Welcome to this IBM podcast. I'm Angelique Matheny. The title of this podcast is "**Managing Software Quality as a Strategic Business Asset"** and joining me is Michael Lundblad, Rational Quality Management evangelist and thought leader.

Mike will discuss the new Quality Management thought leadership whitepaper series and its first paper titled, "When am I done testing?" – a new barometer for measuring the business risk of release versus the cost of continuing testing that provides an innovative framework for answering the questions: Is it wise to continue spending money on quality assurance?", "Will further testing cost more than it is worth?", "Am I sacrificing too much value if I delay going to market now?", "Is the software even ready for release?"

HI Mike, welcome to the podcast. Thanks for joining us.

Mike, Let's start off with this. Can you summarize the overall approach the new thought leadership paper "When am I done testing?" suggests to help business, systems and IT leaders better measure the business risk of software release versus the cost of continued testing.

Answer:

- Tremendous pressure today to transform business and innovate through software
  - Examples: F35 Joint Strike Fighter, law enforcement – license plate and facial recognition, automotive – OnStar system
- Yet defects cost millions in lost revenue, and repairs costing $300B in the US alone annually.
  - Dec 2008 and Israeli hospital system associated blood test results with wrong patients
- Consider the pressures of scope, cost, time and quality – Iron triangle – it's very tough to decide "when are we done testing." How do we know?
- So early last year I asked an audience of 100 testers in the UK "how do you know when you're done testing?"
  - Various answers including: defect density declines, all sev 1 effects fixed, code churn, etc. – technical response based on "exit criteria"
  - But all said need a way to measure business risk – probability of failure and the estimated loss to the business
- Met with IBM distinguished engineer Murray Cantor and some of his IBM Research Lab associates to help define the question, the solution and get some data to prove the models
- Overall premise of the paper is a software delivery governance problem – timing the window of opportunity around the SW development release date and the impact of that decision
  - It's a question of economics: – if release too early, we have serious loss in damaged business and repairs, but if too late, we lose opportunity revenue

- Ran a bunch of system tests in our lab against 5 releases of software to gather data
- Determined mean-time-to-failure of each one – gives us probability of failure
- Statistical distribution of probability of failure can estimate this probability at any point in time in the future, e.g. 90 days from release
- Considering an estimate of catastrophic loss, given probability tells us what the economic business risk of failure at 90 days or whenever. Adding in cost of maintenance gives us the whole calculation of business risk at that point in time.
- We can also estimate the net future value of the software revenue at any point in time as the risk to revenue opportunity
- Then we can consider the cost to continue testing. In most companies if the cost to test is greater than the economic business risk, it's time to stop testing.
- At least we have a decision point and some metrics to think about.

• So the paper goes through this process in excruciating detail. I had a person from IBM Global Services testing organization say that this paper is the most practical use of modern calculus she has ever seen.

Question: Are there some decisions or governance concerns that this type of analysis helps the customer make once the software is deployed?

Answer:

• Sure. SW governance is the who, what, when, why and how of deciding software is ready to release.
• Who – might consider a chief quality officer or someone responsible for looking over this and a statistician to do the metrics work
• What – use the methods in the paper to estimate these risks for decision making
• When – during system test create the failure density function graphs
• Why is about policies – so decide what ratios and metrics you're comfortable with risking
• How – that's in the paper
• Example: this is very useful when thinking about maintenance cycles for aircraft or complex vehicles; and failure data due to scalability issues can be useful for system monitoring determination

Question: Mike**,** looking ahead, share a bit about this broader new Quality Management thought leadership series; the insights that this initial paper brings to the series and what additional insights can we expect in future installments?

• Our next paper will be the overall quality management discussion – why is this a problem today, the 3 basic concepts that IBM is working into our QM solutions – lifecycle collaboration, automation and reporting/governance

- The When am I done testing paper helps answer the governance piece of QM
- Then we also have plans to write more about the collaboration and automation concepts as we flesh them out.

Question: So Mike, are there some key takeaways around this new paper and thought leadership series you'd like to leave our audience with?

Answer:
- Delivering quality, business-critical software has never been more complex – traditional methods are a recipe for going out of business
- Quality is a team sport – need to think and act collaboratively across the software delivery lifecycle – this is the only way to improve quality in less time
- Finally, to support quality go/no-go decisions we need to get very scientific about knowing what to test, how to test and when to know when we're done.

Question: Where can folks go to learn more?

Answer: *http://www-01.ibm.com/software/rational/announce/wpseries/*

Mike, this was very informative. Thank you so much for taking time out to discuss "**Software Quality as a Strategic Business Asset"**. We really appreciate it.

MATHENY: That was Rational's Mike Lundblad, IBM Rational Quality Management evangelist and thought leader

MATHENY: If you are interested in more podcasts like this one – check out the Rational Talks to You podcast page at www.ibm.com/rational/podcasts.

This has been a IBM Rational podcast. I'm Angelique Matheny. Thanks for listening. Keep tuning in as Rational Talks to You.