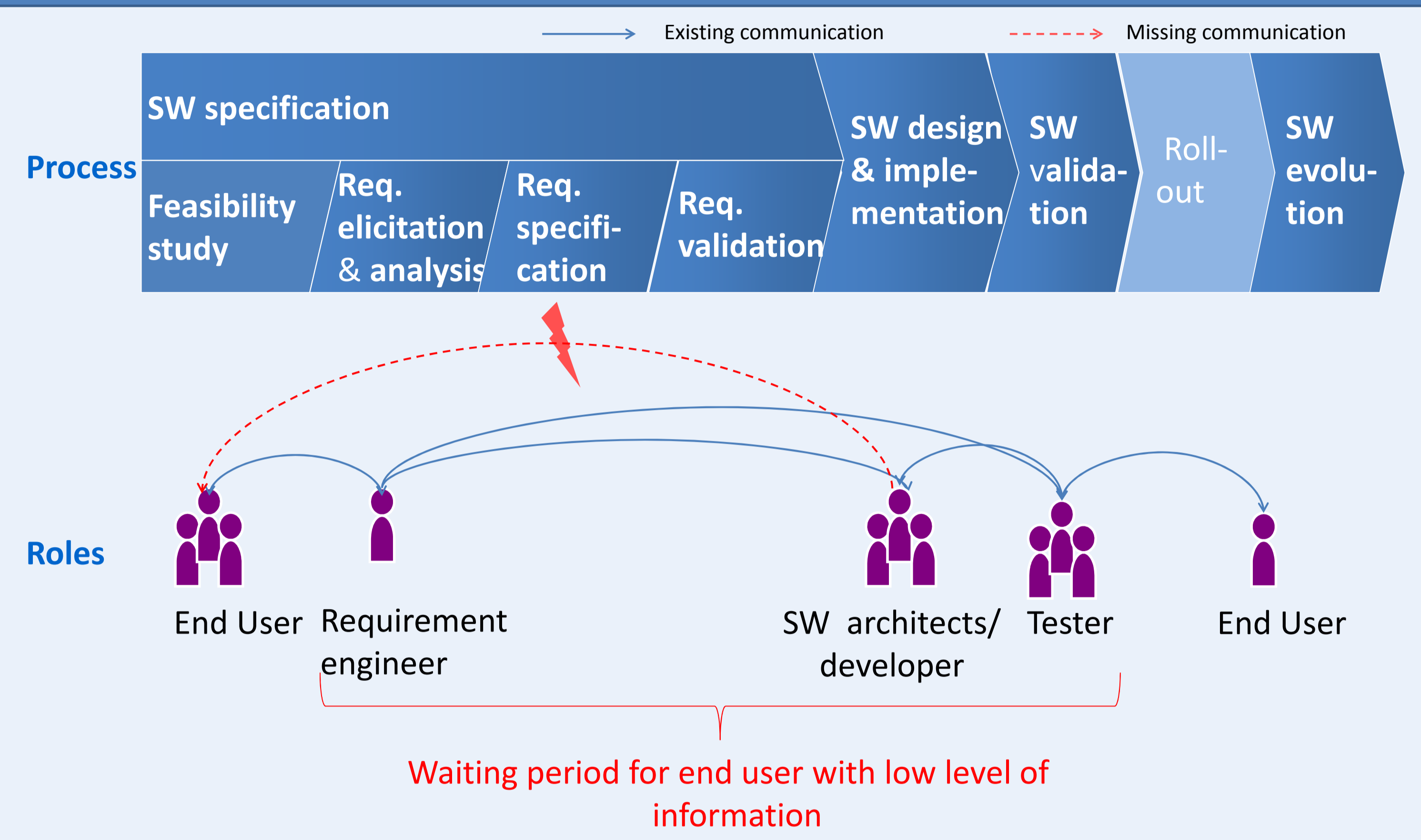


Abstract. User participation and involvement (UPI) in software development are considered to be essential for a successful software system. In large-scale IT projects using traditional development methods end users are mostly involved in the beginning and at the end of development. But there are also user-relevant important decisions in the phases in between. Thus, we argue that it is important to study how large-scale IT projects can enhance user-developer communication in order to increase system success. We investigated what evidence exists on effects of user participation and involvement on system success and explored which methods are available in literature and in practice through an interview series. In addition, the thesis will propose a method that supports large-scale IT projects in enhancing user-developer communication. Finally the feasibility and benefits of the method will be evaluated in a case study.

- literature-based
- practice-based
- own work

Motivation

Characteristics of the traditional software development process



- **Close missing communication** between developers and end user
 - Focus on step when **user requirements are refined into system requirements**
 - **Ensures better integration** of end users as information/ rationale is given to users during implementation
- higher system quality, acceptance rate and usage of the resulting system

Research questions:

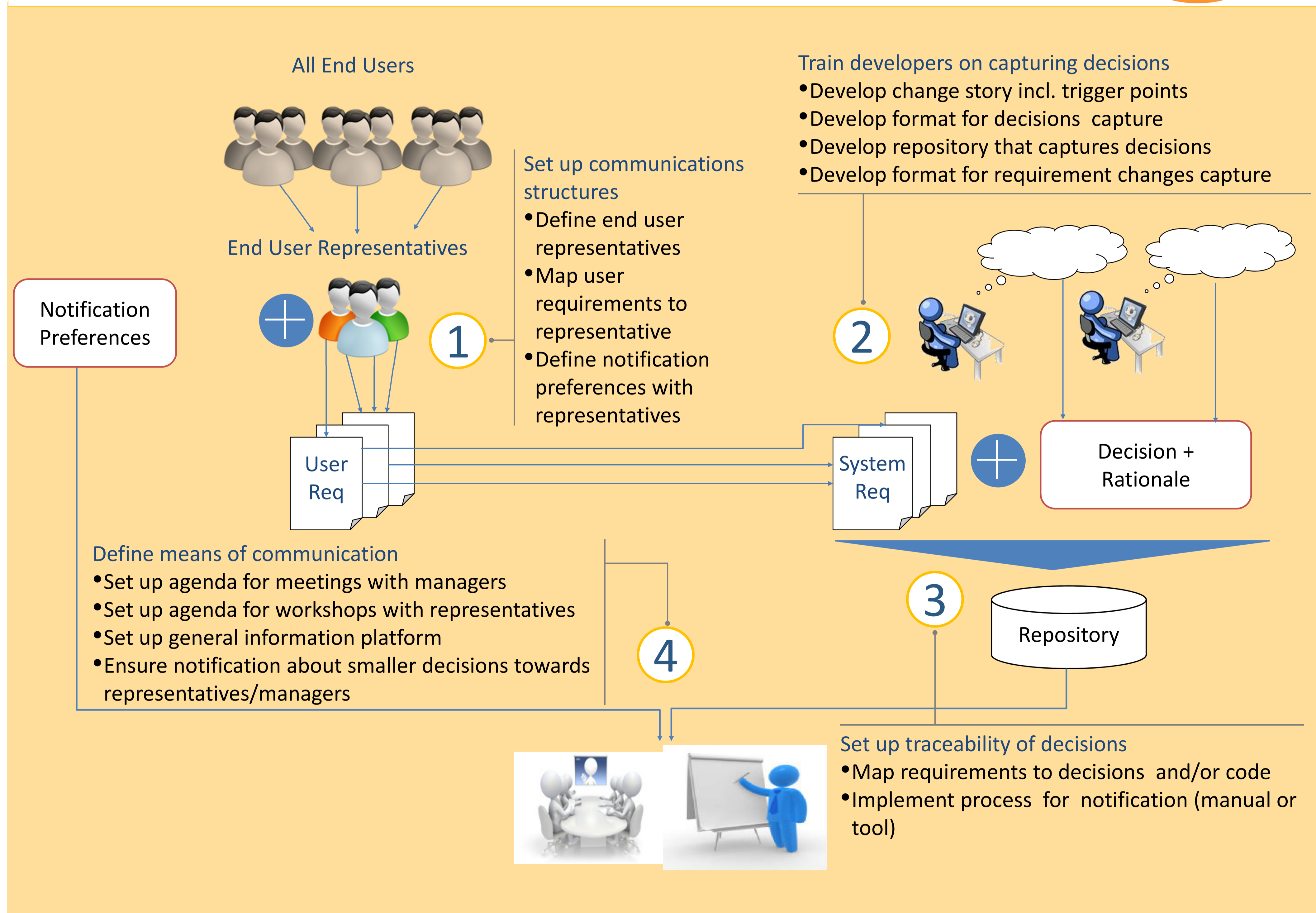
- RQ1** Does statistical evidence exist that increased UPI leads to increased system success in large-scale IT project?
- RQ2** What are the characteristics of existing methods in literature aiming to increase user participation and involvement in software development?
- RQ3** How can a large scale IT project support user-developer communication (with a focus on the decisions and their rationale that are made in design and implementation phase) in order to increase system success?
- RQ4** How beneficial is the method that supports large-scale IT projects in user-developer communication?

Expert Interviews

RQ4

- **Direct communication** between developers and end users **does not exist in most large-scale IT projects.**
- Experts **see potential** for our method concept.
- **Benefits:**
 - **Better preparation** of the business organization
 - **Increase of transparency** of the projects
- **Challenges:**
 - Hard to **motivate developers** to document decisions
 - Hard to **keep the discipline** for documentation

Method to enhance User-Developer Communication RQ3



Case Study (Future work)

RQ4

- Mature IT organization with large project (<200 million EUR)
- If possible test in two rollouts
- Open questions:**
 - How should a detailed plan for a case study look like?
 - What are the minimal requirements for a project/ company to qualify for the case study?
 - How do I approach the case company?
 - Is it possible to test the comprehensive method with all four parts?
 - How should I measure benefits of the method?

Systematic mapping study (related work)

RQ1

Analysis of correlation of user participation and involvement (UPI) show positive effect on system success

- **User participation and involvement is an important research topic**, as it has been researched in a broad manner by various research areas
- The vast majority of the derived correlations showed a positive effect → **aspects of the development process and human aspects have a positive effect on system success**
- **UPI's positive effect** on user satisfaction was **validated** by a lot of participants
- Most studies with **negative correlations** were published a long time ago

- From 3,136 hits in 13 sources 232 papers have been identified
- 108 papers excluded based on *out of context, different focus* or not available online
- 24 survey papers were selected (21 excluded)
- 27 method papers were selected (46 excluded)

RQ2

Analysis of existing UPI methods shows wide variety within all software activities

- **All software development activities** (planning & project management, SW specification & requirement engineering, SW design & implementation, SW verification & validation, and SW evolution) **are influenced by methods**
- **Not many methods** focus on the **design and implementation** activity
- **Practices** derived from the solutions have a **wide variety** within all software activities, with a **focus on planning** and project management activity and **on communication structures**