Interview Guide: RE Challenges in the old & in the new process

Preparations

Have the following information printed out (see Appendix I - Appendix V):

I. Overview of the old process: phases and milestones. (For showing)
II. The (assumed) RE challenges and their consequences. (For showing)
III. The 5 RE challenges incl (assumed) causes. (For making notes.)
IV. The main (assumed) consequences incl sub-items. (For making notes.)
V. The main RE-related methods of the new process. (For showing)

Makes notes in III and IV as the interview progresses. Add additional items & mark items the interviewee mentions them, confirms or disagrees with & note existence of examples. Note reasons (especially connected to process) and consequences and ideas about solutions.

Interview

Introduction

A. Describe confidentiality, treatment of interview material (audio recording), as well as, what happens after the interview, follow-up, publication etc.
B. Explain the purpose & aim of the interview study.
    a. It is primarily to capture RE challenges that occur with the old process (causes, consequences etc), but also to investigate if & how methods, techniques etc in the new process address these.
    b. Show the high-level fish bone diagram (see 0) that contains assumption that we wish to validate, complement or dis-prove.
C. Describe the 'rules' of the interview, i.e. structure, freedom to disagree, add. Encourage real-life examples, including references that allow investigating further.

Characteristics of the Old Process

Briefly present the process, to jog people's memory, (show 0.) Mention the main changes in the new process.

- Which role(s) & phases do you have experience from in the old process?
- For how long have you worked in that role?
- In general, how much knowledge and experience do you have of requirements?

The (Assumed) RE Challenges

The full set of challenges and the assumed causes of them can be found in Appendix III.

For each challenge

- What is your view & experience of this challenge (& in which role)? Can you give examples?
- What are the reason / causes for this being a challenge? [If pre-assumed causes are mentioned, make a note. If not mentioned, ask if relevant. Note prompted responses.]

- What are the consequence/effect/cost of this challenge? Try to think all the way to product / customer.
- Is there anything in the new process that you think addresses &/ alleviates this challenge &/ its causes? [Make a note of mentioned 'remedies']

The Assumed Consequences: Requirements not in line with implemented scope

The full set of assumed consequences of the covered challenges can be found in Appendix IV.

- What is your view & experience of that "reqs are not in line with what is actually implemented"? In which role do you see this? Can you give examples? Try to think all the way to product / customer. [If sub-items mentioned, note. If not mentioned, specifically ask if relevant. Make notes of additions.]
- In your view, is it a valid & fair description of what the challenges result in?
- How are the challenges and the causes we talked about previously connected to these detailed consequences? [Go back to challenges & causes, and connect them to consequences.]
- Is there anything in the new process that you think addresses &/ alleviates these consequences? [Make notes on paper]

Overall & Summary of impact of new process

Going back to the high-level fish bone diagram (see 0):

- Do you see any other RE-related consequences for the phase-based process that could be included in this picture? Try to think all the way to product / customer.

Going back to the characteristics of the new process (show Appendix V):

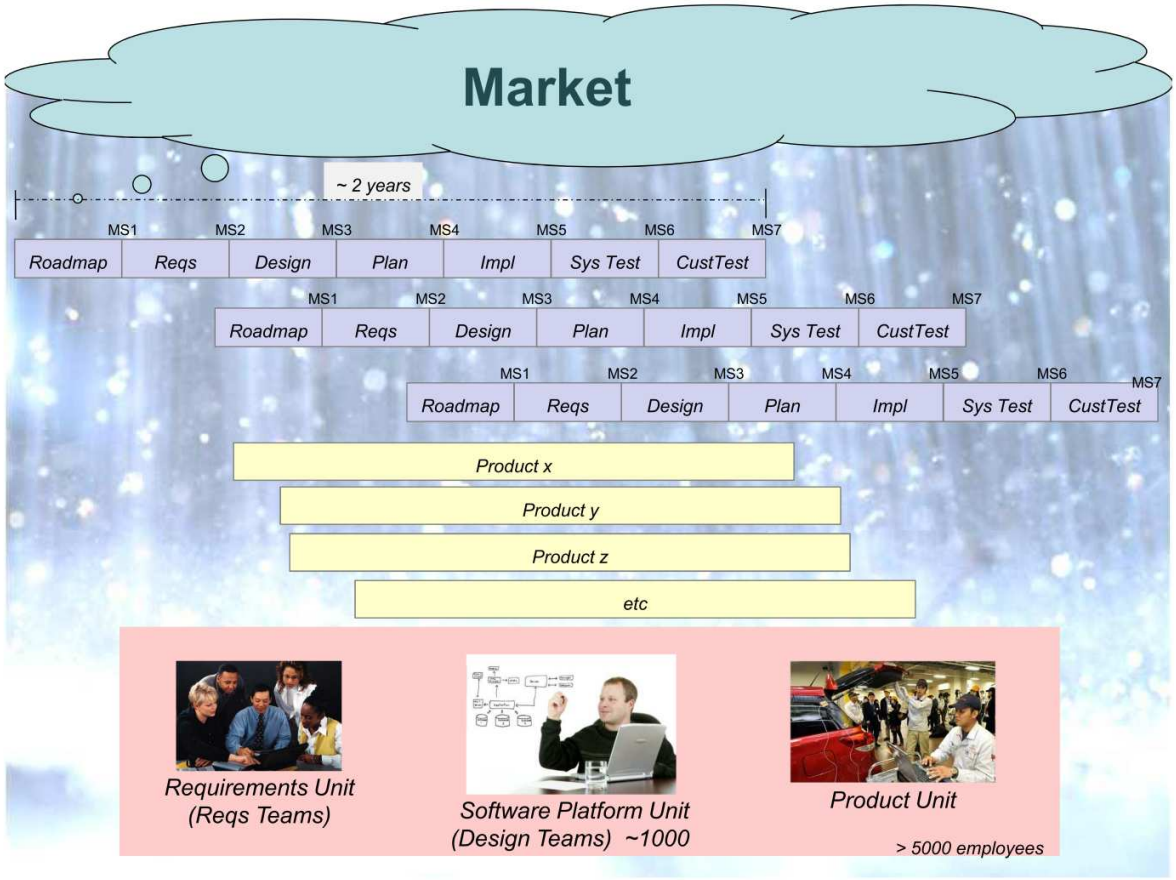
- We've already discussed how you think the new process can address some of these challenges. Let's do a recap per new method / characteristic: how do these impact the RE-related challenges, causes and consequences? Any new challenges?
- Anything more to add concerning the new process and its impact?

Summary

- Which challenges & consequences do you see as the most serious ones?
- Which 'remedies' do you see as most beneficial &/ important ones to implement /realize?
- Do you have any suggestions for people who could contribute to evaluate the RE-related impact of the new process?

Thanks for your contribution!

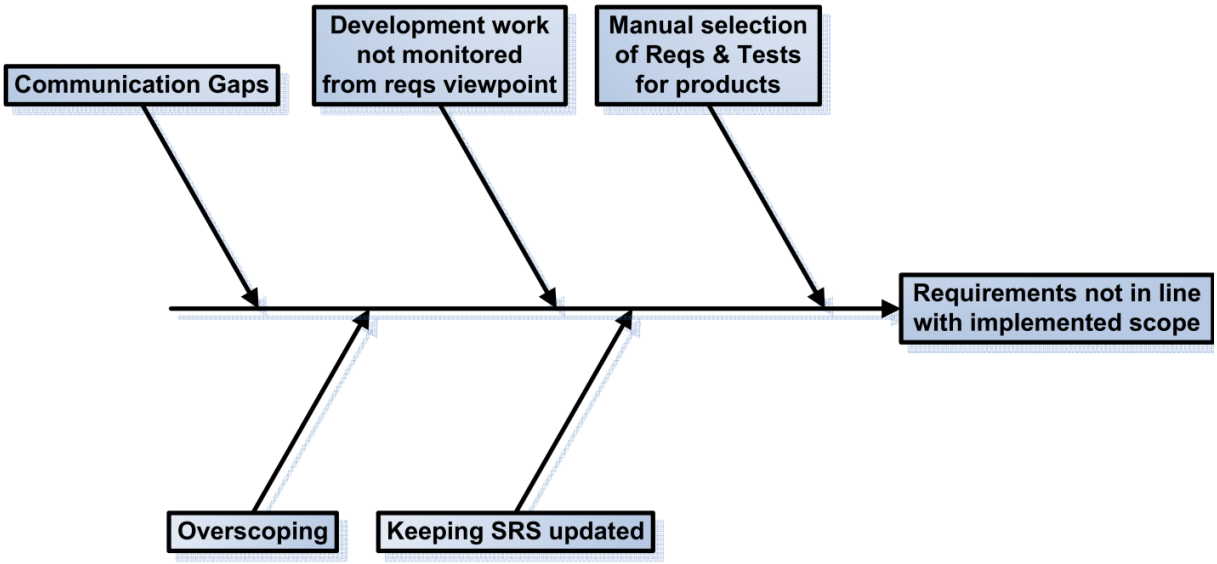
Appendix I. Overview of Old Process



Main characteristics of process

- Phased development of batches of features in SW platform (domain) projects with milestones. Including change management after MS 4
- Multiple product projects for each SW platform project
- Multiple parallel projects: both SW Platform and product projects
- Separated organizations, roles & processes for different disciplines (reqs, dev, test)

Appendix II. The Assumed RE Challenges and Their Consequences



Appendix III. The RE Challenges & Assumed Causes

Challenge: COMMUNICATION GAPS
Complex product & large organization The product consist of HW & multiple layers of SW. There are 100s of software developers involved in developing and maintaining the software.
Low understanding of roles & responsibility between units Requirements, Development and Testing are mainly organised into different units. The mutual understanding of their different roles is low. For example, the requirements people often have a low understanding and respect for the effort & considerations (e.g. architectural) required to produce quality SW.
Low involvement by Requirements people after initial requirements definition The requirements people are primarily active in the initial phases of each project. Once development starts, they are busy with new projects and have little time to actively support SW development for the previous projects.
Low involvement by SW Dev before & during requirements definition SW Dev don't have available resources and/or see sufficient value in contributing in the early phases of the projects. Most DTs spend the necessary minimum of effort necessary to satisfy project management in this phase, and leave the work of detailing and scoping the requirements up to the requirements unit.
Overlapping requirements processes between Reqs unit & SW Dev unit The reqs are managed centrally for each platform project. A SW (DT) requirements process is defined with the purpose of detailing the reqs produced by the RT from sub-high-level to detailed level by the DTs. This process has not been fully adopted by DTs and not fully understood by Requirements unit.
Challenge: OVERSCOPING
Continuous inflow of requests via multiple channels The continuous inflow of requests from the market and internally is managed by batching those requests into 1 or 2 (big) platform projects per year. In addition to new requests via these projects, a lot of change requests come in after the scope is set.
No consolidated overview of resource load / availability for software unit The resource allocation for SW development is handled at the DT level which means that there is no total overview of the load and available capacity of the software unit.
Lack of SW Dev input in early phases Due to the SW Dev unit being overloaded with work they do not prioritize assigning people to the early phases of the platform projects. The cost estimates used for planning in the early phases are not provided by SW dev unit.
Reqs unit produce reqs that are not agreed with SW Dev unit The req spec is not always agreed with the DTs at handover point (MS 2.) Even if there had been a formal review between RT and DT, it is often with a low level of commitment from the DTs. Specific examples of area with agreement problems are performance reqs & domain configuration reqs.
Detailed req spec is produced upfront A detailed requirement spec (SRS) is produced by requirements unit (by MS 2) before going into the design phase (MS 2 - MS 4.) The SRS is to be updated by MS 4.

Challenge: KEEPING THE SRS UPDATED

Reqs artefacts are not updated after formal CR approval
Change requests are handled via CCB (project & local.) Updating the req spec is most often NOT done after approval of CRs.

Lack of traceability between req spec & test cases
The process & tools are in place for connecting test cases to reqs, but actual traceability is weak. Partly due to shaky tool chain, but also due to lack of KPIs/visibility, as well as, usage of the traceability links.

The Software unit makes changes that affect the requirements without involving / informing the requirements unit
After MS D, the majority of SW dev work started. As the work progressed (necessary) changes to the reqs & design docs were identified and agreed within the dev teams. These changes were often not communicated to the reqs organisation.

Challenge: DEV WORK NOT MONITORED FROM REQS PERSPECTIVE

Weak integration of reqs & testing tools
A basic connection between reqs tool and test tool is in place, but the two environments are not well integrated. The traceability between reqs and test cases is not used for any reports, metrics etc.

Reqs, Design, Development & Test defined in separate sub-processes
The processes for different sub-disciplines are defined separately and, to a large extent, executed by separate roles within organisation.

The SW projects are not concerned with reqs once actual implementation starts
The understanding of the purpose & importance of requirements management after the detailed requirements have been set (MS 4) is very weak.

No reqs-based metrics used in implementation & maintenance phases
The KPIs used to monitor SW quality & maturity do not include any reqs-based metrics.

Challenge: MANUAL SELECTION OF REQUIREMENTS FOR PRODUCTS

Lack of validity information for test cases, i.e. which releases they are valid for.
The mechanism for marking test case validity in the database only supports marking release validity for major releases, not for minor ones. The marking is per major release, wo support for subsequent releases per default reusing all functionality from previous release.

No configuration & customization support for test cases
The databases used for storing test cases for the SW platform has no support for handling configuration and customization for different products based on a SW platform release.

No functioning configuration support for requirements
Product req specifications (Product SRS) that are generated from the platform SRS are not in line with the produced SW builds. This is due to a number of factors, i.e.
- the CM framework for reqs is separate from the one used for the code
- the CM settings for the reqs are not agreed with the DTs
- the platform req spec is not kept updated, so the product req specs are not either updated.

Appendix IV. The Assumed Consequences

REQUIREMENTS NOT IN LINE WITH IMPLEMENTED SCOPE
Communication of incorrect reqs to product projects, customers, business planners etc Incorrect req specs, constant (uncommunicated) changes, reqs not being agreed with SW, the customers given incorrect information on what to expect of the products / platforms. This in turn leads to (urgent) late CRs to correct these errors.
Manual work is required to locate the correct scope & requirements Since the req spec can not be relied upon, manual work is required to locate correct information on what requirements (functional, as well as, quality) are actually supported in the products / platform.
Unclear requirement coverage It is unclear / unknown to which extent the requested functionality is covered by test & code, and actually supported.
Reqs / Customer expectations are not met Due to the inefficiency (long lead time etc) and other problems with the reqs process the actual customer reqs at launch time are not met. Market windows are missed and customer reqs are misunderstood and not met.
Low motivation for contributing to reqs work, especially from Software unit Due to the problems with reqs management (rather than seeing the benefits), the motivation for & understanding of doing good reqs work is very low, in particular within the software unit.
Quality issues The overscoping, as well as, weak handling of quality reqs (performance, capacity, security etc), results in quality issues.
Test scope mismatch Invalid test cases, no longer in scope due to lack of communication &/ update of req spec after changes, are executed, resulting in false error reports that in turn need investigating & negotiating.

Appendix V. The Main RE-Related Methods of the New Process (Potential Remedies)

- One continuous scope & release planning flow
- Organizational & role changes
  - RE role split into scoping (request) + specification (elicitation, spec, mgmt)
  - Cross-functional & Integrated development teams
    Including customer representative, design, dev, test etc. With full responsibility from requirements elicitation to delivering product quality software.
- Integrated process for SW development with reqs, design, test, dev etc integrated into same process (compare to separate sub-processes)
- Just-In-Time & Iterative reqs detailing
- Requirements documented as user stories & acceptance test cases
- Requirements-based metrics used by development organization for monitoring development and software status