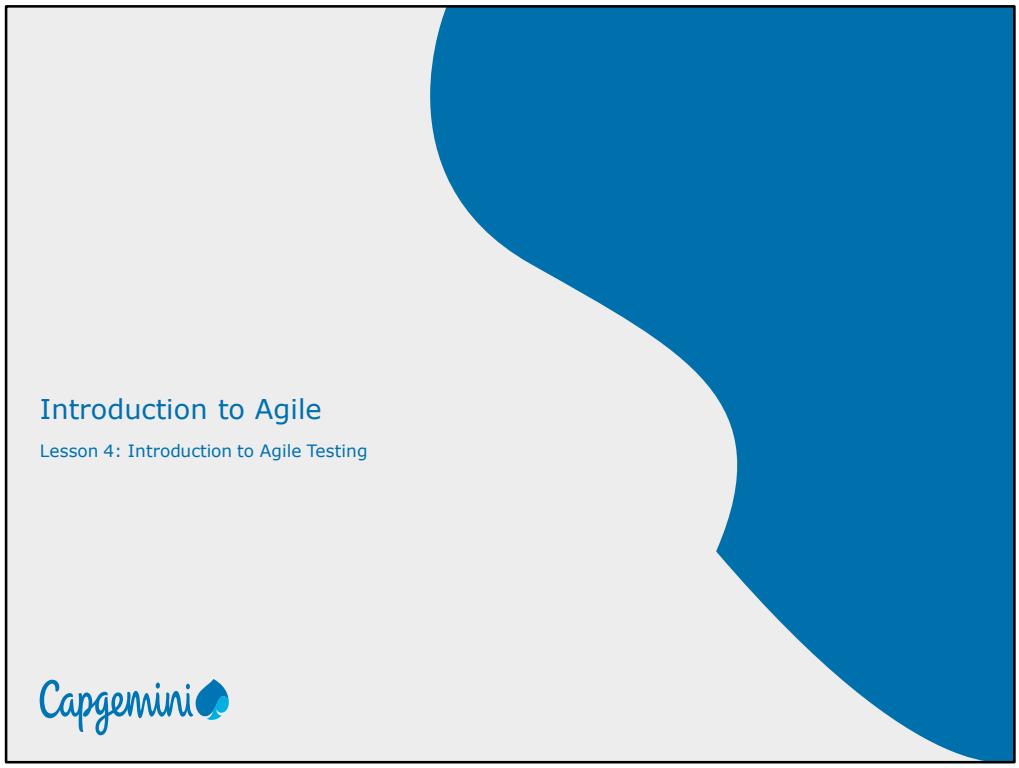

Introduction to Agile
Lesson 4: Introduction to Agile Testing
Capgemini

Lesson Objectives

- What is Agile Testing?
- Agile Team - Roles and Activities
- Where does Tester fit in Agile Team?
- Agile Team – Tester's Role and Responsibilities
- Agile Team – Test Manager's Role and Responsibilities
- How is Agile Testing different?
- Traditional Testing Vs. Agile Testing
- What is Iteration 0?
- User Story Perspective Agile Testing Process
- Tester's Change in Mind-Set – A key to success

4.1: Introduction to Agile Testing

What is an Agile Testing?

- In the modern world of software development, the term “agile” typically refers to any approach to project management that attempts to unite teams around the principles of collaboration, flexibility, simplicity, transparency, and responsiveness to feedback throughout the entire process of developing a new program or product
- Agile testing generally means the practice of testing software for bugs or performance issues within the context of an agile workflow
- Agile development recognizes that testing is not a separate phase, but an integral part of software development, along with coding

What is Agile Testing?

In the modern world of software development, the term “agile” typically refers to any approach to project management that attempts to unite teams around the principles of collaboration, flexibility, simplicity, transparency, and responsiveness to feedback throughout the entire process of developing a new program or product. Agile testing generally means the practice of testing software for bugs or performance issues within the context of an agile workflow.

Agile development identifies that testing is not a separate phase, but an it is an integral part of software development, alongside coding. Testers on agile teams lend their expertise in eliciting examples of desired behavior from customers, collaborating with the development team to turn those into executable specifications that guide coding. Testing and coding are done incrementally and iteratively, building up each feature until it provides enough value to release to production. Agile testing covers all types of testing. The Agile Testing Quadrants provide a helpful taxonomy to help teams identify and plan the testing needed.
Agile Testing doesn’t just mean testing on an agile project. Some testing approaches such as exploratory testing, are inherently agile, whether its done on an agile project or not.

4.1: Introduction to Agile Testing

What is an Agile Testing? (Cont.)

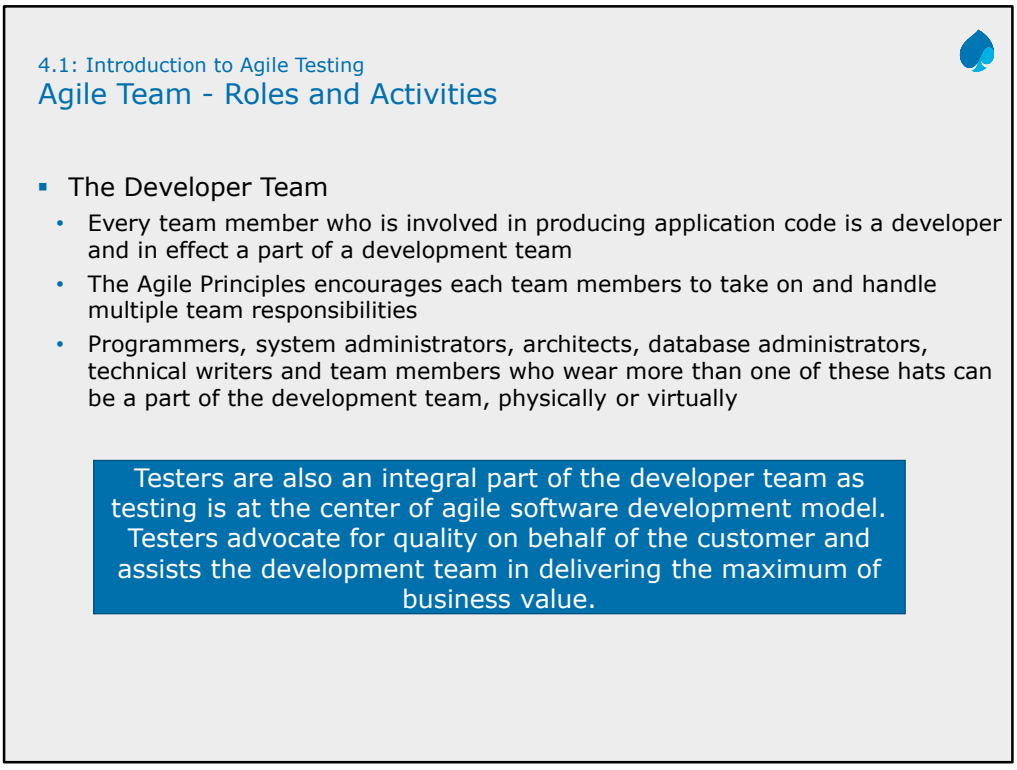
- Wikipedia defines Agile Software Testing as :

> Agile testing is a software testing practice that follows the principles of agile software development. Agile testing involves all members of a cross-functional agile team, with special expertise contributed by testers, to ensure delivering the business value desired by the customer at frequent intervals, working at a sustainable pace. Specification by example is used to capture examples of desired and undesired behavior and guide coding.

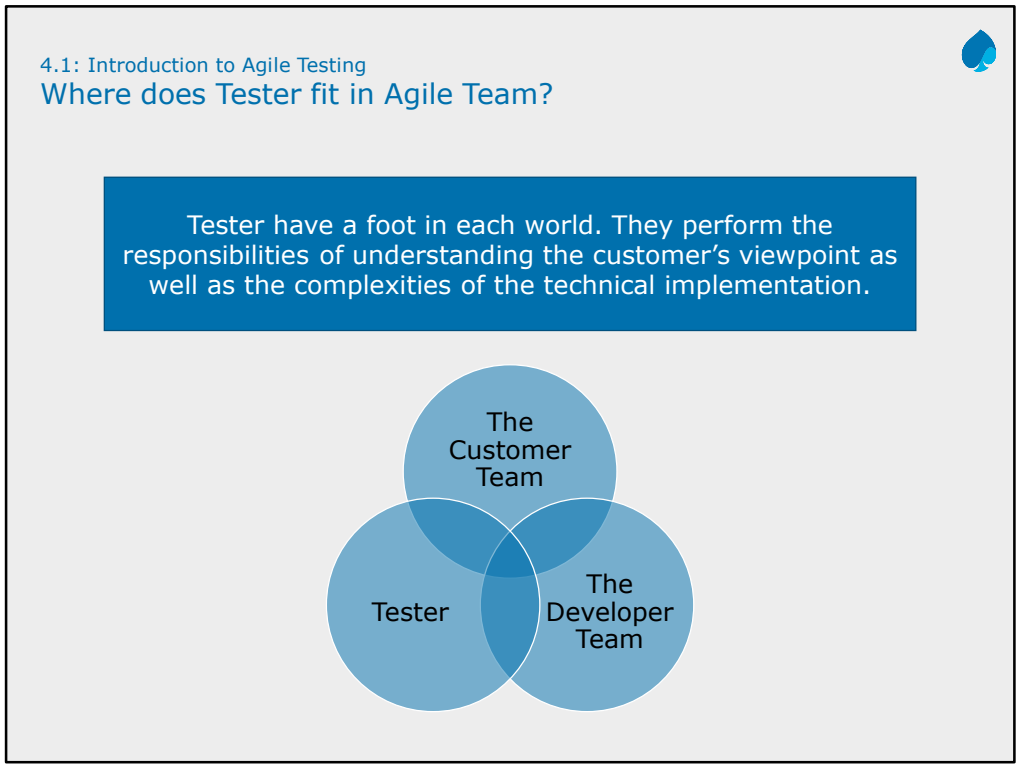
Agile Team – Roles and Activities

While there is no "magical" structure for an Agile team, it is important to understand what the roles of each of the key members of the team are.

The Customer Team - The customer team includes business experts, product owners, domain experts, product managers, business analysts and subject matter experts. The customer team also performs the responsibility of writing the User Stories or defining the feature set that essentially the developer team needs to deliver. They provide the examples that drive coding in the form of business facing tests. The customer team works hand in hand developer team by communicating and collaborating throughout each iteration cycle. They use various effective techniques to do so i.e. by answering questions, drawing examples on the whiteboard and reviewing finished stories or the parts of the stories.



The Developer Team - Every team member who is involved in producing application code is a developer and in effect a part of a development team. The Agile Principles encourages each team members to take on and handle multiple team responsibilities. Many agile practitioners discourage specialized roles on agile team and encourage all team members to transfer their skills to others as much as possible. Programmers, system administrators, architects, database administrators, technical writers and team members who wear more than one of these hats can be a part of the development team, physically or virtually.



Where does Tester fit in Agile Team?

Sometimes some agile teams don't have any member in particular who define themselves as testers. However, they all need someone who can assist the customer team in writing functionalities facing test for user stories of each iteration, ensure that the tests pass, and make sure that adequate regression tests are automated. Even under the situation when the team does have testers, the whole agile team would be responsible for the testing of iteration user stories. The various agile project experiences talks the stories where testing skills and experiences are very much important to project success and that testers do add value to agile teams.

4.1: Introduction to Agile Testing

Agile Team – Test Manager's Role and Responsibilities

- Following are some of the key activities a Test Manager performs within an agile environment
- Their key activities are:
  - Mentoring Testers
  - Staff Management
  - Allocation of testing staff to Agile Teams
  - Tester's skill development planning
  - Knowledge transfer
  - Training and development planning
  - Enabling testing activities
  - Drawing Test Strategy or approach
  - Test Planning

Agile Team – Test Manager's Role and Responsibilities

The role and the responsibilities of a traditional test manager changes when organization decides to move to Agile. In some cases this may cause issues as they will no longer be the "manager" as the Agile team itself needs to be self managing. They play the role of a staff manager rather than of a manager. They will provide time to time support to Scrum Master and Project Manager, if there is still one, in the overall project delivery.
They will also mentor the testers by providing guidance on skills and competencies required by the testers in Agile environment. The test manager should be mentoring the testers to be self-managed. They may support the activity of formation of the Agile team.
Test Managers will also facilitate, along with the Scrum Master, the management and removal of roadblocks. In some instances the Test Manager may anticipate a roadblock and ensure that it is removed before the team identifies it. Their experience can also be used during the risk identification and analysis during the initial reviews of the user stories. This of course can be used as input into assessing the technical difficulty of implementation of the user stories during the estimation period. They may also work with the team on the Test Strategy/Approach during the planning meetings at the Release and Iteration levels.

4.1: Introduction to Agile Testing

Agile Team – Tester's Role and Responsibilities

- Testers are the important part of an Agile team
  - They start writing test cases even before code starts to be created by reviewing the user stories
  - Every story that reaches the iteration boundary i.e. the end of one iteration and the start of the next) is reviewed and tested
  - Their key responsibilities are:
  - Working with programmers and product owners to ensure that the stories are clearly understood
  - Ensuring that the acceptance tests track the desired functionality of the story
  - Creating the acceptance tests while the code is being created
  - Executing the acceptance tests against the code of the story
  - Ensuring that the test cases are checked into the version control system every day
  - Writing and maintaining automated tests that can be executed, as part of the continuous integration and testing process, against the code every day

4.1: Introduction to Agile Testing

How is Agile Testing different?

- Working on Traditional Teams
  - Testers are not closely working with the development teams and at times they are not even a part of the project from the earliest phases
  - Strict and rigid gated phases of a narrowly defined software development life cycle, starting with requirements definition and usually ending with hurried testing phase and a delayed release
  - Difficult to control how the code was written and whether the code was tested by programmers
  - In spite of much process and discipline, diligently completing one phase before moving on to the next seems difficult
  - Traditional teams are more focused on making it sure that all specified requirements are delivered in the project
  - Testers study the requirements documents to write their test plans and wait for the code to be delivered to them for testing

How is Agile Team different?

Working on Traditional Teams

As a part of traditional teams, testers, neither they are working closely with the programmers nor they are getting an opportunity to be a part of the project from its initial phases. The traditional approach of software development comprises of much stricter and rigid gated phases of a narrowly defined software development life cycle, starting with requirement definition and usually ending with rushed testing phase and delayed release. On traditional teams of software development, testers couldn't control how the code was written and or even if any programmers tested their code.

In spite of much process and discipline, it is difficult to diligently completing one phase before moving on to the next phase. Traditional teams are more focused on making sure all the system requirements are delivered in the final product. If everything is not ready by the targeted release date, then the release is usually postponed. Testers study the requirement documents to write their test plans and wait for the code to be delivered to them before testing.

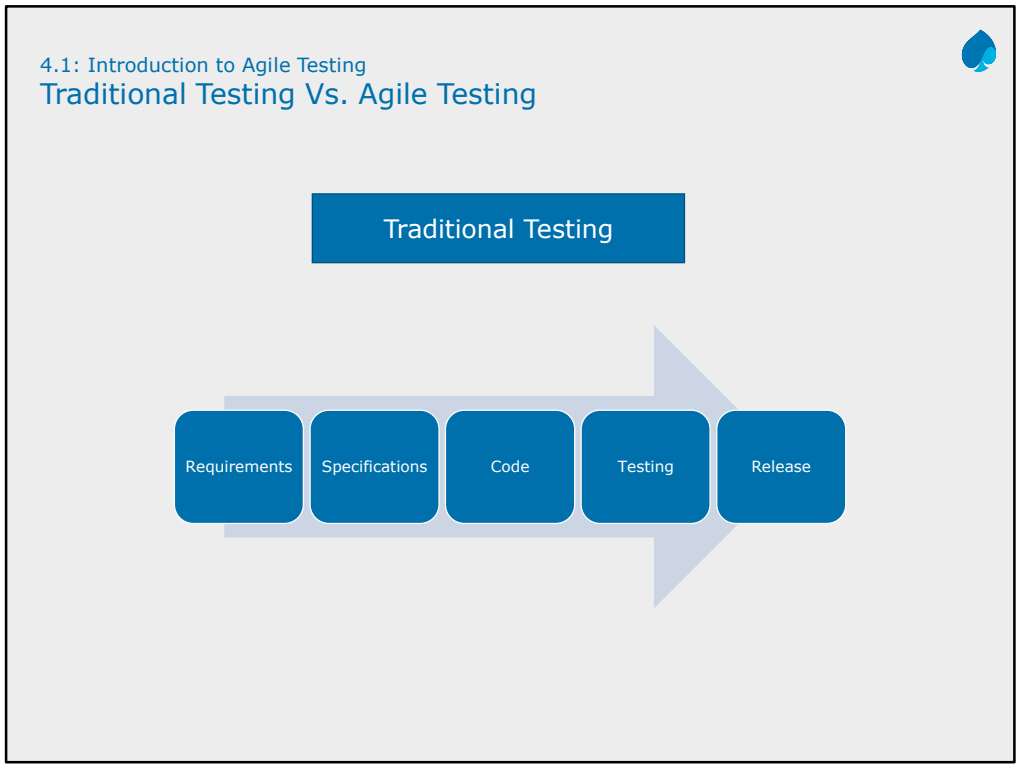
4.1: Introduction to Agile Testing

How is Agile Testing different? (Cont.)

- Working on Agile Teams
  - Agile teams work closely with each other and they have a detailed understanding of the requirements
  - They are focused on the value they can deliver, and they might have a great deal of input into prioritizing features
  - In agile teams, testers don't sit and wait for code, they get up and look for ways to contribute throughout the development life cycle and beyond
  - Agile is iterative and incremental which means that testing happens at the end, right before the release
  - The teams develops the code for iteration's user story, making sure it works correctly, and then moving on to the next piece of code that needs to be built

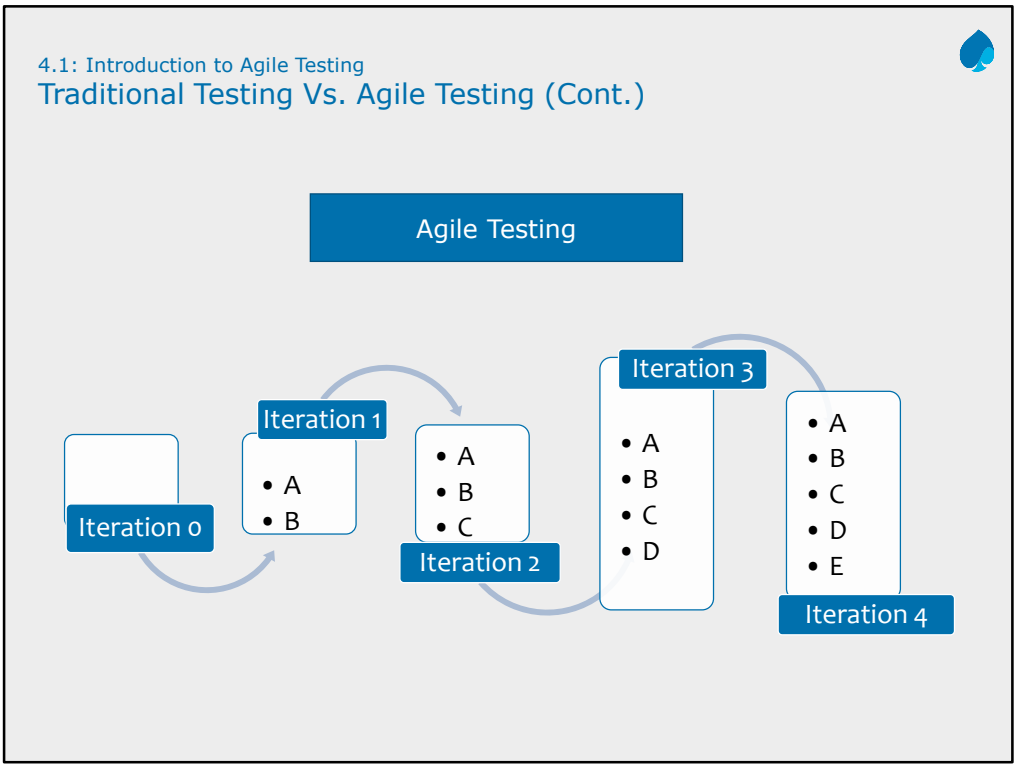
Working on Agile Teams

Agile teams work closely with each other and they have a detailed understanding of the requirements. They are focused on the value they can deliver, and they might have a great deal of input into prioritizing features. In agile teams, testers don't sit and wait for code, they get up and look for ways to contribute throughout the development life cycle and beyond. Agile is iterative and incremental which means that testing happens at the end, right before the release. The teams develops the code for iteration's user story, making sure it works correctly, and then moving on to the next piece of code that needs to be built.



Traditional Testing

From the traditional testing diagram it clear that testing takes place towards the end of the software development life cycle and before the product release. The process looks idealistic because it gives an impression that there is as much time for testing as there is for coding. In many projects this is not the case. The gets squeezed because coding takes longer than expected and because teams get into the code-and-fix cycle at the end.



Agile Testing

Agile is iterative and incremental which means that the testers test each increment to the coding as soon as it is finished. The iteration might be as short as one week or as long as one month. The development team develops the solution for the iteration's user story, ensuring it works as expected and then moving on to the next piece of the code that needs to be built. On Agile teams developers never gets ahead of the testers, because the story is not "Completed" until it has been tested.

As a Tester on an Agile team, is a key player in releasing code to production. The most important difference for a tester in agile testing is the quick feedback from the testing. It drives the project forward, and there are no gatekeepers ready to block project progress if certain milestones are not met.

4.1: Introduction to Agile Testing

What is Iteration 0?

- Iteration Zero is a focused set of activities that a team does to get ready to begin a series of product development iterations
- In Iteration Zero the team explores the product ideas, customer needs, development practices, hardware and software architecture
- The team elaborates the their vision of the product specifications needed and required work to be done
- This activity should be a focused activity and it should not unnecessarily drag on
- Iteration 0 is a team activity and following people necessarily be a part of this activity
  - People with a vision of the product being developed
  - People that understand why features are needed and how they will be used
  - People that will build the system
  - People that will test the system
  - People that fund the system
  - Technology and Domain Experts

What is Iteration 0?

There seems to be lot of discussion around whether there should or shouldn't be an iteration 0. Many of the Agile perfectionists strongly believe that there should be some working functionality that should be delivered after each iteration. For the Agile projects those who have iteration o it is generally considered as "Warm Up" or "Project Initiation" period.

The Iteration 0 deliverables:

1. Actively working with the stakeholders to either help them understand Agile and where they fit into it or to help them model the initial scope of the system
2. Create some high level prototypes
3. Start to build the team
4. Model the initial architecture
5. Set up the environment
6. Decide on the definition of "Done"
7. Select and configure any tools that are required
8. Decide on which methodology or blend of them to use

It is possible that what is decided in iteration 0 may not be what ultimately happens, but the team has to start somewhere**.**

4.1: Introduction to Agile Testing

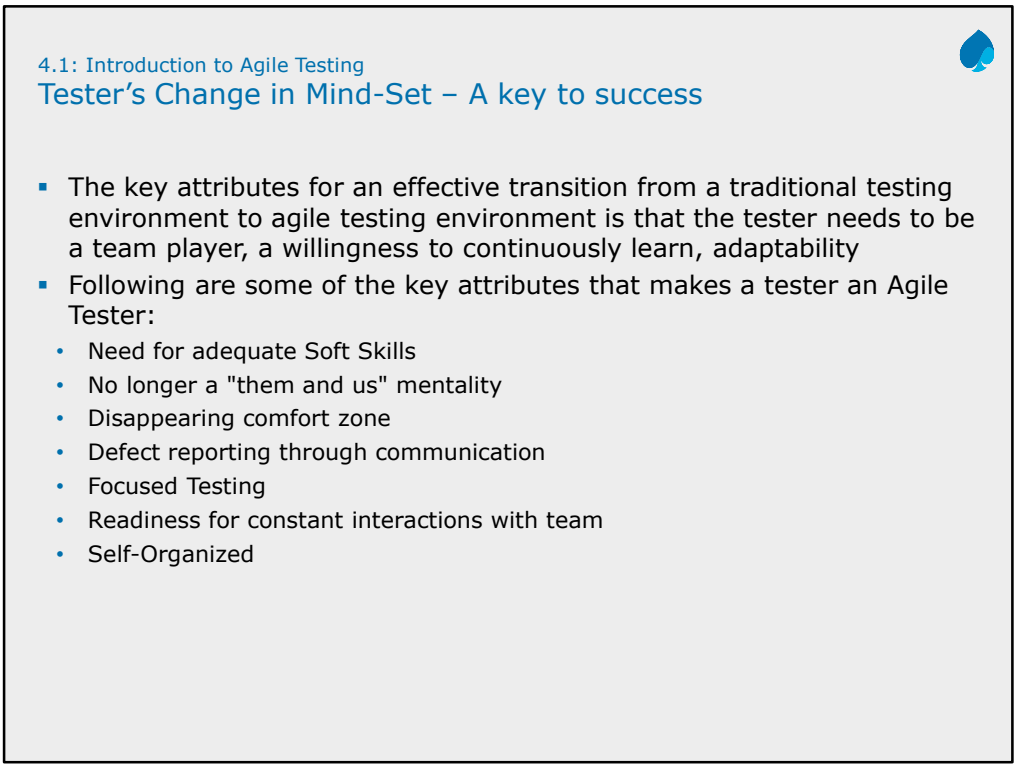
What is Iteration 0? (Cont.)

- The factors that can influence whether there should or should not be an Iteration Zero
  - The maturity of the team
  - Whether stakeholders have worked on an Agile project before
  - The quality of the user stories or understanding of the requirements that are being developed
  - The environments being used
  - Whether the environments are already setup
  - The level of experience the organization has with agile methods

4.1: Introduction to Agile Testing

User Story Perspective Agile Testing Process

- The test cases are written even before the coding begins that illustrates requirement for each user story rather than creating tests from requirement document
- This is often a combined effort between a domain expert and a tester, analyst or some other development team member
- Ideally based on examples provided by business experts detailed functional test cases are written
- Testers can also conduct manual exploratory testing to find important bugs that define test cases might miss on
- Testers might pair with other developers to automate and execute test cases as coding on each story proceeds
- Automated functional tests are added to the regression test suite
- When test demonstration minimum functionality are complete, the team can consider the story finished



Tester's Change in Mind-Set – A key to success

A successful transition for a tester into an agile project is a change in their mindset. Many of the skills and competencies that they will already have can be used equally effectively in an agile environment however they need to be aware of how this environment may require them to use these in a slightly different way.

1. **Need for adequate Soft Skills** – In Agile Testing, tester's soft skills plays a very important role as there is likely to be higher and continuous communication amongst the team. Testers need to be able to converse from a technical perspective with the developers and for automation. Also, they should be able to talk in the language the customer will understand.
2. **No longer a "them and us" mentality** - There is no longer a "them and us" mentality and it is the teams responsibility to ensure that user stories get implemented correctly and tested correctly in order to produce business outcome.
3. **Disappearing comfort zone** - Testers may be taken out of their comfort zone, where in a traditional project they may have had weeks if not months to plan and prepare their testing. Now they have only few days. They may have been used of using documentation with all the details written down for them however there will be less documentation in an agile project and it is the testers skill which will need to elicit the additional detail required.
4. **Defect reporting through communication** – Instead of following the traditional approach of defect reporting of writing detailed defect report, the defect will be reported to the developer by simple communication and showing them what the defect is, which they fix quickly and returned to retest.

Summary

- In this lesson, you have learnt
  - The concepts of Agile Testing
  - The different roles and the activities performed by each role in the Agile Team
  - Where does the Tester fit in the Agile Team?
  - We also elaborated the key differences between the traditional testing and agile testing
  - We also elaborated the agile testing process from the User Story perspective
  - How does a change in tester's mind-set facilitates a smooth transition from traditional testing to a agile testing?
  - The changed role of a Test Manager

Add the notes here.