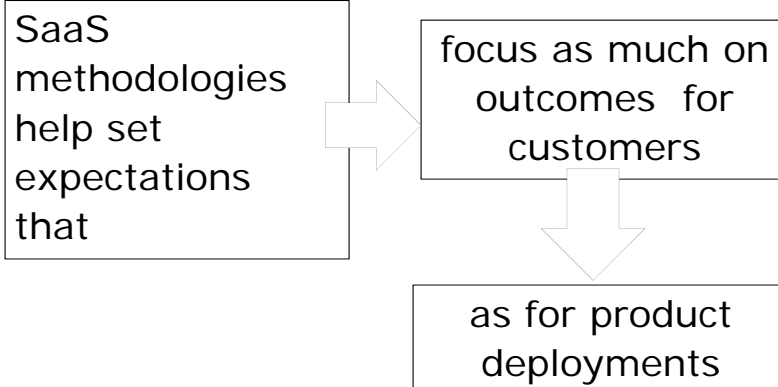


A Fresh Look at Quality in a SaaS Environment

SQGNE
March 10, 2010
Billie Bell, Intuit, Inc.

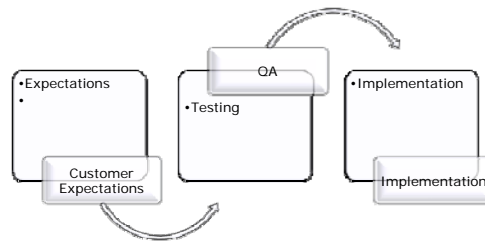
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SaaS enables us to focus on our customers



2

QA are first responders to gaps between customer expectations and implementation



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Quality leaders play a key role in the success of SaaS implementations

- Focus on business aspects as well as technology aspects of implementations
- Partner with the entire organization
- Take the lead in identifying and monitoring risks

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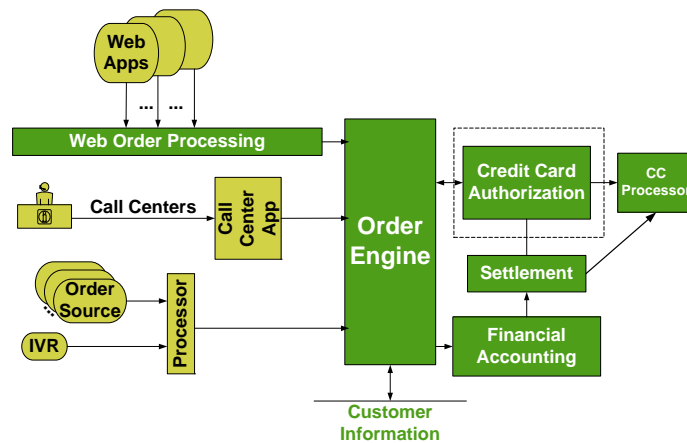
Quality leaders bring valuable perspective to SaaS implementations

- SaaS methodology helps set the expectation for our companies to focus more on outcomes for our customers rather than simply on product deployments
- One of the major areas of contribution of good quality teams comes from their role as the bridge between technology and the customer
- Opportunities are greater than ever for quality leaders to enrich the partnership between technology and the business by employing their big picture mindset

5

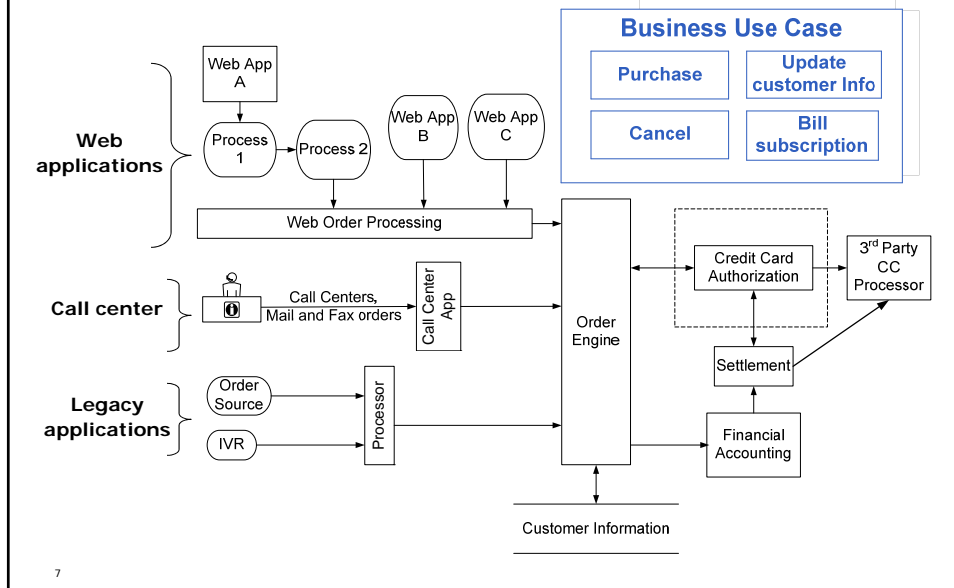
An infrastructure environment comprised of SaaS components sets context for a case study

Business web offerings, desktop, and call center applications rely on infrastructure for identity management, order processing and billing, accounting functions.



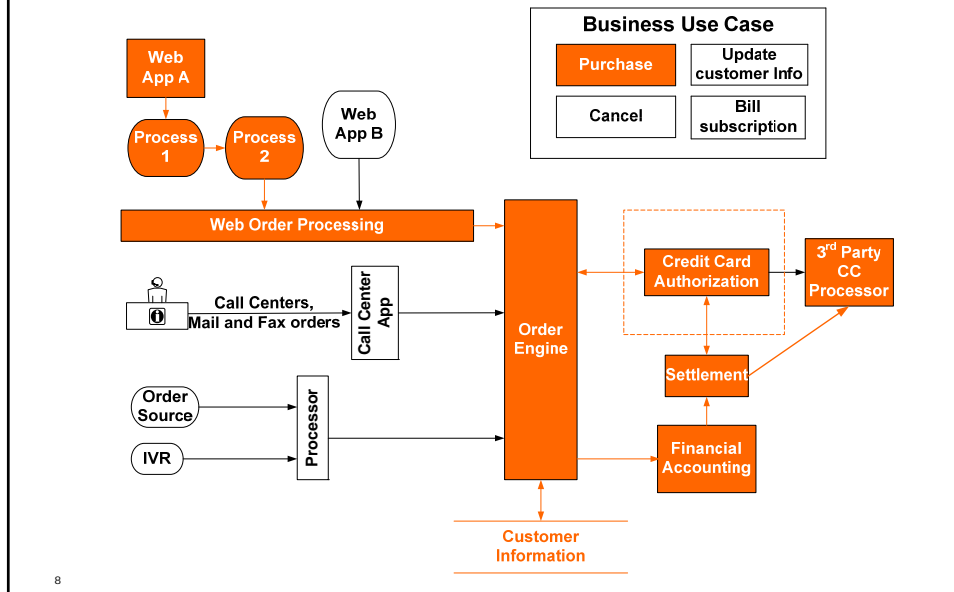
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Order System High Level Architectural Diagram

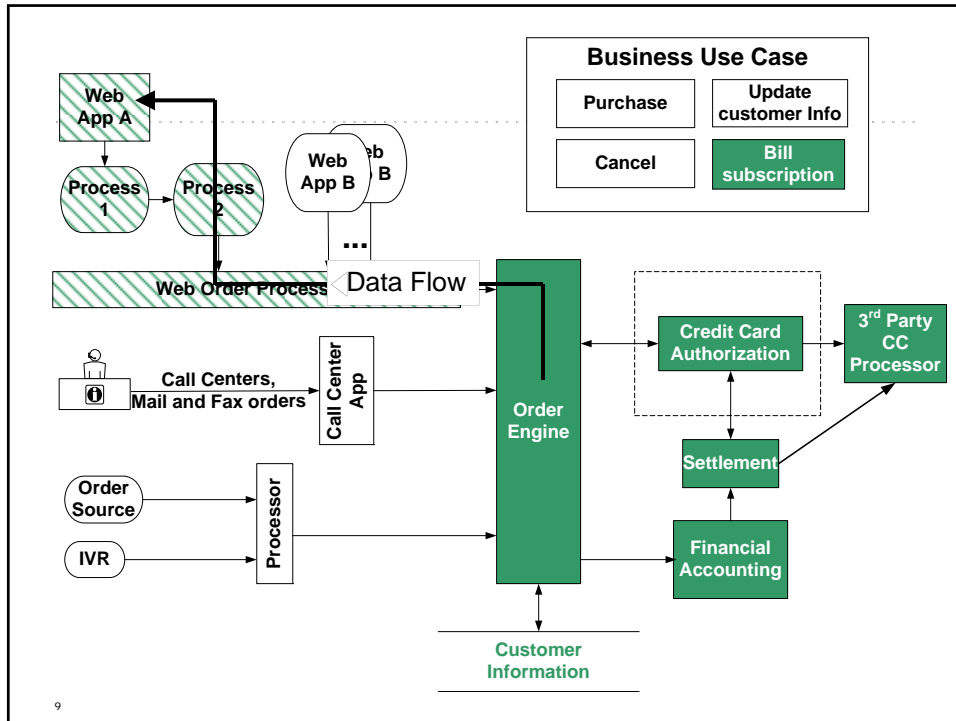


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The Purchase use case is architecturally nine layers deep



8



Certain troublesome patterns emerged, causing us to take a fresh look at quality

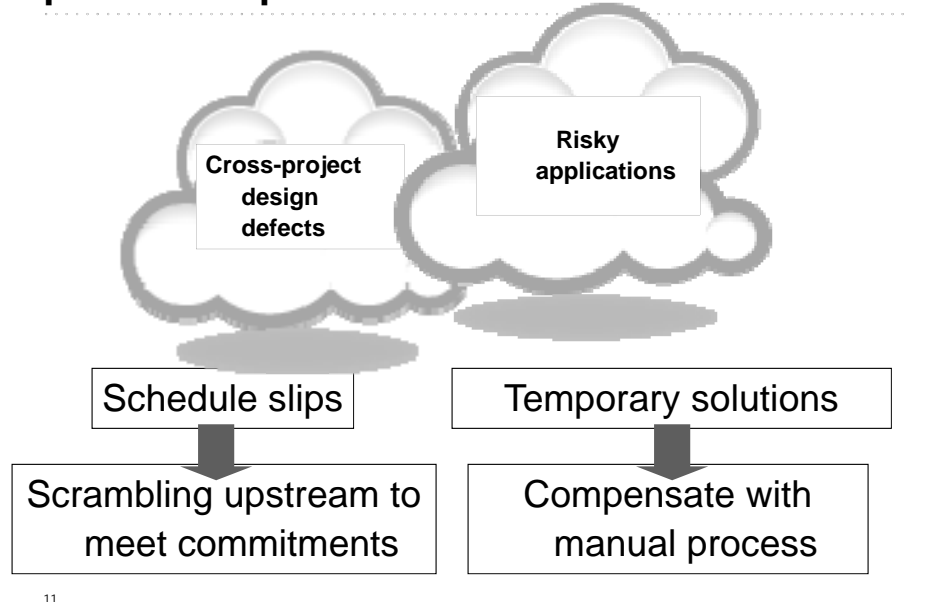


- Cross-project design defects were being found very late in the program cycle



- Certain risks were detected late because we underestimated the relative importance of certain projects

Consequences of late detection created pervasive problems to the business



Analysis revealed assumptions based on a traditional model that may require adjustment

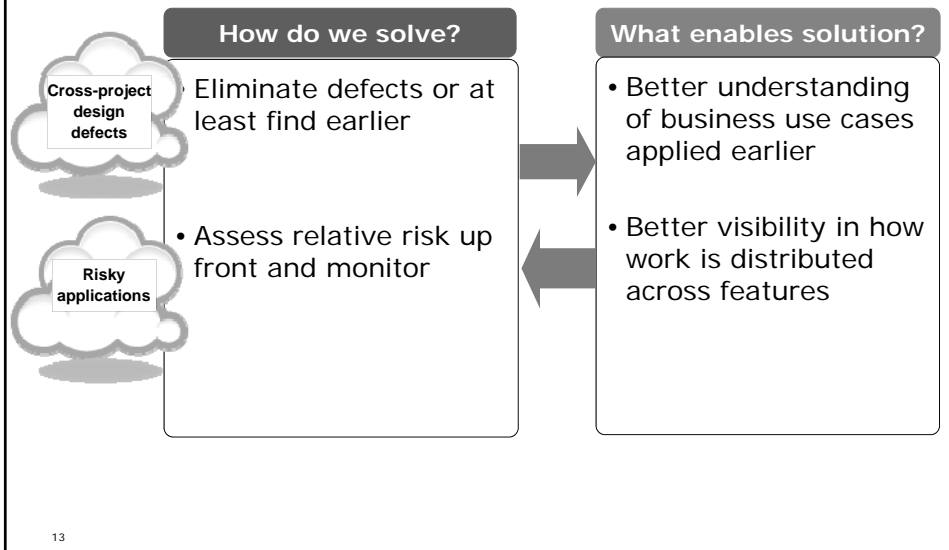


- Positive test results for edge cases at one level of integration is a good indicator of quality of that transaction throughout the entire business process

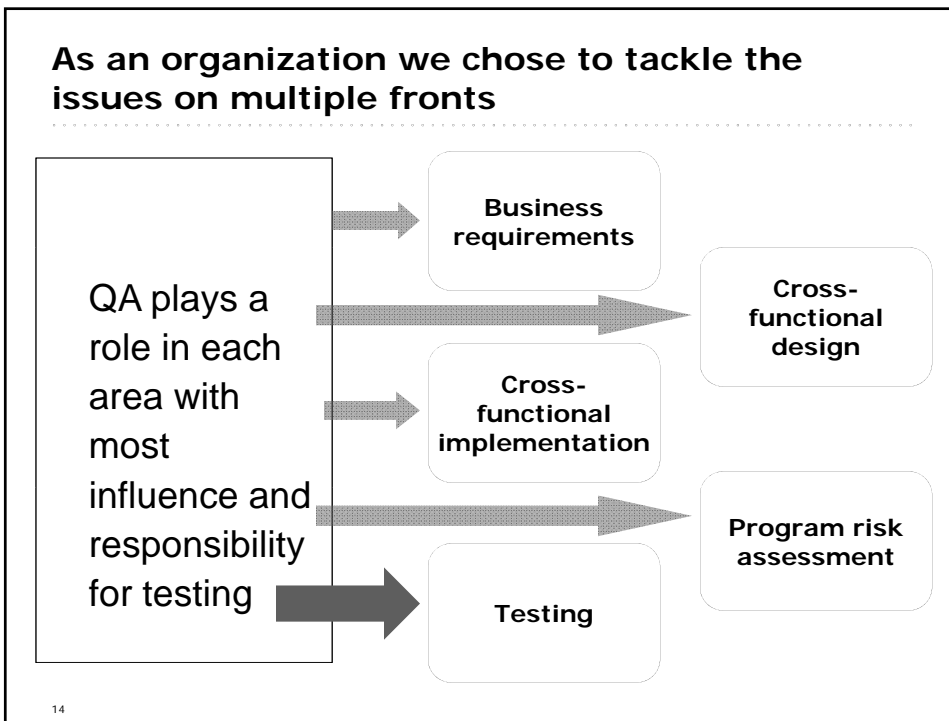


- As long as the big projects at the foundation of the process indicate good quality, there is no significant risk to a successful delivery of features on time

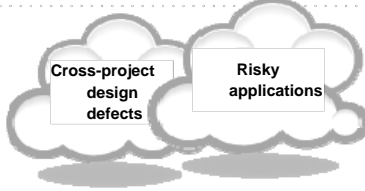
The defect and risk problems appear solvable



As an organization we chose to tackle the issues on multiple fronts



Meeting the challenges of a SaaS methodology requires a more holistic approach to QA



- Both issues show the need for a QA mindset that is grounded in an understanding of business implications
 - An understanding of what to test extends beyond the project team
 - Linking test activities to the business facilitates decisions beyond QA and development

Most of the same best practices and skills are used, but applied with a different mindset

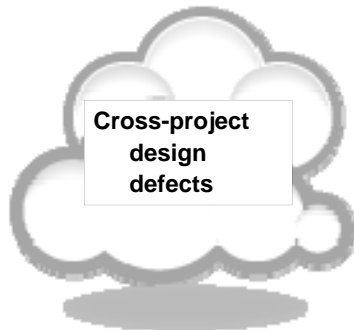
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QA implements new strategies to address both types of issues



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Assessment of specific defects provided insight about QA best practices

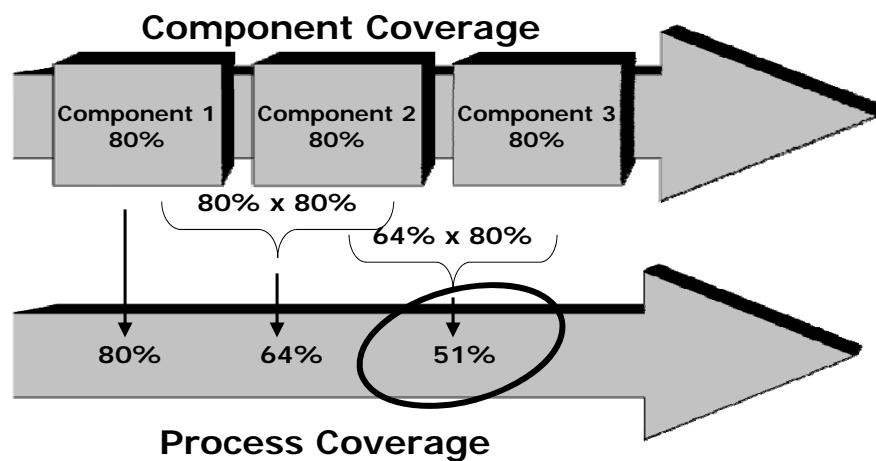


- Test coverage standards were met
- Issues that got past QA were edge cases, often data specific

The sum of component test coverage does not = coverage of the entire process

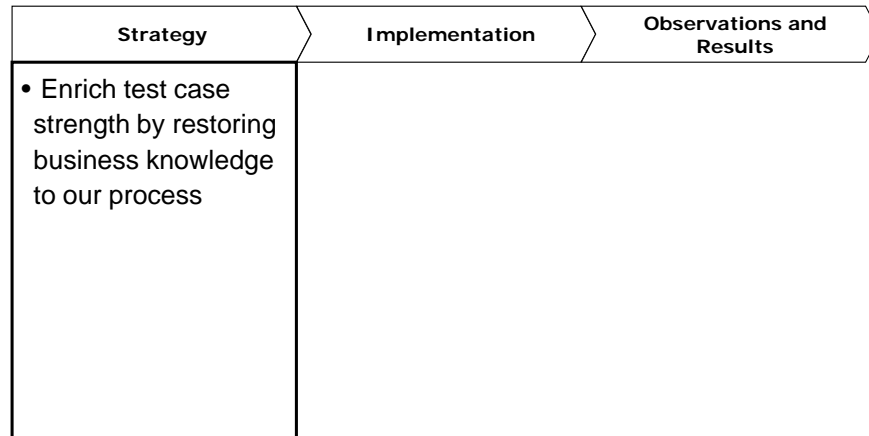
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When it comes to code coverage, the whole is not the sum of its parts



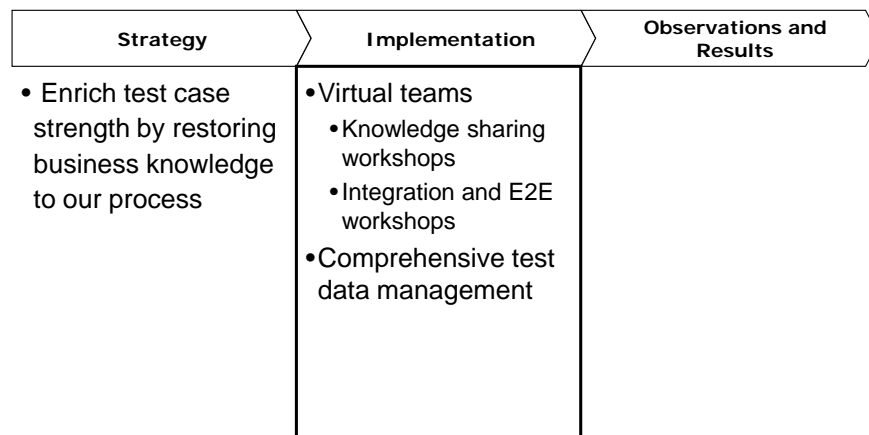
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Missed scenarios could be avoided by enriching overall test strength



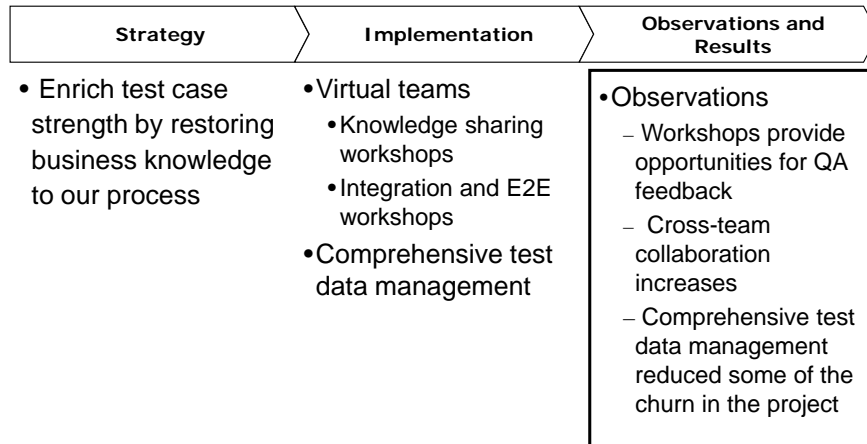
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We enrich test case strength by building a strong cross-group QA community



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QA's approach



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Why did test cases get stronger?

- Additional set up data created new scenarios
- Integration test case reviews by business people
- QA learned about other applications while still in design phase rather than waiting for information to flow down from development documents

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The second problem presented an opportunity to look at how we report test progress



- Cross-project design defects were being found very late in the program cycle



- Certain risks were detected late because we underestimated the relative importance of certain components

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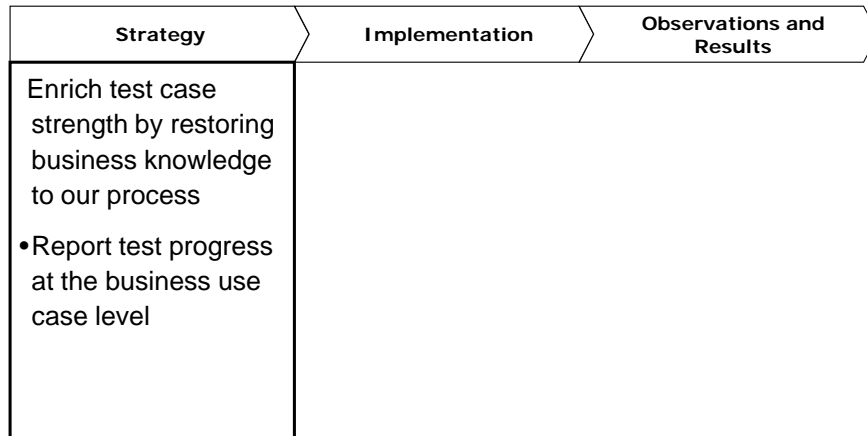
A look at our test progress reporting revealed a gap in how we monitored risk



- The number of primary business use cases any given project touches is as important in risk assessment as other factors we were measuring

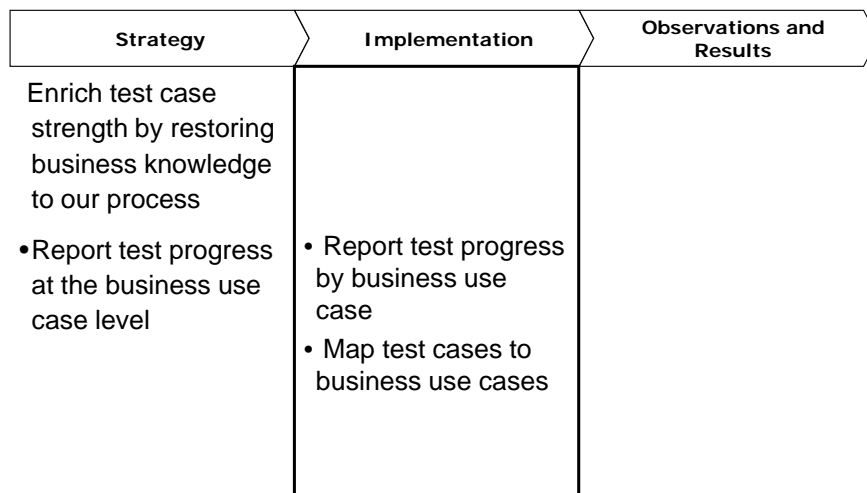
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QA's approach



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QA's approach



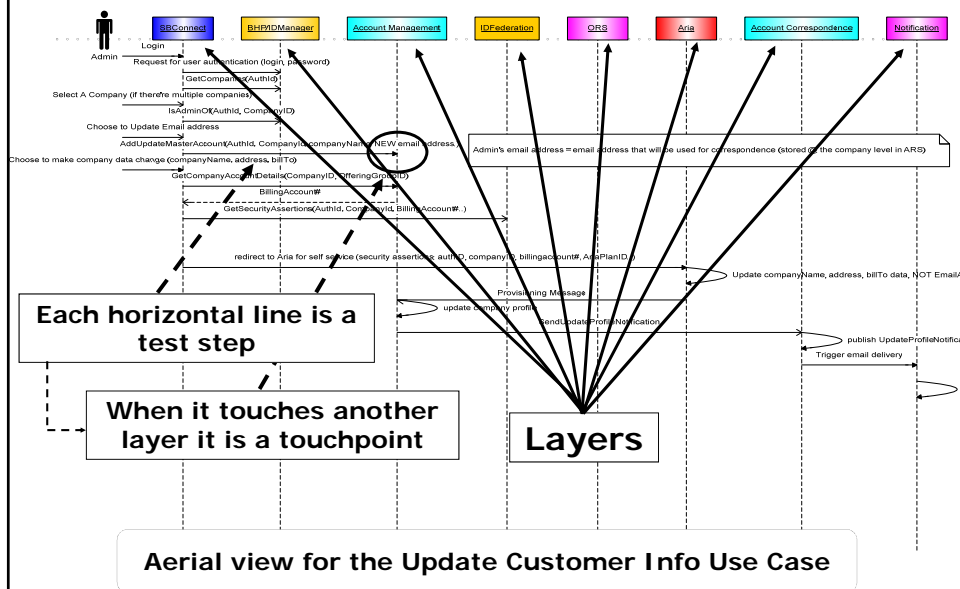
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Implementation is connected to features by mapping touchpoints to business use cases

- Three-step approach to connect implementation to business transactions
 1. Map touchpoints to business use cases
 1. Map test cases to touchpoints
 1. Report test execution progress by business use case

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Sample Use Case Sequence Diagram



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Analyze all sequence diagrams and map touchpoints to primary use case

Primary Use Case	Number of Test Steps	Number of Touchpoints	% of test that is integration
Purchase	39	24	62 %
Migrate	21	13	62 %
Grant Access	10	6	60 %
Update Customer Info	19	11	58 %
Cancellation	25	16	64 %
Expire	8	5	63 %
Total	122	75	61 %

When functional test is complete we are approximately 39% finished

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Confidence level based on project only showed an acceptable state of readiness

Project	E2E Test Ready Confidence Level
ERW	100 %
CRI	100 %
IVR	88 %
PS	95 % - Main work
OSG	50 %
EUI	46 %
~ Average	80 %

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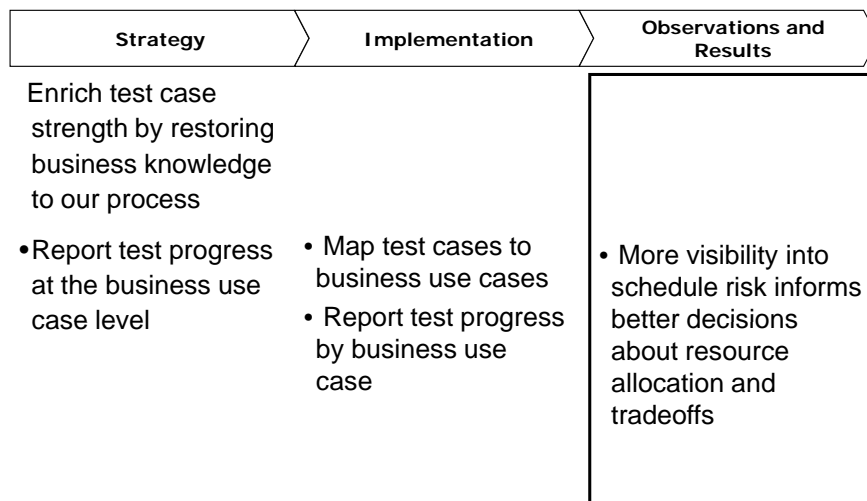
Test execution results by use case provided a view of risk at the feature level

Business use case	E2E Test Ready Confidence Level
Order via eStore	94 %
Order via CSR	94 %
Activate via web (My Pro)	78 %
Activate via CSR	53 %
Activate via IVR	74 %
Online activate-PS desktop	63 %
Add-maintain firm info-connected	50 %
Add-maintain firm info-disconnected	94 %
Transfer entitlements	63 %
Overall functional test complete	74 %

**Quality Standard is 80%
2/3 of use cases are below standard**

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QA's approach



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Quality metrics presented in terms of risk to features aid in better decisions

- The program and our business partners have more options
 - Resource allocations adjusted so that schedule could be met
 - Schedule adjusted
 - Schedule met and selected features deferred
- The key is that providing information about feature risk early enough provides the data needed to support more options

**Decisions about schedule and feature scope
can focus on business needs**

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The new type of reporting works because it supports the SaaS mindset

- The mindset that accompanies a SaaS methodology is that more agility is expected
- Agility is more achievable when risks are anticipated
- The data provided a level of objectivity that was new

It's about mindset more than skill set

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SaaS brings opportunities for quality leaders to play a key role in achieving business goals

- Quality leaders bring a valuable perspective to SaaS implementations because of their role as the bridge between technology and the business
- Partnering across functional and business groups helps the organization address new problems that emerge with SaaS implementations
- The new mindset of quality leaders puts emphasis on identifying risks, creating quality communities, and focusing on business outcomes

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Top reasons why broadening the boundaries of quality works for the organization

- "Better understanding of risk leading to better decisions about tradeoffs between schedule, resources, scope, and quality."
- "More productive testing in integration resulting in fewer schedule slips."
- "Fewer defects tied to cross-functional design misunderstandings."
- "Reduction in number of defects categorized as "as designed" or "not a bug".
- "Better allocation of test resources."
- "Less time spent chasing defects that turn out to be related to bad data."
- "Fewer surprises at the end of the software development life cycle."
- "Better visibility into the quality process as it relates to business outcomes."

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Questions?

Contact: billie_bell@intuit.com

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Cross-project design defects were found earlier in next program release

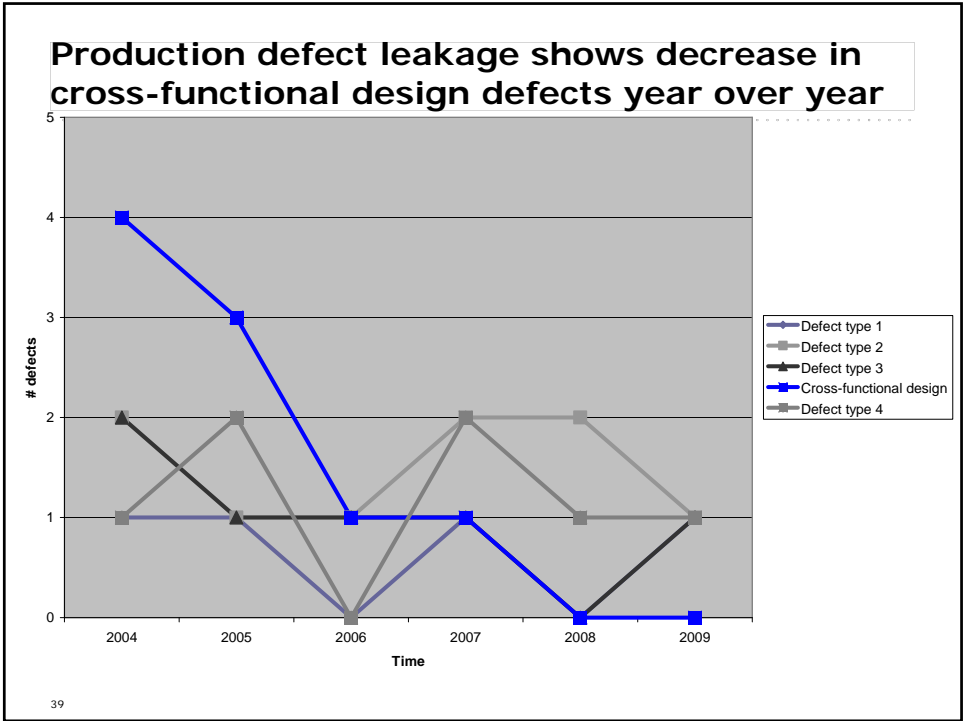
Before

Discovery Phase	Injection Phase								
	Concept	Requirements	Design	Implementation	Build	Deployment	Testing	UAT	Production
Concept	0								
Requirements	0	0							
Design	0	0	0						
Implementation	0	0	1	0					
Build	0	0	0	0	0				
Deployment	0	0	0	0	0	0			
Testing	0	0	1	1	0	0	0		
UAT	0	0	3	5	0	0	0	0	
Production	0	0	0	0	0	0	0	0	1

After

Discovery Phase	Injection Phase								
	Concept	Requirements	Design	Implementation	Build	Deployment	Testing	UAT	Production
Concept	0								
Requirements	0	0							
Design	0	0	0						
Implementation	0	0	4	0					
Build	0	0	0	0	0				
Deployment	0	0	0	0	0	0			
Testing	0	0	1	6	0	0	0		
UAT	0	0	0	0	0	0	0	0	
Production	0	0	0	0	0	0	0	0	0

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Software Quality Group of New England

SQGNE is made possible by the support of our sponsors:



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Logo design: Sarah Cole Design

Slide 1

Welcome to our 16th season!

- An all-volunteer group with no membership dues!
- Supported entirely by our sponsors...
- Over 700+ members
- Monthly meetings - Sept to July on 2nd Wed of month
- E-mail list - contact John Pustaver pustaver@ieee.org

- **NEW SQGNE Web site: www.sqgne.org**



Slide 2

Volunteers / Hosts / Mission

Volunteers


- John Pustaver - Founder and Director
- Steve Rakitin - Programs and web site
- Gene Freyberger - Annual Survey
- Dawn Wu - Greeter

Our gracious Hosts:

- Paul Ratty
- Tom Arakel
- Margaret Shinkle
- Jack Guilderson

Mission





- 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



Slide 3

ASQ Software Division


- Software Quality Live - for ASQ SW Div members...
- 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

Slide 4

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	Requirements Tracing - Lessons from the Waterfall for the Agile and SCRUM teams
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...




Slide 5

Tonight's Speaker...

End-to-End Testing in a SaaS environment: Extending the Definition of Quality
Billie Bell, Intuit Corp.

- Assuring quality in an enterprise setting in today's business and technology climate requires a fresh look at how we define quality and the quality leader's role. Time-to-market becomes increasingly more important as customer and market demands increase. Adopting web service technologies enables companies to meet demands. Whether your technology is SOA, SaaS, or JBWS, web services are becoming more common in our architectures. The result is a geometrically growing set of application-to-application and user-to-application interactions designed to speed the process for implementing change.
- At Intuit, we have identified new challenges and some hidden assumptions carried forward from pre-SaaS methodologies. These assumptions, held both inside and outside the QA community, can obstruct our view of looming issues and hinder risk assessment. Quality leaders often bring skills that bridge the gap between customer expectations and feature implementations. Today's SaaS applications provide more opportunity than ever to use those skills to lead the organization in implementing the changes necessary for better quality.

Billie J. Bell, EZE QA Program Manager for Intuit, developed the end-to-end (E2E) QA Program Manager role after recognizing the benefits of engaging QA teams across Intuit's primarily agile project teams in understanding how cross-project integration testing influences achievement of overall business objectives. Using the rollout of specific company wide initiatives provides a pragmatic context and motivation for development of new processes, as well as promoting an EZE quality mindset beyond QA. Recent accomplishments include coordinating integration of 30+ applications with a PCI compliance platform, a consolidated entitlement and software license management platform infrastructure integrating desktop and web service applications, and a 10-layer subscription and billing SAAS initiative integrating 3rd party and internally-developed applications. Billie started her career as an accountant with a B.S. in Accounting from the University of Kentucky and continued her education with graduate work in Computer Information Systems at Bentley College, Waltham, Massachusetts. After a stint as an auditor and tax accountant, she pursued her emerging interest in financial accounting systems. Including 9 years at Intuit, Billie brings more than 20 years of experience in enterprise financial software development in QA management, product management and program management roles in both Fortune 500 and start-up software development companies.



Slide 6