

# Agile Testing and the Role of the Agile Tester

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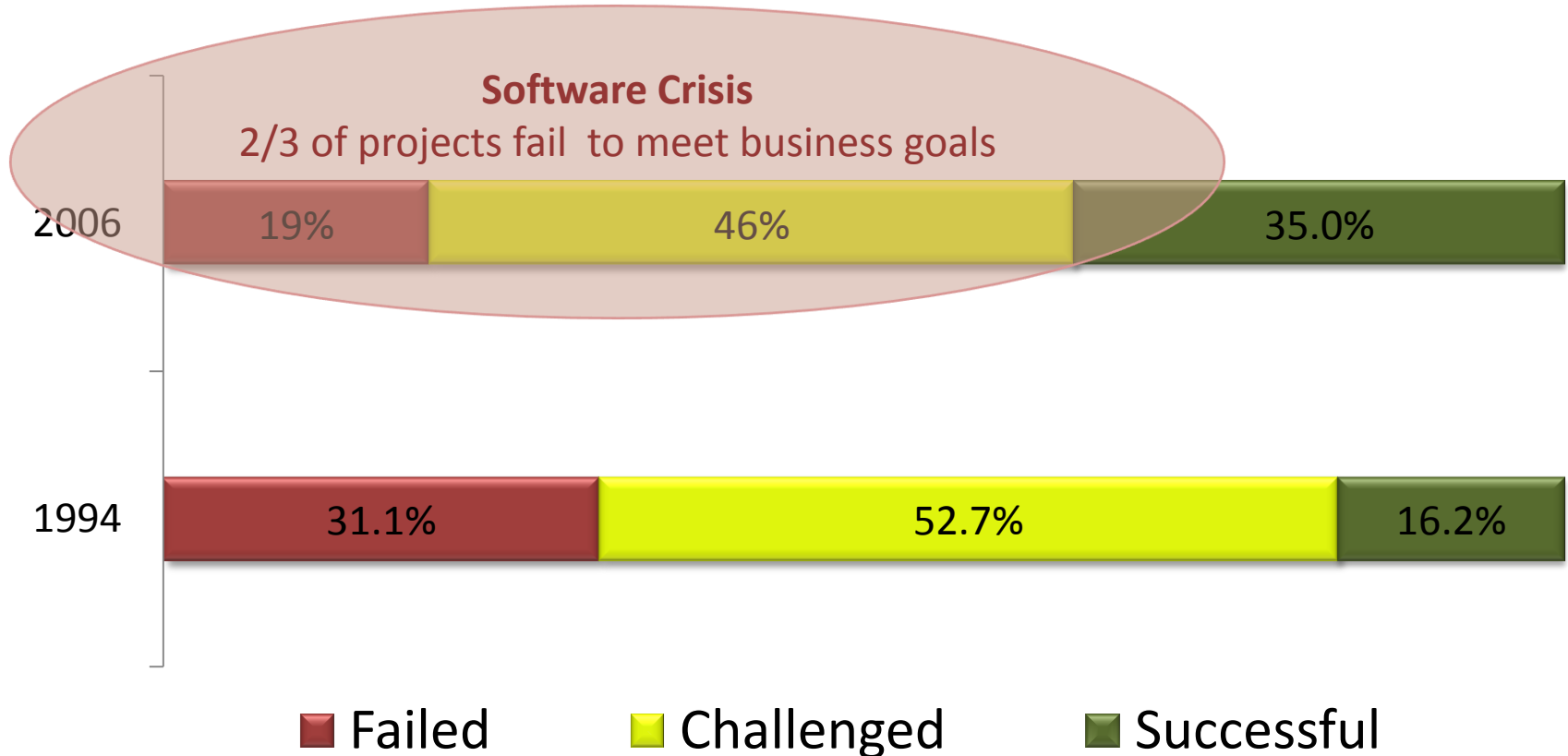
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# Agenda

- The Software Crisis
- What is Agility?
- What is Quality?
- Agile Testing
  - Agile Testing Matrix
  - Test Automation
- Wrap-Up
  - Challenges
  - Success Factors

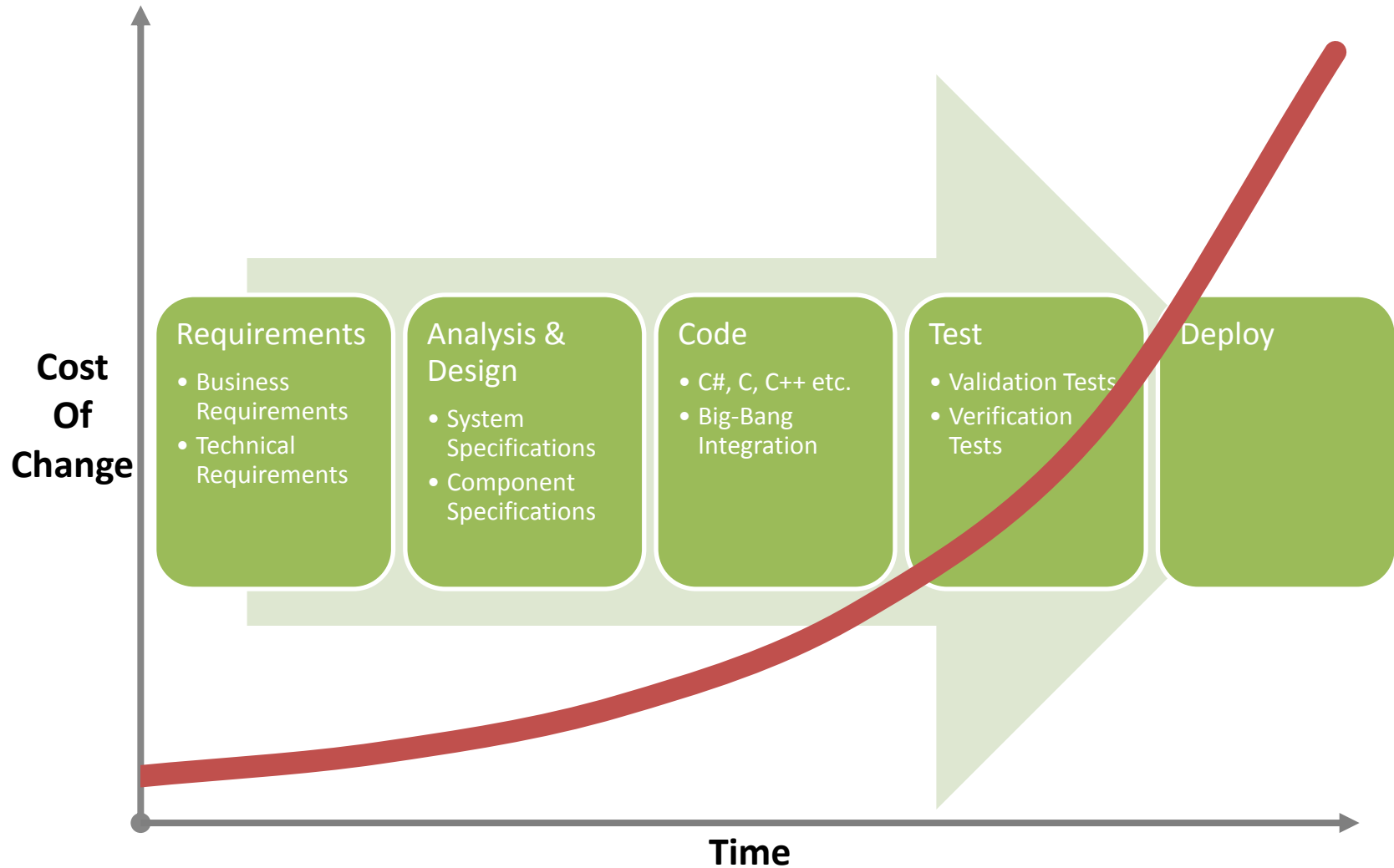
# The CHAOS Chronicles

## Software Project Success – 1994, 2006

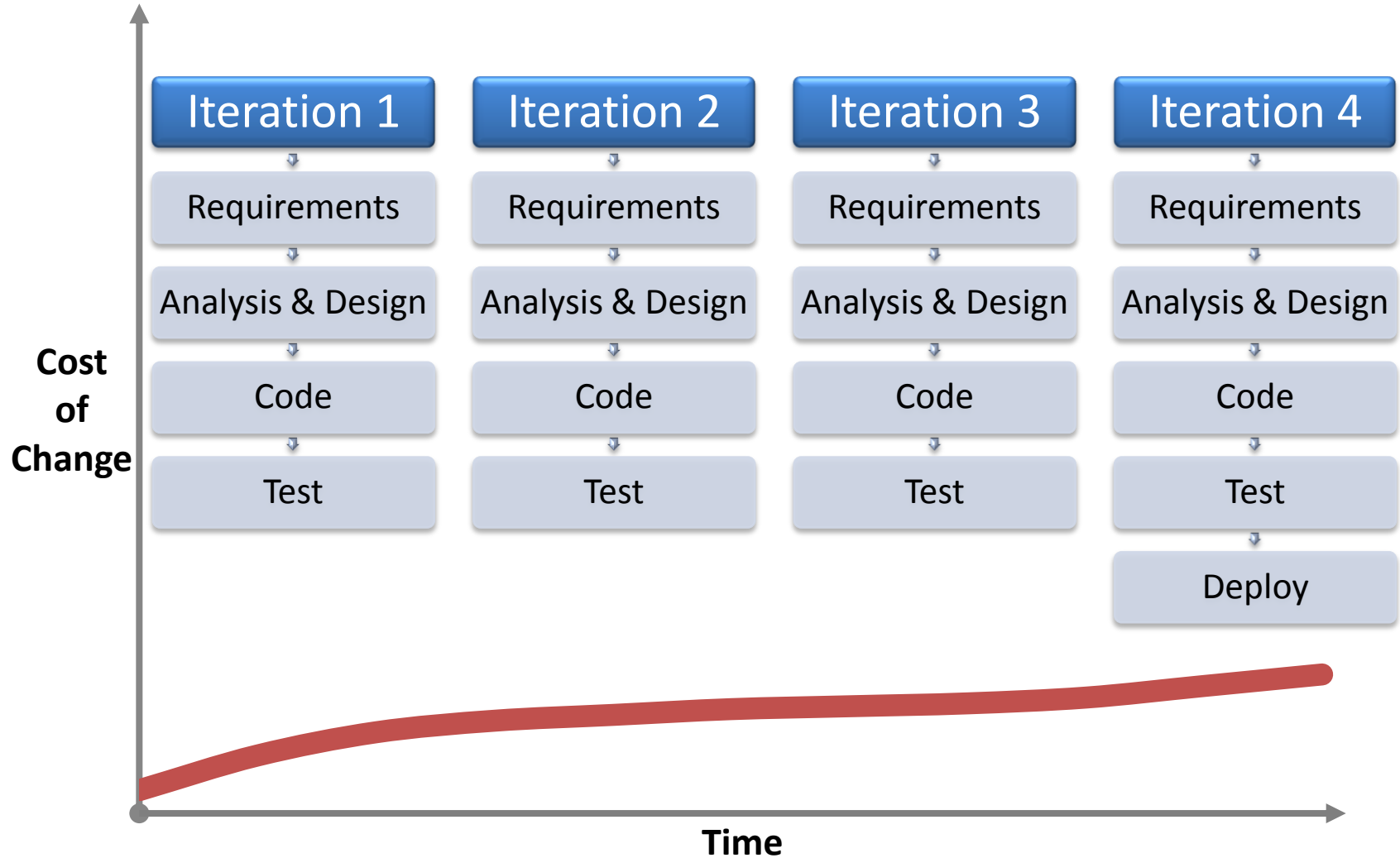


*"The CHAOS Chronicles"* 1994, 2006 The Standish Group

# Traditional Approach - Waterfall



# Agile Approach



# What is Agility?

***“Values, principles and practices that foster team communication and feedback to regularly deliver customer value through working software.”***

# Agile Values

Individuals & Interactions

Processes & Tools

Working Software

Comprehensive  
Documentation

Customer Collaboration

Contract Negotiation

Responding to Change

Following a Plan

<http://agilemanifesto.org/>

# XP – Customer Bill of Rights

- *You have the right to an overall plan, to know what can be accomplished, when, and at what cost.*
- *You have the right to see progress in a running system, proven to work by passing repeatable tests that you specify.*
- *You have the right to change your mind, to substitute functionality, and to change priorities.*
- *You have the right to be informed of schedule changes, in time to choose how to reduce scope to restore the original date. You can even cancel at any time and be left with a useful working system reflecting investment to date.*



# XP – Developer Bill of Rights

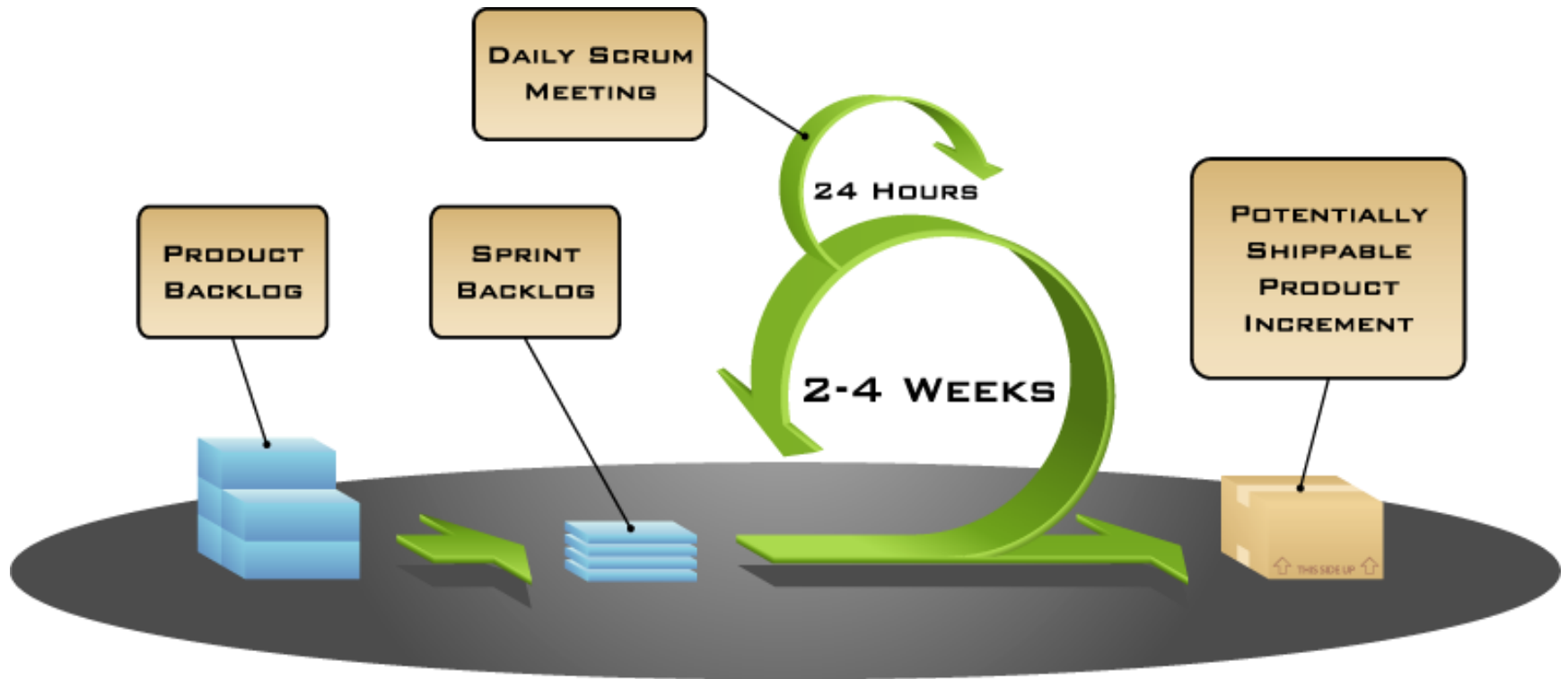
- *You have the right to know what is needed, via clear requirements, with clear declarations of priority.*
- *You have the right to say how long each requirement will take you to implement, and to revise estimates given experience.*
- *You have the right to accept your responsibilities instead of having them assigned to you.*
- *You have the right to produce quality work at all times.*
- *You have the right to peace, fun, and productive and enjoyable work.*

# XP – Tester Bill of Rights

- You have the right to bring up issues related to quality and process at any time.
- You have the right to ask questions of customers and programmers and receive timely answers.
- You have the right to ask for and receive help from anyone on the project team, including programmers, managers and customers.
- You have the right to make and update your own estimates for your own tasks and have these included in estimates for stories.
- You have the right to the tools you need to do your job in a timely manner.
- You have the right to expect your project team, not just yourself, to be responsible for quality.

Source: <http://home.att.net/~lisa.crispin/XPTesterBOR.htm>

# Agile Practices - Scrum



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[http://www.mountaingoatsoftware.com/scrum\\_figures](http://www.mountaingoatsoftware.com/scrum_figures)

# Scrum Team

## Product Owner

- Feature definition
- Release dates
- Single decision point
- Accepts or rejects work
- ROI

## ScrumMaster

- Represents management
- Removes obstacles
- Ensures Scrum process
- Servant leader

## Team

- Self organizing
- Cross-functional
- Estimates
- Tracks
- Gets 'er done

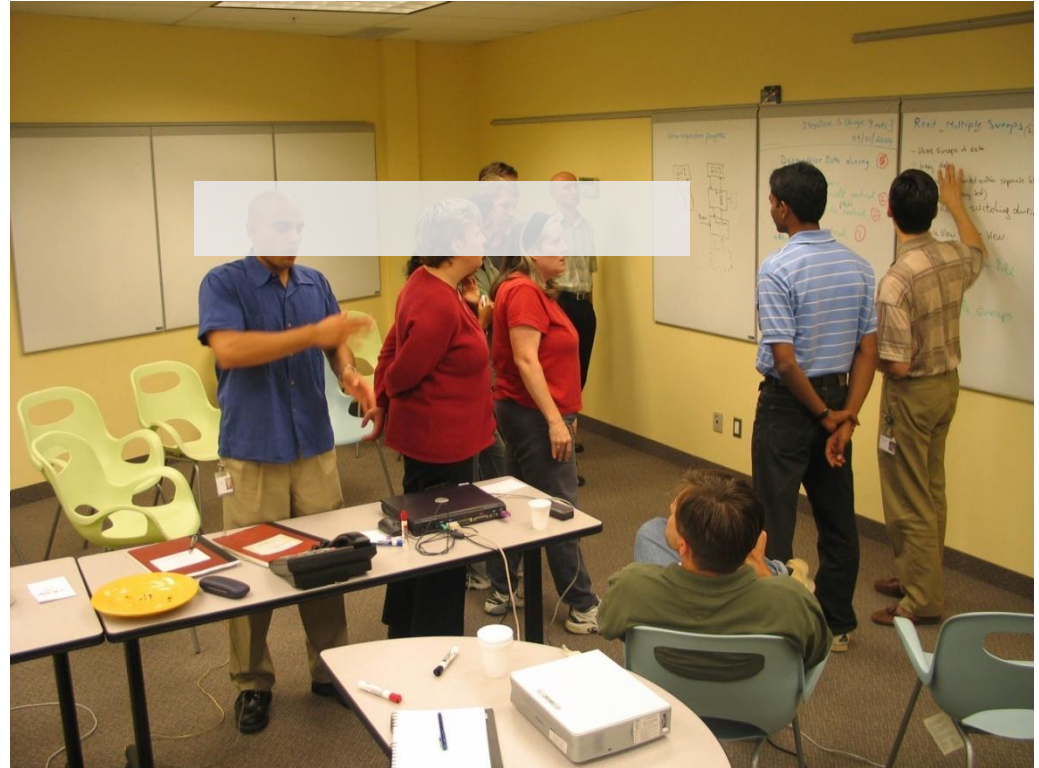
# Product Backlog

- Master list of all “features”
- High priority features are split into “stories” achievable within an iteration.
- Each “story” is prioritized and scoped.



# Sprint Planning Meeting

- Highest priority stories are reviewed.
- Team selects stories
- Team breaks stories down into tasks & re-estimates.
- Team commits to next iteration's deliverables.





# Sprint Backlog



# Daily Scrum

- Each team member describes:
  - What they did
  - What they plan to do
  - Obstacles
- ScrumMaster tracks and resolves obstacles
- 10 – 15 minutes





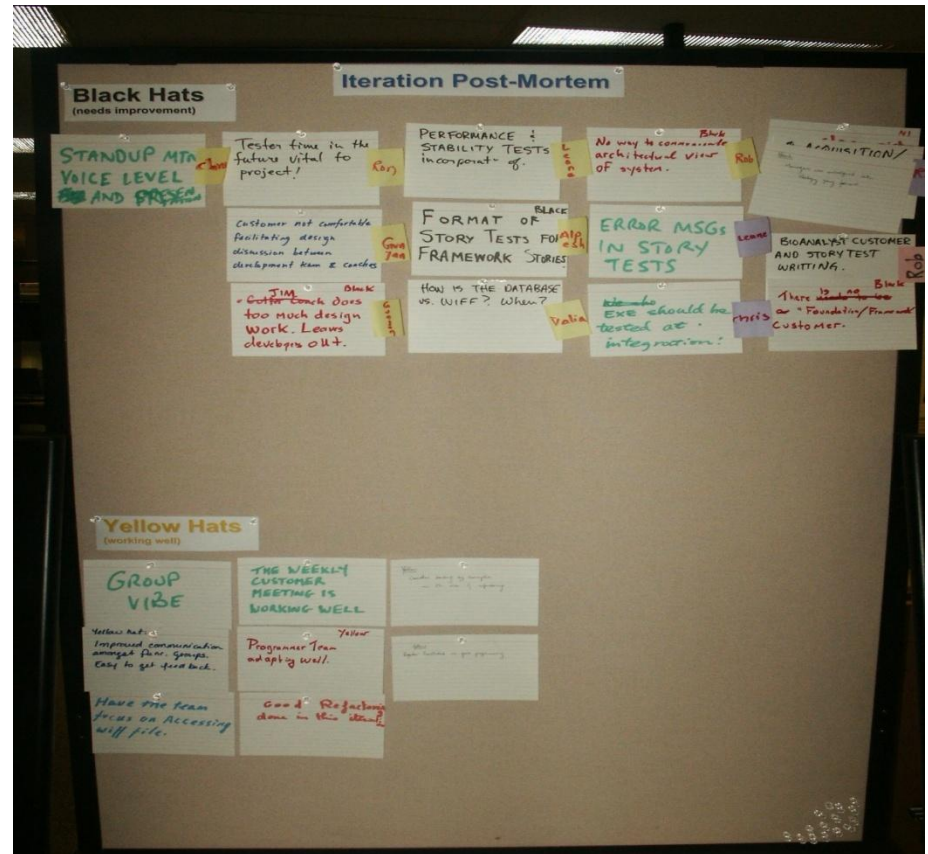
# Sprint Demo

- Team demonstrates working software to product owner
- Product owner accepts or rejects completed work
- Result should be potentially shippable



# Sprint Retrospective

- Team meets to review:
  - What is working?
  - What is not working?
- Team adds tasks for immediate actions for working better



# What is Quality?

Jerry Weinberg:

***Value to some person(s).***

# Testing Schools of Thought

- How much has been tested?
- Objectivity
- Branch of CS/Math

Analytic



- Controlled process
- Formal rules
- Standards, certification
- Conformance focus
- Complete, correct requirements

Factory



- Focus on QA vs. testing
- Process watchdog
- Risk driven
- QA signoff

Quality



Agile Helps Set  
Context

- Skilled mental activity
- People set context
- Testing provides information
- Value driven

Context  
Driven



# Context-Driven Principles

1. The value of any practice depends on its context.
2. There are good practices in context, but there are no best practices.
3. People, working together, are the most important part of any project's context.
4. Projects unfold over time in ways that are often not predictable.
5. The product is a solution. If the problem isn't solved, the product doesn't work.
6. Good software testing is a challenging intellectual process.
7. Only through judgment and skill, exercised cooperatively throughout the entire project, are we able to do the right things at the right times to effectively test our products.

Source: <http://www.context-driven-testing.com>

# Agile Testing Context

- There can be a strained relationship between developers and testers (us vs. them)
- Testing is often squeezed as deadlines approach
- Developers and testers are often in different operational silos
- Team may not have the skills or domain expertise to develop/test effectively

# Agile Testing Approach

- Testers need to be first class citizens on agile teams
- Testers should be part of the “whole team” supporting customers, business stakeholders and developers
- Testers need to support quality infusion through entire team

# Agile Testing Matrix

Automate.

Customer Facing

Manual/  
Automate

Supports Development

Functional Tests  
Customer Tests  
Story Tests/Examples

Q2

User Acceptance Tests  
Exploratory Tests  
Usability Tests

Q3

Q1

Unit Tests  
Integration Tests

Q4

Performance Tests  
Load Tests

Critiques Product

Automate

Technology Facing

Tools



# Agile Quality – Customer Tests

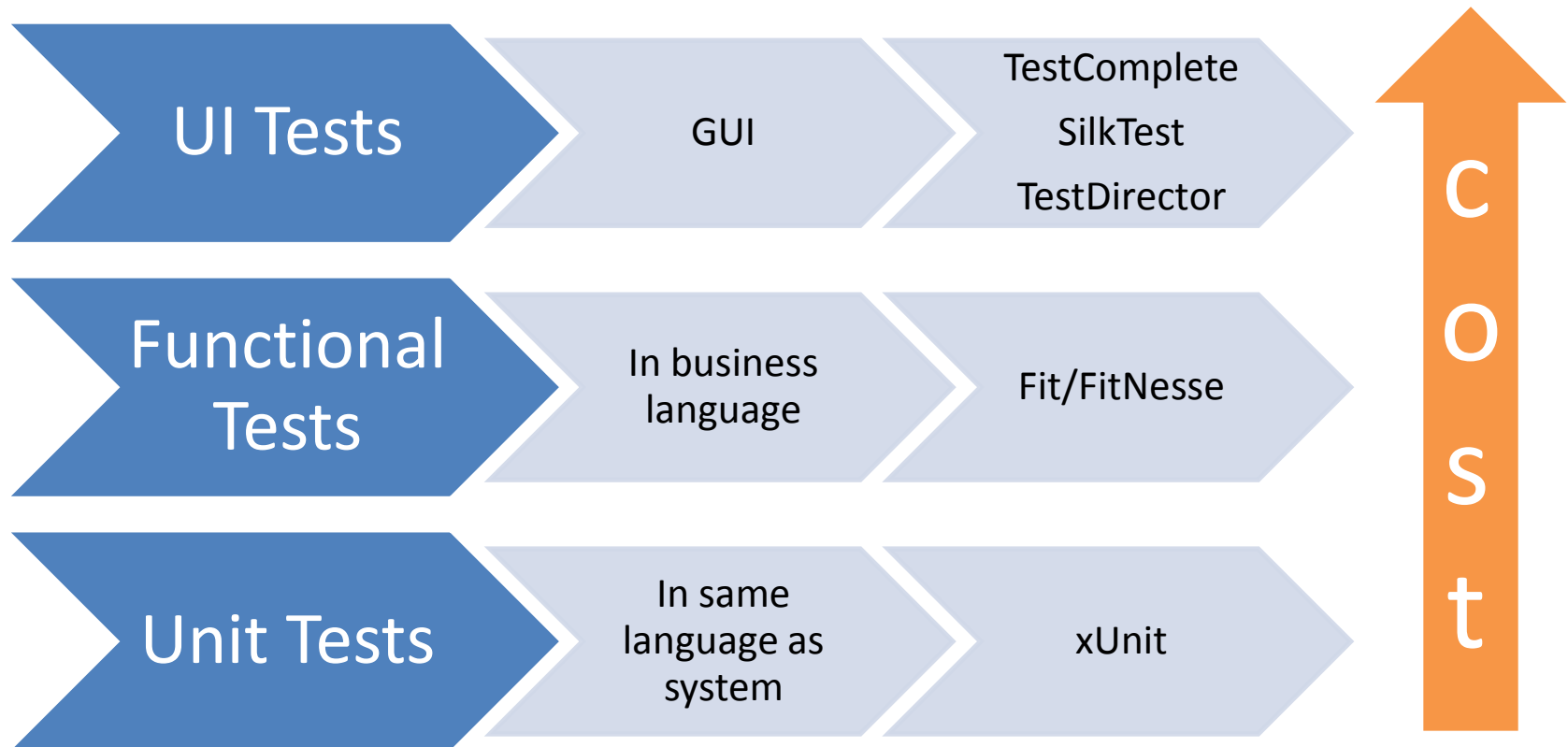
Agile Practice	Benefits
Requirements specified using customer tests	<ul style="list-style-type: none"><li>• Eliminates mismatch between requirements and test cases</li></ul>
Customer tests written by product owner with team support	<ul style="list-style-type: none"><li>• Common understanding of functionality.</li><li>• Helps flush out requirement inconsistencies</li><li>• Encourages alternate approaches early</li></ul>
“Customer driven” acceptance tests	<ul style="list-style-type: none"><li>• Connects features to customer value</li><li>• Using customer/business terms</li></ul>

# Why Automate Tests?

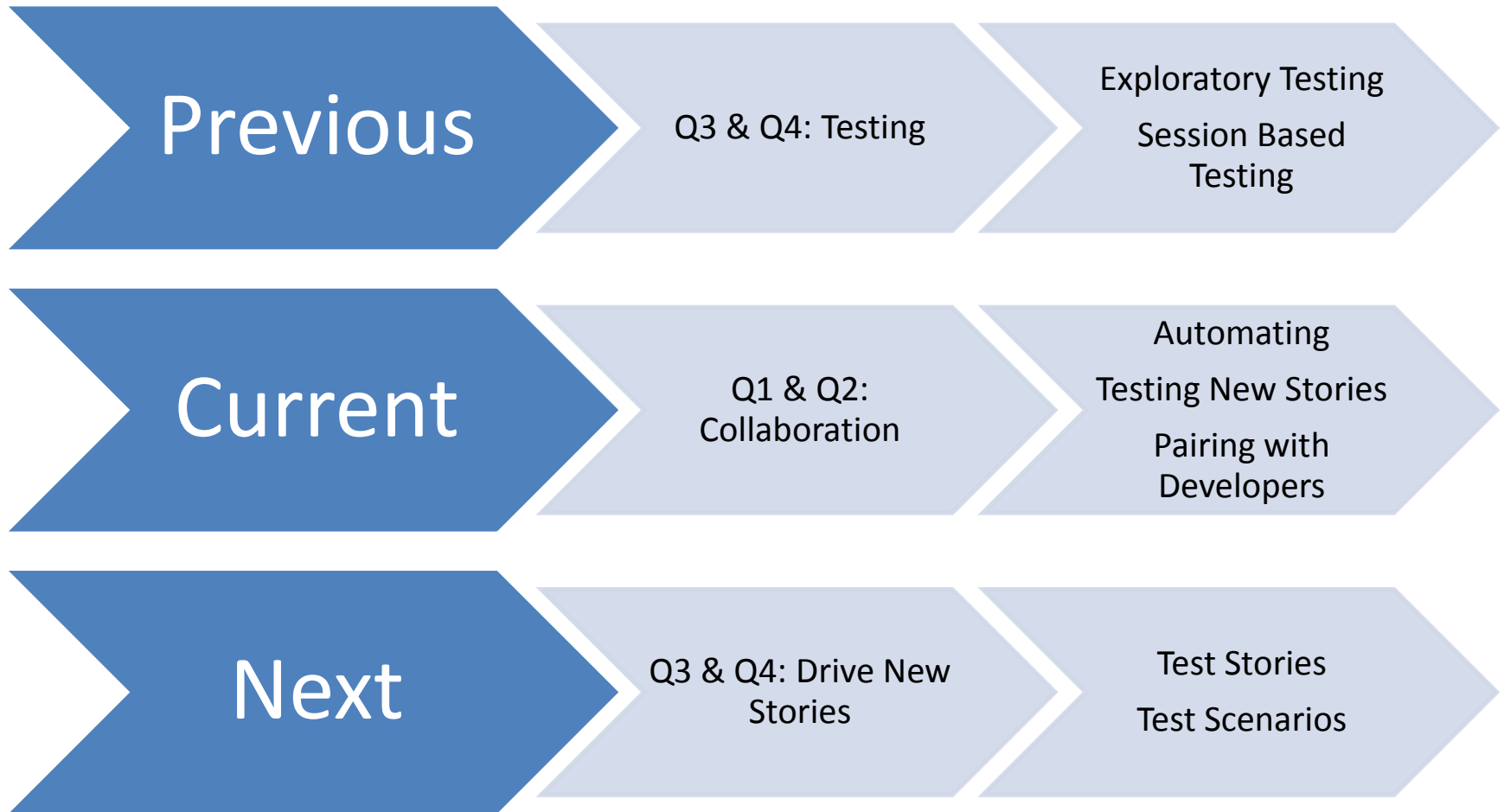
- Provides safety net
- Provides footholds to keep notching upward
- Supports rapid feedback
- Focuses effort on what is valuable
- Frees people to do their best work

***Need to balance automation costs against delivered value***

# Types of Automated Tests



# Agile Testing Iterations



# Agile Quality – A Team Deliverable

Agile Practice	Benefits
Whole Team	<ul style="list-style-type: none"><li>• Quality is not just a tester responsibility</li><li>• Testing role shifts to quality infusion throughout project life cycle</li><li>• Quality is more than just testing</li></ul>
Continuous Integration	<ul style="list-style-type: none"><li>• Developers cannot check in code with failing tests</li></ul>
Continuous Testing	<ul style="list-style-type: none"><li>• Avoids long delays with “big-bang” testing after the “final build”</li><li>• Bugs found closer to when they are introduced making them easier to fix</li></ul>

# Agile Testing Challenges

Command and control  
company culture

- Customer Ownership
- Management Commitment
- Developer Cooperation

Lack of trust and  
honesty within company

- You can't hide on an agile project
- Agility will reveal company dysfunction

Quality Policy Mindset

- Need to move to whole team agile approach
- Developers can learn from testers
- Testers can learn from developers

Regulatory Governance:

- ISO9000
- FDA
- SOX

# Agile Testing Success Factors

## Testers are part of the team

- Developer-testing pairing
- Collective ownership

## Agile testing mindset

- Drop the “Quality Policy” mindset
- Focus on team goals and customer value

## Automate Tests

- Automate regression tests
- Need rapid feedback

## Look at the big picture

- Balance against developer focus on technical implementation
- Use test matrix as guide to cover all the bases

## Foundation of critical practices

- Continuous integration, Test environments.
- Informative workspace

## Collaborate

- Collaborate with customers
- Collaborate within team

## Continually improve

- Team retrospectives
- Personal training; reading, blogs, KWSQA, Communitest etc.

Source: <http://www.agiletester.ca/>

# Agile Adages

- YAGNI – You Ain't Goin' to Need It
- DRY – Don't Repeat Yourself
- Work the Plan – Rather than Plan the Work
- Do the Simplest Thing That Can Possibly Work



# Agile Testing Reading List

- *Agile Project Management*  
Jim Highsmith; 2004
- *Lean Software Development*  
Mary & Tom Poppendieck; 2003
- *Extreme Programming Explained 2<sup>nd</sup> Edition*  
Kent Beck, Cynthia Andres; 2004
- *Testing Extreme Programming*  
Lisa Crispin; 2002
- *Agile Testing: The Tester Role on an Agile Project*  
Lisa Crispin, Janet Gregory; Not yet published

# Web Sites

- <http://www.testing.com/agile> (Brian Marick)
- <http://www.developsense.com> (Michael Bolton)
- <http://www.satisfice.com> (James Bach)
- <http://www.context-driven-testing.com>
- <http://www.kohl.ca/blog> (Jonathon Kohl)
- <http://tech.groups.yahoo.com/group/agile-testing>
- <http://www.agiletester.ca/> (Lisa Crispin, Janet Gregory)
- [www.agilemanifesto.com](http://www.agilemanifesto.com)
- [www.agilealliance.org](http://www.agilealliance.org)