University of Applied Sciences and Arts Northwestern Switzerland
School of Engineering
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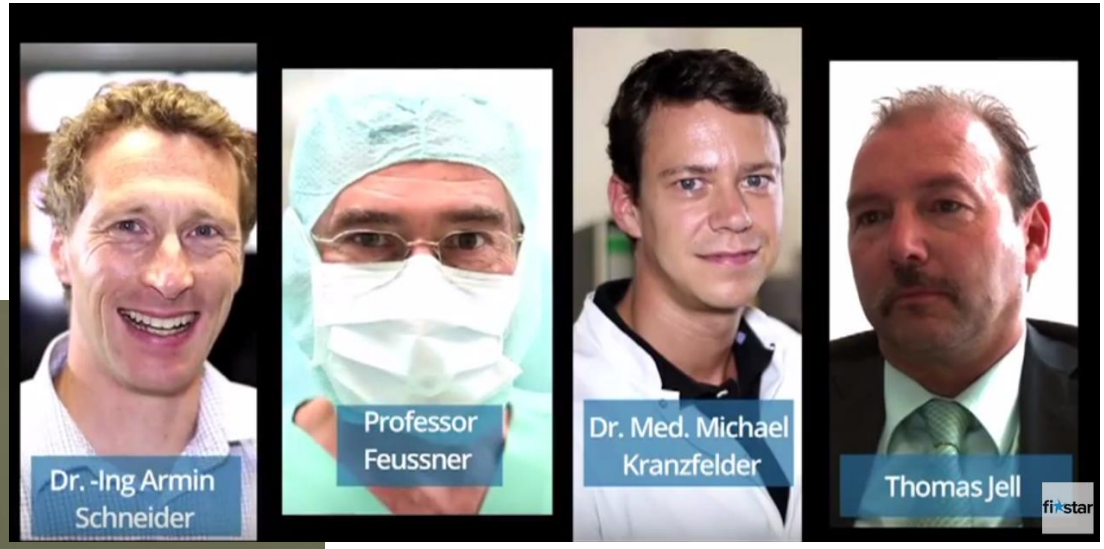
Development of a Product Vision
Stakeholders, Creativity, and Vision



Example: The Vision of the Operating Theatre Monitor

Problem Statement

The problem of	forgetting consumables like towels in the operated patient body
affects	patients, respectively the clinic
the impact of which is	severe complications, respectively litigations and high insurance costs
a successful solution would be	to reduce the likelihood of consumable loss

Position Statement

For	surgeons and nurses
Who	operate patients
The (solution name)	Operating Theatre Monitor (OTM) is a FI-STAR cloud solution
That	tracks the use of consumables in an operation, enables its analysis, and automates reporting
Unlike	the current manual work
Our solution	increases the efficiency of the operation work, increases patient safety, and delivers decision-support for consumable planning and process improvement.

1st Definition of Your Software: the Vision

Problem statement

the problem of	(what is the problem of the customers?)
affects	(who are the customers?)
the impact of which is	(why is the problem important for a customer?)
a successful solution	(when would the problem be considered to be solved?)

Position statement

for	(who are the users?)
who	(what are the users doing?)
the	(what is the name and type of your software?)
that	(what are the key features of your software?)
unlike	(what are the alternatives?)
our solution	(what are the unique advantages of your software?)

Open Unified Process Vision Document:
http://epf.eclipse.org/wikis/openup/core.tech.common.extend_supp/guidances/templates/resources/vision_tpl.dot

Good Vision and its Impact

The development and use of a clear, supported, and stable vision correlates with:

- Successful product
- Fast development project

	Vision clarity[1]	Vision support[2]	Vision stability[3]	Innovation type
Successful				
Apple IIe	✚	✚	✚	Incremental
Apple Mac+	✚	✚	✚	Incremental
HP Vectra II	✚	✚	✚	Incremental
IBM PC	✚	✚	✚	Market
HP 85-Controller	✚	✓	–	Technical
Unsuccessful				
HP 125	–	–	✓	Incremental
HP Vectra I	–	–	✓	Incremental
Apple III	–	–	–	Radical
Apple LISA	–	–	–	Radical
IBM DataMaster	–	–	–	Radical
IBM PCjr.	✚	–	–	Radical
HP 150	✓	–	–	Radical
HP 85-PC	–	✓	✓	Radical
Questionable				
Apple Mac	✚✚	✚	✚	Incremental

Measures:
[1] ✚ = Very Clear; ✓ = Somewhat Clear; – = Unclear
[2] ✚ = Widespread Agreement on Team and with Top Management; ✓ = Some Agreement on Team and with Top Management; – = Disagreement within Team or with Top management
[3] ✚ = Very Stable; ✓ = Somewhat Stable; – = Unstable

Lynn, Akgün (2001): „Project Visioning: Its Components and Impact on New Product Success“, JPIM.

Learning Objectives

Know

- What the common stakeholders and viewpoints of a software system are
- System and context boundaries and grey zones
- Common creativity techniques for finding ideas

Be able to do the following activities

- Document a vision for a software using the RUP Vision template

Stakeholders

According to Pohl and Rupp (2011):

> A stakeholder of a system is a person or organization that has a direct or indirect influence on the requirements of the system.

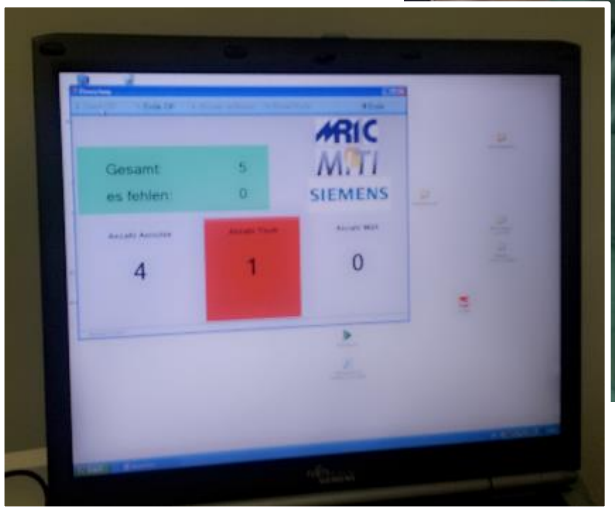
Extension to viewpoints:

> A viewpoint is a stakeholder, system, (business) process, standard (or other binding document), important event, or other entity that has a direct or indirect influence on the requirements of the system. Each non-human viewpoint is owned by a stakeholder.

3 aspects characterize a viewpoint:

- Type of influence: direct or indirect
- Strength of influence (=power): impact of saying “no” to our system
- Direction and strength of interest (=attitude): can we gain attention for our system

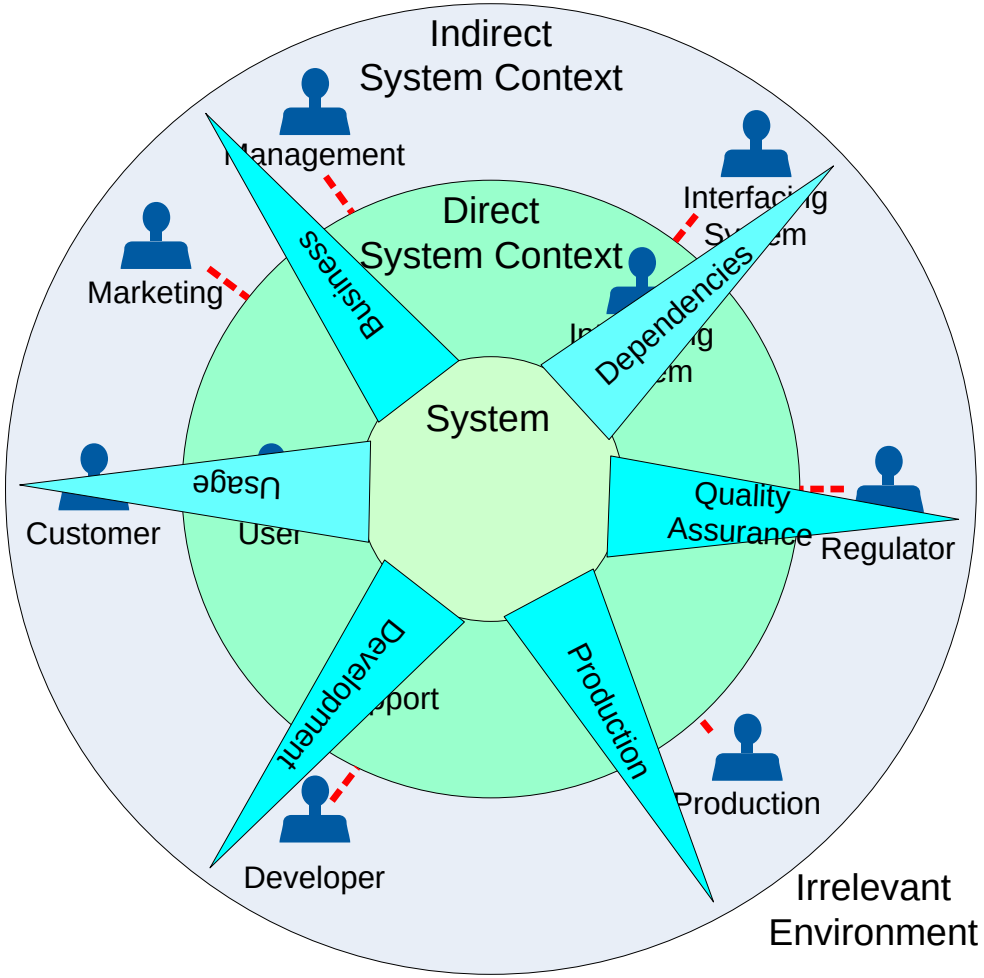
Example: Operating Theatre Monitor



https://youtu.be/CBsOiabbNIc

Viewpoint Discovery: Onion Model

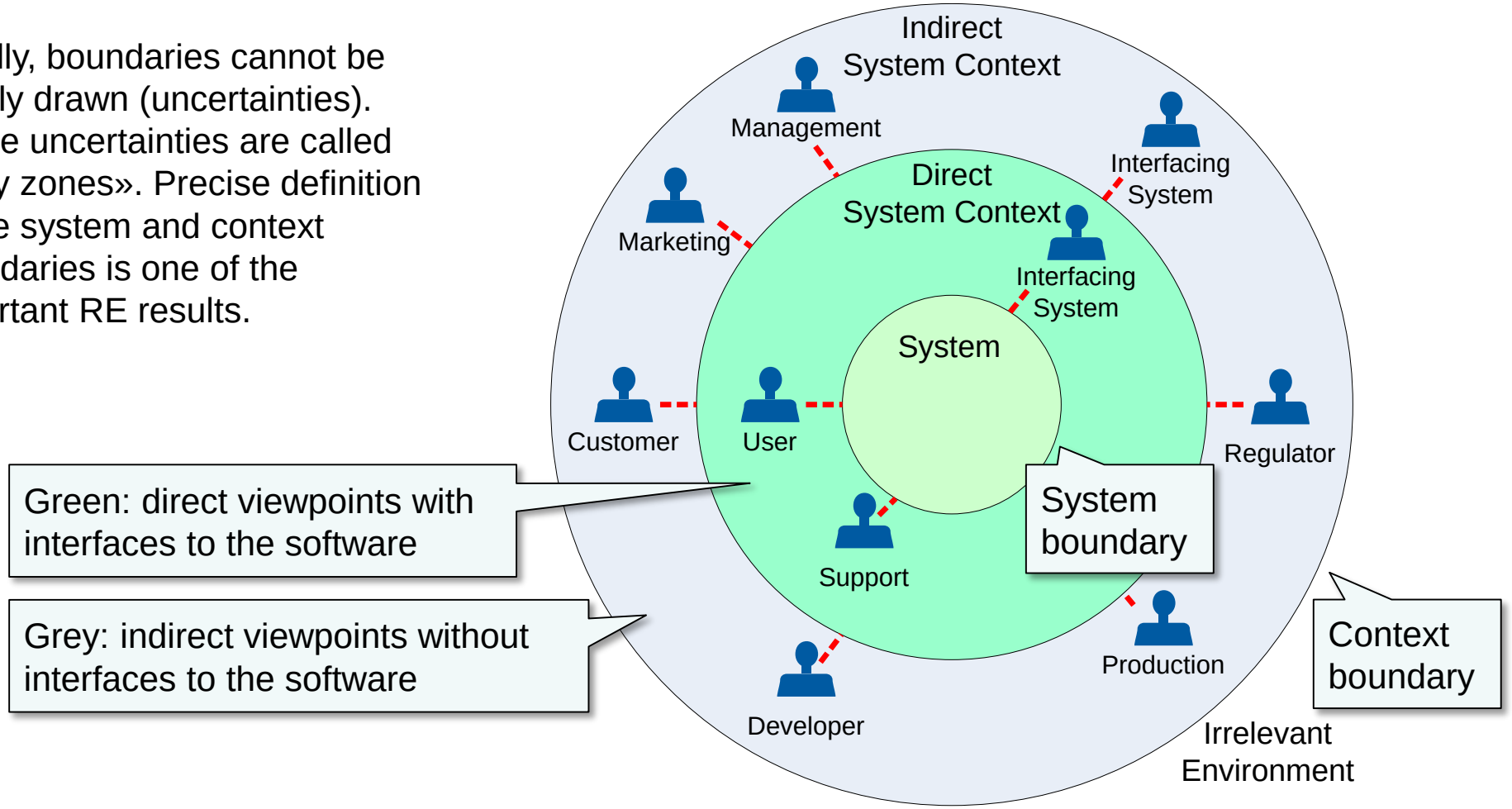
Goal: know and define who the stakeholders of your system are.



S. Robertson, I. Alexander (2004): Understanding Project Sociology by Modeling Stakeholders, IEEE Software.

System and Context Boundaries

Initially, boundaries cannot be clearly drawn (uncertainties). These uncertainties are called «grey zones». Precise definition of the system and context boundaries is one of the important RE results.



S. Robertson, I. Alexander (2004): Understanding Project Sociology by Modeling Stakeholders, IEEE Software.

What to Document about the Viewpoints

Role

- Type of viewpoint

Contact Information

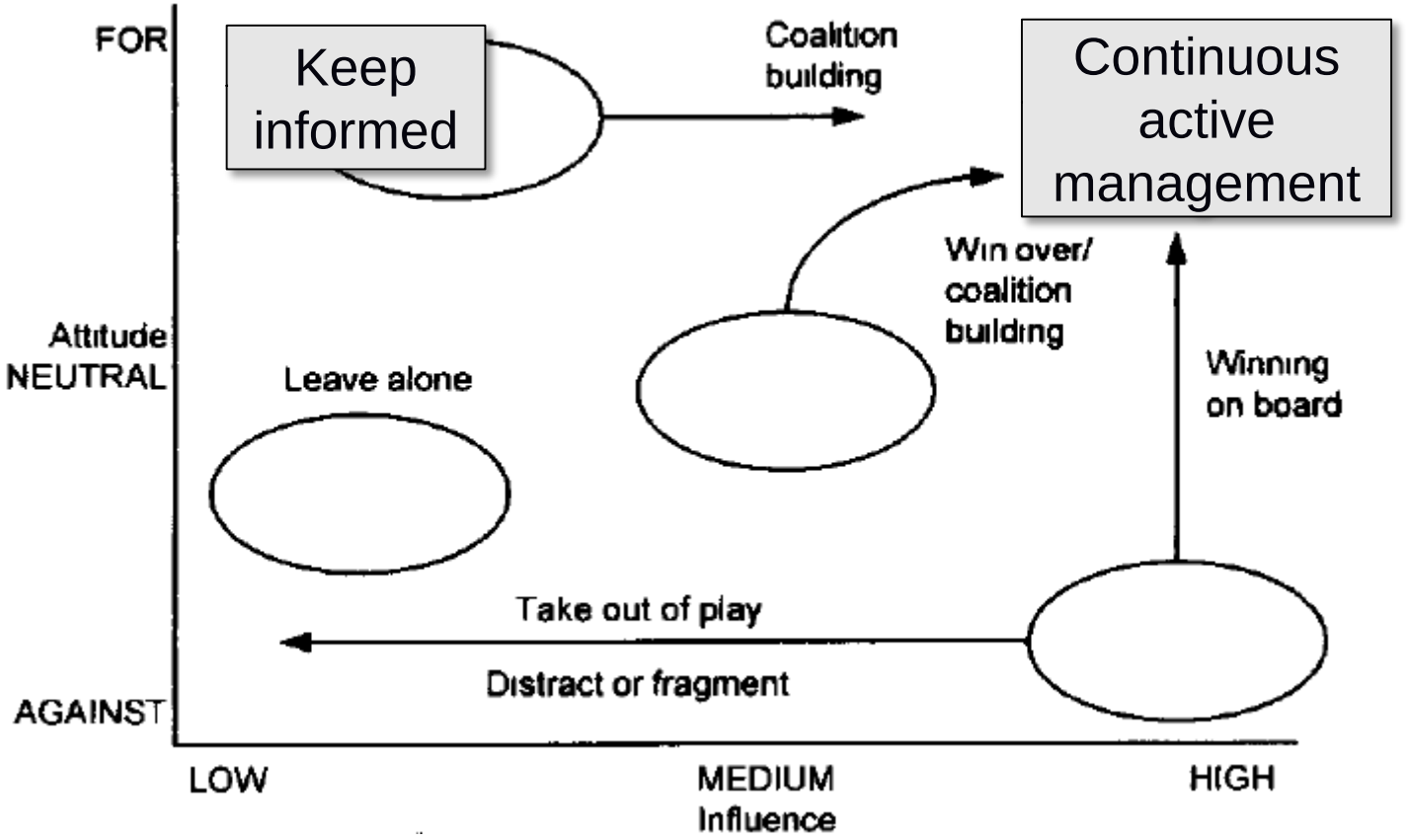
- Name
- E-mail, phone number, etc.
- Availability during the project and at the location of the team

Characterization of the viewpoint or of the stakeholder owning the viewpoint

- Area and extent of expertise
- Interests regarding the project
- Expected functional and non-functional requirements

Stakeholder Analysis

Goal: prioritize requirements engineering effort by evaluating stakeholder attitude and power.



Grundy (1998): "Strategy Implementation and Project Management", Intl Journal of Project Management.

Creativity Techniques

Unstructured
- – Brainstorming

Supporting Techniques: Social
- – 6-3-5 Method

Supporting Techniques: Inspiration
- – Analogy Technique

Supporting Techniques: Perspectives
- – Brainstorming Paradox
- – Change of Perspective

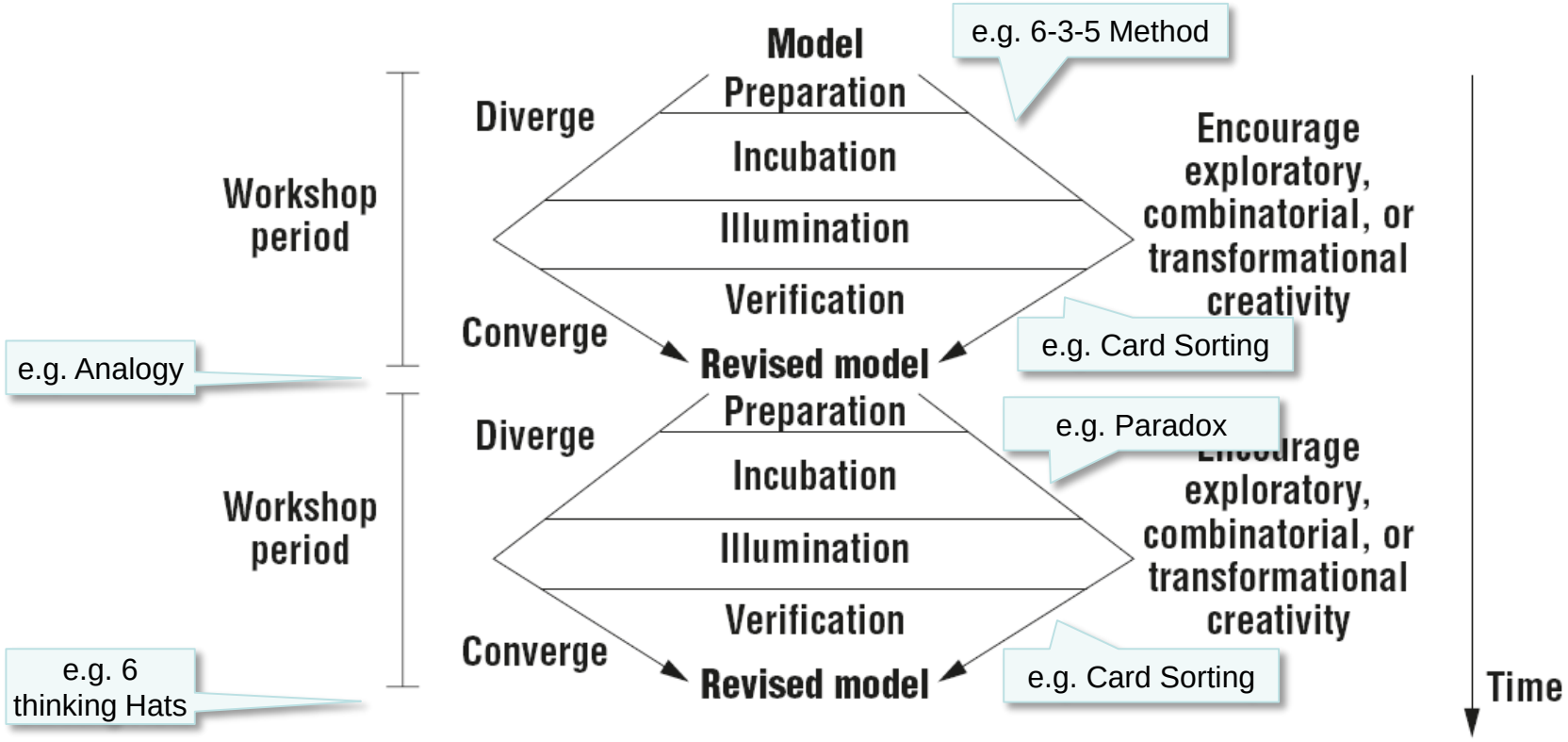
Supporting Techniques: Consolidating
- – Card Sorting
- – Change of Perspective

Enhance the idea creation and consolidation tasks

Pohl, Rupp (2011): Requirements Engineering Fundamentals. Chapter 3.3.3.

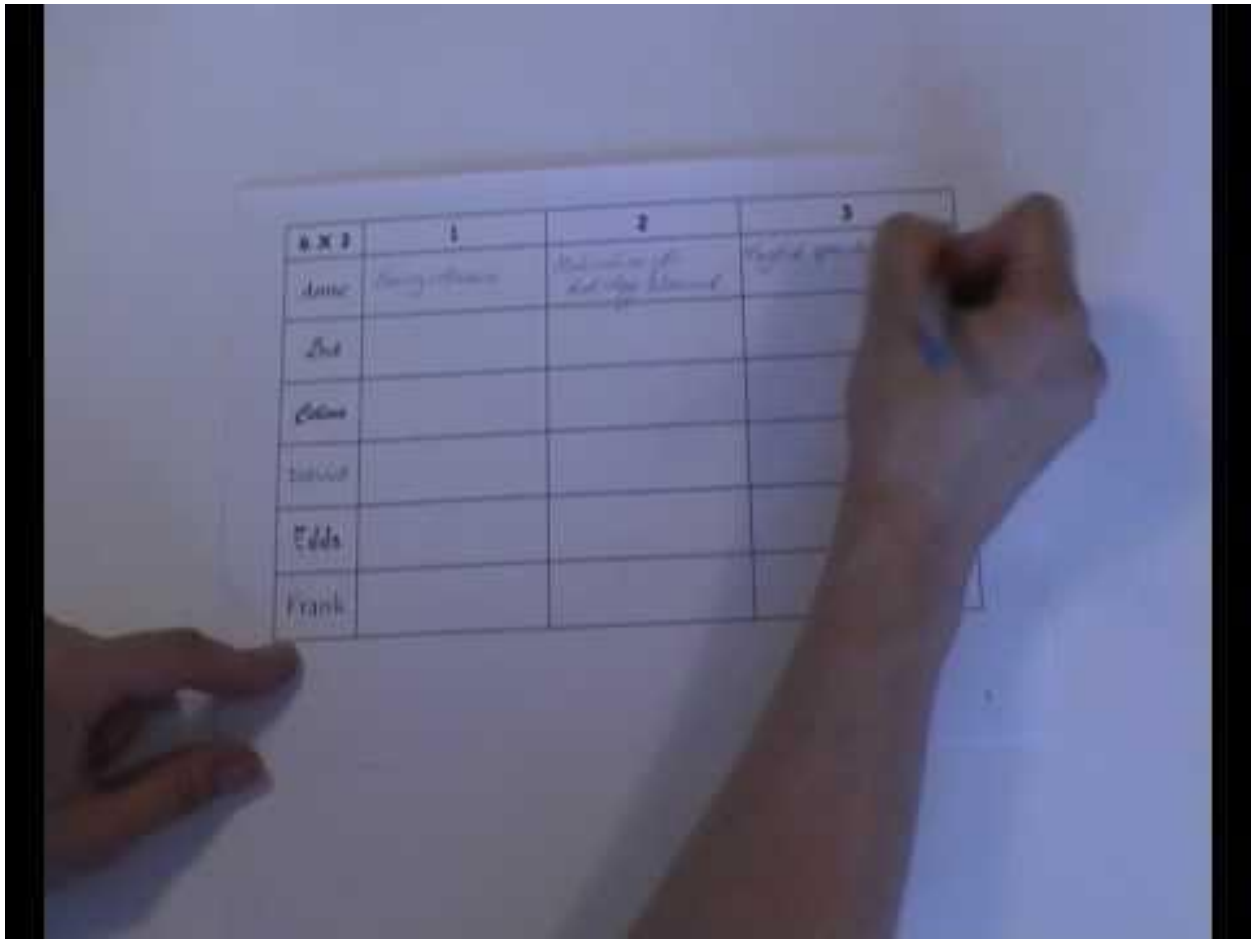
Creativity Techniques

Answer the question: how shall our system solve the problems of our stakeholders?



Maiden, Gizikis, Robertson (2004): Provoking Creativity: Imagine What Your Requirements Could Be Like. IEEE Software.

6-3-5 Method



https://www.youtube.com/watch?v=bVTVdfqoMeI

Card Sorting

http://www.lundquist.it/introducingdigital-trends-in-corporate-communications-part-1-dealing-with-contentoverload?cat_slug=blog

6 Thinking Hats

The Six Hats:

(6)

The White Hat: calls for information known or needed. "The facts, just the facts."

(3)

The Yellow Hat: symbolizes brightness and optimism. You can explore the positives and probe for value and benefit

(5)

The Black Hat: signifies caution and critical thinking - do not overuse! Why something may not work

(4)

The Green Hat: focuses on creativity, possibilities, alternatives and new ideas. It is an opportunity to express new concepts and new perceptions - lateral thinking could be used here

(1)

The Blue Hat: is used to manage the thinking process. It ensures that the 'Six Thinking Hats' guidelines are observed.

(2)

The Red Hat: signifies feelings, hunches and intuition - the place where emotions are placed without explanation

http://amyrozelmartin.com/2012/11/6-thinking-hats-by-edward-de-bono/

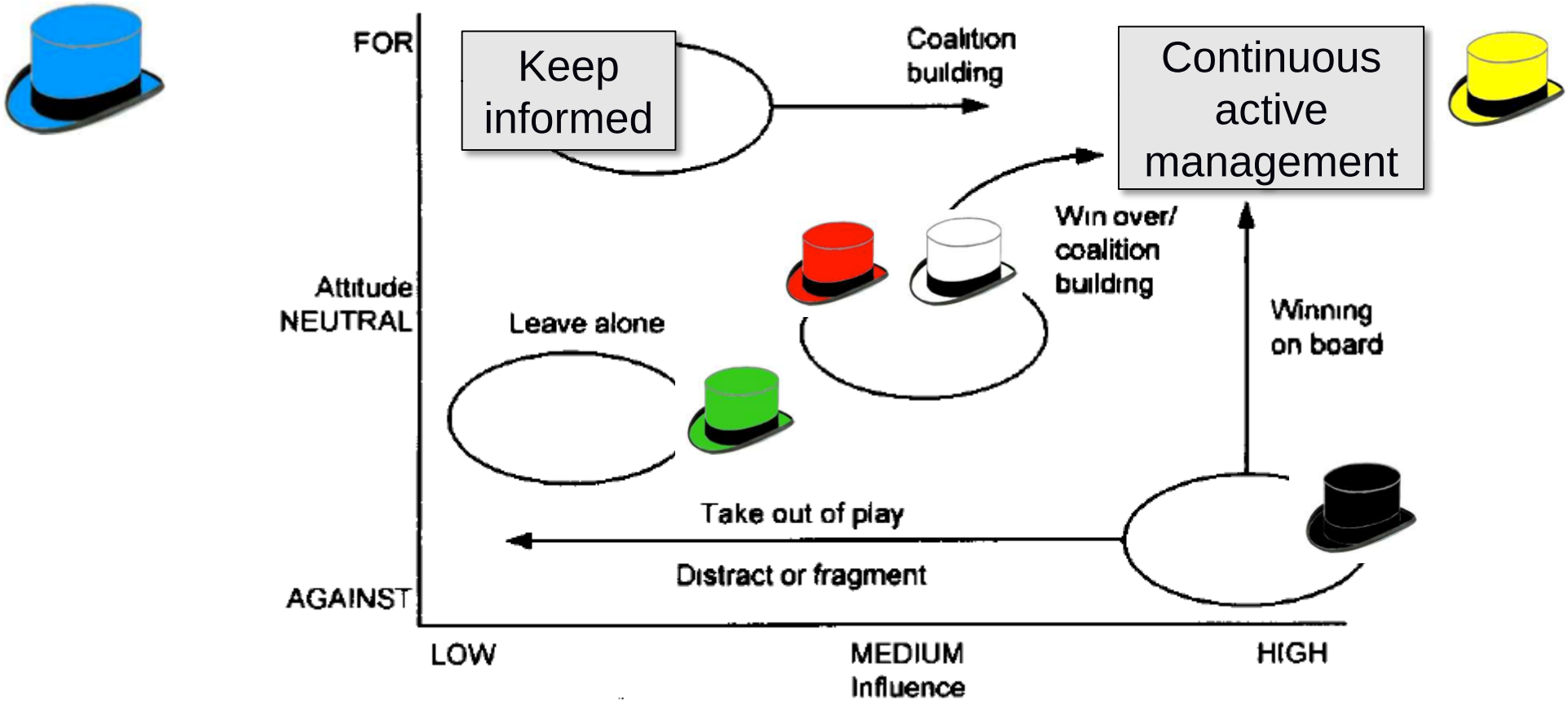
Exercise: Idea Workshop

Goal: identify the “killer feature” and other ideas for changing the old System X with your own application.

Steps:

- Use the 6-3-5 method to generate a large collection of interesting ideas.
- Group the ideas with card sorting (1)
- Optional:
  - Use the analogy technique to inspire you with videos of comparable systems
  - Extend your original ideas (1) with brainstorming based on the videos and by using the brainstorming paradox
- Evaluate the identified groups of ideas, adapt them (try to re-combine ideas), and select the best ideas

The 6 Hats in the Context of Stakeholder Analysis



Grundy (1998): "Strategy Implementation and Project Management", Intl Journal of Project Management.