

THE STATE OF THE
**Software Testing
Profession 2017-2018**

Results from the Third Annual Survey

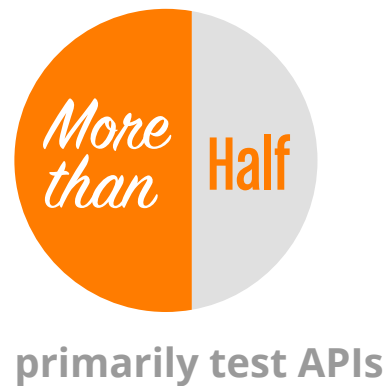
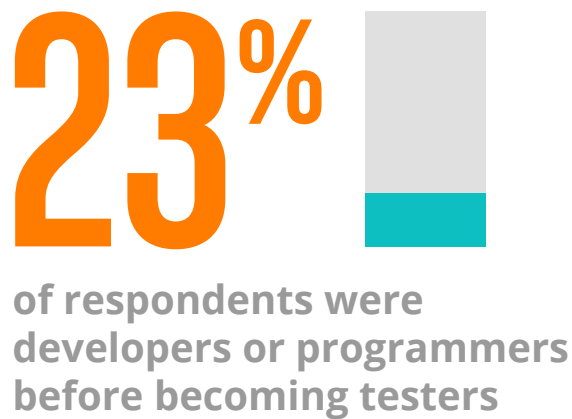
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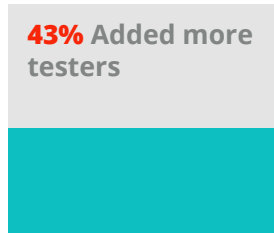
TECHWELL™

The results are in for our third annual State of the Software Testing Profession survey. Over all, there were no big surprises. It looks like software testing is going to hang around a while longer, automation and technical skills are still a growing requirement for testers, and agile adoption remains a leading driver of change to the tester role.

This year, we've broken out the highlights in infographic form, but for those you who love to dig into the details, flip to the back. That's where you'll find the survey results by question.

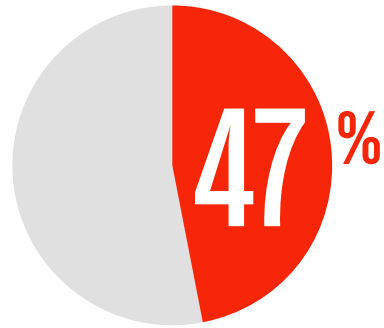


**OF COMPANIES
IN SURVEY:**

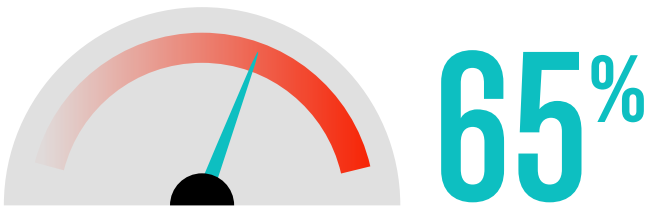




of respondents have increased their system-level test automation (up from 38% in 2015)



report that their role has changed due to the need for automation skills (up from 34% in 2015)



of survey takers say testing is less than half of the team's effort on an average project



say they expect to have to learn more technical skills—including automation



47% have a continuous delivery implementation plan

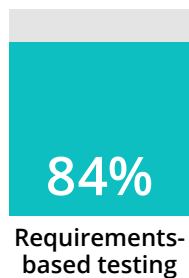


61% have continuous testing on their radar

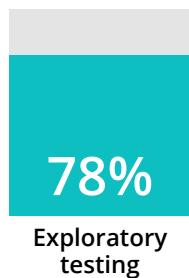


One quarter of respondents say they are not equipped with the knowledge, skills, or tools needed for mobile testing

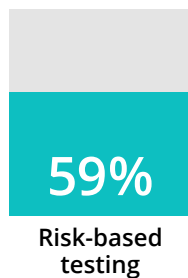
TOP 5 TESTING APPROACHES:



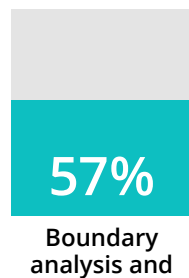
Requirements-based testing



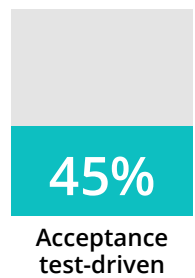
Exploratory testing



Risk-based testing



Boundary analysis and equivalence partitioning



Acceptance test-driven development

WHAT IS YOUR PRIMARY JOB FUNCTION?

Quality assurance analyst/engineer	20%
Test manager	15%
Test lead.	14%
Quality assurance manager	12%
Test analyst	11%
Test automation engineer.	9%
Other	6%
Software manager/director.	3%
Coach/consultant	3%
Test architect.	2%
Project manager	2%
Developer/programmer	1%
Business analyst	1%
Business user	1%

WHY DID YOU FIRST BECOME A TESTER OR TEST MANAGER?

Testing is my passion.	33%
Opportunity to use business knowledge . .	15%
Assigned by my company to test	15%
It was the best paying job I could find at the time	11%
Other	11%
As a stepping stone to another job in software development.	9%
As a stepping stone to another job in management.	3%
Don't know/not applicable	3%

WHAT WAS YOUR JOB BEFORE GETTING INTO TESTING?

Developer/programmer	23%
Other	21%
Nothing, testing is my first job	19%
Technical support.	13%
Business analyst.	6%
Business user	5%
Not applicable.	4%
Quality assurance analyst.	3%
Project manager	3%
Software manager/director.	2%
Quality assurance manager	1%

HOW DID YOU FIRST DEVELOP YOUR TESTING KNOWLEDGE?

(Respondents could select more than one answer)

On the job from other testers	71%
Trial and error.	51%
Books about testing.	46%
Articles and blogs about testing.	46%
Instructor-led training	28%
Conferences	25%
Web-based/virtual training.	22%
Tutorial videos (YouTube, etc.)	20%
College courses.	13%
Other	6%

DO YOU WANT TO CONTINUE WITH A CAREER AS A TESTER OR TEST MANAGER FOR THE FORESEEABLE FUTURE?

Yes	75%
Undecided	16%
No	6%
Not applicable.	3%

WHAT IS THE FOCUS OF YOUR PERSONAL TESTING EFFORTS?

(Respondents could select more than one answer)

Functional system testing	76%
Regression testing	71%
Exploratory testing	61%
Automation	57%
Integration testing	53%
User acceptance testing	52%
Usability testing/user experience.	50%
Load/performance testing	29%
Build verification testing	27%
Security testing	20%
Unit testing	16%
Other	5%
None	2%

WHAT ARE THE PRIMARY TECHNOLOGIES TESTED BY YOUR TEAM OR ORGANIZATION?

(Respondents could select more than one answer)

Websites	70%
Web services	67%
APIs	52%
Client/server	48%
Mobile apps (e.g., smartphones, tablets)	42%
Database/big data	37%
Packaged applications (e.g., SAP, Oracle, Lawson, etc.)	19%
Mainframe	18%
Embedded systems	15%
Internet of Things/wearables	7%
Other	4%
None/not applicable	1%

WHAT PRIMARY LIFECYCLE MODEL DOES YOUR TEAM USE?

Agile-Scrum	45%
Agile-Waterfall hybrid	20%
Waterfall	10%
Agile-Other	7%
Kanban	6%
V-model	3%
Other	3%
Scrum-But	2%
Iterative (e.g., RUP)	2%
None	2%

WHAT DROVE THE CHANGES IN YOUR TESTING ROLE OR TASKS OVER THE PAST 12 MONTHS?

(Respondents could select more than one answer)

The need for more automation	47%
A move to agile methods and team structure	39%
The need for more business expertise in testing	26%
A promotion	15%
No changes	13%
Other	13%
A new job	12%
Don't know	4%

HAS YOUR TEAM OR ORGANIZATION ADDED OR REDUCED THE NUMBER OF TESTERS (EMPLOYEES OR CONTRACTED OR OUTSOURCED RESOURCES) IN THE PAST 12 MONTHS?

Added more testers	43%
Maintained the same number of testers	34%
Reduced the number of testers	19%
Don't know	4%

HOW HAS YOUR TESTING ROLE OR YOUR TESTING TASKS CHANGED OVER THE PAST 12 MONTHS?

Test execution work

Doing more	37%
No change	35%
Doing less	23%
Not applicable	5%

Test design work

Doing more	43%
No change	34%
Doing less	18%
Not applicable	5%

Test automation work (unit level)

Not applicable	32%
No change	30%
Doing more	29%
Doing less	9%

Test automation work (system level)

Doing more	52%
No change	21%
Not applicable	18%
Doing less	9%

Work in an agile team

Doing more	48%
No change	34%
Not applicable	12%
Doing less	6%

Test lead/management work

Doing more	53%
No change	27%
Doing less	10%
Not applicable	10%

Work as an independent tester/in an independent team

Not applicable	32%
No change	30%
Doing more	24%
Doing less	14%

DO YOU EXPECT YOUR JOB RESPONSIBILITIES TO CHANGE OVER THE NEXT 12 MONTHS?

(Respondents could select more than one answer)

Yes, I am expected to develop more technical skills (e.g., programming, scripting, automation)	47%
Yes, I am expected to perform tasks outside of testing as part of an agile team	31%
Yes, I am expected to acquire more business expertise on the system(s) I'm testing	30%
No changes expected.	20%
Don't know.	10%
Other	7%
Yes, I will be moving out of a testing role	6%

WHAT NEW KNOWLEDGE DOES YOUR IMMEDIATE SUPERVISOR EXPECT YOU TO ACQUIRE OVER THE NEXT 12 MONTHS?

(Respondents could select more than one answer)

Develop more technical automation skills	53%
Improve management and leadership skills	47%
Develop more domain or business expertise	35%
Become proficient in agile practices	28%
Don't know.	8%
None.	6%
Other	6%

OVER THE PAST 12 MONTHS, HOW HAS THE NUMBER OF POST-RELEASE DEFECTS CHANGED FOR THE APPLICATIONS OR SYSTEMS THAT YOU TEST?

Post-release defects have decreased	42%
No change	25%
Post-release defects have increased	17%
Don't know.	16%

OVER THE PAST 12 MONTHS, HOW HAS THE LEVEL OF QUALITY IN DEVELOPMENT BUILDS (CODE RECEIVED FROM DEVELOPMENT) CHANGED?

Increase in quality	43%
No change	28%
Decrease in quality.	19%
Don't know.	10%

FOR THE AVERAGE PROJECT YOU WORK ON, WHAT PERCENTAGE IS TESTING OF THE TOTAL EFFORT? (I.E., ALL TESTING STAGES: UNIT, INTEGRATION, SYSTEM, ACCEPTANCE, ETC.)

0%	1%
1% - 9%	2%
10% - 24%	25%
25% - 49%	37%
50% - 74%	20%
75% - 100%	7%
Don't know.	8%

OVER THE PAST 12 MONTHS, HAVE YOU SEEN AN IMPROVEMENT IN THE NUMBER OF FEATURES OR STORIES DELIVERED? (I.E., IS YOUR ORGANIZATION DELIVERING PRODUCTION-READY STORIES FASTER?)

Number of features or stories increased . . .	47%
No changes	28%
Don't know.	15%
Number of features or stories decreased . .	10%

OVER THE NEXT 12 MONTHS, DO YOU THINK YOUR ORGANIZATION WILL CONTINUE TO EMPLOY INDIVIDUALS WITH SPECIFIC TESTING SKILLS? (I.E., INDIVIDUALS WITH THE TITLE OF "TESTER," "TEST LEAD," "TEST ANALYST/DESIGNER," TEST AUTOMATOR," ETC.)

Yes, we will continue to employ individuals with these titles.	71%
Don't know.	15%
No, we will not continue to employ individuals with these titles.	14%

WHICH OF THESE PRACTICES DO YOU CURRENTLY IMPLEMENT OR PLAN TO IMPLEMENT IN THE NEXT 12 MONTHS?

(Respondents could select more than one answer)

Continuous testing.	61%
Continuous integration	60%
Continuous delivery.	47%
Don't know.	13%
None.	10%
Other DevOps practices	4%

PLEASE RATE HOW STRONGLY YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Testing as a profession is dying. We will not need the full-time tester role within next 10 years.	4%	14%	5%	40%	37%
The role of tester must be transformed to meet the needs of today's software development projects	41%	50%	4%	4%	1%
Tester should be a separate role within a team	32%	47%	6%	12%	3%
The role of tester in my organization has not changed	10%	24%	10%	39%	17%
As long as humans are accountable for software creation, we will continue to need the tester role.	51%	38%	6%	4%	1%
As organizations embrace agile, the role of tester changes significantly.	23%	52%	11%	11%	3%
The tester role must become more technical to serve the demands of agile teams and evolving technologies such as mobile and embedded.	32%	46%	8%	12%	2%

ARE YOU EQUIPPED WITH THE SKILLS, KNOWLEDGE, AND TOOLS NECESSARY FOR MOBILE TESTING?

Equipped with neither the knowledge/skills nor the tools	26%
Equipped with the knowledge/skills, but not the tools	25%
Equipped with both the knowledge/skills and the tools	24%
Don't know.	17%
Equipped with the tools, but not the knowledge/skills	8%

WHICH TESTING APPROACHES DO YOU USE REGULARLY? (Respondents could select more than one answer)

Requirements-based testing.	84%
Exploratory testing.	78%
Risk-based testing	59%
Boundary analysis and equivalence partitioning	57%
Acceptance test-driven development	45%
Test-driven development	37%
Static analysis	29%
Context-driven testing	28%
Structural—white box testing.	27%
State transitions	26%
Combinatorial techniques.	26%
Decision tables	23%
Model-based testing	17%
Other (please specify)	3%
Not applicable.	2%

FOR EACH TEST STAGE, WHAT PERCENTAGE OF YOUR TEAM'S TESTING EFFORTS ARE AUTOMATED?

	None	1% - 9%	10% - 24%	25% - 49%	50% - 74%	75% or more	Don't know/Not applicable
Unit testing	22%	19%	15%	9%	10%	14%	11%
Integration testing	24%	18%	20%	14%	10%	7%	7%
System testing	19%	17%	21%	18%	11%	8%	6%
Acceptance testing	36%	17%	16%	9%	9%	7%	6%

WHAT TOOLS AND SOFTWARE DOES YOUR TEAM USE TO SUPPORT TESTING? (Respondents could select more than one answer)

- Open source functional testing software (e.g., Selenium) 60%
- Defect- or incident-tracking software 59%
- Text documents and spreadsheets 54%
- Scripting languages 50%
- Commercial functional testing software (test execution) 46%
- Programming languages 46%
- Web browser developer tools 39%
- Continuous integration software 37%
- In-house developed functional testing software 35%
- Open source performance testing software (e.g., JMeter) 31%
- Debugging software 29%
- Commercial performance testing software (e.g., LoadRunner) 28%
- Continuous deployment software 24%
- Static analysis (code scanning) software 20%
- Test data generation software 17%
- Cloud-based testing software (e.g., for virtualization or for mobile testing) 17%
- In-house developed performance testing software 15%
- Other (please specify) 4%
- None 2%

WHAT DO YOU SEE AS THE BIGGEST TREND FOR THE TESTING PROFESSION OVER THE NEXT FIVE YEARS? (Respondents could select more than one answer)

- The need for testers to become more technical 35%
- The move from traditional methodologies to agile approaches 23%
- The increasing importance of mobile and embedded systems 11%
- The need for testers to become domain experts (have business knowledge) 10%
- The increasing importance of the Internet of Things (IoT) 6%
- The move to cloud computing 6%
- The increasing importance of big data 5%
- Other (please specify) 4%

HOW MANY YEARS OF EXPERIENCE DO YOU HAVE IN TESTING?

- I do not test 1%
- 0 to 2 6%
- 3 to 5 11%
- 6 to 10 21%
- 11 to 15 21%
- More than 15 40%

APPROXIMATELY HOW MANY EMPLOYEES ARE IN YOUR ORGANIZATION?

0 to 99	18%
100 to 499	25%
500 to 999	11%
1000 or more	44%
Don't know.	2%

IF YOU AREN'T CURRENTLY CERTIFIED, DO YOU PLAN TO OBTAIN CERTIFICATION IN THE NEXT 12 MONTHS?

No	39%
I am certified	36%
Undecided	13%
Yes	12%

WHAT IS YOUR ORGANIZATION'S PRIMARY INDUSTRY?

Software development / testing services	22%
Financial services / banking / insurance	20%
Computer software / software-as-a-service	14%
Healthcare / pharmaceuticals / biotech	8%
Other (please specify)	8%
Government	5%
Manufacturing / utilities / communications (non-computer)	4%
Other business services / consulting / nonprofit	3%
Media / marketing / advertising	3%
Travel / hospitality / recreation / entertainment	3%
Transportation / logistics / aerospace	3%
Education	2%
Retail	2%
Computer services (web hosting, integrator)	1%
Computer manufacturer (hardware, peripherals, etc.)	1%
Construction / architecture / engineering / real estate	1%

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