



The App Economy in Australia, 2023

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PROGRESSIVE POLICY INSTITUTE

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A nighttime photograph of the Sydney Opera House and the Sydney city skyline. The Opera House is illuminated with warm lights, and the city buildings in the background are lit up with various colors, including a prominent red light on one of the towers. The water in the foreground is dark and reflects the lights.

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INTRODUCTION

What is the future of the global App Economy? The average person already spends hours each day on mobile applications, connecting with friends and relatives, watching news and entertainment, playing games, and doing daily tasks such as shopping and banking. People will use apps to interact with their cars, to connect with their health care. Artificial intelligence, low latency and high bandwidth 5G connections, virtual/mixed reality, intensive data processing and on-device machine learning will give rise to entire new categories of mobile applications. Individuals and businesses will become ever-more dependent on mobile apps for their daily lives.

Australia is a key player in the evolving global App Economy. Australian-based app developers with a strong global presence include Sydney-based Canva, the online design and visual communication platform with more than 130 million monthly users across 190 countries.¹ In 2022, Tasmania-based Savage Interactive won an Apple Design Award for its art app Procreate, and Melbourne-based Studio Drydock won for its game Wylde Flowers.² Gold Coast-based Desygner, known for its graphic design apps and brand management software, has more than 20 million users worldwide.³ And Melbourne-based fintech app Afterpay, acquired by Block, the parent company of Square, in January 2022, is still hiring extensively in Australia, based on its job postings.

Looking forward, the Australian App Economy is a potent source of future jobs, since developing, updating, maintaining and securing mobile apps is becoming even more important. None of these jobs existed 15 years ago, when Apple first opened the App Store on July 10, 2008, in the middle of the global financial crisis.⁴ Android Market (which later became Google Play) was announced by Google shortly after.⁵ 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, the subsequent economic expansion and the response to the pandemic. More than that, app development and the app stores became a key route by which young people can develop tech skills and became an integral part of the global digital economy.

In this paper we estimate 182,000 App Economy jobs for Australia, as of August 2023, and compare it to previous PPI estimates.

We estimate the size of the iOS and Android ecosystems. We compare Australia’s App Intensity with other industrialized countries, where App Intensity is defined as the number of App Economy jobs as a share of total employment. Finally, we also give some examples of App Economy jobs, with special attention to export-oriented jobs.

METHODOLOGY AND SUMMARY

For the past ten years, PPI has done a series of reports on the App Economy around the world.⁶ For this report, a worker is in the App Economy of their country 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 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 a country, 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 use data from International Labour Organization, combined with other sources to construct a consistent set of estimates of the number of information and communications technology (ICT) professionals in each country.⁸ Then we use a conservative multiplier of indirect and spillover jobs to estimate overall App Economy jobs.⁹ (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.”)¹⁰

RESULTS

PPI analysis shows the number of Australian App Economy jobs rising to 182,000 as of August 2023. That’s a gain of 61% compared to our 2017 estimate (Table 1).¹¹ Our methodology also enables us to identify jobs by mobile operating system. We find 174,000 jobs in the iOS

ecosystem, a gain of 81% compared to 2017. We also find 166,000 jobs in the Android ecosystem, a gain of 90% compared to 2017.

How does Australia compare to its industrialized peers? To account for differences in size, we calculate Australia’s “App Intensity,” which measures App Economy jobs as a share of total employment. Table 2 compares Australia’s App Intensity to that of Germany, Korea, United Kingdom, and the United States.

We find that Australia has an App Intensity of 1.3%, close to Germany’s App Intensity of 1.4%, as calculated from PPI’s latest report on Germany.¹² However, Australia’s App Intensity falls considerably short of more digitized economies such as Korea, the United Kingdom, and the United States.

Our analysis of job postings also gives us some insight into the relative prevalence in Australia of app development languages or frameworks such as Swift or Kotlin. Based on occurrences of the relevant term in digital job postings, we calculate a “use index” for Australia, and compare that to the United States.¹³

Table 3 shows that the relative prevalence of Swift and Kotlin were about equal in Australia. By comparison, Swift has a higher use index than Kotlin in the U.S. We note that Java, which is sometimes used for app development, is more widely mentioned on job postings than any of the listings on Table 3.

TABLE 1: THE AUSTRALIAN APP ECONOMY, 2023 (THOUSANDS)

	AUGUST 2023	JANUARY 2021	JANUARY 2019	MARCH 2017
TOTAL APP ECONOMY	182	156	136	113
IOS ECOSYSTEM	174	137	121	96
ANDROID ECOSYSTEM	166	123	106	87

Data: PPI estimates, au.indeed.com, Australian Bureau of Statistics

Note: iOS and Android jobs add to more than total, because many jobs are in both ecosystems

TABLE 2. HOW AUSTRALIA'S APP ECONOMY STACKS UP GLOBALLY

	DATE OF ESTIMATE	APP INTENSITY*
AUSTRALIA	October, 2023	1.3%
GERMANY	March, 2023	1.4%
KOREA	July, 2022	1.8%
UNITED KINGDOM	March, 2023	2.0%
UNITED STATES	January, 2022	1.6%

*App economy jobs as share of total employment
Data: PPI

TABLE 3. SELECTED APP DEVELOPMENT LANGUAGES OR FRAMEWORKS (RANKED BY USE INDEX)*

	AUSTRALIA	U.S.
SWIFT	1.9	2.9
KOTLIN	1.9	1.9
REACT NATIVE	1.0	1.0
XAMARIN	0.5	0.4
OBJECTIVE-C	0.5	1.1
FLUTTER	0.4	0.4

*The "use index" measures the occurrences of the keyword in job postings which also contain the term "software." The use index is indexed to 1 for "React Native."

Data: PPI, au.indeed.com, indeed.com

EXAMPLES

Here are some examples of App Economy jobs in Australia. As of July 2023, Gold Coast-based Desygner, the global graphic design and branding platform already mentioned, was looking for iOS developers. Zanity, an SEO, and web development company in Sydney, was looking for an iOS (iPhone/iPad) Developer. Luxury Escapes, a Melbourne-based travel website, was

looking for a senior Android developer in Sydney. The Victoria Police, a law enforcement agency based in Melbourne, was looking for an iOS Lead Engineer.

Many of Australia's App Economy jobs were finance-oriented. As of July 2023, Xero, a New Zealand-based technology company that

provides cloud-based accounting software for small and medium-sized businesses, was looking for a senior mobile engineer with Android skills in Sydney. Sniip, a mobile-based payment services in Brisbane, was looking for a mobile developer.

Afterpay, the consumer finance company already mentioned, was looking for an Android engineer in Melbourne. Athena Home Loans, a fintech involved with home lending in Sydney, was looking for a technical support engineer with a Mac and iOS focus. Australian Retirement Trust, based in Brisbane, Queensland, was looking for a senior software quality engineer with experience with mobile application testing tools.

Australia's App Economy also supports a fair number of positions at multinational firms. Concentrix, a publicly traded IT services company based in California, was looking for an iOS software engineer in Brisbane. Tata Consultancy Services, with headquarters in Mumbai, India, was looking for an Android developer in Sydney.

CONCLUSION

Australia is well-placed to contribute to the next stage of the growing global App Economy. The current App Economy jobs are just the beginning.

ABOUT THE AUTHOR

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- 4 "The App Store Turns 10," Apple Newsroom, July 5, 2018, <https://www.apple.com/newsroom/2018/07/app-store-turns-10/>.
- 5 "Google Play," Wikipedia, accessed November 2023, https://en.wikipedia.org/wiki/Google_Play.
- 6 Countries include the United States, the countries of the European Union, the United Kingdom, Canada, Mexico, Argentina, Brazil, Chile, Colombia, Japan, Korea, Australia, Vietnam, Thailand, Indonesia, and India. We have analyzed China's App Economy but not published it because of data issues.
- 7 For each country, we use the corresponding public database from Indeed.com, found at Indeed.com/worldwide. For Australia, that's found at au.indeed.com. 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 In addition to ILO data on ICT professionals and national statistical agencies, we use data from Github (<https://octoverse.github.com/2022/global-tech-talent>) and Stack Overflow (<https://survey.stackoverflow.co/2023/#developer-profile-key-territories>).
- 9 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.
- 10 Michael Mandel and Elliott Long, "The App Economy in Europe: Leading Countries and Cities, 2017," Progressive Policy Institute, October 2017, https://www.progressivepolicy.org/wp-content/uploads/2017/10/PPI_EuropeAppEconomy_2017_.pdf. Some pandemic-related updates to the European methodology can be found here: <https://www.progressivepolicy.org/blogs/europe-app-economy-update-2021/>. Our 2019 report in "The App Economy in India" adds further methodological details: https://www.progressivepolicy.org/wp-content/uploads/2019/09/PPI_IndianAppEconomy_V3-1.pdf.
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- 13 To be more precise, we count the number of job postings which contain both the keyword and the term "software" (to weed out non-digital jobs). We then index the relative count to 1 for "React Native."



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