

Better Functional Specifications – A Cooperative Approach

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Overview

- Setting the Stage
- Reasons for a Functional Spec
- What Testers Have to Offer
- Gaining Acceptance
- Nuts and Bolts
- A Case Study

Setting the Stage

- Types of requirements
 - Product (customer) requirements
 - ✓ ***Functional Requirements***
 - Test requirements
 - Etc. ...
- Requirements related activities
 - Gathering requirements
 - ✓ ***Writing good (useful) requirements***
 - ✓ ***Managing requirements***
 - Etc. ...

Setting the Stage

- Software development teams vary in
 - The relationship between testers and developers
 - The nature of the development practices
 - The extent to which they believe in the need for a Functional Specification
- Will focus on techniques that are widely applicable and scalable

Relationship between Test And Development

- Often seen as adversarial
 - You figure out how to build it
 - I'll figure out how to break it
- Let's figure out how to build and test it so that we make sure it works

Nature of Development Practices

- Some shops
 - Don't have testers
 - Don't involve testers except at the end of development
 - Don't tell testers or coders how the software is intended to work
 - Write requirements that can be understood by only two people in the entire world
 - Commit the cryptic requirements to email, or notepad
 - Produce a nice functional requirements document, and have it reviewed by all the affected parties, but only after the product has been coded

Why Some Avoid Functional Specs

- Believe it's a waste of time
 - No visible increase in the end product (code)
- Other reasons
 - Coding is fun
 - Code is the end product, don't need a blueprint to make CDs
 - Testing is fun
 - Want to avoid negotiation

Reasons...

- To have a functional specification?
 - Allows different groups to work in parallel
 - Supports software design
 - Supports test design
 - Supports technical documentation
 - Saves everybody's time because questions are answered only once
 - Defines an agreement on deliverables between management and project team

Reasons...

- To have a functional specification? (continued)
 - Defines an agreement on deliverables among all affected parties (think about Field Support)
 - Reveals hidden assumptions
- And the BP (Biggest Payoff) – it enables the MCEPDR (Most Cost-Effective Practice for Defect Removal)

Reasons...

- To keep a functional specification up to date?
 - Makes the product maintainable
 - Simplifies adding team members to the project

Life Cycles

- Waterfall
- V
- Iterative
- Agile

What Testers Have to Offer

- Their questions
- The ability to take a natural language description and play computer
- The ability to play end-user

Gaining Acceptance

- Always think about and publicize
 - What you need from other team members to do your job as a (developer, tester, writer, PM, ...)
 - What you can do to help move the project forward
 - How you as a (developer, tester, writer, PM, ...) can help other team members
- Respect others as you wish them to respect you
 - Cowboys?
 - Process Mongering Obstructionists?

Gaining Acceptance

- Strive to become an Expert
 - On your product
 - On your discipline
 - On what other disciplines contribute

Functional Specification – Ideal

- Based on solid requirements
- Gives designers all the information they need to design the product
- Gives testers all the information they need to test the product
- Gives writers all the information they need to document the product

Functional Specification – Reality

- Requirements change
- Some functionality can't even be foreseen before development starts
- The project needs to move forward

How to Move Forward With a Less-than-utopian FS

- How to recognize information is missing?
- How to collect the missing information?
- How to feed missing information back to the functional specification?

Nuts and Bolts

- First pass functional specification
- Functional specification checklist
- Functional specification review log
- Collaboration agreement
- Team tutoring sessions
- Other Tips and Tricks

First Pass Functional Specification

- As complete as possible
- Reviewed by all affected parties

Functional Specification Checklist

- What information does the functional specification need to provide
- This checklist suggests:
 - To testers – how to review the specification
 - To developers – what to put in the specification

Checklist

- FS Should Include
 - Labels of things the user can see (Name, Address 1, Address 2)
 - Lists of selectable items (New, Save, Save as...)
 - Things the user can do (Add, remove from shopping cart)
 - Things the user can't do (Add more than 25 items to a shopping cart)

Checklist (continued)

- FS Should Include
 - Processing rules (The end date is calculated from the start date and number of days)
 - Where values come from (The list of items available to delete is the same as the contents of the shopping cart)
 - Business rules (Operator must acknowledge that alarm condition returned to normal)

Checklist (continued)

- FS Should Include
 - Implementation details that affect expected results (Velocity information is in meters per second)
 - Error recovery (What happens if I try to save with incomplete information)
 - Error messages
 - Protocol definitions

Checklist (continued)

- FS Should Not Include
 - Internal names (elementContextId)
 - Implementation description (...application will be packaged as a method in a dll)
 - Screen design, type of control (...checkbox indicates that this holiday recurs every year)
 - Open ended lists (..including but not limited to...)

Functional Specification Review Log

- Maintains a list of questions about the functional specification
- Developer answers initially recorded here
- Developers use the log to update the functional specification
- Don't forget to inform the team and get buy-in
- Items that have been updated in the FS are marked closed

Functional Specification Review Log

- Must contain
 - Questions
 - Answers
 - Indication of closure
- Could be maintained in
 - Bug tracking software
 - Excel
 - Word Tables

Collaboration Agreement

- Tester(s) seeking info from developer(s)
- Developers willing to share information
- Formal and informal meetings among them
- Agreement on who maintains the review log and updates the specification

Team Tutoring Sessions

- Developers hold periodic tutoring sessions to keep the team updated on design
 - Team members get more exposure to each other
 - Design concepts shared
- Review Log can be adjusted based on actual design

Other Tips and Tricks

- Have regularly scheduled team meetings
- Use a Projector
- Get all team leads involved in functional definition
 - Developers
 - Testers
 - Writers
 - Field Support
 - Marketing
- Talk face to face whenever possible

Challenges

- Testers must be willing to move ahead
- Developers must be willing to be accessible to testers
- Team needs to have a commitment to feed information back into the functional spec

A Case Study

- Developers and testers participated
- Checklist created by testers
- Review log maintained by testers
- Review log was a Word document
- Functional specification updated by developers

Successes

- More complete FS
 - As time goes by, the FS approaches the utopian vision
- Good Test documents
 - Tests based on reality, tester more familiar with actual functionality and design
- Better product
 - Better design as a result of better docs
 - Tested better

What We Would Change Next Time

- Involve writers and designers in creating the checklist
- Involve writers and designers in entering questions in the log

Other Options

- Consider other ways of logging open items
 - Bug tracking tool
 - Excel
 - Sharepoint
 - Requirements management tool
- Consider alternate division of labor
 - Testers could help update functional spec if developers too busy

Conclusion

- Be realistic
- Be proactive
- Be open to collaboration
- Maintaining a living document is not easy without a commitment