
STATE OF THE MODERN WEB

A SURVEY OF DEVELOPMENT PROFESSIONALS

October 2016

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Introduction

For more than 20 years, web application development has evolved quickly. From its origins in the early 1990s with simple websites, it quickly grew to a worldwide phenomenon as technology matured and more dynamic browser-based applications were developed. Web technologies including HTML5, JavaScript, and CSS emerged to assist development teams deliver more sophisticated web applications. “E-business” was born, and then morphed into simply “business” as all businesses realized the need for a web strategy.

Web applications continue to be critical for today’s businesses, but now they need to be able to work across all device types and live for a long time to maximize investments and serve customers as expected. Applications are becoming increasingly sophisticated and there’s a growing demand to visualize and analyze data from within applications. On top of that, organizations need to deliver these complex applications quickly with the high quality customers expect. So where do web technologies fit in today’s development priorities? As new mobile technologies are emerging, do web technologies continue to dominate? What challenges are today’s developers facing to keep pace with change while still delivering long-lasting web applications that are key investments for their organizations?

The following report, sponsored by Sencha, is based on a global survey of 1,131 development professionals. Questions were asked on a wide range of subjects including challenges, browsers, mobile, and the use of development technologies. Participants were incentivized to participate with a copy of the final report.

Key Findings

- **Web technologies are critical to business**
 - 93% say web technologies are critical to their strategy for desktop and mobile
 - 75% increased web technology investments last year; 76% plan to increase next year
 - Web technology use is driven primarily by ease of support for multiple browsers and screen sizes (68%), development efficiency (62%), quality of applications (57%), and time to market (54%)
- **Desktop as a key platform isn’t dead, but legacy browsers are**
 - 80% say desktop applications are “absolutely essential”
 - 65% only support modern browsers
- **Mobile is much more than smartphones**
 - More say tablets are important as an application platform (81%) than smartphones (74%)
- **Web applications have a long life**
 - 81% of desktop applications are maintained for 3 years or longer including 48% that are maintained for more than 5 years
 - More than half of mobile apps are maintained for 3 years or more
 - Need for common use model and coding style (87%) and support for new browser versions (69%) key to building applications that can be maintained

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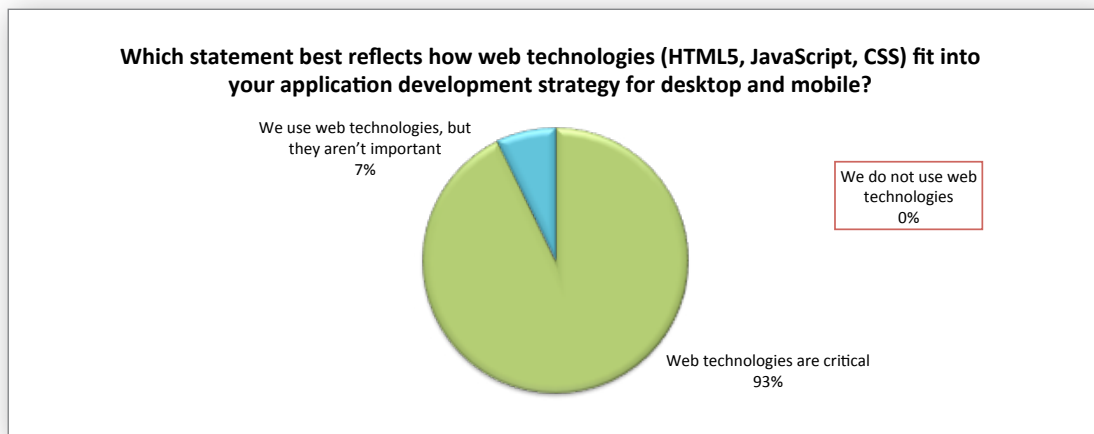
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- **Need for visualization and analytics of complex data is increasing**
 - 74% say need for data visualization in web applications is increasing
 - 100% use or plan to use data visualization or analytics capabilities in their applications
 - There is extensive use of advanced data capabilities including 53% who use or plan to use D3 and 50% who use or plan to use pivot grids
- **Testing does happen early, but needs to be even earlier**
 - 91% say frontline developers perform application testing today
 - 72% plan to test web applications even earlier

Detailed Findings: Web technologies continue to drive development

Web technologies are a critical part of desktop and mobile strategies

As software teams develop both desktop and mobile applications, web technologies including HTML5, JavaScript, and CSS continue to be essential for application development. The vast majority of development teams, 93%, reported that web technologies are indeed critical.



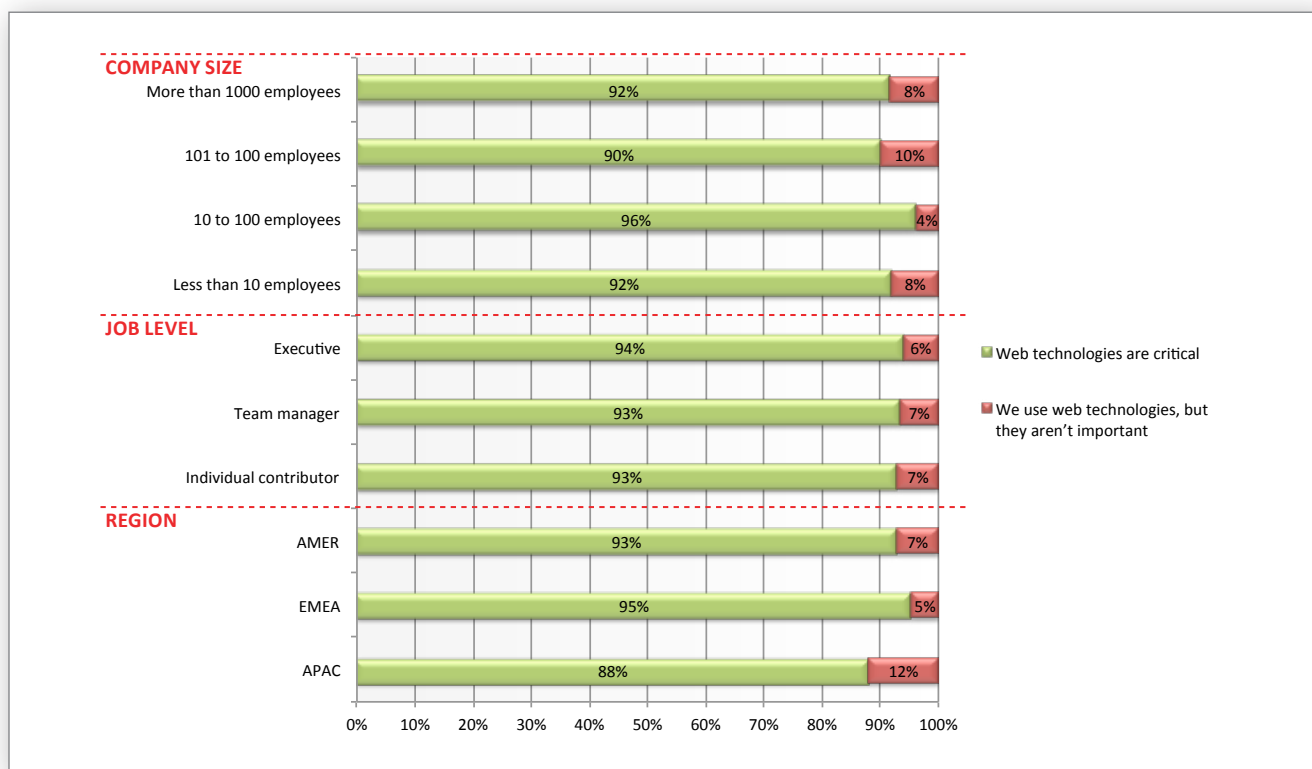
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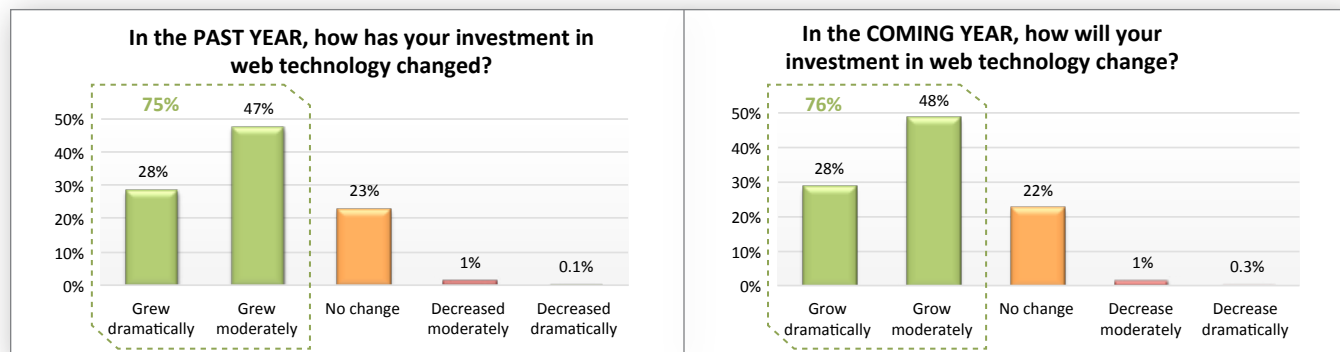
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The research also found that web technologies are critical across all demographics. No matter what size the company, where it was located geographically, or the job level of those surveyed, the vast majority agreed that web technologies are critical to their success.



Investment in web technology continues to grow

Demand for new applications and updates to existing applications are not going away, and this is reflected in the growth of web technology investments. Those surveyed reported that in the past year investments in web technology grew moderately (47%), while 28% stated it grew dramatically, which combined means that in the past year 75% of our respondents witnessed growth in web technology investment. Similarly, when asked how investments in web technologies in the coming year might change, 48% said they expect them to grow moderately and 28% expect them to grow dramatically, totaling 76% overall who believe investments in web technology will increase.



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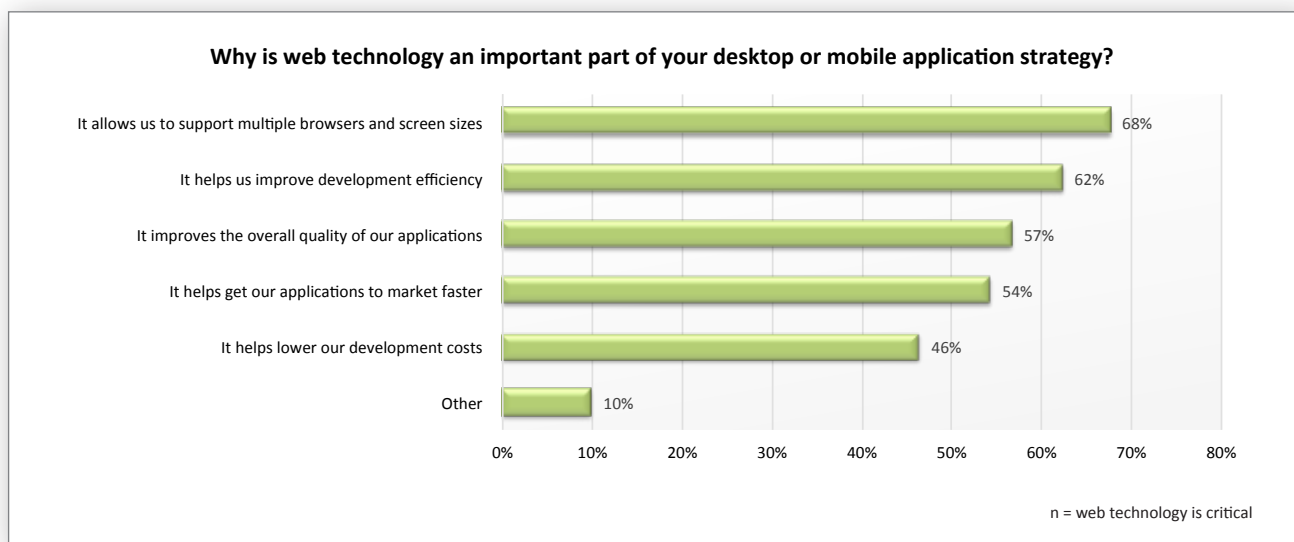
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Web tech is critical for a wide range of reasons

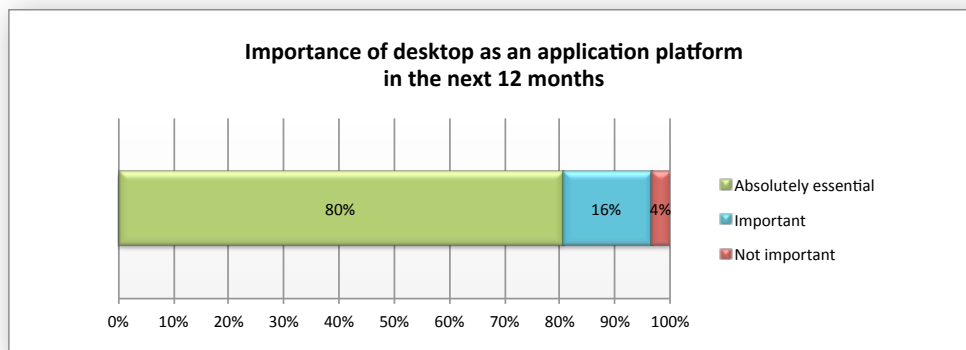
The reasons that web technology remains a critical part of desktop and mobile development strategies are indicative of the challenges developers face. The top reason reported for the continued importance of web applications, with 68% stating this reason, is to support multiple browsers and screen sizes that come with the territory of today's mixed platform environments. The next top reason was that web technology helps improve development efficiency (62%). Web technology is important because it improves the overall quality of their applications for 57% of those surveyed. With demand for frequent releases of applications and updates, 54% named faster time-to-market as a key factor. Cost was also a factor as 46% said web technology helped lower development costs. Interestingly, frequent "Other" reasons given for the importance of web technology included ease of deployment, lower support and implementation costs, customer demands, and better user experience.



Detailed Findings: Desktop is thriving, but legacy browsers are dead

Desktop remains essential to businesses of all sizes

Even with the increase in mobile applications (and the surrounding hype), businesses continue to rely heavily on desktop applications. In fact, the majority (80%) indicated that desktop applications will remain absolutely essential in the next 12 months. Only 4% characterized their desktop applications as not being important.



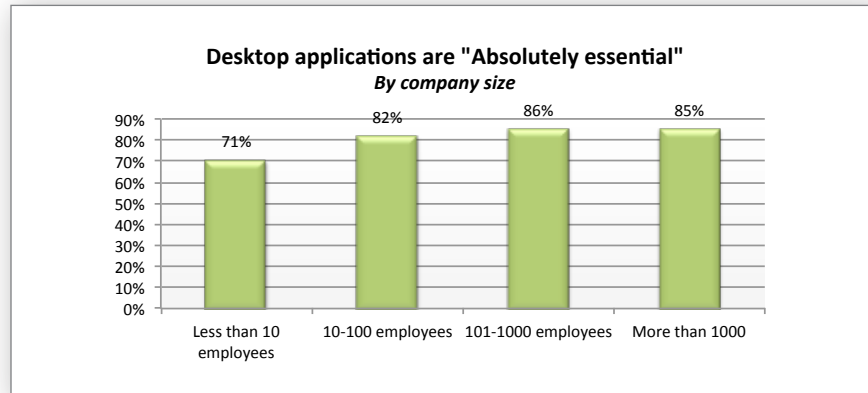
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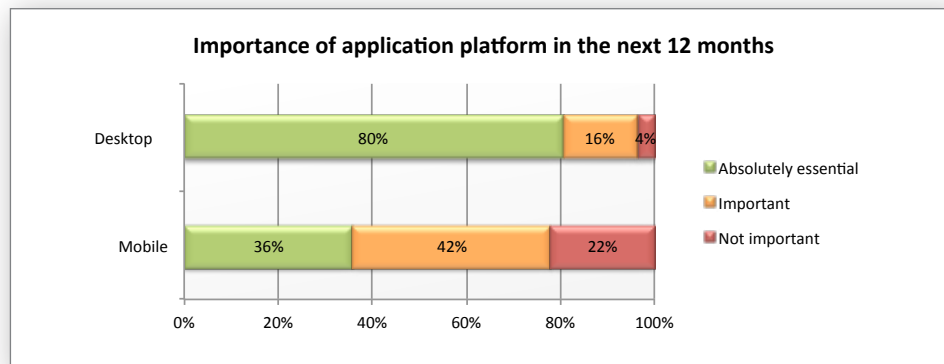


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As companies get bigger, desktop applications become even more important. For companies with less than 10 employees, 71% indicated that desktop applications are absolutely essential. But as company size increased, so did respondents' rankings of the importance of desktop as an application platform. Among the largest enterprises, those with over 1,000 employees, 85% said that desktop applications are absolutely essential.



Not only do desktop applications remain absolutely essential to businesses, especially large enterprises, the importance of desktop applications far exceeds mobile. When respondents were asked about the importance of desktop and mobile applications in the next 12 months, an astounding 80% said the desktop was absolutely essential, compared to just 36% reporting that mobile was absolutely essential.



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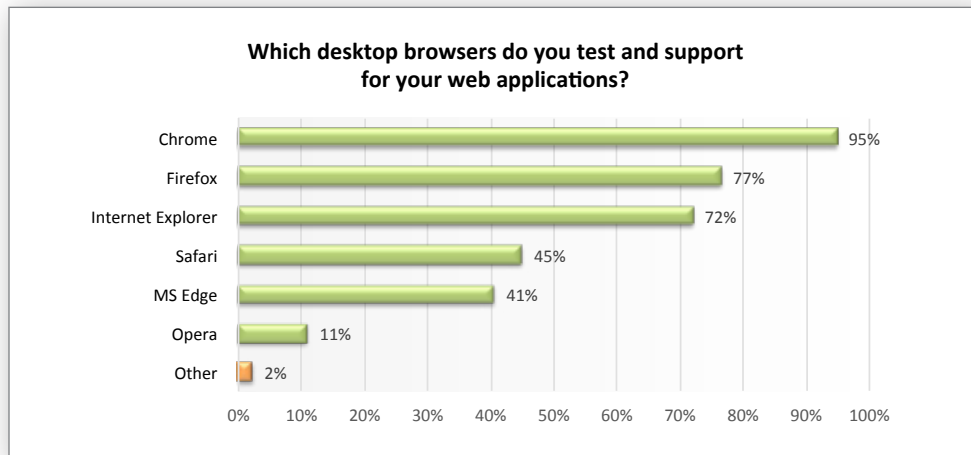
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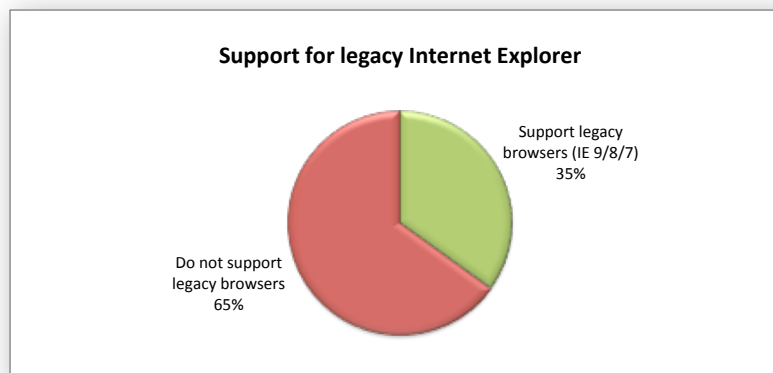
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Multiple browsers still supported, although legacy IE fading away

As far as desktop browsers used to test and support web applications, Chrome led the pack with 95%, followed by Firefox (77%), Internet Explorer (72%), Safari (45%), Microsoft Edge (41%), and Opera (11%). The remaining 2% indicated other browsers including Vivaldi, Seamonkey, Android browser, Maxthon, Blisk, Brave, and Electron.



Few development teams (only 35%) still support the “legacy” Internet Explorer browsers (including IE9, IE8 and IE7 or earlier). The remaining respondents (65%) reported that they do not support these legacy browsers.

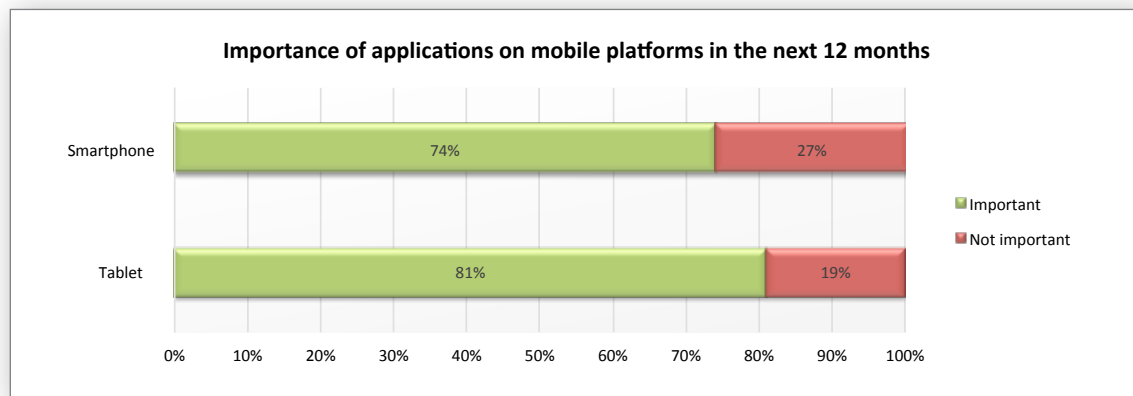




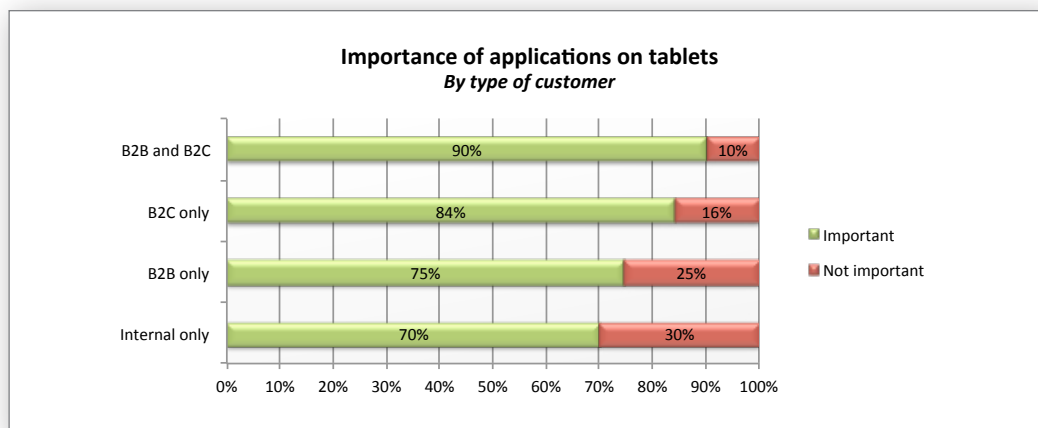
Detailed Findings: Mobile much more than just smartphones

More businesses say tablets are important than smartphones

With today's increase in applications developed for mobile technologies such as tablets and smartphones, it's interesting to find that businesses report tablets are more important as an application platform than smartphones. When asked to rank the importance to their business of having applications run on these types of mobile platforms over the next 2 years, tablets (81%) outranked smartphones (74%) as being important to businesses.



Interestingly, despite the perception that consumers might care more about mobile support, the data shows that there is not an enormous difference between companies who sell to businesses and those who sell to consumers. When asked about tablets as an application platform, businesses across the board characterized tablets as important. Among participants working at companies that supported both businesses and consumers (B2B and B2C), 90% said their tablet applications were important. At B2C companies, 84% characterized tablets as an important platform, only slightly higher than the 75% of respondents who worked at B2B companies. Most interestingly, even at businesses that only develop applications for internal use, most (70%) say tablet is an important application platform.



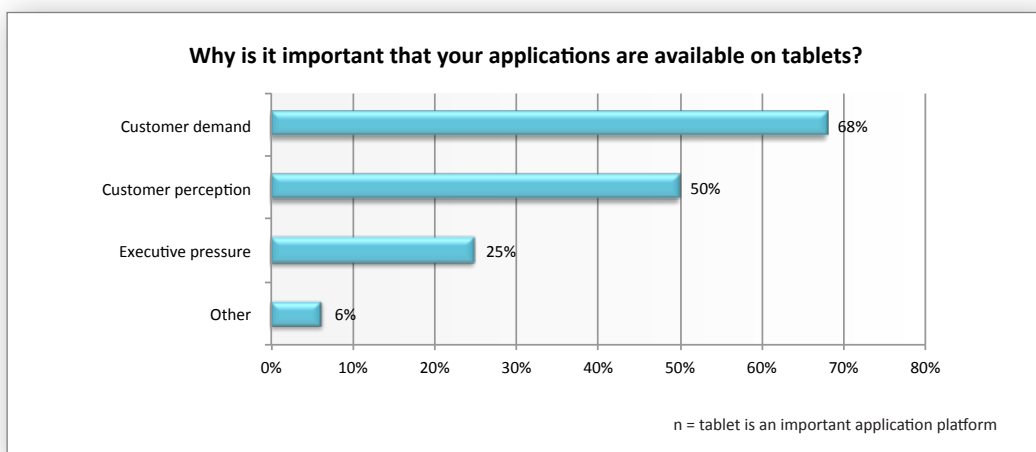
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When asked why it is important that applications be available on tablets, the research countered what one might expect. While some may assume mobile applications are built due to executive pressure, only a quarter (25%) cited executive pressure. Half attributed the importance of building applications for tablets to customer perception (50%) and over two-thirds of respondents (68%) to customer demand. “Other” responses (6%) included ease of use, portability, cost, and utility.

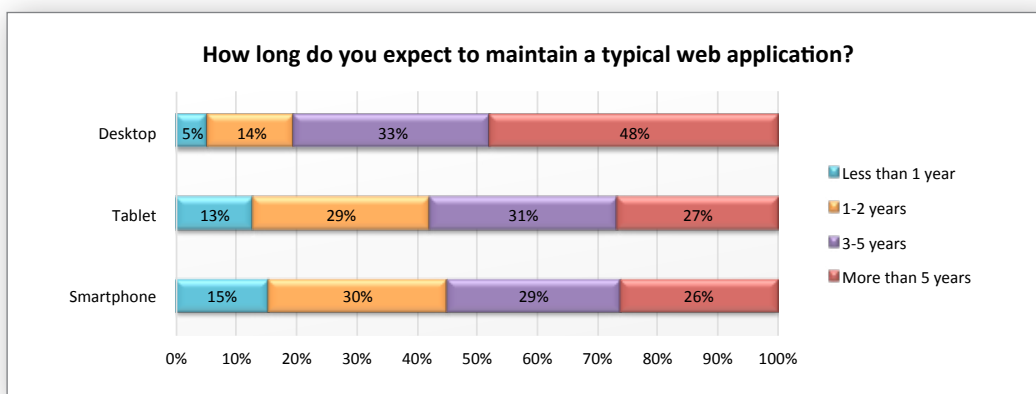


Detailed Findings: All types of applications have a long life

Most applications live for years – even mobile apps

When it comes to maintaining a typical web application, businesses expect all types – desktop, tablet and smartphone – to be around for years, maximizing their investment in the application with a framework that makes it easy to maintain over time.

As discussed earlier in this report, desktop is not dead, and it appears that there will be no demise in the foreseeable future as more than 81% of desktop applications are expected to be around for 3 years or more, including almost half (48%) that will be maintained for more than five years. Mobile applications don’t have quite the same lifespan, but even then more than half of mobile applications (58% on tablets and 55% on smartphones) are expected to live 3 years or more.



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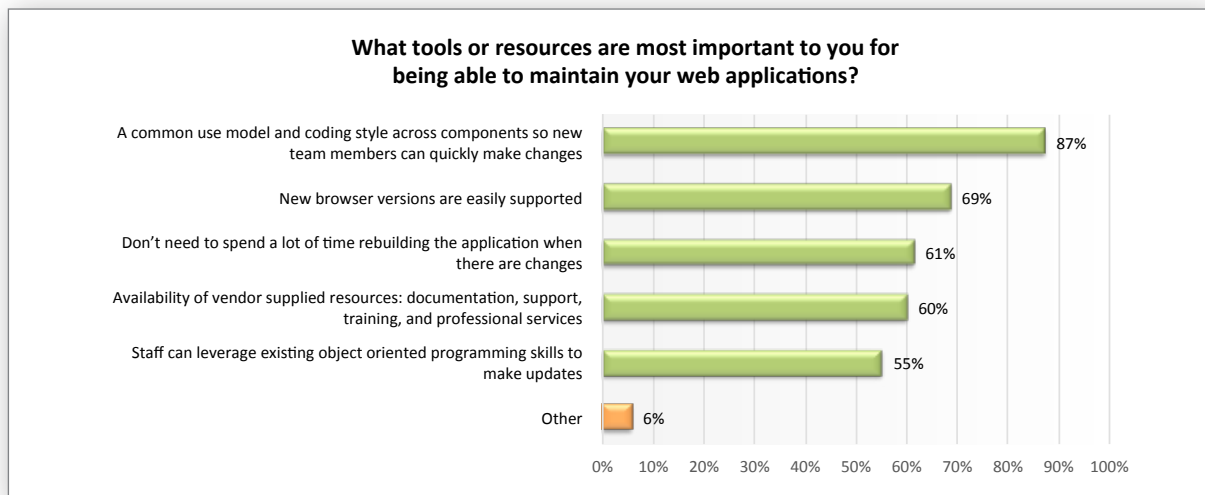


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Interestingly, important mobile applications have a longer shelf life. Among those who say mobile is critically important, 70% say tablet applications are maintained for 3 years or more and 66% maintain smartphone applications for 3 years or more.

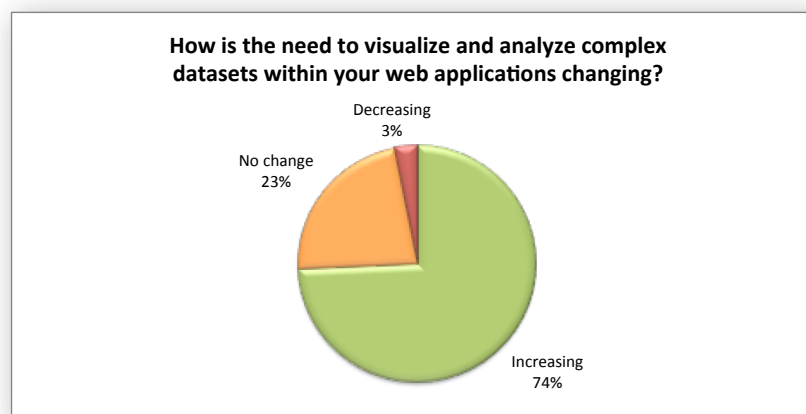
Developing for long-term maintainability matters

When asked what tools or resources are most important for maintaining web applications, a majority of participants (87%) indicated the need for a common use model and coding style, so that new team members can quickly make changes. The ability to easily support new browsers (69%) was the second most cited. 61% said it is important that they don't need to spend a lot of time rebuilding the application when changes are needed, 60% cited vendor supplied resources such as documentation, support, training, and professional services as being most important, and 55% indicated development staff should be able to leverage existing object-oriented programming skills to make updates. Frequent "Other" responses included ease of updating and good documentation.



Detailed Findings: Data requirements driving application development

As companies build and maintain web applications in today's data-focused and increasingly data-centric world, the need to visualize data is increasing. A full 74% reported that the need to visualize and analyze complex datasets within web applications is increasing.



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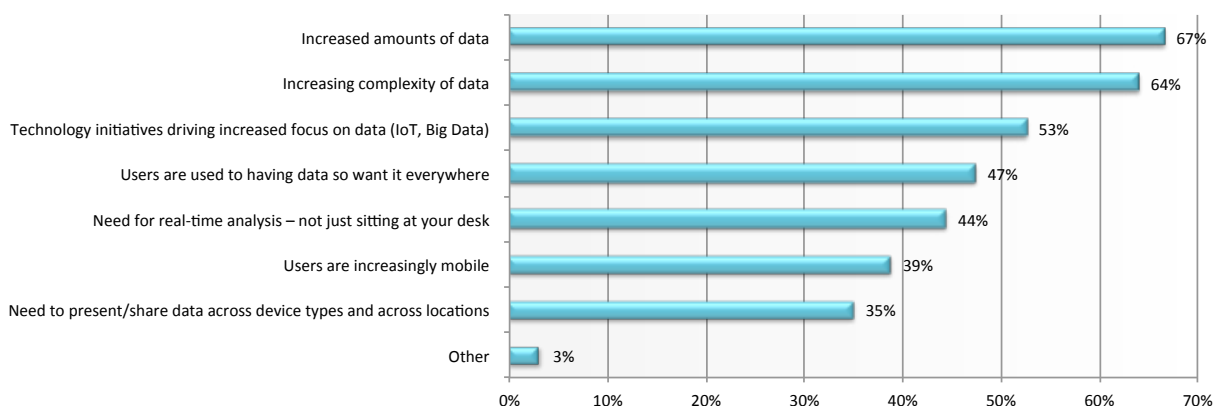
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This increase in the need for visualization can be attributed to the volume and complexity of data. When asked what is driving demand for increased visualization and analytics capabilities, increased amounts of data (67%) topped the list, followed by increasing complexity of data (64%), and technology initiatives (53%) such as IoT and Big Data that are driving an increased focus on data. Additional reasons cited included users expecting access to data everywhere (47%), a need for real-time analysis (44%), more mobile users (39%), and the need to share data across device types and locations (35%). “Other” included increased focus on data and support for strategic and operational decision-making.

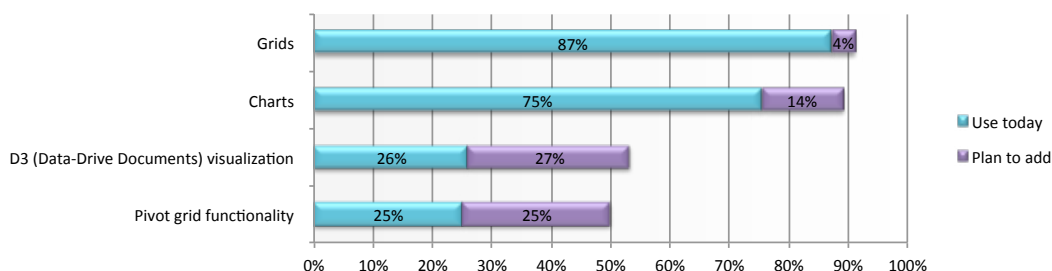
What is driving the demand for the increased visualization and analytics capabilities?



Everybody needs data visualization or analysis

All (100%!) either use data visualization and analysis components today (96%) or have plans to add them (4%). From basic to more advanced data visualization options, more of the respondents surveyed reported using basic visualization and analysis techniques, such as grids (87%) and charts (75%), than more advanced techniques (D3 (Data-Driven Documents) at 26% and pivot grid functionality at 25%). However, when asked which data capabilities they plan to add, the number using the more advanced techniques for data visualization or analysis is expected to more than double, with 26% saying they have plans to add D3 and 25% planning to add pivot grid capabilities. Even the more basic techniques will increase in use with 14% of those who don’t use chart capabilities planning to add those and 4% planning to add grids moving forward.

Use of data capabilities in web applications





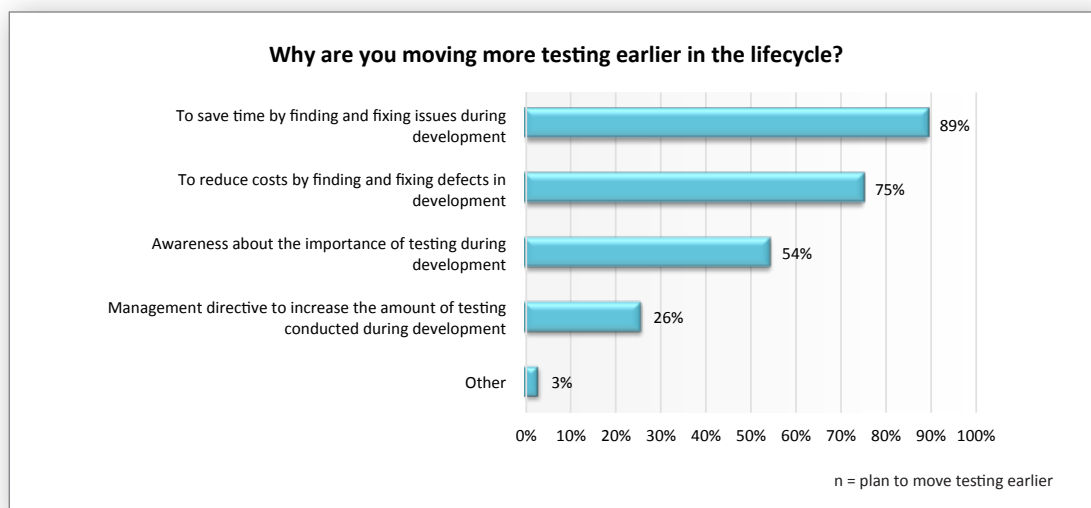
Detailed Findings: Testing happens early, but needs to be earlier

“Test early, test often” has been a mantra of software teams for decades. So how are today’s QA and development teams doing? This research clearly demonstrates that while frontline developers are doing testing, there is still room to do better. The vast majority of development teams, 91%, say that frontline developers do web application testing at least some of the time. However, only about half (52%) always do testing, and 9% never do testing, so there is clearly room to do better. Almost 3 in 4 development teams (72%) indicate that they have plans to drive testing even earlier in the lifecycle.



Earlier testing expected to save time and reduce costs

There are several reasons why today’s software teams would like to see testing happen at an even earlier stage in the web application lifecycle. The vast majority (89%) want to save time by finding and fixing issues during the development process. Related to this, 75% said they can reduce costs by finding and fixing defects in development. Since testing has become an essential step in the application lifecycle, 54% report that there is increased awareness about the importance of testing during development. Gone are the days of developers throwing apps over the wall for testing. Finally, management is driving the incentive to test earlier as 26% of respondents indicated that a management directive to increase the amount of testing conducted during development is responsible for the increase. “Other” responses included processes such as DevOps and continuous delivery, and increased quality.



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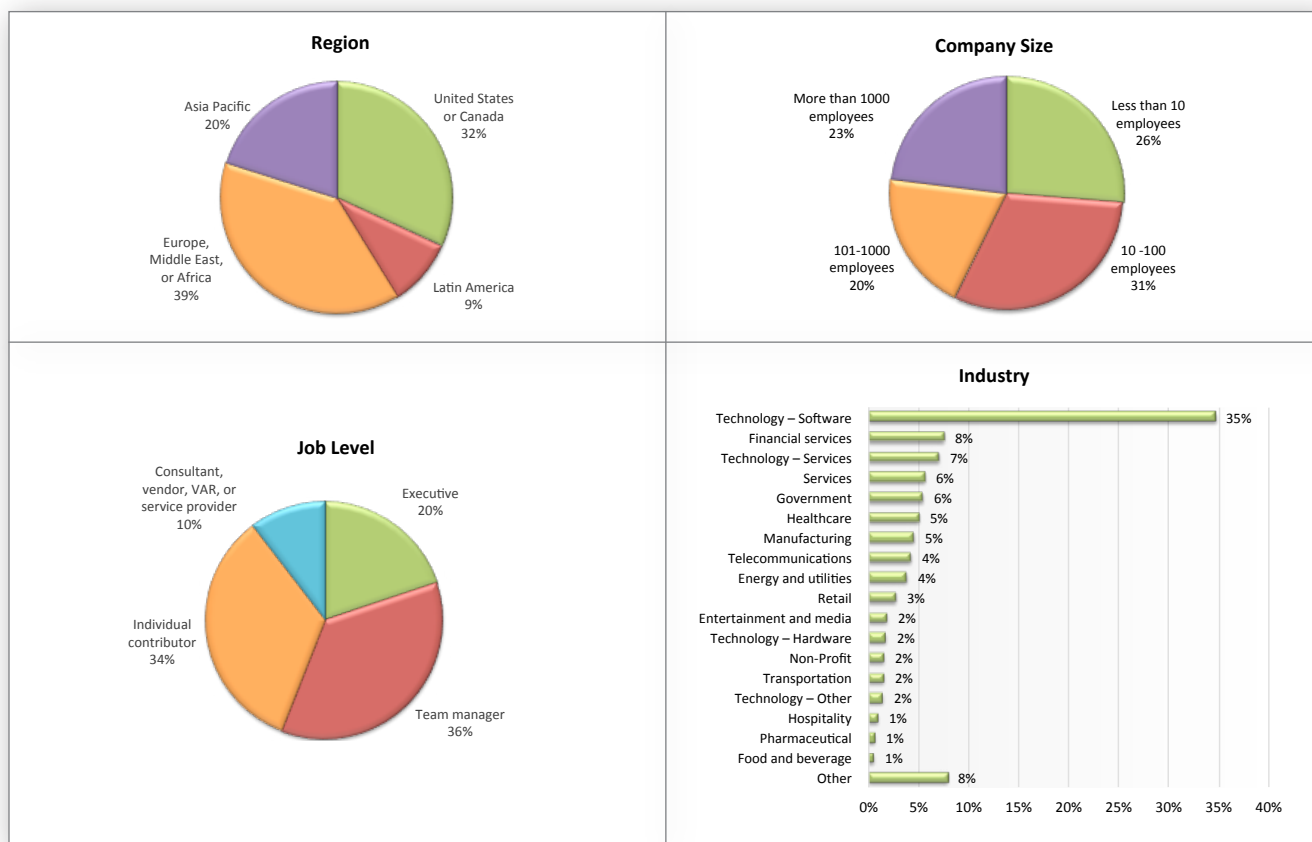
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Survey Methodology and Participant Demographics

A global database of development professionals was invited to participate in an online survey on the topic of web technologies. A total of 1,131 individuals participated in the survey. All had responsibility for application development. Participants represented a wide range of roles, geographies, job level, and development experience. A copy of this report was offered as an incentive for participation.



About Dimensional Research

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