



Effective Testing in Agile Projects

Agile Tour 2011

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Inspire Quality Services



We provide Agile, Quality and Process Improvement Services such as

- **Consulting/Coaching:**
 - Strategic advice and hands-on Coaching/mentoring in areas such as agile, testing, process improvement, etc.
- **Training public/inhouse:**
 - Agile: Certified/Advanced ScrumMaster, Succeeding with Agile/Scrum, Agile project management, Agile Testing, Product Owner training, Lean/Kanban, etc.
 - Testing (ISTQB Foundation and Advanced Test Manager/Analyst, Risk-based testing, Test design techniques, Testing for developers, TMap®, Peer Reviews, UAT, etc.)
 - Requirements/Business analysis
 - Software project management
- **Assessments**
 - Agile practices
 - Industry standards and models such as CMMI®, TPI®, TMMI®, etc.

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Agenda

- **Introduction to Agile/Scrum**
- **Test challenges with Agile/Scrum**
- **Agile Test Strategy & Automation**
- **Role of the tester**
- **Q&A**

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Raise hands and keep raised if

- **You have heard of Agile and Scrum**
- **You have at least a reasonable sense of what they mean**
- **Your organisation has tried Agile**
- **You have been directly involved working in Agile team(s)**
- **You work specifically in Agile Testing**

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Agile Manifesto

“We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

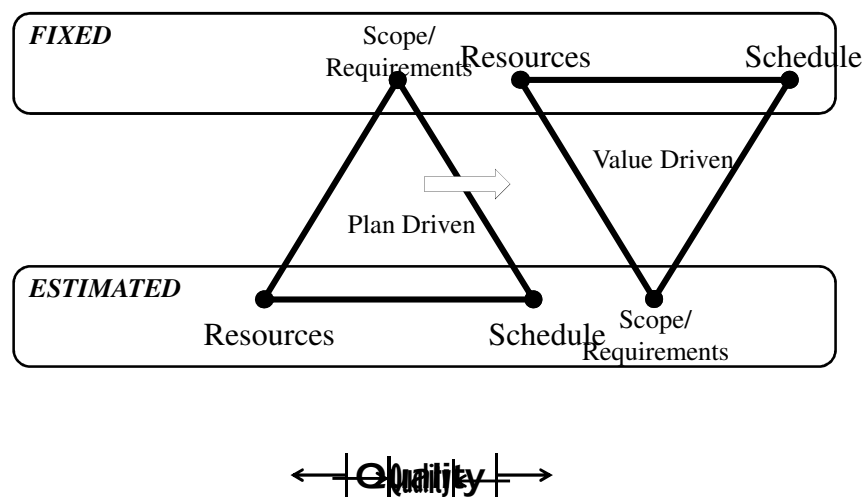
- **Individuals and interactions over processes and tools**
- **Working software over comprehensive documentation**
- **Customer collaboration over contract negotiation**
- **Responding to change over following a plan**

“That is, while there is value in the items on the right, we value the items on the left more.”

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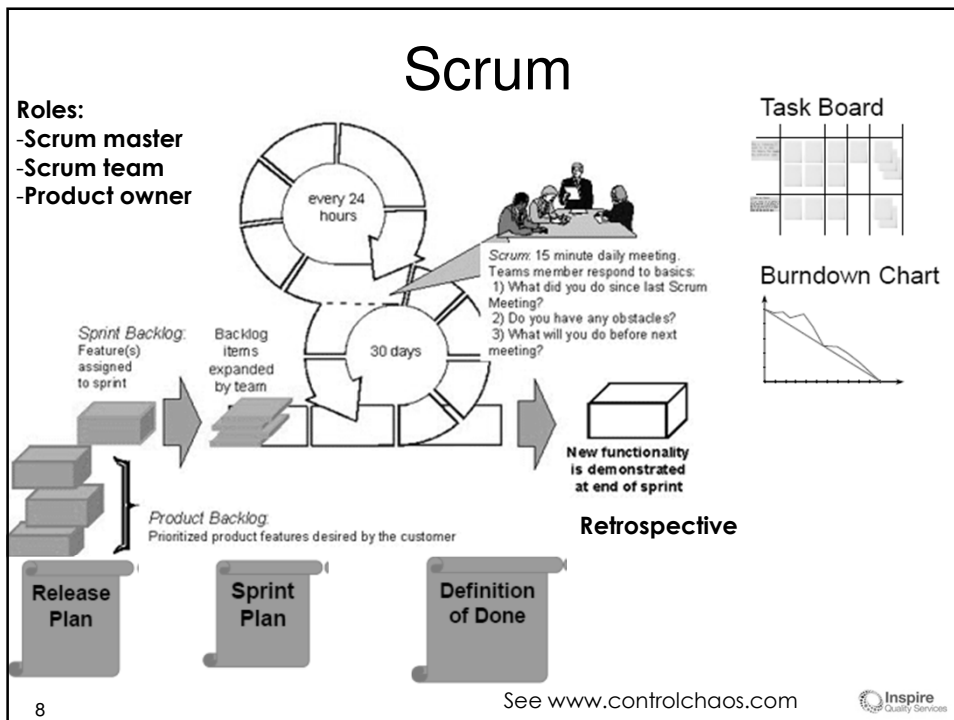
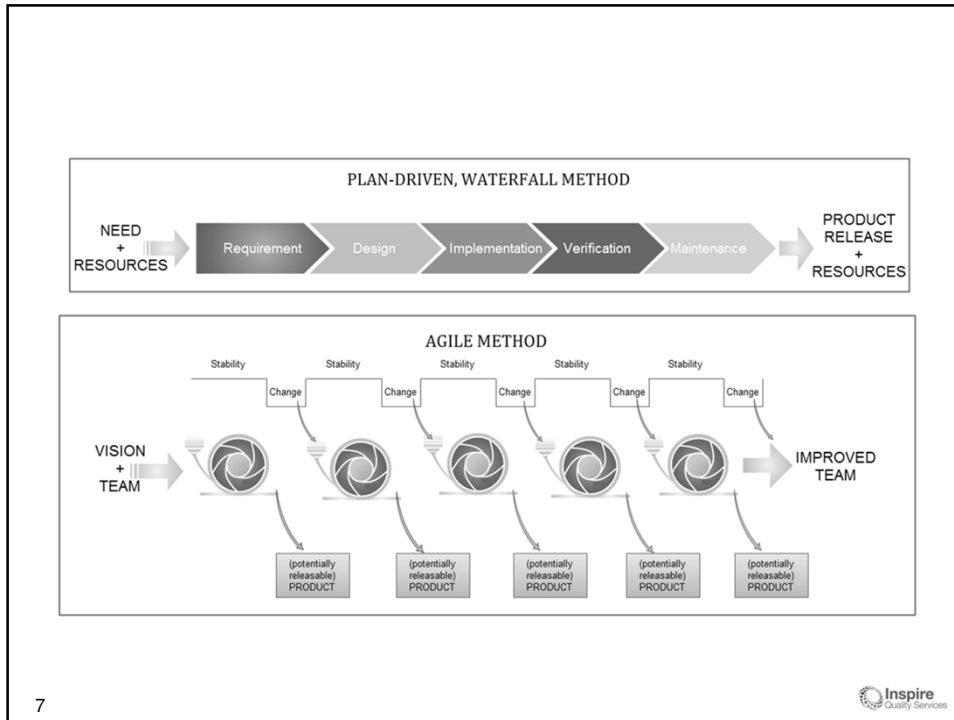


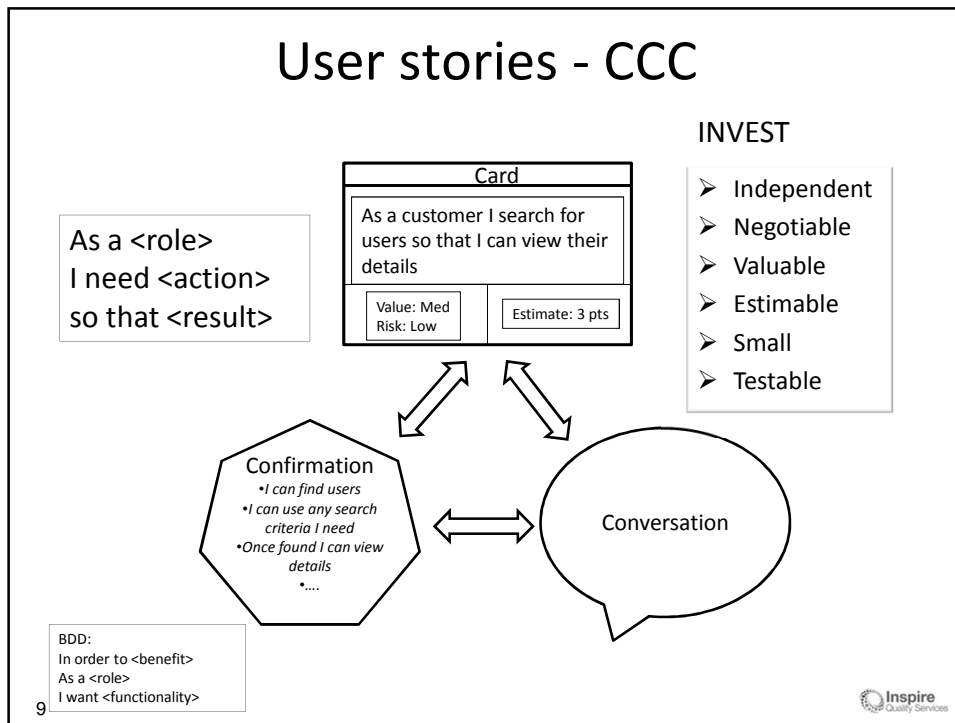
Flipping the Iron Triangle



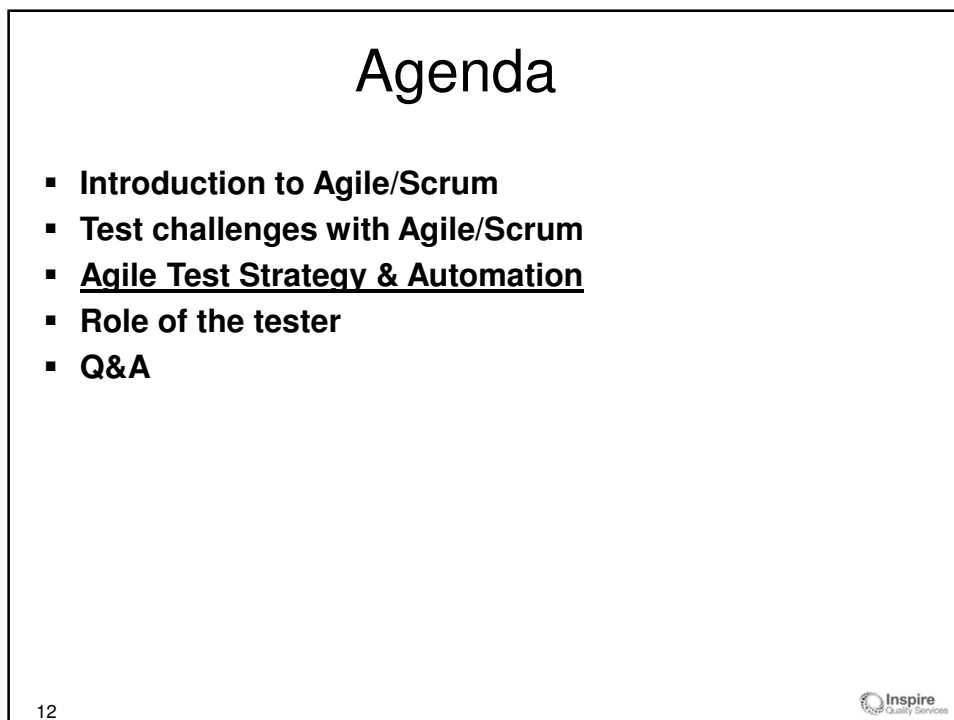
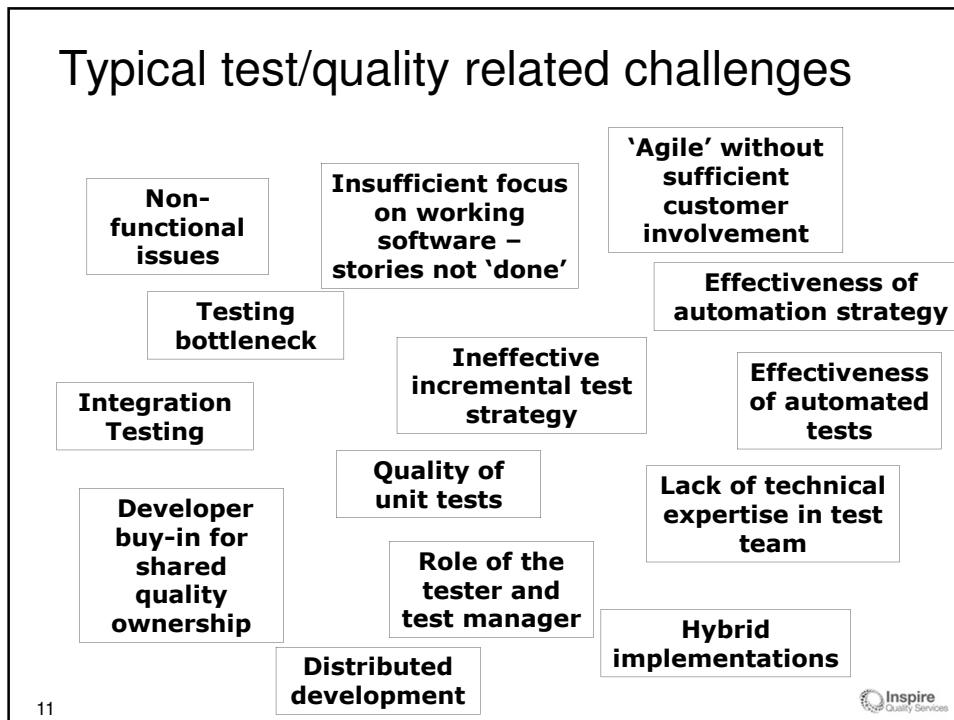
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Agile Test Strategy

- Risks
 - Similar product risks
 - Regression risk with high level of change
- How many test levels?
 - XP appears to advocate two as part of a predefined test strategy
 - Unit and Acceptance (both automated as part of Test Driven Development)
 - Is system test no longer required?
 - Automation reduces regression risk
 - Developers doing testing reduces risk of poor quality code
 - But how can a test strategy/approach be method rather than product based?

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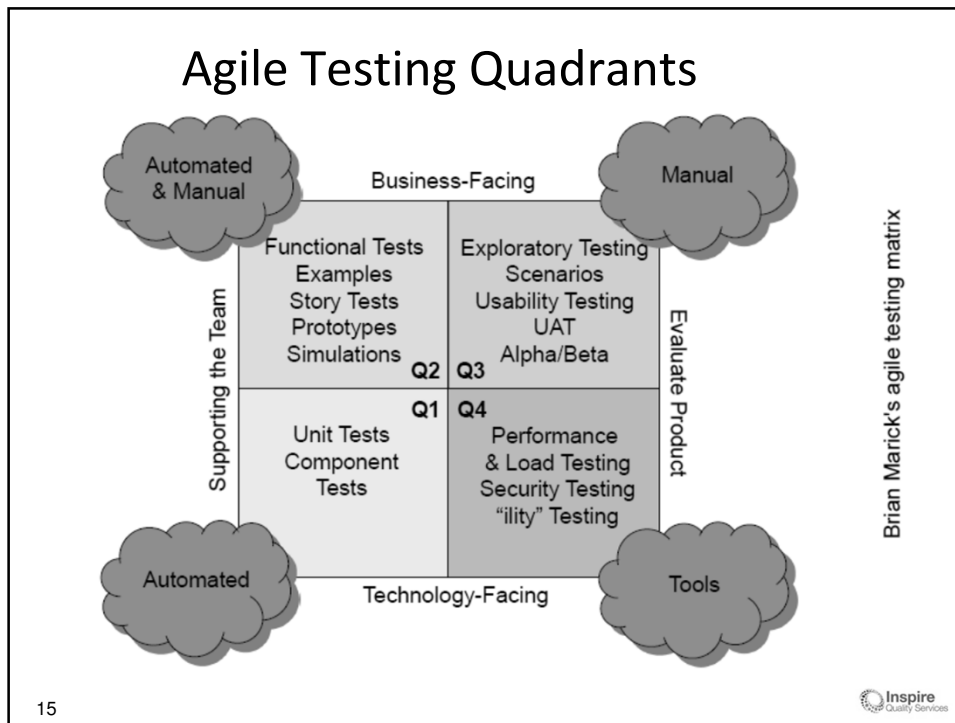


'Acceptance' Testing – is it enough?

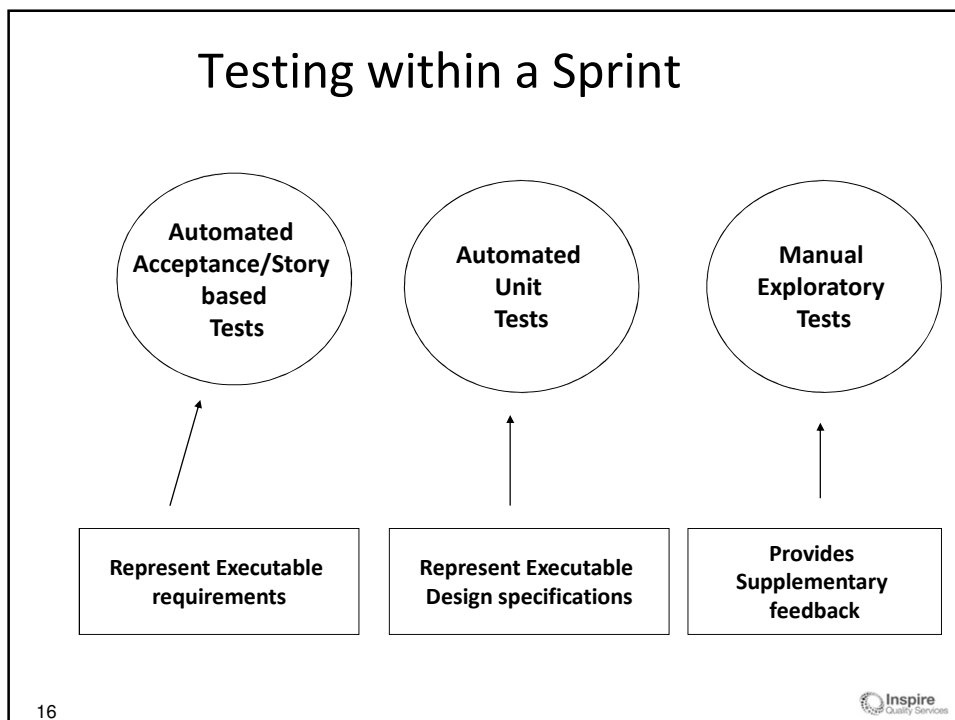
- May not be...context/risk/strategy issue...
 - May not be fully automated – partial regression strategy needed
 - Expand to fuller 'system' tests
 - Functional testing
 - Non-functional testing – performance, usability, etc.
 - May still need end-to-end business scenario focused User Acceptance test, user story interaction tests, etc.
 - System integration testing issues
 - Etc.
- Strategy and scheduling issue
 - Adaptive, risk-driven

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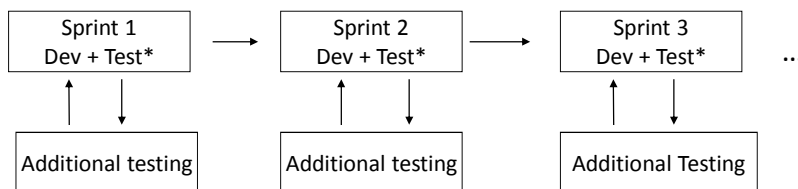




Brian Marick's agile testing matrix



Sprints and Testing Strategy



*Sprint test = Automated Unit & Acceptance, Manual Exploratory

Within a Sprint may need to perform additional testing as part of a defined but adaptive testing strategy e.g.:

- Additional exploratory testing
- Performance testing
- Usability testing
- Security testing
- System integration testing
- Combination/feature interaction testing
- Business cycle & end-to-end scenario testing – exercising multiple stories, end of month processing, etc.

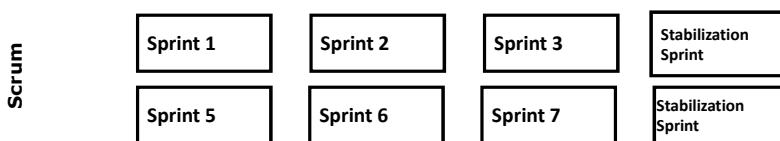
▪ **Note:** Ideally any testing needed should be included within the Sprint rather than being deferred....otherwise are we defining one 'Done' for Sprints and another for Release...?

Working software!!

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Can we avoid Stabilisation Sprint(s)?



Not part of Scrum but sometimes used for:

- Less normal new features, more focus on integration, extra testing...
- More integration testing, non-functional requirements testing...
- During "regular" sprints target *friendly first use*
 - Beta customers and similar can use immediately after sprint
- During "stabilization sprints"
 - Team prepares a product for release
 - Useful during
 - active beta periods
 - when transitioning a team to Scrum
 - if quality isn't quite where it should be on an initial release
- Not ideal though....

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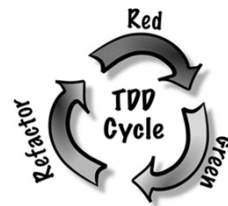


Test Driven Development

- Probably the most effective single practice to improve quality
- Never write a single line of code unless you have a failing automated test
- Eliminate duplication

Kent Beck

- Write the test
- Write the code
- Refactor



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Test Driven Development

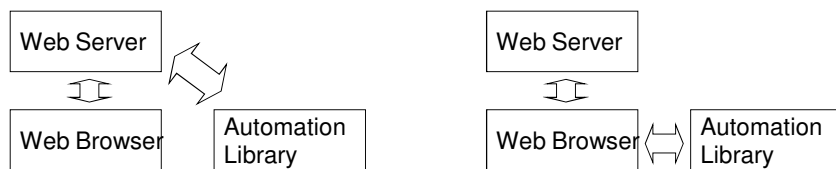
- Can be applied at all levels of test e.g.
 - Unit : Drives design→executable design specifications
 - ‘Does the code do what the developer intended’
 - Acceptance: Defines completion→executable requirements
 - ‘Does the system do what the Customer requires’
- Preventative/early testing – not new... but many benefits
- Testing takes on a specification role
 - A feature is not specified...
 - Until it's acceptance test is written.
 - A feature is not done...
 - Until all it's acceptance tests pass.
 - Acceptance and Unit tests become key requirements/feature and design artefacts

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Acceptance Testing

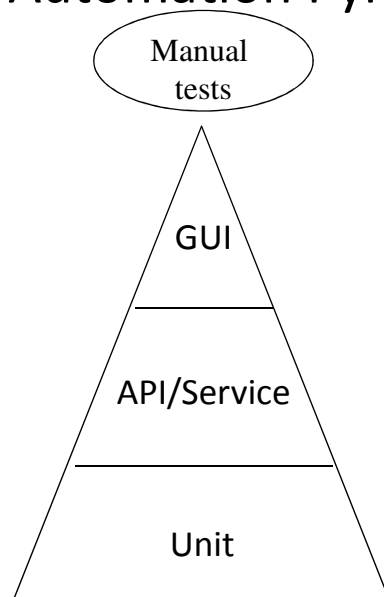
- Automated Acceptance Testing
 - Design and Code for automation, cross functional test design workshops, separate test design from implementation...
 - Tools/Frameworks e.g.
 - FIT/Fitnesse
 - Cucumber - for Behaviour driven development
 - WatiR – web application testing in Ruby
 - Selenium – record/playback and scripting for web testing
 - Will still need exploratory testing for UI layer...



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The Automation Pyramid



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Role of tester

‘The nature of the tester's role changes in iterative projects. We are no longer the high-profile victims, we are no longer the lonely advocates of quality, we are merely (!) competent service providers, collaborating with a group that wants to achieve high quality. ‘

Cem Kaner

Dedicated testers bring two benefits:

- Focus on customer usage over technical implementation
- Focus on uncovering flaws over confirming completeness

(Bret Pettichord)

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Role of tester

- Involved continuously from start...e.g.
 - Facilitate communication between the technical & business stakeholders
 - Support early validation of requirements
 - Help the Customer/business stakeholders define acceptance criteria
 - Support creation of automated acceptance tests
 - Or define for developers to script
 - Expand scope of 'acceptance' tests
 - see agile testing strategy
 - Advise the team about overall risks and trends
 - Perform manual/exploratory tests

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Questions/discussion

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your testing challenges and experiences...

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