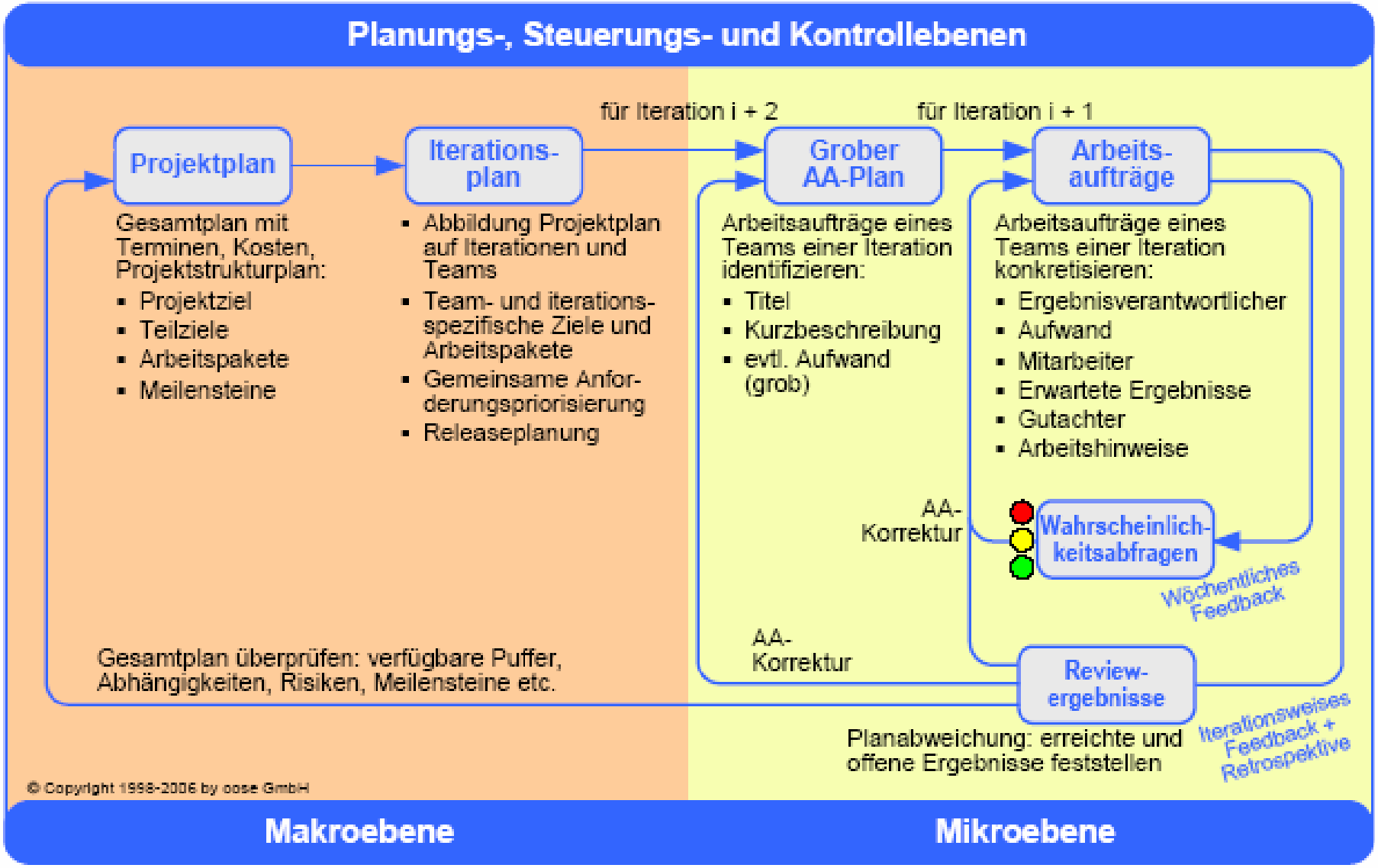
Planning – step by step

At the beginning: plan the project based on the existing knowledge (roughly)

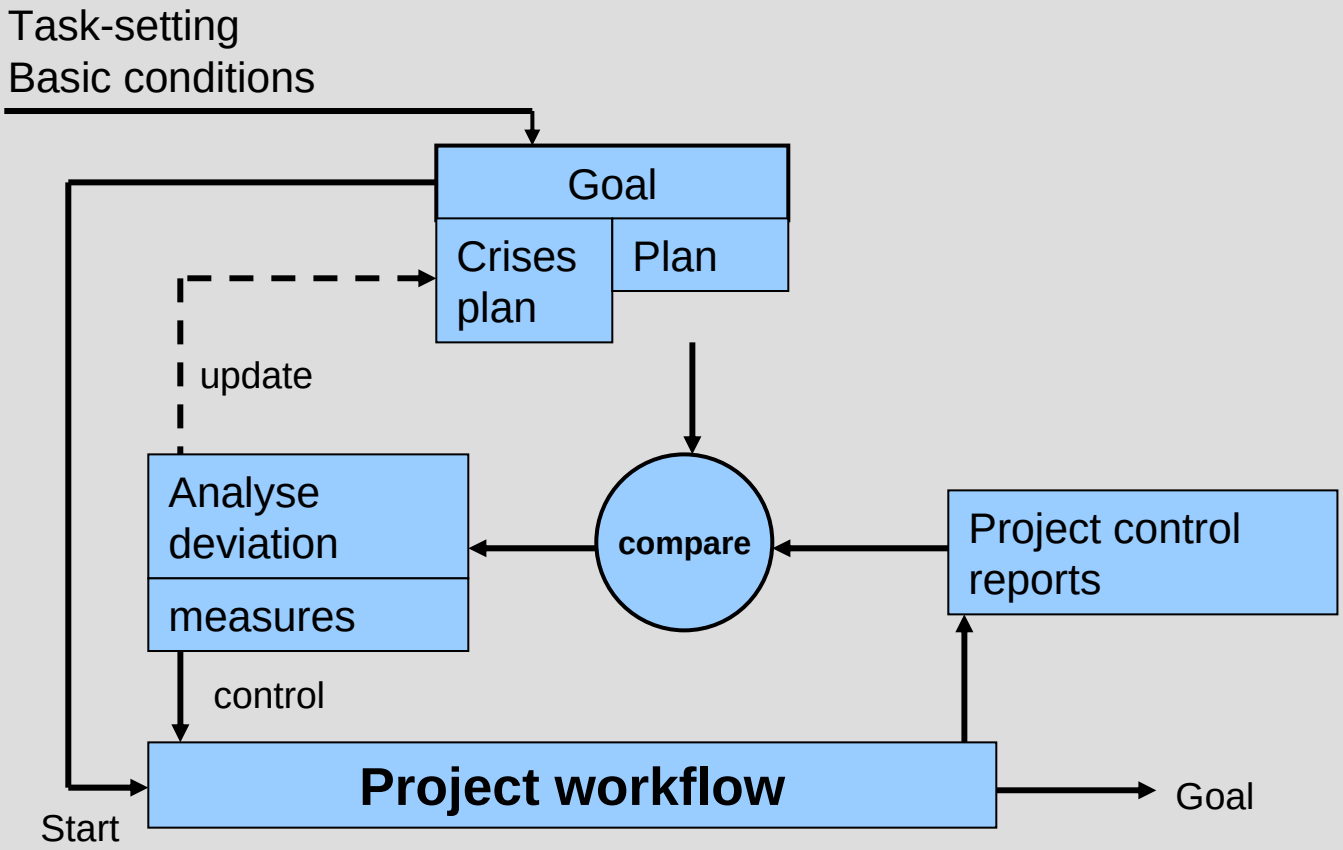
Plan next phase in detail

Refine the plan with increasing knowledge about the project (at least in each phase)

Update plan after changes and deviations that cannot be corrected



Controlling / control cycle



Three levels of control

Technical result, schedule, effort

Milestone

- A milestone is referred to a special date in the course of the project to which certain (sub)results enumerated by name are ready.
  If the results at the scheduled date are not ready move the milestone.
  When you reach a milestone, you have completed a defined part of the road.

  “done" means checked and released
  declare the achievement of a milestone ??

Timebox

- Time framework in which defined (intermediate) results **shall** be ready
- If the results are not ready they are moved into the next time box
- Tool for planning and monitoring the development (alternative to milestone)