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# **TESTING TRENDS FOR 2018**

## **A SURVEY OF DEVELOPMENT AND TESTING PROFESSIONALS**

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February 2018

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### Introduction

In the early days of software when an application ran on one platform and one type of machine with few variables, testing was a relatively straightforward QA process that was performed right before an application was released to the public. Fast forward to the modern world. Today the way software is developed and tested has changed significantly. The complexity of software and its testing requirements are vast, and the old “waterfall” software development cycle is no longer viable if enterprises wish to remain competitive. Testers must now consider multiple platforms, devices, browsers, versions of browsers, and more. Added to these variables are compressed release schedules and the need for more frequent test iterations paired with increased end-user demands for higher quality applications. One misstep in quality may lead to revenue losses, security risks, and deadly brand consequences. Continuous testing — automated testing that happens throughout the development cycle — is now critical to successful application development.

But what is the real-world state of modern development and testing in 2018? What has changed from the past and what remains the same? Is quality improving as release cycles get faster? Or is the release time acceleration slowing because quality needs and automation have not kept pace?

The following report, sponsored by Sauce Labs, is based on a global survey of 1,091 technology professionals responsible for development and testing. Certain questions were repeated from prior surveys conducted with the same audience to allow for trend analysis.

### Key Findings

**Trend #1: Testing is conducted on more browser types, increasingly on only the most recent versions**

- 90% test on more than one browser, up from 88% in 2017
- 39% test on five or more types of browsers, up from 29% in 2017
- 5% test on Chrome only
- 53% test on only the most recent browser version, up from 37% in 2016

**Trend #2: A mix of real devices and simulators becomes the norm for mobile testing**

- 77% use a mix of both real devices and simulators or emulators for mobile testing, up from 34% in 2015

**Trend #3: The value of automated testing is clear**

- 87% say management is on board with automated testing
- 45% expect to increase spending on test automation in 2018; 55% at large companies
- 56% do as much or more automated as manual testing, a minor decrease from 59% (2017) and 60% (2016)

**Trend #4: Agile and DevOps adoption increases, but bugs are not getting fixed faster**

- 91% report they have adopted agile, up from 82% in 2015
- 17% have fully embraced DevOps, up from 10% in 2017
- 21% fix bugs immediately, down from 23% in 2017

**Trend #5: The desire to deploy even more quickly appears to be slowing**

- 44% report that they want to deploy more quickly, down from 54% in 2016
- 9% report they want to deploy more slowly, up from 0% in 2016



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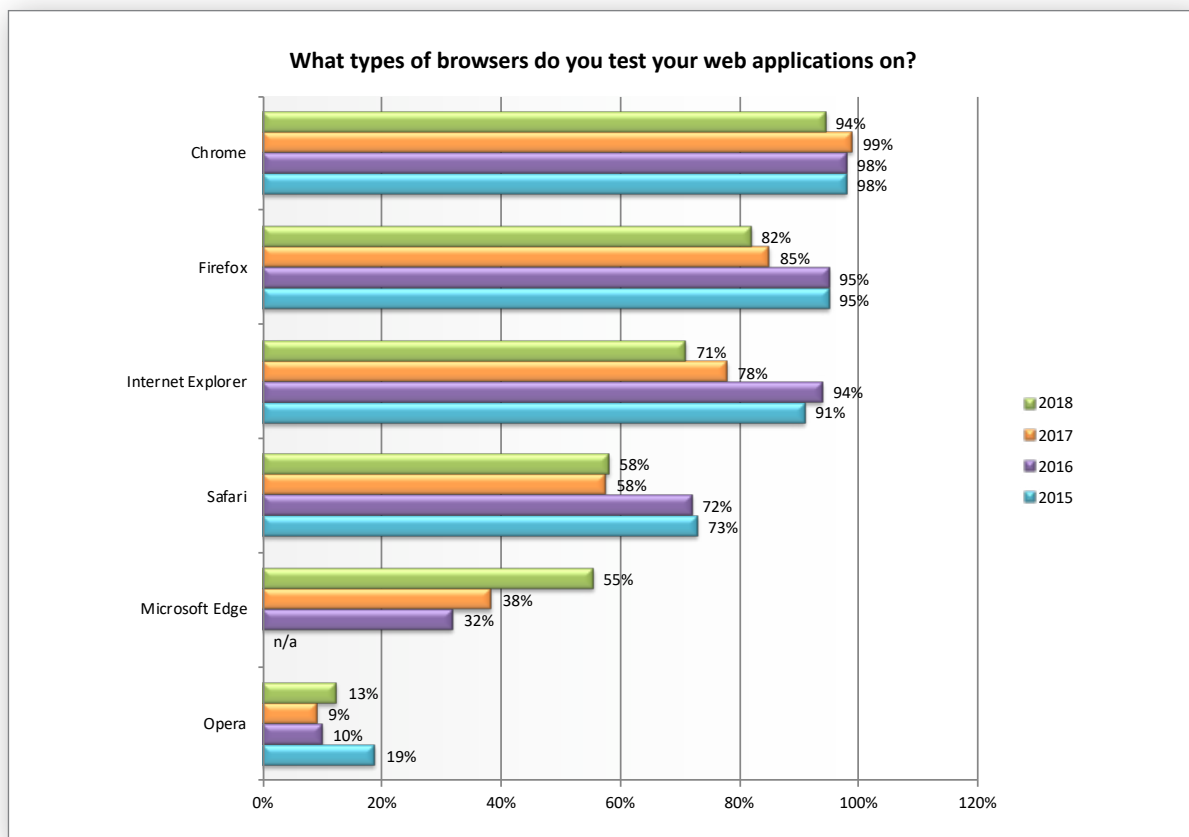


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### Trend #1: Testing is conducted on more browser types, increasingly on the most recent versions

A fundamental goal of development is to provide a favorable user experience for nearly everyone using your web applications. This requires testing apps on an acceptable number of web browsers. Yet, what is the acceptable number for today's application development and testing teams? What browsers are important? And, how does this compare to previous years?

Similar to 2017 findings, Chrome remained the top browser tested against with 94% of software testing teams testing against this browser. The real shift in browser testing is not a surprise. As expected, Internet Explorer is tested less (71% down from 78% in 2017) and Edge is tested much more (55% up from 38% last year). This testing shift in Microsoft browsers can be attributed to the fact that MS Edge has replaced Internet Explorer as the default web browser on desktops running Windows 10.



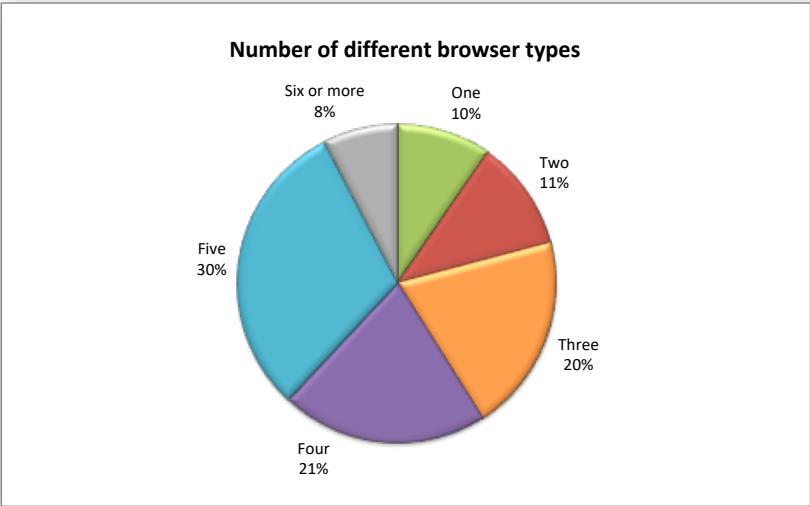
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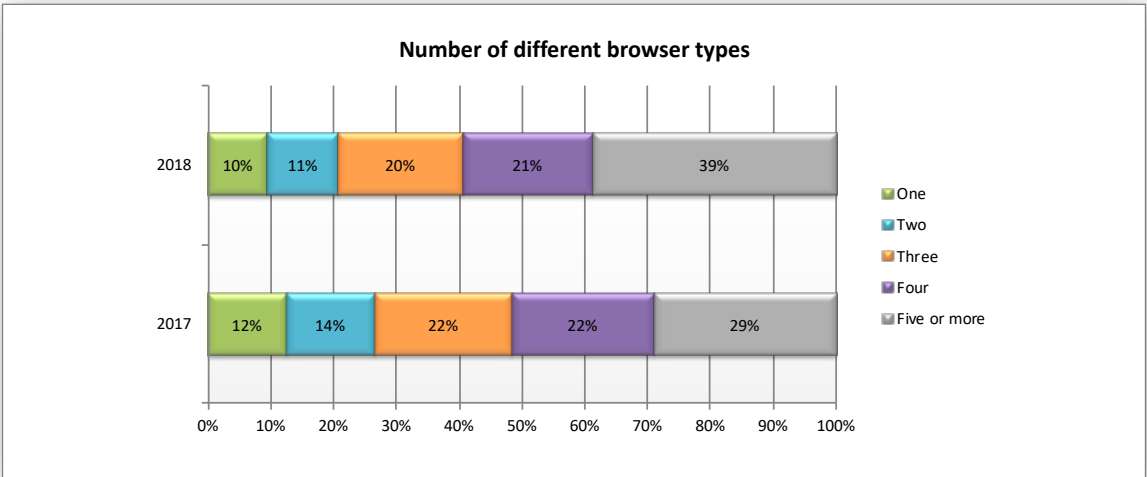


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When software professionals were asked about the number of browsers tested, 90% test on more than one browser, up slightly from 88% in 2017. Of those who are testing solely on one browser, 5% test only on Chrome, the same percentage as reported last year.



One of the most optimistic testing shifts from 2017 to 2018 is in the overall number of browsers tested. More teams, 39%, are testing on five or more browsers compared to 29% in 2017, a remarkable 35% increase in a single year. This change may shed light on exactly how development organizations are seizing more opportunities to improve quality and the end-user experience across larger markets.



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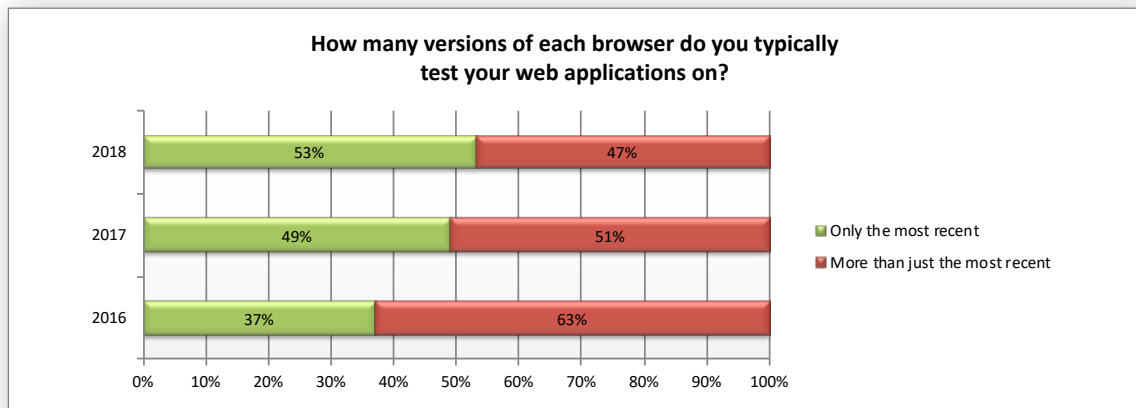


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### More choose to test only the most recent browser versions

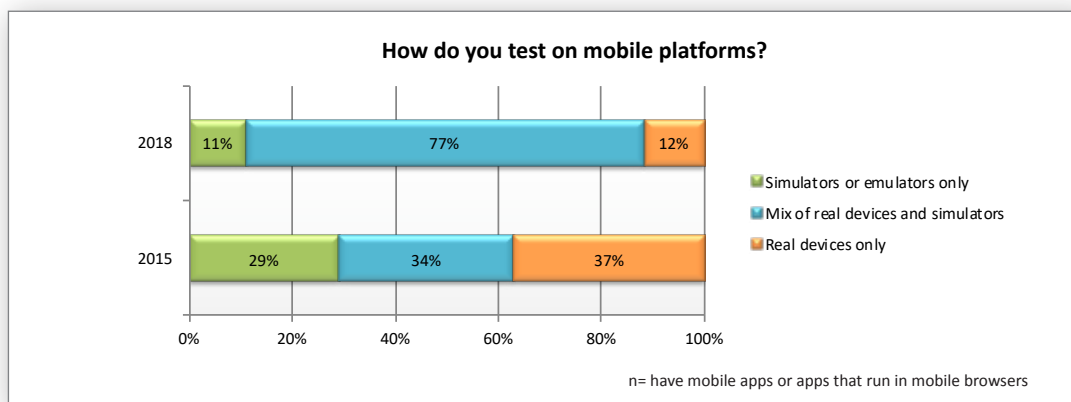
While the overall number of browser types tested is on the increase, another emerging and less comforting trend in software testing is the growing preference to test only the most recent browser versions instead of trying to stay current on older browsers. Among software professionals, more than half (53%) test only on the most recent version. This represents a significant increase since 2016 when just over a third (37%) tested only the most recent browser version.

This can be a risky approach. Even for supposedly auto-updating browsers like Chrome and Firefox, browsers are not always up-to-date. According to W3Schools, more than half (53%) of Chrome users were still on older versions of Chrome four months after the release of C62 in October 2017.<sup>1</sup>



### Trend #2: A mix of real devices and simulators now the norm for mobile testing

Mobile devices present additional testing challenges as there is a plethora of device types, operating systems, and screen resolutions along with different application frameworks for native apps, mobile web apps, and hybrid apps. To understand the approach used for testing on mobile platforms, we asked participants if they used emulators or simulators only, a mix of real devices and simulators, or real devices only. More than three in four organizations (77%) do use a mix of both real devices and simulators or emulators for mobile testing, up from 34% in 2015. This sizeable percentage change suggests that both emulators and real devices play an important role in mobile app testing.



<sup>1</sup> [https://www.w3schools.com/browsers/browsers\\_chrome.asp](https://www.w3schools.com/browsers/browsers_chrome.asp)

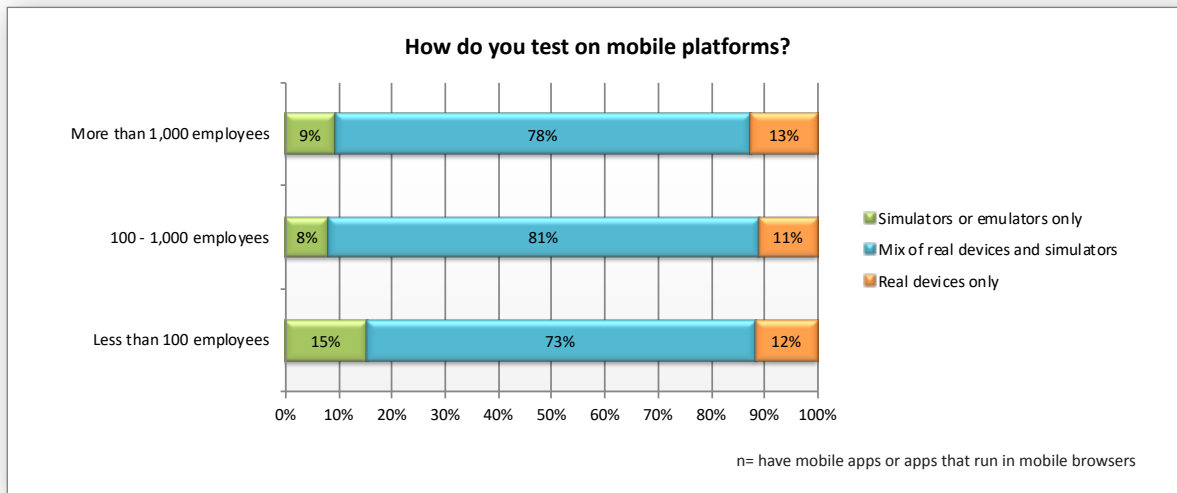
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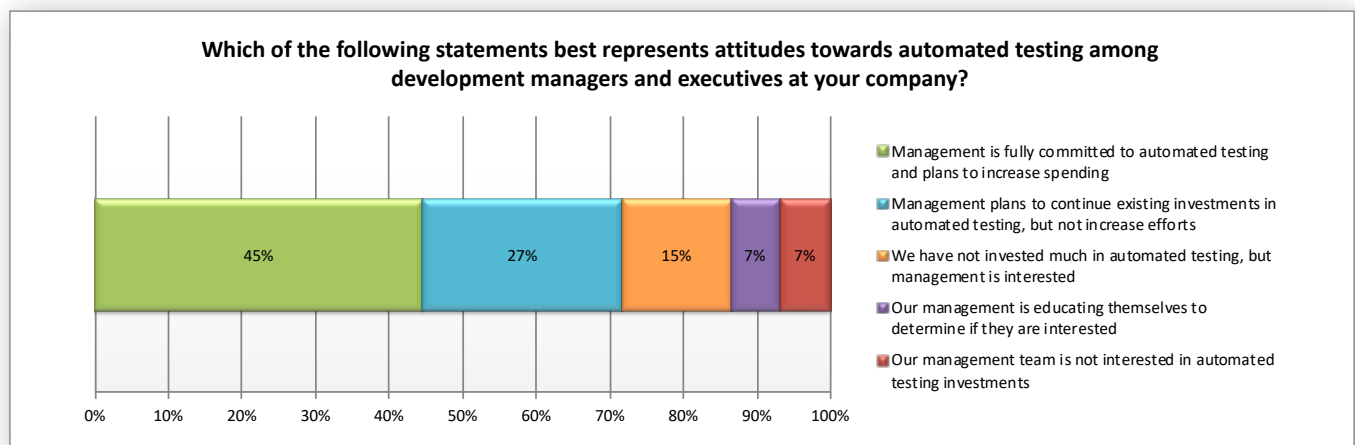
However, it may not be feasible for all sizes of organizations to use a combination of both real devices and simulators. Maintaining an on-premise mobile device testing lab can be an expensive and a resource-intensive undertaking, particularly for smaller companies. Our research supports this assumption with 15% of small companies being most likely to use only simulators or emulators compared to larger organizations (8% or 9%).



### Trend #3: Value of automated testing clear, but automation level stalled

Automated testing solutions are not new. They have been readily available to application development and testing teams for more than 30 years. During this time, attitudes toward testing have evolved significantly. Development organizations know that waiting to test at the end of the development cycle presents significant drawbacks, while testing continuously, early, and often to provide immediate feedback improves quality. Automation contributes to both of these efforts. So how are companies embracing automated testing today?

We asked survey participants about their attitudes toward automated testing among their development managers and executives. A large majority (87%) say management is on board with automated testing. In fact, 45% report management is fully committed to automated testing and plans to increase spending. Conversely only a few (7%) say their management team is not interested in automated testing investments.



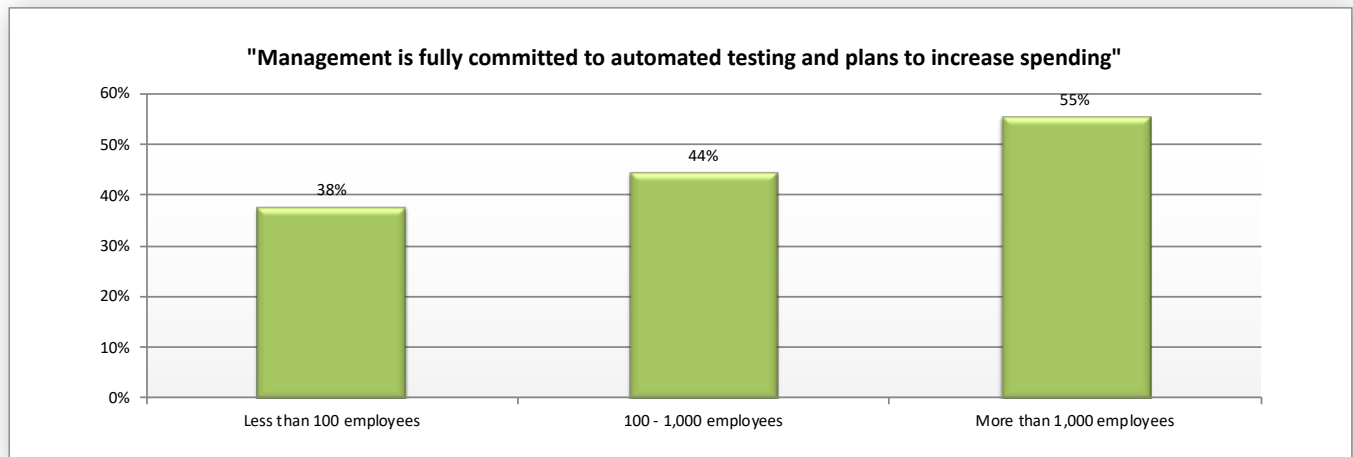
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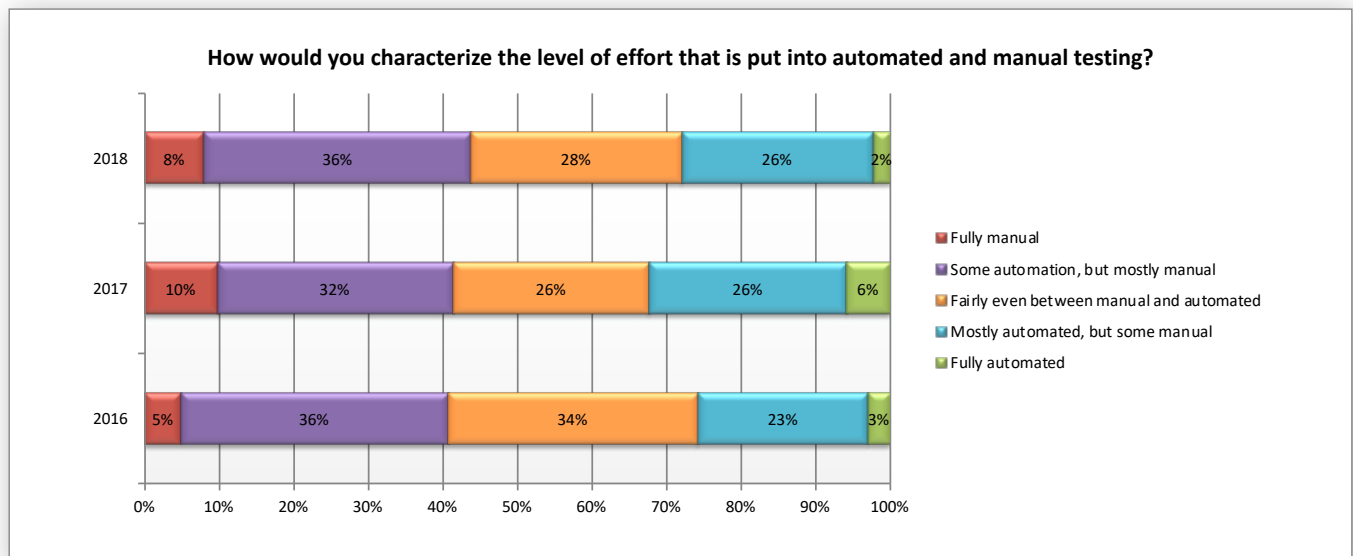
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We probed deeper to see if this attitude differed depending on the company size. At large companies — those with 1,000 or more employees — 55% reported that management was fully committed to automated testing compared to only 38% at companies with less than 100 employees.



### Automated testing is still not the default

Even though management is typically on board with automated testing, there is still room for improvement. Among participants, 56% do as much or more automated as manual testing, which is actually a minor decrease from 58% in 2017 and 60% in 2016. This is clearly a place where development teams can improve.



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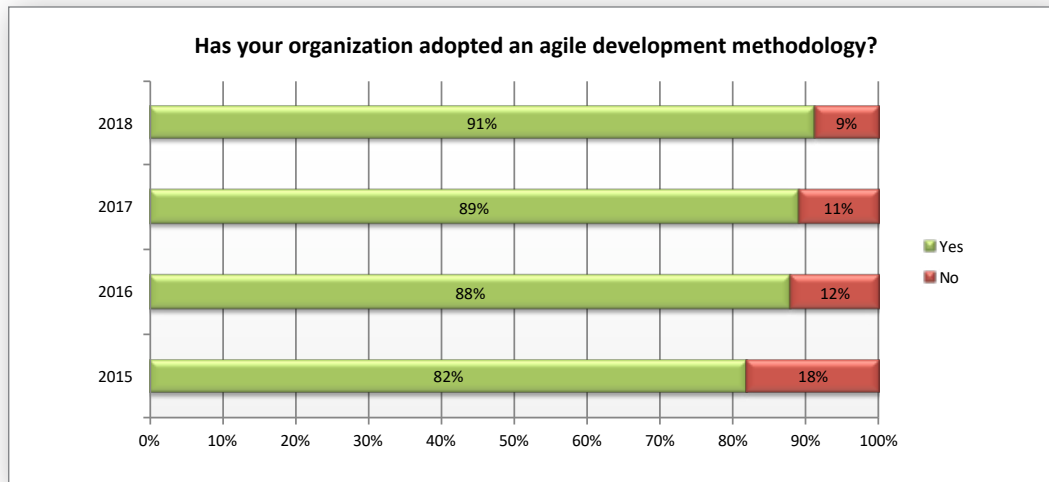
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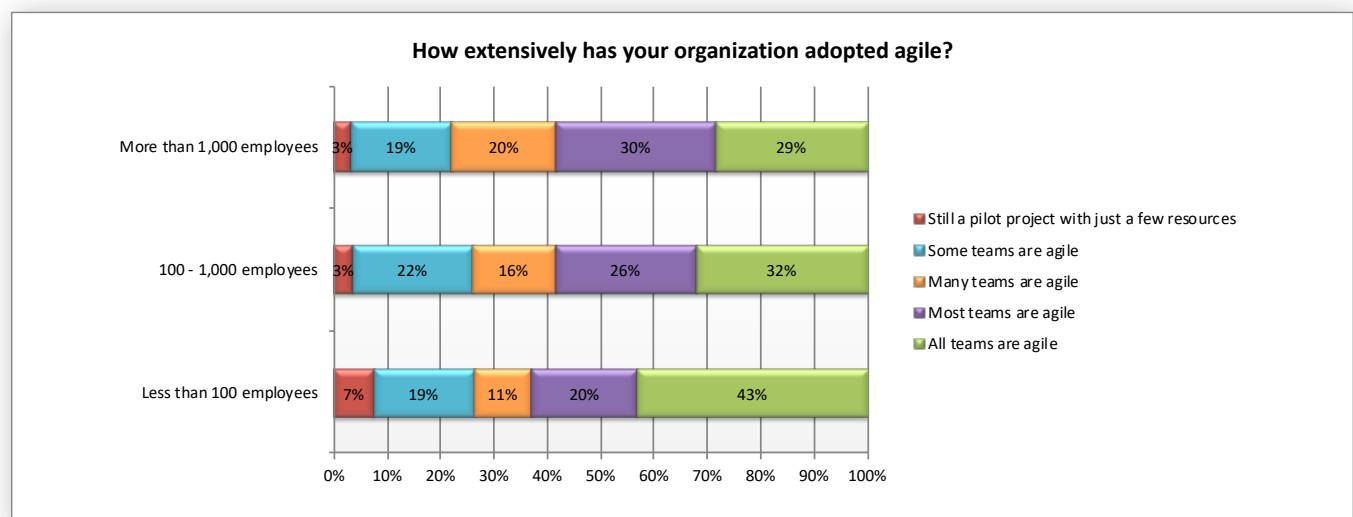
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### Trend #4: Agile, CI, and DevOps increase, but bugs not fixed faster

The agile development movement continues to grow steadily year over year with its promise to cut development time and costs and yield better results for all stakeholders. In our survey conducted in 2015, 82% of software developers said that their organization had adopted an agile development methodology. This number grew to 91% in 2018.



To fully understand the depth of agile adoption, we asked how extensively agile has been embraced. Any transformation typically takes longer at a large organization, and agile is no exception. Small companies are further down the agile adoption path with 43% reporting all teams are agile compared to only 29% at larger enterprises.





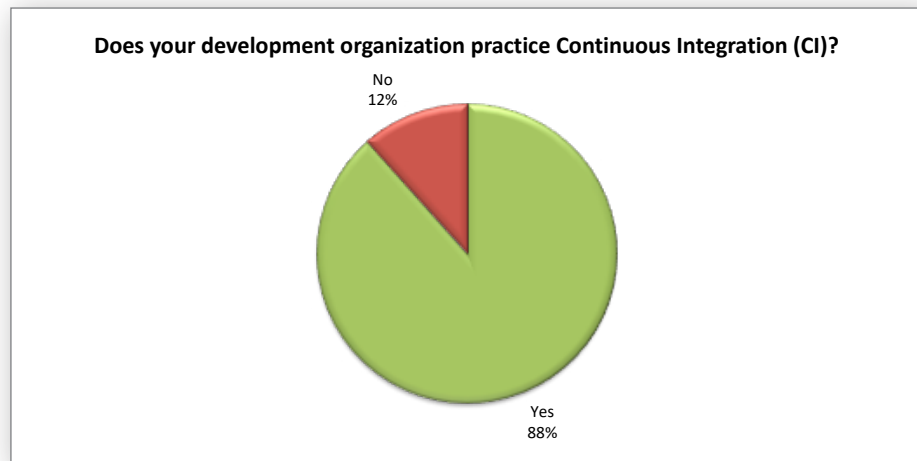
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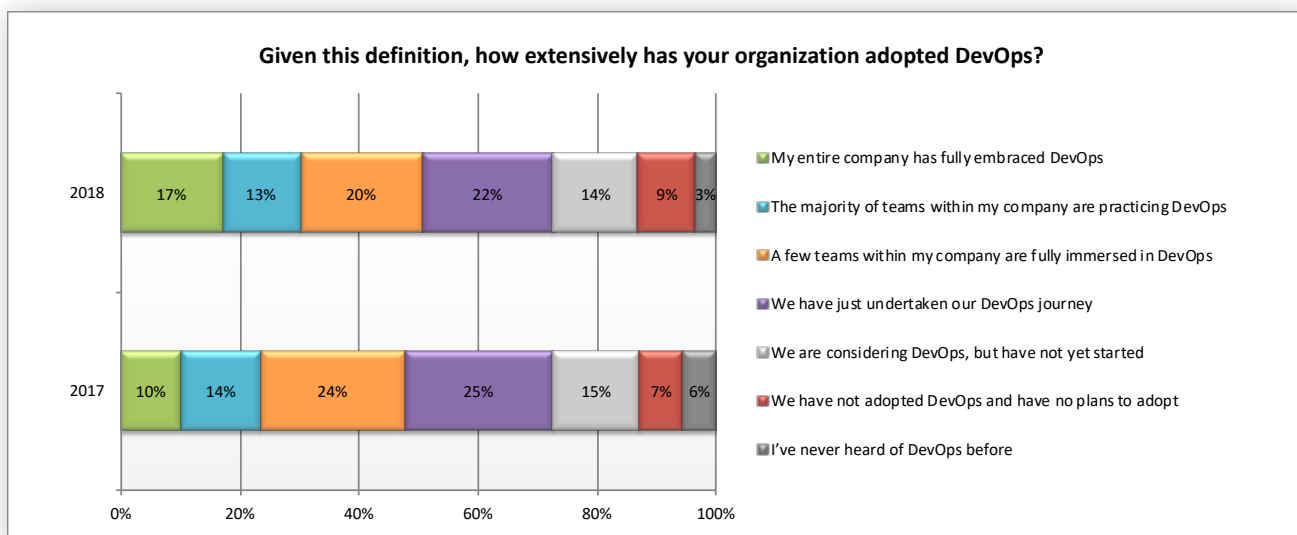
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As in previous surveys, there continues to be upswing in the adoption of Continuous Integration (CI). An overwhelming majority, 88%, report that their development organization practices CI. As more companies adopt CI chains to increase the speed and quality of releasing code as well as to find bugs in the software development process itself, it will be extremely critical to include continuous testing in these conversations.



Compared to agile, DevOps is a newer movement that spans both software development and other IT groups with the goal to automate the process of software delivery and infrastructure. We first introduced DevOps in the 2017 survey.

To gain insight about the progression of the DevOps journey, we asked how extensively DevOps has been embraced by teams. Similar to last year, most are still in progress, but this level of adoption is growing steadily with 17% fully embracing DevOps across the entire company, up from 10% in 2017. However, the largest groups have either just started with DevOps (22%) or have a few teams fully immersed (20%). These responses track closely to those measured in 2017 with little or no shifts in adoption levels.



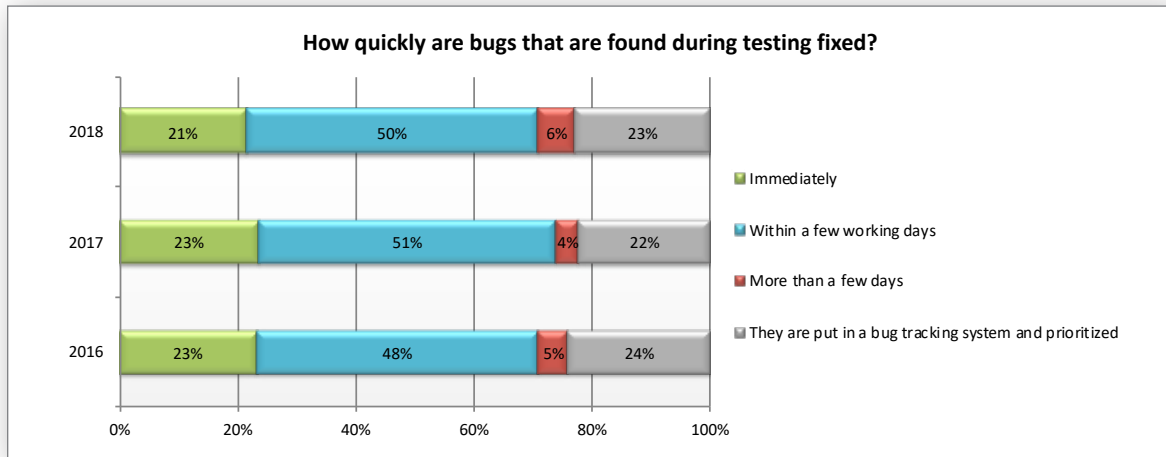
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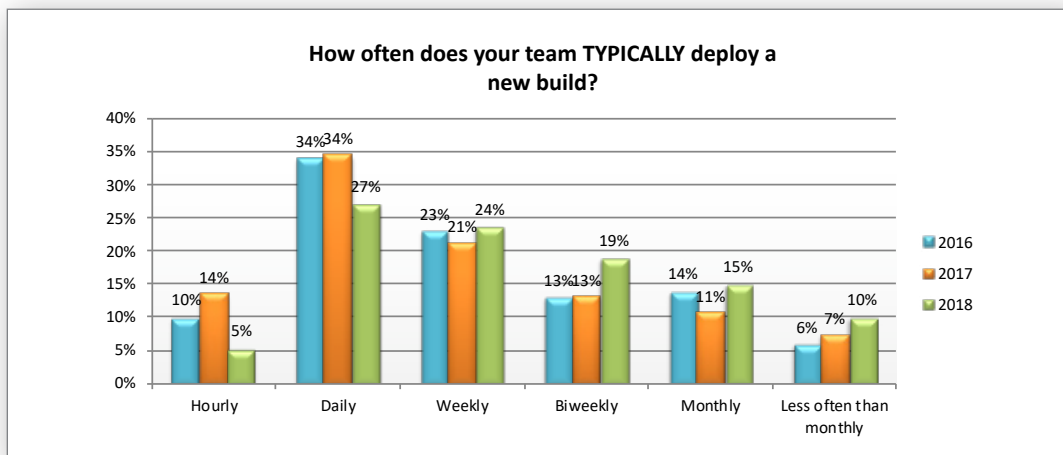
However, even with further advancements in both agile and DevOps practices there is an alarming lack of progress in the speed of fixing bugs. We first identified this trend in 2017 and it continues to repeat itself. In fact, the rate of fixing bugs immediately has fallen from 23% reported last year to 21%. And the rate of fixing within a few days has declined from 51% in 2017 to 50%. Again, this is an area for improvement for both testing and deployment teams.



### Trend #5: Desire to deploy more quickly appears to be slowing

#### Go-to-market speed is stalling

Without a doubt, the survey's most surprising trend is that development is slowing the pace for deploying new builds. This is particularly evident among the teams who deploy hourly builds (5%, down from 14% last year).



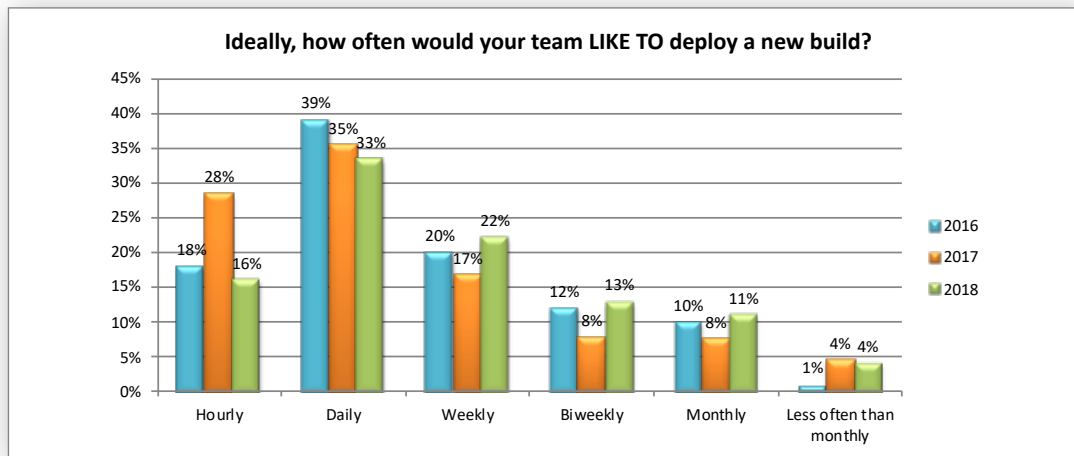
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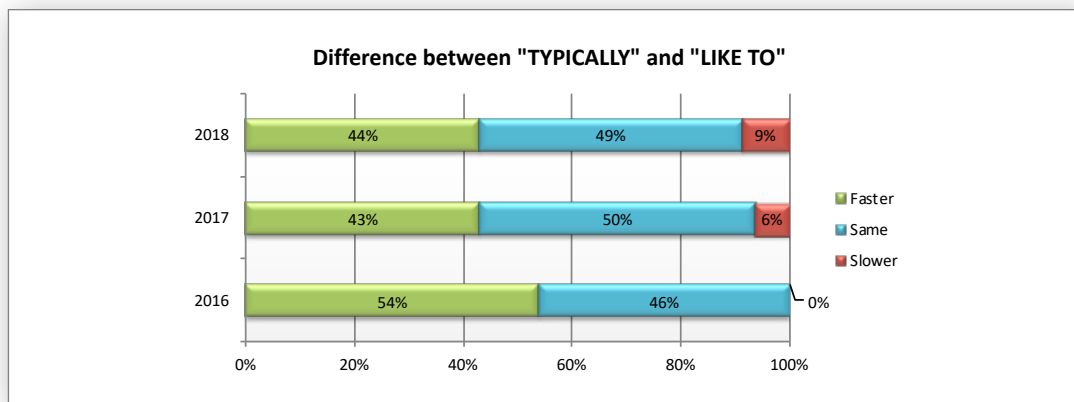


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To look at the story from another angle, we asked a similar question about their ideal deployment times. Yet here we also see development's desire to deploy new builds slamming on the brakes especially for hourly builds, with only 16% reporting hourly, down from 28% last year.



Again, we continue probing to better comprehend this deployment slowdown. When we compare how quickly teams deploy against how quickly they want to deploy, 9% of software professionals actually want to deploy more slowly than they currently do, up from 0% in 2016.



These data points when taken together draw a clear picture that the constant push to deploy faster and faster is hitting a wall. While this research cannot definitively say why this is happening, there are clear clues. As we saw earlier, bugs are not being fixed faster and test automation has stalled. Perhaps development organizations have leaned too far into speed and now realize they need to bring quality back into balance.

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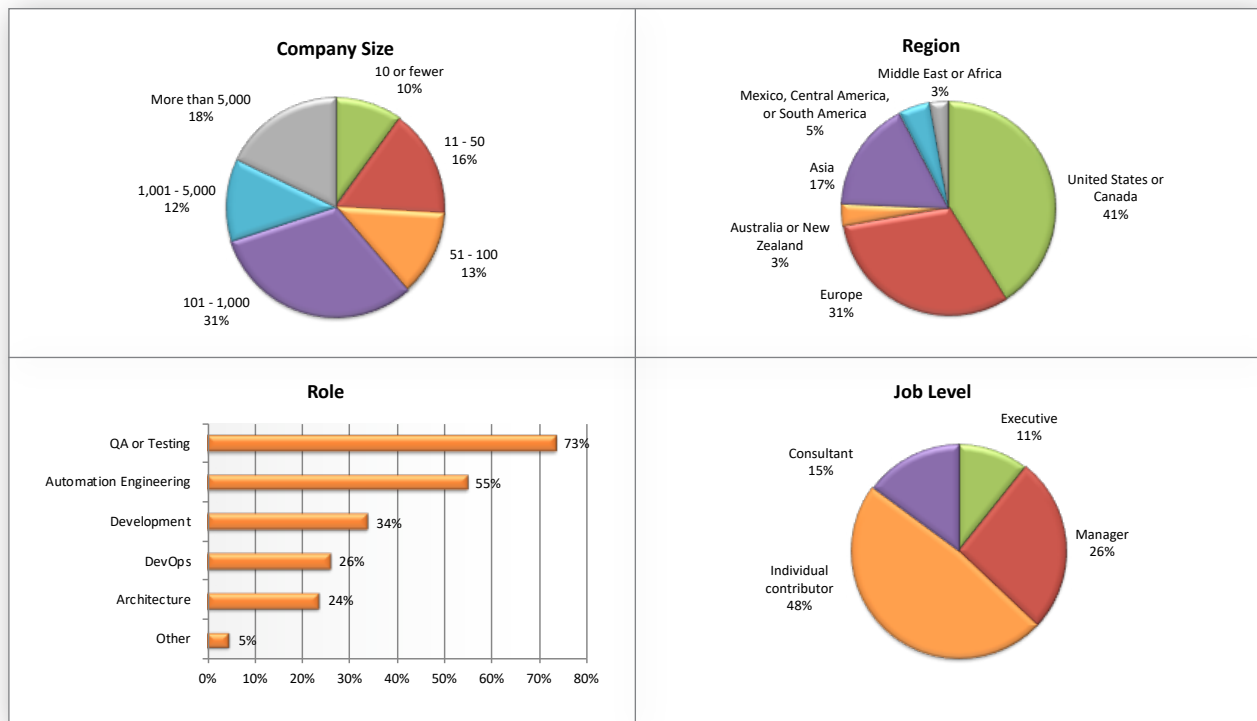
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### Survey Methodology and Participant Demographics

An online survey was sent to a global database of development and testing professionals. A range of questions were asked to capture hard data on current experiences, challenges, and trends in software testing. Certain questions were repeated from prior surveys conducted with the same audience to allow for trend analysis. A total of 1,091 individuals participated in the survey. Participants included a wide range of company sizes, roles, vertical industries, and geographies.



### About Dimensional Research

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### About Sauce Labs

Sauce Labs ensures the world's leading apps and websites work flawlessly on every browser, OS and device. Its award-winning Continuous Testing Cloud provides development and quality teams with instant access to the test coverage, scalability, and analytics they need to deliver a flawless digital experience. Sauce Labs is a privately held company funded by Toba Capital, Salesforce Ventures, Centerview Capital Technology, IVP and Adams Street Partners. For more information, please visit [saucelabs.com](http://saucelabs.com).