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MICRO FOCUS®

The Future of Software Projects: Innovations & Emerging Trends in Software Quality Assurance

Pete DuPre'
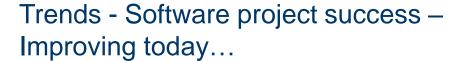**Chief Enterprise Architect**
Borland / Micro Focus

Agenda

- Software Project Trends
- Agile
- Defect Perspectives
- Load Testing
- Mobile
- Requirements
- Closing Comments

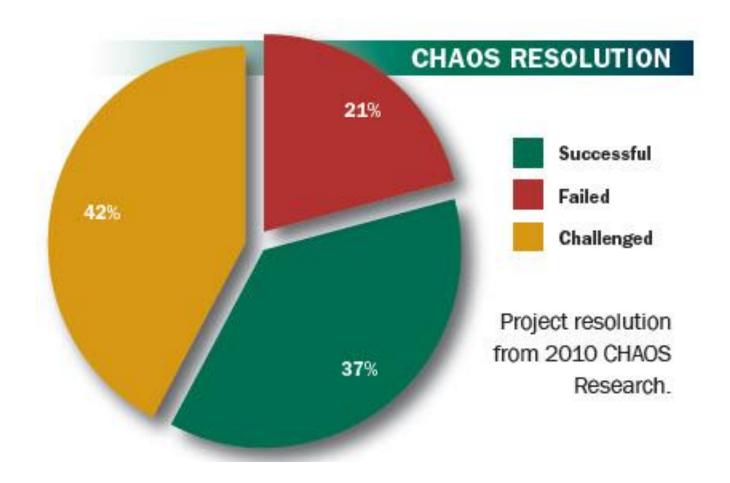## Agenda

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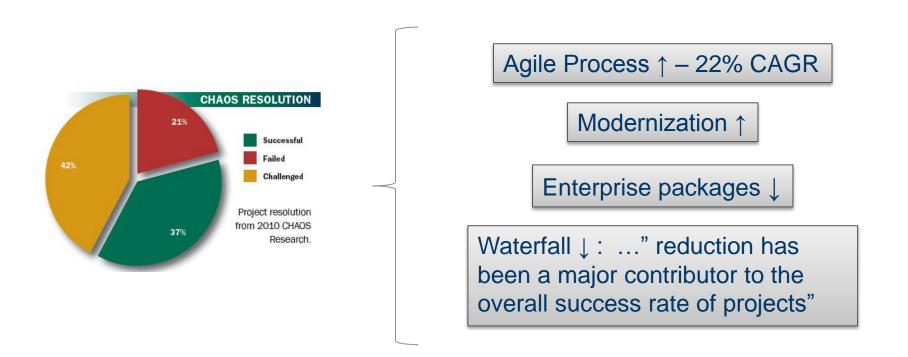
Trends - Software project success – Improving today…

The Standish Group International, Inc. 2011 CHAOS Manifesto

Trends - Software project success – Sources:

"This year's results represent the highest success rate in the history of the CHAOS Research. The reasons for the increase in success rate are:"

Agile Process ↑ – 22% CAGR

Modernization ↑

Enterprise packages ↓

Waterfall ↓ : …" reduction has been a major contributor to the overall success rate of projects"

The Standish Group International, Inc. 2011 CHAOS Manifesto

Waste in software delivery

$1.00
Software

ONLY

$0.60
Value

How much do you waste on rework – every year?

Number of Developers	Your Annual People Cost	Your Annual Waste on Rework
30	$3,750,000	$1,500,000
50	$6,250,000	$2,500,000
100	$12,500,000	$5,000,000
200	$25,000,000	$10,000,000
300	$37,500,000	$15,000,000
500	$62,500,000	$25,000,000
1000	$125,000,000	$50,000,000
3000	$375,000,000	$150,000,000

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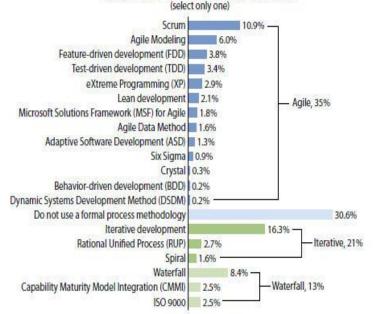
FORRESTER®

Gartner.

STRATEGIC PLANNING ASSUMPTION(S)
By 2012, agile development methods will be utilized in 80% of all software development projects.

Figure 1 Agile Adoption Has Reached Mainstream Proportions

"Please select the methodology that most closely reflects the development process you are currently using."
(select only one)

Methodology	%
Scrum	10.9%
Agile Modeling	6.0%
Feature-driven development (FDD)	3.8%
Test-driven development (TDD)	3.4%
eXtreme Programming (XP)	2.9%
Lean development	2.1%
Microsoft Solutions Framework (MSF) for Agile	1.8%
Agile Data Method	1.6%
Adaptive Software Development (ASD)	1.3%
Six Sigma	0.9%
Crystal	0.3%
Behavior-driven development (BDD)	0.2%
Dynamic Systems Development Method (DSDM)	0.2%
Do not use a formal process methodology	30.6%
Iterative development	16.3%
Rational Unified Process (RUP)	2.7%
Spiral	1.6%
Waterfall	8.4%
Capability Maturity Model Integration (CMMI)	2.5%
ISO 9000	2.5%

Agile, 35%
Iterative, 21%
Waterfall, 13%

Base: 1,298 IT professionals
Source: Forrester/Dr. Dobb's Global Developer Technographics® Survey, Q3 2009
56100

Source: Forrester Research, Inc.

Agile & Risk Management?

Regardless of the level of Agile practices that the team has proficiency in, there is a level of risk mitigation associated with every practice in the Agile arsenal…

…**comprehensive risk management is the single most compelling argument for Agile**.

"This is one of the main reasons for our adoption of Agile – large-scale projects that aim to implement critical business functionality in a transparent manner and smaller projects that aim to incrementally deliver to business partners have both found that the transparency, control and flexibility of Agile (its inherent risk management features) have been of critical importance to both successful delivery and early highlighting of problems."

…Sean Cody, Process Architect, Global Markets Architecture Team

Steven Smith, CIO:

"The value provided by agile, and most especially from well-tested code, pays big dividends in terms of **reduced QA expense and faster time to market** for any significant-sized project.

We have projects developed in agile, and others that were not—we dread touching the ones that were not."

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Requirements defects

" As many as 70% of defects are injected during requirements and design, and 60% of defects are not found until user acceptance testing, according to the National Institute of Standards and Technology (NIST). "
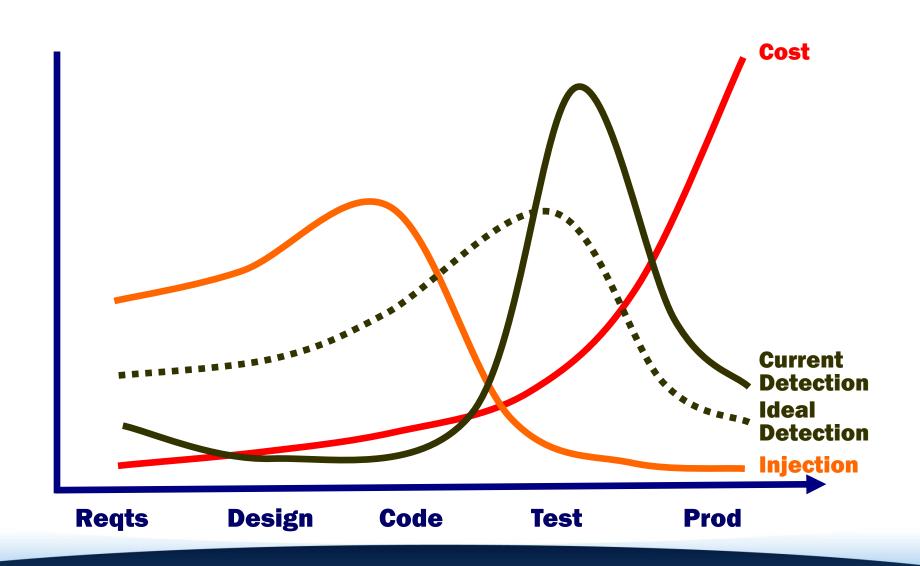
Gartner®

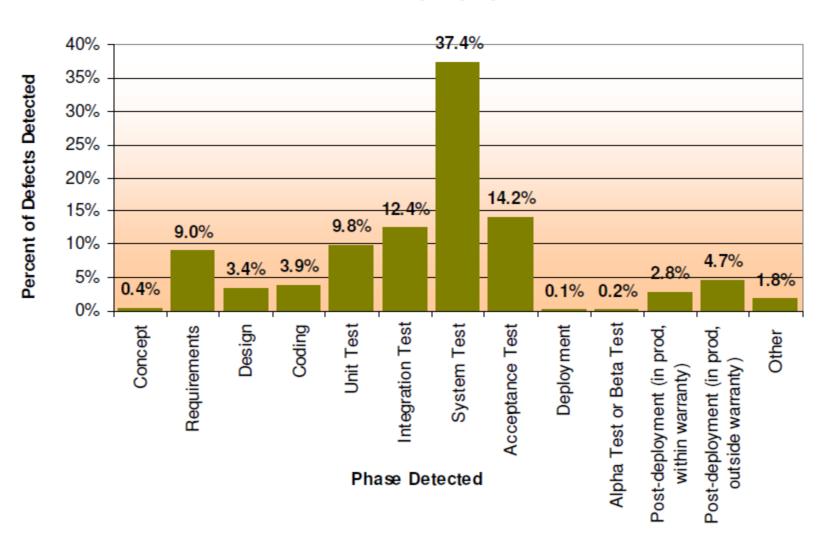# Traditional quality approach - Defect "Detection"

Requirements

Change

Test

Quality rises only
at end of project

Defect Detection Paradox

Cost

Current Detection

Ideal Detection

Injection

Reqts   Design   Code   Test   Prod

Federal Health Architecture program used agile to develop the award-winning Connect solution in less than a year. This was despite the challenges inherent in creating from scratch a nationwide health information exchange network.

"…we delivered **productivity that was five times the industry** average while **defect rates were just a quarter of similar projects**.

Agile has enabled eight consecutive quarters of **on-time, on-budget product deliveries** with new functionality added quarterly…"

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Risk Mitigation – what's your exposure ?
One Retailers misfortune…

The New York Times

"It's a little bit embarrassing for one of the nation's largest retailers to have a Web site that can't support a rush — it's not like they're any strangers to rushes," said Ian Schafer, chief executive of the digital marketing firm Deep Focus. "It's saying, 'We're so popular we had to turn people away at the door.' Then get a bigger place."

"That was a nightmare," she said. When she finally got onto the site, "at one point I was entering payment information, and it was gone."
"Their site was absolutely, 100 percent not prepared for it," she said.

By last week, the excitement was so high that the actresses Jessica Alba and Jessica Simpson… were talking on Twitter about the line. "I dreamt about the (xyz) bike last night," Ms. Alba posted, referring to a $400 bike covered with zigzags. "I want that bike too!!! So cute!" Ms. Simpson responded

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Facts on Mobile

- Over 140 Android devices released since the beginning of 2011

- New tablets (a segment which didn't even exist 2-3 years ago) weekly

- Six or more major operating systems

How to test mobile apps and services in today's extremely fragmented, dynamic mobile market?

Recommendation #1 – Automation is imperative for mobile testing

- Automate functional and regression testing of mobile apps to ensure quality and performance on any device, OS, network and location

- Shortened ALM cycle that allows for continuous QA, better coverage, easier re-creation of problems and substantial cost savings

- In a fragmented market, a device-agnostic testing approach is required to allow enterprises to build test cases that can be easily maintained, reused and ported to multiple mobile platforms.

Recommendation #2 – Cloud-based access to REAL mobile devices

- You will probably need to test on up to 30-40 devices in your market and replace 30% of those each quarter to stay up to date (a logistical nightmare, especially if you are working offshore)

- Cloud-based access to REAL handsets alleviates the costs and logistics of procuring and managing new devices (i.e., shipments, network availability, active plans, SIMs, etc.)

- Facilitates collaboration and enables globally distributed teams to share a device in "live" testing and to replicate issues

Recommendation #3 – Use Existing ALM Resources

Remember – at its core mobile testing is still software testing. There is no need to re-invent the wheel - leverage assets by extending existing ALM framework to support mobile testing

- Manage mobile, desktop and web app testing through a single, integrated ALM platform - centrally manage and track all projects, leverage skill sets and ensure consistent workflows and processes

- The integration of mobile testing within your existing ALM enables centralized and complete test management and visibility for your mobile apps

- Using a single platform for managing and automating the application lifecycle helps to ensure mobile quality and performance while reducing total cost of ownership.
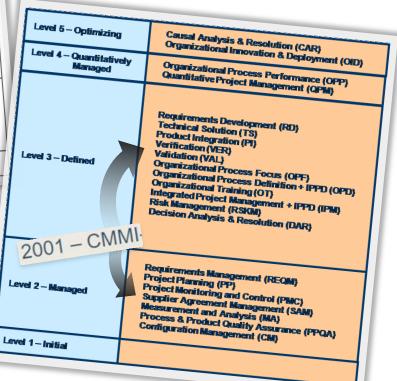
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We've been talking about Requirements for a very long time…

…And still can't get it right: Collaboration -2010

Table 6-4. Time to Fix a Bug Based on Discovery Point

Respondents indicated that 45 percent of errors are found in the integration stage of development and it takes an average of 4.1 hours to correct the errors found in this stage of development.

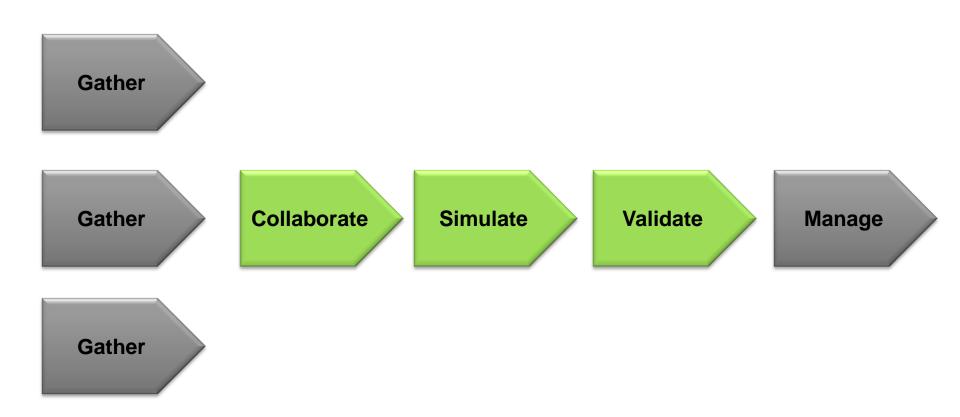| Location	Hours	Distribution of Where Bugs are Found[a]	Weighted Average Hours
Requirements	2.0	5%	
Coding/unit testing	2.4	40%	
Integration	4.1	45%	
Beta testing	6.2	5%	
Post-product release	13.1	5%	
Total			3.9

Botched projects: The cost of failure

£12.7bn National Programme for IT (NHS)

It was meant to revolutionise the way the health service worked. But far from heralding a new age of efficiency, the National Programme for IT is now widely perceived as the greatest government IT white elephant of history. As well as the huge costs involved, suppliers have walked away, projects are running years behind schedule, while medical professionals have complained that they were never consulted on what they wanted the new system to achieve.

The Independent, January 2010
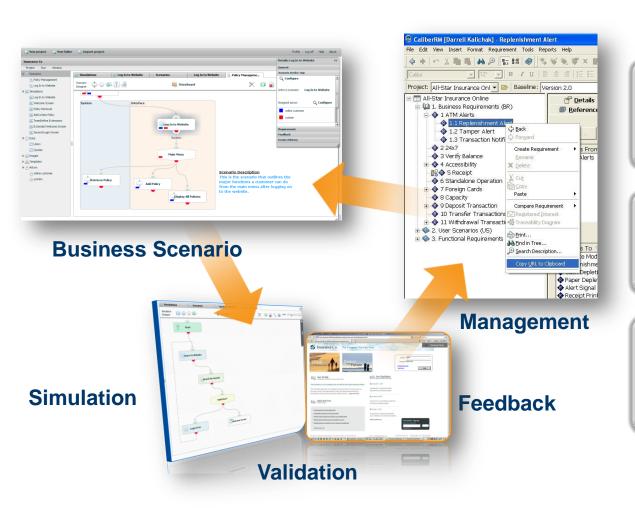
Business Alignment – *Simple Illustration*

Gather

Gather   **Collaborate**   **Simulate**   **Validate**   **Manage**

Gather

Business Alignment – *Good Illustration*

Business Scenario

Management

Simulation

Feedback

Validation

Combining visual clarity with traditional text based requirements

Traceability across tools and processes ensures consistency

Automated Test Generation bridges gap between testing and requirements

The U.S. Navy's SPAWAR Command relied on agile to develop the Education Benefits Long-term Solution for the Veterans Affairs Department.

VA CIO Roger Baker, "we developed this completely under an agile methodology. What's important about that is that the subject matter experts and my IT folks worked side-by-side, day-in and day-out to develop the user interface and the workflow to be *optimal* for the processing of these types of claims by the folks that are the claims examiner..."

WHITE HOUSE FORUM ON
MODERNIZING GOVERNMENT
OVERVIEW AND NEXT STEPS

MARCH 2010

Continuously engage business unit managers in technology efforts

…Business unit managers should be engaged and accountable from initial requirements gathering to the end of the project's life cycle.
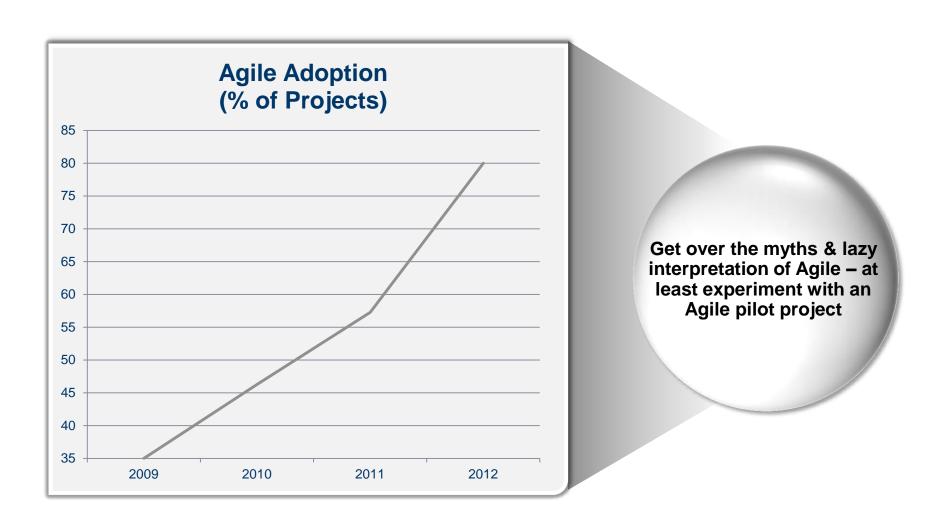
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With or without you, the industry will transition to Agile

**Agile Adoption
(% of Projects)**

Get over the myths & lazy interpretation of Agile – at least experiment with an Agile pilot project

Continuous Quality Assurance

**Assess & modernize QA .
What can you see
& control?
Are you settling for
mediocrity?
What is your
Risk Signature?**

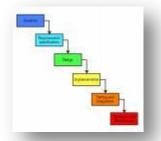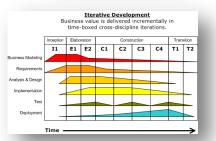# Requirements Modernization: Elaboration & Communication

- Iterative
- Business Aligned
- Continuous feedback
- Visualization
- Interactive simulation

Prototyping

Assess & modernize RDM. You will never improve business agility and time to market without optimizing RDM.

Iterative Development
Business value is delivered incrementally in time-boxed cross-discipline iterations.

QA Resourcing

Stacked bar chart showing QA Resourcing percentages across three time periods.

2 years ago
- Outsource / Vendors – Offshore: 0.0%
- Outsource / Vendors – Onshore: 7.5%
- Contractors: 24.8%
- In-house: 67.7%

Now
- Outsource / Vendors – Offshore: 2.2%
- Outsource / Vendors – Onshore: 10.4%
- Contractors: 22.3%
- In-house: 65.0%

2 years on
- Outsource / Vendors – Offshore: 3.3%
- Outsource / Vendors – Onshore: 13.8%
- Contractors: 14.2%
- In-house: 68.8%

Legend:
- ☐ In-house
- ☐ Contractors
- ☐ Outsource / Vendors – Onshore
- ☐ Outsource / Vendors – Offshore
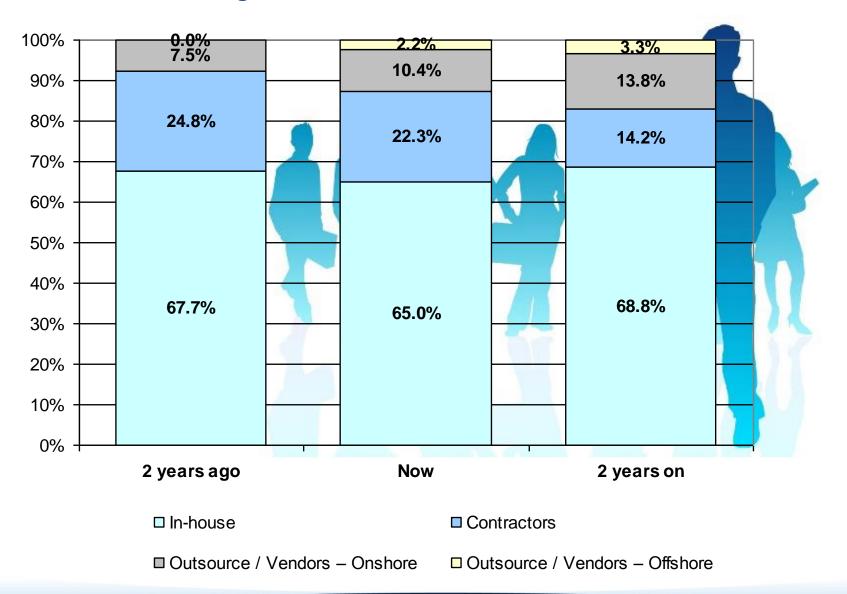
Q & A

Trust. Innovate. Accelerate.

Maximize the value of your business
software today and in the future

With Borland quality solutions from Micro Focus
you can:

> Align business priorities and quality expectations with
  project requirements, development activities and testing

> Synchronize testing with business goals

> Take testing to the cloud

> Deliver better applications, faster