

CAN TODAY'S GAME DEVELOPERS REVEAL FUTURE PLATFORM WINNERS?

From the State of the Developer Nation Q3 2017 report

<http://vmob.me/DE3Q17>



PUBLISHED: SEPTEMBER 2017

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About SlashData™

SlashData™ is the leading analyst company in the developer economy, tracking global software developer trends via the largest, most comprehensive developer research program worldwide. Developer Economics is SlashData's flagship research program reaching more than 30,000 software developers annually in over 150 countries.

Our surveys track the changing landscape of mobile, IoT, desktop, cloud, web, AR, VR, games, machine learning developers and data scientists. We explore trends across all types of developers from students, to hobbyists, to enterprise, as well as developer experiences across platforms, revenues, apps, dev tools, APIs, segments and regions.

Our mantra: We help the world understand developers – and developers understand the world.

SlashData Ltd.
19-21 Hatton Gardens
London, London EC1N 8BA
+44 845 003 8742

<https://www.developereconomics.com/blog>

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ABOUT THE AUTHORS

**Stijn
Schuermans**
Senior Business
Analyst



Stijn has been the lead Internet of Things researcher in the SlashData team since 2012. He has authored over 20 reports and research notes on mobile and the Internet of Things. He focuses on understanding how technology becomes value-creating innovation, how business models affect market dynamics, and the consequences of this for corporate strategy.

Stijn has a Master's degree in engineering and an MBA. He has over 10 years' experience as an engineer, product manager, strategist and business analyst.

You can reach Stijn at:
stijn@slashdata.co
[@stijnschuermans](https://twitter.com/stijnschuermans)

Mark Wilcox
Senior Business
Analyst



Mark has over 13 years of experience in mobile software across a variety of roles. He received his first computer at 4 years of age and wrote his first program at 7. He will probably always be a developer at heart. A growing interest in economics and business models has led him to work with SlashData as a Business Analyst, whilst still keeping his development skills up to date on development projects.

You can reach Mark at:
mark@slashdata.co
[@_MarkW_](https://twitter.com/_MarkW_)

**Lawrence
Hecht**
Analyst



Lawrence Hecht has 15 years' experience producing analysis and reports about enterprise IT B2B markets. He works with writers to identify data to develop actionable insights based on primary and secondary research. He also engages with clients to create content for thought leadership peer evangelism targeted to developers. He previously managed "voice of the customer" surveys for the 451 Research and TheInfoPro. Lawrence earned a Master of Public Policy from Georgetown University and Bachelor of Arts from Rutgers University.

You can reach Lawrence at:
lawrence@slashdata.co
[@LawrenceHecht](https://twitter.com/LawrenceHecht)

**Christina
Voskoglou**
Director of
Research and
Operations



Christina is responsible for all SlashData's research products and heads the analyst and operations teams. With more than 18 years of experience in data mining, BI and CRM design, she leads research planning and methodology, survey design, data analysis, insights generation and research commercialization. Christina is also behind SlashData's outcome-based developer segmentation model and is the leading SlashData researcher in Machine Learning and Data Science.

You can reach Christina at:
christina@slashdata.co
[@ChristinaVoskog](https://twitter.com/ChristinaVoskog)

About this report

SlashData Developer Economics is the leading research programme on mobile, desktop, IoT, cloud, web, game, augmented and virtual reality, and machine learning developers as well as data scientists, tracking the developer experience across platforms, revenues, apps, languages, tools, APIs, segments and regions.

The 13th Developer Economics global survey wave ran from April to June 2017 and reached more than 21,200 developers in 157 countries. This research report delves into key developer trends for 2017.

This is the second chapter from the research report which delves into key developer trends for 2017. The full research report, available to [download here](#), focuses on five major themes – each with its own visualisation, showing how the data lends insight into the developer community.

1. Developers have become key stakeholders in recent years when it comes to making technology decisions in companies. Our data show just how far their influence reaches.
2. [Game developers are often the first to exploit new technologies; their choices influence which hardware platforms become king of the hill in the future. We take a closer look at where they are placing their bets today.](#)
3. We all know that developers can get quite tribal about the languages and technologies they use. Flame wars galore on the internet. But how much is that reflected in their actual platform choices?
4. Internet of Things technology can add a lot of complexity to what used to be much simpler objects. What makes it so challenging? We look at which parts

of IoT are most likely to cause trouble: the hardware, the software, or the data?

5. The world of backend and cloud technology continues to be a fast-moving, ever-changing space. We investigate how the focus of developers shifts between technologies and levels of abstraction.

We hope you'll enjoy this report and find the insights useful! If you have any questions or comments, or are looking for additional data, you can get in touch with Sofia Aliferi, Marketing Manager for SlashData at sofia@slashdata.co. You can download this free report at www.DeveloperEconomics.com/go.

Mark, Stijn, Lawrence, Christina, Christos, Matos, Alex, Eitan, Andreas, Emilia, Kosmas, David, Vanessa, Sarah, Andrea, Sofia, Eva, Mostafa, Moschoula, Sam, and Chris at SlashData.

Thank you

We'd like to thank everyone who helped us reach 21,200+ respondents for our survey, and create this report. Our Research Partners – Intel and Microsoft, our Media Partners, who are too many to name here. Also, a special thanks to Meetups which participated in our survey including: IoT Meetup Korea, Meet.mobile Wroclaw, Autobot13 Algeria, Artificial Intelligence Hong Kong, API Athens, Amsterdam PHP, Beijing Python, Bucharest JS, Budapest Python, Cocoa Shanghai, DevOps Melbourne, Harbour Front Hong Kong, Hong Kong JS, JS Lovers Meetup, Latvian Developer Network, Munich Frontend, The Web Meetup Australia, and Greece JS.

2 CAN TODAY'S GAME DEVELOPERS REVEAL FUTURE PLATFORM WINNERS?

Video games are sometimes dismissed as frivolous. Serious software runs companies and changes the world. Games are a serious commercial opportunity themselves, earning somewhere near \$100 billion in revenue in 2017. However, perhaps more importantly, game developers are often the first to exploit new technologies. The hardware and software platforms that they decide to support can impact the fortunes of current and future industry giants. By creating compelling new entertainment experiences, game developers entice early adopters to purchase new forms of hardware. This starts the positive feedback cycle of more users bringing more developers, who in turn bring more users. These network effects build an ecosystem around a platform which creates a moat that cannot be crossed with technical capability or cash on the part of rival platforms.

Third-party games were an important part of the value proposition that allowed Apple and Google to rapidly overhaul Nokia and Symbian, and then keep Microsoft (and Intel) largely locked out of the smartphone market. It's likely that hardware platforms which don't support high-quality gaming will not get traction with consumers in the future. This is particularly important for Virtual and Augmented Reality platforms going forwards, although there's another set of platform players here: game engines. The majority of all Augmented and Virtual Reality apps (not just games) are built on 3D game engines. The hardware platforms need the support of these engines, yet that's unlikely without sufficient interest from game developers.

A massive 48% of all the developers we surveyed are building games, and it's a safe bet that a significantly larger percentage

will also choose platforms to use personally that have great games to play. However, the majority of those game-building developers are not very serious about exploiting their creations commercially. Although most of them do publish their creations, just 17% consider themselves professional game developers. Professional developers tend to target more platforms, and types of platform, than their amateur counterparts, but sometimes they also tend to choose different platforms. While smartphones are the most popular platform for all developers (targeted by 64% of all developers and 74% of professionals), professionals target tablets next, while amateurs prefer native desktop games. Given the installed base of smartphones compared to tablets, particularly for Android, it might be surprising quite how popular tablets are. The key is that they run the same software platforms. The most financially

successful mobile games are free-to-play, earning the bulk of their revenue via a tiny percentage of big-spending ‘whales’ – a group of players who disproportionately own and use tablets for gaming, even if the majority of all players are on smartphones. Also notable when looking at the smartphone and tablet platform leaderboards is that iOS is significantly more popular with mobile game developers, particularly professionals (77% for smartphones, 80% for tablets), than the wider mobile developer population (iOS is used by just over half of all mobile developers). This reflects the more affluent iOS customer base with their higher spending on games. We also see support for Windows 8/10 (35% for smartphones and 41% for tablets) well above the level any market share Microsoft has in mobile would justify. This can be attributed to the extensive use of cross-platform game engines, and Windows dominance of the native desktop gaming market.

A massive 48% of all the developers we surveyed are building games

The desktop games market itself shows some very strong differences between the preferences of professionals and other game developers. Native desktop and web are the only platform types that professionals aren’t more likely to target than average. These are still important platforms for professionals, the third and fourth most likely to be targeted respectively. The native desktop market is dominated by Windows classic, which has more than twice the level of developers targeting it as Windows modern (UWP). This is an important distinction because the latter are the only games that can be distributed via Microsoft’s Windows Store. Despite the great success of the app store model for game developers on mobile, this market was already largely owned by Steam on the desktop when the Windows Store launched. Games are by far the largest drivers of revenue on the mobile app stores. The lack of revenue and regular visitors looking for new games on Windows Store is a

key component of Microsoft’s struggles, getting their developers (of games and other apps) to care about UWP and adopt the Windows Store for distribution. Professional game developers are more likely to target macOS (47%) than Windows modern (40%), while macOS is a relatively unpopular target for hobby game developers. Aside from the revenue available from affluent Mac owners, this is also related to mobile platforms leading the games market. Professional developers targeting iOS usually need a Mac to build for the platform. If they target both iOS and desktop Windows, then it’s relatively little additional work to target macOS too.

Perhaps the biggest surprise in the data is the relative popularity of Virtual Reality (VR) and console development amongst game developers. Console development on the most popular consoles has always been somewhat restricted, whether it be limited access to development tools, or just limited visibility for independent games with smaller budgets than the triple-A titles that earn the lion’s share of console revenues. However, it’s still somewhat surprising that only 23% of professional game developers are targeting consoles given the large addressable market. Professional developers slightly favour the PlayStation 4 over the Xbox One, but the difference is tiny compared to the roughly 2-to-1 lead in sales that Sony has. It appears that the user bases of both consoles are large enough, and development for the two consoles remains largely cross-platform.

At the same time, although we’ve seen in previous research that games are extremely popular amongst VR developers, that activity has mostly been hobby development. As such it’s quite surprising to see 25% of professional game developers targeting Virtual / Mixed Reality headsets. It’s likely that many of these are not yet releasing commercial VR titles, but the level of activity is well above anything the addressable market would currently justify commercially. It seems that VR has strong appeal for game developers and that makes it very likely that they’ll attract the early adopter game enthusiasts in sufficient numbers to kickstart the hardware adoption cycle. In this market Oculus is leading strongly (60% of all VR game

developers and 71% of professionals), but SteamVR is still in the race (52% of professional VR game developers). Oculus' lead here reflects their first mover advantage, but also the fact that they have both mobile and desktop solutions. Mobile VR is going to be important going forwards, with the next most popular platforms targeted by professionals being Google's Cardboard (50%) and Daydream (34%). Mobile VR is very likely to beat PC-based VR to standalone headsets with large scale commercial adoption. The adoption of Daydream is impressive given it was only announced in October, and standalone headsets were announced while our survey was running. Perhaps an important indicator here is that HTC's Vive running SteamVR was the best tethered VR experience available, but the first HTC Vive standalone headset is running Daydream. However, it's too early to count Intel and Microsoft out in the standalone VR race, and developers are hedging their bets - Windows 10 Mixed Reality has 28% adoption amongst professional VR game developers, while Intel's Project Alloy is only being targeted by 7% of them.

25% of professional game developers are targeting Virtual or Mixed Reality headsets

Perhaps the strongest aspect of Microsoft and Intel's (largely shared) position in VR, is that they see Augmented Reality (AR) and VR as part of a spectrum they call Mixed Reality. They are designing platforms that support everything from a fully virtual world, to an entirely visible real world with some digital augmentation. For game developers a virtual world is much simpler than integrating a game around the environment a player happens to be in. However, with the arrival of standalone VR headsets, player safety starts to require some awareness of constraints (like walls, furniture, and other people) in the outside world. Game developers appear to recognise the common challenges, with a fairly large percentage

of professionals (16%) targeting Augmented / Mixed Reality headsets. In the AR games market the mobile platforms lead, with Android currently the most popular platform, targeted by 72% of all AR game developers and 75% of professionals. Apple's iOS takes second place with professionals (49%), although their announcement of ARKit towards the end of our survey means we'd expect significantly greater adoption there in the near future. iOS 11 will provide a market-leading smartphone AR experience out-of-the-box. To get a similar quality of real-world tracking on Android has required special hardware like Google's Project Tango, which significantly cuts the addressable market and thus developer interest (only 19% of professionals target Tango). Google has responded with ARCore, but tracking quality and adoption remain to be seen. Just outside the top AR platforms is ReticuleOS from ODG (12% of all AR game developers and 19% of professionals), who have unveiled perhaps the most compact and stylish standalone consumer AR glasses so far. ReticuleOS is also built on Android, which makes it relatively easy for developers to adopt while still reaching the much larger customer base with standard smartphones. However, developers targeting platforms that users already have in their hands is not surprising, this is a new medium and games need players to give developers feedback. Much more impressive is the very significant interest in Microsoft's HoloLens, 48% of all AR game developers target the platform, including 44% of professionals, despite it only being available to developers. Also, Intel's Project Alloy is only targeted by 10% of all AR game developers, but 20% of professionals. The much-hyped Magic Leap, who are yet to launch a consumer product, has attracted less than half as many developer adopters as Microsoft (just 18% of professionals). Their secrecy and NDA-only developer program may backfire unless the platform is a long way ahead of competitors at launch.

Developers are still hedging their bets for the next generation of gaming platforms, and the longer the hardware takes to mature, the more power will accumulate in the hands of cross-platform

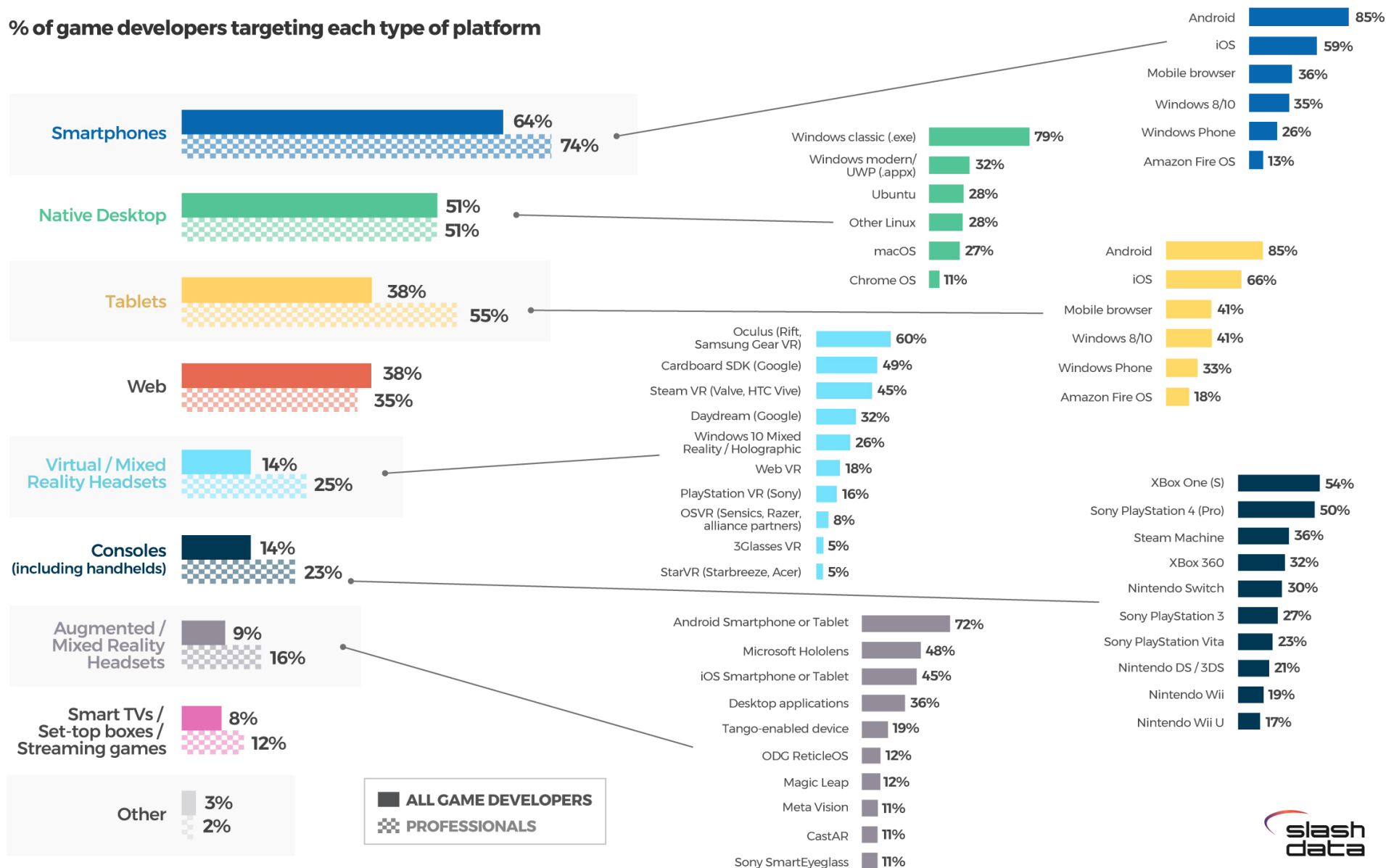
3D game engine vendors like Unity, and Epic Games with their Unreal Engine. Hardware platforms that come late to market will be doomed without support from these market gatekeepers. The game engines may end up with more influence over the industry than the hardware and OS vendors in AR and VR. Knowing which engines developers favour and why could become vital knowledge for platform owners.

However, even with cross-platform 3D engines, any differentiation of platforms at the interface layer still needs to be supported by developers individually, or we end up with a lowest common denominator across platforms. This is where we'll be following the strategies of the various platform vendors with interest over the next few years.

VIRTUAL REALITY IS ALREADY AS POPULAR AS CONSOLES FOR GAME DEVELOPMENT

% of game developers (n = 3,094)

% of game developers targeting each type of platform



PARTNERS

SlashData is very lucky to be supported by the entire developer community: from the largest internet and software companies to the smallest local Meetups. Partnering with these organisations ensures that there is a representative sample across participating developers, so that something valuable is delivered back to the community. Some of them are listed below. You can read more about our media partnerships [here](#).



METHODOLOGY

Developer Economics 13th edition reached an impressive 21,200+ respondents from 157 countries around the world. As such, the Developer Economics series continues to be the most global independent research on mobile, desktop, IoT, cloud, web, game, AR/VR, machine learning developers and data scientists combined ever conducted. The report is based on a large-scale online developer survey designed, produced and carried out by SlashData over a period of nine weeks between April and June 2017.

Respondents to the online survey came from 157 countries, including major app, machine learning and IoT development hotspots such as the US, China, India, Israel, UK and Russia and stretching all the way to Kenya, Brazil and Jordan. The geographic reach of this survey is truly reflective of the global scale of the developer economy. The online survey was translated into seven languages in addition to English (simplified Chinese, Japanese, Korean, Portuguese, Russian, Spanish, and Vietnamese) and promoted by 82 leading community and media partners within the software development industry.

To eliminate the effect of regional sampling biases, we weighted the regional distribution across eight regions by a factor that was determined by the regional distribution and growth trends identified in our Developer Economy research. Each of the separate branches: mobile, desktop, IoT, cloud, web, games, augmented and virtual reality, data science and machine learning were weighted independently and then combined.

To minimise other important sampling biases across our outreach channels, we weighted the responses to derive a representative distribution for platforms, segments and types of IoT project. Using ensemble modeling methods, we derived a weighted distribution based on data from independent, representative channels, excluding the channels of our research partners to eliminate sampling bias due to respondents recruited via these channels. Again, this was performed separately for each of mobile, IoT, desktop, cloud, web, games, augmented and virtual reality, data science and machine learning.

For more information on our methodology please visit <https://www.slashdata.co/methodology>.

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distilling market noise into market sense

