



The State of Enterprise Mobile App Development

We surveyed over 1,700 professional developers, architects, and IT leaders to find out what's happening in enterprise app development today. This report, based on our findings, shows the current state of how, where, and how often apps are being delivered — and who's doing the work.

MOBILE IS HERE TO STAY

We're well past the point where phrases like, "Businesses need mobile apps to compete in today's marketplace," are considered novel advice.

By now, you know that mobile apps are a critical component of attracting and engaging customers, as well as empowering your employees and partners.

Beyond these tried-and-true use cases, the mobile experiences you create are also an important piece of the puzzle for those traditional, brick-and-mortar businesses that have to compete against those that are digital native. Which is to say, virtually every brick-and-mortar business in existence.

This isn't just theory, either. There are thousands of traditional organizations activating mobile technology to compete in our increasingly digital world. For just one example, look at Target vs. Amazon. As Amazon became a power in the online retail space, Target didn't just put its head in the sand. Instead, the company embraced a digital transformation that included acquiring Shipt — a same-day delivery service. Shipt, and its mobile apps, have helped Target compete with Amazon for on-demand products.

The Developer Shortage

The case for mobile apps is made, but there is something holding back those companies that want to get them up and running: A shortage of developer talent.

A threat to business execs

A recent [survey by Stripe](#) puts this shortage in the spotlight, with respondents listing the access to developer talent as a greater threat to business executives than even access to capital. Yes, you read that right: It's easier to raise money than it is to hire skilled developers.

Where does this confluence of demand for mobile apps, but lack of supply of developers with the right skill set leave us? Gartner estimates that in 2020 the demand for mobile apps will be **five times greater** than the market's ability to develop them.

This leaves us with the question that's most important for your business:

With mobile more important than ever, how can enterprise teams stay on the cutting edge, and embrace efficiency and speed in order to meet demand?

It's with this overarching question in mind that we conducted our Annual Developer Survey. This research included responses from over 1,700 enterprise developers and stakeholders involved in mobile app development at their workplace — everyone from developers and architects to product managers and C-level executives. We narrowed the data set to focus on larger businesses, and analyzed the results for this report.

The results reveal many insights that can help keep your mobile application projects on track, like:

- How teams are tackling Progressive Web Apps and other new use cases
- How CI/CD tools are helping teams deliver software more frequently
- Who's doing the development work
- Which platforms, tools, and services are being used
- How decisions are being made
- How frequently and quickly new apps are being released
- And much more

Throughout the paper, we'll include actionable insights that you can use to help your business overcome this developer shortage and deliver mobile apps that truly set you apart. Let's get started.

The basics: How many, how fast, how frequently?

To set the stage a bit, let's look at the volume of apps organizations are delivering — and trying to deliver.

Supply & demand

Enterprise teams face a growing app backlog

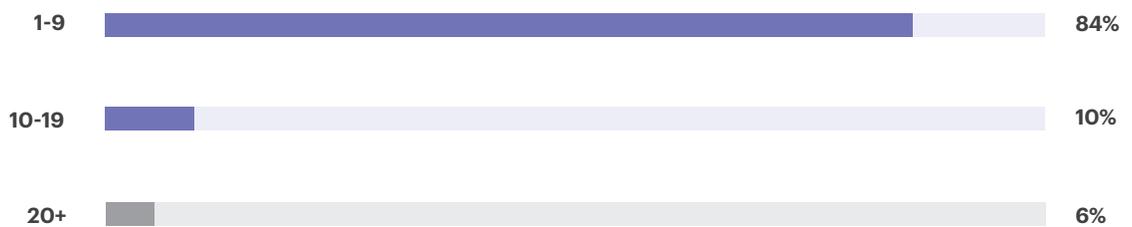
About 68% of respondents, across company sizes, delivered a relatively modest 1-3 apps in the past year, with most of the rest delivering between 3 and 10.

Q How many new apps did you or your team develop in the past year?



Of course, the number of apps actually developed doesn't tell the whole story. We also have to look at projects in the development backlog. Across company sizes, 84% reported this backlog was between 1 and 9 applications. However, we can see that 16% — a significant percentage — have a backlog of 10 or more apps.

Q How app development projects are currently in the backlog and awaiting development?

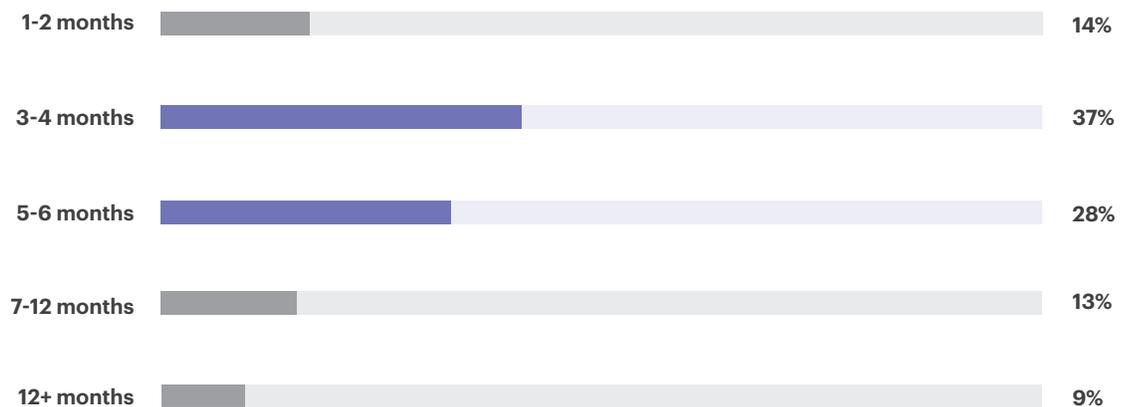


Development Speed

The average enterprise app takes 3-6 months to build

The development time for these apps was mostly measured in months. Over 60% of respondents say it takes them anywhere from three to six months to develop an app from start to finish. About 14% are more efficient (1-3 months), while the rest have an app dev process that takes longer than six months.

Q How long, on average, does it take your organization to deliver a new mobile or web application?



Release Cadence

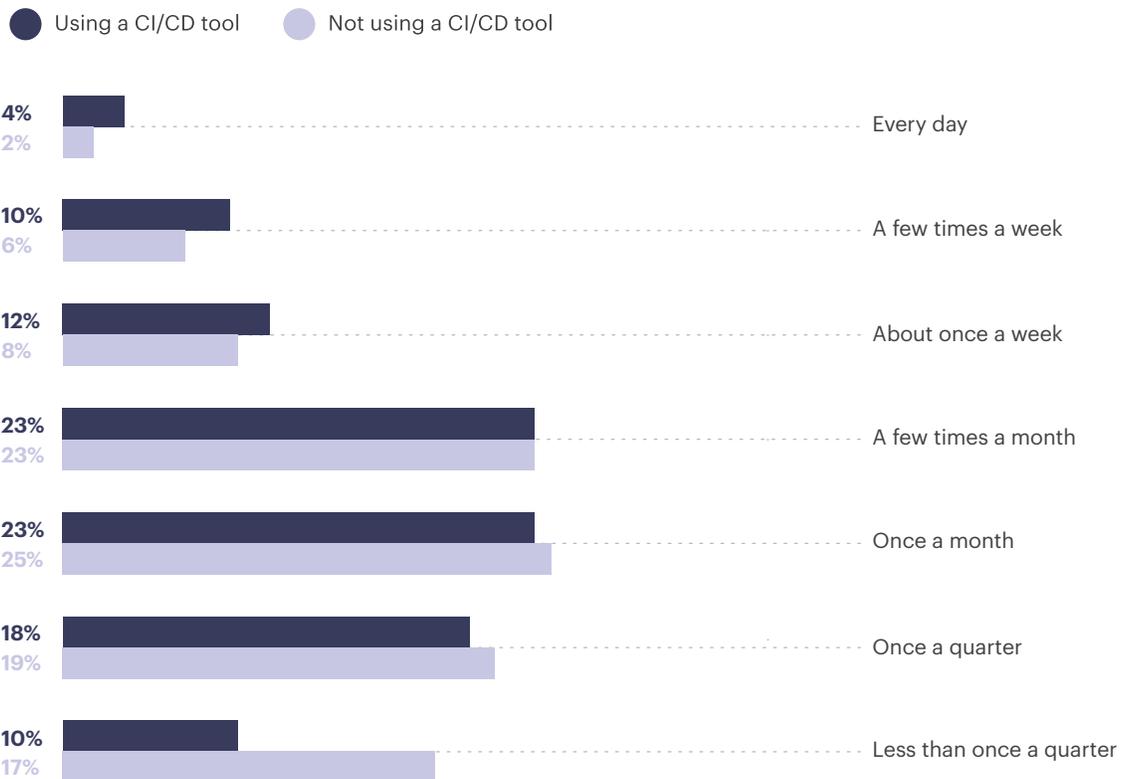
DevOps and CI/CD tools as a way to speed releases

The other thing that will help us get to the heart of the app developer shortage — and how we can combat it — is the frequency that organizations release app updates. About two-thirds of companies release updates at least once a month, with almost a quarter releasing once a week or more.

One trend that was clear from the data was the impact of DevOps and CI/CD (continuous integration and continuous deployment) tools when it comes to accelerating the pace and frequency of software delivery. These strategies, and the tools that help teams enact them, streamline software development, testing, and deployment.

We asked a few questions about CI/CD tools in our survey, and the data was striking.

Q About how frequently do you release new versions and update to the apps that you currently maintain?



Over three-quarters of the respondents are using a CI/CD tool of some kind, and the data shows that these teams do tend to release more apps, more quickly than teams that don't.

Looking at the data another way makes it even more clear: Of the **companies releasing apps at least once per week, 90% are using a CI/CD tool** of some kind.

So, what does this information tell us?

Companies are looking to release apps pretty quickly and regularly, and have a bit of a backlog in the queue. What we don't know is: How many apps and updates companies would like to release if they had the resources and capacity. Our educated guess is that it's... more.

Now that we have our baseline data, let's first look closer at who's doing the developing, on what platforms, and for whom.

Who's building apps?

To get to the crux of the shortage, we need to know just who's doing the development of mobile applications.

Our research found, in large part, this work is being performed by web developers (74%), even more so than dedicated mobile developers (17%). Interestingly, this data is consistent with a recent Stack Overflow survey, which showed that about 68% of developers are building with web technologies (HTML, CSS, and JavaScript).

Q Which of the following describes you best as a software developer?

- Web developer (front-end, back-end, or full stack)
- Mobile developer
- Desktop applications developer
- Other



What’s more, these web developers are increasingly full-stack developers (73%), rather than front-end (23%) or back-end (4%) focused.

Q Which of the following best describes you as a Web developer?

- Full stack web developer
- Front-end web developer
- Back-end web developer



On top of that, we discovered those who identified as web developers to tell us how much influence they have over backend tech decisions. The results were astonishing. The vast majority (90%) said that they have some influence over backend decisions. And a significant portion (39%) said they have “a great deal of influence” or the final say.

Q How much influence do you have when it comes to determining which backend services and providers to use?

- I have the final say
- A great deal
- A lot
- A moderate amount
- A little
- None at all



Our take?

This surge in web developers and their increasing dominance in the app development space is actually a response to the developer shortage. With only 7% of developers able to build mobile apps using the native toolsets (according to the same [Stack Overflow](#)), it appears that web developers are rising to the occasion by using hybrid web technology like Ionic, which lets them target all these platforms without having to learn new skills.

→ Most Popular Tools & Services:

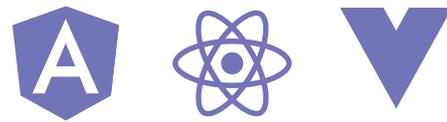
PWA hosting



PWA development



Frameworks



[Check out the complete Annual Developer Survey results to see the most popular 3rd-party services, providers, tools, and frameworks.](#)

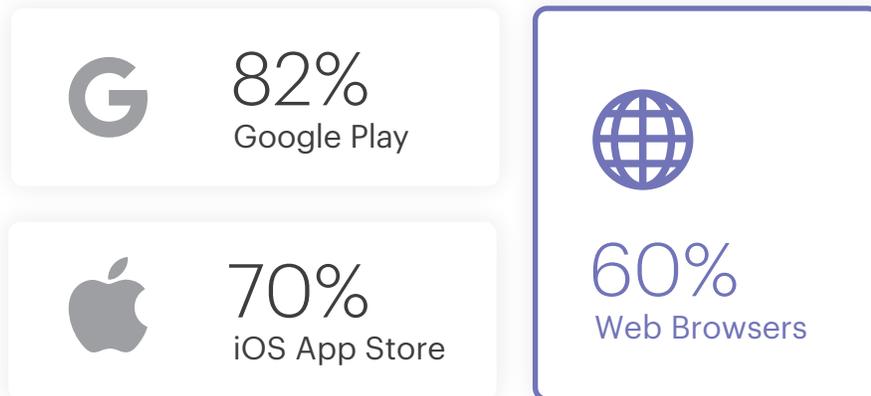
At the same time, more and more cloud backend services are bringing that same enablement strategy to web developers, giving them more power and control over the backend of the app. Check out our full survey results for the top cloud and backend services used by developers last year.

Put it all together together, and web developers are now at the center of the mobile app ecosystem, driving frontend and backend decisions, empowered and enabled by a new generation of technologies like Ionic and React Native on the frontend, and Firebase and AWS Amplify on the backend.

Of course, developers aren't the only people involved in the process. Everyone from engineering managers to C-level executives have a stake in mobile app development.

What platforms are they targeting?

The research shows, conclusively, that the days of focusing on one or two platforms to target your apps are rapidly going away.



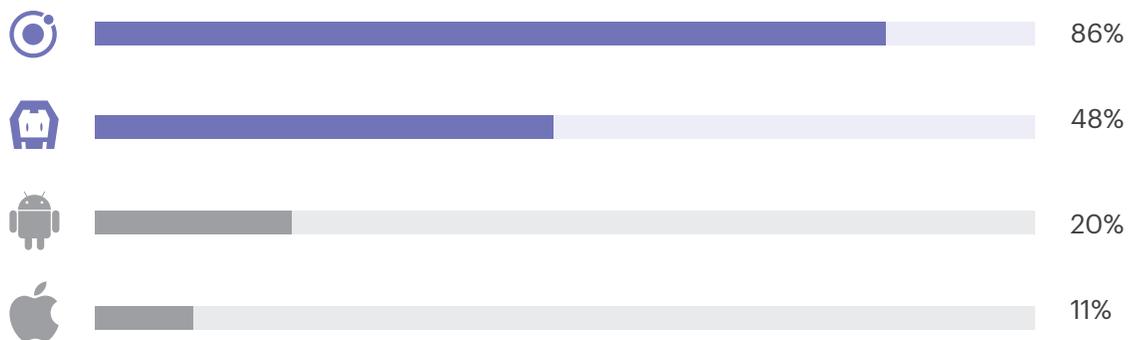
You might not be surprised to hear that Google Play (76%) and the iOS App Store (66%) remain the top targets. However, web browsers have also become a popular option, with 64% of respondents indicating they've developed an app for browsers in the past year (including PWAs).

Despite the number of smart watches that seem to be popping up on wrists everywhere, just 3% of companies developed an app targeted at wearables. Smart devices and conversational/AI apps are also still in the ramp-up stage (7% and 6%, respectively).

Cross-platform vs. Native

One thing that the data above absolutely shows is that companies want to reach customers and employees across many platforms -- wherever it's easiest for the consumer. That helps explain one development trend that jumps out of the data over the past two years: **cross-platform is key.**

Cross-platform mobile development tools and SDKs like Ionic (85%) and Cordova (49%) are used more frequently in mobile app development than options like Native Android (20%) and Native iOS (13%).



Is this just a case of selection bias? After all, this research was conducted by Ionic, with respondents that largely are familiar with or have used Ionic solutions. Possibly, but here's some additional third-party data from Appfigures, a third-party research company that tracks mobile SDKs in the app stores. According to [their research](#), native SDKs account for only 41% of iOS apps, and only 30% of Android apps.

There is no doubt that companies are recognizing the benefits of cross-platform app development — especially as the potential platforms keep growing.

PWAs

One way companies are making their app development processes more efficient so they can develop more, better apps, quicker, and with fewer resources are PWAs. Almost 35% of respondents indicated that they had developed a PWA in the past year, with another 24% saying they hadn't, but planned to in the next year.

→ What are PWAs?

Progressive web apps (PWAs) use modern web capabilities to deliver fast, native-app experiences -- all with no app stores or downloads. They provide a way to deliver highly optimized and reliable mobile app experiences that are completely accessible via the web.

[Learn more here](#)

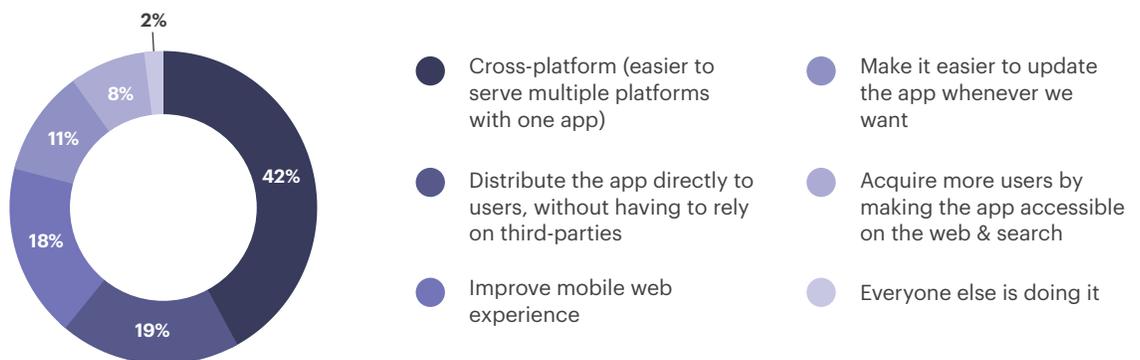
It's not so much that web apps are replacing traditional apps, yet. 36% of respondents said they intended to make the app available as a native binary, as well, with another almost 33% saying they were considering it. Interestingly, this leaves about a quarter of respondents bypassing the app stores and releasing apps solely as PWAs.

So, clearly, web apps have entered the mainstream. And the reasons are equally clear — they center around efficiency and improving the user experience.

On the efficiency front, cross platform efficiency — being able to serve all the platforms you want with a single app — tops the list, with over 40% of respondents indicating it's their primary reason for choosing PWAs. Being able to distribute the app directly to users, and bypassing app stores, garnered 19%, while another efficiency measure, ease of updating the app, also topped 10%.

When it comes to user experience, improving the mobile web experience scored almost 20%. Acquiring more users by making the app easier to get was another driver, with close to one in ten respondents.

Q What is the primary motivation for building a PWA?



This offers an actionable takeaway for teams who are considering PWAs:

If you're trying to develop more with less, PWAs are a great option. Not only can they make your development process more efficient, but they make your apps more accessible. With PWAs, users don't need to download your app from the app store, they can discover and engage with them directly from their browser or search engine. This is particularly valuable for retailers, who can engage potential customers as they're searching for items, without the added friction of forcing them to first "download the app".

Conclusion

As mobile apps continue to grow in importance and the demand for mobile app developers grows along with it, companies are searching for ways to efficiently deliver high-quality apps for their users and employees. Our survey data shows, however, that there are ways to deploy apps when you want, to the platform you want. It just requires a little creativity.

Some of the most effective steps innovative companies are taking include:

- 1 Having web developers step in to meet this shortage, not just developing mobile apps -- but influencing decisions across the full stack
- 2 Using tools like Ionic to develop PWAs that deliver fast, native-app experiences with no app stores or downloads -- anywhere you have a web browser
- 3 Adopting DevOps and CI/CD practices and tools to keep their release cadence and app quality high

Based on the data we've presented throughout this paper, and the points here, we're interested to know: How does this compare with how you're thinking about mobile apps these days? Does the data from our survey hit home? Is there anything about your mobile app strategy you'll consider changing in the future?

If you're looking for some additional perspective or some advice on how to optimize your strategy, schedule a [strategy session](#) with one of our architects. They can give you input and perspective on the best ways to reach your development goals.

Methodology

The Annual Developer Survey was fielded between November 25, 2019 to January 27, 2020. It included responses from more than 5,000 developers, architects, and IT leaders. For the purposes of this report, we narrowed down the data set to include only responses from professionals working in organizations with 50 or more employees — a total of 1,767 participants.

Demographics

For this narrowed data set, the breakdown of businesses by company size, industry, and location were as follows:

Q About how many employees work at your company?



Q In which region do you currently reside?



Q Which of the following best describes the principal industry of your organization?

