

Title of Paper

Requirements Engineering in Practice

Presenter

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Instructional Level

Introductory Intermediate Advanced

Target Group

Responsible people and managers from development and project departments

Keywords

- Requirements Engineering
 - Practice in Requirements elicitation
 - Avoiding pitfalls in Requirements Engineering
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Abstract

Theory

Requirements Engineering is (not only, but as focused here) the process of acquiring and understanding the requirements of a project. Various methods promise increased project success, satisfied customers and less cost.

As in project management two mainstream areas of requirements methods are established. In this lecture I will show practical requirements engineering without focusing on special tools. It is much more important how to elicit, understand and classify requirements than what kind of diagrams are used to document them.

Practice

A project can be divided into four main parts: project drivers and constraints, functional requirements, nonfunctional requirements and project issues. The Volere template is a good scheme both to come to well-formed and complete requirements and not to forget side issues and surroundings of a project. As with all templates you should feel free to adapt this and add own aspects in order to meet your demand.

However in practice I have found significant difficulties to capture a project by means of theory and templates. This is not only known to project managers and project members; a project is hence a project because it contains imponderability and a lot of momentums – and doing requirements engineering is a project by itself, i.e. needs planning and resources.

Requirements are part of a project. They are always, but not only, important if a project contains development tasks. After all, the result of development projects is the better the expected results are known to all involved people.

But how to do the requirements process needs its own approach. Only using a template has its meaning at best for learning purposes, but is not useful in practice.

First of all this begins with a lot of tasks and details where not all of them can be implemented in a single step. I recommend doing this step-by-step. Few but well-made parts of the whole requirements will always result in much better outcome than having no or bad requirements.

A very useful first step is to define the scope of the work and to establish a common terminology; i.e. which document will hold the requirements, which document will refine what kind of specification etc. A common glossary is absolutely necessary to define terms and their meanings in a project as well.

The next problem I have seen is finding federates. It is not naturally that new and promising methods are accepted by all team members; in particular not by those who are finally responsible for the requirements process itself. Patience, persuasive power, good arguments and staying power are necessary to structure and improve the progress of projects step-by-step.

Finally the customer “interferes” not only in daily life, but is a very important part in the requirements engineering process itself. How to deal with responsible persons being in charge of changes compared to originally issued and public specifications? How can you convince people not willing to discuss a project in detail once more?

Quality

Quality is enhanced only by the requirements process? Certainly, but without accompanying quality assurance also the best-meant requirements are only of little value. Two core problems of (bad) requirements are ambiguity and redundancies. Ambiguity is always dangerous if readers of requirements come to different interpretations of their meaning and therefore the results will probably not be those expected by the customer.

Reviewing requirements by a so called quality gateway is a good way to let requirements become specifications only after they are critically proved. But such a quality gateway must be institutionalized and equipped with resources and rules. It is also valid here that the awareness for reserving time for eliciting and checking requirements is well invested and must be established.

Quality assurance during the complete project has to go along with the requirements engineering process itself. This includes the whole life cycle from design, development, production, installation up to service and documentation; e.g. documentation normally is always a crucial project requirement. Also the early check for testability of requirements, the corporate definition of acceptance tests and sceneries plus the management of changed requirements are important components on the way to succeed in projects.

Goals

This lecture deals with personal process experience concerning the way to think of requirements engineering, how these methods can become part of a companies process and how to avoid the most important pitfalls in dealing with requirements engineering.

Experience has shown that doing this step-by-step has an impact also on small projects because the goals and expected results are defined more precisely. You can learn how to improve your projects by thinking in more than only the technical requirements dimension and how to do the right things at the right time.

Biography

Erich Freitag was born in 1961 in Vienna (Austria). His interest in electronics was raised when he was 10 years old. After his education in communications engineering and electronics he has been working in communications technology since 1982. Starting with working on different radio systems he became head of engineering in a company dealing with mobile communication and mobile phone technology in 1986. After a merger in 2000 he has been working in product management and internal coordination. Two years later he went back to the development department of the new company. Today Erich Freitag manages a team of 24 persons with the main focus on software development for communication systems.

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