

2016

State of Testing Report



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State of Testing project

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

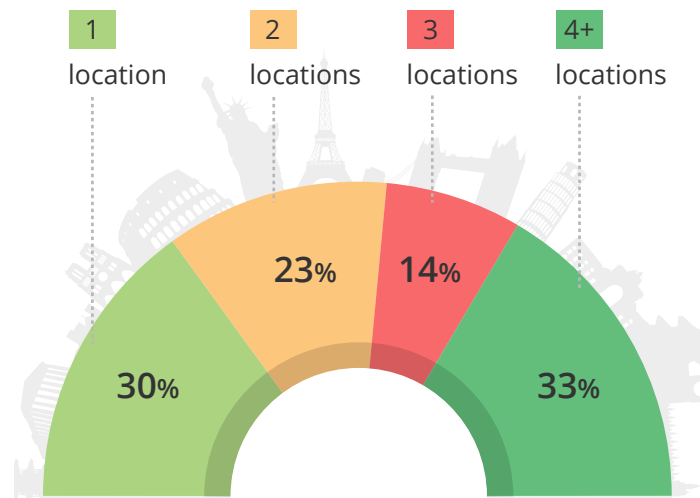
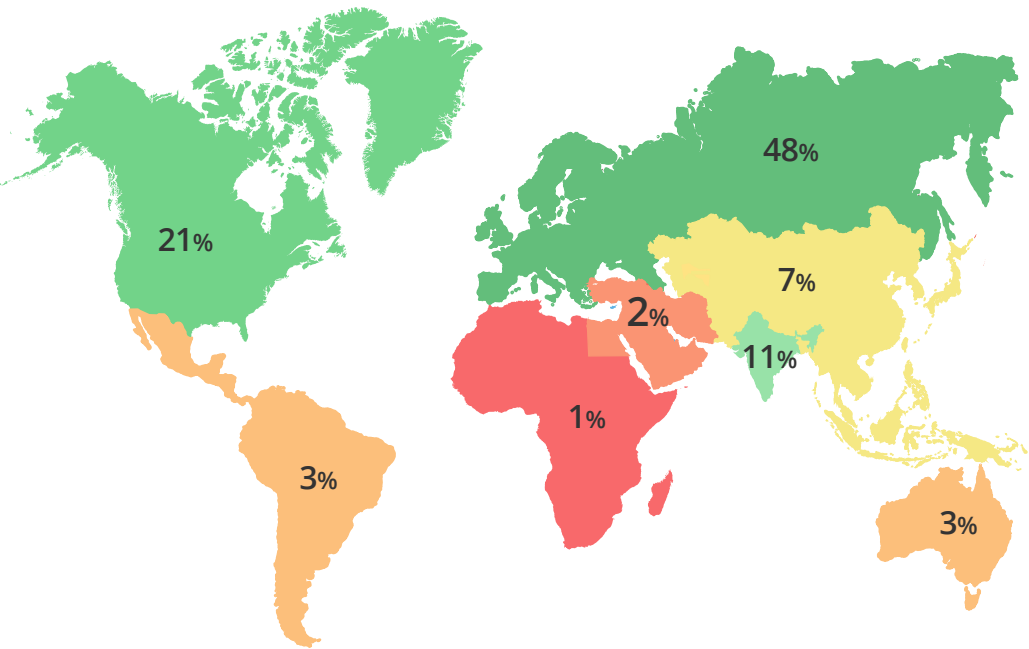
about giving you, as a tester, the ability to better understand your professional status compared to other testers and companies worldwide, and to be better prepared based on the current and future trends. We are always happy to hear feedback from testers so feel free to contact us.

* 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](#).

Respondent Demographics

Geographical location

Max Europe (& Russia)	48%
USA/Canada	21%
India	11%
Asia (w/o India)	7%
Other	4%
Latin America	3%
Australia / NZ	3%
Middle East	2%
Min Africa	1%



Number of geographical Locations where your company works

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.

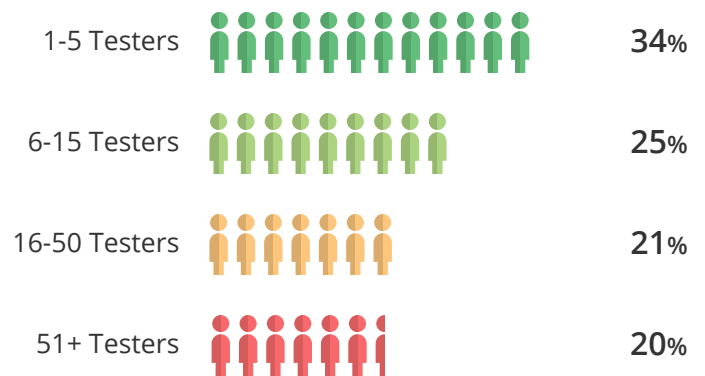
We also saw, by drilling down into the answers, that more than half of the respondents who work in small testing teams (of 5 testers or less) also work on development teams distributed in two, three or more locations!

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.

Size of the Testing Team

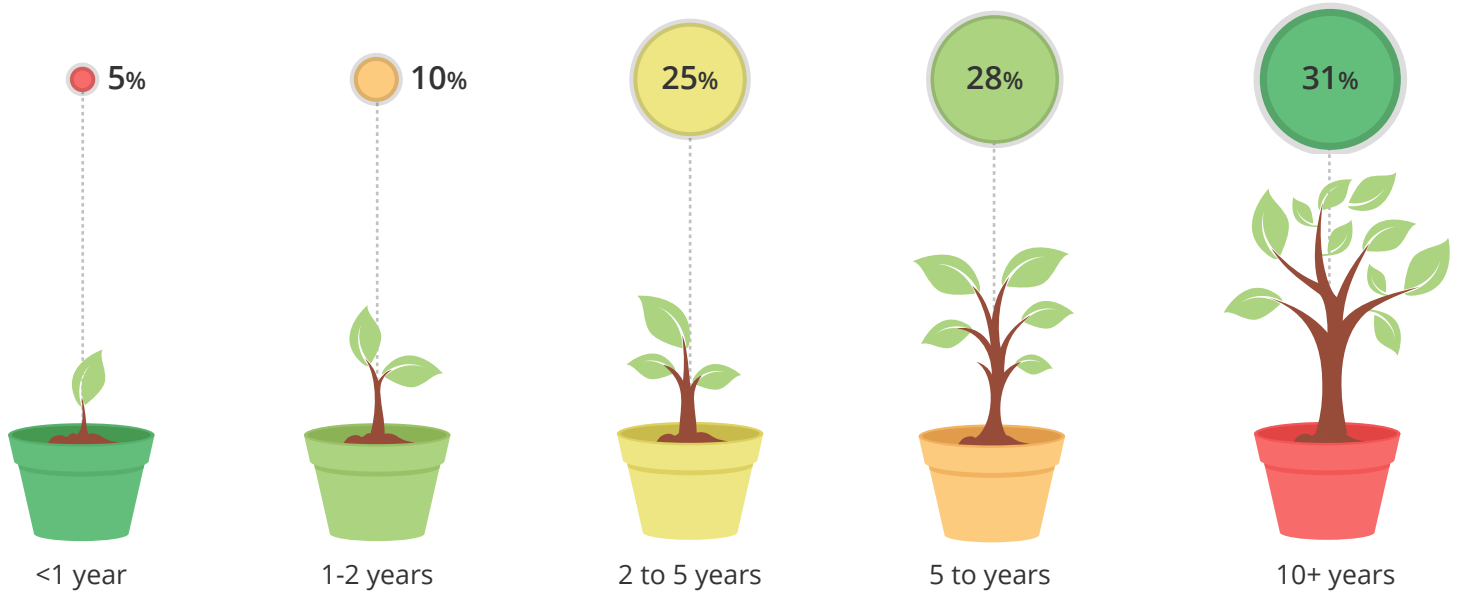
We are starting to see a trend where testing teams are getting smaller year after year in comparison with the results from the previous surveys. It will be interesting to check if this trend continues in our next surveys.

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.



Tester's Professional Profile

Testing as a profession & not a stepping stone



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)

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

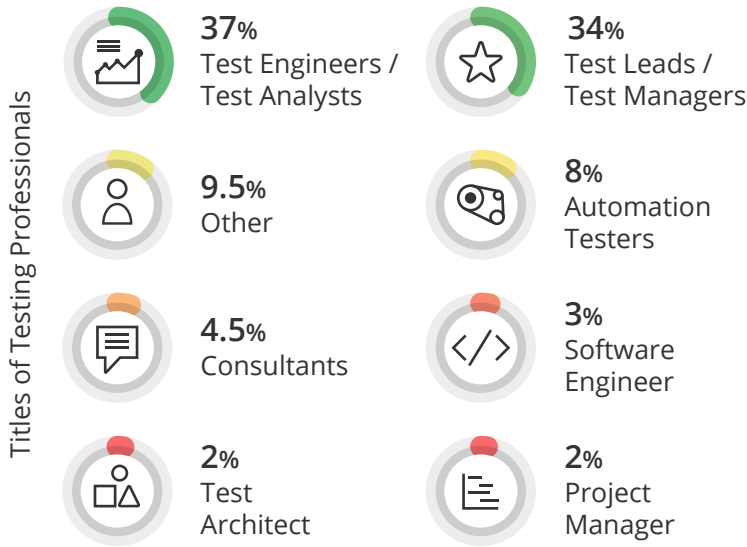
Compared to the data from the previous years, we see an increase in across the board for most areas and experience levels.

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 or experience or the one of 5-10 years of experience in the field.

* Salaries in thousands of USD

* NA - not enough data to provide meaningful information

Is every second tester a test lead...?



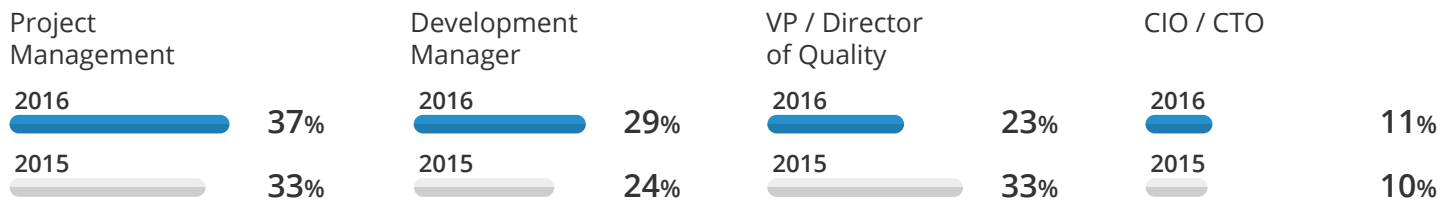
We asked respondents what their professional title is, and we still see that among our answers there is a similar number of Test Leads, Managers and Directors, as there are Test Analysts and Test Engineers.

Do we have just as many leads as we have testers? And if so, where are they leading us to? :-)

Looking "inside" the numbers we saw that the places where most respondents stated they work as "consultants" is in Western Europe and Australia/ NZ - something to keep in mind for those considering this option.

Among the "other" responses, we saw a large number of respondents who, in addition to working as testers, also fill the role of Scrum Master in their teams.

Testing can report to a number of departments in the organization

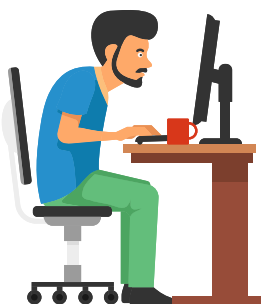


This time, we see an interesting shift in the answers for this questions from last year. There is an increase in the percentages of people submitting the testing function reports to Project Management (37% vs 33% last year) and to the Development Manager (29% this year vs 23.5% last year), than to the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

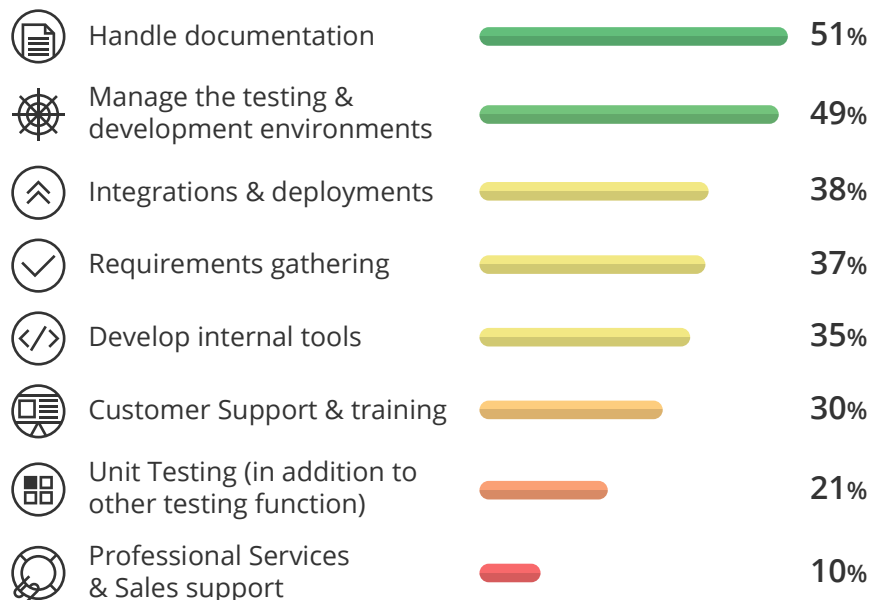
We believe this is the result of two separate trends, one where independent testing groups are starting to become part of organic development teams (Agile or Scrum), and a second trend where testing teams become part of the project management function in order to maintain the independence of the practice.

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%).

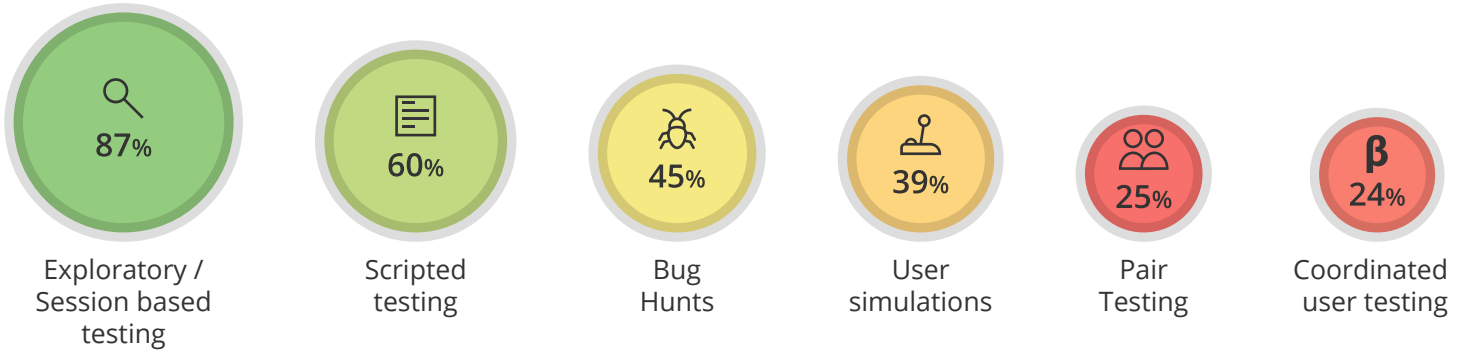


We also see a sharp decrease in the number of testers handling the testing and development environments (down to 49% from 63% last year).



How Testers are working

Testers blend different approaches to do their work



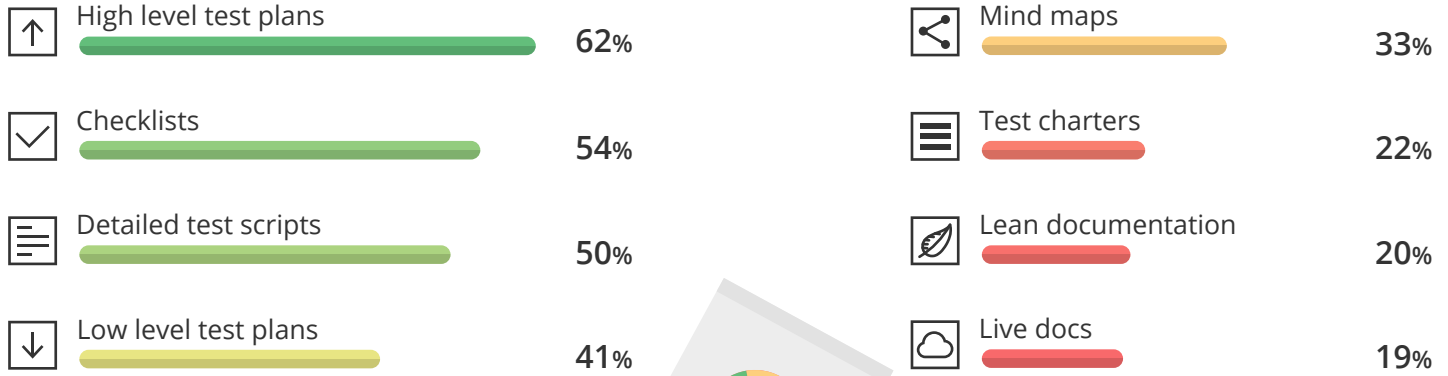
These numbers remain more or less unchanged year to year, with a small increase in the percentage of respondents running Exploratory or Session based testing, and a small decrease in the number of respondents running Scripted testing.

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



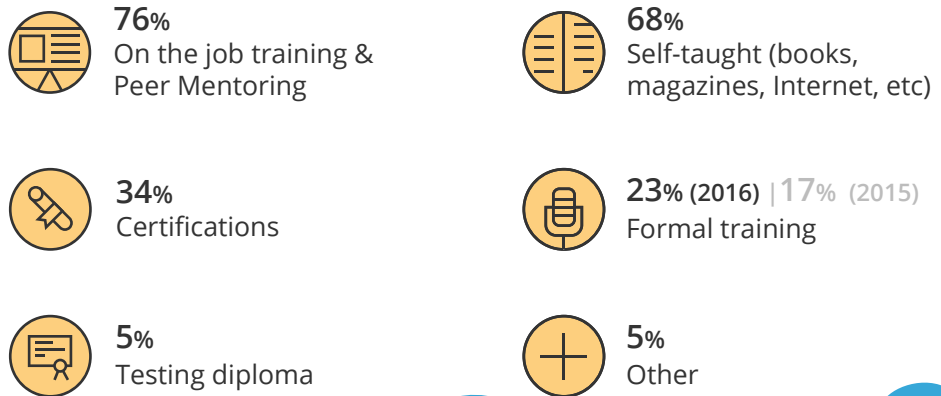
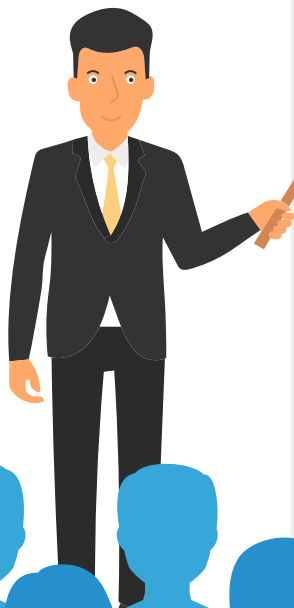
Testing documentation is becoming leaner



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



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.

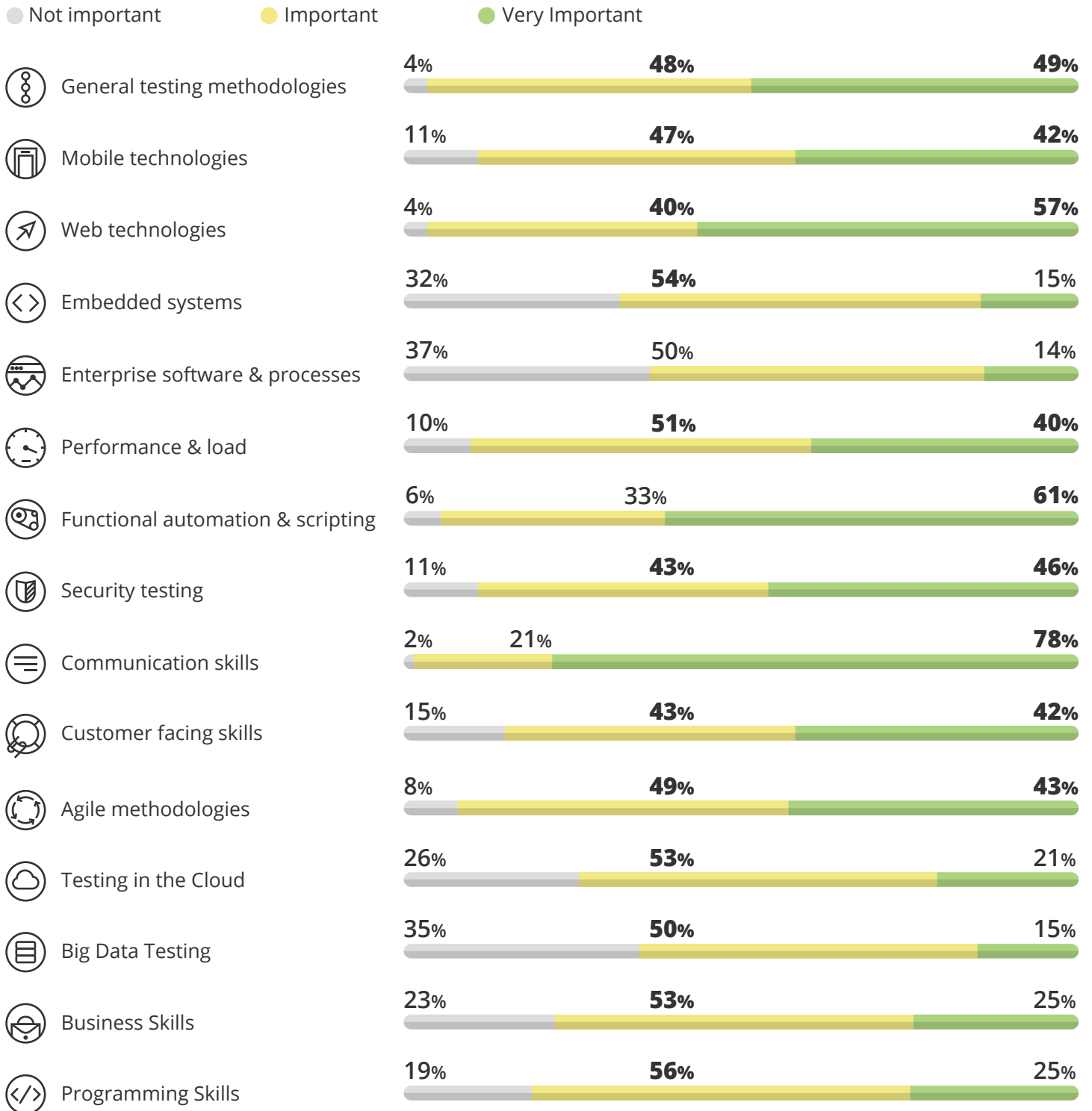
Something similar happens with certifications, where we

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

Skills

What skills do you need to be a good tester?



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!



1911

We turn to social media to keep up to date in testing



Twitter, Facebook,
Linkedin & Blogs



65%



Testing Books



60%



Online Communities
& Forums



56%



Testing conferences,
meetups & seminars



51%



Testing Magazines



46%



From other fields that
help to improve testing
(e.g. psychology, writing, etc)



31%



Formal training



28%



Testing competitions



8%



Other



7%

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



Nordic Testing Days



TestBash



Star Conference/s



Agile Testing Days



JaSST (Japan Symposium on SoftwareTesting)



Let's Test



WACATE



CukeUp!



Weekend Testing



Selenium Conference/s



Rapid Software Testing courses



Testing meetups



Copenhagen Context



TTP Training



Tabara de Testare (Romania)



Scrum master certification/s

Ministry of Testing courses



EXPO:QA



SIGIST



GTAC



QA or the Highway



STP-CON



Testwarez



Dutch Testing Day



North West Tester Gathering



Romanian testing conference

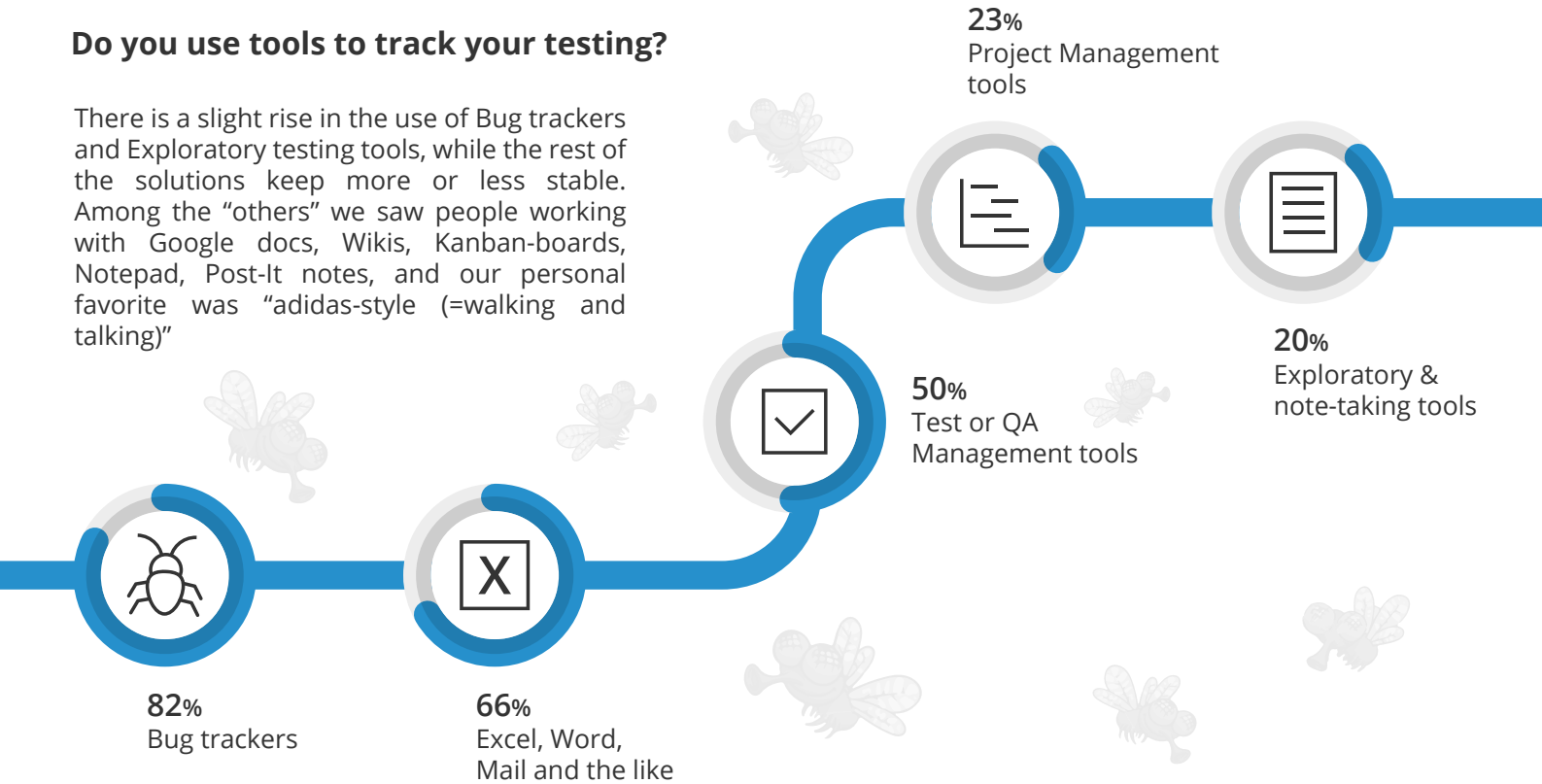
The interesting part is that many people are listing online events together with events they attended in person. A good point to take into account, is people who responded that they would have liked to attend, but

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 :-)

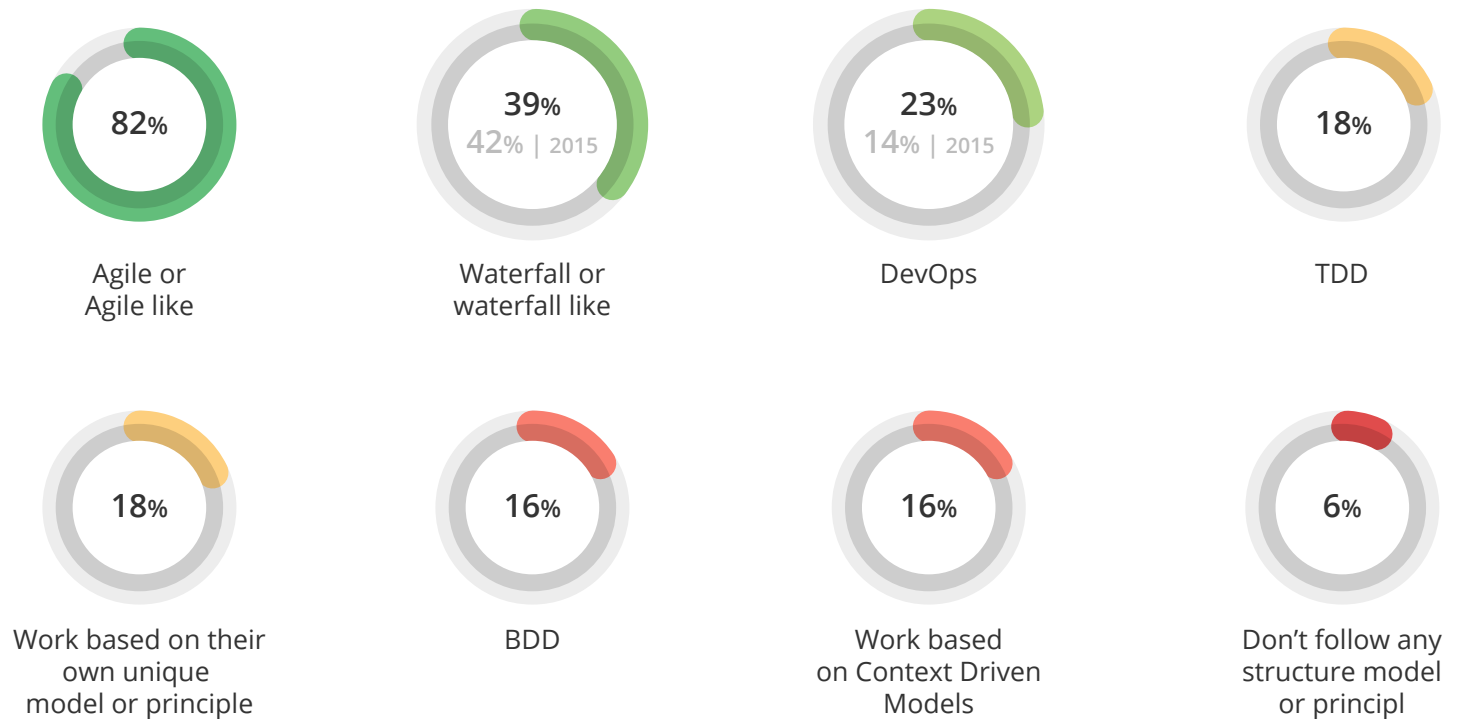
Testing Process

Do you use tools to track your testing?

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)"



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).

Does your organization have automation?



86%
Have automation



11% | 12% (2015)
Don't have automation
in their projects



4% | 2% (2015)
Don't know if they
have automation

Areas of automation

75%
Functional or
Regression Testing



46% | 40% (2015)
Continuous
Integration



26%
Test Data
Generation



21% | 14% (2015)
Write BDD scripts
with Specflow,
Gherkin, etc



46%
Load & Stress
Testing



43%
Unit Testing



23%
Home-built scripts
used as required

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.

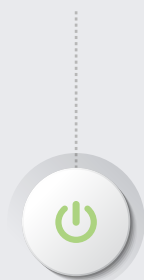
The other answer that showed an interesting increase was the use of BDD, getting to 21% from 13.5% last year.

Do you know how much automation you have?

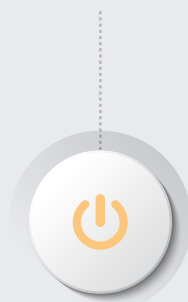
4%
<90%



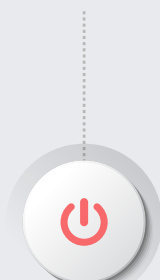
21%
50-90%



37%
10-50%



27%
10%>



12%
I don't know

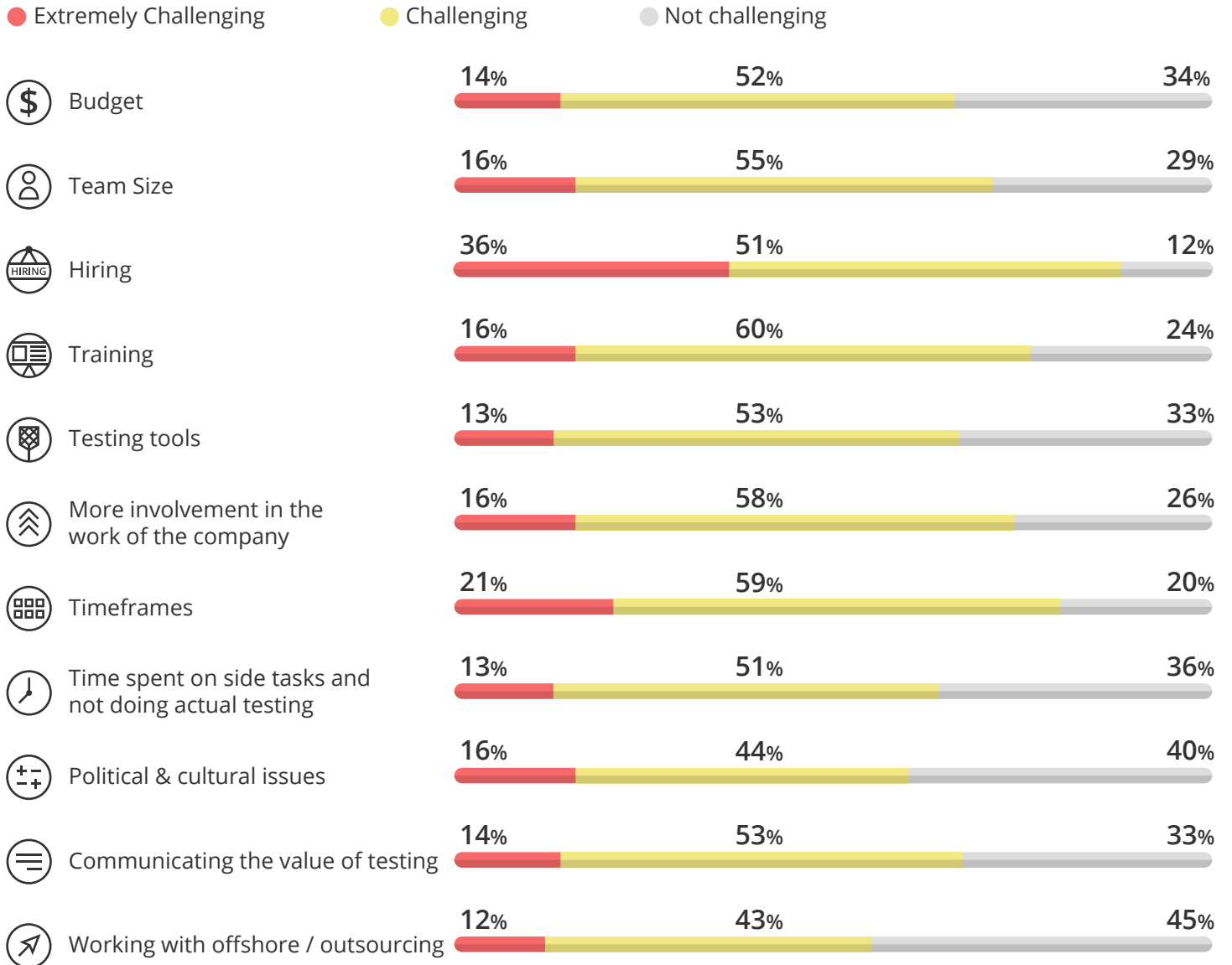


The amount of automation per team is more or less the same as in the previous survey.

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

Testing Challenges

Test Team Challenges



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...



Ability to think outside the box



Passionate about testing



Scripting knowledge



Explainability of testing



Ambition & initiative



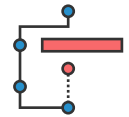
Understanding of the relevant technologies



Good writing & communication skills



Understanding of Agile



Lateral thinking



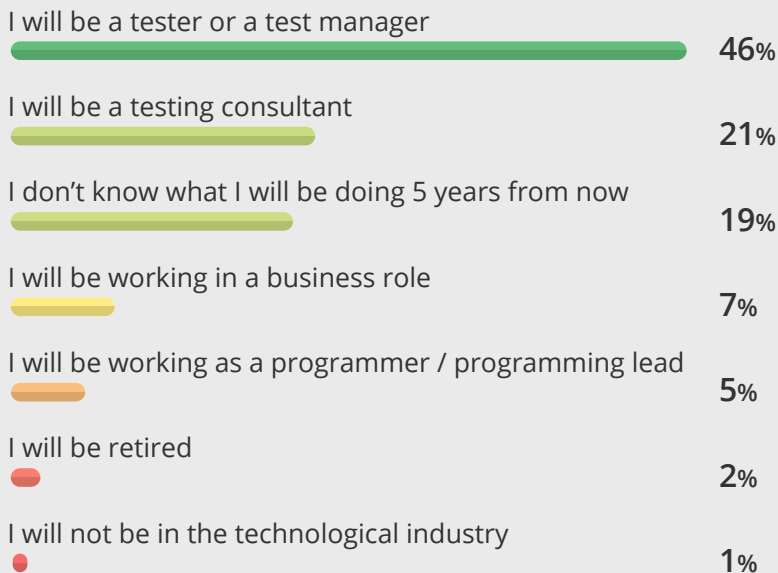
Self learner

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:

Your Predictions to the Future

Where do you see yourself in 5 years?



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 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).



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 one 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.

“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.

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

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

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

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

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

“Communicating that DevOps is not a substitute for QA.

“Less politics, more cooperation.

“Less ego from all the parties involved.

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 we 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

Hiccups

www.qahiccups.blogspot.co.uk

Testing Curator Blog

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All Things Quality

www.allthingsquality.com

A Lifelong Software Tester's Blog

www.testknight.de

Testing is believing

www.testingisbelieving.blogspot.co.uk



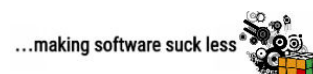
www.teamqualitypro.com

Keep Software Testing Weird

www.linkeshkannavelu.com

Bernie Berger

www.bernieberger1.blogspot.co.il



www.andrei.contan.ro

The Testers Edge

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Testknight

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Nicky Tests Software

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