# Improving Soft Reliability by Using Complementary Feedback Data from the Field

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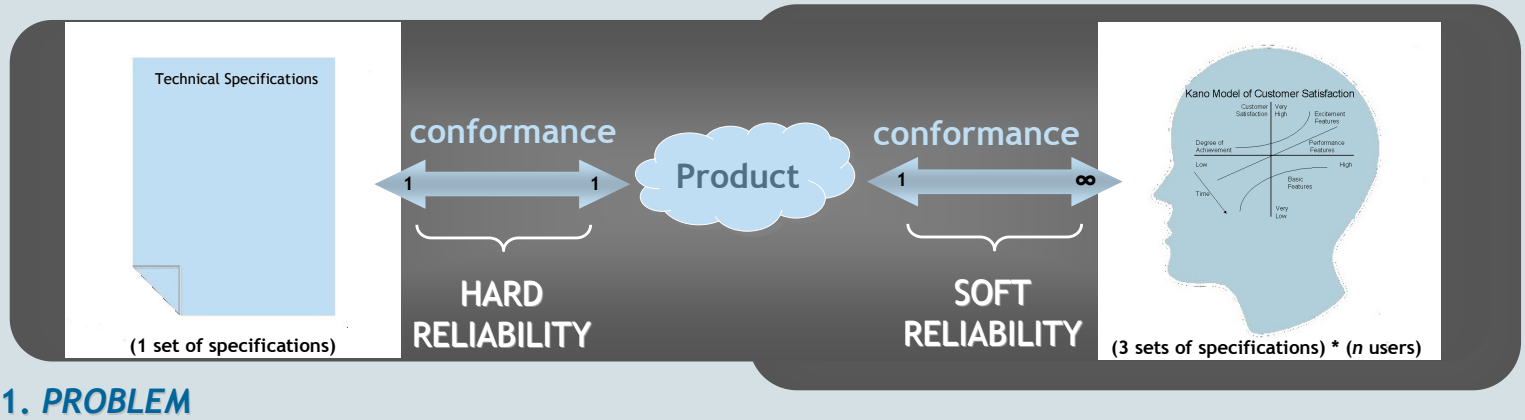



## 1. *PROBLEM*

Currently most relevant usage- and context-information is missing from the data collected during real field use of products: Such data is mainly logistics driven (broken hard-/software). This impedes any detailed analysis of soft reliability (broken expectations of users), and yields a growing and dominating number of reported field incidents that get labeled as 'No Fault Found' (Figure 1). Attempts to make sense of ineffective field data requires time-costly and subjective post-processing. This approach is neither scalable across projects, nor can be tailored to the needs of different stakeholders in product development.

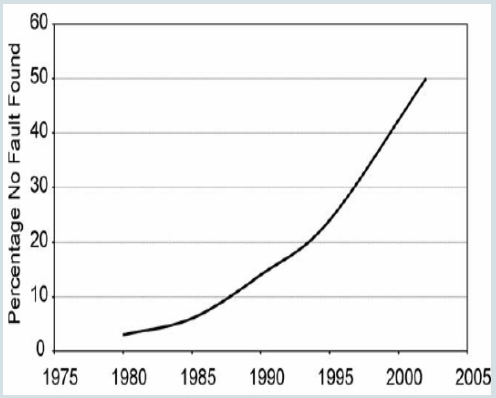
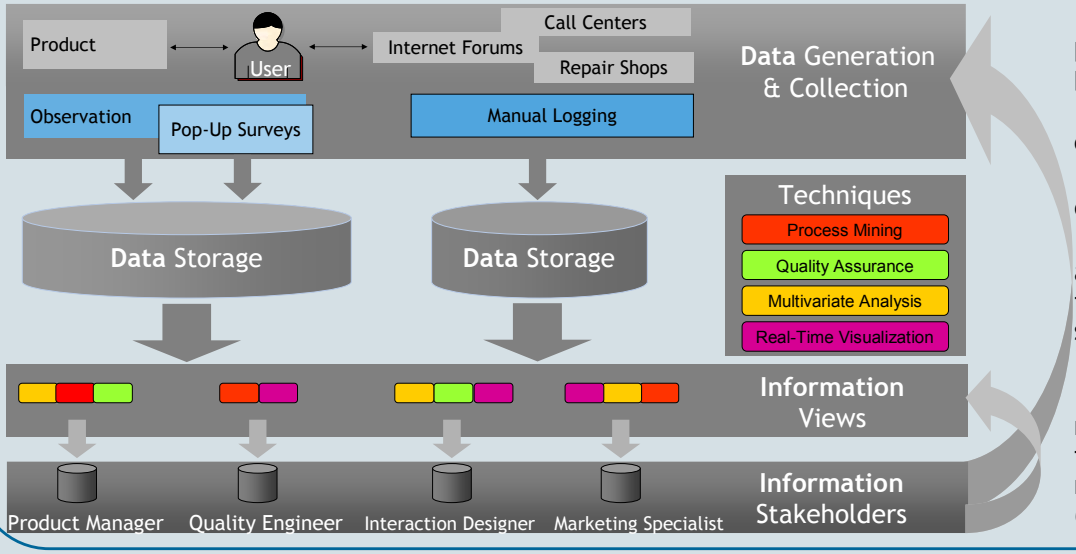



**Figure 1** Brombacher *et al.*, Managing Product Reliability in Business Processes "Under Pressure", 2005

## 2. *OBJECTIVE*: FIELD DATA, AN INVALUABLE RESOURCE

Systematically exploit real, dynamic, abundant field data (e.g. in-product usage logs and complementary user reports), to actively manage soft reliability of products, and reduce 'No Fault Found' (Figure 1)

## 3. *APPROACH*: PRODUCT USAGE INFORMATION ANALYSIS




- *Data Generation & Collection* provides raw data about usage of product
- *Data Storages* aggregate the collected data
- *Techniques* help analyze relevant data in a stakeholder-specific way
- *Information Stakeholders* have access to product usage information that is presented in the form of stakeholder-specific *Information Views*
- Stakeholders might need other or more detailed information, therefore dynamic feedback loops are necessary to link to the *Data Collection* and *Information Views*

## 4. *INDUSTRIAL CASES*

**DVD recorder**

- Call center data from the UK and Germany
- 251 product failures: **74% soft** vs. **8% hard**
- 186 soft failures: 55% problems with *existing product capabilities* vs. 45% *disliked* or *missing capabilities*

**IPTV**

- Field experiment with working prototype: 20 machines in 8 countries; remotely collected 800 000 data items
- Field follow-up experiment: 10 machines in the UK; remotely collected 40 000 data items

## 5. *CONCLUSIONS*

Our approach enables:

- **Quick, reliable, consistent analysis** of **soft reliability,**
- **Systematic comparison** of field data within and **across projects,**
- **Timely reporting** of results, **tailored to** the needs of **stakeholders** in various product development activities (e.g. executives, designers, developers), by providing insights and **"actionable items" to work with.**

***Project Details @*** http://softreliability.org/

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