INTEGRATED PROJECT - I3
INTERDISCIPLINARY | INTEGRATED | INTERACTIVE

Lecture 3 | Project Management I continued

Preparatory Meeting
❦ Organisational issues
❦ Project ideas
❦ Abstract presentation

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Extended Project

SUMMARY

Next deadline 01.04.2025

ProjectExtendedAbstractTemplate.docx

sensors-template.dotx

Your Project Title

Course: Integrated Project: Interdisciplinary | Integrated | Interactive
Autors: Firstname Lastname (Email)
Delivery date: xx.xx.2016
Version: 1

Introduction
[...]

Material and Methods
[...]

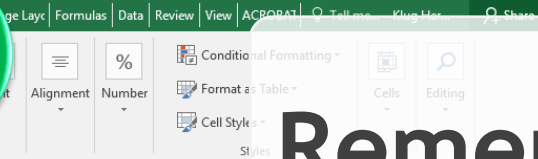Expected Results
[...]

References

Extended abstract documents

Attached Files:
ProjectExtendedAbstractTemplate.docx (24.281 KB)

Bb Blackboard

bigstock (c)

Remember filling time sheets!

###############
I3 project "WIKI" 2025
###############
Please provide information to your I3 project 2025 on Gitlab. Please add the members
    'klug'
    'Mittlboeck'
to your I3 project on gitlab using _Maintainer' privileges. Please also add all your colleagues with sharing your project also to the group **ST25_856165**.
In the Repository of your Gitlab please create a link to your Gitlab Wiki.
Please add following information to this "Wiki", so that the colleagues and us can easily access the project repositories.

Project Management Cycle

Idea / Vision

Networking / Communication

Phase 1
Assessment / Problem Identification

Project Definition

Extension / Follow Up

Project Closure

Evaluation & Audit

Phase 4
Evaluation & Audit / Project Closure

PMC

Phase 2
Proposal Writing

Detailed Planning

Submission & Evaluation

Negotiation

Contracting

Monitoring & Control

Phase 3
Project Implementation

- projects are supportive of overarching objectives and of its development

- projects are relevant to an agreed strategy and to the real problem of the target groups/beneficiaries

- projects are feasible, meaning that objectives can be realistically achieved within the constraints of the operating environment and capabilities of the implementing student

- benefits generated by projects are likely to be sustainable

- requires the active participation of key stakeholders and aims to promote local ownership

- uses the Logistical Framework Approach (as well as other tools) to support several key assemblements / analysis (including stakeholder problems, objectives and strategies)

- incorporates key quality assessment criteria into each stage of the project cycle

- requires the production of good-quality key documents in each phase (with commonly understood concepts and definitions), to support well-informed decision-making

What is happening?

- Inventory/mapping
- Analysing information and data
- Identifying problems (stressors and their sources) based on the analysis
- Determining the overall goal

- What are the current concerns?

- What is the cause of these concerns?

- What data and information are needed to complete the project?

- Do you have the right skills and experiences to help identify and correct the problems?

- What will be the efforts overall objectives?

What do we need to do?
How will we get there?

- Establishment of an agenda in tasks and work packages
- Allocation of personnel and time resources
- Involving key stakeholders

- What are the main objectives for the project?
- What are the priority (time) resource areas and concerns?
- What is proposed to be implemented: when, where, and by whom, for how long?
- How will you/your supervisor evaluate whether the project has been successful?
- How will the public and key interest groups be kept involved?

Making a difference!

- Framework specifying the budgets, possible funding mechanisms, timelines and milestones, action items, management strategies, and personnel assignment

- Stakeholder and landowner/operator support

- Financial and time commitment of participating agencies and organisations
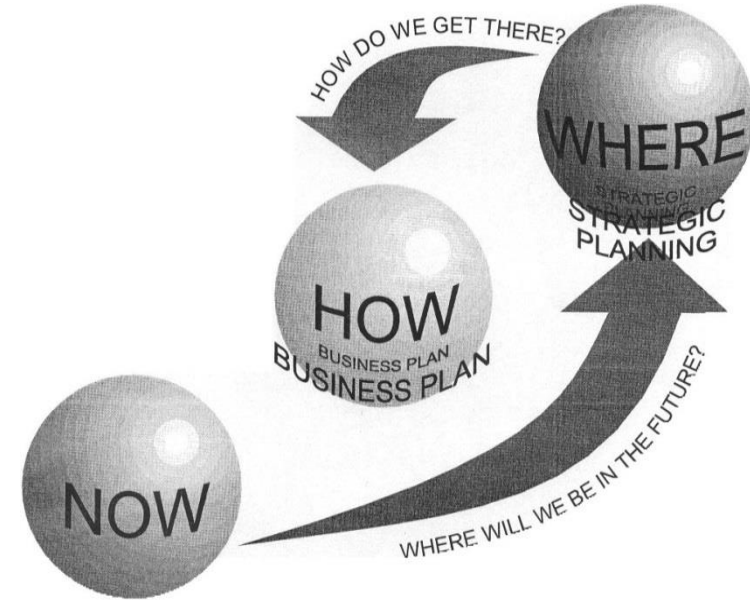
- What has been accomplished?

- Are the expected improvements detected?

Did we make it?

Evaluation of the effectiveness of the plan

- Monitoring
- Performance assessment
- Operation and maintenance
- Adaptive management
- Final report

- What information/evidence is to be gathered?
- Who will provide information?
- What tools will be used to gather the information?
- Are the required tools available, or do they have to be developed?
- How will the information be evaluated for results?
- Will someone else gather the data and analyse the data?
- What are the overall evaluation guidelines and design?
- How are matters of privacy dealt with?
- How will evaluation results be used?

Take home message

@ home
- Go back to your abstract
- Look up the questions and answer them for the extended abstract

WORK PLAN STRUCTURE

- 🦁 Gantt Chart (definition of project activities in time)
- 🦁 PERT Diagram (structure of work packages)
- 🦁 Quality Frame

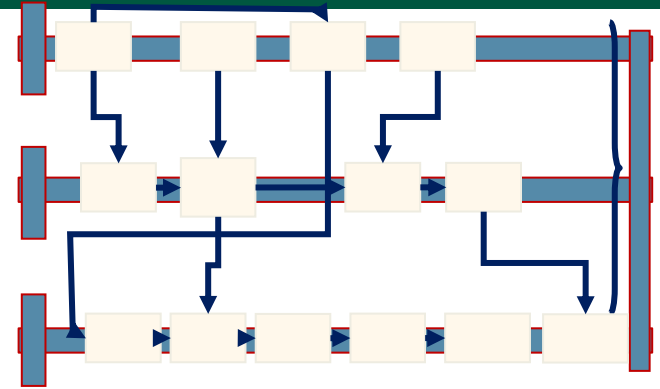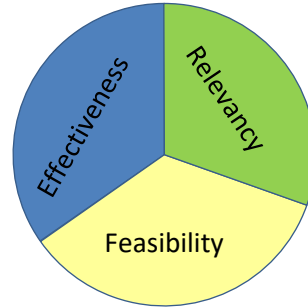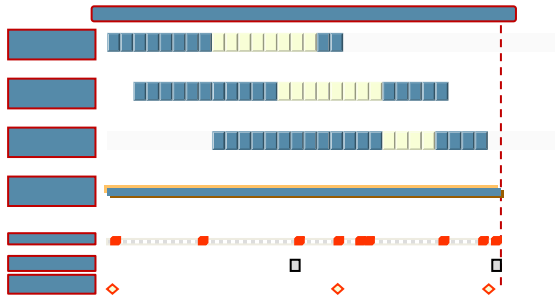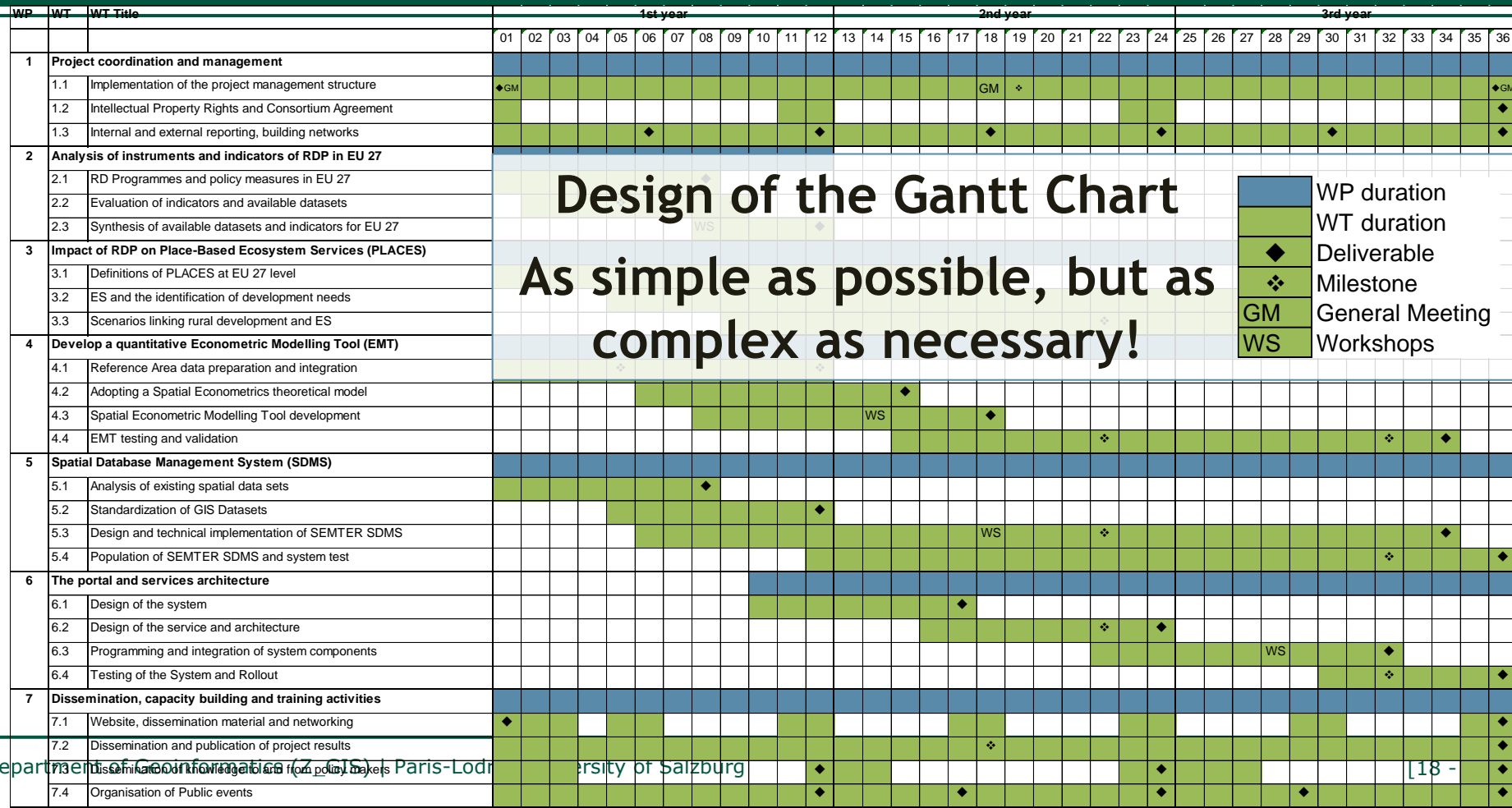| WP | WT | WT Title | 1st year |||||||||||| 2nd year |||||||||||| 3rd year |||||||||||| |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
| 1 | | Project coordination and management | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1.1 | Implementation of the project management structure | ◆GM | | | | | | | | | | | | | | | | | GM | ❖ | | | | | | | | | | | | | | | | ◆GM |
| | 1.2 | Intellectual Property Rights and Consortium Agreement | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ◆ |
| | 1.3 | Internal and external reporting, building networks | | | | | | ◆ | | | | | | ◆ | | | | | | ◆ | | | | | ◆ | | | | | | ◆ | | | | | | | ◆ |
| 2 | | Analysis of instruments and indicators of RDP in EU 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.1 | RD Programmes and policy measures in EU 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.2 | Evaluation of indicators and available datasets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.3 | Synthesis of available datasets and indicators for EU 27 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | Impact of RDP on Place-Based Ecosystem Services (PLACES) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3.1 | Definitions of PLACES at EU 27 level | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3.2 | ES and the identification of development needs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3.3 | Scenarios linking rural development and ES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | Develop a quantitative Econometric Modelling Tool (EMT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.1 | Reference Area data preparation and integration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4.2 | Adopting a Spatial Econometrics theoretical model | | | | | | | | | | | | | | | | ◆ | | | | | | | | | | | | | | | | | | | | |
| | 4.3 | Spatial Econometric Modelling Tool development | | | | | | | | | | | | | WS | | | | | ◆ | | | | | | | | | | | | | | | | | |
| | 4.4 | EMT testing and validation | | | | | | | | | | | | | | | | | | | | | | | ❖ | | | | | | | | ❖ | | ◆ | | |
| 5 | | Spatial Database Management System (SDMS) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5.1 | Analysis of existing spatial data sets | | | | | | | | ◆ | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5.2 | Standardization of GIS Datasets | | | | | | | | | | | | ◆ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5.3 | Design and technical implementation of SEMTER SDMS | | | | | | | | | | | | | | | | | | WS | | | | | ❖ | | | | | | | | | | | ◆ | |
| | 5.4 | Population of SEMTER SDMS and system test | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ❖ | | | | ◆ |
| 6 | | The portal and services architecture | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 6.1 | Design of the system | | | | | | | | | | | | | | | | | ◆ | | | | | | | | | | | | | | | | | | | |
| | 6.2 | Design of the service and architecture | | | | | | | | | | | | | | | | ❖ | | ◆ | | | | | | | | | | | | | | | | | |
| | 6.3 | Programming and integration of system components | | | | | | | | | | | | | | | | | | | | | | | | | | | | WS | | | | ◆ | | | |
| | 6.4 | Testing of the System and Rollout | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ❖ | | | | | |
| 7 | | Dissemination, capacity building and training activities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7.1 | Website, dissemination material and networking | ◆ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7.2 | Dissemination and publication of project results | | | | | | | | | | | | | | | | | | ❖ | | | | | | | | | | | | | | | | | | |
| | 7.3 | Dissemination of knowledge to and from policy makers | | | | | | | | | | | | ◆ | | | | | | | | | | | ◆ | | | | | | | ◆ | | | | | | ◆ |
| | 7.4 | Organisation of Public events | | | | | | | | | | | | | | | | | | ◆ | | | | | | | | | | | | | ◆ | | | | | |

Design of the Gantt Chart
As simple as possible, but as complex as necessary!

	Legend
(blue bar)	WP duration
(green bar)	WT duration
◆	Deliverable
❖	Milestone
GM	General Meeting
WS	Workshops

Each work package has a clear definition of

- Objectives (distinguishable from each other)
- Start and end (in relative terms) and duration
- Input required
- Dependencies to other work packages
- Tasks that are performed within the work package
- Output being produced
- Definition of the responsible person(s)

Work packages – how to create?

- List the **major pieces** (summary of tasks) for your project
- Further breakdown each piece until you have sufficient level of detail
- Level of detail dependent
  - Dependent on size and duration of project
  - Reporting obligations
  - Being able to clearly assess dependencies of tasks
- Level of complexity to maintain project implementation plan

- Start thinking about **HOW** you want to achieve your project objectives
    - What activities do you need to carry out?
    - What intermediate results are to be achieved?
    - What milestones are important?
    - What additional milestones would help you to monitor your progress?
- Segment your work in Work Packages
- Within your Work Packages
    - think about tasks (guidelines)
    - In case your planning horizon is not too far, task should be quite detailed (i.e. not spanning a duration over 5 days)
    - A work package should have a deadline (milestone) (e.g. "data acquisition complete")
    - Think about dependencies
    - Think about constraints

WP: Data Acquisition

- Assess data requirements (duration: 10 days)
- Data requirements catalogue (milestone of delivery completion)
- Research data availability (duration: 5 days)
- Acquire data from organizations (duration: 15 days)
- Load data to system (duration: 2 days)
- Data loaded (milestone at a fixed date or flexible date)

- Timelines of tasks should be mapped in relative terms (if possible) like:
    - 2 Weeks after contract award (= project start)
    - 3 month after contract award (= project start)
    - 2 days after finishing task A
    - 5 days before task D starts
    - Combinations are possible
    - i.e. interdependencies of tasks to be addressed
- Account for "buffer" in your timelines–things might change
- Assign resources for the tasks
- Make sure task schedule meets milestones at fixed dates
  → Milestones are typically HARD FACTS (delivery dates)

- Deliverable is a term used in project management to describe a tangible or intangible object produced as a result of the project that is intended to be delivered to a customer.

- A deliverable could be a report, a document, a server upgrade or any other building block of an overall project.

- A deliverable differs from a project milestone in that a milestone is a measurement of progress toward an outcome whereas the deliverable is the result of the process. For a typical project, a milestone might be the completion of a product design while the deliverable might be the technical diagram of the product.

- A milestone is the end of a stage that marks the completion of a work package or phase, typically marked by a high-level event such as completion, endorsement or signing of a deliverable, document or a high-level review meeting.

- In addition to signaling the completion of a key deliverable, a milestone may also signify an important decision or the derivation of a critical piece of information, which outlines or affects the future of a project. In this sense, a milestone not only signifies distance traveled (key stages in a project) but also indicates direction of travel since key decisions made at milestones may alter the route through the project plan.

- Open Source Tool 'Project Libre'
  - http://www.projectlibre.org/
  - Video and Demonstration of Project Libre YouTube
- OpenProj
  - https://sourceforge.net/projects/openproj/
- ProjectOpen
  - http://www.project-open.com/
- Redmine
  - http://www.redmine.org/

The PERT Diagram

WP 1 – HACT

Activity 1-1

Analysing, generalising and categorization of human activity

Activity 1-2

Data acquisition and processing

Activity 1-3

Data model development

Activity 1-4

First update cycle: Data acquisition

WP 4 - Dissemination

WP 2 – DELU

Activity 2-1

Establishing cognition network

Activity 2-2

Scale-specific delineation and class modelling

Activity 2-3

Optimising developed rule set for transferability

Activity 2-4

Change identification and update

WP 3 – MOVI

Activity 3-1

Setup of ST-GeoDB

Activity 3-2

Feeding of ST-GeoDB and modelling of PO

Activity 3-3

Assigning of PO curves to HAUs

Activity 3-4

Verification, calibration of the model

Activity 3-5

Scientific visualisation of HAU dynamics

Activity 3-6

Update of ST-GeoDB

Risk can be defined as uncertainty of outcome (whether positive opportunity or negative threat). Some amount of risk taking is inevitable if the project is to achieve its objectives

- Risk management involves according to PRINCE2
  - Access to reliable, up-to-date information about risks
  - Decision-making processes supported by a framework of risk analysis and evaluation
  - Processes in place to monitor risks
  - The right balance of control in place to deal with those risks.
- The risk management approach describes the specific risk management techniques and standards to be applied during the project

Source: https://prince2.wiki/theme/risk/

Risk Management Purpose

- As risks are a set of events that, should they occur, will have an effect on achieving the project objectives.
- The purpose of the Risk Management is that *"it looks at*
  - *identifying,*
    - How to identify and describe the risk?
  - *assessing and*
    - What is the likelihood of the risk and impact on objectives?
  - *controlling uncertainty*
    - Control the Risk: How best to respond to a risk?
  - *and improves the ability of the project to succeed"*.

Source: https://prince2.wiki/theme/risk/

- The Management of Risk method is a generic approach to Risk and has the following approach:
  - First, understand the project context, which means understand the project environment.
  - Involve Stakeholders, Users, Suppliers, and Teams to help identify risks.
  - Establish an approach for the Project and document this approach.
  - Provide regular reports on Risk.
  - Define risk Roles & Responsibilities.

Source: https://prince2.wiki/theme/risk/

The Risk Register captures and maintains the information (both threats and opportunities) on all the risks that were identified and relate to the project.

- Risk Description: e.g., cause, event and effect)
- Probability Impact:
- Risk Level very low, low, normal, high).
- Risk Response: List of actions to resolve the Risk.
- Responsibility
- Risk Status: Current status of the Risk: Active or Closed.
- ...

Source: https://prince2.wiki/theme/risk/

- List of activities resources, and results
- Analysis of risks

??

- Has the overall project objective carefully been described?
- Are the performance indicators measurable and transparent?
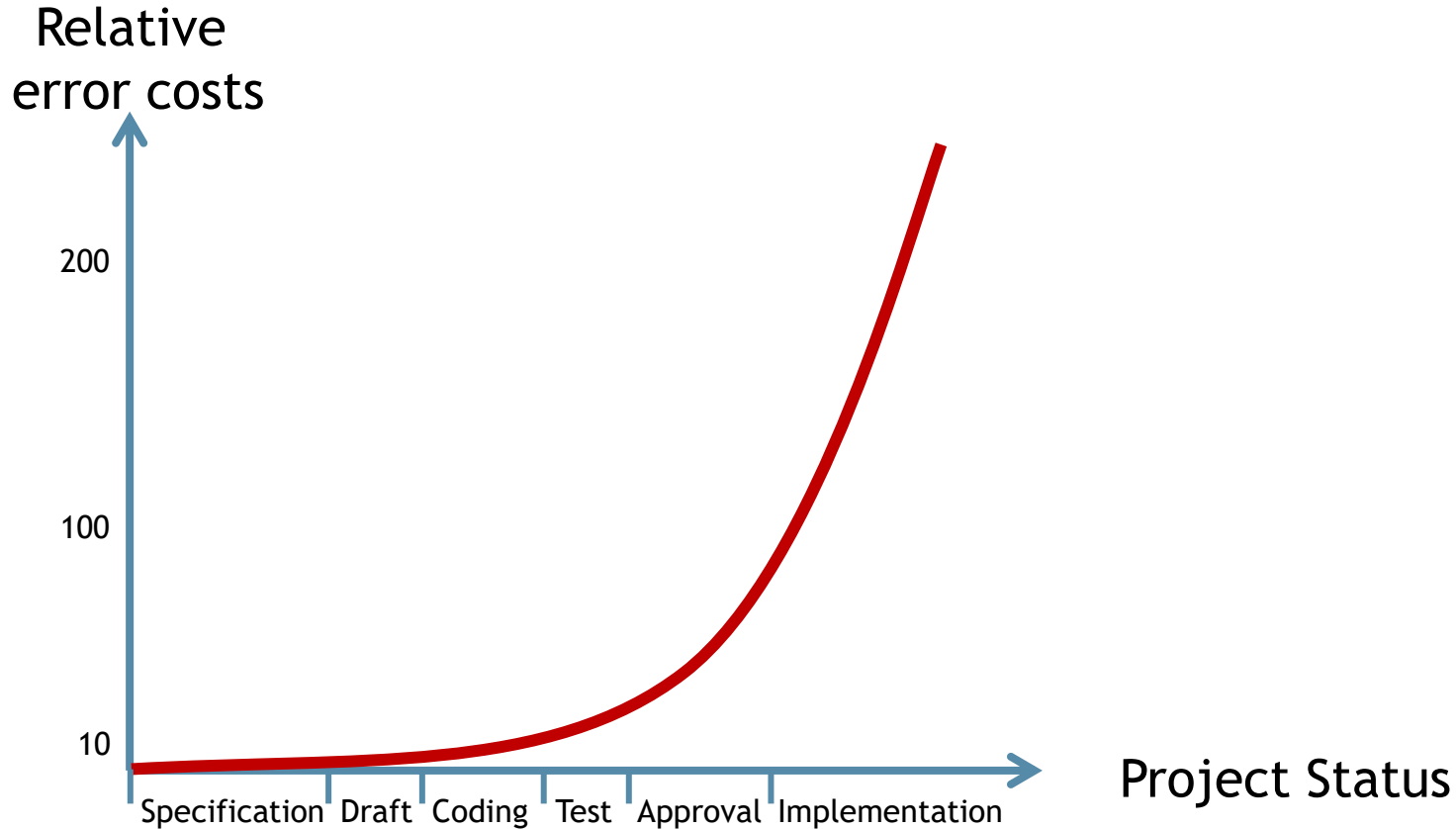
Risk categories

- commercial risks
- technical risks
- regulatory risks
- organizational risks
- Infrastructural risks
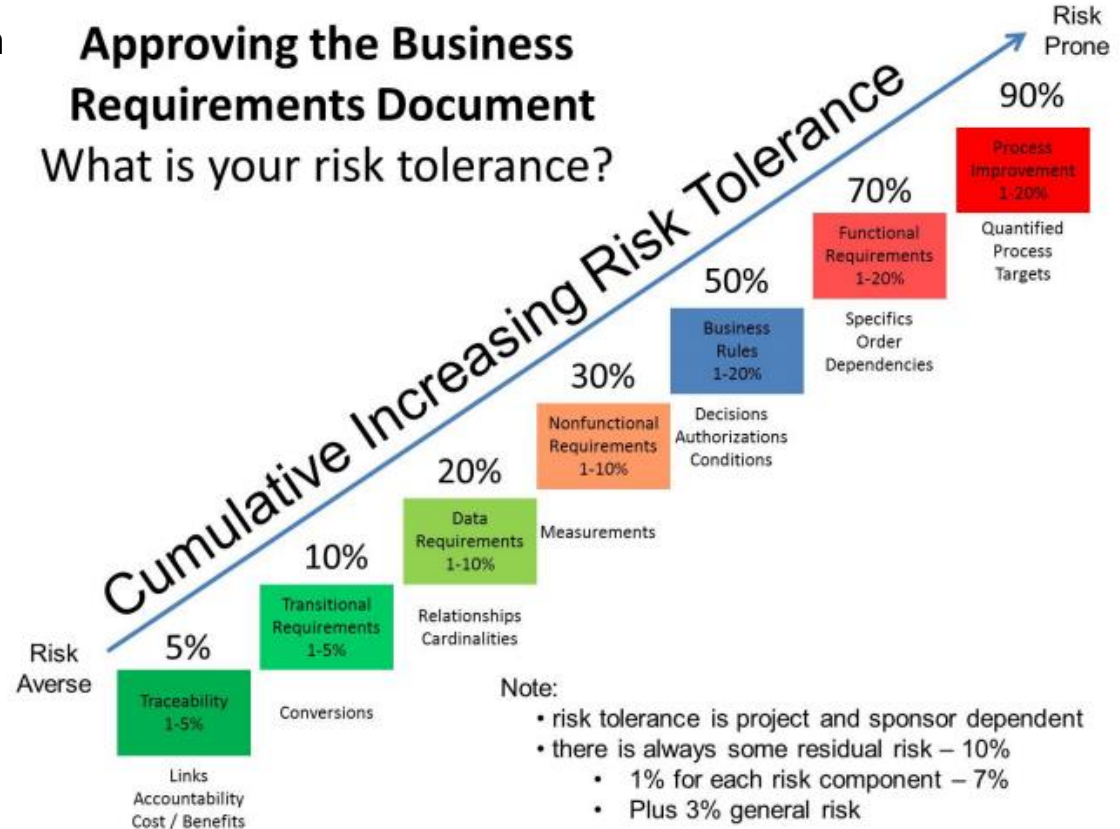- operational risks
- strategic risks

- Risk tolerance line defines how much risk will be accepted to execute a project
- to be assessed by the project board (not a PM decision but a management decision)
- Typically, dependent on
  - the importance of the project (critical → higher risk acceptance)
  - Size and complexity of the project
  - budget available
  - Political embarrassment
  - corporate culture

Approving the Business Requirements Document
What is your risk tolerance?

Cumulative Increasing Risk Tolerance

Risk Prone

Risk Averse

90%
Process Improvement 1-20%
Quantified Process Targets

70%
Functional Requirements 1-20%
Specifics Order Dependencies

50%
Business Rules 1-20%
Decisions Authorizations Conditions

30%
Nonfunctional Requirements 1-10%
Measurements

20%
Data Requirements 1-10%
Relationships Cardinalities

10%
Transitional Requirements 1-5%
Conversions

5%
Traceability 1-5%
Links Accountability Cost / Benefits

Note:
- risk tolerance is project and sponsor dependent
- there is always some residual risk – 10%
  - 1% for each risk component – 7%
  - Plus 3% general risk

Risk Response / Countermeasures

- **Prevention**: Terminate the risk by doing things differently and thus removing the risk, where it is feasible to do so. Countermeasures are put in place that either stop the threat or problem from occurring or prevent it having any impact on the project or business.

- **Reduction**: Treat the risk, take action to control it in some way where the actions either reduce the likelihood of the risk developing or limit the impact on the project to acceptable levels.

- **Transference**: This is a special form of risk reduction where the management of the risk is passed to a third party via, e.g., an insurance policy or penalty clause, such that the impact of the risk is no longer an issue for the health of the project. Not all risks can be transferred in this way.

- **Acceptance**: Tolerate the risk, because nothing can be done at a reasonable cost to mitigate it or the likelihood and impact of the risk occurring are at an acceptable level

- **Contingency**: These are actions planned and organisedto come into force as and when the risk occurs.

- **Risk identifier**: unique code to allow grouping of all information on this risk
- **Description**: brief description of the risk
- **Risk category** (e.g. commercial, legal, technical)
- **Impact**: effect on the project/programme/organisation if this risk were to occur (impact on time, budget, resources, quality, etc.)
- **Probability**: estimate of the likelihood of the risk occurring
- **Proximity**: how close in time is the risk likely to occur

- **Countermeasure(s)**: What actions have been taken/will be taken to counter this risk?

- **Owner**: Who has been appointed to keep an eye on this risk?

- **Author**: Who submitted the risk?

- **Date identified**: When was the risk first identified?

- **Date of last update**: When was the status of this risk last checked?

- **Current status**: e.g. dead, reducing, increasing, no change

- **Risk class A (5)**: Business case cannot be fulfilledWould lead to a termination of the project
- **Risk class B (4)**: Budget to be exceeded by 50% or moreproject objectives significantly reduced
- **Risk class C (3)**: Budget significantly exceeded (but still within tolerance)project objectives reduced
- **Risk class D (2)**: Significant more efforts required in a project phase
- **Risk class E (1)**: Some additional efforts required in a project phase

Risk probability

5:very likely

4:likely

3:possible

2:not very likely

1:unlikely

LF ref.	Risks	Potential adverse impact	Risk level (H/M/L)	Risk management strategy	Responsibility
1	The Program Stream Coordination Unit (PSCU) and ASEAN Secretariat (ASEC) staff do not establish an effective working relationship	Delays in processing proposals through the committee endorsement system	M	Annual Managing Contractor/PSCU staff performance assessment by co-chairs of Joint Selection & Review Panel (JSRP) and appropriate remedial action taken by all parties	Delegation, ASEC and Contractor
1	Promotional activities do not generate an adequate number of quality proposals that meet selection criteria.	Under-commitment of funding and/or selection of relatively poor quality proposals for implementation	L	Widespread and intensive promotional activities using a variety of media and dissemination channels	Contractor
1	Regionality requirements are difficult to meet	Under-commitment of funding, or approval of proposals that could be better handled through bilateral programs	M	Activities only require one European and one ASEAN *implementing* partner, but will be open to participation by all member countries	JSRP at appraisal
1	There are not enough 'new' ideas, rather 'old' re-hashed proposals	Expected benefits of the RPS are not fully realised. Good new ideas may be left out of the RPS portfolio	M	Application guidelines and JSRP appraisal checklist emphasise preference for 'new' innovative ideas	JSRP
1.1	Contractor staff for the PSCU are not acceptable to ASEC	Delays in commencing implementation of the RPS	M	EC sends copies of short-listed bidders proposals to ASEC and invites ASEC to sit on selection panel	EC
1.1	Roles of PSCU and European based staff of the contractor are not clearly defined	Duplication of functions and confusion	M	Clear functional roles established during the preparatory stage, building on draft TOR presented in this design document	AMC
1.2	EC and ASEC do not appoint appropriately qualified/skilled members to the JSRP	Inadequate appraisal of proposals and selection of 'weak' activities for implementation	L	EC and ASEC must commit adequate time/resources to the JSRP process. Stringent appointment process.	EC and ASEC

H= High, M=Medium, L=Low

from: EC (2004)

Requirement

Key Performance Indicators (KPI)

- A requirement is something a system should provide (in terms of functionality) or a quality that the system must have.
- Functional requirements
  - Describe the technical functionality (services), the system must provide
  - Detail the reason why the system is created
- Non-functional requirements
  - Attributes or quality characteristics, the system must possess
  - These include requirements for
    - User interface (usability)
    - system technical requirements
    - Performance requirements

- Mandatory requirements → **MUST HAVE**
- Optional requirements → **NICE TO HAVE**
  - Highly desirable – important but dispensable (e.g. if costs are too high)
  - Nice to have –not really essential
- Prioritizing the requirements increases the flexibility during the implementation
- Helps for the release planning → Optional requirements can be moved to another increment of the project.

- **Adequacy** - describe what the customer wants or needs
- **Completeness** - describe everything that the customer wants or needs
- **Without contradictions -** otherwise the specification is not implementable
- **Understandable** - for the customer (customer requirements) and for the computer scientist
- **Clear** - avoid mistakes due to misinterpretation
- **Verifiable** – it should be clearly assessable if a requirements has been implemented

- **Be clear, precise and short**
- Make sure you have the domain knowledge (research and collaborate)
- Work iteratively (from abstract statement of needs to precise and detailed requirements)
- Document immediately the specification (do not wait until everything is assessed)
- Do not document anything that you do not understand
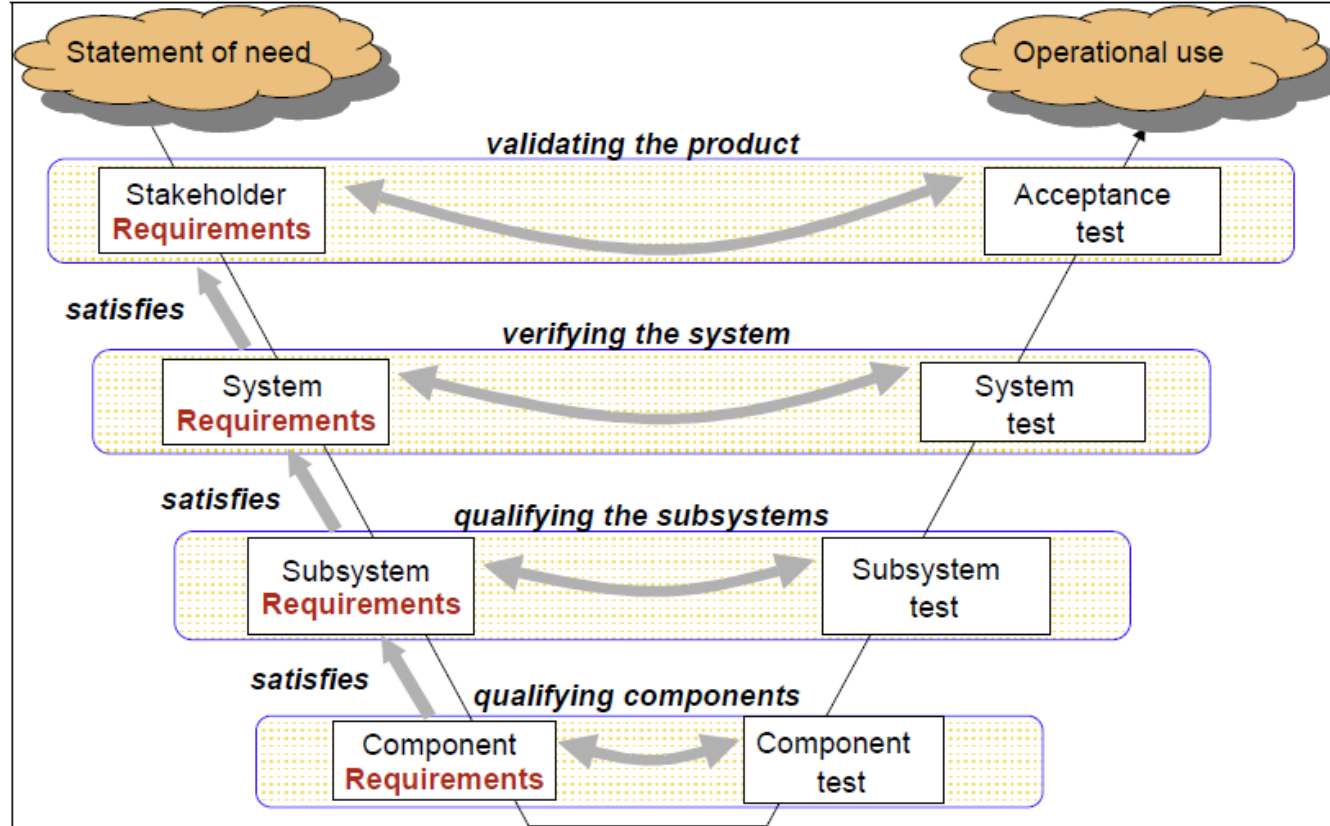
Stakeholder layer
(language of the problem)

Aircraft

= physical entity

System layer
(language of the abstract solution)

Aircraft
Type
Status

= logical representation

Design layer
(language of the design solution)

Aircraft
Type
Status
loadBaggage()

= object implemented
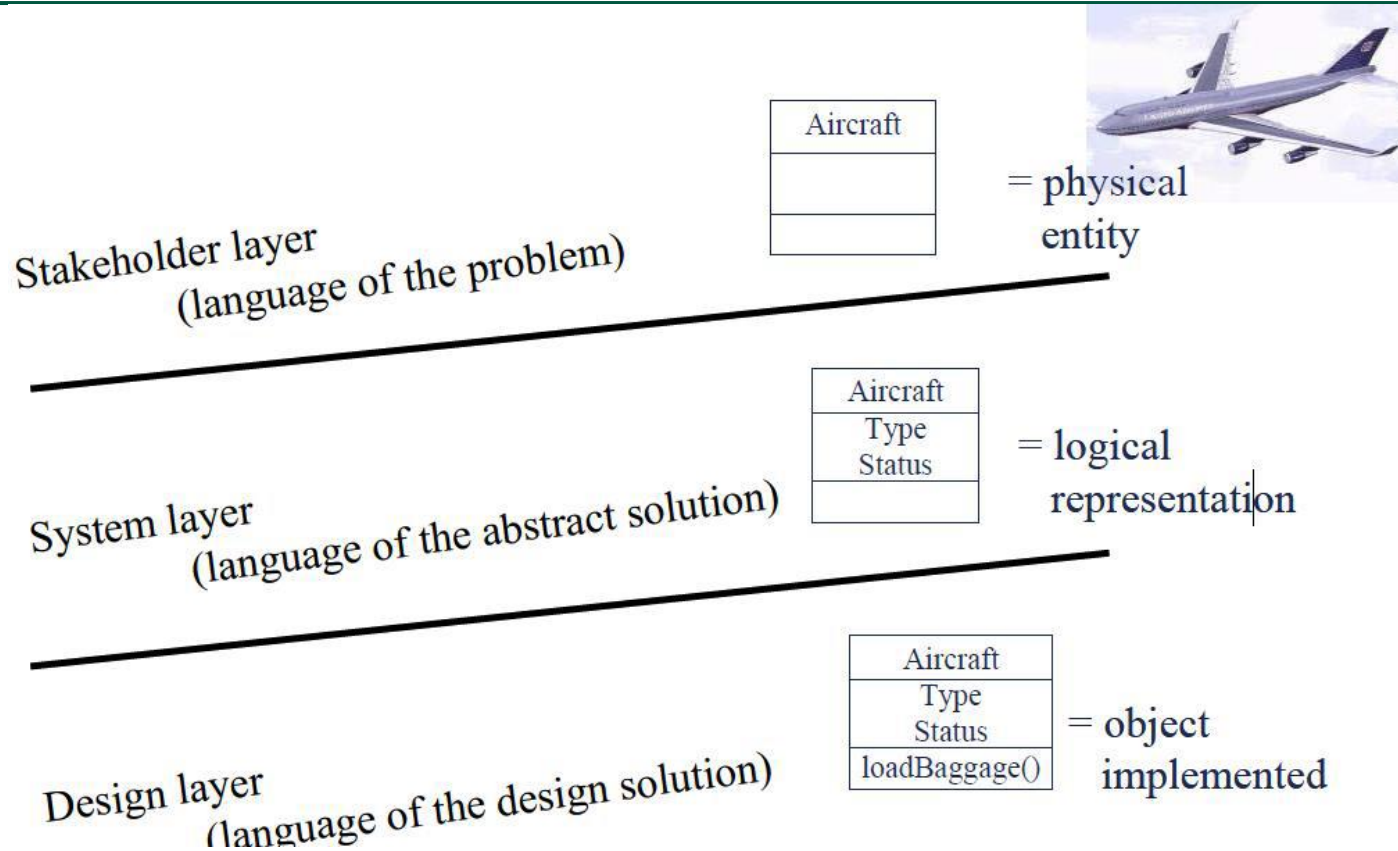
The V-model represents the development standard for IT systems of government institutions in Germany. It is the 'red wire' to implement IT projects (adherence mandated from the supplier as well).
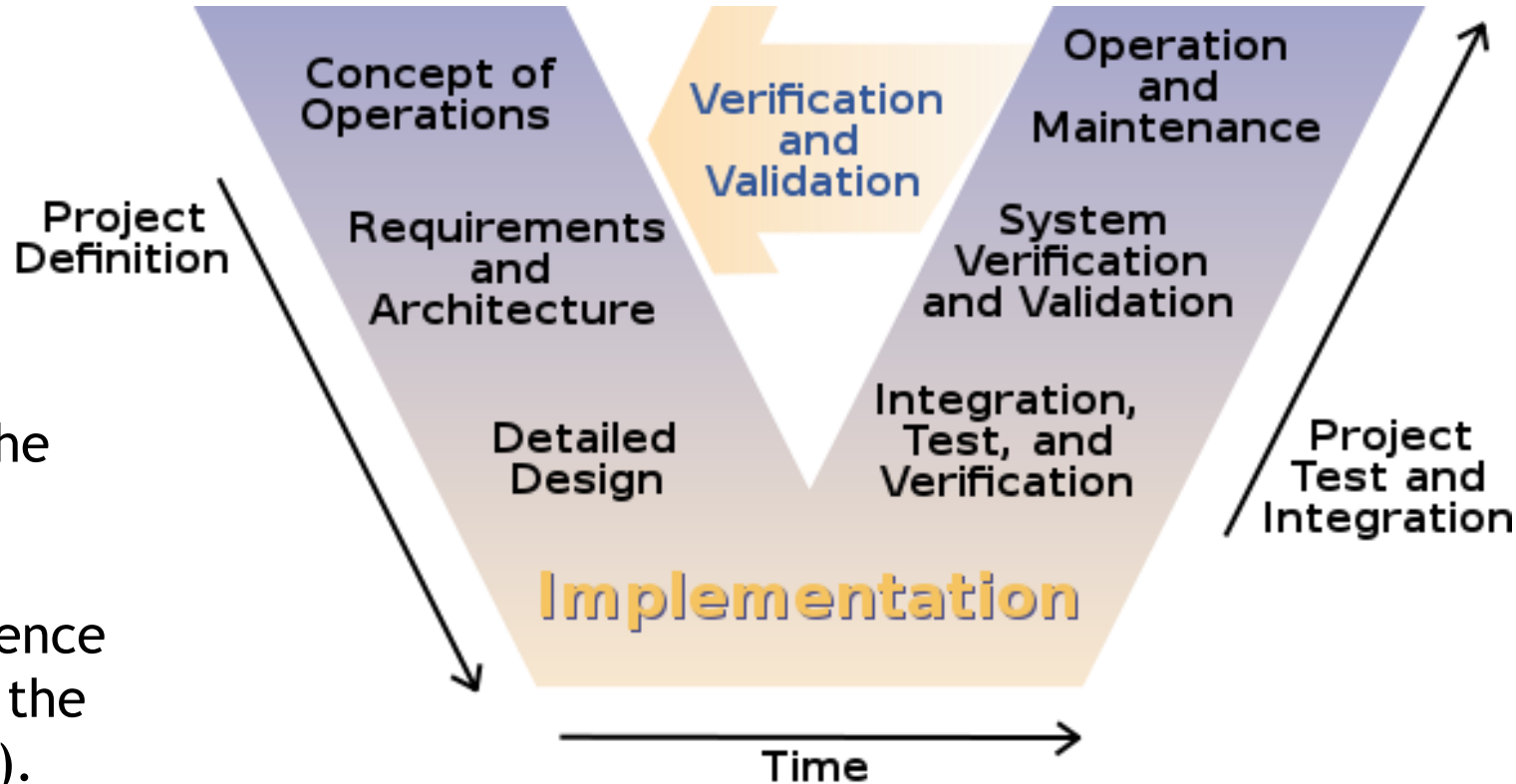
The Rational Unified Process
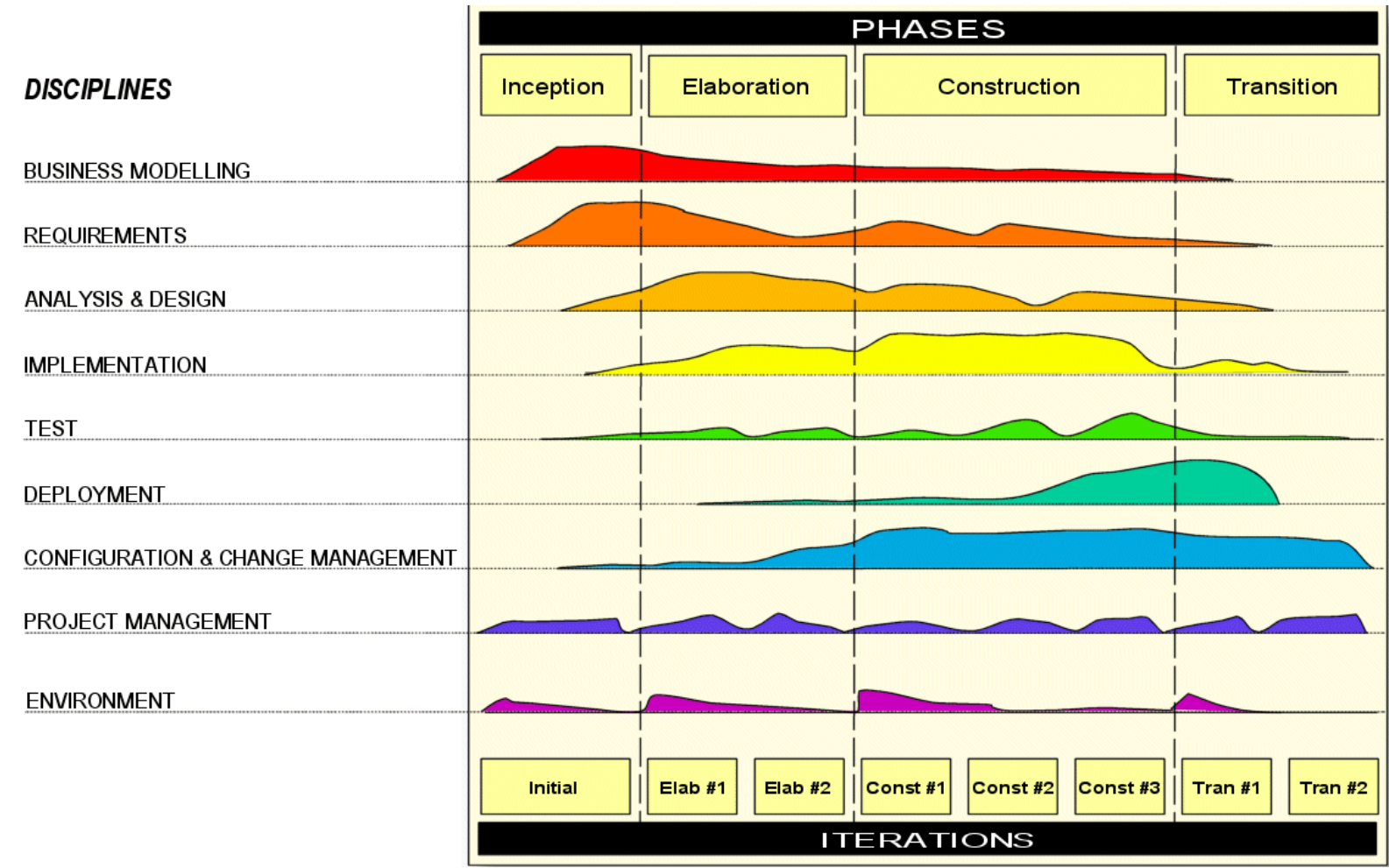
Project management homework and Project Overview Document submission | 01.04.2025 (5 %)

Opened: Friday, 14 February 2025, 12:00 AM
Due: Tuesday, 1 April 2025, 6:00 AM

01.04.2025 (!)

Please take the course materials and design a graphical representations of a

1. Gantt chart,
2. PERT diagramme,
3. Risk Management Matrix,
4. Time Sheet.

Please design graphics and tables for each of the products and include each of them on one PowerPoint slide. For the design, students consider the course materials. Combine all ressources in the **'Project Overview'** template as discussed during the lecture. Finally, transfer these information to **YOUR Gitlab Wiki AND** place all four files to **YOUR Gitlab project repository and place them into the 'management' folder**. Keep your **Project Overview Document AND the Wiki ALWAYS** updated!!! The Gantt chart is expected to be reviewed by YOU every two weeks and stored in YOUR GitLab with an according timestamp and version information in the filename.

Besides the four (4) slides within ONE PowerPoint, the **Project Overview Document** has to be uploaded as the second part of the assignmen to the eLearning platform, too!

Please make sure you have following documents available and updated (@least every 14 days) in the Gitlab 'management' Folder and in the Gitlab's Wiki. We will review these files during the consulting sessions:

1. Project Overview Document
2. Gantt chart
3. Timesheets

For file submission use the following naming convention in the filename:

- Lastname_Projectmanagement.pptx (including all four graphics)!
- Lastname_ProjectOverviewDocument.pdf

The project management homework including the first GitLab work will count for 5 % of the overall mark.

- Exercise for the advanced project management class

- View the videos on the eLearning platform first, then attend the lecture with Manfred Mittlböck

- All tasks should have been already done in previous MSc study courses. However, the following resources are made available by Manfred Mittlböck on the eLearning platform:

  - How to work with GitLab?

  - How to populate the WIKI in GitLab?

  - How to organise metadata?