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The current times are exciting for testers, aren't they?

Many changes are taking place around us. Technology is advancing at a head-spinning pace. The accelerating pace of development is making our work more challenging than ever. And overall we are seeing a more serious approach towards quality and testing in our work-ecosystem.

Today, we feel that testing is seen as a critical activity by many of the same people who used to see testers as “unskilled individuals” doing least important tasks in the end and slowing down their deliveries.

This change in perception is also having a positive impact on everything right from allocating budget, to the kind of meetings we testers are being invited to. Moreover it seems to be improving how people listen to what we have to say about the product and processes in our projects.

Oh, are we spilling the beans here already? Okay, we'll stop here now and would let you go over the findings yourselves! Although we do want to let you know that State of Testing survey 2016 has been biggest ever, with the participation from over 1,000 professionals from 61 countries!

Once again we would like to thank our Review Panel members Jerry Weinberg, Keith Klain and Daniel Knott, who helped us with insightful feedback on the questions for the survey.

We also want to thank all the collaborators who helped us by blogging and posting about the project, making sure the news of the survey reached literally the remote corners of the World! You can know more about these awesome people in the list at the end of this report :-)

And finally we also want to thank everyone who answered the survey and helped make 2016's State of Testing Report possible!

We invite you to go over the information below, and we also recommend to go over it twice - like every good tester who examines the information critically :-) A quick tip would be just to skim over the report quickly to get a general feeling of what is happening over in our testing ecosystem; and then you may take the deep dive into analysis and the comments for each of the aspects reviewed.

Like previous years, we are sure you will find State of Testing Report - 2016 to be having many interesting facts and even some pleasant surprises. We hope this information will help you improve further on professional front together with your testing teams.

Enjoy!
Lalit and Joel

About the State of Testing Survey

The State of Testing is the largest testing survey worldwide. With more than 1000 participants from more than 60 countries, the survey aims to provide the most accurate information of the testing profession and the global testing community. Held yearly, the survey also captures current and future trends.

With more than 20 leading testing bloggers and thought leaders helping us make this survey a reality (see collaborators list at the end), this survey is all about giving you, as a tester, the ability to better understand your professional status compared to other testers and companies worldwide, and to be better prepared based on the current and future trends. We are always happy to hear feedback from testers so feel free to contact us.

* As in previous years, we expect to have a translation of this survey to Japanese as well. If you’d like to translate it to your own language, let us know.
We are starting to see a trend where testing teams are getting smaller year after year in comparison with the results from the previous surveys. It will be interesting to check if this trend continues in our next surveys.

By looking into the data, we see the same trend as in previous years where testing teams in North America, Western Europe and Australia are becoming smaller, while in contrast teams in India, Asia, Eastern Europe and the Middle East keep getting bigger.

When we asked how many locations does your company work have, we saw that teams are even more globally distributed today than in our previous surveys.

We also saw, by drilling down into the answers, that more than half of the respondents who work in small testing teams (of 5 testers or less) also work on development teams distributed in two, three or more locations!

The bottom line is that testing and development have become distributed tasks, and as testers we need to develop the necessary skills to thrive in this new reality.
It comes as no surprise that just like last year most surveyed testers have 5+ years of experience. This points to the fact that testing is not a temporary task that people do while they look for “better opportunities” in their companies or in life...

Looking inside the numbers we see that testers in Eastern Europe, Latin America and Asia tend to have on average less experience than their colleagues in North America, Australia and Western Europe. We also see that in companies that don't follow any formal development model (respondents replied they don't follow a structured model or principle) testers tend to have significantly less experience than in companies following a structured development model, regardless of the model they choose.

### Salary Information
Salary before taxes (including bonus and perks if any)

<table>
<thead>
<tr>
<th>Region</th>
<th>0-1 years</th>
<th>1-2 years</th>
<th>2-5 years</th>
<th>5-10 years</th>
<th>10+ years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>5</td>
<td>5</td>
<td>NA</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>Latin America</td>
<td>NA</td>
<td>NA</td>
<td>24</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>India</td>
<td>9</td>
<td>11</td>
<td>16</td>
<td>23</td>
<td>38</td>
</tr>
<tr>
<td>Easter Europe / Russia</td>
<td>8</td>
<td>13</td>
<td>19</td>
<td>26</td>
<td>38</td>
</tr>
<tr>
<td>Asia</td>
<td>NA</td>
<td>8</td>
<td>26</td>
<td>33</td>
<td>64</td>
</tr>
<tr>
<td>Middle East</td>
<td>10</td>
<td>40</td>
<td>44</td>
<td>67</td>
<td>68</td>
</tr>
<tr>
<td>Western Europe / APAC</td>
<td>30</td>
<td>43</td>
<td>50</td>
<td>69</td>
<td>89</td>
</tr>
<tr>
<td>USA / Canada</td>
<td>48</td>
<td>67</td>
<td>79</td>
<td>90</td>
<td>110</td>
</tr>
</tbody>
</table>

* Salaries in thousands of USD
* NA - not enough data to provide meaningful information

Compared to the data from the previous years, we see an increase in across the board for most areas and experience levels.

An interesting point here is that depending on the geographical area, the “jump” on the salary can happen during the interval of 2-5 years of experience or the one of 5-10 years of experience in the field.
This time, we see an interesting shift in the answers for this question from last year. There is an increase in the percentages of people submitting the testing function reports to Project Management (37% vs 33% last year) and to the Development Manager (29% this year vs 23.5% last year), than to the VP or Director of Quality (23% this year vs 33% last year).

We believe this is the result of two separate trends, one where independent testing groups are starting to become part of organic development teams (Agile or Scrum), and a second trend where testing teams become part of the project management function in order to maintain the independence of the practice.

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Testing can report to a number of departments in the organization

<table>
<thead>
<tr>
<th>Department</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td>37%</td>
<td>33%</td>
</tr>
<tr>
<td>Development Manager</td>
<td>29%</td>
<td>24%</td>
</tr>
<tr>
<td>VP / Director of Quality</td>
<td>23%</td>
<td>33%</td>
</tr>
<tr>
<td>CIO / CTO</td>
<td>11%</td>
<td>10%</td>
</tr>
</tbody>
</table>

This time, we see an interesting shift in the answers for this question from last year. There is an increase in the percentages of people submitting the testing function reports to Project Management (37% vs 33% last year) and to the Development Manager (29% this year vs 23.5% last year), than to the VP or Director of Quality (23% this year vs 33% last year).

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What do testers do with all their (spare) time?

The most interesting trend here is that more than a third of the responding testers are handling integrations and deployment tasks, showing a small increase from last year’s number (from 35% to 37.5%).

We also see a sharp decreases in the number of testers handling the testing and development environments (down to 49% from 63% last year).
How Testers are working

Testers blend different approaches to do their work

These numbers remain more or less unchanged year to year, with a small increase in the percentage of respondents running Exploratory or Session based testing, and a small decrease in the number of respondents running Scripted testing.

More interesting were the comments left on this question, where people mentioned they are also performing reviews and demos in order to catch issues in the system - nice and interesting approaches indeed!

Plenty of tasks to do other than checking the software

- Requirement analysis: 64%
- High or low level test planning: 63%
- Code review meetings: 33%
- Risk analysis: 49%
- Update meetings: 61%
- Test reviews: 52%
- Retrospective meetings: 55%
Testing documentation is becoming leaner

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High level test plans</td>
<td>62%</td>
</tr>
<tr>
<td>Checklists</td>
<td>54%</td>
</tr>
<tr>
<td>Detailed test scripts</td>
<td>50%</td>
</tr>
<tr>
<td>Low level test plans</td>
<td>41%</td>
</tr>
<tr>
<td>Mind maps</td>
<td>33%</td>
</tr>
<tr>
<td>Test charters</td>
<td>22%</td>
</tr>
<tr>
<td>Lean documentation</td>
<td>20%</td>
</tr>
<tr>
<td>Live docs</td>
<td>19%</td>
</tr>
</tbody>
</table>

We see a trend towards less scripted documentation with more people working with Mind-maps (33% vs 21.5% last year) and Checklists (54% vs 52.5% last year), while at the same time detailed scripts and low level test plans are becoming less popular.

Formal training is on the rise

- 76% On the job training & Peer Mentoring
- 68% Self-taught (books, magazines, Internet, etc)
- 34% Certifications
- 5% Testing diploma
- 5% Other

We see that formal training is increasing in popularity (up to 22.5% from 17% last year). Looking into the answers in more detail we see this is especially popular in India and Western Europe, while very unpopular in North America.

Something similar happens with certifications, where we see that they are still popular in Western Europe and Australia/NZ, while not very popular in North America.

Among the interesting “other” responses on how people learn testing we saw: Community Events and Conferences, Rapid Software Testing training, Learning by doing, Reading IEEE829 (really?!), Weekend Testing
Respondents are grading the skills somewhat different than in previous years.

We see them giving more importance to things like Mobile Technologies, Web Technologies, Agile Methodologies and Customer Facing Skills; while taking away from the importance of skills around Enterprise Software.

Another point to mention is that the most important skill, Communication Skills, is even higher this year than ever before!

We also asked for additional important skills that were not listed as options, and some of the interesting comments to note are: problem solving, flexibility, critical thinking, empathy, foresight, integrity, optimism, courage, humor, and imagination!
More and more testers are turning to social media in order to keep up to date with their testing knowledge! This response went up to 65% from 57.5% last year.

Most of the other responses also went up but not as steeply as this one.

We also asked for “other” ways of keeping up to do date and some of the answers worth mentioning were: participating in crowdsourcing projects, giving talks and learning from the feedback, webinars, pairing with developers, and one that we really liked “Looking beyond testing like DevOps and open source development contributions”
Plenty of good testing gatherings, not only the very large conferences

This year we asked as an “open question” what formal or informal conferences had respondents attended during the last 3 years, and we got a large number of answers - with many small and local tester gatherings:

![CAST](image)
CAST

![Nordic Testing Days](image)
Nordic Testing Days

![TestBash](image)
TestBash

![Star Conference/s](image)
Star Conference/s

![Agile Testing Days](image)
Agile Testing Days

![JaSST (Japan Symposium on SoftwareTesting)](image)
JaSST

![Let's Test](image)
Let's Test

![WACATE](image)
WACATE

![CukeUp!](image)
CukeUp!

![Weekend Testing](image)
Weekend Testing

![Selenium Conference/s](image)
Selenium Conference/s

![Rapid Software Testing courses](image)
Rapid Software Testing courses

![Testing meetups](image)
Testing meetups

![Copenhagen Context](image)
Copenhagen Context

![TTP Training](image)
TTP Training

![Tabara de Testare (Rumania)](image)
Tabara de Testare (Rumania)

![Scrum master certification/s](image)
Scrum master certification/s

![Ministry of Testing courses](image)
Ministry of Testing courses

![EXPO:QA](image)
EXPO:QA

![SIGiST](image)
SIGiST

![GTAC](image)
GTAC

![QA or the Highway](image)
QA or the Highway

![STP-CON](image)
STP-CON

![Testwarez](image)
Testwarez

![Dutch Testing Day](image)
Dutch Testing Day

![North West Tester Gathering](image)
North West Tester Gathering

![Romanian testing conference](image)
Romanian testing conference

The interesting part is that many people are listing online events together with events they attended in person. A good point to take into account, is people who responded that they would have liked to attend, but their company did not agree to send them to any conference - meaning there are always alternatives out there! They may not be as good or fun as attending live, but second best is sometimes a good alternative :-)
There is a slight rise in the use of Bug trackers and Exploratory testing tools, while the rest of the solutions keep more or less stable. Among the “others” we saw people working with Google docs, Wikis, Kanban-boards, Notepad, Post-It notes, and our personal favorite was “adidas-style (=walking and talking)"

Do you use tools to track your testing?

Agile is strong, and DevOps is getting stronger

We continue to see companies working based on blends of multiple methodologies. Agile is still king with close to 90% of the respondents (almost the same as last year), but the main changes came from a decrease in Waterfall approaches (39% from 42%) and a very marked increase in DevOps adoption (23% from 14% last year).
The amount of automation per team is more or less the same as in the previous survey.

The interesting part from this question is that we see more people answering that they don't know how much their companies are automating...

We see an interesting increase in the percentage of respondents saying they use automation for Continuous Integration (45.5% vs 40% last year), and we believe this is the reason that Unit Testing also increased this year as they are directly related.

The other answer that showed an interesting increase was the use of BDD, getting to 21% from 13.5% last year.
Among the “other” challenges faced by testing teams we saw: The inability to engage more cutting edge practices, integrating waterfall and agile approaches, poor communication with customers, working on an industry without standards, growing too fast, lack of time for planning, lack of C-Level support, too many metrics, developers who don’t know how to write testable code, “getting adoption of great ideas in terrible environments”, and more.
What changes have you made in the way you test?

We asked an open question about the changes testers made during the last year to the way they work and why they made them. We got lots of interesting answers - among them:

“Getting closer to devs and investing more energy into improving their ability (and willingness) to test.

“Using Docker to isolate development environments and do integration testing between service and database during CI builds.

“Moving towards a blend of TDD, BDD and DevOps, selected on a by-feature basis. Acknowledgement that one approach is not necessarily correct across the board.

“New test approach in which we use 1-on-1 talks with all stakeholder to set expectations during the testing phase. This was made because stakeholders were only seeing the test results at the end of testing, and now they are involved from the begin.

“Paired more with the developers to try and mitigate against common bugs getting past the Dev environments. Introduced 3-Amigos Sessions before story kick offs so that everyone has the same understanding about what we are building.

“More manual tests than before. Reducing time-to-market increases the number of new features to test, and manual tests are more effective for new features.

“We adopted Nightwatch and Selenium for automating regression tests, as well as JMeter for load testing. There is a big push to automate the work, but not a clear path to implement these tools effectively.

“Splitting automated regression sets into subsets linked to the CI environment in order to get faster feedback.

“I started writing checklists during requirement analysis phase - it helps to understand gaps in technical documentation.

“I’ve empowered myself to become active in testing a lot sooner in the development process by using postman to test API calls before UIs are built. I’ve made progress in convincing my team to include me in technical discussion/planning early on so that I can begin test documentation/mind mapping early.

“Going the agile route, organizing a stand up meeting for the QA team every morning to have better visibility on what they do.

“In my team we’ve removed all meetings that do not provide value. Instead we focus on one daily standup between two main sites: U.S. and Sweden. Will continue our fresh journey of moving to a more exploratory way of testing and how to manage administration around that.

“We have move from writing traditional test cases and scripts and moving to writing these in BDD format in Gherkin and having Dev execute them automatically in Cucumber.

“Started using mind maps to gains better understanding of what areas we need to consider to have full coverage in application testing.

“Getting involved in the project from the initial stages, and testing the modules developed instead of waiting until the feature is completed. Test cases and decision tables were written prior to start of the project, so that developers and testers can be on the same page.

“We are transforming our test approach from technical QA to more business process focused. Heavy emphasis on supporting the Agile/Scrum methodology and the associated automation.

“Take more breaks, using the pomodoro technique.

“Exploratory testing has been introduced...
What do Managers look for when hiring a tester?

We asked hiring managers what are they looking for today in their testers when hiring new positions, and among the things they are looking for we found the following:

1. Scripting knowledge
2. Understanding of Agile
3. Ambition & initiative
4. Self learner
5. Passionate about testing
6. Good writing & communication skills
7. Understanding of the relevant technologies
8. Ability to think outside the box
9. Explainability of testing
10. Lateral thinking

Your Predictions to the Future

Where do you see yourself in 5 years?

- I will be a tester or a test manager: 46%
- I will be a testing consultant: 21%
- I don't know what I will be doing 5 years from now: 19%
- I will be working in a business role: 7%
- I will be working as a programmer / programming lead: 5%
- I will be retired: 2%
- I will not be in the technological industry: 1%

We see that most people want to stay in the testing arena within the next 5 years, although an important number of respondents want to work in consulting jobs and not on in-house testing jobs (up to 20.5% from 19% last year).

There is still a large number of people who don’t know what they will be doing in 5 years from now, and we believe that this points to a lack of a defined career path and maybe even a lack of a defined career in testing as a whole...
How would we want to see the testing world changed for the best?

We asked testers what would they like to see change in the testing world to make it better for all of us, and here are some of the most interesting answers:

"Everyone working together to do the best testing that they can do, rather than fighting whether a particular School or Method is the only true way forward. It's getting to be like religion in some aspects. We all have a common interest in "testing" let's push that forward." - And to that we say AMEN!

"...What I'd really like to see is a framework for "selling" testing to people who don't really understand testing (or software development) because it's something I struggle with all the time...

"... basically get the right people in the decision-making roles, so we don't have to learn (again) from the mistake of relying too much on automated checks.

"Give people time AND encouragement to learn during office hours...

"More conferences in "Third World" countries, where most of the testers are.

"More mentoring so that all the testers can improve their skills.

"Less politics, more cooperation.

"I really wish that people would stop saying how easy it is to test... And just let the testers do their job and quit getting in the way.

"Raise the recognition of the organization for the importance of testing.

"Continue to have low barriers to entry to get into other testing roles.

"Communicating that DevOps is not a substitute for QA.

"Less ego from all the parties involved.

How concerned are you about your job stability?

The stabilization trend we started to see last year is only increasing, and so people are less concerned in general about their job stability (53% this year vs. 42% two years ago).
A Final Note

“What do you want to do when you grow up?” We don’t think that many of us would have answered this question by saying, “I want to be a Tester when I grow up!”

Still, we believe that many of us today feel proud to tell our friends and family that we work as Testers and explaining about the responsibility and the challenges we face as part of our job.

As we went over the answers submitted and put this report together, we realised that testers do not only take their profession seriously today but also feel like professionals at what they do.

We feel that we testers are doing meaningful contribution in our teams and in our products, we are also using more advanced tools and methodologies, and overall we are behaving more like a community of professionals that interacts and learns from each other’s knowledge and experience.

There are many changes affecting our work, such as the trends like DevOps, the globalization of the testing teams, and the use of more advanced testing methods and technologies. And we want to continue reviewing all these points in our next reports!

There are also many challenges ahead of us, for example hiring the right people for the job, getting the right knowledge and skills, introducing advanced automation to our testing process, coping with the constant changes and the increasing challenges in time to release, etc. But we think that all of these challenges are good opportunities as they point towards progress in our field and in our areas of responsibility within our teams and organizations.

As we mentioned in the introduction of this report, being a tester seems to be an exciting thing at this period of time! And we think, things are going to be even more exciting!

Starting from reviewers and collaborators, and of course everyone who took the time to seriously answer the State of Testing Survey, once again a big thanks.

Let’s see what future has in store for us testers. We are excited about State of Testing Report 2017 already, and you?

Until next year!

Lalit and Joel
About Tea-time with testers

Tea-time with Testers, is the largest-circulated software testing monthly in the world. As the wave of change sweeps business, testing field and community of testers like never before, Tea-time with Testers has ensured that its readers have all the necessary upgrades to challenge tomorrow. It takes its readers deeper to give a complete understanding of the world of software testing. Ever since its inception in 2011, it has set one benchmark after another in testing publication circle. It was the first to do serious reporting on software testing theories and thoughts. And then again, it is the first to bring a whole new genre of technical/corporate journalism more up close and more incisive. It is the only monthly magazine in global testing community known for quality of its content, authors and unique way of presenting the information. Today, Tea-time with Testers commands the highest circulation and readership among all English language testing magazines in the world.

To learn more visit site: http://www.teatimewithtesters.com/

About PractiTest

PractiTest is an end-to-end QA and Test management solution, designed to help users control their testing and development process, focusing on how to manage their project and its information, and how to communicate testing outcomes to all the relevant stakeholders.

The software allow users to organize requirements, create and run tests, tracks bugs etc. Integrations are available with top bug tracking tools including: JIRA, Bugzilla, RedMine and Pivotal Tracker as well as automation tools such as Selenium, JUnit, SoapUI, QTP, Jenkins, Circle CI, productivity applications such as Slack and many more.

To learn more and get your 15 days free trial visit our site: https://www.practitest.com
Collaborators

The state of testing could not have become a reality without the help of our collaborators.

Quality Remarks
www.qualityremarks.com

ADVENTURES IN QA
www.adventuresinqa.com

Stephen Janaway
www.stephenjanaway.co.uk

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www.qualitytesting.info