

Questionnaire

1 Start page

Dear survey participant,

thank you very much for sparing approx. **15 minutes** of your valuable time by filling in this questionnaire!

This survey is conducted by the Technical University of Munich. Our goal is to obtain a better understanding of how requirements are handled in industry.

Scope of the survey

We are interested in your personal experiences to understand whether non-functional requirements (NFRs) and functional requirements (FRs) are handled differently in practice. With NFRs, we refer to those requirements that address quality characteristics of a product or system (like availability or performance).

Structure of the survey

This survey is structured into 4 parts:

1. Demographics: In this part, we will ask questions about your company in general and about your role in your company.
2. Handling of NFRs and FRs: In this part, we are interested in the way you handle NFRs and FRs in your project environments.
3. Problems and benefits of the way NFRs and FRs are handled: In this part, we openly ask you to state problems and benefits that result from the way you handle NFRs and FRs.
4. General statements: In this part, we list a set of statements about NFRs in general and ask you to express your degree of agreement on those statements.

Confidentiality

At the end of the survey, you will be asked to enter your email address in case you would like us to provide you with an overview of the survey results. In any case, please be assured that 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 addresses for providing you with the survey results.

Consent to participate in research

You are asked to participate in a research study conducted by Jonas Eckhardt, Dr. Andreas Vogelsang, Dr. habil. Daniel Méndez from the Informatics Department at the Technical University of Munich. You will not be paid for participating in this study. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, please contact Jonas Eckhardt (eckharjo@in.tum.de).

By clicking "Continue" at the bottom of this page, you give your consent to voluntarily participate in this research and for us to use the anonymized data provided in your answers to the survey questions.

2 Demographics

Part 1: Demographics

What is your role in projects of your company?

Which role(s) describes best what you generally do in projects of your company (e.g., "requirements engineer" or "architect")?

For how many years are you dealing with requirements?

- < 1 year
- 1-3 years
- > 3 years

Counting all locations where your employer operates, what is the total number of persons who work there?

- 1-249
- 250-1999
- > 2000

| | Important | Important | Important | Important | Important | Don't know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Functional suitability (i.e. functional completeness, functional correctness, and functional appropriateness) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Performance / Efficiency (i.e. time behavior, resource utilization, and capacity) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Compatibility (i.e. co-existence and interoperability) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Usability (i.e. appropriateness, recognizability, learnability, operability, user error protection, user interface aesthetics, and accessibility) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reliability (i.e. maturity, availability, fault tolerance, and recoverability) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Security (i.e. confidentiality, integrity, non-repudiation, accountability, and authenticity) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Maintainability (i.e. modularity, reusability, analyzability, modifiability, and testability) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Portability (i.e. adaptability, installability, replaceability) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4 NFR documentation

Are NFRs documented in your typical projects?

- Yes
- No
- Don't know

5 RQ1

Part 2: Handling of NFRs and FRs

In the documentation (e.g. in a requirements specification), do you distinguish between NFRs and FRs?

With "**distinguish**" we mean that requirements are labeled differently (e.g. some requirements are labeled as "performance", "maintainability", ...) or documented in different sections (e.g. special sections for "performance", "maintainability", ...).

- Yes, we distinguish between NFRs and FRs in the documentation
- No, we do not distinguish between NFRs and FRs in the documentation

Are there specific reasons why you do (or do not) distinguish between NFRs and FRs in the documentation?

Considering the following phases, how much do the activities for handling NFRs differ from the activities for handling FRs?

| | Differs strongly | Differs slightly | Does not differ at all | Don't know |
|--------------------------|-----------------------|-----------------------|------------------------|-----------------------|
| Requirements Engineering | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Architecture/Design | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Implementation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Testing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Considering your work, for what activities does it make a difference if you consider an NFRs vs. an FR? Please explain why.

Please be as detailed as possible here.



6 RQ2

Part 3: Problems and benefits of the way NFRs and FRs are handled

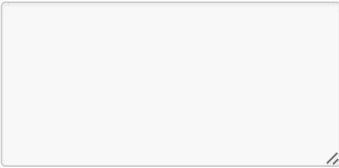
In the earlier questions, you answered that you distinguish between NFRs and FRs in the documentation.

Part 3: Problems and benefits of the way NFRs and FRs are handled

In the earlier questions, you answered that you do not distinguish between NFRs and FRs in the documentation.

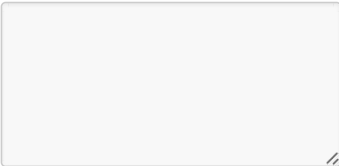
Do you experience negative consequences in your current work that result from distinguishing between NFRs and FRs in the documentation?

If yes, please explain why.



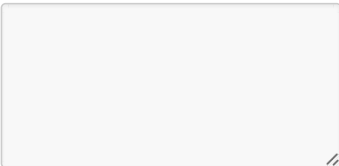
Do you experience positive consequences in your current work that result from distinguishing between NFRs and FRs in the documentation?

If yes, please explain why.



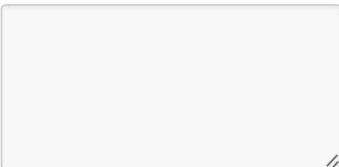
Do you experience negative consequences in your current work that result from not distinguishing between NFRs and FRs in the documentation?

If yes, please explain why.



Do you experience positive consequences in your current work that result from not distinguishing between NFRs and FRs in the documentation?

If yes, please explain why.

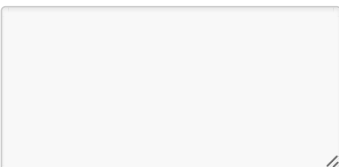


Part 3: Problems and benefits of the way NFRs and FRs are handled

In the earlier questions, you answered that you do not document NFRs.

Do you experience negative consequences in your current work that result from not documenting NFRs?

If yes, please explain why.



Do you experience positive consequences in your current work that result from not documenting NFRs?

If yes, please explain why.

7 Hypotheses

Part 4: General statements

In the following, we list a set of statements about NFRs in general.

Please consider your experiences: To which degree do you agree with the following statements?

| | Strongly agree | Agree | Neither agree or disagree | Disagree | Strongly disagree | Don't know |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| Many NFRs describe functional aspects of a system. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Functional requirements are often labelled as NFRs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are often specified by referencing a standard or a legislative text. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Only few NFRs deal with architectural aspects. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The application domain strongly influences the relevance of individual types of NFRs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In requirements elicitation, the focus is on FRs, not on NFRs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are often described in too vague terms. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are often not sufficiently prioritized. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are sometimes ignored. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Most NFR types are difficult to test properly. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Testing NFRs is time consuming. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Testing NFRs is impossible. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Many NFRs remain undiscovered. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Architects do not share a common terminology for types of NFRs. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are mainly elicited by architects. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are often not documented. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The documentation of NFRs is not always precise. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The documentation of NFRs usually becomes desynchronized. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| NFRs are satisfied at the end of the project. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Software architects do not use a specific tool for NFR management. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Only few types of NFRs are validated at the end of the project. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8 Final Page

In case you are interested in the survey results, enter your e-mail address here.

In case you agree to post your email address, we will provide you with an overview of the survey results after an initial analysis. In any case, please be assured that 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 addresses for the purpose of providing you with the survey results!

Would you like to participate in an interview, if we have further questions concerning this topic?

If you say yes here, please provide your e-mail address in the previous question.

Yes, I would like to participate in an interview

No

9 Final page

Thank you very much for taking part in this questionnaire.