

WHITE PAPER:

Title: Importance of Test Process Improvement

February, 2014

Plan, Design, Apply and Exit Fundamentals!

We apply these fundamentals in almost all aspects of our life and software testing is no exception. In software testing, we apply them to have a formalized test process in place - process that will encompass all the quality assurance and control activities, carried out in a project to ensure the delivery of a quality product to end users.

However, Plan, Design, Apply and Exit are not the only fundamentals. We need much more than these core fundamentals to improve existing test processes to continue to operate optimally. And what are those additional activities to help us get there? These include:

A Drive for Ongoing Improvement

Your test processes cannot be static. If they are static and haven't changed in a while, they will soon become ineffective.

However vigorous a test process might be, you always need to keep a check on the test process itself and adapt to the changes in the project so that your test process is up-to-date and meets the demand of the project and software industry.

As a QA manager or QA lead, you should always be on the lookout for areas of improvement in your test process and customize them as needed to address your client and product needs. Processes might not be completely transferable from one client to another and from one project to another. So, keeping the core intact, the more you adapt to your current needs, the better would be your chances of succeeding using these processes.

Metrics and Analysis

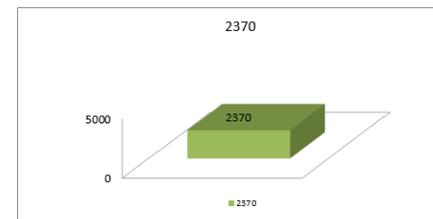
Adapt to Metrics! Use numbers! Use graphs!

Numbers help you represent your status objectively. Whatever SDLC model you follow in your project there are at least a standard set of metrics that you can always use, such as:

- Defect Resolution Effectiveness
- Defect Density
- Defect Containment Effectiveness

Defect Containment Efficiency	Total DCE		Analysis
	Total Bugs Raised	Total Bugs Closed	
Project	2370	2370	Due to project nature there is no variance.

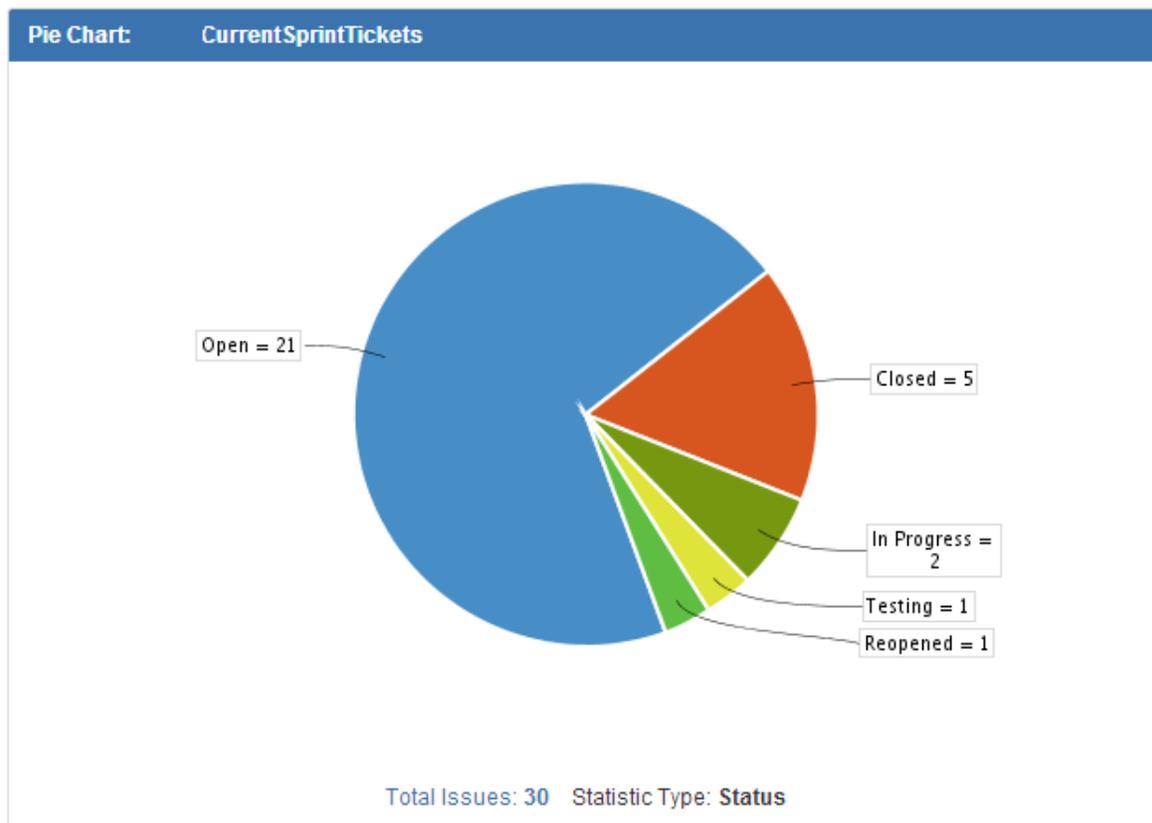
Note: Defect Containment Efficiency = # of defects raised and closed per phase



The above image shows a DCE wherein in this particular case there were no defects that were carried forward to the next sprint cycle, as all reported bugs were fixed in the same sprint.

Keep these metrics updated at all times. You can also add more metric in line with your project such as:

- Number of showstoppers logged per build
- Number of defects logged per feature/story
- Number of reopened defects



The above graph shows the current status of all the tickets on the sprint board.

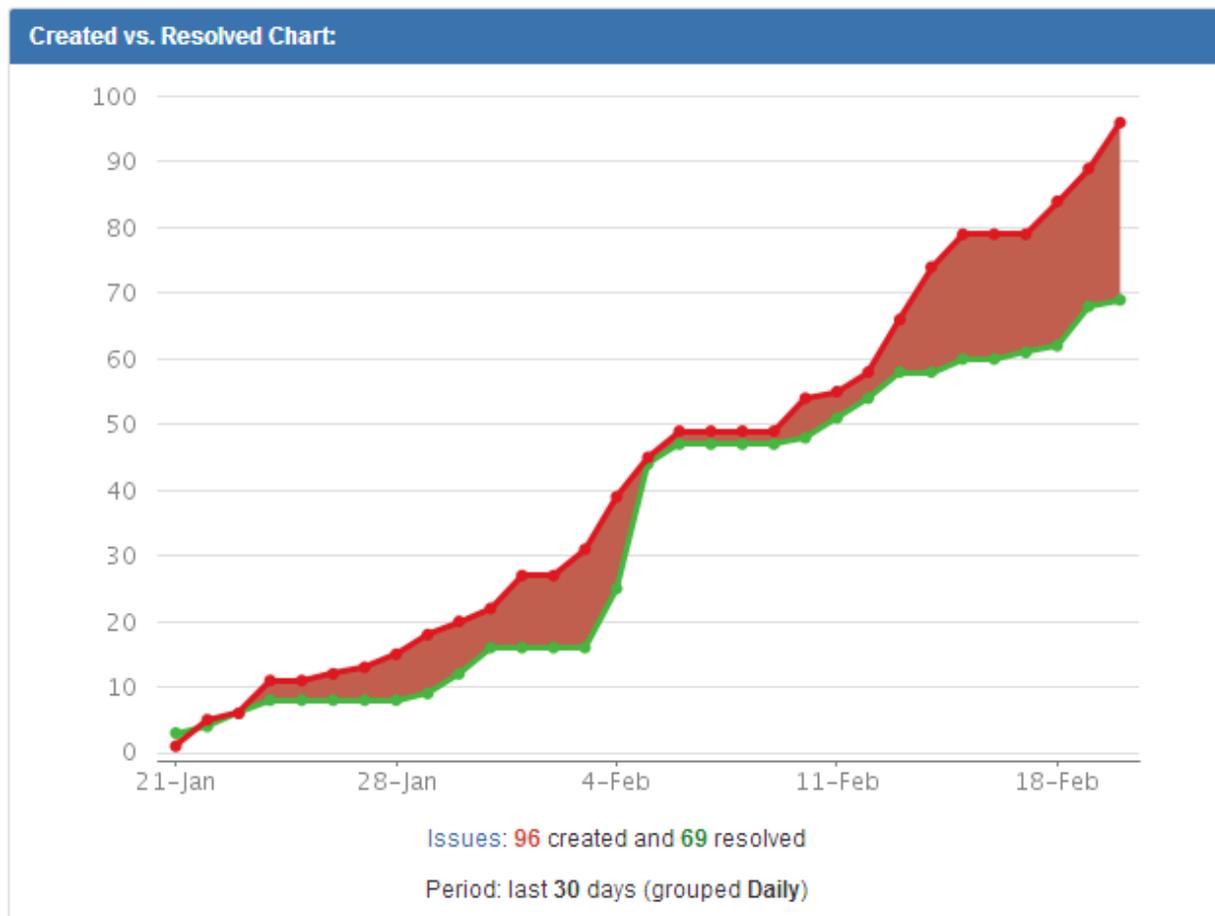
You can also include some metrics that help you analyze your team's performance and work towards improving any gaps that exist, such as:

- Number of duplicate issues reported per build
- Number of invalid issues reported per build
- Number of issues deferred per build

Once you have identified such metrics for your project, you need to populate these with your project data regularly and analyze them to identify what is going well and what needs improvement and work towards re-factoring your processes as need to fix gaps. .

Additional useful metric categories include:

- Defects Leaked
- Effort Metrics
- Traceability Metrics
- Created vs Resolved Chart



The above graph shows the number of bugs created vs. the number of bugs resolved over a period of last 30 days. Seeing this graph one can clearly ascertain that the rate of fixes needs to better align with the rate of defect reporting.

These metrics, when used at the right times and places help improve test productivity and in turn contribute to a simple yet robust test process set.

Resource Optimization

Every kind of resource needs to be up to date. Tools and technological resources needs to be upgraded to latest versions. Manual resources need to be regularly trained with new concepts to help them stay current in their knowhow.

With new technological advancements and new tools lining up in the market, a QA manager needs to keep evaluating and implementing required changes in his projects and also extend the required training sessions for his team member. On an ongoing basis, resource load balancing is also important to ensure resources are not over-worked, whatever the resource type be.

Prioritization of testing tasks

Priorities keeps changing everywhere and this applied to testing projects and tasks therein, as well. The sequence of events that were carried out in an earlier testing cycle may not be the same in the current or future cycles, so you revisit changing project and task priorities to ensure they align with your project's needs.

Communication

As always, communication holds the key to the success or failure of any project. So, it becomes very important to continually find and improve ways of communicating within the team. Be it the project status or issues or any concerns, a timely and rightly handled communication is something that is very necessary.

So, keep finding ways to improve and keep reporting through your channel. Communicating not just the good, but the bad and ugly too appropriately is important. Keep in mind that raising a concern as early as you realize that it can lead to an incident would always help the team take an action well in advance to overcome its risks.

Conduct training and walkthroughs

With new changes happening in the team, conducting trainings at regular intervals is of utmost importance. This process ensures that your team is always aware of the latest and greatest on your project. This level of transparency boosts your team's confidence in the project and the management team and helps them contribute better.

Each member of the team should exactly know what their role is and they should be well trained to perform that role with precision. In addition regular trainings should be provided for existing resources to keep them updated and also to train them on new technology and tools.

Follow processes and practices

Processes are often looked down upon as additional overhead, mere documentation and mundane efforts. If processes are implemented keeping in mind the principles of enhancing team productivity, team empowerment yet being simple and customizable to address project needs, they can indeed be fun and useful to adopt. QA InfoTech is a CMMi Level 3 organization.. CMMi lays down its process very nicely which when followed increases the productivity of your project.

It not only identifies the problem areas but also gives you statistics based on which one can improve the processes for further optimization. With the right mix of understanding CMMi's guidelines / mandates and an organization that understands and values processes, we have indeed been able to bring in the fun and usefulness elements in our overall process rollouts.

Conclusion

The above mentioned methods are just a few out of many that can help you improve your test processes. Whatever, method(s) you choose for improvement, the common goal should be a focus to deliver a quality end product within the defined SLAs and deadlines.

At QA InfoTech (an ISO 9001:2008, 20000-1:2005, 27001:2005 and CMMI Level III certified company), we specialize in providing independent offshore software testing and, unbiased software quality assurance services to product companies, ranging from the Fortune 500s to start-up companies.

Established in 2003, with less than five testing experts, QA InfoTech has grown leaps and bounds with five QA Centers of Excellence globally; three of which are located in the hub of IT activity in India, Noida, one in Chandigarh, India and the other, our affiliate [QA InfoTech Inc.](#) Michigan USA. In 2010 and 2011, QA InfoTech has been ranked in the top 100 places to work for in India. For more details, please refer to our [blog on this event](#).

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- Mukesh Sharma, Founder & Chief Executive Officer

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