PXL – Digital 42TIN1280 Software Analysis - Introduction

Week 02 – semester 01

Luc Doumen

Nathalie Fuchs

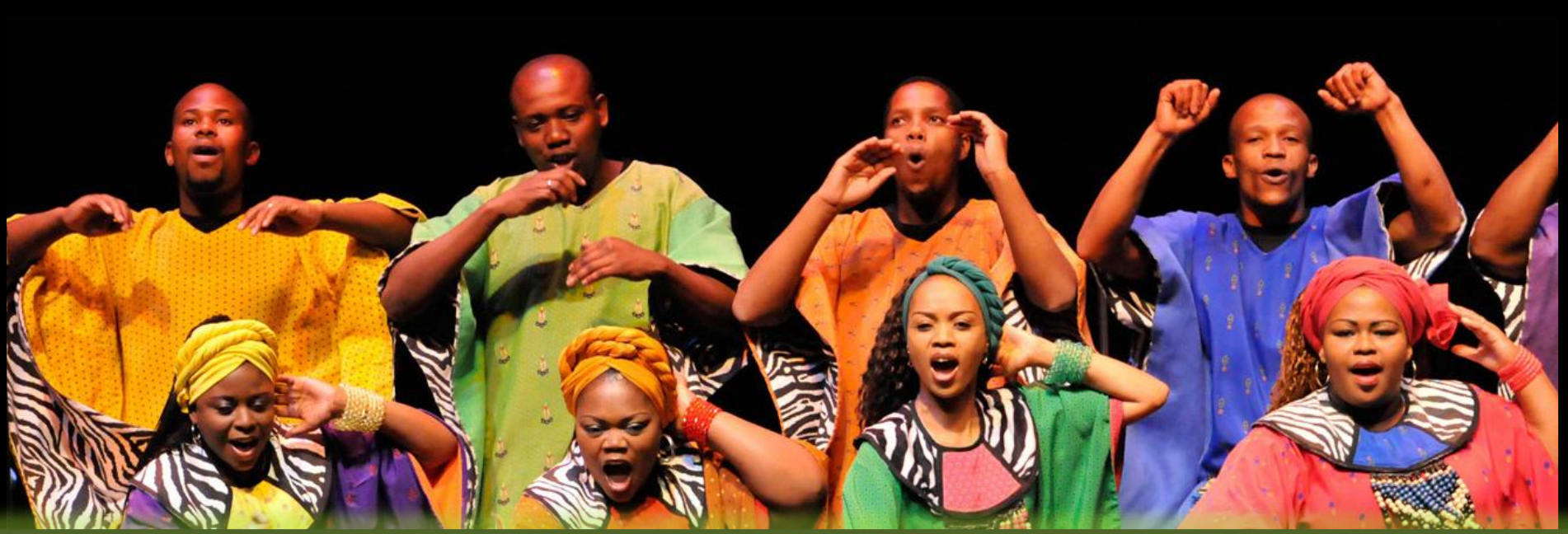
DE HOGESCHOOL MET HET NETWERK

Elfde-Liniestraat 24, 3500 Hasselt, www.pxl.be

Content

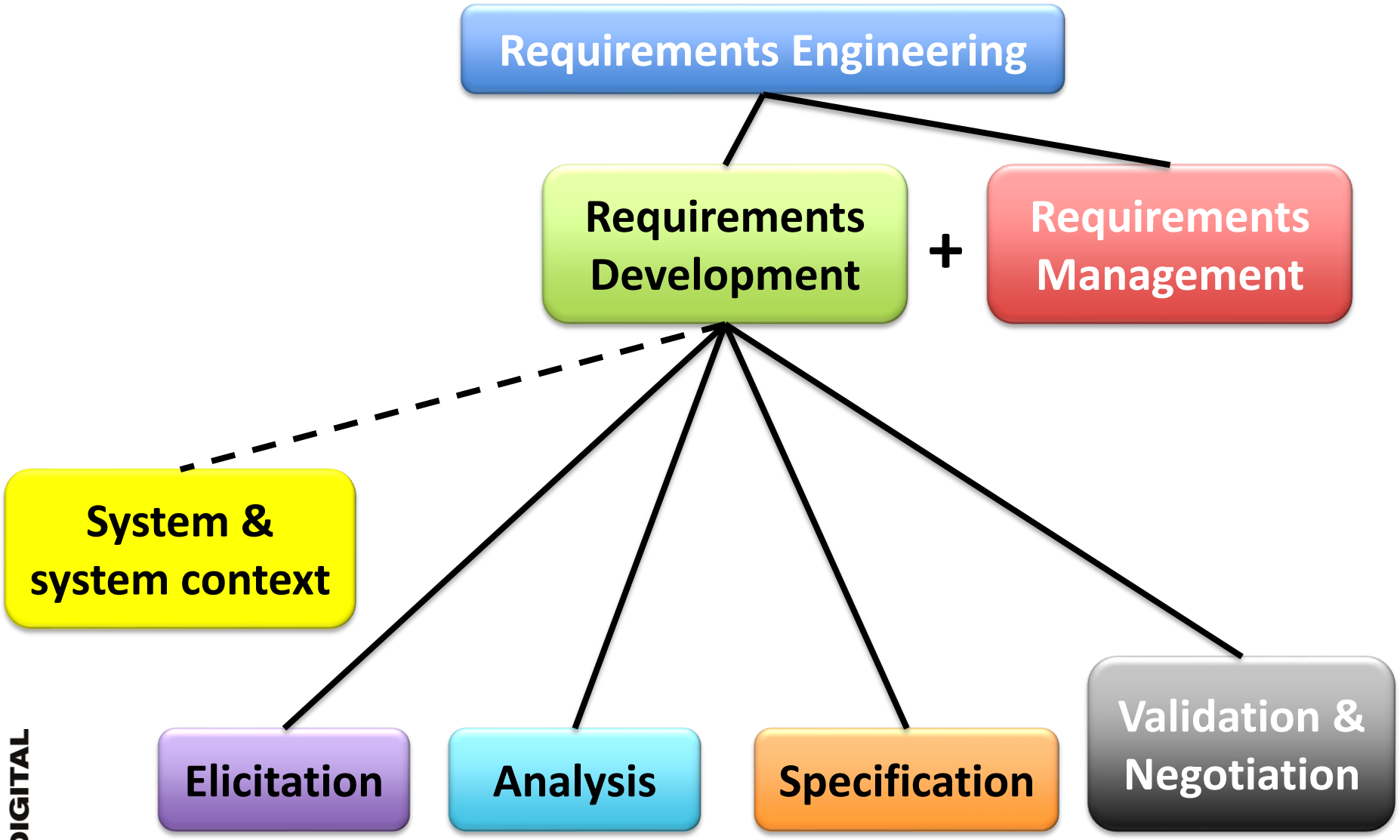
- The essential software requirement
- What are requirements?
- Levels and types of requirements
- Best practices: international standards – ISO
- SMART requirements
- Best practices: JIRA - EPICS - USER STORIES
- **Requirements development and management**
- **Brief history of requirements methods & modeling**
- The role of the analyst + recap case
- Questions & Answers

PXL DIGITAL

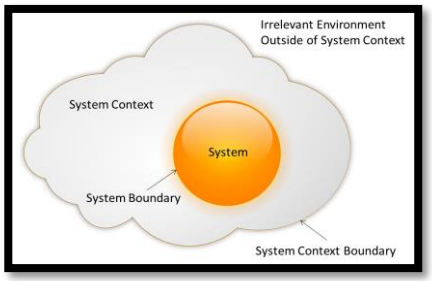


Requirements development & management (RE)

Requirements Engineering – Overall picture (1)



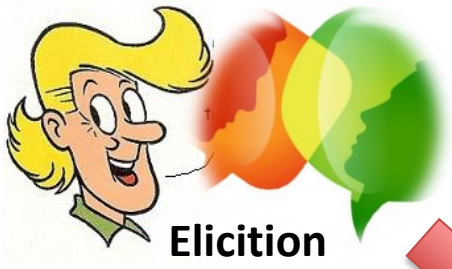
Requirements Engineering – Overall picture (2)



System & system context

Verification & Validation

Manage & Trace



Elicition

Analysis & Specification

Requirements Engineering

- A systematic and disciplined approach to the *specification* (development) and *management* of requirements with the following goals:
  - Knowing the **relevant** requirements, achieving a **consensus** among the stakeholders about these requirements, **documenting** them according to the given standards, and managing them systematically,
  - Understanding and documenting the **stakeholders' desires** and needs,
  - Specifying and managing requirements to minimize the **risk** of delivering a system that does not meet the stakeholders' desires and needs.

Requirements Management

- The process of managing **existing requirements** and requirements **related artifacts**.
- Includes particularly **storing**, **changing** and **tracing** of requirements.

Common Requirements problems

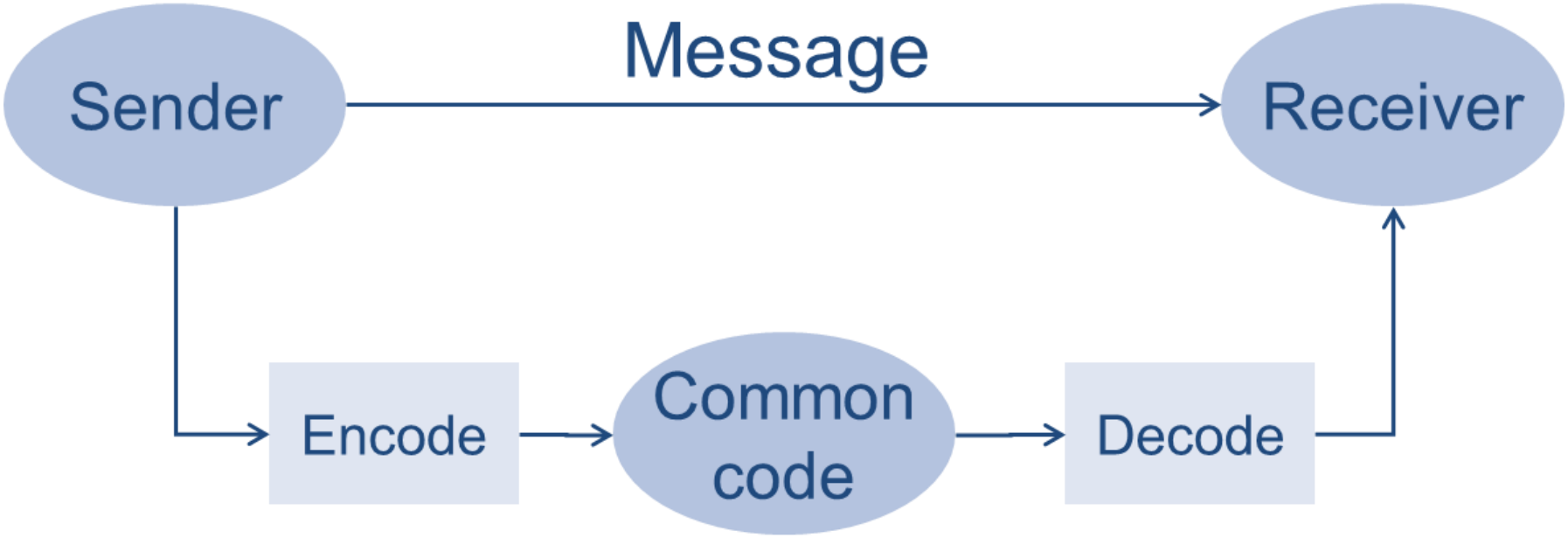
- Typical **symptoms** of inadequate RE:
  - Missing requirements
  - Unclear requirements

- Typical **reasons** for inadequate RE:
  - Wrong assumption stakeholders: ‘much is self-evident’
  - Communication problems
    - Experience
    - Knowledge
  - Project pressure from the client

There is not one solution

- **Influencing factors** related to:
  - **Business**
    - Type of system, applicable standards, importance of quality requirements (RAMS: Reliability, Availability, Maintainability, Safety)
  - **Project**
    - Outsourcing, size, number and availability of stakeholders, customer involvement
    - Development process
      - Waterfall, V-Model, Iterative, Incremental, Agile
  - **Human factors**
    - Personal profiles, politics, cultural differences

Basic Communication Model



Informal vs. Formal Communication

- Informal descriptions (unstructured, no rules apply)
  - Subjective and thus misunderstood
  - No universal language
- Formal descriptions (defined rules)
  - No misunderstandings, re-usable
  - The description is appropriate to the matter at hand

- Cf. Requirements documentation: Requirements types, attributes rules and models will be introduced

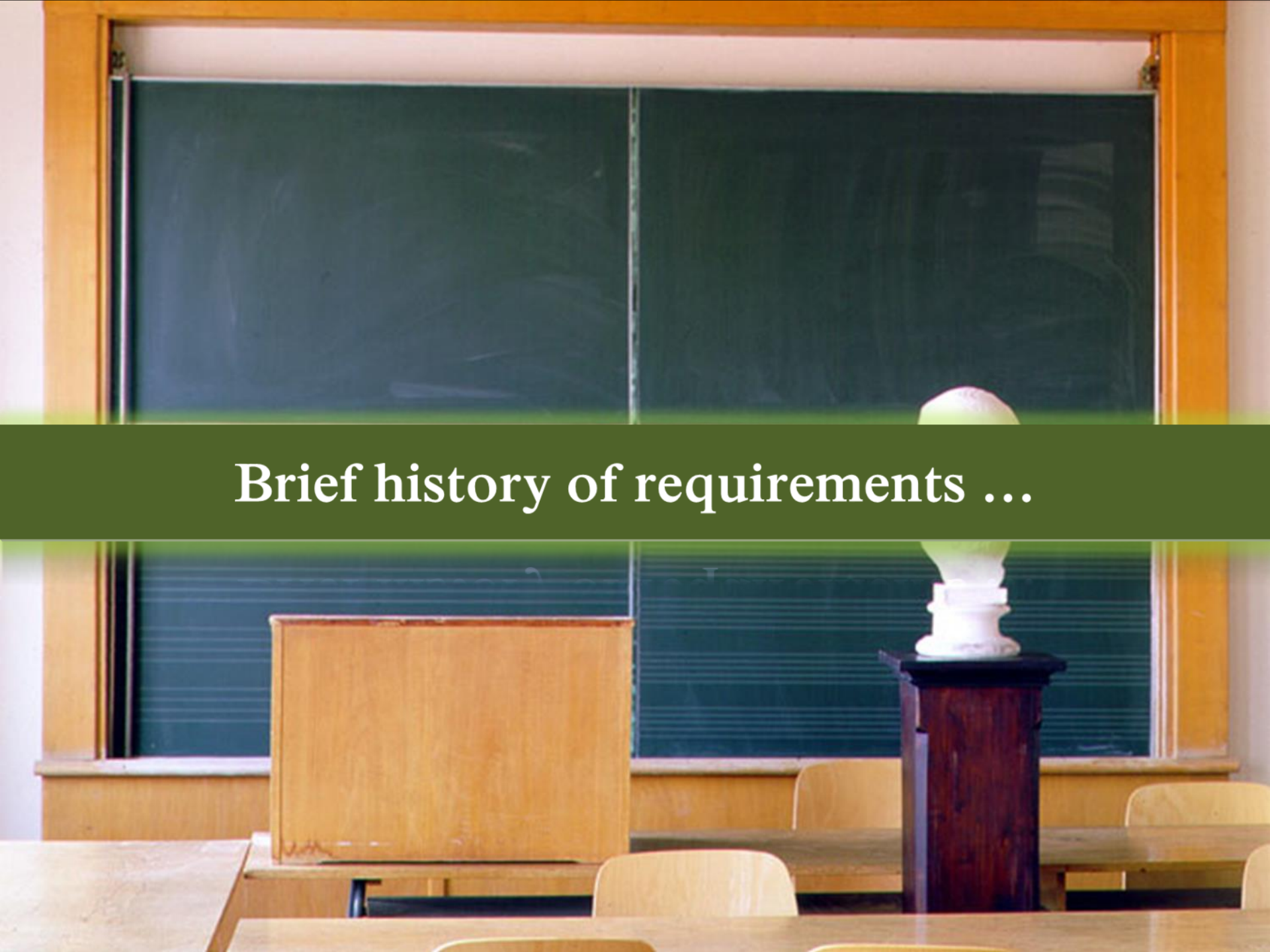
20 - 80 Rule in Communication

How a message is received is determined by:

- 20 % WHAT is said (words)
- 30 % on HOW it is said (tone used)
- 50 % by the EXPRESSION (face, attitude)

Explaining knowledge ⇔ Describing requirements

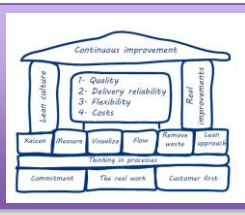
(Cf. behavior of business analyst, requirements engineer)



Brief history of requirements …

Brief history of requirements …

Enterprise-Scale Adaptive (Lean & Agile) Processes



Adaptive (Agile) Processes

OpenUP (Crystal) FDD Scrum Lean Kanban XP DSDM

Iterative Processes

RAD RUP Spiral

Predictive Processes

Waterfall model V-model

Brief history of requirements …

- Recap 01: a simple presentation of a project life cycle

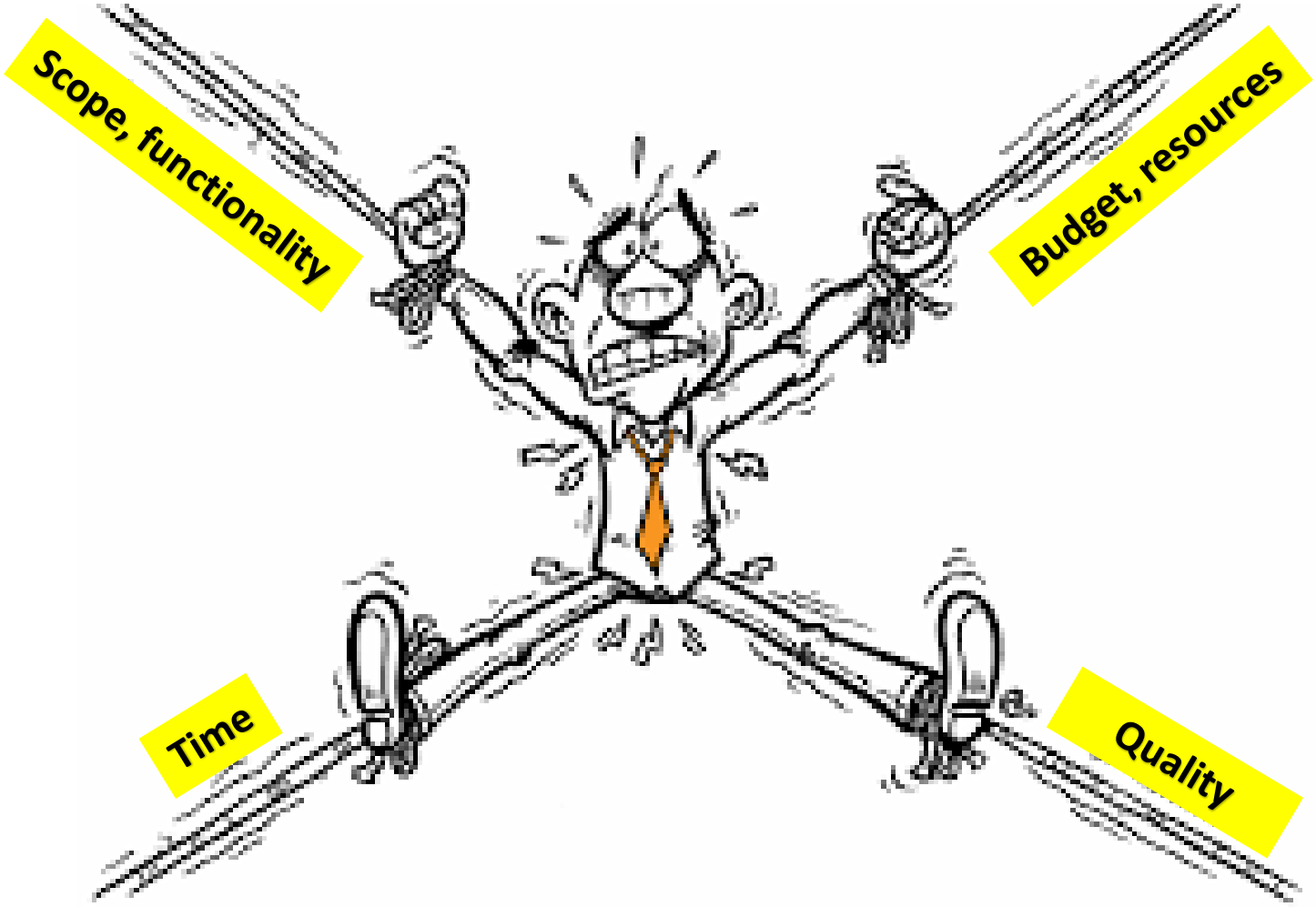
Plan, answers to W-questions

Project monitoring & control

Concept	Requirements	Design	Build & Test	Release
• Vision & Strategy • Define roles and responsibilities • Define Change Management process • Communication Plan • Concept level Schedule and Budget estimation	• "AS-IS" environment analysis • Biz rules and Tech Dependencies • Competitor analysis • Product Requirements (Process models, User cases, Activity diagrams) • Document "TO-BE" product	• Technical Feasibility • UI Design, Visual, Creative • Proof of Concept / Prototyping • Full architecture, Product & Systems • SEO • Re-estimate Schedule and Budget	• Web coding (Creative + code + SEO) • Unit testing • Integration testing • Code reviews • Test cases execution • Bug fixing cycles • Beta Readiness • UAT • Support Plan • Release checklist	• Web release • Live Test • Transition to Support & Maintenance • Lessons Learned

Brief history of requirements …

- Recap 02: the project leader's game



Brief history of requirements …

- Self study – Software Development Life Cycles
  - Waterfall, V-model
  - RAD
  - RUP
  - Spiral
  - OpenUP
  - FDD = Feature Driven Development
  - Scrum, Lean, Kanban
  - XP = Extreme programming
  - DSDM

- Preparation for the exam
  - Explain the model with a picture
  - What are the pro's and contra's?
  - Indicate in the picture where we find SW Analysis (RE)

Questions & Answers