



EU App Economy: Skills for the Digital Age

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INTRODUCTION

Since 2019, employment in the EU App Economy has risen by 53%, to 2.9 million. That's according to the latest estimate from the Progressive Policy Institute, presented in this paper. By comparison, U.S. App Economy employment was 2.6 million in 2022, a gain of 14% from 2019.²

What accounts for this rapid increase in EU App Economy jobs? And to what extent is the App Economy creating new opportunities for women and other nontraditional groups to enter tech sector employment? Because of the lack of bias in the app store approval process, app development has become a key route by which women and young people across Europe can develop tech skills and become an integral part of the digital economy.

We note that none of these App Economy jobs existed 15 years ago, when Apple first opened the App Store on July 10, 2008, in the middle of the global financial crisis.³ Android Market (which later became Google Play) was announced by Google shortly after.⁴ These app stores created a new route through which software developers could write programs for smartphones. These mobile applications – called “apps” – could then be distributed to the rapidly growing number of smartphone users around the world.

The jobs generated by the app stores became an important part of the recovery from the financial crisis of 2008-2009 and the subsequent economic expansion. When the pandemic hit, the need to conduct life remotely supercharged the use of apps, and resulted in many new App Economy jobs in Europe.

This report describes some important aspects of the EU App Economy. We also examine app-related skills development, compare the female share of information and communications technology professionals in both the EU and the U.S., and give some examples of new opportunities in the App Economy.

METHODOLOGY

For the past 10 years, PPI has done a series of reports on the App Economy around the world.⁵ The most recent one we did for Europe as a whole was the Europe App Economy Update 2021, though we did more recent reports for France, Germany, and the United Kingdom.⁶

For this report, a worker is in the App Economy if he or she is in:

- An IT-related job that uses App Economy skills — the ability to develop, maintain, or support mobile applications. We will call this a “core” app economy job. Core app economy jobs include app developers; software engineers whose work requires knowledge of mobile applications; security engineers who help keep mobile apps safe from being hacked; and help desk workers who support the use of mobile apps.
- A non-IT job (such as sales, marketing, finance, human resources, or administrative staff) that supports core app economy jobs in the same enterprise. We will call this an “indirect” app economy job.
- A job in the local economy that is supported either by the goods and services purchased by the enterprise, or by the income flowing to core and indirect app economy workers. These “spillover” jobs include local professional services such as bank tellers,

law offices, and building managers; telecom, electric, and cable installers and maintainers; education, recreation, lodging, and restaurant jobs; and all the other necessary services.

To estimate the number of core App Economy jobs in the European Union, we combine multiple sources of information in a systematic process, including the number of current public job postings for jobs that use App Economy skills.⁷ We also use Eurostat’s estimates of the number of Information and communications technology (ICT) professionals in EU countries. Then we use a conservative multiplier of indirect and spillover jobs to estimate overall App Economy jobs.⁸ (A more detailed description of the basic methodology is found in “The App Economy in Europe: Leading Countries and Cities, 2017” and “The App Economy in India.”)⁹

RESULTS

Table 1 shows the results of the latest analysis. As already noted, the EU App Economy includes an estimated 2.9 million jobs, including a conservative estimate of spillover jobs. This figure is up some 53% since 2019, or roughly 1 million jobs.

By comparison, overall EU employment only rose by about 3% in the same period. Overall, the 1 million increase in EU App Economy jobs accounted for about 15% of total EU employment gains.

If we broaden our estimate to include the United Kingdom, Switzerland, and Norway, the 30-country App Economy sum is 3.7 million. By comparison, our 2022 estimate of US App Economy jobs was 2.6 million.

TABLE 1: EU APP ECONOMY JOBS, OCTOBER 2023 (THOUSANDS)

EUROPEAN UNION	2023	2019*	PERCENTAGE CHANGE
TOTAL APP ECONOMY	2,919	1,906	53%
EU PLUS UNITED KINGDOM, SWITZERLAND, NORWAY			
TOTAL APP ECONOMY	3,706	2,378	56%

Data: PPI, Eurostat, Indeed, ONS * Revised from published figures

Our methodology also allows us to estimate App Economy employment associated with different mobile operating systems. Table 2 shows that the iOS ecosystem includes 2.1 million jobs in the European Union as of October 2023. The Android ecosystem includes almost 2.4 million jobs in the European Union as of October 2023. (The two categories sum to more than the total number

of App Economy jobs because many app developer jobs are in both ecosystems). If we include the United Kingdom, Switzerland, and Norway, the 30-country iOS ecosystem is 2.7 million, and the 30-country Android ecosystem is almost 3 million. Table 3 shows App Economy jobs for selected countries.

TABLE 2: EU APP ECONOMY JOBS BY OPERATING SYSTEM (THOUSANDS)

EUROPEAN UNION	2023	2019*
TOTAL APP ECONOMY	2,919	1,906
IOS ECOSYSTEM	2,116	1,396
ANDROID ECOSYSTEM	2,363	1,553
EU PLUS UNITED KINGDOM, SWITZERLAND, NORWAY		
TOTAL APP ECONOMY	3,706	2,378
IOS ECOSYSTEM	2,729	1,775
ANDROID ECOSYSTEM	2,988	1,940

Data: PPI, Eurostat, Indeed, ONS * Revised from published figures

TABLE 3: APP ECONOMY JOBS FOR SELECTED COUNTRIES (THOUSANDS)

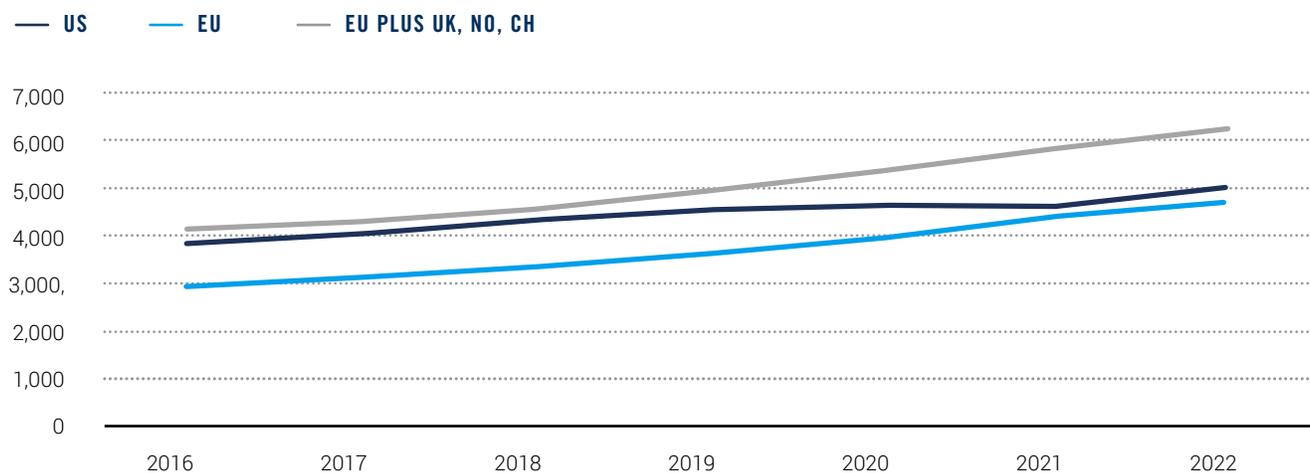
	APP ECONOMY	IOS ECOSYSTEM	ANDROID ECOSYSTEM
AUSTRIA	19	14	16
BELGIUM	66	52	56
DENMARK	56	46	44
FRANCE	611	358	514
GERMANY	633	503	495
ITALY	144	106	119
NETHERLANDS	331	286	259
SPAIN	185	124	132
SWEDEN	163	104	141
EUROPEAN UNION	2,919	2,116	2,363
UNITED KINGDOM	667	517	534
EU PLUS U.K., SWITZERLAND AND NORWAY	3,706	2,729	2,988

Data: PPI, Eurostat, Indeed, ONS

WHAT'S DRIVING THE GROWTH OF THE EU APP ECONOMY

The stunning growth of EU App Economy employment is being driven by a combination of two factors. First, the increased digitization of society means that there is an increased need for tech-skilled workers. Data from Eurostat shows that the number of information and communications technology (ICT) professionals in the EU rose by 30% from 2019 to 2022.

It should be noted that EU's growth of ICT professionals far exceeded that of the U.S. over this period. Based on our analysis of BLS data, the number of ICT professionals in the United States, rose by only 10% from 2019 to 2022, much less than the gain in the EU (Figure 1).

FIGURE 1: INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) PROFESSIONALS (THOUSANDS)

Data PPI, BLS, Eurostat, ONS

The second factor feeding into the growth of the EU App Economy is the wide variety of essential services now being delivered directly to people's phones. That includes shopping services, financial services, healthcare services, and government services.

This increase in the relative importance of mobile applications shows up as an enormous increase in usage, as measured by time. According to the latest report from data.ai, French mobile users spent just under 4 hours per day on mobile in 2022, mainly mobile applications. That's up from about 2.7 hours in 2019, a roughly 45% increase.¹⁰ Similarly, German mobile users spent 3.6 hours per day on mobile applications in 2022. That's up from about 2.6 in 2019, a roughly 38% increase.

It only stands to reason that as mobile apps become more heavily used and essential for daily tasks, they require even more workers to maintain, upgrade, support, and protect them. That's especially true because of the need to

maintain data privacy, which requires monitoring potential data leakages.

ACCESS TO ALL

But there's another aspect of the App Economy that is often overlooked: The role of mobile app development and the app stores in providing a route into the digital workforce for people who come from varied backgrounds. While much app development is associated with large organizations, it's still easy for individuals and small teams to create new apps that can be accessed nationally or globally through Google Play or the Apple App Store.

In some cases, the new app can be very successful. Or it might languish without downloads, or have moderate success. But no matter what, the mere fact of creating a new app that is widely available through the app stores becomes a mark of skill and experience that opens other doors. "Start your own app, you get wider experience," says Charles Mellier, one of the creators of Hika, the top app for finding hiking

trails in France. “It’s a plus when you look for another opportunity.”

Anna Neovesky is co-founder of Berlin-based Coding Friends and one of the creators of the popular Wokabulary app, which is a tool for practicing and collecting vocabulary in all languages. Neovesky notes that she experienced the contact with Apple’s Developer program support as helpful and responsive, and she received useful information on technical issues.

Putting together a comprehensive list of app development resources is beyond the scope of this paper. But one example is that developers with iOS apps have opportunities to request one-on-one online consultations with Apple technical experts.¹¹ Apple also runs Developer Academies in Italy and several other countries.¹² Google Play Academy provides free online courses for app developers. And while not strictly apps-focused, Google offers Startup Accelerators in various locations.¹³

A related issue is the ability of the app stores to open doors for groups that are otherwise underrepresented in the digital economy. For example, official data shows that women make up only 18.5% of employment in ICT professional occupations in the EU (Table 4). That’s substantially below the almost 25% share in the United States. Moreover, the female share of ICT professionals has only been rising slowly (Figure 2).

We do not have direct evidence of the demographics of app developers, but the app stores accept all apps that meet requirements, without bias. Apple Entrepreneur Camp, an immersive technology lab for underrepresented founders and developers, offers dedicated cohorts for founders and developers who are female and have app-driven businesses.¹⁵

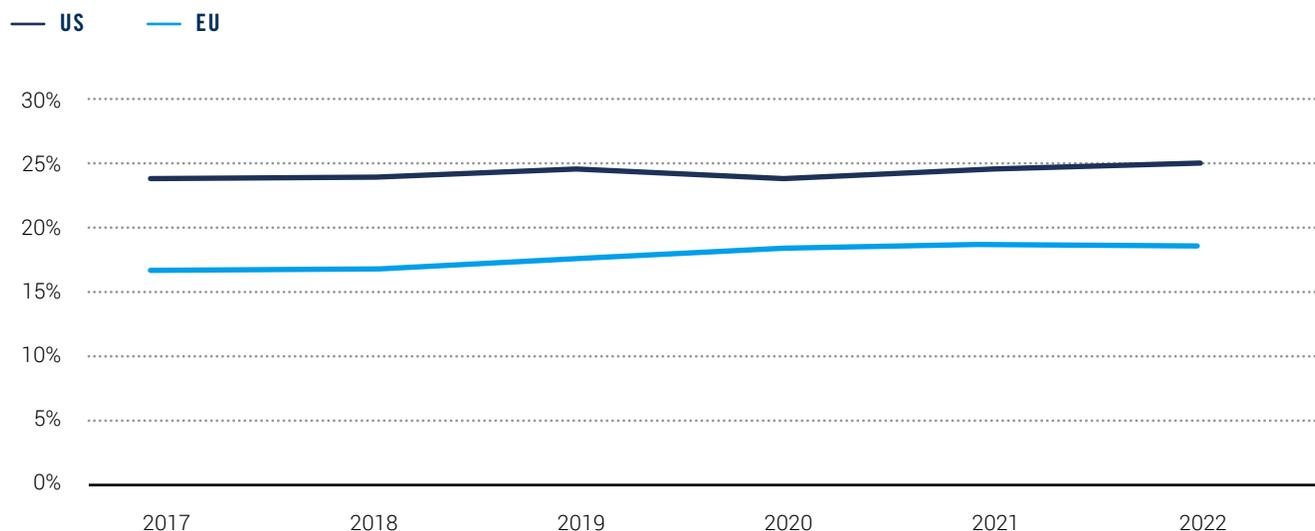
“I think app development is a great path for women,” says Neovesky. She notes that it’s ideal for self-taught developers and career changers, because of the learning material companies like Apple and Google provide. An alternative entry point into tech, says Neovesky, “is especially important for countries such as Germany and other Western European countries where still far fewer women study computer science.”

TABLE 4. WOMEN IN ICT OCCUPATIONS, SELECTED COUNTRIES

	WOMEN AS SHARE OF ICT PROFESSIONALS	ICT PROFESSIONALS (THOUSANDS)
Austria	16.3%	120
Belgium	17.2%	175
France	17.8%	747
Germany	17.4%	1,013
Italy	18.1%	220
Netherlands	16.5%	466
Spain	21.0%	226
Sweden	23.8%	284
EUROPEAN UNION	18.5%	4,646
UNITED KINGDOM	19.3%	1,270
UNITED STATES	24.9%	4,933

Data: PPI, BLS, Eurostat, ONS

FIGURE 2: WOMEN AS SHARE OF ICT PROFESSIONALS



Data: PPI, BLS, Eurostat, ONS

EXAMPLES

This section illustrates the variety of App Economy workers in the EU App Economy, plus the U.K. Note that the location listed may reflect remote, hybrid, or flexible work arrangements. Note also that the examples were collected throughout 2023, and some are drawn from our 2023 reports on the German and French App Economies.

One potent source of App Economy jobs is entertainment and sports-related apps. For example, BeSoccer owns and operates a sports mobile application called “Resultados de Fútbol” for iOS and Android. In fall 2023, the Málaga (Spain)-based company was looking to hire an Android developer. Spicy Sparks is an entertainment app developer based in Sassuolo, Italy. In fall 2023, the company, founded in 2020, was looking to hire a remote React Native Developer to help design, build, and improve Android and iOS apps, such as its eSound Music streaming service.

As of May 2023, the Paris-based social network BeReal was looking to hire a QA Engineer to create automated testing for the company’s iOS and Android apps. As of early 2023, Voodoo, a well-known video game developer and publisher based in Paris, was looking for a Unity Developer to help develop blockchain applications for mobile games available on iOS and Android. Similarly, TapNation, a Paris-based tech startup founded in 2019 and specializing in mobile gaming, was looking for a Unity Developer with experience releasing games on both Android and iOS stores.

Now we shift to the automotive sector. Barcelona-based hardware and software developer SEAT CODE, which launched in 2019, is focused on digitizing the automotive industry

with its mobility products, including electric car and electric scooter technology services. As of fall 2023, the company, owned by Spanish car manufacturer SEAT S.A., was looking to hire a remote iOS Engineer in Spain. As of spring 2023, Ehningen (Germany)-based Bertrandt, a leading supplier to the auto industry, was looking for an iOS and Android App Developer in Munich to help conceive and develop next-generation mobile apps and connected car apps.

Also in spring 2023, MBition, a Berlin-based subsidiary of the Mercedes-Benz Group, was looking for a Test Engineer for Mobile Apps Testing to help deliver the next generation of in-car infotainment software. In fall 2023, Veritaz, a leading IT staffing provider in Sweden, was looking for a software engineer to contribute to the development of a cutting-edge Infotainment system powered by Android, in collaboration with a leading automotive client.

As of fall 2023, PostNord, the leading Nordic postal company, was looking for an Android developer in Sweden to work on the PostNord App. As of spring 2023, Air France was looking for an iOS developer in Toulouse who was a beginner or experienced in iOS mobile development.

Health care is another area where demand for app economy skills is growing. Norwich (England)-based Oliva Health offers mental health services for employees. As of fall 2023, the company, which launched in 2020, was looking to hire a Senior Engineer (React Native) in Barcelona to help develop a new mobile app for iOS and Android, which makes it simpler to access therapy and other mental health services. Prague-based Fitify was looking for an Android Developer to work on what the company calls “the most popular Czech fitness app.”

As of spring 2023, Maincare, a software provider for French public hospitals and state-run health authorities, was hiring iOS or Android Developers in Besançon (France), near the border with Switzerland. Also as of spring 2023, TWT Digital Health was searching for an Android or IOS mobile developer for its Heidelberg office. Vivira Health Lab in Berlin was looking for an Android developer to help with the Vivira App, which provides personalized therapeutic training for patients with musculoskeletal pain. Technicians' Health Insurance (Techniker Krankenkasse) in Hamburg, was looking for an iOS/Android App Developer.

As of fall 2023, the Polish Pharmaceutical Group was looking for an Android developer in Lodz. MoveLab Studio, based in Enschede (Netherlands), was looking for an Android Engineer to help develop apps for fitness equipment. And as of spring 2023, Preventicus, which uses an app on a smartphone or smartwatch to pick up cardiac arrhythmias, was searching for an iOS/ Android mobile developer in Jena (Germany).

As of fall 2023, Dublin-based Micron Agritech was looking for a React Native developer with demonstrable experience in building applications for iOS and Android. Micron Agritech is a startup with a mission to mitigate agricultural emissions and address the public health threat posed by antimicrobial resistance.

In the financial industry, there is an enormous demand for app developers for large and small financial institutions in the EU. As of fall 2023, JPMorgan Chase was running a job posting for a senior iOS developer in Warsaw. Sopra Banking Software (SBS), based in Paris, a financial technology company that provides customized software services to more than 1,500 banks and

financial institutions worldwide, was looking to hire a Senior Android Developer in Brussels.

One of the hottest areas in the EU App Economy has been security-related services, including digital IDs. As of fall 2023, AREA, which works with Italian police by offering technical support for investigations, was looking to bring on board an Android Developer to work from Rome and Vizzola Ticino. The hired candidate would assist with ethical hacking and cybersecurity services.

As of spring 2023, the Directorate General for Armaments (DGA), a directorate of the French Ministry of the Armed Forces, was advertising for an "Ingénieur développeur iOS ou Android cybersécurité." As of fall 2023, Belgium's le Service Général de Renseignement et de Sécurité (SGRS), the country's general intelligence and security service, was looking to employ an iOS & Android Vulnerability Researcher.

As of fall 2023, Netherlands-based Inverid, which offers mobile identity verification software services, was looking for an Android Developer in Valencia, Italy to help upgrade its ReadID SDK for Android. Guardsquare, founded in 2014, specializes in mobile app security and software development. As of fall 2023, the Leuven-based company was looking to hire a Mobile App Developer with Security Ambitions (iOS/Android) to join its research and development team and "apply their skills outside of traditional app development."

The list of examples goes on and on. Madrid-based Citibox, a tech company that provides last-mile delivery services to "smart mailboxes" in residential and office buildings in Spain, was looking to hire an Android Developer in fall 2023. Lynx View specializes in artificial intelligence, machine learning, and software development.

The company, which is based in Alicante, was looking to bring on board a Mobile iOS Developer.

Yambla, based in San Francisco and Belgium, focuses on helping companies accelerate their innovation efforts through “impact-oriented idea management software.” As of fall 2023, the software-as-a-service provider, founded in 2012, was looking to bring on board an iOS Engineer in Brussels. Luxembourg-based Mobilu specializes in digital CRM and automation services for customers. The company, founded in 2010, was looking to hire an iOS Developer in Herstal (Belgium) with knowledge of software testing solutions for iOS and Android.

As of fall 2023, Kingfisher, an international home improvement company, was looking to hire a senior software engineer (iOS) in Krakow, Poland. As of spring 2023, Back Market, a Paris-based company that calls itself the world’s leading refurbished electronics marketplace, was seeking a Senior Frontend Engineer working with the company’s B2B and B2C iOS and Android applications.

On the consumer side, in spring 2023, Berlin-based Lumas was looking for an “App Growth Manager” to take charge of the company’s new Artstream App, “which will revolutionize nothing less than the digital art market.” The applicant needed to have many years of experience in app project management (iOS, Android, Tizen). GetYourGuide, a Berlin-based online travel agency and online marketplace for tour guides and excursions, was looking for an engineering manager with “strong hands-on experience as an App engineer (iOS or Android).”

Many firms are hiring workers to offer app development services across the EU. In fall 2023, Tapptitude, a product studio with offices in Cluj-

Napoca, London, Amsterdam, and New York, was looking for a Romania-based iOS developer. QUBITEQ, a software house and systems integrator in Athens, was looking for an iOS and Android developer. Nitor, a digital engineering company with offices in Helsinki, Tampere and Stockholm, was looking for a Senior Mobile Developer (iOS/Android).

As of fall 2023, Brussels-based ThoughtLabs, an IT consulting and mobile and web development startup founded in 2021, was looking for a Mobile App developer. Italiaonline, based in Milan, offers web marketing and digital advertising to Italian businesses. The company, founded in 2013, was looking to hire an Android Mobile Developer.

As of fall 2023, Milan-based CGM Consulting was looking to hire an iOS Developer skilled in xCode, Objective-C, and Swift. The company provides IT services – including mobile app development – to companies in the banking, insurance, and automotive sectors. Rome-based IT company MobileSoft, founded in 2004, was looking to bring on board an Android Developer experienced in Kotlin programming language and Android Studio. Vivocha, based in Cagliari (Italy), was looking to bring on board a Mobile Developer iOS / Android. The company, founded in 2012, offers video, voice, chat, and browsing services to help companies better connect with their customers.

As of fall 2023, Antwerp-based Entico, which provides IT and engineering consultancy services to companies, was looking to hire an Android Developer in Brussels. JIDOKA is an IT services company based in Mechelen, between Antwerp and Brussels. The company, founded in 2013, was looking to bring on board a Mobile Developer to join its team and help “develop and maintain high quality and user friendly mobile

applications.” Orange Romania was looking for a senior iOS developer in Bucharest.

Finally, global organizations look for local app developers. For example, as of fall 2023, Luxembourg-based Globant, an IT and software development company, was looking for an iOS Mobile Developer and an Android Mobile Developer in Barcelona to “lead the implementation of complex features for different mobile apps.” Globant was originally founded in Buenos Aires in 2003 and today has more than 20,000 employees with operations in more than 20 countries. Accenture was looking to hire Mobile (iOS & Android) Developers in Spain to help grow its “mobile (native) team.”

As of spring 2023, the consulting firm Capgemini was looking to hire iOS or Android mobile developers to work on an industrial application intended to configure and install electrical equipment. The position would be based out of Grenoble. Contentsquare, a NY-based digital analytics firm, was looking for an Android software engineer in Lyon, an iOS software engineer in Paris, and a Senior Android software engineer, also in Paris.

CONCLUSION

Fifteen years after the opening of the first app stores, the EU App Economy is vibrant and growing, and contributing significantly to overall job gains.

In addition, the EU App Economy is creating opportunities across a wide range of countries, industries, and demographic groups. This is what a gateway to the future looks like.

ABOUT THE AUTHOR

Dr. Michael Mandel is Vice President and Chief Economist of the Progressive Policy Institute.

References

- 1 With writing and research assistance from Damian Ghigliotty.
- 2 Michael Mandel and Jordan Shapiro, "U.S. App Economy Update, 2022," Progressive Policy Institute, May 25, 2022, <https://www.progressivepolicy.org/publication/u-s-app-economy-update-2022/>
- 3 "The App Store Turns 10," Apple Newsroom, July 5, 2018, <https://www.apple.com/newsroom/2018/07/app-store-turns-10>
- 4 "Google Play," Wikipedia, last modified May 16, 2023, https://en.wikipedia.org/wiki/Google_Play#
- 5 Countries include the United States, the countries of the European Union, the United Kingdom, Canada, Mexico, Argentina, Brazil, Chile, Japan, Korea, Australia, Vietnam, Thailand, Indonesia, and India. We have analyzed China's App Economy but not published it because of data issues.
- 6 Michael Mandel, "Europe App Economy Update, 2021," Progressive Policy Institute, May 25, 2022, <https://www.progressivepolicy.org/blogs/europe-app-economy-update-2021/>. The current paper includes quotations, excerpts and examples drawn from "The French App Economy: 2023" and "The German App Economy: 2023" (<https://www.progressivepolicy.org/publication/the-french-app-economy-2023/> and <https://www.progressivepolicy.org/publication/the-german-app-economy-2023/>)
- 7 We use the various country-specific Indeed databases found at [Indeed.com/worldwide](https://www.indeed.com/worldwide). Indeed, which bills itself as "the #1 job site in the world," offers a searchable continually updated database of job postings for more than 60 countries. Because of its global scope, it makes it easier to compare countries.
- 8 Based on government data, we make the reasonable assumption that each core App Economy job corresponds to one indirect App Economy job in the same organization. Next, we make the very conservative assumption that each core or indirect App Economy job generates 0.5 spillover jobs in the relevant geographic area.
- 9 Michael Mandel and Elliott Long, "The App Economy in Europe: Leading Countries and Cities, 2017," Progressive Policy Institute, October 2017, https://www.progressivepolicy.org/wpcontent/uploads/2017/10/PPI_EuropeAppEconomy_2017_.pdf. Some pandemic-related updates to the European methodology can be found here: Michael Mandel, "Europe App Economy Update, 2021," Progressive Policy Institute, May 25, 2022, <https://www.progressivepolicy.org/blogs/europe-app-economy-update-2021/>. Our 2019 report on "The App Economy in India" adds further methodological details: Michael Mandel and Elliott Long, "The App Economy in India," Progressive Policy Institute, September 2019, https://www.progressivepolicy.org/wp-content/uploads/2019/09/PPI_IndianAppEconomy_V3-1.pdf.
- 10 "State of Mobile 2022," data.ai, accessed May 2023, <https://www.data.ai/en/go/state-of-mobile-2022/>
- 11 "Meet with Apple Experts," Apple Developer, accessed October 2023, <https://developer.apple.com/events/>
- 12 "Apple Expands Naples Developer Academy, Creating New Opportunities for European Entrepreneurs," Apple Newsroom, last updated September 27, 2021, <https://www.apple.com/cf/newsroom/2021/09/apple-expands-naples-developer-academy-creating-new-opportunities-for-european-entrepreneurs/>
- 13 "Google Play Academy for All App Makers," Google Play Academy, accessed October 2023, <https://playacademy.withgoogle.com/>
- 14 "Google for Startups Accelerator," Google for Startups, accessed October 2023, <https://startup.google.com/programs/accelerator/>
- 15 "Apple Entrepreneur Camp: How to Apply," Apple Developer: Apple Entrepreneur Camp, accessed October 2023, <https://developer.apple.com/entrepreneur-camp/how-to-apply>



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Founded in 1989, PPI started as the intellectual home of the New Democrats and earned a reputation as President Bill Clinton's "idea mill." Many of its mold-breaking ideas have been translated into public policy and law and have influenced international efforts to modernize progressive politics.

Today, PPI is developing fresh proposals for stimulating U.S. economic innovation and growth; equipping all Americans with the skills and assets that social mobility in the knowledge economy requires; modernizing an overly bureaucratic and centralized public sector; and defending liberal democracy in a dangerous world.

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