ACT | The App Association

The Impact of Platforms on Software Distribution:

What Makes an Ecosystem Work?
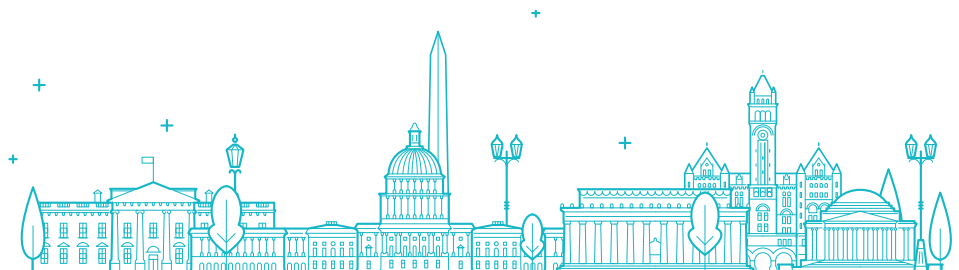
It is often easy to forget the journey once we arrive at the destination. We forget the bumps in the road and often overlook factors that made the trip possible. The app economy's trajectory is no different. In nearly a decade of existence, the app ecosystem grew exponentially alongside the rise of the smartphone. Valued at $1.7 trillion, the app economy is driven by app developers and innovators who depend on software platforms to reach consumers around the globe. In 2018, the total number of app downloads was 194 billion (up from 178 billion in 2017), and the reach of software applications continues to grow.

The single most important factor in the app ecosystem's dynamic growth and unrivaled success is the presence of curated platforms (e.g., Apple's App Store, Google Play for mobile, Steam for games). Trusted app stores serve as a vital foundation for the growing uses of apps across industries and enterprises. Three key attributes led to the revolution in software distribution:

1. Provision of a bundle of services that reduces overhead costs;
2. Instantaneous and cost-effective consumer trust mechanisms; and
3. Cost-effective access to a global market.

Today every successful platform for mobile, desktop, gaming, and even cloud computing must provide these features or risk failing in the marketplace.

How Developers Distributed Software Before Platforms

Much has changed for consumers and developers since the early days of software applications. In the early 1990s, consumers were tasked with the challenge of locating and then traveling to a brick-and-mortar store that happened to sell software. Once internet connectivity became a standard feature in most private residences, consumers began to download applications from the comfort of their homes without having to step foot in a physical store. Despite the changes brought by internet connectivity, the golden age of PC software pales in comparison to the size and scale of the mobile app revolution during which software developers evolved into app developers. And consumers were often unable to trust software downloaded from the internet because the vetting function of platforms had not yet been introduced.

Before the ubiquity of mobile platforms, the software ecosystem ran on personal computers, and software companies had to cobble together a distribution plan, including the creation of consumer trust from the ground up. This forced early app companies, often with teams of one to two developers, to wear many hats to develop, market, and benefit from the sale of 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.

The skillsets required to manage the overhead of online software distribution were often not "core competencies" of small development companies, and the additional steps cost app developers valuable time and money, with little tangible benefit.

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 "trust" mean? In this context, trust refers to an established relationship between the app company and consumer where the consumer demonstrates confidence to install the app and disclose otherwise personal information to an app company. Prior to platforms, software developers often had to hand 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 3-6 percent of sales as a marketing fee in addition to $10,000 for product launch marketing, pay shipping 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.

However, with the advent of the smartphone, the experience Bungie described is now a relic of the past. The smartphone, in its brief history, revolutionized the economy at large and established a symbiotic relationship between software platforms and developers. The fact that developers have a choice in which platform to use to reach their consumers and clients underscores that there is competition between platforms not only as app marketplaces but as developer services providers.

The Applicability of Antitrust Law to Software Platforms: Two-Sided Market Analysis

The application of antitrust law to new markets is already difficult, and it is even more so in the instance of software platforms. The lack of black-and-white certainty is difficult to find in antitrust when analyses are very often fact-specific, a dynamic that has invited undefined calls

for antitrust law's expanded application to software platforms, sometimes from those simply seeking to leverage antitrust claims to influence commercial disputes. Policymakers and courts should responsibly ignore these calls, however, and recognize that the application of existing antitrust law provides the flexibility to address new and challenging market definitions and determinations of market power and monopoly power. A thoughtful analysis will conclude that the harms claimed by those advocating for antitrust remedies on software distribution platforms are either absent or easily outweighed by their pro-consumer benefits.

I. Software Platforms and Market Definitions

Market definition should precede a determination of market power and abuse. While a market definition should consider antitrust foundations such as the existence of substitutes, such an analysis must be fact-specific and traditional antitrust analysis is not easily applied to platforms that very often are multi-sided markets.

Traditionally, antitrust analyses on two-sided markets (e.g., newspapers) have focused on only one side of the market because of the limited impact of network effects.[1] Where platforms experience more indirect network effects with linked demands and pricing—such as in the case of software app distribution platforms—including both sides in the relevant antitrust market is appropriate. In Ohio v. Am. Express Co., the U.S. Supreme Court analyzed a two-sided market for credit card transactions as a single antitrust market due to significant indirect network effects and connected pricing and demand, reinforcing that taking a traditional approach to market definition risks improperly defining a market too narrowly.[2] We note that it is unclear whether the Supreme Court's decision in Ohio v. Am. Express Co. can apply to mobile platform markets because their test is made specifically for two-sided credit card markets and not ones where there are at least three distinct markets (possibly four if one considers wireless carriers) to perform one transaction, as is the case for software platforms. But even where multi-sided platforms have demonstrable competition on both sides of a transaction, using traditional constructs such as the "small but significant non-transitory increase in price test" (SSNIP) on one side of the transaction would lead to the misapplication of antitrust law.

Current antitrust law provides the flexibility for case-by-case market definitions, and a full understanding of a market is required in order to appropriately apply antitrust law to multi-sided digital platforms. Novel economic and legal approaches can and should address the complexities of multi-sided platforms.

II. Software Distribution Platforms, Market Power, and Monopoly Power

Once a market has been appropriately defined, an antitrust analysis would turn to a determination of market and monopoly power. Market power and monopoly power are related concepts but are not the same. As the FTC is aware, the Supreme Court defined market power as "[the seller's] ability to raise prices above those that would be charged in a competitive market."[3] However, the Court defined monopoly power as a firm that has "power to control prices and exclude competition."[4] Thus, courts distinguish the two concepts as a matter of degree, monopoly power being higher. However, a firm's mere possession of either market power or monopoly power is not enough for the FTC or any other party to find a competitive harm; it must demonstrate, in part, that the firm unfairly values its products that yield harms to consumers and competitors. Demonstration of such abuse is critical to determining proper if antitrust remedies are appropriate, and if so, to what degree.

Platforms play an important role in tech-driven markets as well as across a variety of economic sectors, bundling sets of services together for sellers and connecting those sellers with specific categories of buyers. While U.S. antitrust policy has long reflected that market power assessments should be more holistic and rely on factors past market share alone,[5] new digital platforms illustrate that the application of traditional antitrust fact patterns to complex software platforms is ill-advised. Over-reliance on basic market share (e.g., relative size of user base) breakdowns wrongly equates share with power, ignoring unique attributes of multi-sided platforms such as the ability to benefit from multiple services on the same platform, a low barrier to substitution, and ease of market entry by new competitors. Such characteristics minimize the lock-in effect on users. Further, a proper antitrust analysis should also demonstrate that the monopoly power at issue is not short-lived. Such a determination will, again, be highly fact-dependent and should be holistic.

III. The Software Side of the Market

Turning to the two sides of the software platform market, the most visible side for the general public is the one characterized by software sellers (app developers) selling to software consumers (businesses and individual consumers). One of the most often-cited alleged competitive deficiency in this side of the market is the practice of self-preferencing by platforms. Considering the unique nature of software distribution platforms, self-preferencing is in most cases procompetitive because it is an example of vertical integration.[6] Where vertical integration or self-preferencing can lead to greater efficiency, better quality, or lower costs for consumers, there are minimal antitrust issues when users can easily switch to another platform.

Considering that smartphones are music players, cameras, and multimodal communications devices, a narrowly focused view of one of these features without recognizing the integration of the same into the devices is incompatible with the way consumers experience them.

Moreover, we can expect competition to discipline examples where self-preferencing is bad for consumers because they can leave the platform due to demonstrably low switching costs. Just like other categories of market activity, an antitrust inquiry into self-preferencing is generally only appropriate where the company at issue has market power and where it is using that market power to harm competition and consumers. Unfortunately, the European Union (EU) has proposed flipping the burden to platforms to show that self-preferencing has "no long-run exclusionary effects" and "either the absence of adverse effects on competition or an overriding efficiency rationale."[7] We would discourage such a proposal in the United States because it would chill market activity that is likely to benefit consumers.[8]

IV. The Developer Services Side of the Market

Aside from the antitrust attacks on platform activity in the software half of the two-sided market, critics also allege competition abuses in the developer services side of the market. Policymakers should be especially wary of populist calls for the overapplication of antitrust law to digital platform activity in this side of the market. Some are seeking to leverage this trend to use the antitrust laws to punish their competitors and tend to overstate the problems they identify. For example, advocates for legislative intervention point to the cost of the services software platforms provide to developers as evidence that Congress should expand antitrust law.[9] To show that paying for developer services is unfair, they compare the cost of software distribution to the cost of payment processing.[10] Similarly, payment processing is just one element of the array of services you get on a software platform, which include: immediate availability through hundreds of millions of people's devices; payment processing; marketing through the app store; privacy features embedded in the platform; assistance with intellectual property protection; and security features built into the platform. Complaints about the costs of developer services paid to platforms are overstated because such costs are being compared to a much less substantial service and do not warrant an expansion of antitrust law or the creation of a new regulatory regime to reduce the price of developer services.

The other evidence advocates offer to show harm to competition is that making software available on the open internet is free (it is not),[11] whereas software distribution on a platform generally costs money.[12]

As alluded to above, selling software on the open internet requires the seller to take on several tasks the software platform bundles together (including marketing, intellectual property policing, privacy controls, security features, and payment processing). And even taking it at face value, the premise has the inconvenient characteristic of proving the opposite point—that is, selling software on the open internet can be a substitute for selling software on a platform. Not only that, detractors of software platforms say they have no choice but to submit to software platform demands and then in the next paragraph, admit that they need not submit to software platform demands because they sell their software on the open internet instead.[13] It is hard to imagine that this internal inconsistency goes unnoticed, and observers likely cannot help but discern from this that software sellers have options. Indeed, other developers have made the transition off platforms without claims of anticompetitive conduct.[14] Substitutes, even when they are not identical, are common in market economies and tend to signal healthy competition.

The other conclusion we can draw from these arguments is that policymakers should be wary of opportunistic behavior by well-resourced competitors disguised as antitrust concern. Those that are most vocal often imply they are speaking for the app economy as a whole,[15] but in reality they tend to be larger companies seeking to use antitrust law or other policy levers to undermine competitors. Right now, the largest software platforms charge the same (as a percentage of revenue) for developer services regardless of the company's size or political clout. Smaller developers have the advantage in this arrangement because they do not have the leverage to negotiate better terms on their own, as larger companies do. Overtures to have Congress involve itself in developer-platform relations, therefore, may benefit the largest software companies on the platforms but may actually make small developers like App Association members worse off. If large software companies are able to convince Congress to require software platforms to give them a better deal, App Association members and their clients and customers are forced to subsidize the resulting discount for these larger companies. Adding insult to injury, many of our member companies compete with these larger firms, so the advantage handed to the larger companies could directly disadvantage App Association members.

Even as the antitrust concerns expressed in this area are often overstated, a competition analysis of these dynamics is not always the final say, and antitrust concerns may conflict with countervailing policy priorities.

For example, policymakers raised alarms over measures software platforms use to protect consumer privacy. In one instance, a software platform faced antitrust concerns after a decision to curtail apps' ability to track a consumer's location even when the app is not running unless the consumer clearly consents. Advocates exert a steady stream of pressure on software companies and platforms to improve their privacy practices, especially with respect to location data.[16] They often point to the opaque or even misleading manner in which companies collect such sensitive personal information. As one advocate argues, "[p]rivacy is often framed as a matter of personal responsibility, but a huge portion of the data in circulation isn't shared willingly—it's collected surreptitiously and with impunity."[17] Privacy controls at the platform level help ameliorate this perceived problem by making it easier to set collection rules for all or specific apps.

Policymakers at all levels have made it clear that companies should embed privacy into the design of their products and services.[18] Accordingly, the purpose of a privacy prompt from the platform's operating system should not be to confuse a consumer into selecting an option that gives away more data than they intended. It follows that requiring platforms to make it easier to provide location data even when an app is not running than it is to protect that data—because doing so would help a specific app developer—runs headlong into the policy imperative of privacy by design. Looking at the issue solely from a competition lens is, therefore, an incomplete view. Moreover, the more privacy protective approach of one software platform differentiates it competitively from other platforms that arguably make it easier for developers to collect sensitive data. In resolving these policy tangles, the focus should be on what works best for consumers. Antitrust law by itself rightfully addresses consumer welfare — it does not seek to benefit competitors. So, if a platform has an offering that a consumer prefers over the offering of an independent developer, policymakers should ask whether the complaints of powerful competitors necessitate legislating away that choice.

App Association members are selective about the markets they enter, but they compete aggressively. And the presence of a powerful and well-resourced competitor is not always enough to totally discourage entry. For example, our Minneapolis-based member company

Vemos provides a dashboard for nightlife and event venues to manage the growth of their businesses.[19] The presence of incumbents like Eventbrite was not a deterrent because Vemos differentiates itself from incumbents by compiling data from and interoperating with a variety of event management tools and analyzing the data to provide insights into how clients can improve their events and businesses. Having a lot of resources is an undeniable advantage as a competitor (whether it is a platform or not), but our member companies exist because they fill a niche with a differentiated product, they can compete on price, or they can simply outmaneuver the larger competitors. The continued existence and success of camera apps on the two largest app stores is an example of companies competing directly with a platform. Camera+ was an early app that exceeded the software capabilities of Apple's early camera app, pressing Apple to produce better camera software. Now, Camera+, ProCamera, Halide, and several other camera apps are all popular downloads and offer iPhone users a variety of options aside from the native app.[20] But that is not to say a company with a competing offering should never be purchased by a larger company. There are three main definitions of success for a small company: passing the company along to the next generation; being purchased by a larger company; or (much less often) an initial public offering (IPO). Being purchased is often the best of these three options for the business owner and consumers — after all, IPOs are expensive and fraught with risk.[21] A purchase that helps produce better products or services for consumers is both a natural and beneficial end for some companies and healthy from a competition perspective.

The Developer Services Market: Background

At first, developers were reluctant to join platforms, worried that the model might not accommodate their ability to "launch fast and iterate" 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 5 billion app users 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.

One of the central markets at issue is the market for developer services, where a developer pays a platform for assorted services including distribution, marketing, etc. This market 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."

a. How Software Developers Established Consumer Trust Before Platforms

Before the introduction of the smartphone, software developers built consumer trust slowly and at great expense, and that trust was and remains essential for a software developer to bring a product to market. Most did not have a widely recognizable brand to endorse the software. Prior to mobile platforms like the App Store or Google Play, software developers often had to break through the trust barrier by handing over their products to companies with a significant reputation.

Even shareware products that could be digitally distributed would end up partnering with reputable brands to gain consumer trust. For example, in 1996, the developers of computer game Ultimate Doom contracted with Chex cereal to augment their consumer base. Developers converted their game software to create the child-friendly game Chex Quest that the cereal company usually affixed to its boxes. Today, consumers can download games like these for free on platforms like the App Store, Google Play, or independent game-specific platform Steam. These platforms not only lower cost by taking care of the significant overhead involved in selling their product, but they can also reach consumers beyond those who buy a particular brand of cereal or another trusted product.

But the trust mechanism provided by the platforms is not merely an aspect of size. Consumer trust requires constant maintenance and vigilance because loss of trust hurts both the platforms and the developers who depend on them. The immediate consumer trust embedded into platform brands worth billions of dollars allows developers to clear the critical hurdle of achieving trust from consumer adoption.

b. How Software Developers Dealt With Piracy Before Platforms

Before the age of platforms, software developers struggled to safeguard their intellectual property (IP) against piracy and theft. Software companies faced serious challenges in protecting their products in retail stores because the licensing codes remained active and easy to steal. Once developers overcame the significant barriers to bring their products to market, they were faced with the threat of piracy and theft which limited their volume of business and hurt their bottom line. In 2006, the Business Software Alliance found that, on average, U.S.-based software developers lost $7.28 million in revenue per year.

Before software developers could leverage dispute resolution mechanisms provided by platforms, developers were left with the significant burden of intellectual property infringement litigation in federal court, which could leave the legitimate IP owner with several thousand dollars per month in legal fees and months or years of time diverted from company matters. When the infringement originated abroad, software developers were at the mercy of foreign judicial systems, some lacking rule of law and impartiality. Software developers and copyright holders continue to benefit from platforms' cost-effective avenues, such as their dispute resolution mechanisms referenced above, to distribute and protect the integrity of their products.

Despite all these platform-enabled advantages, 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—like the App Store or Google Play, which provide a marketplace for software apps —and social media platforms or "aggregators" that connect people with information and run on data. 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.

Software platform safety and security are essential elements of developer services, particularly for enterprise app developers. Software platforms' security features have improved markedly over the course of their existence, yet must continually adapt to address new vectors and threats. While unlocking a device used to simply require a four-digit passcode, devices are now capable of biometric authentication and software platforms make these authentication measures available to developers as well so that they can also offer these heightened security measures to their customers to build and maintain trust. 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. Software 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 vary among platforms due to market demands and competition driving differentiation, and this variation should result in continuously improving options that iterate with end user expectations and privacy risks.

Similarly, software platforms play a significant role in helping small developers enforce their intellectual property (IP) rights. App developers' 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 app developers fall victim to IP thieves that succeed in selling pirated content or use it to steal ad revenue on platforms. Ad networks can and do help mitigate the pirated ad revenue problem, 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. IP resolution processes are improving across the board, but platforms must keep in mind that they are important and in-demand developer services that platforms should improve in order to compete for developers.

Signs of Competitive Health: Platforms Unlock New Markets

As successful as the past 12 years have been for the app economy, the next decade could be even better. In just the third quarter of 2019, the two major app stores generated $21.9 billion in revenue — a robust 23 percent year-over-year increase from the third quarter of 2018. This growth 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.

A notable example of the app economy's ingenuity 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.

Perhaps most importantly, the universe of platforms is continuing to evolve and expand as diverse kinds of hardware connect to the network. For example, new platforms are cropping up for wearables made by companies like Garmin. Connected home devices and cars drive cross-platform interoperability so that Alexa or Siri can communicate with your Samsung appliances or your Ford Fusion — further weighing against conceptions of platform markets where a single player wields market power and indicating that developer services will continue to improve and evolve along with demand.

Another area where platforms enable developers to reach new audiences is through accessibility tools. Mobile operating systems are built with powerful accessibility tools for developers to use in creating apps that enhance the lives of the disabled. Whether is it voice directions in a mapping app for the visually impared or text to speech tools for those with speech-language disorder, offering these tools as part of a developer tool kit assists any app in reaching a wider audience.

What Does All of This Mean?

The extraordinary rise of the app economy happened in tandem with the development of the smartphone and software platforms. The presence of established, centralized platforms helps to drive the app ecosystem's dynamic growth and unrivaled success. Platforms serve as a vital foundations and databases for the growing uses of apps across industries and enterprises. Software platforms do three things for app developers:

1. Reduce overhead costs across the board;
2. Provide instantaneous consumer trust mechanisms; and
3. Enable cost-effective access to a global market.

Today every successful platform for mobile, desktop, gaming, and even mainframe computing must provide those features, or they fail in the marketplace.

Apps serve as the driving force in both the popularity and development of the smartphone, and in turn, platforms offer lower barriers to entry for software developers into markets worldwide. The two entities' successes are symbiotic, and we look forward to continued success to into the next decade.

END NOTES

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9. Id. at 7.
10. If a software company opts to reach its customers through the open internet instead of a software platform, the company still needs to invest in overhead costs the platform would otherwise handle, including marketing, intellectual property management, privacy and security features, and payment processing.
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20. See Will Rinehart, "Welcome to the Kill Zone? A closer look at merger and start-up data suggests it's a cultivation zone," The Benchmark (Feb. 27, 2020), available at https://medium.com/cgo-benchmark/welcome-to-the-kill-zone-852339601fbb ("For startups, going public isn't a sure path to success. Companies typically sign away 4 to 7 percent of their gross proceeds to an investment bank to sell shares of the stock. They also tend to incur an additional $4.2 million in costs to go through the process of getting listed. On top of this, a company will have to fork over another $1 to $2 million for federal compliance every year. Most IPOs perform worse than the overall market.").