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The Future of the Canadian App Economy

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INTRODUCTION

Since 2019, Canada's digital sector has outperformed the rest of the national economy. The output of the information and communications sector has grown by 21%, compared to 5% for the economy as a whole. Data processing was up by 52% and computer systems design up by 39%.

Within the digital economy, mobile application development and support is a particularly important sector. Apps are no longer just about playing games or scrolling through social networks. Instead, people are using apps to connect with their health care providers, interact with their cars, and for banking and shopping. At the same time, mobile apps have become increasingly important to all sorts of businesses — apps to track trucks, to monitor energy systems and forestry operations. Moreover, 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.

All of this app development and support is a potent source of new jobs. In this paper we estimate 385,000 App Economy jobs for Canada, as of April 2024, up 47% since 2018. None of these jobs existed 16 years ago, when Apple first opened the App Store on July 10, 2008.[1] Android Market (which later became Google Play) was announced by Google shortly after.[2] 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.

Moreover, app development and the app stores are a key route by which young people can develop tech skills and become an integral part of the global digital economy.

In addition to estimating the number of jobs in Canada's App Economy, this paper also estimates the size of the iOS and Android ecosystems. We compare Canada's App Economy with other industrialized countries. Finally, we also give some examples of App Economy jobs, with special attention to the geographic and industrial diversity of the App Economy.

METHODOLOGY AND SUMMARY

For more than a decade, PPI has done a series of reports on the App Economy of a wide selection of countries.[3] For this report, a worker is in the Canadian 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 a country, we combine multiple sources of information in a systematic process. In particular, for Canada, we use data from Statistics Canada, plus the number of current public job postings for jobs that use App Economy skills.[4] Then, we use a conservative multiplier of indirect and spillover jobs to estimate overall App Economy jobs.[5] (For other countries, we combine data from national statistical agencies, the International Labour Organization, and other sources to construct a consistent set of estimates of the number of Information and communications technology (ICT) professionals in each country.[6] 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.")[7]

RESULTS

PPI analysis shows the number of Canadian App Economy jobs rising to 385,000 as of April 2024. That's a gain of 47% compared to our pre-pandemic November 2018 estimate (Table 1).[8] To put this in perspective, overall employment in Canada rose by roughly 8% over the same stretch, suggesting that the App Economy is growing much faster than the rest of the economy.

Our methodology also enables us to identify jobs by mobile operating system. We find 313,000 jobs in the iOS ecosystem, a gain of 56% compared to 2018. We also find 321,000 jobs in the Android ecosystem, a gain of 61% compared to 2018.

TABLE 1: CANADIAN APP ECONOMY JOBS, APRIL 2024 (THOUSANDS)

	APRIL 2024	NOVEMBER 2020	NOVEMBER 2018	PERCENTAGE CHANGE, NOVEMBER 2018 - APRIL 2024
TOTAL APP ECONOMY	385	309	262	47%
IOS ECOSYSTEM JOBS	313	243	200	56%
ANDROID ECOSYSTEM JOBS	321	247	199	61%

Data: PPI, Ca.indeed.com, Statistics Canada
Note: iOS and Android jobs add to more than total because many jobs are in both ecosystems

How does Canada compare to its industrialized peers? Table 2 compares Canada's App Economy jobs to that of Australia, France, Germany, and the United Kingdom. Based on recent PPI estimates, we can see that Canada's App Economy is larger than the App Economy in Australia, but smaller than the App Economy in France, Germany, and the United Kingdom.

We can also calculate Canada's App Intensity, which is the number of App Economy jobs as a share of total employment. By this measure, Canada's App Intensity is roughly comparable to France and the United Kingdom, and considerably higher than Germany's and Australia's.

TABLE 2. HOW CANADA'S APP ECONOMY COMPARES GLOBALLY (THOUSANDS)

	TOTAL APP ECONOMY JOBS	IOS ECOSYSTEM JOBS	ANDROID ECOSYSTEM JOBS	DATE OF LATEST PPI PUBLISHED ESTIMATE
CANADA	385	313	321	April, 2024
AUSTRALIA	182	174	166	August, 2023
FRANCE	611	358	514	May, 2023
GERMANY	633	503	495	May, 2023
UNITED KINGDOM	667	527	534	May, 2023

Data: PPI
Note: iOS and Android jobs sum to more than total because many App Economy jobs are in multiple ecosystems

TABLE 3: CANADA'S APP INTENSITY

	APP INTENSITY*
CANADA	1.9%
GERMANY	1.4%
FRANCE	2.1%
UNITED KINGDOM	2.0%
AUSTRALIA	1.3%

**App Intensity is the number of App Economy jobs as a share of total employment*
Data: PPI

EXAMPLES

When we look at examples of App Economy jobs, we see the App Economy in Canada is very diverse, both in terms of industry and location. For example, as of April 2024, BluWave-ai, with offices in Ottawa and Summerside, Prince Edward Island, was looking for a Mobile Application Developer with experience in React Native, iOS, and Android. The company's mission is to "deliver innovative AI solutions to accelerate the transformation towards renewable energy." AlarmTek Smart Security, a security company headquartered in Saskatoon, Saskatchewan, was looking for a Full-Stack Flutter Developer to design, develop, and deploy mobile and web applications. Rimex Supply Ltd, which designs and manufactures wheels and rims for large-scale industrial and mining equipment, had a full-time opening in Victoria, British Colombia, for a Mobile Application Developer with Android expertise to working on its TyreSense product line.

Also in the mobility sector, Drivewyze, a trucking technology company with corporate headquarters in Edmonton (AB), was looking for a software developer to develop and maintain a Flutter cross-platform mobile application providing location-based services to its commercial trucking customers. The application would leverage native Android and iOS capabilities. Alberta Motor Association, also located in Edmonton, was looking for a Mobile Developer to work on its flagship mobile app. And Cerence, a leading global provider of AI-powered automotive assistants, is looking for Développeur senior, Android/Senior Android Developer to work at its R&D center in Montreal.

In the entertainment and retailing space, Canada has a strong App Economy presence. As of April 2024, Score Media and Gaming was looking for a Senior Android Developer in Toronto. Leap Event Technology, with offices in Montreal, Dallas, and Sydney, provides technology for event organizers. The company was looking for an Android developer. Electronic Arts, the gaming giant, was looking for a Hybrid Mobile Application Developer to work out of its Vancouver, British Columbia, studio on EA SPORTS FC, a globe-spanning online soccer game.

Faire is an online wholesale marketplace supporting local independent retailers. The company, with Canadian headquarters in Kitchener-Waterloo, was looking for a Staff iOS Engineer. Aescape is a "lifestyle robotics company," selling products such as "the world's first commercially available, fully automated AI-powered massage experience." The company, headquartered in New York, was looking for an Android Engineer in Toronto. Global Savings Group, a European-based consumer savings company, is looking for an Android developer to work out of Winnipeg. Infospec Systems, a Vancouver-based software company that specializes in point-of-sale systems, was looking for an iOS application developer.

In finance, Tangerine, Canada's leading direct bank, was looking for a senior iOS developer in Toronto, Ontario, to help rebuild its mobile banking application. CIBC, headquartered in Toronto, Ontario, was looking for a senior iOS developer to join the bank's mobile development team.

Other demand for App Economy workers was coming from Canada's House of Commons in Ottawa, which was looking for a Digital Product Developer to focus on "crafting innovative digital solutions for parliamentary functions," including devices running Android and iOS operating systems. The IBM Client Innovation Centre (CIC) at LGS, in Montréal, QC, was looking for an IOS Developer. Winnipeg Technical Services & Solutions, based in Manitoba, was looking to hire a full-time iOS Developer with native apps development experience. Lim Geomatics, an Ottawa-based GIS company that develops geospatial software and data for the forest industry, was looking for a mobile developer.

CONCLUSION

The Canadian App Economy is entering into a new phase of growth. Canada's businesses are using mobile apps to connect with customers, empower workers, and expand global markets. The result is strong demand for Canadian App Economy workers and increased growth for Canada's economy.

ABOUT THE AUTHOR

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

References

1 "The App Store Turns 10," Apple Newsroom, July 5, 2018, https://www.apple.com/newsroom/2018/07/app-store-turns-10/.

2 "Google Play," Wikipedia, last modified May 16, 2023, https://en.wikipedia.org/wiki/Google_Play#

3 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.

4 For each country, we use the corresponding public database from Indeed.com, found at Indeed.com/worldwide. For Canada, that's found at ca.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.

5 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.

6 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).

7 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.

8 "The App Economy in Canada," Progressive Policy Institute, July 2019, https://www.progressivepolicy.org/wp-content/uploads/2019/04/PPI_CandianAppEconomy_V7-2.pdf; and "The Canadian App Economy in 2020," Progressive Policy Institute, April 2021, https://www.progressivepolicy.org/blogs/the-canadian-app-economy-in-2020/.

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