2023

THE STATE OF TESTING™ REPORT

Tea-time with Testers

PractiTest

Introduction

Welcome to the 10th edition of the State of Testing™ Report.

When we first started the report in 2013, it was important for us to create a source of information that would allow fellow testing professionals to get benchmarks on how they are doing compared to other members of the testing community.

The testing world has undergone tremendous changes over the years, following the adoption of more modern methodologies. In many cases, testing is now being conducted by multiple stakeholders within different organizations.

We're delighted that this survey has become a reliable source of information, and we could not have done this without your help. Thank you for helping us ensure we correctly represent the current and future software testing trends.

Please enjoy it, learn from it, share it with others, and strive to become better professionals for the future benefit of all!

-Joel & Lalit

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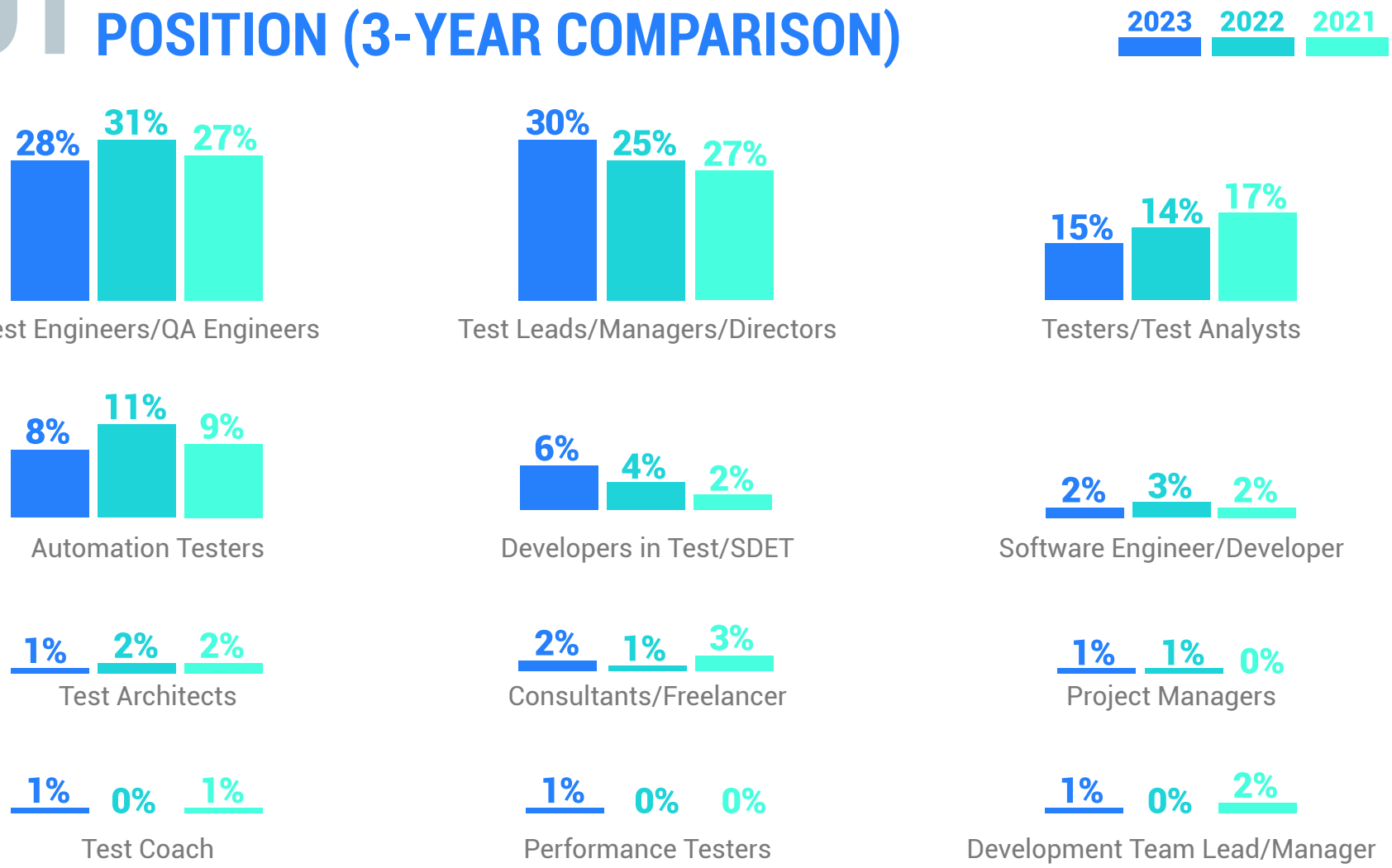
Section 01

Demographics and Background

SURVEY PARTICIPANT'S DEMOGRAPHICS

01 PARTICIPANT'S CURRENT TESTING POSITION (3-YEAR COMPARISON)



Although Test/QA engineers and leaders are the majority of respondents, we see a rise in the % of people who are titled as Developers in test/SDET, which is aligned with the growing adoption of automation as part of the overall testing activities.

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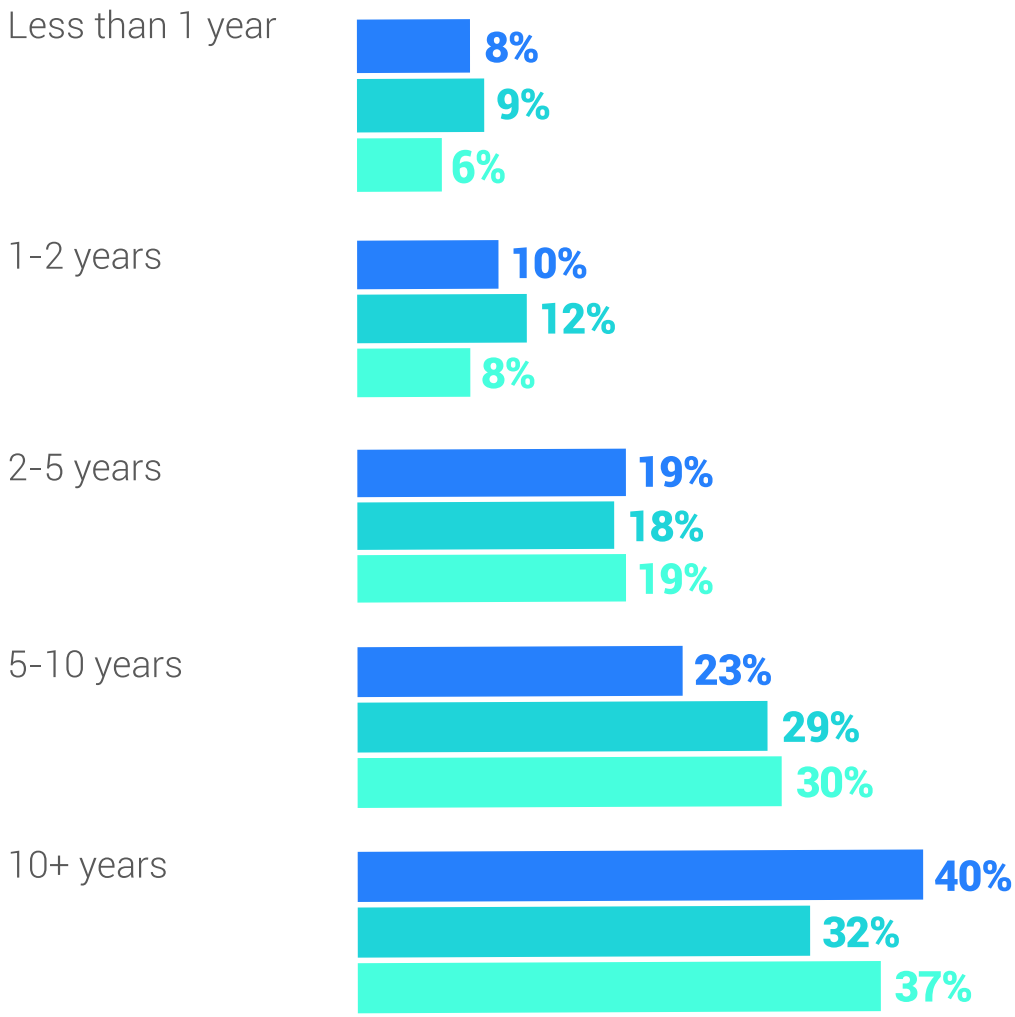
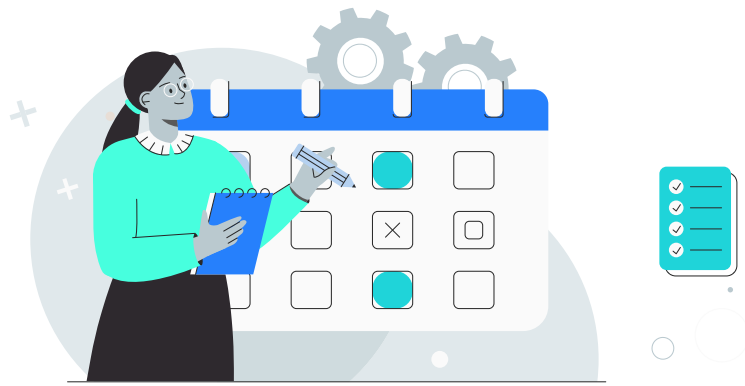
02 HOW LONG HAVE YOU BEEN WORKING IN TESTING?



2023 2022 2021

This year, we continue to see the rise in years of experience, supporting the claim that software testing is no longer perceived as a stop towards other positions within the R&D department, but rather a profession on its own.



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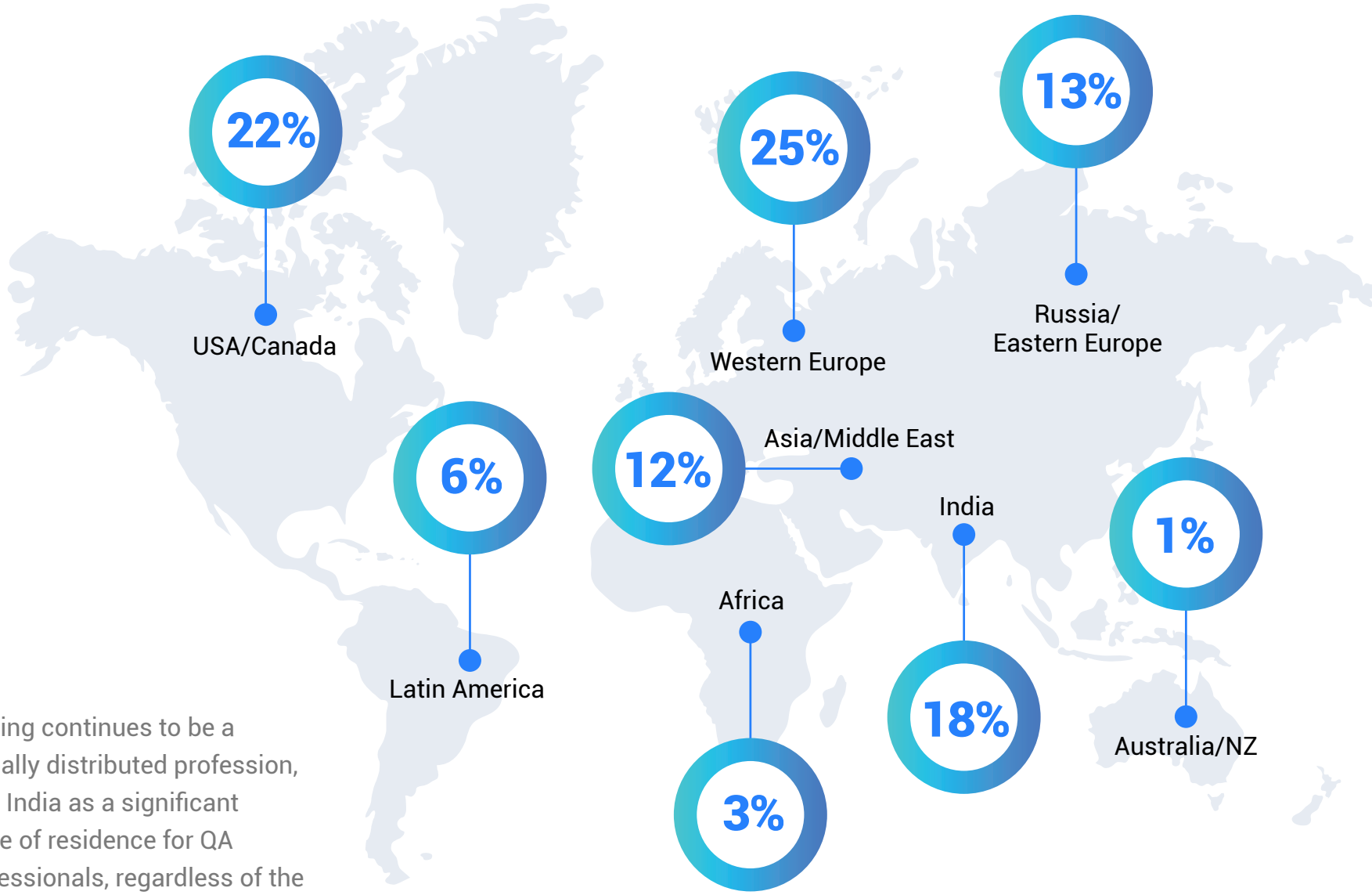
03 WORKING FROM...



Testing continues to be a globally distributed profession, with India as a significant place of residence for QA professionals, regardless of the company HQ.

04 ANNUAL INCOME
(IN RELATION TO EXPERIENCE AND COUNTRY OF EMPLOYMENT)

	Less than 1 year	1 - 2 years	2 - 5 years	5 - 10 years	10+ years
India	12.5K	14.5K	16K	N/A	26K
Western Europe	NA	33K	46K	75K	83K
USA/Canada	91K	65K	91K	100K	121K
Russia/Eastern Europe	17.5K	20K	33K	43K	63K
Asia/Middle East	20K	10K	23K	35K	60K
Latin America	NA	23K	30K	26.5K	62K
Africa	5K	20K	N/A	N/A	46K
Australia/NZ	N/A	65K	N/A	N/A	118K

05 SIZE OF THE R&D OR IT ORGANIZATION IN YOUR COMPANY

8%

1 to 10 employees

13%

11 to 30 employees

11%

31 to 50 employees

14%

51 to 100 employees

20%

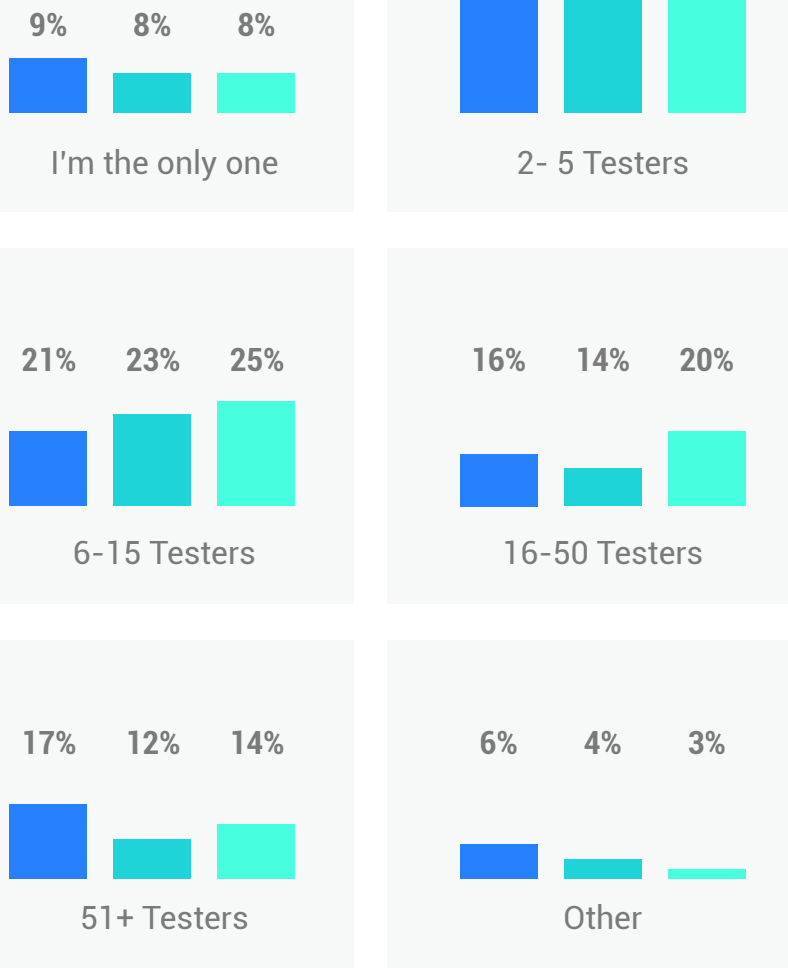
101 to 500 employees

34%

501+ employees

We see more testers coming from larger organizations. We believe part of this is natural (larger companies have more people in them), but also the fact that larger organizations continue to use more traditional development and testing models where testing is being done by testers and not shared among the complete development team.

06 NUMBER OF TESTERS IN YOUR TEAM/S



We can see the number of testers in the teams decreasing this year. This may be pointing towards the trend of testers being distributed within the development teams instead of having large testing teams working independently as separate entities.

Section

02

Methodologies and Processes

07 DO YOU WORK WITH CI OR CD (CONTINUOUS INTEGRATION OR CONTINUOUS DEPLOYMENT) IN YOUR ORGANIZATION?

2023 2022

Yes
in all or most of the projects

50% | **42%**

Yes
for some projects only

34% | **34%**

No
we don't

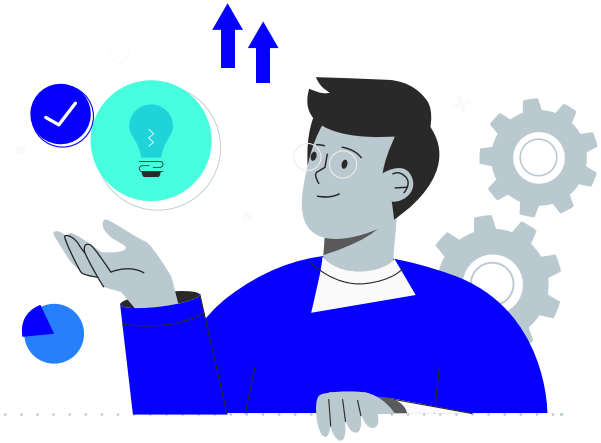
14% | **21%**

What
is CI/CD?

1% | **2%**

Other

1% | **1%**



We see a 21% rise in the number of organizations that are using CI/CD in all or most of their projects. This is another area that supports the wide adoption of Agile/DevOps methodologies.

This opens a door to QA and testing having a more active role in the quality aspects of their development team. After all, the implementation of CI/CD must include an increase in the number and quality of the tests being run as part of the process.

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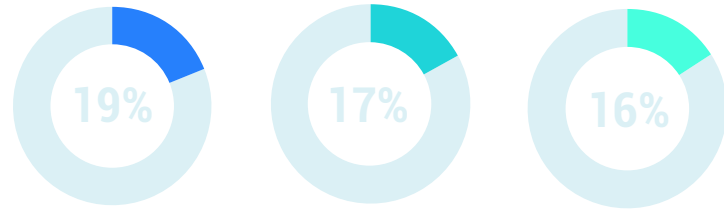
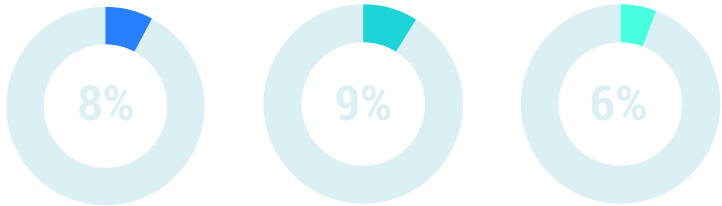
08 ARE TESTERS PART OF THE CI/CD PROCESS?

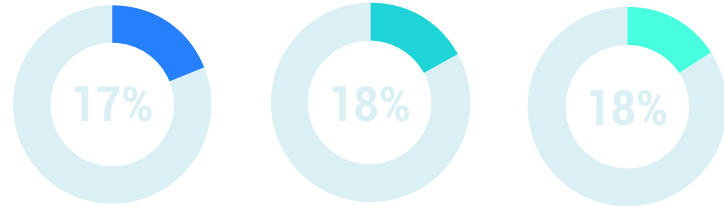
Yes, we are an active part of defining and maintaining the process



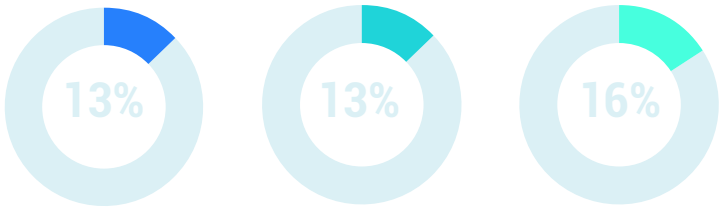
Yes, we have access to reports and use them as feedback for our testing



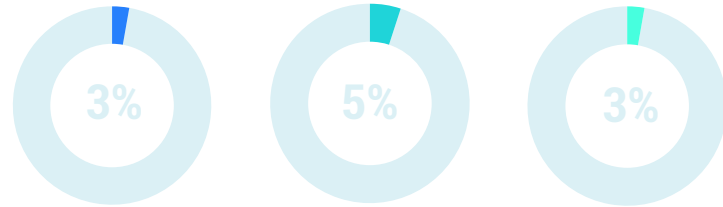
No, we get the reports but we don't do much else with them



No, we know there is CI/CD but we are not part of this process



We do not have CI/CD or we are not part of it

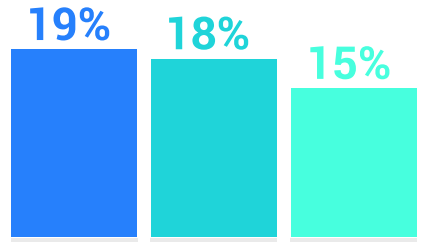


Other

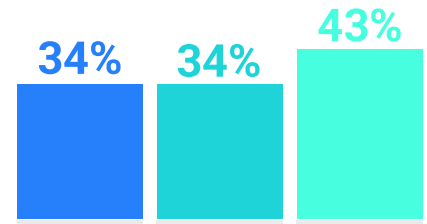
We see a small, yet consistent increase in the usage of CI/CD results as a means to provide feedback on testing activities. This is a strong indicator that QA and testing can shift left by taking part - or even taking charge of - the overall testing process around CI/CD.

09 HOW MUCH OF YOUR TESTING IS DONE BY NON DEDICATED TESTERS?

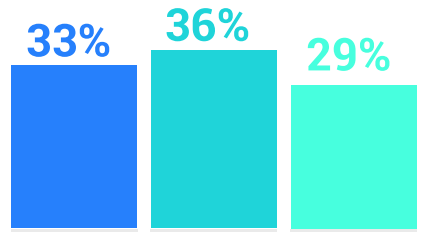
In many organizations, other team members including Developers, Product Owners, Support, or End Users may also take part in the formal testing process. How much of the total testing is done by non-dedicated-testers?



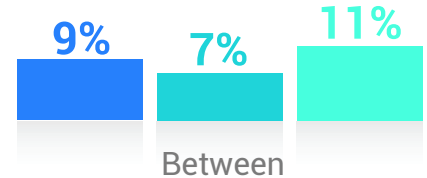
0% All the testing is done by dedicated testers only



Less than **10%**

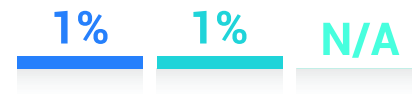


Between **10%** and **50%**



Between **50%** and **75%**

100% All testing is done by non-dedicated testers



Other

These results surprise us a bit, as we typically hear of a broader involvement of non-dedicated testers in the testing process, which is not reflected here and will be interesting to keep track of in the future.

10 DEVELOPMENT AND TESTING MODELS OR PRINCIPLES FOLLOWED IN YOUR ORGANIZATION

**more than one option could be selected*

	2023	2022	2021
Agile or Agile-like (Scrum, Kanban, XP, etc)	91%	86%	92%
DevOps	50%	38%	42%
MT (Modern Testing Principles)	5%	6%	6%
Waterfall or waterfall-like (e.g. V Model)	23%	17%	27%
BDD (Behavior Driven Development)	23%	19	27%
We have our own unique model or principles	2%	13%	8%
TDD (Test Driven Development)	18%	18%	21%
FDD (Feature Driven Development)	11%	6%	4%
We don't follow any structured model or principles	NA	6%	4%

Agile and DevOps adoption are here and now widely accepted. They are the top two mentioned models and principles. It is worth mentioning, however, that 23% of organizations are still using the more transitional Waterfall model, something that may be explained by the fact that many teams continue supporting legacy projects using such models. BDD and especially FDD are growing traction, as well, and we expect to see these continue to rise in the coming years.

11 WHERE DO YOU USE SCRIPTING AND/OR TEST AUTOMATION IN YOUR ORGANIZATION?

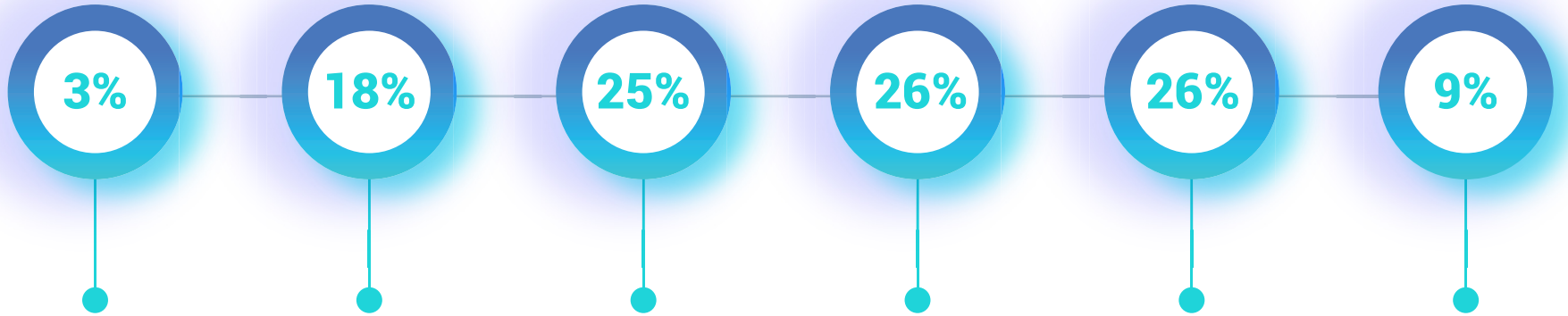
*more than one option could be selected

	2023	2022	2021
For Functional or Regression Testing	77%	73%	75%
For Unit Testing	57%	45%	43%
For Continuous Integration (CI)/Continuous Delivery (CD)	54%	44%	49%
For Load/Stress Testing	38%	31%	43%
For Test data generation	26%	22%	30%
We write BDD/Gherkin scripts using tools like Specflow	21%	17%	20%
For Log, Alerts and Data analysis	20%	15%	14%
We use Home-built test scripts where required	19%	17%	17%
For synthetic and production monitoring and alerts	11%	11%	6%
No, we don't have automation	7%	14%	11%
I don't know where we have automation	1%	2%	2%

The top three areas where automation and scripting are being used in the organization are functional/regression testing, Unit testing, and CI/CD. We see a major rise in the adoption of Unit testing and CI/CD (26% and 22%, respectively), which is aligned with the other parts of our survey and displays the stronger presence of automation and automation tools as a part of the overall quality parameters.

The increase we see in log and alert analysis points toward the shift right trends and we expect to see it growing.

12 HOW MUCH HAS AUTOMATION REDUCED YOUR MANUAL TESTING?



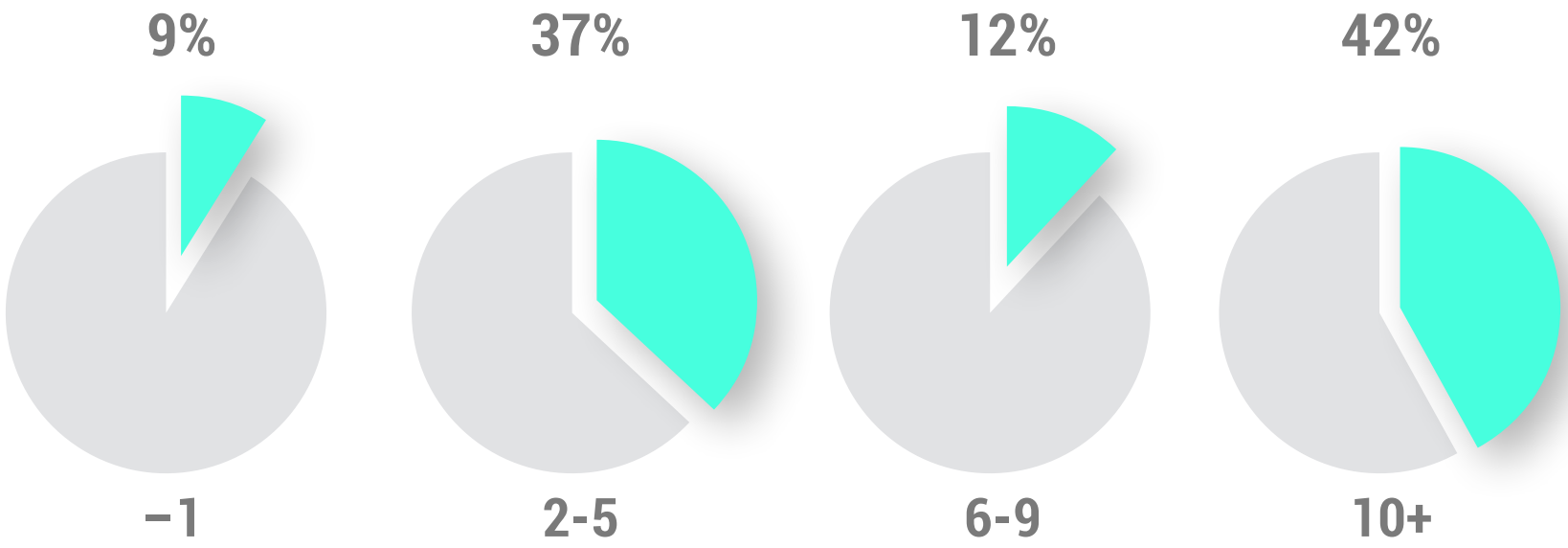
3%	18%	25%	26%	26%	9%
Automation has replaced all our manual testing efforts	Automation has replaced about 75% or more of our previously manual testing efforts	Automation has replaced about 50% of our previously manual testing efforts	Automation has replaced about 25% or less of our previously manual testing efforts	We have automation but it has not replaced any of the manual testing efforts	We do not have automation

From our perspective, it is not surprising to see that in the majority of cases, 51% to be exact, automation has replaced up to 50% of the previously manual testing. Still, it is not a magic tool that can remove the need for manual testing altogether. This is supported by only 3% of organizations claiming that automation has completely eliminated manual testing.

13 HAVE YOU SEEN A RISE IN THE NUMBER OF SUTS

(Systems Under Test) in your company in the past years (as a result of any recent digital transformation)?

14 HOW MANY DIFFERENT SUTS IS YOUR ORGANIZATION TESTING?

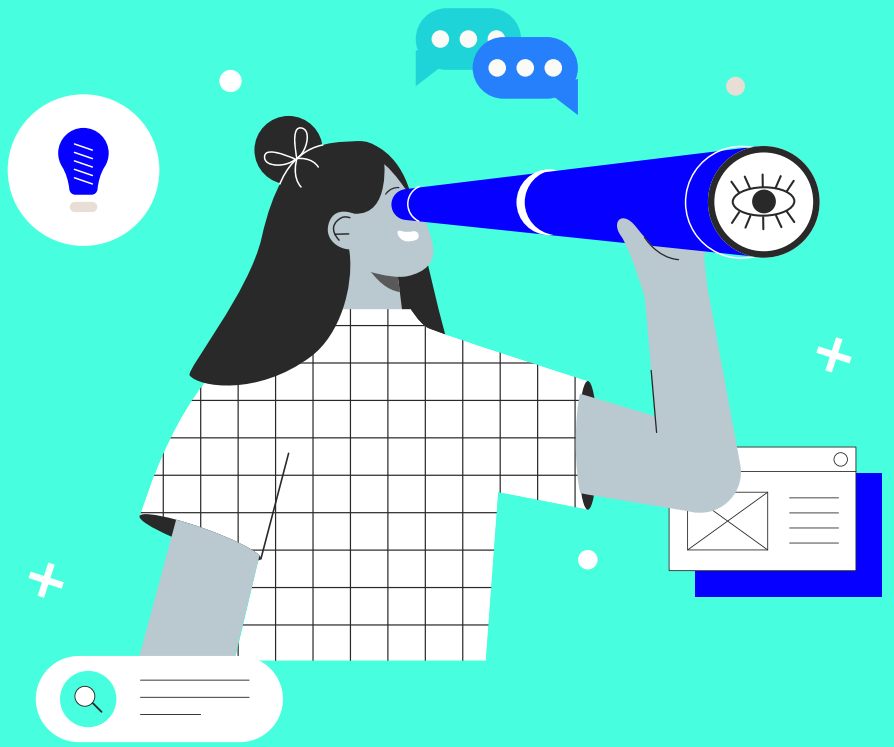


The global coronavirus pandemic was a huge catalyst for the adoption of digital transformation initiatives. As such, it is unsurprising that 61% of organizations report a rise in the number of SUTs. The highest number of organizations reported over 10 SUTs, with 42%, while the 2nd is a lower number of 2-5 SUTs, which depicts that large variance between organizations, teams, and the following complexity.

15 YOUR TECH STACK:

Which testing-related tools does your organization use to support the QA process?

Section 03



The Impact of Agile & DevOps

16 WHAT IMPACT HAS SHIFTING TO ITERATIVE MODELS (AGILE AND DEVOPS) HAD ON THE SOFTWARE DELIVERY PROCESS?

As mentioned in the earlier section of this report, we see wide adoption of iterative models- Agile and DevOps. We wanted to understand the positive implications organizations see from this adoption.

The most agreed benefit was related to internal communication with developers. This should come as no surprise, as in many cases, this transition also meant that QA and testing professionals are now working in mixed teams with developers. Another benefit, which is more measurable, is the team's capability to release more features and functionalities.

	I totally agree 1	2	3	4	I totally disagree 5	NA
The work of our team is more organized and stable	24%	33%	18%	12%	5%	8%
The team is releasing more features and functionality	27%	27%	27%	8%	3%	8%
The overall level of testing has improved	21%	31%	23%	13%	3%	9%
More non-testers (e.g. Developers, Product, etc) are running tests	13%	23%	27%	18%	9%	10%
We have less serious bugs escaping into production	18%	32%	29%	8%	5%	8%
Collaboration with Developers has improved	33%	31%	13%	9%	5%	9%
Collaboration with the product team, sales team and other customer-facing teams has improved	17%	29%	27%	9%	6%	12%

17 APPLIED DEVOPS PRACTICES

GRADE THE FOLLOWING DEVOPS PRACTICES FROM 1 TO 5 BASED ON HOW OFTEN THEY ARE IMPLEMENTED IN YOUR ORGANIZATION

	Never 1	2	3	4	Very often 5
Our team is in charge of developing the product, deploying it to production, and monitoring while in production for issues and general behavior problems	12%	18%	17%	27%	26%
When working on a User Story, we make sure there is the instrumentation that will allow us to monitor it once it is deployed to production	13%	23%	23%	26%	14%
When we decide what to test for a User Story, we define what needs to be tested before deploying into production and what will be tested in production (and how)	13%	13%	21%	24%	29%
As part of the testing process before production, we test the deployment, the migration (when needed), and potential rollback processes in case they will be required	10%	22%	22%	31%	15%

The most commonly used DevOps practice is the existence of alerts that notify when there are issues in production. We need to put more effort on deployment testing and be more active in the monitoring scene as part of the quality inputs of our processes

Section 04

Personal Perspective

18 TESTING SKILLS AND KNOWLEDGE NEEDED TO SUCCEED

**more than one option could be selected*

Shifts in importance of skills and knowledge areas needed for testers to thrive in today's testing industry.

Communication skills continue to lead the list of required skills for testing professionals, which is of no surprise, considering its cross-functional importance. Test design emerges as another key factor, which can be explained by the broader involvement of non-dedicated testers, who execute tests that must be designed by testing subject matter experts.

19 WHERE DO YOU SEE YOURSELF 5 YEARS FROM NOW?

When you think about YOUR future 5 years from now... where do you want to be?

	2023	2022	2021
I will be a tester or test manager	41%	37%	46%
I will be a testing consultant/ coach	17%	24%	19%
I will be a programmer or programming lead	11%	5%	5%
I will be on an agile management role (agile coach, scrum master, etc)	4%	6%	6%
I will be in a business role	7%	5%	6%
I will not be in the technological industry	1%	2%	1%
I will be retired	4%	3%	4%
I don't know what I will be doing 5 years from now	15%	18%	13%

This year we see a jump in % of people who see themselves taking a development role, which can stem from the large adoption of automated testing, which is closer to programming in the required skill set.

20 AS A TESTER, WHAT WOULD YOU LIKE TO SEE CHANGED

> I just want to see the importance of testing taken more seriously. My team is great, but I've seen QA engineers on other teams struggling because their team members don't give them adequate context for testing, and oftentimes will try to avoid the QA process altogether

> Including test automation for better test execution

> Resourcing issues resolved (staffing)

> Carry out tests with a sense of quality. Understand the why and what for of testing activities

> The importance and meaning of the test is still not understood. It should be understood that testing is not a secondary priority and a nice-to-do activity. Sufficient time and resources should be allocated to tests

> More inclusion in the agile process and more side-by-side with developers throughout iterations

> Developers doing quality coding and decent automation

> Testers need to be valued as developers. The upskilling team plays an essential role in what should be done. Communication and work as a team as quality is a team responsibility. The industry is having more of fake testers, don't know how but needs to be control with real skills

> Customers, Managers, POs und PMs need to understand the role and importance of the QA Stop selling Testing and QA independent from the development Customers need to stop asking the developers about their product and start asking the QA Testers and engineers, the developers work on a piece of code the QA knows all the SUT inside out

> More investment into testers and resources. Testers are usually spread so thin that they can't effectively complete all of their testing activities to the best of their ability - there are constant compromises made

> Going through a transformation, embedding new tech and testing practices at the same time as keeping the lights on for Legacy apps/manual testing

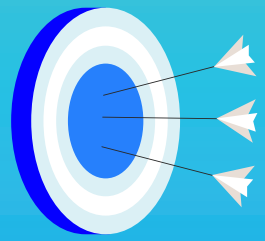
> Consistency with project manager/scrum masters across our projects with processes, better project tracking tool, have the correct stake holders available in sprint planning and testable acceptance criteria defined for user stories, hire a business analyst to bridge the gap between business & developers

> The differentiation developers and product managers create for the testers. Sometimes it feels like being a tester is a crime. Devs just look down upon the testers. It's like doing a testing job is something anyone can do. And our task is valueless. The differentiation even hurts more when it comes to compensation

> Leaders who does not embrace change and innovation at the fear of failing and/ or turning spotlight of accountability on themselves

> More online courses for manual and automated testing

FINAL NOTE



10 years is a long time. Although some things haven't changed, such as the importance of quality assurance activities in order to ensure the release of quality products that meet customer expectations, many other changes have taken place.

This includes the growing adoption of automation, which is also reflected in the growing number of survey respondents who hold automation-related positions, CI/CD adoption, and more importantly, testing professionals in it.

As testing is expanding its professional borders, it shouldn't come as a surprise that people are no longer perceiving it as a temporary stop on their way to other positions within IT or R&D departments. This is reflected in the current years of experience people currently have and in their desired positions 5 years from now.

On the other hand, testing activities are now being conducted by multiple stakeholders. This is supported by the shift in the testing professional's day-to-day activities, from having the sole responsibility of performing tests, to guiding other members of the organization on quality best practices, while the number of systems under testing continues to rise due to digital transformation.

A BIG THANKS TO OUR COLLABORATORS

Tea-time with Testers

PractiTest

About PractiTest

PractiTest is an end-to-end SaaS test management platform that centralizes all your QA work, processes, teams and tools into one platform to bridge silos, unify communication, and enable one source of truth across your organization.

With PractiTest you can make informed data-driven decisions based on end-to-end visibility provided by customizable reports, real-time dashboards, and dynamic filter views.

Improve team's productivity; reuse testing elements to eliminate repetitive tasks, plan your team's work based on AI-generated insights and enable your team to focus on what really matters.

PractiTest helps you align your testing operation with business goals, and deliver better products faster.

Tea-Time with Testers

Tea-time with Testers is the largest-circulated software testing periodical 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.