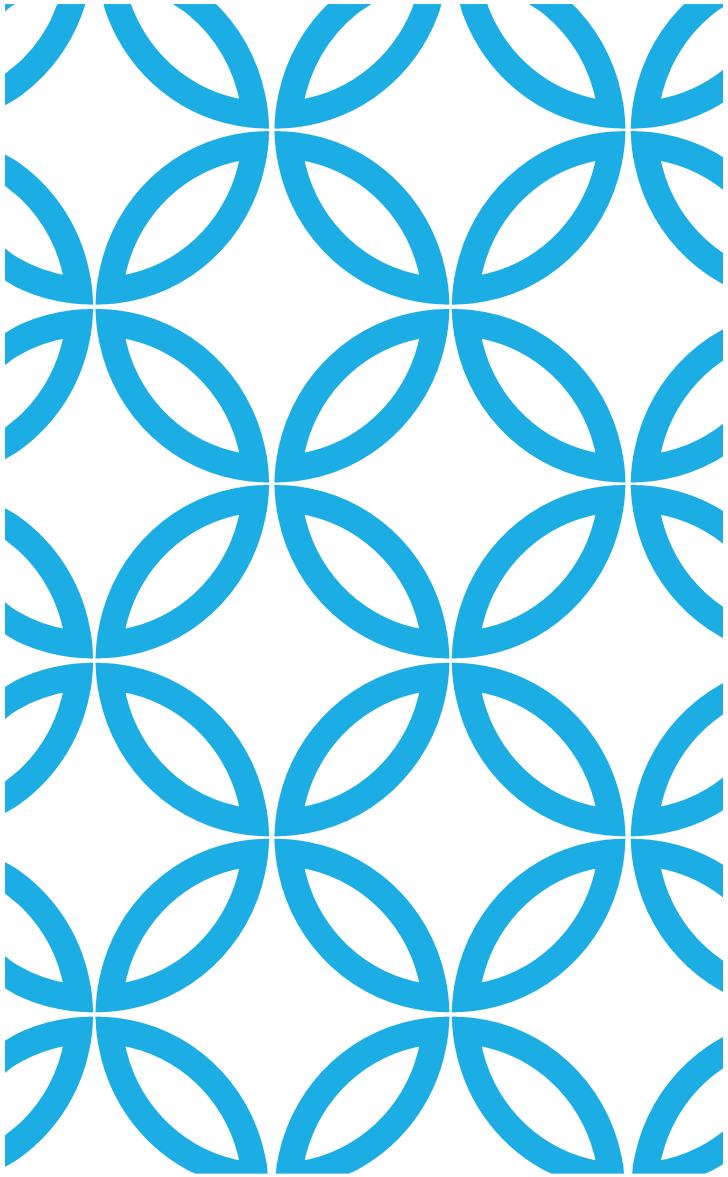

REQUIREMENTS ENGINEERING FOR DATA PROJECTS

by Margarita Neumueller (she/her)

ABOUT ME

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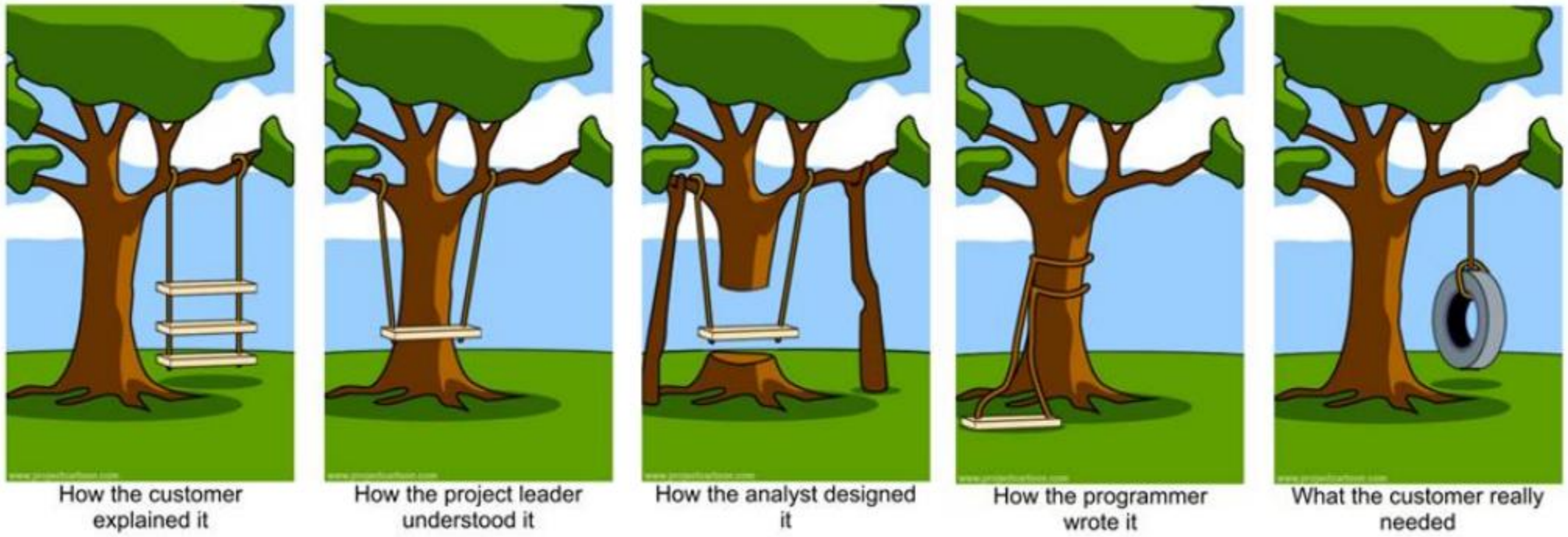
SUMMARY

1. Why Requirements Engineering (RE)?
2. What is RE?
3. Difference Agile vs Waterfall
4. What‘s part of RE?
5. What tools can I use?
6. Peculiarities of Data Projects
7. Q&A

WHY REQUIREMENTS ENGINEERING?



WHY RE?

Requirements are defined

Maximizing the chance to produce a product the customer needs

- Happy customers mean higher acceptance of systems

You always know what to do and what‘s important

WHAT IS RE?

„Requirements engineering is the process of conforming engineering designs to a set of core software requirements”

Main Tasks:

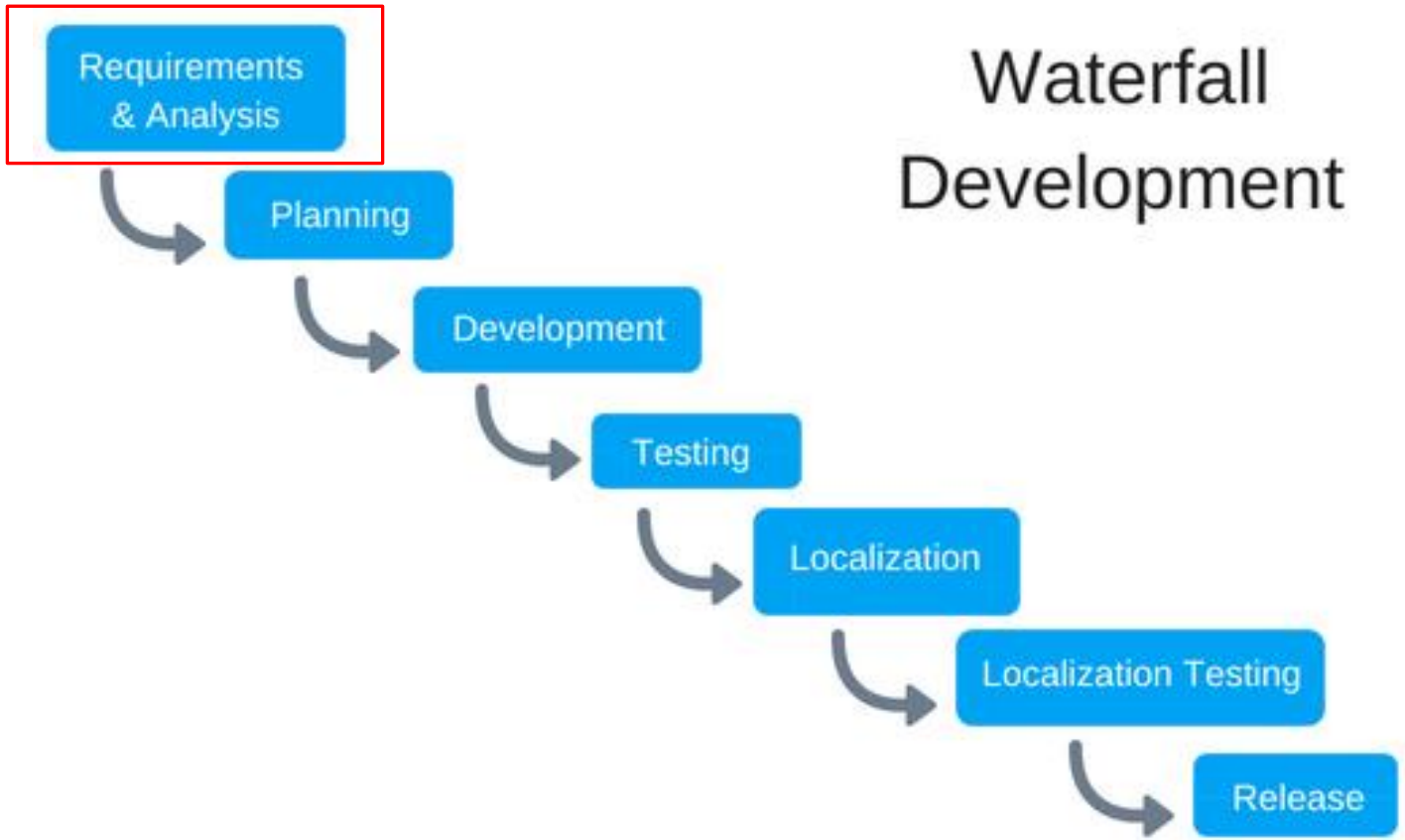
- Identifying and specifying requirements
- Documentation of requirements
- Checking and classification of requirements


NOT THE REQUIREMENTS WE DESERVE,
BUT THE REQUIREMENTS WE NEED

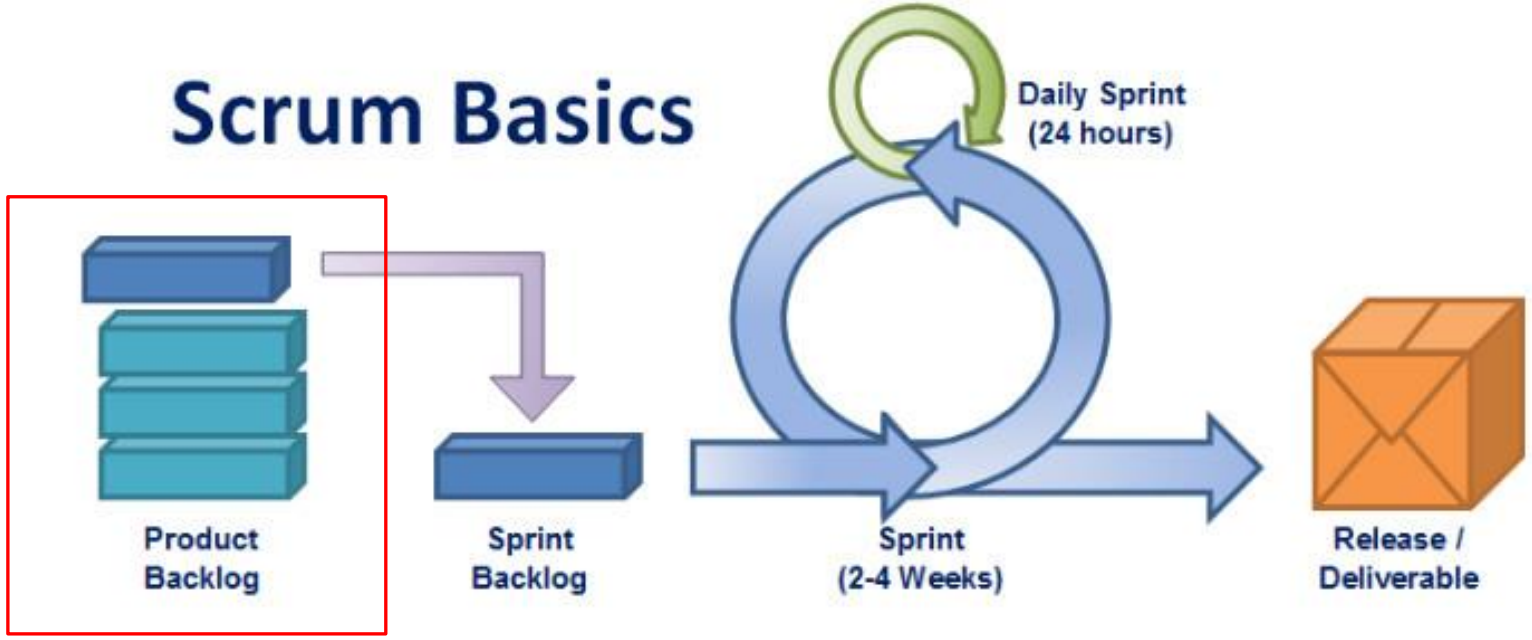
WHAT IS RE?

„Customers don‘t know what they need. They just know what they want. And this doesn’t have to be the same.“

REQUIREMENTS WATERFALL



REQUIREMENTS SCRUM



WHAT'S PART OF RE?

Stakeholder analysis

System analysis

System context analysis

Requirements analysis

Requirements validation

Requirements prioritization

Documentation

STAKEHOLDER ANALYSIS

Why?

- Overview of all relevant persons in the project
- Overview on who is responsible for which topics
- Minimizing risk of forgetting someone important
- Preparation of the mood of the users

SYSTEM ANALYSIS

Does a similar/old system exist?

How does this look like?

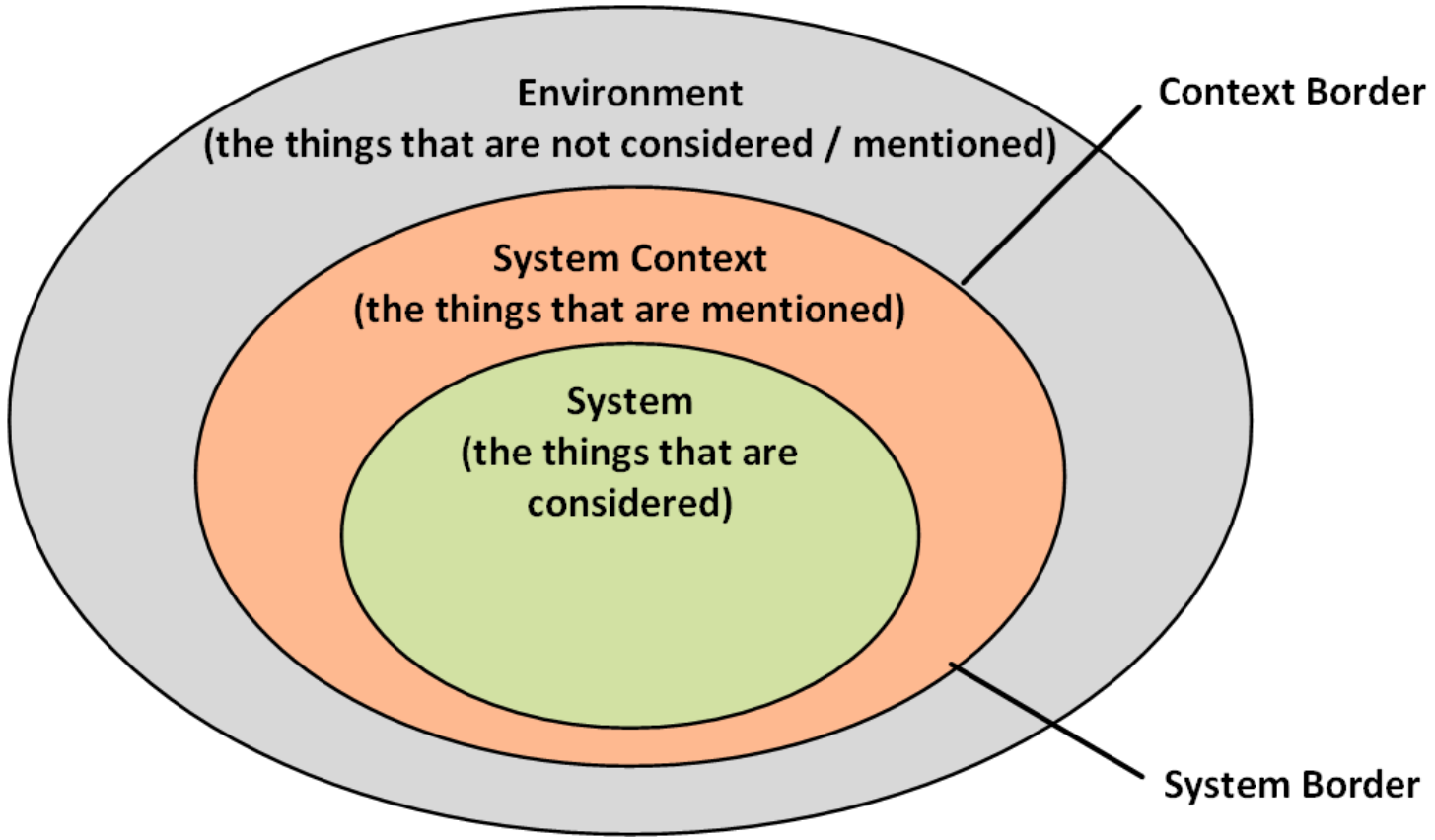
What‘s the difference in the vision to the old system?

What processes and experiences can I take with me from the old system?

Where are known problems, which should be thought of in the new system?

Are there systems working as a source?

SYSTEM CONTEXT ANALYSIS



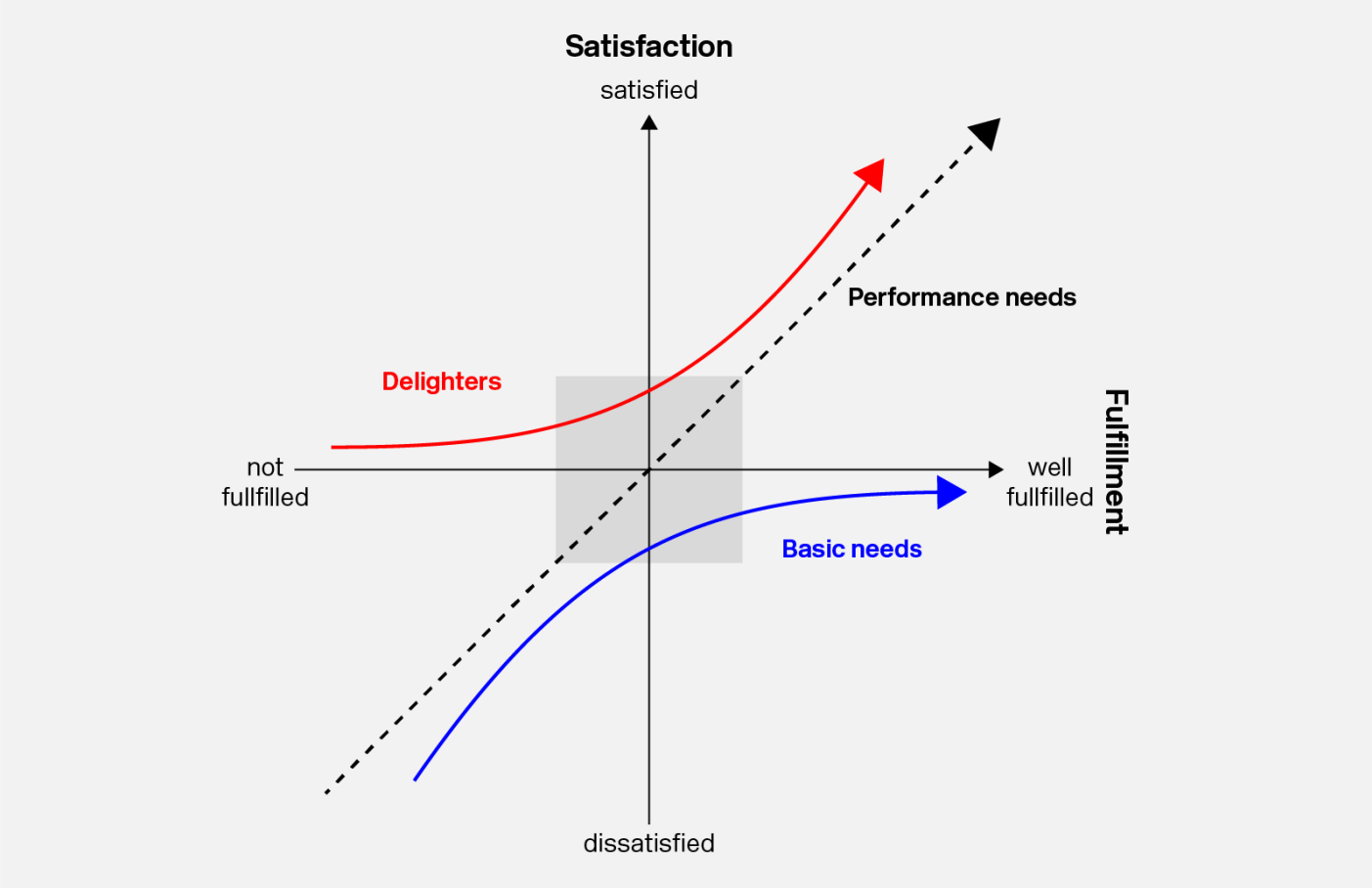
REQUIREMENTS ANALYSIS

Phrased as unmistakable as possible

Difference SCRUM / waterfall:

- SCRUM: phrased from a perspective
- Waterfall: phrased around the system

REQUIREMENTS CATEGORIZATION



Kano Model

DOCUMENTATION

Separate requirements

- Individual requirements
- User Story

Summarized requirements

- Use Case
- Graphical model
- Interface description

Official documents

- Requirements specifications
- Product and Sprint Backlog

Others

- Glossary
- Prototypes
- Scribbles

WHAT TOOLS CAN I USE?

Documentation

- Sentence template
- Style template
- Diagrams

Survey

- Interviews & questionnaires
- Moderation techniques
- Observation techniques

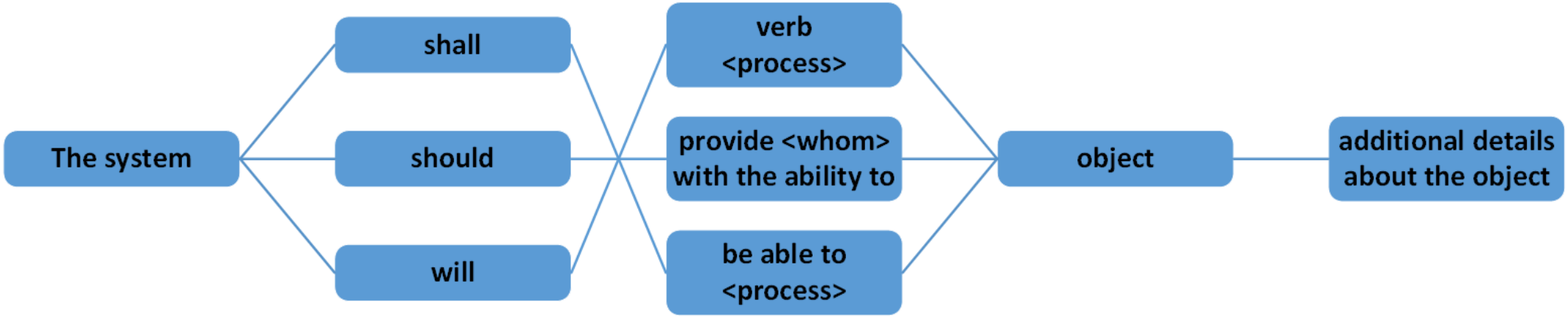
Prioritization

- MoSCoW
- One or two criteria classification
- Top Ranking
- 100-Dollar test

Validation

- Prototype
- Minimum Viable Product
- Inspection
- Walkthrough

SENTENCE TEMPLATE



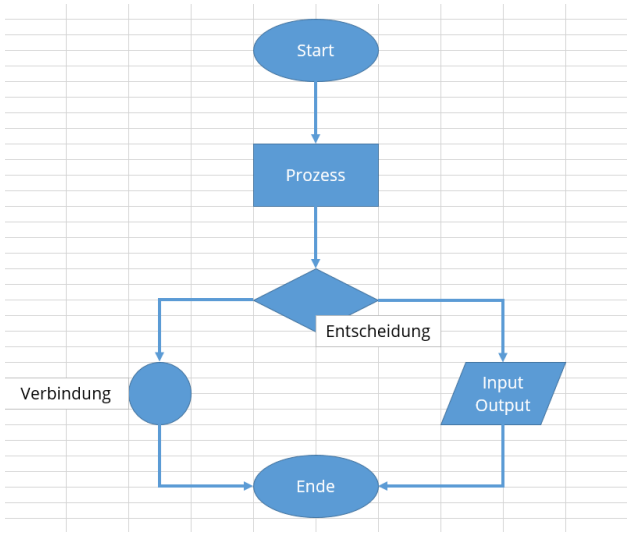
The system should provide me with the ability to identify the top products the company is selling.

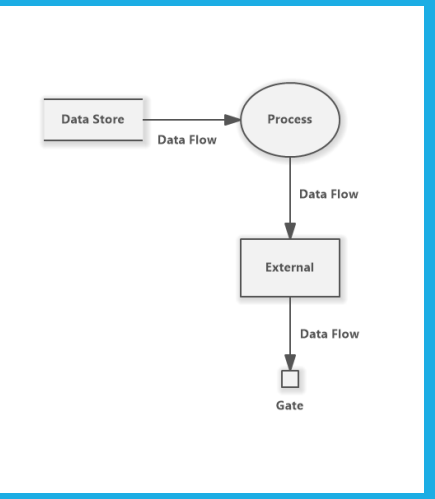
STYLE TEMPLATE

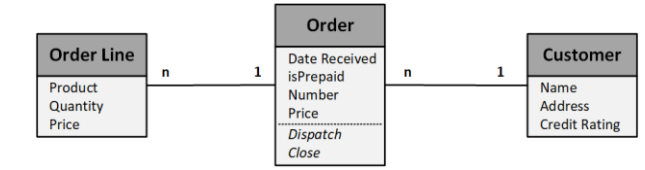
Make your life easier

DIAGRAMS

„A picture is worth a thousand words.“







INTERVIEWS & QUESTIONNAIRES

How to structure interview questions?

- „SPSS“ (Sammeln, Prüfen, Sortieren, Subsumieren)
- „CCSS“ (Collect, check, sort, subsume)

MODERATION TECHNIQUES

Brainstorming

Mind-Mapping

Change of perspective

Single choice questions

More point questions

Expectation question

…

OBSERVATION TECHNIQUES

Diary/Journal

Field survey

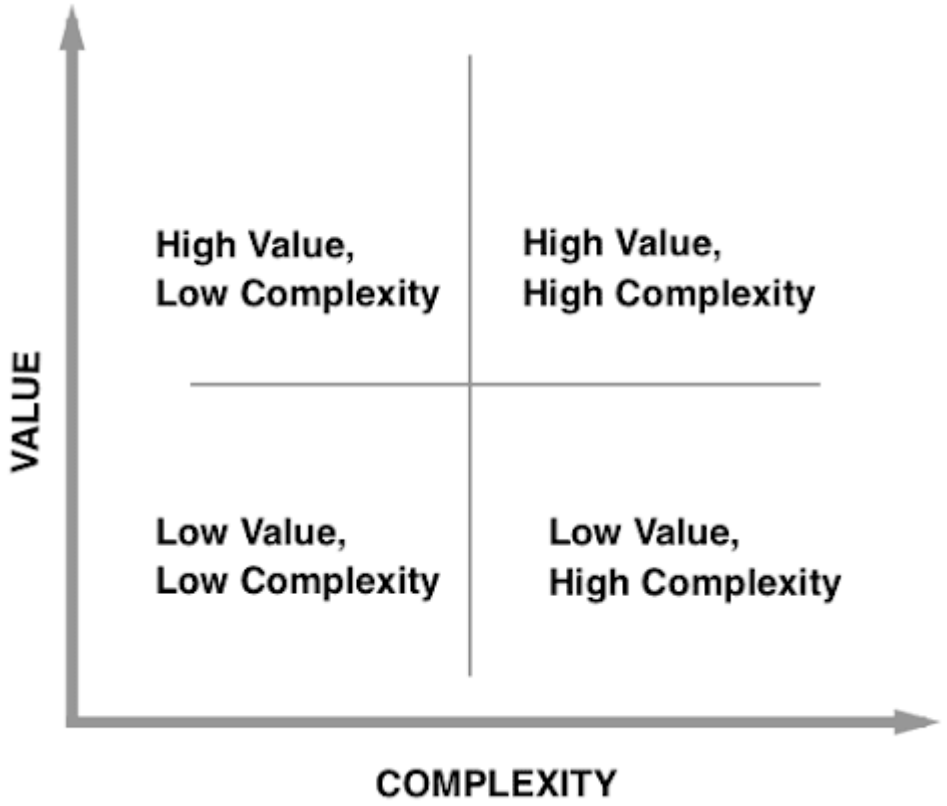
Apprenticing

PRIORITIZATION

MoSCoW Method

PRIORITIZATION

Prioritization Matrix



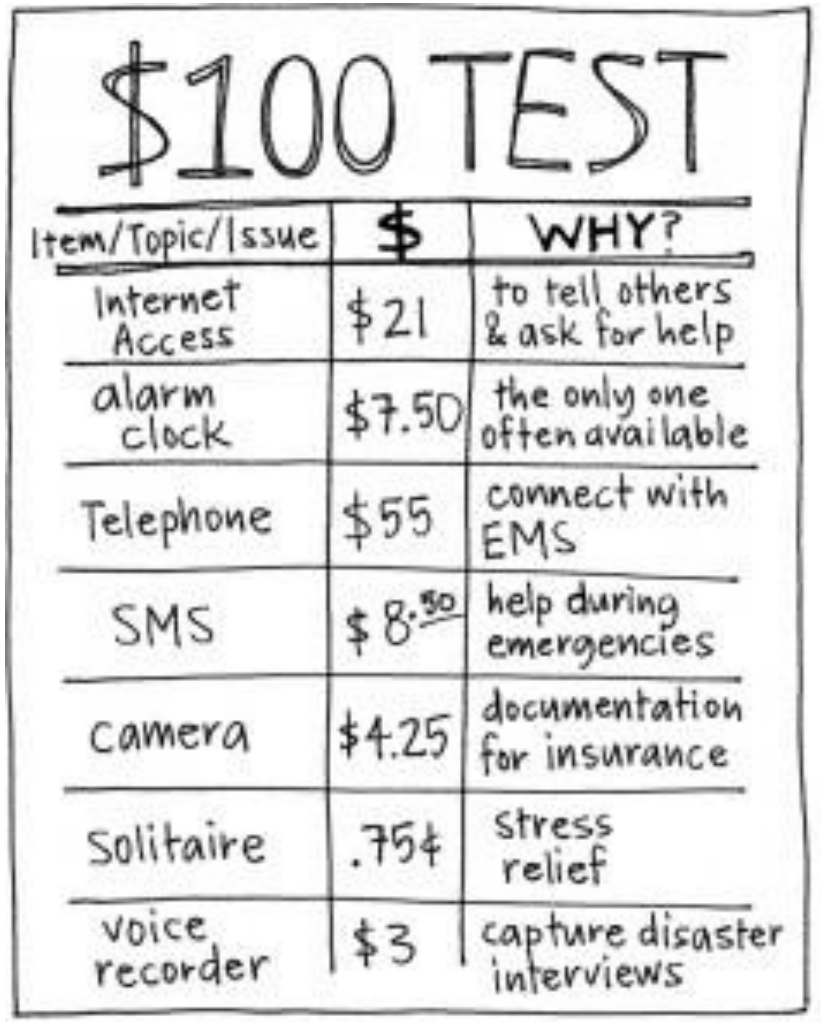
PRIORITIZATION: TOP RANKING

1. Requirement A
2. Requirement B
3. Requirement C
4. Requirement D

…

PRIORITIZATION

100 Dollar Test



$100 TEST

Item/Topic/Issue	$	WHY?
Internet Access	$21	to tell others & ask for help
alarm clock	$7.50	the only one often available
Telephone	$55	connect with EMS
SMS	$8.50	help during emergencies
camera	$4.25	documentation for insurance
Solitaire	.75¢	stress relief
voice recorder	$3	capture disaster interviews

VALIDATION

You‘re job is done, when the requirements are

- Complete (single and mass of requirements)
- Trackable
- Correct
- Consistent
- Testable
- Necessary

HOW TO VALIDATE?

Prototype

Minimum Viable Product

Walkthrough

PECULIARITIES OF DATA PROJECTS

„Don‘t gather requirements – dig for them.“

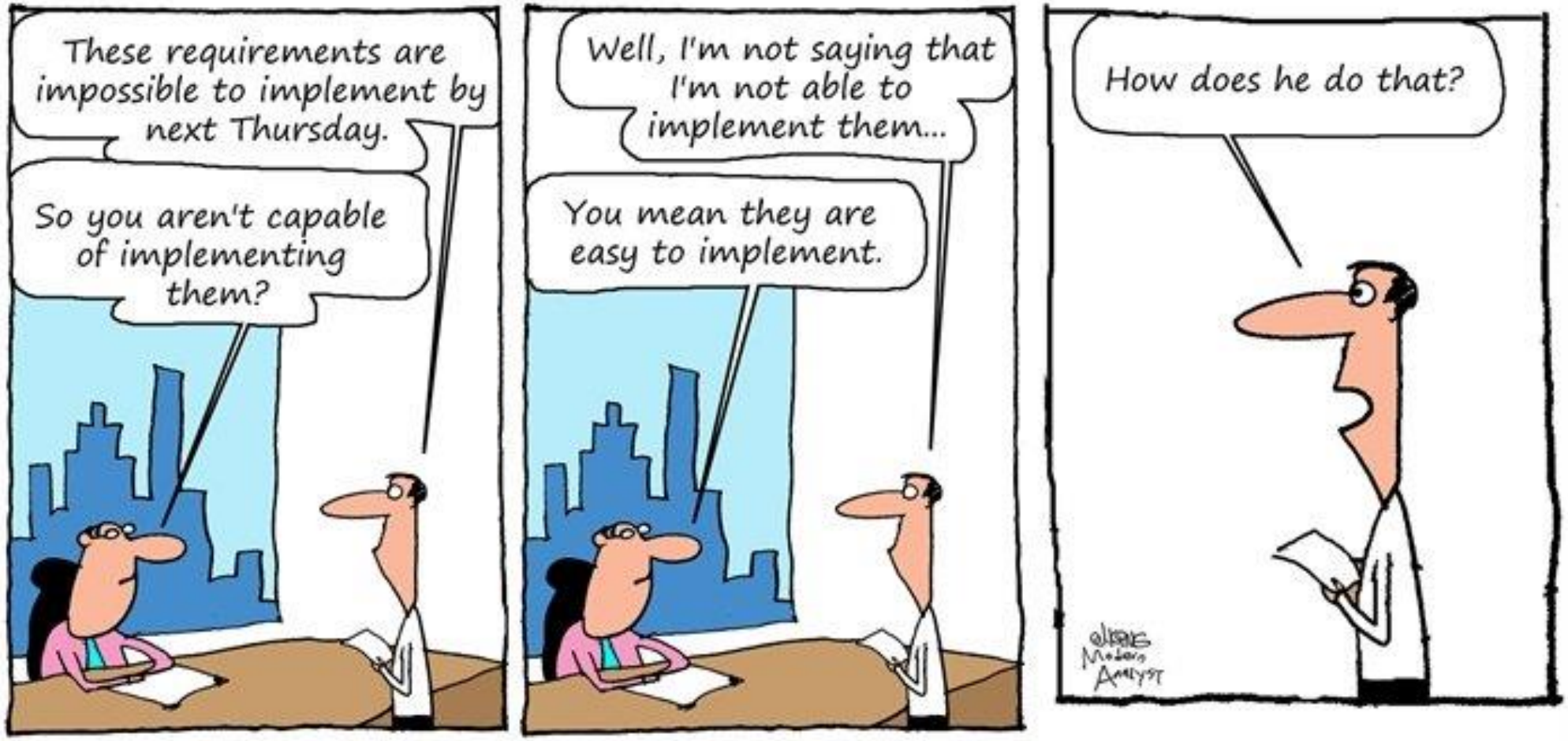
PECULIARITIES OF DATA PROJECTS

Data is more abstract for most customer

Requirements don‘t lie on the surface

It‘s not always clear what‘s possible

AND NOW IT‘S THE ENGINEERS TURN



SOMETHING INTERESTING TO READ

https://gamestorming.com/

https://towardsdatascience.com/good-data-scientists-dont-gather-project-requirements-they-dig-for-them-c1585ac2ae2d

https://datadumpchat.com/gathering-requirements-for-bi-data-and-analytics-projects/