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Questionnaire

1 Startseite

Dear Survey Participant, thank you very much for sparing 15–30 minutes of your valuable time by answering this questionnaire!

The Requirements Engineering Survey 2014 is conducted by an internationally distributed group of researchers and shall help us getting a better understanding of ger Requirements Engineering (RE).

Goal of the survey: We are interested in your personal expectations on and experiences with Requirements Engineering to understand the status quo and expectatic Requirements Engineering process definitions, their improvement, and their application in projects – all relying on your personal expert opinion. This shall give us insi trends in RE and lay the foundation to steer academic and industrial research in a problem-driven manner, i.e. it shall help detect practically relevant problems and gc Engineering.

Structure of the survey: The Requirements Engineering Survey includes (at most) 35 questions, structured into 4 categories:

1. General information about you and your company
2. Status quo in RE at your company
3. Status quo in RE improvement at your company
4. Contemporary problems you experienced in RE and how these problems manifest themselves in the process

Please answer the questions as accurately as possible.

At the end of the survey, you will be asked to enter your email address. In case you agree, we will provide you with an overview of the survey results. In any case, the survey follows a high academic standard and is conducted anonymously. We will not associate your email address with your answers and exclusively use the adre with the survey results.

For further information / questions, please contact:

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2 Metadata

The following questions ask about general information about your company and you.

What is the size of your company (software and other areas)?

- ☐ 1-10 employees
☐ 11-50 employees
☐ 51-250 employees
☐ 251-500 employees
☐ 501-1000 employees
☐ 1001-2000 employees
☐ more than 2000 employees

Please briefly describe the main sector of your company and the application domain of the software you build.

Does your company participate in globally distributed projects?

- ☐ Yes
 ☐ No

In case your company participates in globally distributed projects, in which country are you personally located?

To which project role are you most frequently assigned to in those projects?

- ☐ Business Analyst
☐ Requirements Engineer
☐ Project Lead / Project Manager
☐ Test Manager / Tester
☐ Architect
☐ Developer
☐ Other

How do you rate your experience in this role?

- ☐ Novice (up to 1 year experience)
☐ Experienced (1-3 years experience)
☐ Expert (more than 3 years experience)

Which organisational role does your company take most frequently in your projects?

- ☐ Customer

☐ Product development

☐ Contractor

☐ Other

Which process model (or variation of it) do you follow in your projects?

☐ Waterfall

☐ V-Modell XT

☐ Scrum

☐ Extreme Programming (XP)

☐ Rational Unified Process

☐ Other

3 Status Quo in Requirements Engineering

The following questions address the status quo in RE in your company.

How do you elicit requirements?

☐ Interviews

☐ Scenarios

☐ Prototyping

☐ Facilitated meetings (including workshops)

☐ Observation

☐ Other

How do you document functional requirements?

	Domain/Business Process Models	Use Case Models	Goal Models	Data Models	Structured Requirements Lists
Free form textual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Textual with constraints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Semi-formal (UML)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Formal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How do you document non-functional requirements?

☐ We use quantified textual requirements

☐ We use non-quantified textual requirements

☐ Other

How do you deal with changing requirements after the initial release?

☐ We regularly change the requirements specification.

☐ We update our product backlog.

☐ We only work with change requests.

☐ Other

Which traces do you explicitly manage?

☐ Traces between requirements and code.

☐ Traces between requirements and design documents.

☐ Other

☐ None.

How do you analyse the effect of changes to requirements?

☐ We do impact analysis between requirements.

☐ We do impact analysis on the code.

☐ Other

☐ We do not analyse the effect of changes to requirements.

How do you align the software test with the requirements?

☐ Testers participate in requirements reviews.

☐ We check the coverage of requirements with tests.

☐ We define acceptance criteria for requirements.

☐ We derive tests from system models.

☐ Other

☐ We do not align test and requirements.

4 REProcessStandardQuestion

What requirements engineering company standard (RE reference model) have you established at your company?

☐ A standard that is predefined according to a regulation (e.g., ITIL)

☐

- ☐ A standard that is predefined by the development process (e.g., Rational Unified Process, Scrum)
- ☐ An own standard that defines the coarse process with deliverables, milestones, and phases
- ☐ An own standard that defines the process including roles and responsibilities.
- ☐ An own standard that defines artefacts and offers document templates
- ☐ None
- ☐ Other

5.1 Status Quo in RE Process Standard

The following questions consider the status quo in your company-specific RE standard including its application in projects, and, if reasonable, controlling.

Which reasons do you agree with as a motivation to define a company standard for requirements engineering in your company?

	I disagree		Neutral		I agree	
Compliance to regulations and standards (like CMMI)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seamless development by integrating Requirements Engineering into the development process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better tool support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Formal prerequisite for project acquisition in your domain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support of distributed development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better support of progress control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better quality assurance of the artefacts (e.g., within quality gates)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support of benchmarks and / or comparison of different projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support of project management and planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge transfer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Which reasons do you see as a barrier to define a company-wide reference model for requirements engineering in your company?

	I disagree		Neutral		I agree	
Higher process complexity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher demand for communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Missing willingness for changes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Missing possibilities of standardisation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Is the requirements engineering standard mandatory and practiced?

- ☐ It is mandatory and practiced.
- ☐ It is mandatory but not practiced.
- ☐ It is practiced but not mandatory
- ☐ No

How do you check the application of your requirements engineering standard?

- ☐ Via project assessments
- ☐ Via analytical quality assurance, e.g., as part of quality gates
- ☐ Via constructive quality assurance, e.g., via checklists or templates
- ☐ Other
- ☐ It is not checked.

How do you perform change management in your requirements engineering?

- ☐ We have a continuous change management.
- ☐ We have a change management approach that applies after formally accepting a requirements specification.
- ☐ We have a change management that applies during RE.
- ☐ We do not consider a change management in RE.

How is your requirements engineering standard applied (tailored) in your regular projects?

- ☐ We have defined a tailoring approach that continuously guides the application of the standard in our project
- ☐ We have tool support for tailoring our Requirements Engineering standard
- ☐ At the beginning of a project, the project lead / requirements engineer tailors the standard based on experiences
- ☐ Other
- ☐ We do not consider a particular tailoring approach

6 REImprovementQuestion

Is your requirements engineering continuously improved?

- ☐ Yes, we improve our requirements engineering via an own business unit / role.
☐ Yes, we improve our requirements engineering via external consultants.
☐ Yes, our project teams improve requirements engineering.
☐ No

7.1 Status Quo in Requirements Engineering Improvement

The following questions consider the status quo in Requirements Engineering improvement in your company.

Why do you continuously improve your requirements engineering?

- ☐ It helps us to determine our strenghts and weaknesses and act accordingly
☐ An improvement is expected by our customer
☐ We conduct the improvement to obtain a certain certification.
☐ An improvement is demanded by a regulation (e.g., CMMI, Cobit, or ITIL)
☐ Other

Do you use a normative, external standard for your improvement?

- ☐ Yes, we use an external standard for assessing RE (e.g., CMMI for RE)
☐ No, we use an internally defined (company-specific) standard for improving RE

If you use an internal standard for improving your Requirements Engineering and not an external one, what were the reasons?

8 Contemporary Requirements Engineering Problems

The following questions of the questionnaire address contemporary problems you experienced in RE including the company standard ar experiences. Please answer the questions as honestly as possible.

Please rate the following statements for your requirements engineering standard according to your experiences

	I disagree		Neutral		I agree
Our Requirements Engineering standard...					
...is too hard to understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is too complex	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is too abstract	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not support the specification of precise requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not scale to our projects' high complexity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is too heavy weight for our projects (e.g., it does not support agility)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...is not flexible enough (e.g., it offers no means to tackle moving targets / change-intensive requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not sufficiently define a clear terminology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...gives no guidance on how to create the specification documents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not sufficiently allow for deviations according to project circumstances that cannot be formalised (e.g., politically motivated underspecified requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not fit to the variety of our projects (e.g., size or technical domains).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...does not sufficiently define roles and responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering your personal experiences, how do the following (more general) problems in requirements engineering apply to your projects?

	I disagree		Neutral		I agree
Communication flaws within the project development team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communication flaws between developers and the customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Terminological problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear responsibilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incomplete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implicit requirements not made explicit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient support by project lead	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Insufficient support by customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stakeholders with difficulties in separating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

requirements from previously known solution designs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inconsistent requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Missing traceability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moving targets (changing goals, business processes and / or requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"Gold plating" (implementation of features without corresponding requirements)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak access to customer needs and / or (internal) business information	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak knowledge of customer's application domain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weak relationship between customer and project lead	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time boxing / Not enough time in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unknown) requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technically unfeasible requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Underspecified requirements that are too abstract and allow for various interpretations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unclear / unmeasurable non-functional requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Considering your personally experienced problems (stated in the previous question), which ones would you classify as the five most critical ones (of relevance).

Problem experienced in your projects:

Problem #1 (most critical one)

Please make a selection
 Communication flaws within the project team
 Communication flaws between us and the customer
 Terminological problems
 Unclear responsibilities
 Incomplete and / or hidden requirements
 Insufficient support by project lead
 Insufficient support by customer
 Stakeholders with difficulties in separating requirements from previously known solution designs
 Inconsistent requirements
 Missing traceability
 Moving targets (changing goals, business processes and / or requirements)
 "Gold plating" (implementation of features without corresponding requirements)
 Weak access to customer needs and / or (internal) business information
 Weak knowledge of customer's application domain
 Weak relationship to customer
 Time boxing / Not enough time in general
 Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unknown) requirements
 Technically unfeasible requirements
 Underspecified requirements that are too abstract and allow for various interpretations
 Unclear / unmeasurable non-functional requirements
 Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements

Problem #2

Please make a selection
 Communication flaws within the project team
 Communication flaws between us and the customer
 Terminological problems
 Unclear responsibilities
 Incomplete and / or hidden requirements
 Insufficient support by project lead
 Insufficient support by customer
 Stakeholders with difficulties in separating requirements from previously known solution designs
 Inconsistent requirements
 Missing traceability
 Moving targets (changing goals, business processes and / or requirements)
 "Gold plating" (implementation of features without corresponding requirements)
 Weak access to customer needs and / or (internal) business information
 Weak knowledge of customer's application domain
 Weak relationship to customer
 Time boxing / Not enough time in general
 Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unknown) requirements
 Technically unfeasible requirements
 Underspecified requirements that are too abstract and allow for various interpretations
 Unclear / unmeasurable non-functional requirements
 Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements

Problem #3	Please make a selection Communication flaws within the project team Communication flaws between us and the customer Terminological problems Unclear responsibilities Incomplete and / or hidden requirements Insufficient support by project lead Insufficient support by customer Stakeholders with difficulties in separating requirements from previously known solution designs Inconsistent requirements Missing traceability Moving targets (changing goals, business processes and / or requirements) "Gold plating" (implementation of features without corresponding requirements) Weak access to customer needs and / or (internal) business information Weak knowledge of customer's application domain Weak relationship to customer Time boxing / Not enough time in general Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unkn Technically unfeasible requirements Underspecified requirements that are too abstract and allow for various interpretations Unclear / unmeasurable non-functional requirements Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements
Problem #4	Please make a selection Communication flaws within the project team Communication flaws between us and the customer Terminological problems Unclear responsibilities Incomplete and / or hidden requirements Insufficient support by project lead Insufficient support by customer Stakeholders with difficulties in separating requirements from previously known solution designs Inconsistent requirements Missing traceability Moving targets (changing goals, business processes and / or requirements) "Gold plating" (implementation of features without corresponding requirements) Weak access to customer needs and / or (internal) business information Weak knowledge of customer's application domain Weak relationship to customer Time boxing / Not enough time in general Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unkn Technically unfeasible requirements Underspecified requirements that are too abstract and allow for various interpretations Unclear / unmeasurable non-functional requirements Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements
Problem #5	Please make a selection Communication flaws within the project team Communication flaws between us and the customer Terminological problems Unclear responsibilities Incomplete and / or hidden requirements Insufficient support by project lead Insufficient support by customer Stakeholders with difficulties in separating requirements from previously known solution designs Inconsistent requirements Missing traceability Moving targets (changing goals, business processes and / or requirements) "Gold plating" (implementation of features without corresponding requirements) Weak access to customer needs and / or (internal) business information Weak knowledge of customer's application domain Weak relationship to customer Time boxing / Not enough time in general Discrepancy between high degree of innovation and need for formal acceptance of (potentially wrong / incomplete / unkn Technically unfeasible requirements Underspecified requirements that are too abstract and allow for various interpretations Unclear / unmeasurable non-functional requirements Volatile customer's business domain regarding, e.g., changing points of contact, business processes or requirements

9 Contemporary Problems Manifestation

The last questions of the questionnaire consider contemporary your experiences with the severity of the contemporary problems you e:
Please answer the questions as accurately as possible.

Considering your personally experienced most critical problems (selected in the previous question), which causes do they have?

#v_342#

#v_344#

#v_346#

#v_348#

#v_350#

Considering your personally experienced most critical problems (selected in the previous question), which implications do they have?

#v_342#

#v_344#

#v_346#

#v_348#

#v_350#

Considering your personally experienced most critical problems (selected in the previous question), which mitigations do you define (if at all)?

#v_342#

#v_344#

#v_346#

#v_348#

#v_350#

Considering your personally experienced most critical problems (selected in the previous question), which would you classify as a major cause for p all)?

☐ #v_342#☐ #v_344#☐ #v_346#☐ #v_348#☐ #v_350#

10 Extra question and Email

Is there any other aspect that you experience in your RE process and that remains unaddressed in the questions until now?

In case you would like to be notified about the results, please fill in your email-adress.

11 Endseite

Thank you very much for participating in this survey.

We very much appreciate the effort you spent in answering the questions that help us investigate trends in industrial RE. In case you entered your email in the previo notify you about the results as soon as possible.