

AGILE TESTING METRICS





INTRODUCTION OF OUR SERVICES



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- **Consulting:** We provide IT consulting services and advisory services that help clients assess different technology strategies and, in doing so, align technology strategies with business or process strategies. These services support customers' IT initiatives or digital transformation by providing strategic, architectural, operational and implementation planning. We sometimes assist our clients to select the suitable solution among vendor evaluation and workshops.
- **Project and Change management:** We ensure a smooth transition to the new ways of working and embed the Continuous Improvement framework to allow business realize the long term benefits of the solution.
- **Architecture Design:** We design the architecture from data acquisition to data visualization according to client selected tools, to address pain points and new or changing requirements.
- **System Integration:** Responsible of information system that may include designing or building a customized architecture or application, integrating it with new or existing hardware, packaged and custom software, and communications.
- **Optimization:** Optimize the existing data flow and/or BI application to improve the business users experience
- **Implementation and service support:** Build and deliver solutions to provides benefits which aligned with the organizational strategy and meaningful insights for decision making. We will provide customer service support during production journey.

WHY EXPLORA CONSULTING?



INDUSTRY

- Past experience in many industry: Retail, Insurance, Entertainment, etc..
- Business Expert



DOMAIN

- Works with Marketing, Operation, Sales, Finances teams
- Understand Business and IT constraints



METHODOLOGY

- Consulting, Implementation & Quality Assurance
- Agile Project Management
- Agile Test methodology
- Continuous Improvement



SOLUTION

- Focus on Retail Solution: POS, CRM, BPM and BI solutions (Tableau, Microsoft Power BI, and Qlikview).
- Integrate with your existing solution, add customization to bring

GLOBAL SUPPORT

CONSULTING

Business Expert

IT Blueprint and Urbanization

Project Scoping

Tools Evaluation & Recommendation

Digital Transformation Strategy

Change Management

Project Management

**Business & Technological
Expertise**

DEVELOPMENT

Solution Design, Conception
& Technical Implementation

Performance Audit
& Technical Expert

Software, Platforms Integration
& Migration

Specific Application development

Go Live Support

**Design, Integration
& Development**

TESTING

Test Consultancy, from Requirement
Gathering to Go Live

Test Process Assessment & Improvement

Performance & Test Automation

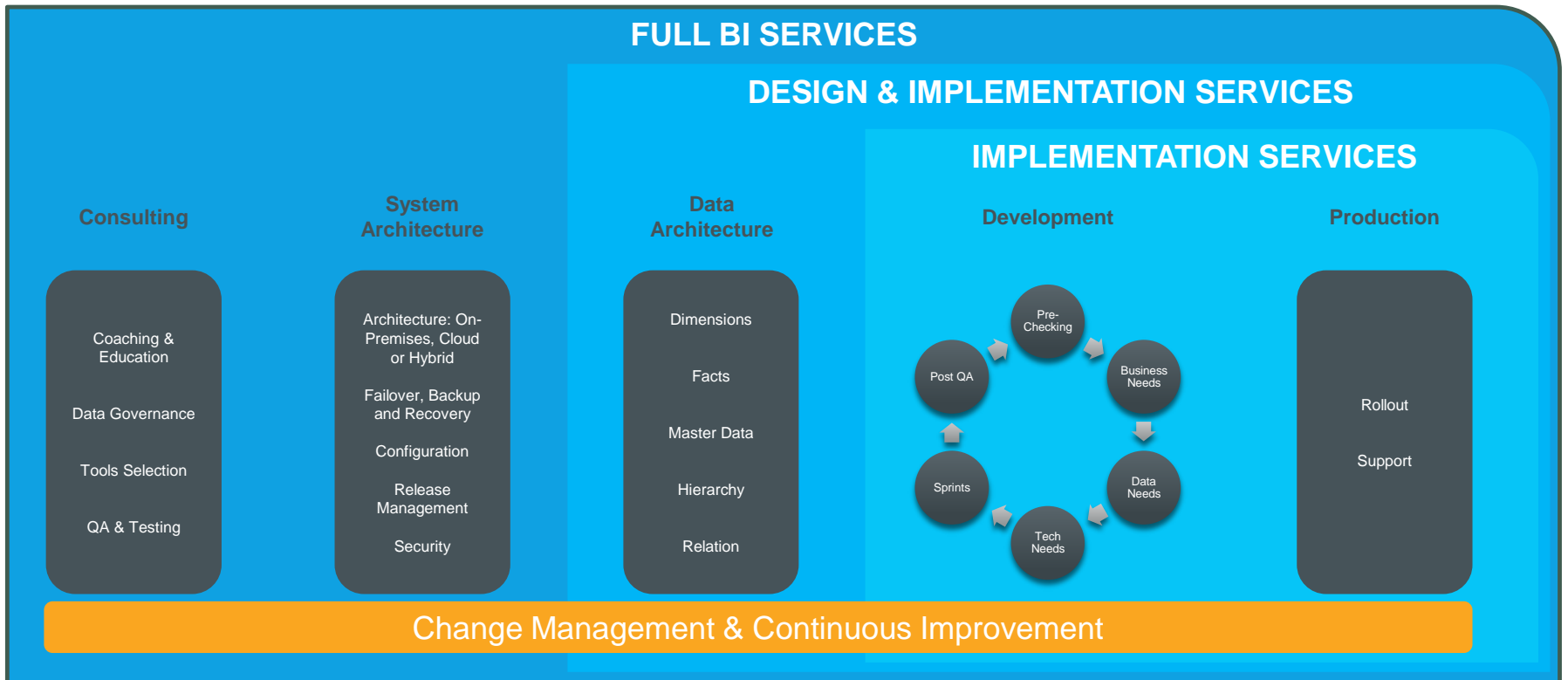
BI & Data Application Testing

Web / Mobile Application Testing

CRM, ERP, POS Testing

Quality Assurance

FOCUS - BI SERVICES



PURPOSE OF METRICS & KPI

Do you have those questions?

- Questions such as : How long will it take to test? How much money will it take to test? How bad are the bugs? How many bugs found are fixed and reopened or closed or deferred? How many bugs did the test team did not find? How much of software were tested? Will testing be done on time? Can the software be shipped on time?

What are Metrics?

- This is to measure and monitor your test activities
- Provide insights of your team's test progress, productivity and quality of the system

INTRODUCTION – AGILE METRIC

- Most of the test metrics for Agile teams can be measured in a number of ways, such as per:
 - ✓ Epic
 - ✓ Release
 - ✓ Iteration
 - ✓ Feature
 - ✓ User Story
- Testing metrics related to defects are a significant part of agile ROI, but cost avoidance shows the real numbers of how much businesses are saving by finding and fixing issues earlier.
- By finding defects earlier on and using test management tools to help mitigate the problem, organizations can avoid spending more than they need to and boost their overall ROI.

TEST METRIC – MOST COMMON

- Number of test cases passed, failed, blocked
- Number of defects rejected, deferred.
- Number of critical defects and blockers
- Number of defects found after shipping (Defect leaks to production)
- Blocked Test case percentage = $\frac{(\text{Number of Blocked Tests})}{\text{Total Number of test executed}} \times 100$
- Bug Fix rate or
Average time for dev team to repair defects = $\frac{\text{Total time taken for bug fix}}{\text{Number of bugs}}$
- Critical Defects percentage = $\frac{(\text{Critical Defects})}{\text{Total defects reported}} \times 100$
- Cost per Bug fix, calculated by dollar amount of effort spent on defect per developer. Some teams also take into account the cost of retesting.

COST OF NOT TESTING

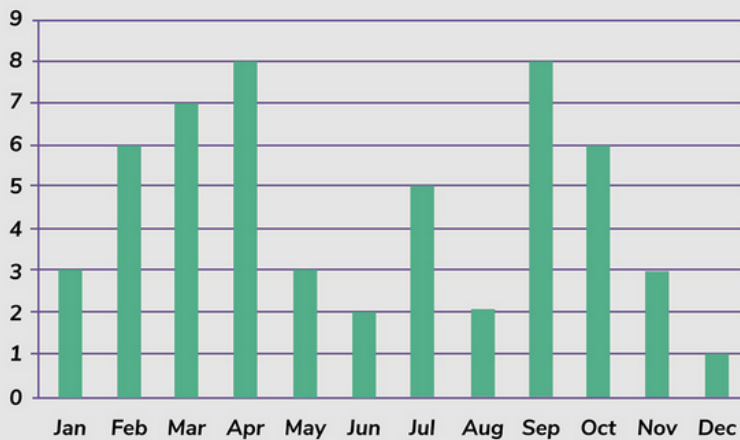
- More Customer care calls and service requests
- Productive outage
- Loss of customers/trust
- Loss of customer loyalty
- Poor brand awareness



AGILE TESTING - METRICS



DEFECT LEAKAGE TO PRODUCTION/ ESCAPED DEFECTS



Escaped Defects over Time

- Leaked or Escaped defects is a simple metric that counts the defects for a given release that were found after the release to production.
- Such defects have been found by the customer as opposed to the Agile development/QA team.
- Since escaped defects tend to be quite costly, it's helpful to analyze them carefully, and strive to see this metric decrease.

Relevance for Agile Testing:

- Analyzing escaped defects helps to ensure continuous improvement in testing and development processes. Defining the root cause of escaped defects helps prevent recurrence of the same issues in subsequent releases.
- Agile teams can capture the escaped defects metric per unit of time, per sprint, or release, providing specific insights into what went wrong with development or testing in a specific part of the project.

SPRINT BURNDOWN



Sprint Burndown is a graphical representation of the rate at which teams complete their tasks and how much work remains during a defined sprint period.

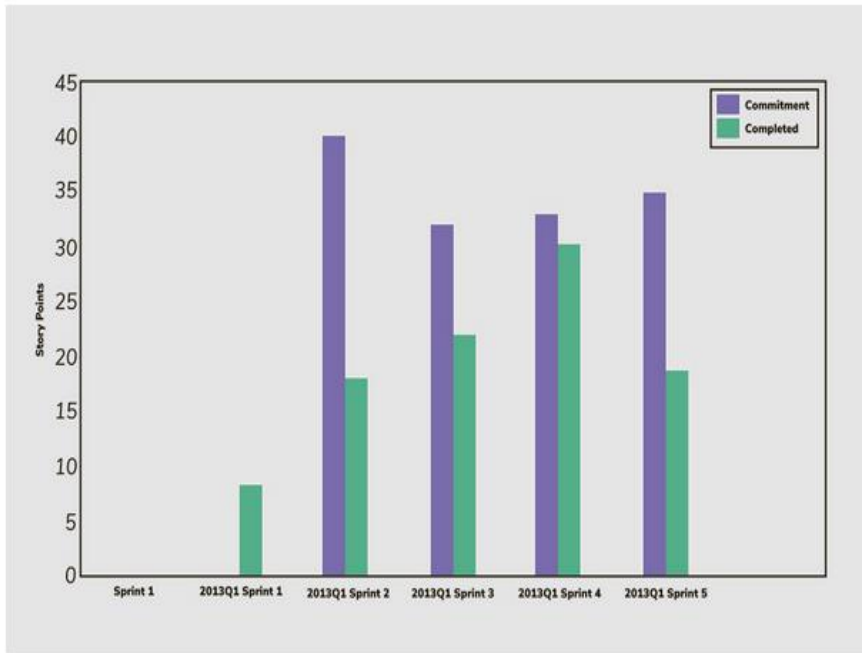
X - Axis: Sprint Dates

Y - Axis: Remaining hours of effort

Relevance to Agile Testing:

- Testing usually forms part of the definition of done exit-criteria used by Agile teams.
- The definition of done might include a condition such as “tested with 100 percent Test Code Coverage”.
- Every “story” completed by an Agile team must also be tested, hence the stories completed reflect progress in testing the key features required by the customer.

VELOCITY CHART



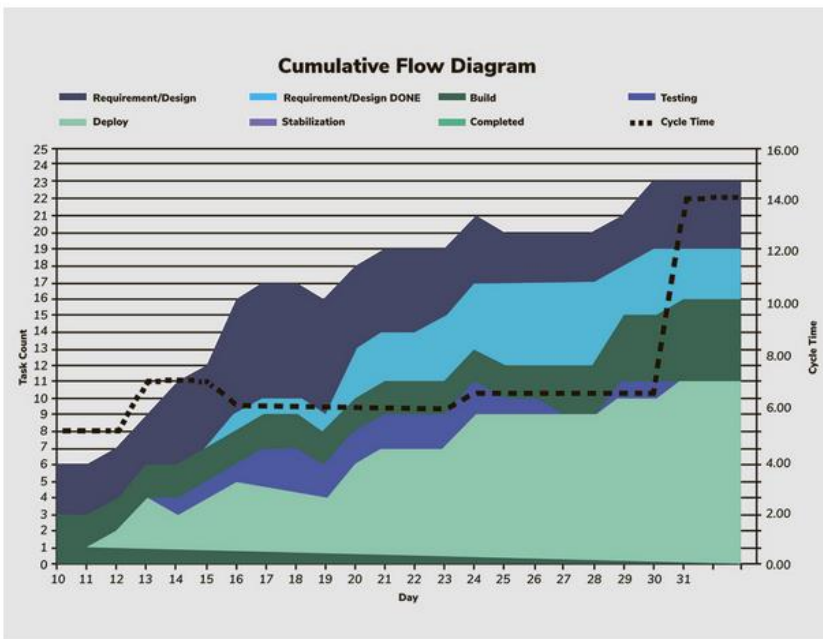
- Velocity is a mathematical approach to measure how much work a team completes on average during each sprint, comparing the actual completed tasks with the team's estimated efforts.

- Velocity metric is used to predict how quickly a team can work towards a goal (or epic) by comparing the average story points or hours committed to and completed in previous sprints.

Relevance to Agile Testing:

- The quicker a team's velocity, the faster that team develops software features. Thus higher velocity can mean faster progression with software testing.

CUMULATIVE FLOW DIAGRAM

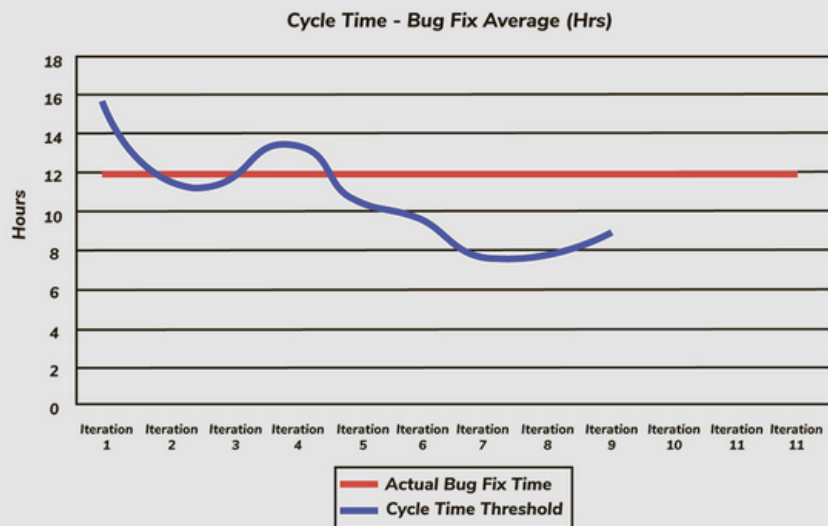


- The Cumulative Flow Diagram (CFD) gives summary information for a project, including work-in-progress tasks, completed tasks, testing progress, velocity, and the current backlog.
- We can visualize bottlenecks in the Agile process during the current or the previous sprints.
- A vertical area in the CFD that widens over time indicates the presence of a bottleneck

Relevance for Agile Testing:

- Testing is part of the Agile workflow, and it is included in most Cumulative Flow Diagrams.
- By using a CFD, you can measure the progress of software testing.
- CFDs may be used to analyze whether testing is a bottleneck or whether other factors in the CFD are bottlenecks, which might affect testing.

DEFECT CYCLE TIME



- Defect cycle time is used to measure how much time elapses between starting work on fixing a bug and fully resolving that bug.

- An Agile control chart visually represents cycle time across different Agile tasks.

x-axis: Time

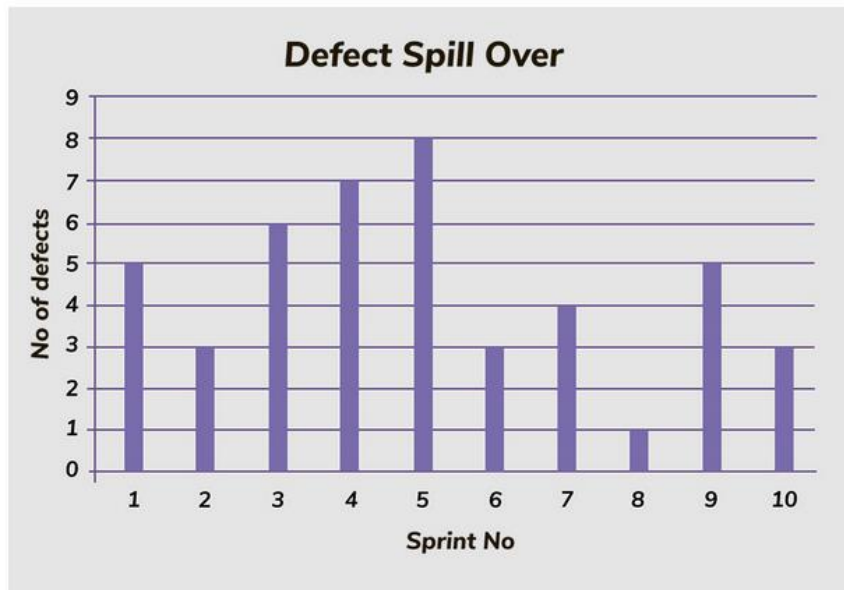
Y-axis: Number of hours it takes to resolve defects.

Relevance to Agile Testing:

- Rapid resolution of defects is conducive to quicker release times in a fast-paced Agile team.

- By measuring defect cycle time against a defined threshold, you can gauge exactly how fast Agile teams resolve issues and whether they are showing the expected progress over an increasing number of sprints or iterations

DEFECT SPILL-OVER



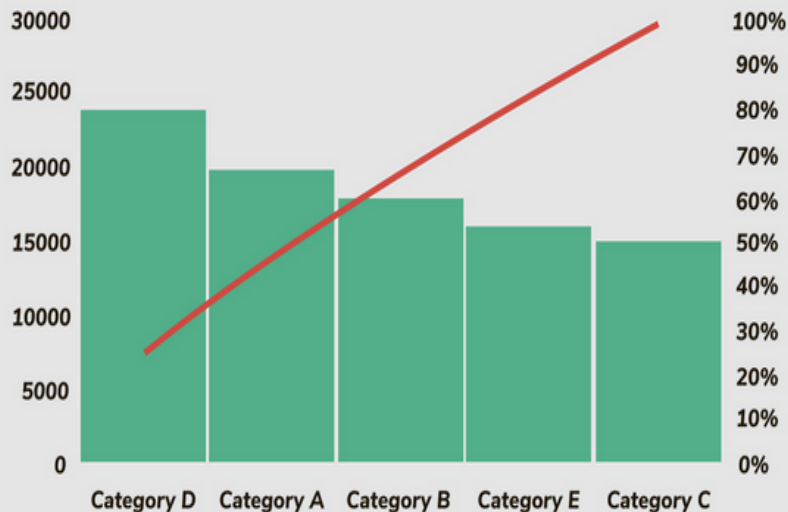
- Defect spill-over measures the number of defects that don't get resolved in a given sprint or iteration.
- It can be also used to measure whether defects spilling over from one sprint get resolved in the next sprint.

Relevance to Agile Testing:

- The main goal for agile teams is to produce working software when each iteration is completed. Measuring spillover minimizes the chances of teams getting stuck in the future because of a build-up of technical debt.
- Measuring defect spill-over per sprint helps Agile teams get a clear idea of how efficiently they are dealing with issues.

DEFECT CATEGORIZATION

Pareto Chart



Along-with finding defects its also important to categorize bugs to get qualitative information about defects. The software defects can be categorized into a number of categories, like:

- Functionality errors
- Communication errors
- Security bugs
- Performance defects

Pareto charts can be used to group the defects in categories and give a visual representation of the same.

Relevance to Agile Testing:

- Using a Pareto chart and the Pareto principle, the 20 percent of defect categories that cause 80 percent of the problems with the software can be determined.
- By highlighting the categories with most defects, the team can have a better understanding of what they need to work on improving.

ADDITIONAL TESTING METRICS

- In addition to these, there are some more metrics that can be used for measuring the quality of the software like:
 - ✓ Earned Value Analysis
 - ✓ Percentage of Automated Test Coverage
 - ✓ Code Complexity & Static code analysis
 - ✓ Number of Running Tested Features

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