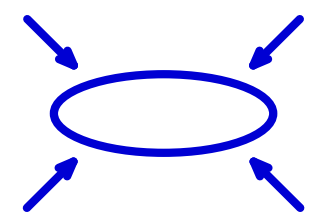
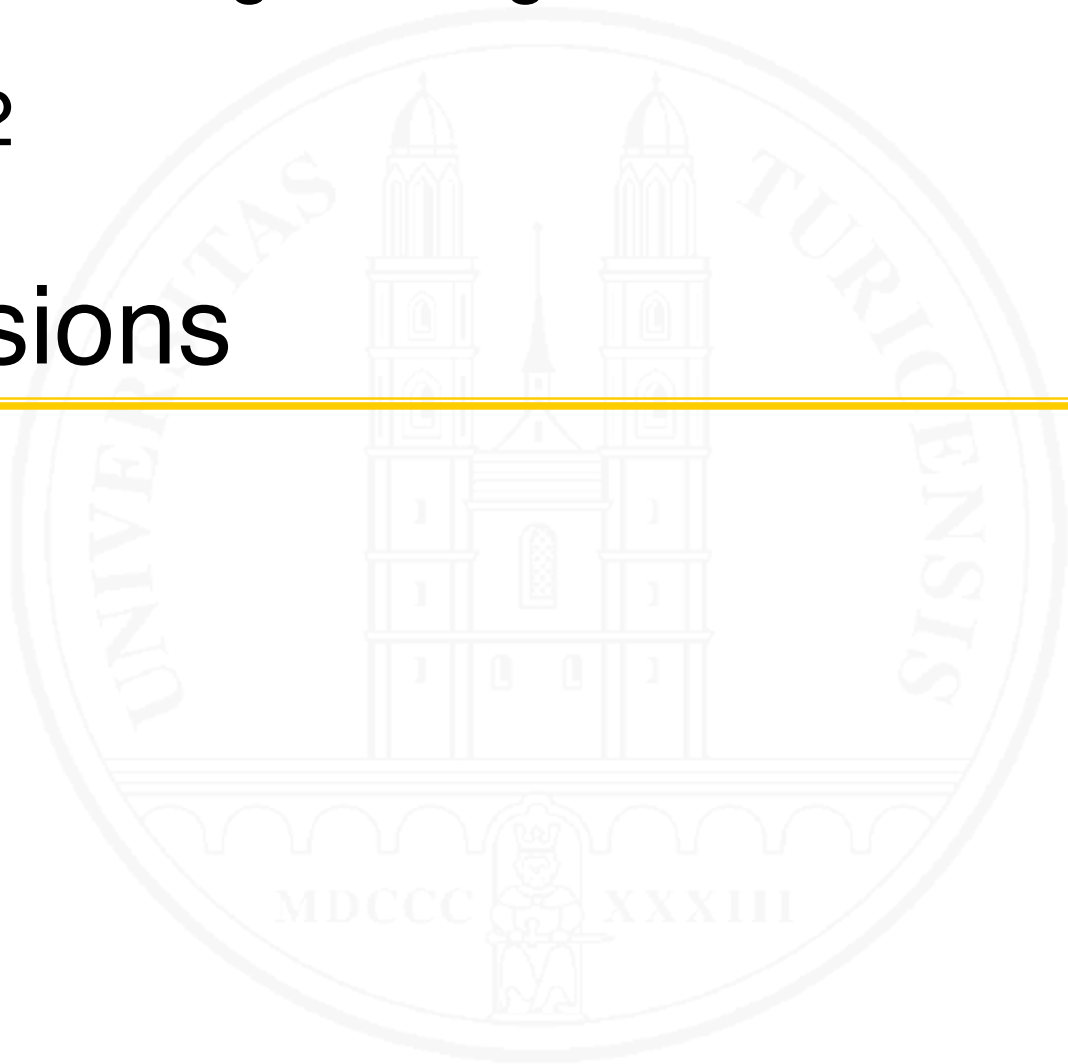


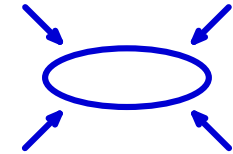
Requirements Engineering I

Chapter 12

Conclusions



Chapter roadmap



12.1

How much RE?

Take a value-driven approach

12.4

RE in a nutshell

A three-slide summary

12.2

RE under time pressure

What can be omitted and what can't?

12.3

RE topics not covered in this course

There is more to learn about RE

12.1 How much RE?

[Glinz 2016]

We **no longer believe** in big, unambiguous, and complete requirements specifications as the standard result of good Requirements Engineering.

- Although many standards and textbooks still do
- **Modern RE is value-driven**: the effort invested into RE is determined by the value that the requirements create
- Depends on domain and project context, driven by various factors, in particular
 - Shared understanding
 - Risk
 - Customer-supplier relationship

12.2 RE under time pressure

- Risk-oriented specification
 - The risk determines the needed effort, not the available time frame!
- Don't specify in uniform depth
 - Only the risky stuff in full detail
 - The rest coarsely or not at all
- Employ iterative processes
- Don't strive for perfection; good enough suffices



What is indispensable?

- Know and involve the **critical stakeholders**
- Know the **problem**
- Identify the key **goals**
- Define the **key terms** (of the domain and the system) in a **glossary**
- Identify and document the system's **main functions and use cases**
- Identify and document critical **quality requirements, constraints and risks**
- Identify critical **domain assumptions and domain constraints**

What makes it harder? (implies higher effort)

- High **complexity** of the domain
- Team is **not familiar** with the domain
- **Many stakeholders**
- **Distributed** development and/or stakeholders
- **Long feedback cycles**
- **Safety-critical** requirements
- High **project risks**

Mini-Exercise



What do you reply to your boss?

12.3 RE topics not covered in this course

- Advanced techniques for
 - Requirements elicitation
 - Requirements modeling
 - Requirements management
- Advanced RE processes, e.g. RE for scaled agile projects
- RE for AI (systems based on ML&LLMs, robotics systems)
- Crowd RE
- RE for sustainability

12.4 Requirements Engineering in a nutshell

- Stakeholders are key
- Validate your requirements early and frequently
- Work value-oriented:
 - Cost and benefit of requirements need to be in balance
 - Concentrate on the essential – don't just collect tons of detailed requirements
- Work risk-driven: the more risk, the more extensive and precise requirements specifications are necessary
- Intertwining of requirements and design is natural – you'll need to live with it

Requirements Engineering in a nutshell – 2

- **Situate your system in its context**
 - Value is only created when using systems in their real world context – so you need to know this context
 - Elicit and document domain assumptions and constraints
- **No discovery:** Requirements must be elicited with serious endeavor, they can't be just discovered
- **Strive for innovation:** just automating what we have today is not enough
- **You are not the stakeholders' voice recorder** – elicit and *design* requirements that make stakeholders excited

Requirements Engineering in a nutshell – 3

- **Control requirements evolution** – otherwise requirements evolution will control you
- **No universal language or method:** You'll need to use a variety of practices and languages
- **Specifying is not programming:** Skip all technical details which are not part of the problem
- **Finally: make it fun.** Nobody likes boring tasks. Make RE
 - *a fascinating expedition into the unknown,*
 - *to places where the desirable and the doable meet*
 - *and eventually merge into exciting new opportunities.*

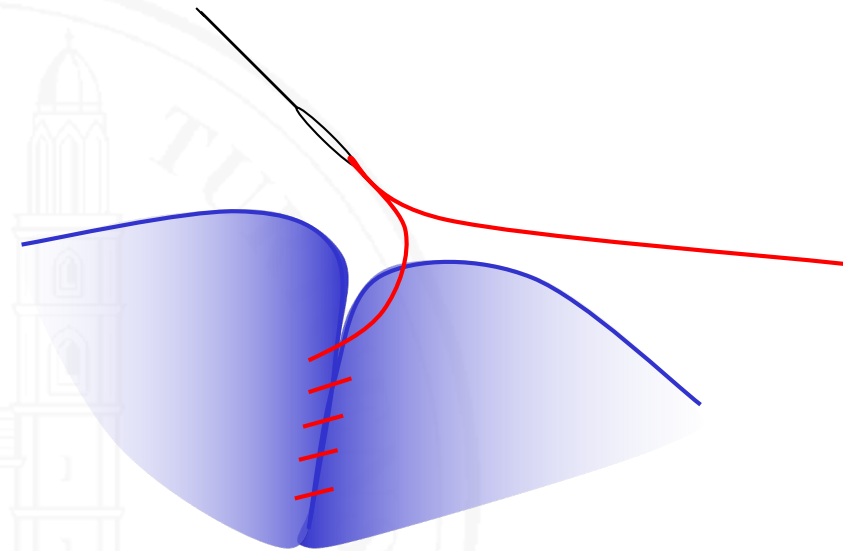
The final word – Stitching it all together

Follow the principles.

Practice the practices.

Be guided by the risk.

Strive for value.



Requirements Engineering – doing things right ...

...from the very beginning