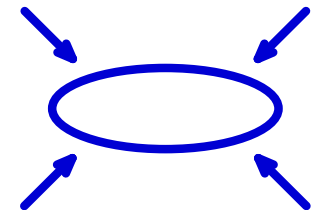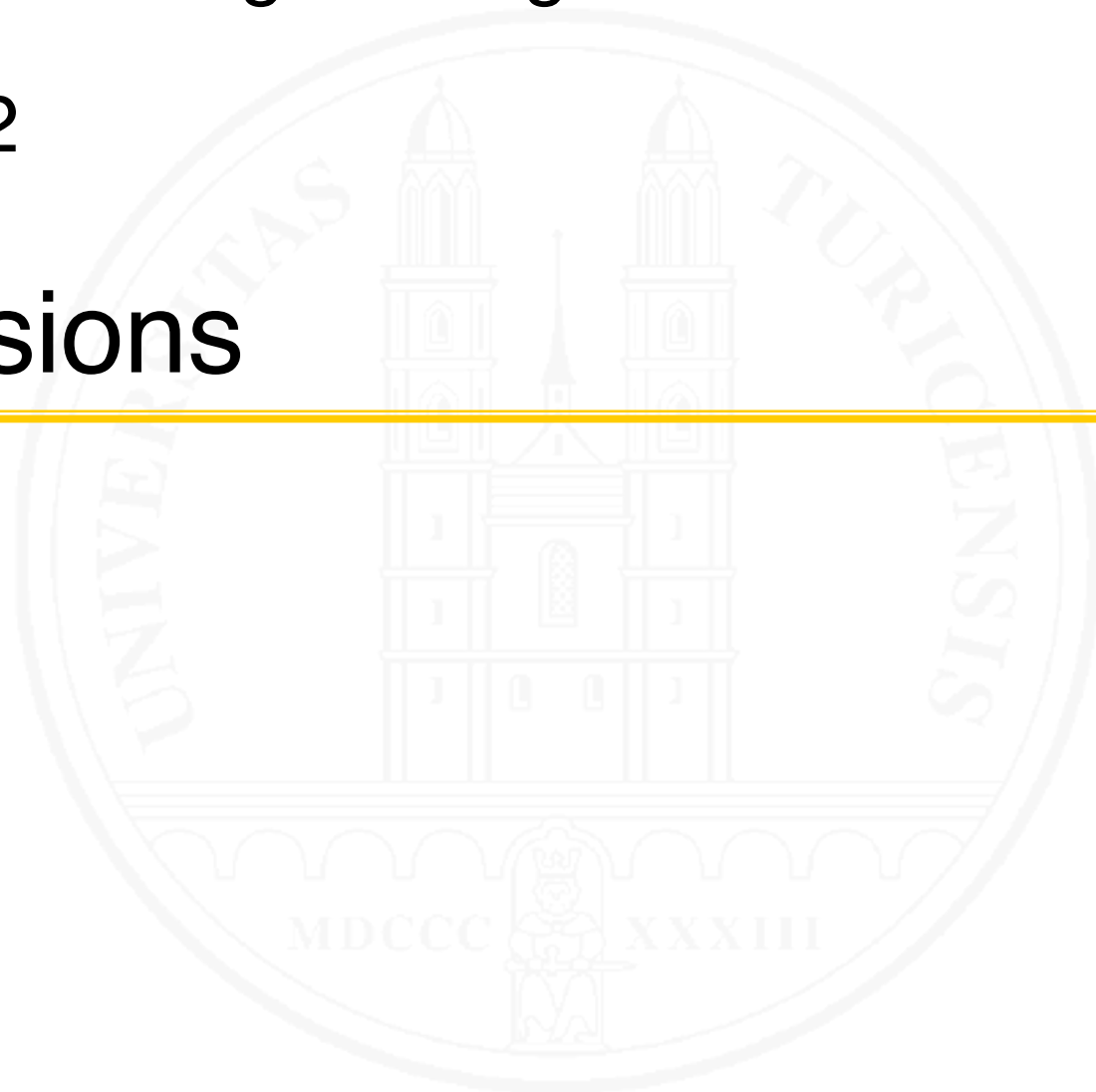Requirements Engineering I

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?

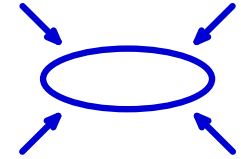We no longer believe in big, unambiguous, and complete requirements specifications as the standard result of good Requirements Engineering.

❍ 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 (machine learning and 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

Follow the principles.

Practice the practices.

Be guided by the risk.

Strive for value.

Requirements Engineering – doing things right ...

...from the very beginning