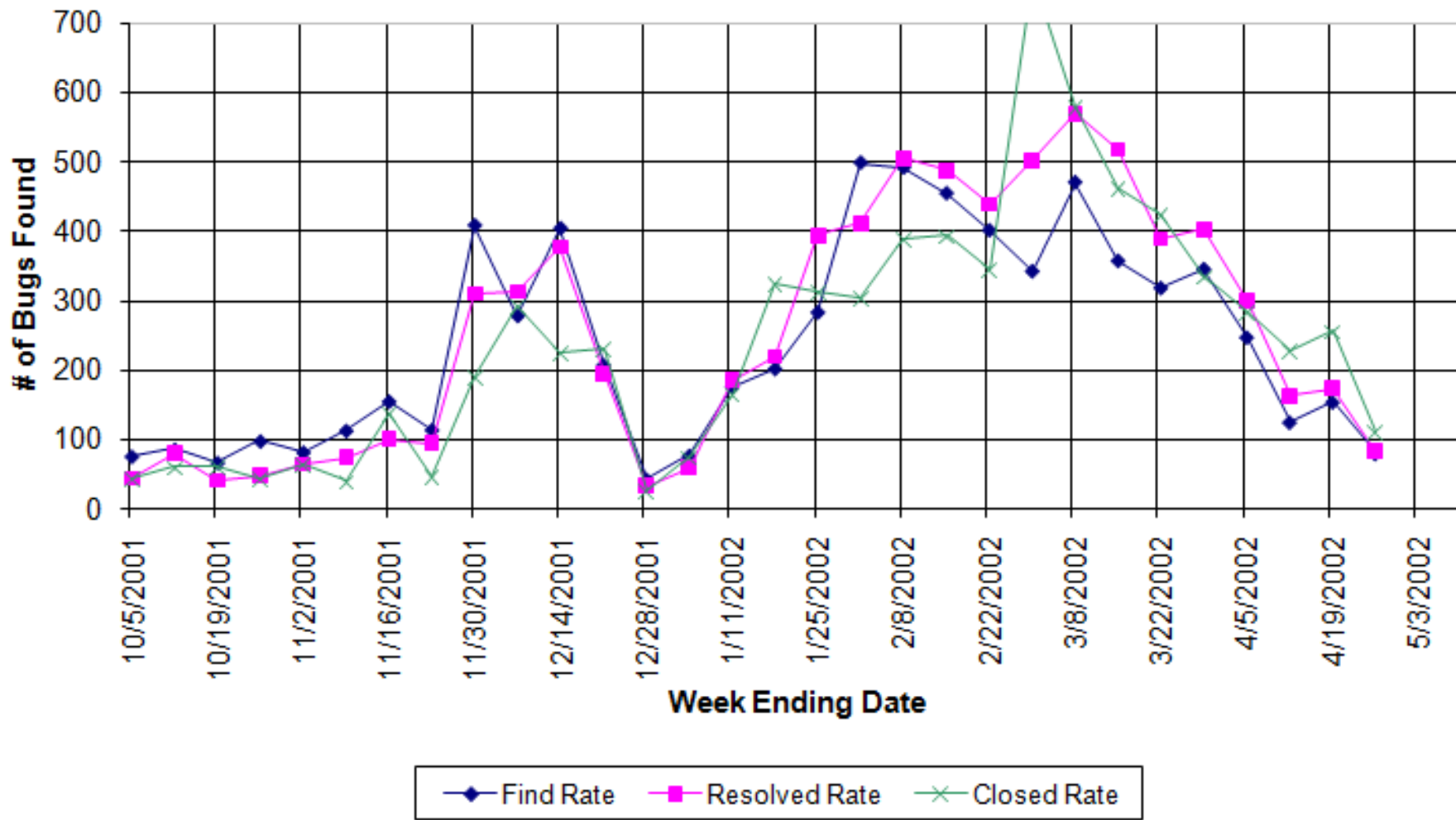


When to Ship?

Choosing Quality Metrics

Alan Page
Director, Test Excellence
Microsoft

Bug Rate Chart



Presentation Ship Criteria for STAR East 2009

Total Slides (excluding this slide)	19
Spelling Errors (known)	0
Dry Runs	0
Words	772
Images	12
Words to Images ratio	64.3
Slides to Images ratio	1.6
Count of summary slides	1
Count of link slides	1
Count of backup slides	1

Making the ship decision

- What do you measure?



Super App!

With These Great Features!

- Ran over 9000 test cases with a 98% pass rate
- Code Coverage rate over 85%!
- Stress tested nightly
- Nearly 5000 bugs found
- Over 3000 bugs fixed!
- Tested using both structural and functional techniques

And much, much more ...

BUY it NOW!

Ship Metrics

What you measure

- 95% test pass rate
- 80% statement coverage
- Number of “Sev 1” bugs
- Number of test cases or number of bugs

What you *really* want

- Details on the other 5%
- Why is 20% of our code completely untested
- Number of “used to be Sev 1” bugs
- Number of bones in mayonnaise found on Saturday

What do customers want?



Alan's Spheres of quality



Engineering
Quality

Experience
Quality

Engineering Quality

Experience Quality

How effectively the architecture, design, code, testing, and integration meet high engineering standards and product requirements

How well the product functionality meets or exceeds customer expectations under actual usage
Do customers feel the product is consistently reliable, responsive, compatible, secure, and easy to use?

We Measure how we engineer the product

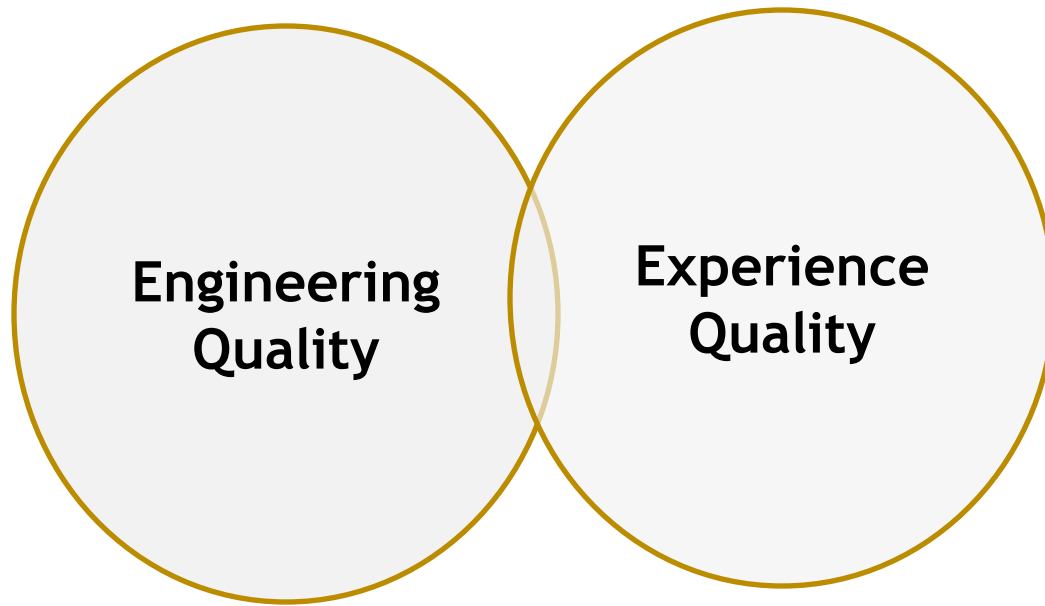
Customers care about their experience with the product

Alan's Spheres of quality



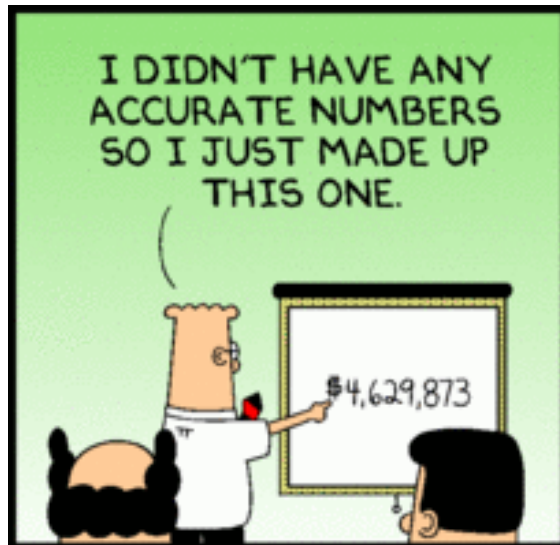
If we're lucky, these spheres overlap a lot

Alan's Spheres of quality

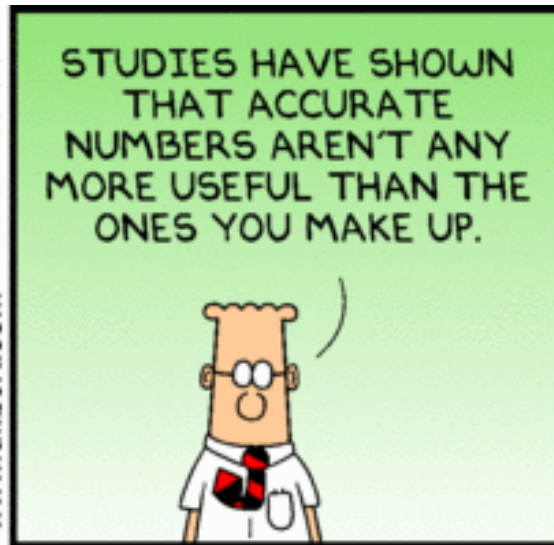


Sometimes we're not so lucky

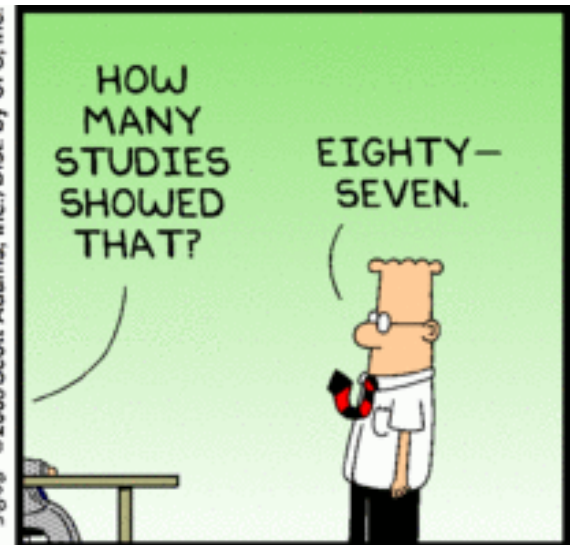
Do you trust your metrics?



www.dilbert.com
scottadams@aol.com



5-8-08 © 2008 Scott Adams, Inc./Dist. by UFS, Inc.



Goal-question-metric (GQM)

- Purpose: derive measures starting from high level goals
- Articulated first by Victor Basili in 1988 and subsequently refined
- Starting Point: State the **goal** to be achieved.
- Develop the **questions** that break the goal into it's major components.
- Develop **metrics** that answer the questions

Victor Basili, Gianluigi Cladiera, and H.Dieter Rombach; The Goal Question Metric Approach <http://www.cs.umd.edu/projects/SoftEng/ESEG/papers/gqm.pdf>

Goal !!!

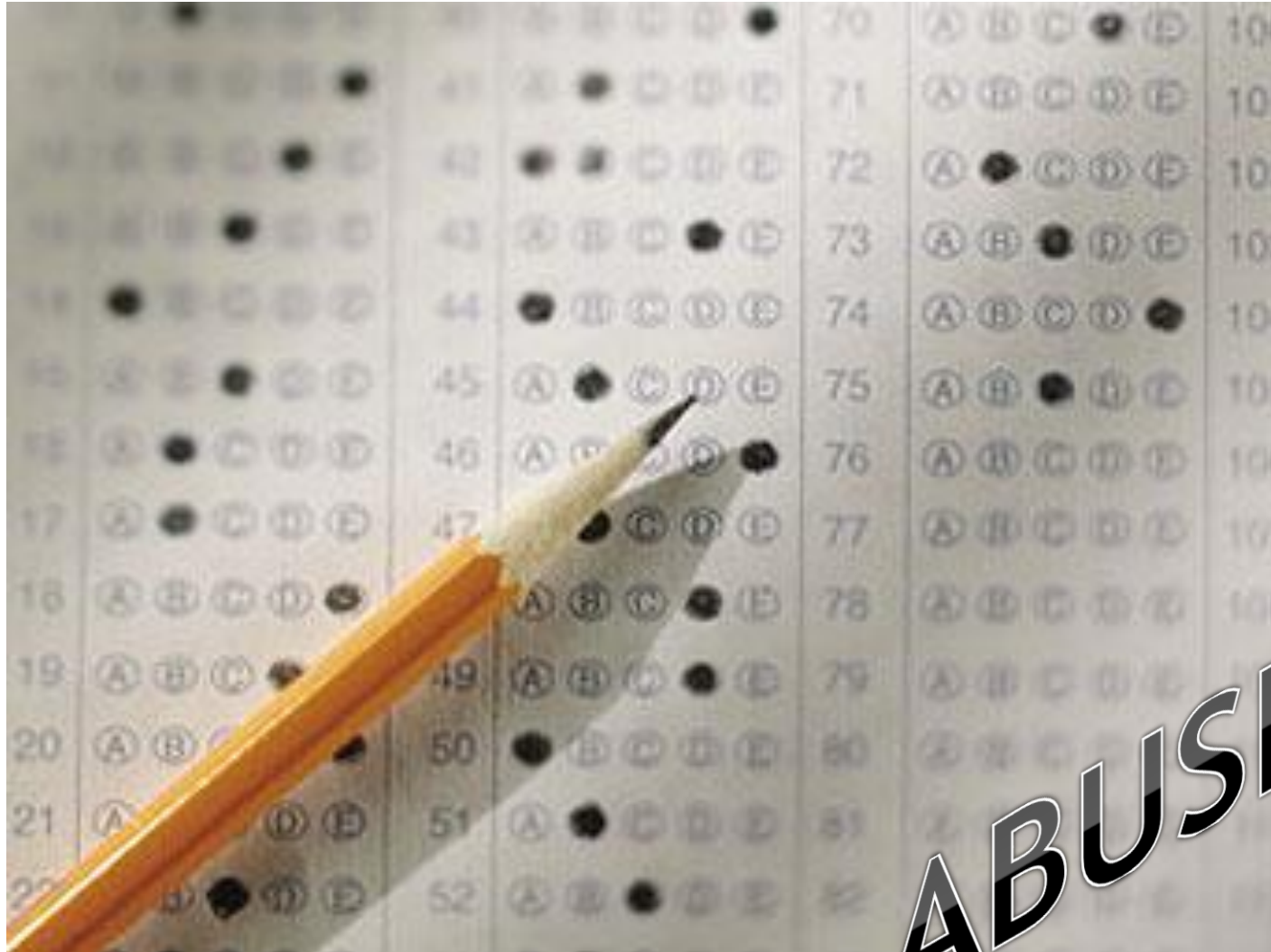


Question, Metric (practice)

ABUSE your metrics

Adverse Behaviors	What might people do to make the metric look good, while not actually improving what it was intended to measure?
Believable	Will people trust the metric?
Useful	Is the metric merely interesting, or is it useful? Can it answer multiple questions?
Same	Does the metric mean the same thing to everyone?
Excellence	What does “good” look like?

Practice - Testing a Metric



ABUSE
Adverse
behaviors
Believable
Useful
Same
Excellence

ABUSE

A comment on individual metrics



Hard Numbers vs. Gut Feel

- Sure, quantitative metrics are important
- ...but you can't discard qualitative metrics
- Data can tell you *what* happened, but not *why* it happened
- Don't forget about user experience

Summary

Ask what your metrics are telling you

Before using a measurement, understand the story behind the measurement

You can design a measurement system for any conclusion you wish to draw

- *Gerald Weinberg*

Start from the top (GQM)

ABUSE



Shameless Plug Slide

My Book

<http://www.hwtsam.com>

My Blog

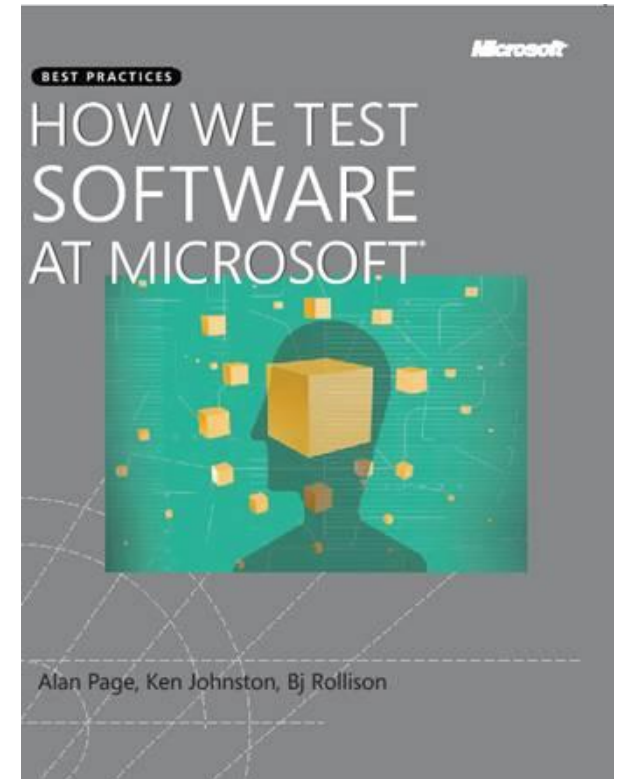
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Engineering Quality

- Arch. Quality
- Code Quality
- Design Quality
- Complexity
- Cost Effectiveness
- Bug Rate
- Integration
- Maintainability
- Regression Rate
- Testability

Customer Experience

- Reliability
- Security
- Aesthetics
- Supportability
- Performance
- Completeness
- Market relevance
- Interoperability
- Compatibility
- Manageability