



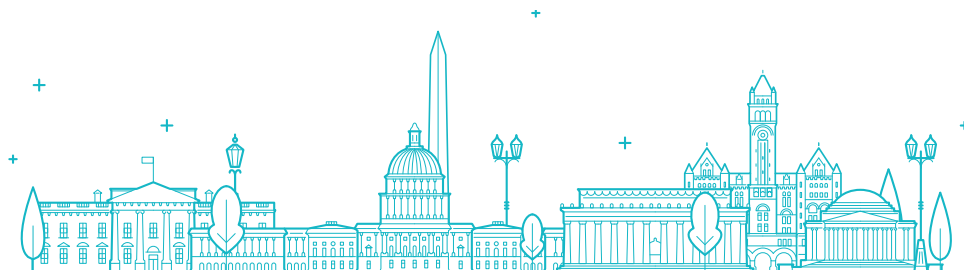
A Fair Playing Field? Investigating Big Tech's Impact on Small Business

Testimony of

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Before the

U.S. House of Representatives Small Business Committee



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I. Introduction

We applaud the House Small Business Committee for holding this hearing on the effect large technology-driven companies have on the growth and success of their small business counterparts. The time is right to examine how public policy concepts, including the role of competition law, apply in a variety of markets characterized by the presence of large companies with global reach. In previous tech sector-focused hearings across Congress, Members heard from a broad swath of large company representatives and consumer interest groups. Even in those hearings, the discussion often turned to how the practices of large companies affect innovative small businesses. ACT | The App Association is the voice of small business tech entrepreneurs, and we appreciate the Committee welcoming the views of our members and for giving small companies a voice on how best to safeguard innovative market activity and job creation in tech-driven industries.

The App Association is a trade group representing about 5,000 small to mid-sized software and connected device companies across the globe. In the United States, our member companies are part of a \$1.7 trillion industry, supporting about 5.9 million jobs. We regularly participate in legal and regulatory proceedings affecting the relationship between consumers, small innovators, and platforms.¹ Further, we actively facilitate engagement between app developers, investors, and platforms in forums across the country.² For example, we are hosting events across the nation this year and next in our Developed | The App Economy Tour to highlight local success stories from the app ecosystem. Our destinations include New York, Minneapolis, Denver, and Oakland, and our panelists range from our members to venture capitalists to legal experts discussing subjects like the California Consumer Privacy Act.³ The constituents of members of this Committee drive competition in the app ecosystem, and with these events, we aim to show that innovation is happening everywhere in the United States.

We urge this Committee to carefully consider how any potential changes to relevant federal law would affect industries across the economy. There is no longer a “tech industry” as it was commonly perceived when personal computers (PCs) first connected to the internet. Ubiquitous connectivity and access to cloud computing superimposed a tech-driven element to virtually all industries across the economy from agriculture to venture capital. As a result, competition has new and dynamic characteristics not just in tech, but everywhere. App Association member companies are at the center of these market changes, and their continued ability to create jobs in your congressional districts depends on robust enforcement of antitrust laws where appropriate and allowing competition to take place where intervention is inappropriate.

The proliferation and increased diversity of entrepreneurship creates less definable markets where value chains are not as easy to trace since they rely on data rather than tangible goods and are undergirded by two-sided platforms. We call on the Committee to appreciate the

¹ See, e.g., Brief for ACT | The App Association as Amicus Curiae Supporting Petitioner, *Apple v. Pepper*, 587 U.S. ____ (2019) (No. 17-204), available at <https://actonline.org/wp-content/uploads/ACT-Amicus-Apple-v.-Pepper.pdf>; Comments of ACT | The App Association to the Fed. Trade Comm’n on Competition and Consumer Protection in the 21st Century (Question 3: “The Identification and Measurement of market power and entry barriers, and the evaluation of collusive, exclusionary, or predatory conduct or conduct that violates the consumer protection statutes enforced by the FTC, in markets featuring “platform” businesses,” Aug. 20, 2018, available at <http://actonline.org/wp-content/uploads/Q3-ACT-Comments-re-FTC-2018-Consumer-Protection-Hearings-082018-FINAL.pdf>.

² See, e.g., ACT | The App Association, “Queen City Mobile Summit highlights Cincinnati as mobile tech hub,” (Feb. 23, 2016), available at <https://actonline.org/2016/02/23/queen-city-mobile-summit-highlights-cincinnati-as-mobile-tech-hub/>.

³ See <https://actonline.org/developed/>.

complexity of the market while also keeping in mind a few straightforward concepts that define the evolution of platform-driven markets.

First, app developers have direct relationships with their customers and clients—they are not “suppliers or manufacturers” of apps on behalf of software platforms. Second, software platforms provide significant value for developers and consumers, demonstrated by the increase in choices, access to new markets, and the reduction in prices for software since platforms entered the market. Third, platforms are not perfect. Developers want more transparency and continued improvements to security and safety. Our member companies want platforms to compete for their business, and they want to ensure competition is robust.

II. Software Platforms Provide Autonomy to Developers

Although platforms help software developers and device makers reach their clients and customers, there is a direct relationship between the client or customer and the developer. The majority decision of the Supreme Court of the United States (SCOTUS) in *Apple v. Pepper*—a split 5-4 decision—mistakenly conceives of platforms as “retailers” of apps, while app developers are mere “manufacturers or suppliers.”⁴ But our member companies do not “manufacture” or “supply” software on behalf of a platform. Platform companies do not order a shipment of apps from a developer as part of their supply chain—app companies are not contract manufacturers. Rather, developers sell directly to consumers and clients.

In *Apple v. Pepper*, SCOTUS was grappling with whether an app buyer has standing to sue a platform company under antitrust law, even though the app developer sets the app’s price. Important to that determination is whether the buyer is also a direct buyer from the platform, which in turn is in part a function of whether the developer’s product is distinct from the platform’s product. This line-drawing may seem semantic, but it is an important exercise from a competition perspective. Developers can choose the best platform through which to reach these customers and clients, and platforms compete with each other for the ability to provide that service to our member companies. The result of *Apple v. Pepper* is legal precedent to now treat app developers as part of a distribution chain controlled by platforms, at least for purposes of whether a platform can be sued for app prices charged by app developers. But the relationships between developers and their customers and clients are direct and separate from the exchange of value for app developer services that comprise the platform-to-business market.

III. Platforms Have Reduced Costs for Developers and Enhanced Competition and Choices for Consumers

Consumers and developers experienced significant changes since the introduction of various mobile software platforms. In addition to having more choices, consumers also benefit from lower prices for software and even access to new markets that did not previously exist. Similarly, developers benefit from lower overhead costs, built-in customer trust, and wider distribution and market access.

⁴ *Apple v. Pepper*, 587 U.S. ____ (2019) (No. 17-204), at 2 (May 13, 2019).

Choices proliferated because entry into the software market is much easier now than it was before platforms.⁵ Before platforms, the nature of the marketplace forced software developers to take on tasks that were well beyond their core competencies—from marketing to protecting their intellectual property and negotiating with a variety of different types of companies to distribute their products. The transaction costs of taking on all these extra tasks were significant, and platforms have eliminated many of them. The resulting environment is one in which small companies like App Association members can retain their size and thrive. Our member companies experience a wide variety of growth trajectories. Growing to the enormous size and reach of companies like Facebook or Uber is not the only measure of success. To fully appreciate the depth of the app economy and its potential, one must look well beyond the “Top 10” apps in the major app stores or the eye-catching headlines covering the initial public offerings of unicorn companies.

Before the ubiquity of mobile platforms, the software ecosystem ran on personal computers. This forced early app companies, often with teams of just one or two developers, to wear many hats to develop, market, and manage their products. App companies were not only required to write code for their products, but they were also responsible for: 1) managing their public websites, 2) hiring third-parties to handle financial transactions, 3) employing legal teams to protect their intellectual property, and 4) contracting with distributors to promote and secure consumer trust in their product. App developers, trained in software coding and project management, were not well-equipped to carry out these tasks, and the additional steps cost them valuable time and money, with little tangible benefit.

Without platforms, developers had to take all of these additional steps, creating friction at each point, which meant that the only software titles that were available to the public were those that made the complicated journey from development to publishers to retailers like CompUSA or Best Buy. At one point, in 2003, CompUSA rolled out an early concept of a software platform consisting of a kiosk that burned made-to-order CDs containing software applications. With this system, the retailer could offer more software programs than it could fit on its shelves (which is how software was sold at that time), providing 1,200 titles from 200 different publishers.⁶ Now, there are more than 317,673 companies active in the mobile app market in the United States⁷ and more than 2 million apps available on the major app platforms. The kiosks are now in our smartphones—there are more than 5.28 billion mobile broadband subscriptions worldwide as of 2018⁸—which are attached to smartphones in the pockets of over 80 percent of Americans⁹ and saving them the trip to Best Buy to purchase the box software.¹⁰

In the internet economy, immediate consumer trust is almost impossible without a substantial online reputation, and not attaining it spells death for any app company. However, what does

⁵ Daniel Ershov, THE EFFECTS OF CONSUMER SEARCH COSTS ON ENTRY AND QUALITY IN THE MOBILE APP MARKET, TOULOUSE SCHOOL OF ECON. (Apr. 18, 2018), *available at* https://www.cemfi.es/ftp/pdf/papers/wshop/DErshov_MobileAppCompetition_Jan2018.pdf.

⁶ Brian Osborne, “CompUSA offers software vending machines,” GEEK.COM (Dec. 12, 2003), *available at* <https://www.geek.com/news/compusa-offers-software-vending-machines-551706/>.

⁷ DELOITTE, THE APP ECONOMY IN THE UNITED STATES (Aug. 17, 2018), *available at* <http://actonline.org/wp-content/uploads/Deloitte-The-App-Economy-in-US.pdf>.

⁸ Mike Murphy, “Cellphones now outnumber the world’s population,” QUARTZ (Apr. 29, 2019), *available at* <https://qz.com/1608103/there-are-now-more-cellphones-than-people-in-the-world/>.

⁹ Adam Lella, U.S. Smartphone Penetration Surpassed 80 Percent in 2016, comScore (Feb. 3, 2017) *Available at:* <http://bit.ly/2pT04qo>.

¹⁰ See, Ashley Durkin-Rixey, “Out of the Box: How Platforms Changed Software Distribution,” ACT | THE APP ASSOCIATION BLOG (Sept. 28, 2018), *available at* <https://actonline.org/2018/09/28/out-of-the-box-how-platforms-changed-software-distribution/>.

“trust” mean? In this context, trust refers to an established relationship between the app company and consumer where the consumer has the confidence to install the app and disclose otherwise personal information to an app company. Prior to platforms, software developers often handed over their products to companies with a significant reputation to break through the trust barrier.

Bungie—developer of popular games Halo, Myth, Oni, and Marathon—chronicled in 1996 the difficult and sometimes oppressive distributor requirements placed on software developers that predated the platform ecosystem. When dealing with retail distributors, Bungie was required to guarantee a competitive price, pay 3 to 6 percent of sales as a marketing fee in addition to \$10,000 for product launch marketing, pay the shipping costs to deliver their products to distributors, and agree to buy back unsold products. Once contracts were negotiated, software developers were often required to spend additional money so that in-store catalogs would feature their product or retail stores would place their product on an end cap display, all before consumers even saw the products.¹¹

However, with the advent of the smartphone, the experience Bungie described is a relic of the past. The smartphone, in its brief history, revolutionized the economy at large and established a symbiotic relationship between platforms and developers. And in the decade since the introduction of the App Store and other platforms, those developers and app companies contributed both to the overall success of smartphones and improved their functionality for consumers.

At first, developers were reluctant to join platforms, worried that the model might not accommodate their ability to “launch fast and iterate”¹² their apps. But successful platforms changed the app ecosystem by providing app developers with ubiquitous access to a broader swath of consumers. Platforms provide a centralized framework for app developers to engage and secure visibility with the 3.4 billion app users¹³ worldwide. With lower costs and barriers to entry, both fledgling and established app developers can find success. For example, educational app company L’Escapadou secured 1.3 million downloads and earned more than \$1.5 million from app sales between 2010 and 2014, a success attributed to the centralized nature of platforms. Founder Pierre Abel specialized the language, content, and pricing of each of his apps based on consumer and market needs and marketed them on different platforms to reach a variety of consumers around the world.¹⁴

IV. There’s a Platform for That

As successful as the past 12 years have been for the app economy, the next decade could be even better. In just the first half of 2019, the two major app stores generated \$39.7 billion in revenue—a robust 15.4 percent increase over the first half of 2018’s \$34.4 billion.¹⁵ This growth

¹¹ Alexander Seropian, Distribution Myths and Lies, TidBITS (Nov. 4, 1996) available at <http://bit.ly/2hitGau>.

¹² To launch fast and iterate is often used to describe a software developer’s business plan, where software developers like to launch products as soon as they are finished and like to update newer iterations of their product actively. Paul Graham, Apple’s Mistake, paulgraham.com (Nov. 2009), available at <http://www.paulgraham.com/apple.html>.

¹³ Simon Kemp, “The global state of the internet in April 2017,” TNW (last visited Jan. 17, 2018) Available at: <https://thenextweb.com/contributors/2017/04/11/current-global-state-internet/>.

¹⁴ Steve Young, Making \$1.5 Million with Educational Apps with Pierre Abel, App Masters (Apr. 30, 2015) Available at: <http://bit.ly/2hgDzZH>.

¹⁵ SensorTower Store Intelligence, “Global App Revenue Reached \$39 Billion in the First Half of 2019, Up 15% Year-over-Year,” (Jul. 9, 2019), available at <https://sensortower.com/blog/app-revenue-and-downloads-1h-2019>.

suggests the developer-platform model is still succeeding. Moreover, app economy growth is likely to endure because developers are continuing to create new products, services, and markets that did not exist prior to platforms. Perhaps the most notable of these is the market for ridesharing. Connecting a driver—using his or her own car—to a potential passenger in real-time for an on-demand ride to a destination selected by the passenger was impossible before developers could use the GPS capabilities and data connections of smartphones. Ridesharing is an important example of how app developer ingenuity meets the capabilities, built-in trust, and developer services of platforms to create new options for consumers.

The same combination of technologies and network effects has produced new possibilities for delivery services. For example, App Association member GetSwift created a white label—that is, a program created by GetSwift but with the client’s branding—delivery tool enabling shippers in any type of industry to move their products to their customers quickly, efficiently, and easily.¹⁶ The platform works the same whether the shipper is a rural farm that delivers fresh vegetables to individuals or an office water supplier,¹⁷ as the real-time connectivity it provides reduced late or missed deliveries by 25 percent in some cases.¹⁸

Just as ridesharing fundamentally changed how we get around, developers and platforms also revolutionized how we access healthcare. A current shortage of about 30,000 physicians in the United States—which is projected to increase to up to 90,000 in the next six years—contributed to the need for caregivers and patients to find new ways of communicating. Compounding the caregiver shortage, 133 million Americans currently live with chronic conditions—most of them residing in rural areas with long drives to their nearest provider.¹⁹ Devices, sensors, and software are now capable of gathering and analyzing physiological data like movement, heart rate, or blood oximetry so that physicians can better monitor their patients at home and address potential problems before they occur or worsen.²⁰ Studies show that preventive care regimes that use connected health tools are especially useful for patients with chronic conditions like diabetes and heart failure, which tend to affect underserved and rural communities especially.²¹ But how do these capabilities reach patients and consumers, specifically those who need them most? Most Americans already interact with platforms, through a variety of different types of devices. We know that smartphone adoption rates are increasing among underserved populations in the United States and that for many, their handheld device is their only means of accessing the internet.²² Here again, developers are leveraging the ubiquity and trusted

¹⁶ See Madeline Zick, “Rural Innovators Play a Key Role in the App Economy—Television White Spaces Can Help Them Do More” ACT | THE APP ASSOCIATION BLOG (Aug. 6, 2019), available at <https://actonline.org/2019/08/06/rural-innovators-play-a-key-role-in-the-app-economy-television-white-spaces-can-help-them-do-more/>.

¹⁷ GETSWIFT, available at <https://www.getswift.co/>.

¹⁸ Case Studies, GetSwift, available at <https://www.getswift.co/getswift-case-studies>.

¹⁹ See Connected Health Initiative, “Testimony of Morgan Reed, Executive Director, The Connected Health Initiative, Before the U.S. Senate Committee on Health, Education, Labor, and Pensions (HELP) Subcommittee on Primary Health and Retirement Security,” (Sept. 25, 2018), available at <https://actonline.org/wp-content/uploads/CHI-Testimony-Health-Care-in-Rural-America.pdf>.

²⁰ See, e.g., HOW MABU WORKS, CATALIA HEALTH, available at <http://www.cataliahealth.com/how-it-works/>.

²¹ See, e.g., CLINICAL OUTCOMES, CARE INNOVATIONS, at 2, available at http://www.connectwithcare.org/wp-content/uploads/2017/06/2016_Outcomes_Clinical-1.pdf (showing the results of a study by Care innovations and University of Mississippi Medical Center, indicating that the first 100 patients with diabetes enrolled in a program with a remote monitoring component saved the state \$336,184 in Medicaid dollars over six months); Testimony of Michael P. Adcock, Exec. Dir., University of Mississippi Med. Ctr., Hearing on “Telemedicine in the VA: Leveraging Technology to Increase Access, Improve Health Outcomes & Lower Costs,” (May 4, 2017), available at <https://www.appropriations.senate.gov/imo/media/doc/050417-Adcock-Testimony.pdf> (“The Mississippi Division of Medicaid extrapolated this data to show potential savings of over \$180 million per year if 20 percent of the diabetics on Mississippi Medicaid participated in this program”).

²² Charkarra Anderson-Lewis, MPH, PhD, et al, “mHealth Technology Use and Implications in Historically Underserved and Minority Populations in the United States: Systematic Literature Review,” (Jun. 18, 2018), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6028762/>.

framework of platforms to produce healthcare innovations that address a variety of health conditions. Moreover, in this case, the platform-developer dynamic helps caregivers reach patients in rural and underserved areas.

Finally, the platform-driven app ecosystem gave rise to a new set of business-to-business markets. For example, Aurora, Colorado-based Peafowl is a cross-platform app development firm that creates dynamic websites and mobile applications across several devices and disciplines for clients of all sizes. From rapper Nicki Minaj all the way to small businesses like Groundwurk, Peafowl leverages the major software platforms and smart devices to provide their clients with apps that meet a variety of specific needs.²³ Similarly, Canned Spinach of Cincinnati, Ohio, is a full-service design and development firm that specializes in user experience and user interface design. They were founded in 2016 and boast a client roster including well-known entities like DJ Khaled and Toyota as well as smaller businesses like BodyBoss and This & They.²⁴ Taking on a software development task for a company like Toyota used to be a job for large companies. Now, the platform-driven internet of things (IoT) revolution has created opportunities for even the smallest companies to create software that makes connected devices come to life. The built-in trust, cloud computing, and distribution of platforms have enabled small companies to compete for major tasks—and these jobs are a significant part of the app ecosystem.

The competitive conditions over the past 10 years, and presently, suggest that the nature of competition in this space will continue to evolve and benefit consumers on the whole. One of the central markets at issue in the debate around the state of competition in the platform ecosystem—informally, we could call it the market for developer services, where a developer pays a platform for various services including distribution, marketing, etc.—also experiences vigorous competition. There is a tendency to include only two platform companies, Apple and Google, in this category of competitors. But for developers, the market is much wider. A game developer can choose platforms like Epic or Steam and enterprise developers can look to hundreds of proprietary, custom platforms or could create their own. For example, companies like App47 create app platforms for everything from “bulldozers to ultrasound devices.”²⁵ Moreover, for developers looking to reach a general audience, using the web is an alternative, especially for companies that are looking for different kinds of distribution or search services than those available on platforms. Additionally, software developers could choose to advertise on Facebook or distribute their products through Amazon, or one of the giant Chinese platforms. It is worth noting, however, that there are some important distinctions between software platforms—which provide a marketplace for software apps like the App Store or Google Play—and aggregators that connect people with information and run on data.²⁶ Aggregators like Facebook and Twitter, for example, connect people with information and other people (and generate valuable data in the process), while the Google Play store and the App Store provide a marketplace for consumers and app developers to transact directly. These differences illustrate the diversity in the market for distribution methods, as developers may prefer one model over another.

Perhaps most importantly, the universe of platforms is continuing to evolve and expand as different kinds of hardware begin to connect to the network. New platforms are cropping up for

²³ PEAFOWL INC, available at <http://www.peafowlinc.com/>.

²⁴ CANNED SPINACH, available at <https://cannedspinach.com/>.

²⁵ APP47, available at <https://app47.com/>.

²⁶ See, e.g., Ben Thompson, “Tech’s Two Philosophies,” *Stratechery* (May 9, 2018).

wearables made by companies like Garmin. Connected home devices and cars drive cross-platform interoperability so that Alexa or Cortana can communicate with your Samsung appliances or your Ford Fusion—further weighing against conceptions of platform markets where a single player wields market power. These characteristics tend to show that developer services will continue to improve and evolve along with demand. Federal intervention may be necessary where market power exists and is used to raise prices undisciplined by competition or maintain a monopoly position in order to reduce quality or decrease output. But when those factors are not present and competition drives the market, as it does in developer services, intervention is unlikely to help and may harm competition or consumer welfare.

V. Platforms Aren't Perfect

Although developers can choose from multiple platforms, there is no such thing as a perfect platform. Our member companies pay a fee to platforms for developer services, and they expect those services to meet their needs. Just as online companies must clearly communicate their data practices to consumers, so must platforms clearly define the requirements and details of their terms of service to developers. For example, when platforms change their developer guidelines, they must communicate clearly and ensure developers understand what the changes mean for them and their customer relationships. Occasionally, we hear from a member company that an ill-defined change significantly impacted their business. For example, a platform recently put a member company that provides a call blocking app on notice for temporary removal unless it made changes to how it obtained permission for gathering incoming call data.²⁷ The platform did not clearly explain how its policies changed or why they would necessitate action on the app's part, and it was the first removal notice of its kind in the app's nine years on the platform. Ultimately, the platform did not remove the app, but the process for remaining on the store was opaque and difficult enough to navigate that the company looked to us, their trade association, for help. Relevantly, this occurred amid a major update to California's privacy laws, so it may be an example of the unintended consequences of government intervention.

Especially for enterprise app developers, a platform's safety and security are important elements of developer services. Platforms' security features improved markedly over the course of their existence. Whereas unlocking a device used to require a four-digit passcode, devices are now capable of biometric-based authentication, and platforms make these authentication measures available to developers as well so that they can also benefit from these heightened security measures. But the game of cat-and-mouse between cybersecurity professionals and hackers will never end, and security must continue to evolve to meet and beat the threats. Although some platforms do not control device security, developers want the platform's security features to work seamlessly with any relevant hardware and that they account for all attack vectors. Platforms should continue to improve their threat sharing and gathering capabilities to ensure they protect developers across the platform, regardless of where threats originate. Moreover, they should approve and deploy software updates with important security updates rapidly to protect consumers as well as developers and their clients and users. The same is true when it comes to privacy controls. App developers strongly desire platform-level privacy controls they can adapt for their products and services. The types and nature of these controls

²⁷ Graham Dufault and Madeline Zick, "What's More Control with Fewer Options?" ACT | THE APP ASSOCIATION BLOG (May 21, 2019), available at <https://actonline.org/2019/05/21/whats-more-control-with-fewer-options/>.

vary among platforms and this variation should result in continuously improving options that iterate with end user expectations and privacy risks.

Similarly, platforms play an important role in helping small developers enforce their intellectual property (IP) rights. Our member companies' IP helps eliminate the inherent disadvantages of being a small, innovative company by enabling them to protect the fruits of their ingenuity from larger firms that might want to take it. Unfortunately, some of our member companies fall victim to IP thieves that succeed in selling the pirated content or using it to steal ad revenue on platforms. Ad networks can and do help mitigate the pirated ad revenue problem,²⁸ but platforms must also vigorously police their app stores for stolen content. With vast online stores, it is difficult for a platform to verify legitimate requests to remove allegedly pirated content. But a single app developer should not need the help of a legal team or trade association to resolve the issue. In one instance, an App Association member company, Busy Bee Studios, approached us when it was unable to convince the platform to investigate an app that appeared to have been stolen from Busy Bee. With our assistance, the platform investigated the issue and found that the infringing app was in fact stolen content.²⁹ But the time and resources it took our member company—which only has a few employees—to resolve the issue were significant and could have gone toward the development of their next app. Since this issue arose, IP resolution processes improved across the board, but the story is a reminder that they are important and in-demand developer services that platforms should improve in order to compete for developers.

VI. Congress Can Help Maintain a Level Playing Field

Our members' ability to create jobs and develop innovative software depends on strong IP protections and access to talent. In order to ensure the growth of the app economy, small, innovative companies must be able to pursue IP claims affordably and challenge claims that should not have been granted in the first place. For instance, we applaud the House of Representatives' recent passage of the Copyright Alternative in Small-Claims Enforcement (CASE) Act of 2019 (H.R. 2426), which would establish a voluntary small claims board at the Copyright Office, a less-expensive alternative for companies with important infringement claims but fewer resources.³⁰ Similarly, when it comes to patents our members support the current process for *inter partes* review (IPR) because IPR proceedings cost on average in the low six-figure range versus up to \$5 million for a typical patent in federal court. While the low six-figures is still out of reach financially for many small businesses, an IPR provides much-needed leverage to companies faced with the possibility of litigation in federal court.³¹ Finally, we urge members of the Committee to ensure that K-12 and college students alike have the opportunity to enroll in computer science classes and learn to code. There are almost 500,000 open computing jobs,³² which earn an average of over \$90,000,³³ while far fewer Americans are

²⁸ See, e.g., TRUSTWORTHY ACCOUNTABILITY GROUP, available at <https://www.tagtoday.net/>.

²⁹ See Alex Cooke, "Member Monday: How One Small Developer Fought a Rogue App," ACT | THE APP ASSOCIATION BLOG (Nov. 26, 2018), available at <https://actonline.org/2018/11/26/member-monday-how-one-small-developer-fought-a-rogue-app/>.

³⁰ See Debbie Rose and Madeline Zick, "Creating an App? There's Copyright for That," (Jul. 8, 2019), available at <https://actonline.org/2019/07/08/creating-an-app-theres-copyright-for-that/>.

³¹ See Craig Beuerlein and Graham Dufault, "Why STRONGER is Weaker: The Imbalance of Automatic Injunctions and No Post-Grant Review," (Jul. 1, 2019), available at <https://actonline.org/2019/07/01/why-stronger-is-weaker-the-imbalance-of-automatic-injunctions-and-no-post-grant-review/>.

³² Why Computer Science?, Code.org, available at <https://code.org/promote>.

³³ See Mobile App Developer Salaries, Glassdoor.com, available at <https://www.glassdoor.com/Salaries/mobile-app->

graduating with computer science training each year. Congress should be looking for every opportunity to equip students at all levels with the skills necessary to take these jobs.

VII. Conclusion

We appreciate this opportunity to provide testimony in this important hearing. Our member companies have a strong interest in maintaining a competitive app economy that enables them to compete with larger firms worldwide through innovative products and services for their customers and clients. The entry of platforms created novel opportunities for consumers and developers. But while platforms provide some of the infrastructure, developers bring smart devices to life. Without apps, a smartphone is just a phone. The symbiotic relationship between apps and platforms is not perfect, but it has created a powerful ecosystem that continues to benefit consumers. We look forward to discussing the pro-competitive effects and public policy concerns platforms have generated and welcome the discussion around how large, tech-driven firms affect smaller counterparts.

Appendix: App Economy Innovators in Your Districts

Majority

Chairwoman Nydia Velázquez (NY-07)

Company: ChAPPerone

Founded by a high school physics teacher after taking 100 sixteen-year-olds on a two-week trip to Spain, ChAPPerone is a platform that allows teachers and chaperones to get important information to students without needing their personal cell phone numbers. The app includes up-to-date alerts and planning functions for before and during the trip.

Representative Abby Finkenauer (IA-01)

Company: TaxAct

Founded in 1998, TaxAct is a leading provider of affordable digital and downloadable tax preparation solutions for individuals, business owners, and tax professionals. Their flagship product promises users the highest degree of accuracy and was designed by their own in-house programmers and tax accountants. All available forms are IRS and state approved, and they introduced a mobile application in 2018.

Representative Jared Golden (ME-02)

Company: Sephone Interactive Media

Sephone Interactive Media is a web and mobile software development company with a focus on marketing and online brand management solutions. Sephone helps their clients design and launch apps, websites, and digital marketing campaigns, to name a few. Their team of 10 employees has been serving clients in their Maine community and beyond since 2001 and, depending on the size of the project, will contract with developers across the country.

Representative Andy Kim (NJ-03)

Company: Micro Integration Services

Founded in 1985, Micro Integration Services is a father and son team who transitioned from selling and maintaining hardware to an entirely software-based consulting business. MIS is focused on solving problems and helping their clients develop software for mobile and web turnkey business solutions. Although they have maintained their two-man team, Micro Integration Services works with major corporations like Kraft and the Philadelphia Eagles.

Representative Jason Crow (CO-06)

Company: Peafowl Inc.

Based in Aurora and founded in 2007, Peafowl is a cross platform app development firm that takes projects from inception to completion through development, design, and testing. Peafowl has a specific focus on digital marketing and creates dynamic websites and mobile applications across several devices and disciplines for their clients. From rapper Nicki Minaj all the way to small businesses like Groundwurk, Peafowl's clients span sizes and industries.

Representative Sharice Davids (KS-03)

Company: ActiveLogic Labs

ActiveLogic Labs is an innovative digital development agency headquartered in Kansas City

with a growing presence across the United States, including an office in the Chicago area. They provide a number of services from web and desktop software development to mobile app development, all with a specific focus on user interface design and a seamless user experience.

Representative Judy Chu (CA-27)

Company: Virtualitics, Inc.

Founded in 2016, Virtualitics is a platform that merges artificial intelligence, big data, and virtual and augmented reality to create data visualization experiences. They make data real and actionable, allowing businesses to immerse themselves in the data through VR/AR rather than a traditional two-dimensional format.

Representative Marc Veasey (TX-33)

Company: Awesome Technologies, Inc.

Located just north of Dallas, Awesome Technologies, Inc., builds mortgage technology that helps clients navigate the ever-changing digital landscape surrounding the finance industry. ATI provides consulting services, tech integration, and administrative solutions, while also providing custom development services that seamlessly operate on top of a company's existing technology stack.

Representative Dwight Evans (PA-03)

Company: The Tactile Group

The Tactile Group is a Philadelphia-based full-service development agency with digital solutions ranging from web and mobile software development to strategic marketing and a strong emphasis on user experience. Their clients are in both public and private sectors, and their projects range from the Philadelphia airport's website redesign to websites for businesses in their community.

Representative Brad Schneider (IL-10)

Company: Spark Hire

Through their video interviewing platform, Spark Hire provides online video interviewing solutions for companies like IKEA and Volkswagen. Since their launch in early 2012, their team of roughly 30 employees has helped thousands of companies streamline recruiting efforts and gain more insight into candidates.

Representative Adriano Espaillat (NY-13)

Company: The Melody Book

Located in Harlem, the Melody Book is an award-winning mobile app development company with several apps on the App Store. A two-person team, The Melody Book specializes in education via musical tools and animated storytelling for young kids.

Representative Antonio Delgado (NY-19)

Company: The Mac Works

The Mac Works, located in Bloomington, is a one-man shop providing consulting and technical assistance, primarily on Apple devices and iOS, to businesses looking for expertise on product development and launch. The Mac Works provide services including mobile app development, iOS training, cloud services, and security education and system development for Mac and iOS products.

Representative Chrissy Houlahan (PA-06)

Company: LMG Web Design

LMG Web Design is a cutting-edge development firm located in Reading with a specialty in customizable web design and branded graphic design. Their team also assists clients with mobile application development with an emphasis on equivalent and seamless user experiences across devices and operating systems.

Representative Angie Craig (MN-02)

Company: Avionte Staffing and Recruiting Software

Avionte Staffing and Recruiting Software, located in Eagan, provides solutions for payroll, attendance, billing, as well as customer relationship management, new job applications, and onboarding capabilities. Since opening their doors in 2005, they have served more than 900 customers and nearly 25,000 users across the United States and Canada.

Minority

Ranking Member Steve Chabot (OH-01)

Company: Canned Spinach

Canned Spinach is located in Cincinnati and is a full-service design and development firm that specializes in user experience and user interface design. They were founded in 2016, and their client roster includes well-known entities like DJ Khaled and Toyota as well as small businesses like Speakeasy and This & They.

Representative Aumua Amata Coleman Radewagen (AS-AL)

Company: Pago Tech, Inc.

Pago Tech, Inc., has been providing IT services to the American Samoa people and government since 2017 and is one of the few computer shops on the island with the ability to service Apple products. In addition to IT support and computer repairs, they also offer custom web design and launch.

Representative Troy Balderson (OH-12)

Company: Hashrocket

Located in Columbus, Hashrocket is an expert team of designers, developers, and consultants who are able to take a project from idea to reality through strategy, design, and development. Founded in 2008, Hashrocket has grown to a team of 17 full-time employees with offices across the United States, including Jacksonville Beach, Florida, and Chicago, Illinois. Hashrocket builds custom software that spans web, mobile, and desktop applications for their clients.

Representative Kevin Hern (OK-01)

Company: Spherexx.com

Spherexx is a full-service ad agency and software development firm with a variety of solutions for their clients including mobile apps and websites. Recently, Spherexx expanded their offerings to include digital ad automation, commission tracking, and public relations digital support. Spherexx is located in Tulsa and has grown to more than 50 employees since its founding in 2000.

Representative Jim Hagedorn (MN-01)

Company: AgVantage Software

AgVantage Software has been providing diverse digital accounting solutions for agribusinesses since 1976 through offerings like live accounting—which allows for inventory management—financial statements, and a variety of other features all available at the touch of a button. Located in Rochester, their software allows businesses to digitally track, analyze, and manage accounting workflows.

Representative Pete Stauber (MN-08)

Company: Creative Arcade

Located in Duluth, Creative Arcade is a digital marketing agency that specializes in digital marketing and advertising, design and identity, web development, and inbound marketing. With five employees, Creative Arcade has a wide range of clients from West Virginia University to Fairview Range Hospital.

Representative Tim Burchett (TN-02)

Company: BigOven

Founded in 2004 and headquartered in Knoxville, BigOven is a mobile app for home cooks to organize their recipes and grocery lists with the capability to search for dishes from the app's content editors or trending recipes from other users. BigOven was the first recipe app for iOS and Android and has been downloaded more than 13 million times with over 3.3 million registered members.

Representative Ross Spano (FL-15)

Company: Torch Designs

Founded in 2014, Torch Designs is run by a husband and wife team who lead all the programming and graphic design for their clients. What started as a supplemental income source has turned into a full business venture that provides clients with a range of services, including website design, app development, business branding, and digital marketing.

Representative John Joyce (PA-13)

Company: AppCove, Inc.

AppCove, Inc., a small team of developers and designers serving clients across the United States and Canada, creates custom software, web, and mobile applications. With an integrated approach to application development across mobile and web, AppCove also helps their clients with content delivery and hosting management through a streamlined data management and analysis system built to meet the specific needs of each of their clients.

Representative Dan Bishop (NC-09)

Company: Event Capture Systems, Inc.

Headquartered in Mint Hill, Event Capture Systems (ECS) is a software and hardware company focused on increasing the efficiency of quality control systems of video cameras for manufacturing processes. Founded in 2007 and with fewer than 50 employees, ECS provides long term assistance to manufacturers in controlling their quality and maintaining a high level of effectiveness through custom data management systems and reports.