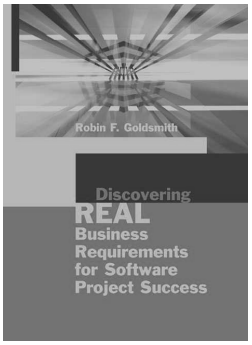
I Went to a Testing Conference and All They Talked About Was Requirements



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Objectives

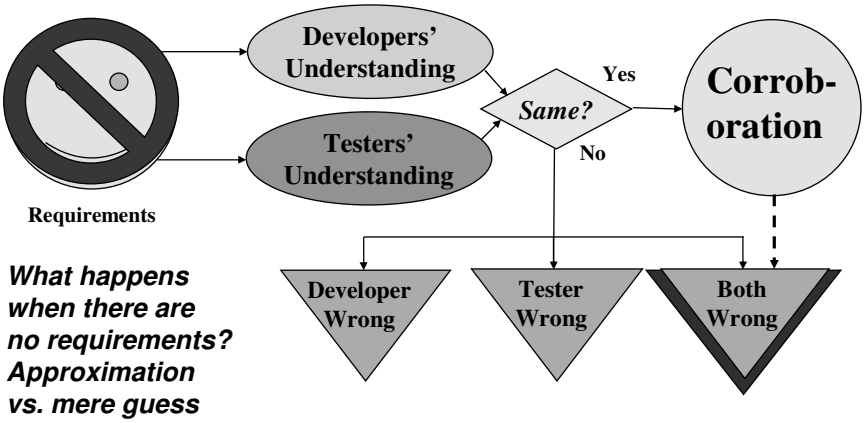
- Identify implications and issues of testers as:
  - Requirements evaluators
  - Requirements definers
- Describe ways to avoid the conference-attendee's paradox pitfall and the testability trap
- Distinguish business requirements from software requirements
- Suggest appropriate ways testers can use to get the clear and accurate requirements they need

I Actually Heard a Conference Attendee Say:

"I Went to a Testing Conference and All They Talked About Was Requirements"

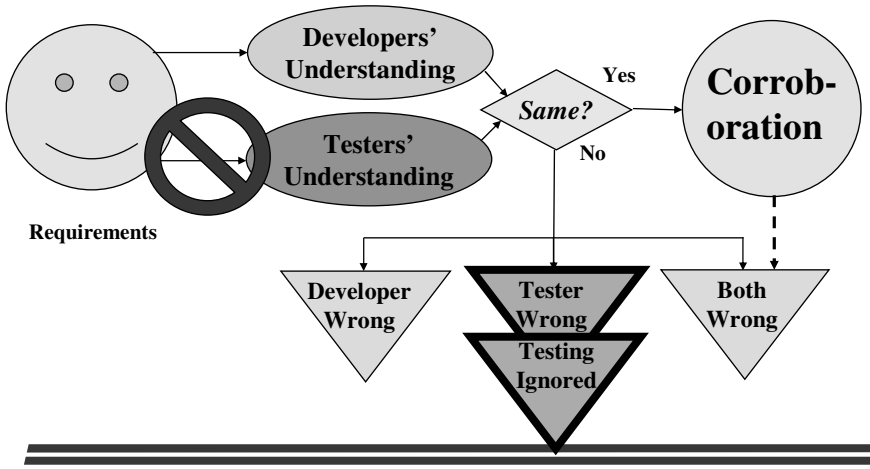
Is it true? Why?

Requirements Drive Both Development and Testing



What happens when there are no requirements? Approximation vs. mere guess

Testers Seem Often to Be Left Out: Why? What's the Impact?



Inadequate Requirements Frustrate Developers Too

- *But it doesn't seem to stop them from coding*
- Their code often reflects
  - Assumptions and unsupported interpretations
  - Informal sources of requirements information
  - Technology- and design- based decisions
- Such code usually differs from
  - What testers know about
  - What the code should accomplish

Testers Need to Know What the Requirements Are in Order to Confirm that Systems Meet the Requirements

Too often testers receive requirements which are too late and inadequate

Getting timely, testable requirements increasingly is becoming testers' major concern

How can/should testers contribute effectively to getting the clear and accurate requirements they need?

Conventional Answer #1:

Involve Testers as Requirements Definers

- Some testing gurus have declared themselves (and by implication, presumably all testers) to be requirements definition experts (apparently solely on the basis of their being testing experts, or maybe their need for requirements)
  - *Is there any reason to believe that testing skill and knowledge have anything to do with making someone good at defining requirements?*
  - *Might in fact there be reasons to suspect the opposite is true?*
- If testers are doing the requirements defining,
  - *What are analysts doing?*
  - *When do testers have time to do testing?*
  - *What happens to the tester's supposed independence and objectivity?*

Is the Common Practice of Making Analysts Responsible for Testing Any Different?

- Analyst's tests of developers' interpretations undoubtedly do reflect a better understanding of what the analyst thinks the requirements are, but…
  - There's no check on the adequacy of the analyst's definition of requirements
  - Analysts are less likely to be skilled in testing and thus probably overlook many conditions that need to be demonstrated
- Tests written by analysts often are likely to be executed by users
  - Defects are not found until late, when they are harder to fix
  - Though often considered User Acceptance Tests, tests defined by the analyst are not appropriate User Acceptance Tests, because the analyst is the author and not the User

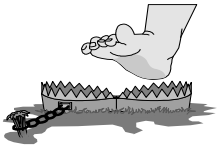
Conventional Answer #2: *Testers Should Review Requirements*

Conference-Attendee's Paradox Pitfall

Testing Gurus: *Testers, go back and make "them" let you participate in reviews to make sure requirements are* ***testable.***

- Other folks, such as users, analysts, managers, and sometimes developers ***are*** involved defining requirements up-front
- When testers impose themselves on the requirements process:
  - **"Testability" can seem trivial**
  - **Involvement can backfire if they are not prepared to contribute meaningfully—requires business domain subject area knowledge that testers may not have**
  - **They'll prove it was right to exclude them**

The Testability Trap



- Testability is important; but often not to others and can seem like trivial nit-picking
- A requirement can be testable yet completely wrong—checking for testability often is unlikely to reveal when a requirement is incorrect
- For requirements that are overlooked, testability is irrelevant

We have more than 21 ways to test or evaluate the adequacy of requirements, only one of which is writing test cases to demonstrate testability; and many ways find overlooked or incorrect requirements.

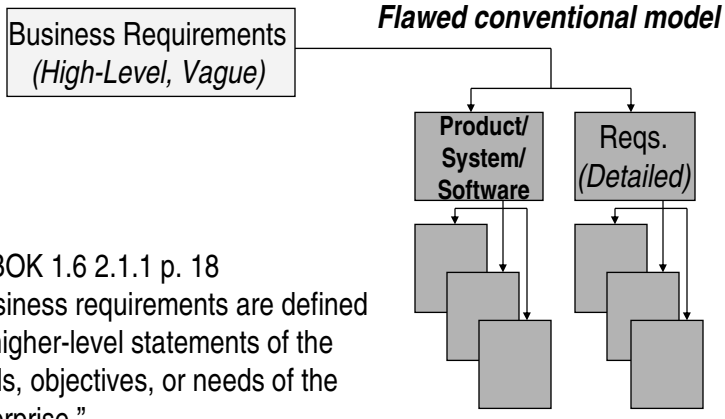
Some Not-So-Conventional Answers

- Testers have a responsibility to represent the users
  - Includes but goes beyond confirming that developers develop what they intend to develop
  - Requires a probably different perspective on requirements
- Testers are obligated to test competently, regardless of obstacles such as lack of adequate requirements
  - Competent testing includes defining in writing what to test
  - Often the closest approximation there is of the requirements
- Proactive Testing™ techniques have by-product side effects of identifying wrong and overlooked requirements
  - Facilitating User Acceptance Test plans and designs
  - Technical test planning and design

➲ Two Types of Requirements:

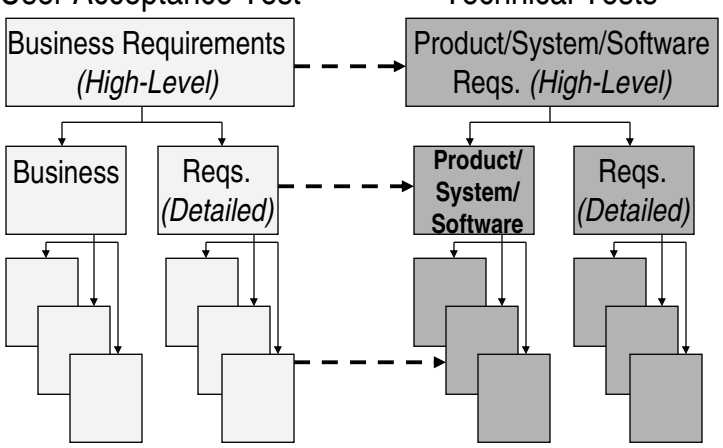
Business/User/Stakeholder	Product/System/Software
• Business/user/stakeholder/ customer language & view, conceptual; *exist* within the business environment • Serves business objectives • ***What*** business results must be delivered to solve a business need (problem, opportunity, or challenge) and provide value when delivered/satisfied/met **Many possible ways to accomplish**	• Language & view of a *human-defined product/system* • **One of the possible ways *How*** (design) presumably to accomplish the presumed business requirements • Often phrased in terms of external functions each piece of the product/system must perform to work as designed (Functional Specifications)

Even Requirements "Experts" Think the Difference Is Just Level of Detail

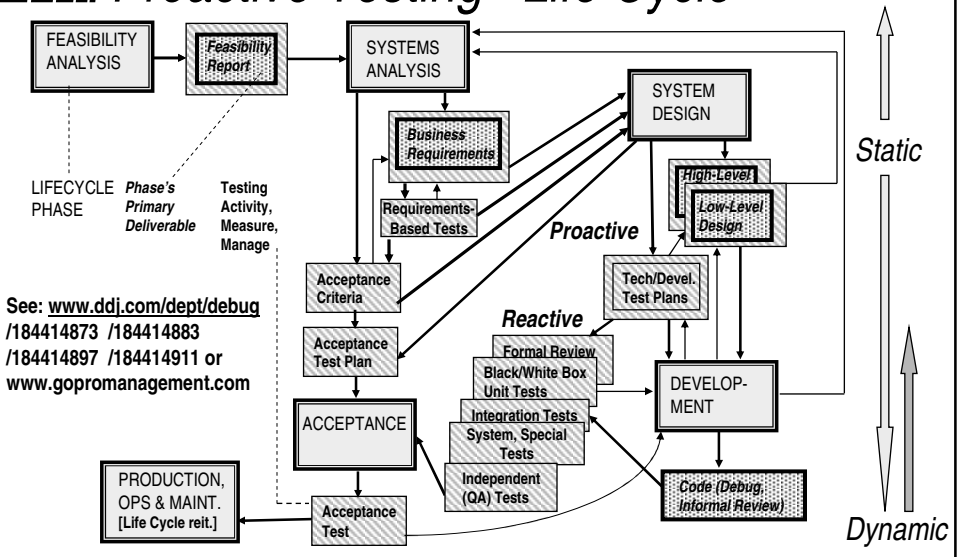


BABOK 1.6 2.1.1 p. 18
"Business requirements are defined as higher-level statements of the goals, objectives, or needs of the enterprise."

When Business/User Requirements Are Detailed First, Creep Is Reduced



Proactive Testing™ Life Cycle



See: www.ddj.com/dept/debug /184414873 /184414883 /184414897 /184414911 or www.gopromanagement.com

Requirement:
Calculate 5% Sales Tax on the Order

- Requirements-Based Test:
  - Enter one item at $99.99, Sales tax should be $5.00
- Acceptance Criteria
  - Create an order consisting of both taxable and nontaxable items
  - Create an order that covers 2 pages
  - Produce a credit voucher for a returned item
  - Calculate for states and localities with different rates

Then drive acceptance criteria to lower detail

Example: Proactive Master Test Planning Risk Analysis for
Web Quote Personal Auto Insurance

- For use by independent agents
- 1. Ascertain who client is, kind of cars, drivers, driving records, location, marital, sex, age, VIN, usage, driver training, grades, types of coverage, deductibles.
- 2. If passes initial scrutiny, find out about liens on the vehicle, additional insured, billing plan, payment type.
- Calculate and provide premium quote.
- Print application form to be signed, returned with payment.

Risks to the System in Operation that Testing Should Address

[*identified by author*]
1 car, 1 driver; more cars than drivers; more drivers than cars
Age groups; accidents and tickets
Order Motor Vehicle Record Rates Agents' use Flow to in-house system
[*added by others*] Data validation and editing Lose connections, session continuity
Hardware capacity and performance Compatibility—browser, O/S, platform Viruses

[from author & others]	*New customers,*
Printing quotes and app forms Underwriting rules	*Existing custs, mult D/B records*
Send in signed printed application;	*Multiple requests for quotes*
check accompanies if paying by check	*Reports on types of quotes,*
Track applications, tie back to ones not sent in	*quotes vs. purchases*
Minimum set of data Calculations	*multiple quotes for same person*
Security Firewalls, anti virus	*Compare web applications to*
Order credit scores, receive back for calculations	*phone, mail applications*
Validating payment with credit card, not approved	*Purging records*
3rd party system down	*Interactions with other systems*

These represent a combination of Detailed (unit, integration, or special) Test Plans and Test Design Specifications—Also Identify Design Issues

Test Design: What Must We Demonstrate to Be Confident "Find an applicant by driver's license" Works?

Assumptions: License number is fixed-length number

Valid
Actual number for my state
Actual number for a different state

Invalid
Number of proper length for my state, not a license
Number of proper length for a different state, not a license
Valid number for my state but indicated for a different state where not a license
No state, invalid state
Alphabetic, special characters

✓ Checklists Find Added Conditions

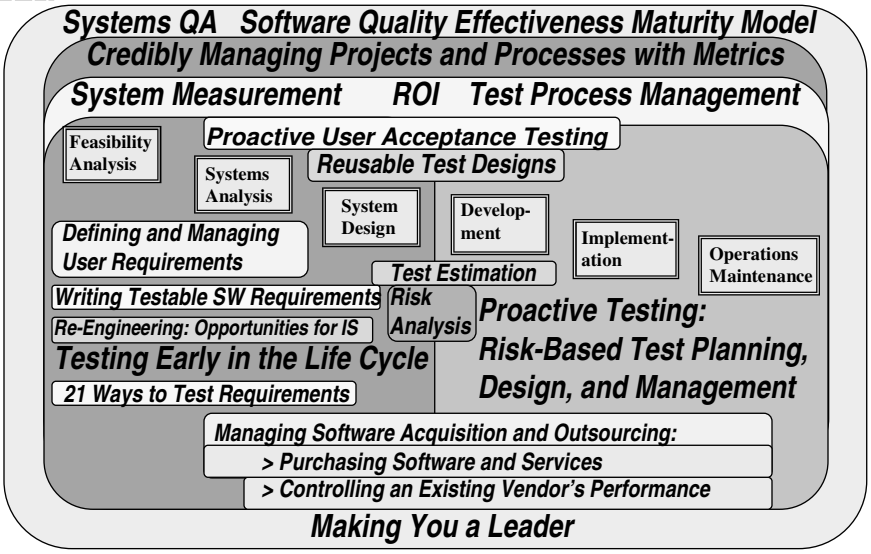
Valid	**Valid**	**Valid**
Fonts, sizes, color/bkgrnd	Newly added, modified number	Lowest number in DB
Field initially empty, filled	Reloaded file/DB	Next higher number in DB
Edit input	Key in, paste in, scan in	Highest number in DB
Repeat with same, diff no.	To field: Tab, back tab, prior, next	Next lower number in DB
Invalid	Arrows, link, Enter, automatic	Proper number for state with most digits
Mixed alpha and numeric	Data on user's hard drive, CD	Proper number for state with least digits
Blank, null	server, Web	Proper number for first state in DB
Zeros, leading blanks	Single, multiple users	Proper number for last state in DB
*. , $ + - / * % ( ) [ ]*	***Invalid***	***Invalid***
Other special characters	*Clicks outside indicated fields*	*Just lower than lowest number in DB*
Control keys, characters	*Double clicks on fields*	*Just higher than highest number in DB*
	Paste in graphic	*Very small number (e.g., .000000001)*
	Deleted number	*Very large number*
	No access (security)	*Proper length minus 1, plus 1*
	DB, network error	*Very long number*

Proactive Testing™ test design finds requirements issues

Summary

- Testers can avoid the conference-attendee's paradox pitfall and the testability trap to become effective requirements evaluators by
  - Gaining subject area knowledge
  - Using the more than 21 techniques to find overlooked and incorrect requirements, as well as those that are not testable
- Testers are unlikely to have a direct role in defining requirements but can identify requirements as a by-product of Proactive Testing™ test planning and design
- Testers must test that the software conforms to the software requirements and also that the software meets the REAL, business requirements

Go Pro Management, Inc. Seminars--Relation to Life Cycle



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- President of Go Pro Management, Inc. consultancy since 1982, working directly with and training professionals in business engineering, requirements analysis, software acquisition, project management, quality and testing.
- Partner with ProveIT.net in REAL ROI™ and ROI Value Modeling™.
- Previously a developer, systems programmer/DBA/QA, and project leader with the City of Cleveland, leading financial institutions, and a "Big 4" consulting firm.
- Degrees: Kenyon College, A.B.; Pennsylvania State University, M.S. in Psychology; Suffolk University, J.D.; Boston University, LL.M. in Tax Law.
- Published author and frequent speaker at leading professional conferences.
- Formerly International Vice President of the Association for Systems Management and Executive Editor of the *Journal of Systems Management*.
- Founding Chairman of the New England Center for Organizational Effectiveness.
- Member of the Boston SPIN and SEPG'95 Planning and Program Committees.
- Chair of record-setting BOSCON 2000 and 2001, ASQ Boston Section's Annual Quality Conferences.
- TechTarget, SearchSoftwareQuality requirements and testing subject expert.
- Member IEEE Std. 829 for Software Test Documentation Standard Revision Committee.
- Member IEEE P730 Working Group rewriting IEEE Std. 730-2002 for Software Quality Assurance Plans.
- Member IEEE P1805 Working Group developing a Requirements Capture Language (RCL) standard.
- International Institute of Business Analysis (IIBA) Business Analysis Body of Knowledge (BABOK) subject expert.
- Admitted to the Massachusetts Bar and licensed to practice law in Massachusetts.
- Author of book: ***Discovering REAL Business Requirements for Software Project Success***

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- Gene Freyberger – Annual Survey
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- To promote use of engineering and management techniques that lead to delivery of high quality software
- To disseminate concepts and techniques related to software quality engineering and software engineering process
- To provide a forum for discussion of concepts and techniques related to software quality engineering and the software engineering process
- To provide networking opportunities for software quality professionals

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- Software Quality Professional Journal www.asq.org/pub/sqp/
- CSQE Certification info at www.asq.org/software/getcertified
- SW Div info at www.asq.org/software

SQGNE 2009-10 Schedule

Speaker	Company/Affiliation	Date	Topic
Eric Lotter	Surgient	9/9/09	Using Virtualization to Accelerate Quality/Test Cycles
Steve Rakitin	Software Quality Consulting	10/14/09	Software Quality Assurance Turns 50 A Critical Look at the Profession
Howie Dow and Steve Rakitin		11/11/09	Interactive Requirements Exercise…
Michael Mah	QSM Associates	12/9/09	Rightsizing Your Project in a Down Economy
Robin Goldsmith	GoPro Management	1/13/10	I went to a Testing Conference and all they talked about was Requirements
Stan Wrobel	CSC	2/10/10	To be announced…
Billie Bell	Intuit	3/10/10	End-to-End Testing in a SaaS environment: Extending the Definition of Quality
Michael Mah	QSM Associates	4/14/10	Rightsizing Your Project in a Down Economy
Urvashi Tyagi	Microsoft	5/12/10	A day in the life of a tester at Microsoft…
Brian LeSuer	Star Quality	6/9/10	To be announced…
Everyone		7/14/10	Annual Hot Topics Night…

Tonight's Speaker…

I Went to a Testing Conference and all they talked about were requirements!

Robin Goldsmith, Go Pro Management, Inc.

Why are so many testing conference talks about requirements, rather than about testing; and what does it matter? Testers need to know what the requirements are in order to confirm that systems meet the requirements. Yet, too often testers receive requirements which are too late and inadequate. Thus, how to get timely testable requirements increasingly is becoming testers' major concern. However, since testers may be neither skilled in nor positioned for defining requirements, their requirements definitions still may be inadequate and also divert time from their primary testing responsibilities. In this interactive session, Robin Goldsmith reveals seldom-recognized issues that often impact or even defeat testers' requirements efforts and suggests more appropriate ways testers can contribute effectively to getting the clear and accurate requirements they need.

Bio:
President of Go Pro Management, Inc. consultancy since 1982, working directly with and training professionals in business engineering, requirements analysis, software acquisition, project management, quality and testing. Partner with ProveIT.net in REAL ROI™ and ROI Value Modeling™. Previously a developer, systems programmer/DBA/QA, and project leader with the City of Cleveland, leading financial institutions, and a "Big 4" consulting firm. Degrees: Kenyon College, A.B.; Pennsylvania State University, M.S. in Psychology; Suffolk University, J.D.; Boston University, LL.M. in Tax Law.

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