

# *Agile Testing Opportunities*

*How Good Agile Processes Benefit Testing*



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# *Agile Testing Opportunities*

- ❖ Agile lifecycles are becoming common
- ❖ Every lifecycle affects testing
- ❖ I have previously presented talks and webinars on Agile testing challenges
- ❖ However, Agile processes, when done properly, also create a number of testing opportunities
- ❖ Let's look at these Agile opportunities and how testers can take advantage of them...



# *Automated Unit Testing*

- ⊕ While limited in defect finding effectiveness, automated unit tests do have the ability to limit regression risk
- ⊕ They can be run as often as every few hours, or at least over night
- ⊕ Automated unit tests can be combined with static code analysis and code coverage to maximize effectiveness and completeness
- ⊕ Many tools are available, including open source tools



## *Static Code Analysis*

- ❖ Static code analysis can identify many problems prior to testing
- ❖ Some static analysis can identify security and maintainability problems that testing cannot identify easily
- ❖ Many tools are available, including open source tools



# *Code Coverage*

- ❖ Code coverage tools can tell development what they've tested and what they haven't
- ❖ Good code coverage pushes unit testing towards the 50% upper range of defect finding effectiveness
- ❖ Many tools are available, including open source tools



# *Continuous Integration*

- ❖ Continuous integration allows detection of integration problems immediately after code check-in
- ❖ Broken builds can be reduced or even eliminated
- ❖ By combining continuous integration with automated unit testing, component integration testing and build sanity testing can be automated and almost immediate
- ❖ Many tools are available, including open source tools



# *Automated Functional Test*

- ❖ Automated functional testing tools have evolved
- ❖ Examples include Fitnesse and Selenium
- ❖ These can be integrated into with continuous integration, automated unit testing, code coverage, and static analysis frameworks
- ❖ This provides further minimization of regression risk
- ❖ Many tools are available, including open source tools



## *Reviews of Requirements*

- ❖ Ideally, user stories are reviewed by business and technical stakeholders early in the sprint
- ❖ Testers are involved in these reviews
- ❖ This results in high quality requirements and test oracles, resulting in early defect removal and defect prevention



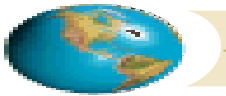
## *Reviews of Tests*

- ❖ In addition to requirements, business and technical stakeholders can review test conditions (acceptance criteria)
- ❖ This reduces the number of false positives and false negatives associated with testing
- ❖ Test results are improved
- ❖ Quality confidence and insight is also improved



## *Reasonable Workload*

- ⊕ While not always followed, when it is followed, this Agile principle helps to prevent test team burnout
- ⊕ Since some testing tasks are outside the sprints (such as test automation), some testers must work outside the sprints on these long-term projects
- ⊕ Proper estimation during the initial days of each iteration helps to avoid pressure on testers during the end of the iteration
- ⊕ Proper estimation also includes estimation of testing



## *Control Technical Debt*

- ❖ When done properly, Agile teams have a “fix bugs first” approach
- ❖ This prevents a large backlog of bugs and long closure periods beyond the sprint length
- ❖ Periodic stabilization sprints help as well
- ❖ Given proper metrics, testing can help measure and manage technical debt



# *Maximizing the Test Opportunities*

- ❖ Many of the Agile testing opportunities arise from technical aspects
- ❖ Testers are best positioned when they know how to program in the language being used
- ❖ Many of the Agile testing opportunities arise from test automation
- ❖ Testers are best positioned when they know how to use test automation tools effectively



## *Conclusions*

- ❖ Agile lifecycles, when properly done, present many opportunities to testers
- ❖ Testers should embrace those opportunities when they arise, and get involved in the Agile teams
- ❖ Maximizing the benefits of these opportunities requires testers to have certain skills
- ❖ Agile methodologies promise to increase software quality when these opportunities are exploited



# *To Contact RBCS*

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