

CS445 / SE463 / ECE 451 / CS645
Software requirements specification
& analysis

Distribution of Requirements Defects

Summer 2021

Daniel Berry

One Company's Defect Ticket List

A defect ticket list is a list of defects that need to be fixed, and all information known about each, including its final disposition when available.

The first person to notice a defect creates a ticket about it, everyone else adds to it, and the fixer closes it

This company X has defect tickets for Waterfall and for Agile projects.

One Company's Defect Ticket List

In the ticket list that I examined:

For Waterfall Projects, 66 defects, of which

10 traced to missing G requirements

5 were clearly defects to the implementation of
D requirements

51 traced to missing D requirements

77.2% traced to missing D requirements!

One Company's Defect Ticket List

In the ticket list that I examined:

For Agile Projects, 68 defects, of which
8 traced to missing G requirements
60 traced to missing D requirements

88.2% traced to missing D requirements!

One Company's Defect Ticket List

In the ticket list that I examined:

77.2% traced to missing D requirements in Waterfall projects!

88.2% traced to missing D requirements in Agile projects!

Not doing a very good job of completing requirements specifications

Each missing D requirement ends up costing 10 times what it would have cost to have identified them during RE.

What Follows

What follows is an examination of three case studies done in the past, before clear articulation of the G vs. D requirements distinction. (Although the idea existed by other not so clear names, e.g. “variations vs. exceptions”.)

The years are 2010, 2006, and 2011.

The observations of each study were made mostly by its first author.

I was a co-author for each.

Requirements Determination is Unstoppable: An Experience Report (2010)

<https://www.student.cs.uwaterloo.ca/~se463/Slides/RDisUnstoppable.pdf>

See Pages 10—18.

See Page 35.

See Pages 39—41.

It's clear from the nature of the so-called *creep*, that most of the defects were missing D requirements.

Experiences of Requirements Engineering for Two Consecutive Versions of a Product at VLSC (2006)

<https://www.student.cs.uwaterloo.ca/~se463/Slides/SoBerry.pdf>

See Pages 4—7.

See Pages 20—45.

Because the version being developed is a refactoring (with *no* behavioral change) of the previous version, it's clear that most of the defects were missing D requirements.

Developers Want Requirements, but Their Project Manager Doesn't; and A Possibly Transcendent Hawthorne Effect (2011)

<https://www.student.cs.uwaterloo.ca/~se463/Slides/IsaacsBerryFullSlides.pdf>

First, see Page 27 to see scope of PX.

See Pages 21—29.

See Pages 72—77.

See Pages 89—90.

Because PX is supposed to be identical in behavior to PY, the 37 missing requirements are clearly D requirements.

The requirements related to the 63 bugs are clearly D requirements.

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