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# The App Economy in Vietnam, 2017

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## INTRODUCTION

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When Apple introduced the iPhone in 2007, that initiated a profound and transformative new economic innovation. While central bankers and national leaders struggled with a deep financial crisis and stagnation, the fervent demand for iPhones, and the wave of smartphones that followed, was a rare force for growth.

Today, there are 5 billion mobile broadband subscriptions, an unprecedented rate of adoption for a new technology.<sup>1</sup> Use of mobile data is rising at 65 percent per year, a stunning number that shows its revolutionary impact.<sup>2</sup>

More than just hardware, the smartphone also inaugurated a new era for software developers around the world. Apple's opening up of the App Store in 2008, followed by Android Market (now Google Play) and other app stores, created a way for iOS and Android developers to write mobile applications that could run on smartphones anywhere.

The iPhone and the App Store were the beginnings of a global App Economy: an army of app developers writing mobile applications for billions of users.<sup>3</sup> For the most part, these developers are not hobbyists writing games in their basements. Instead, as more and more people are linked to the Internet through their smartphone and mobile data connections, mobile apps have become an essential way for businesses, nonprofits, and governments to

interact with their customers, members, and citizens. (Indeed data shows that people spend most of their Internet time interacting with apps).

Moreover, the long-term growth prospects of the App Economy are still strong. Yes, the great surge of new game, media, and e-commerce apps is probably close to its peak. However, the rise of the Internet of Things (IoT) means more and more objects and physical processes will be connected to the Internet.

Increasingly, individuals will be using mobile apps as their interface to their home, their travel, their entertainment, their car, their schools, their health providers, and their state and local governments. Employees in many enterprises are using mobile apps to monitor or control work processes. These apps will be highly functional and sophisticated, serving an essential role in interacting with our environment.

### THIS PAPER

This report on Vietnam's App Economy employment builds on previous estimates of App Economy jobs around the world, starting with our February 2012 report "Where the Jobs Are: The App Economy."<sup>4</sup>

As of December 2017, we estimate that the Vietnam App Economy totals 42,500 jobs. Additionally, we provide an overall breakdown of App Economy employment by operating system, comparing the number of jobs in the iOS ecosystem with the number of jobs in the Android ecosystem.

### MEASURING THE APP ECONOMY

We have chosen to use employment as our preferred metric for measuring the economic impact of the App Economy. Our methodology (described in the Methodology section) is based

on analyzing databases of online job postings. These job postings typically contain information about the skills required for the job and the location of the job. We are then able to search for jobs that require App Economy-related skills, such as knowledge of iOS or Android. In this way we can develop an estimate of App Economy jobs by country and region.

Our methodology for using online job postings to estimate the size of the App Economy was originally introduced in 2012, in a widely-quoted paper that reported the first estimate of U.S. App Economy jobs.<sup>5</sup> In December 2015 we extended and standardized the original methodology so it could be applied to a wide variety of countries, languages, and economic environments. Our goal was to produce a set of globally-consistent and credible estimates for App Economy employment by individual countries, broad geographical regions, and, where possible, by the largest cities.

For this study, 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 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. We use a conservative estimate of the

indirect and spillover effects, as discussed in the Methodology.

## RESULTS

Table 1 provides the number of App Economy jobs in Vietnam. As of December 2017, we estimate that the Vietnam App Economy includes 42,500 jobs. This includes core App Economy jobs, indirect App Economy jobs, and a conservative estimate of spillover jobs.

TABLE 1: Vietnam App Economy Employment

	THOUSANDS OF JOBS (DECEMBER 2017)
<b>Vietnam</b>	<b>42.5</b>

*\*App Economy jobs as a share of all jobs in the country  
Data: Progressive Policy Institute, Indeed*

Note that, in a previous paper using a somewhat different methodology, we estimated that Vietnam’s App Economy included 29,000 jobs as of August 2015.<sup>6</sup> This is equivalent to an annualized growth rate of roughly 18 percent.

Obviously, Vietnam’s App Economy employment falls far short of Japan, which had 579,000 App Economy jobs in April 2016. However, Vietnam’s App Economy compares favorable to smaller European countries such as Belgium (25,000 App Economy jobs in January 2017) and Ireland (15,000 App Economy jobs).<sup>7</sup>

## OPERATING SYSTEM

The two major smartphone operating systems today are iOS and Android. Employers looking for app developers often specify in which operating system or systems they want their hires to have expertise. This enables us to assign jobs to either the iOS ecosystem or the Android ecosystem, or both.

Table 2 shows the distribution of App Economy jobs in Vietnam by mobile operating system. The numbers sum to more than 100 percent because some jobs specify more than one operating system - say, both iOS and/or Android skills.

TABLE 2: Vietnam App Economy Jobs by Operating System

	THOUSANDS OF JOBS (DECEMBER 2017)	SHARE OF ALL APP ECONOMY JOBS
<b>iOS ecosystem</b>	<b>31.4</b>	<b>74%</b>
<b>Android ecosystem</b>	<b>35.0</b>	<b>82%</b>

*Data: Progressive Policy Institute, Indeed*

## EXAMPLES

The Vietnamese App Economy is diverse, spanning several sectors. Vietnam is home to a nascent tech sector, including mobile app development. As of December 2017, technology startup Vimensa Joint Stock Company was hiring an iOS programmer in Hanoi to develop mobile applications for Internet-based services. IT firm Bababibo Corporation was hiring an iOS Developer in Hanoi to participate in iOS development projects. Software developer NTQ Solution was hiring an iOS Programmer in Ha Noi to develop mobile applications. International mobile app developer Sutrix Solutions was hiring an iOS Developer in Ho Chi Minh.

Vietnam's finance and insurance sector is also hiring app workers. As of December 2017, MB Financial Limited Company was hiring an iOS Developer in Hanoi to build and upgrade software on its iOS application. Petrolimex Joint Stock Bank was hiring a Software Development Specialist with iOS programming knowledge in Hanoi. Financial tech startup Robust Tech House was hiring iOS Developers to design, implement, and support applications in Ho Chi Minh. Insuree, which helps customers track, manage, and purchase insurance, was hiring an iOS Engineer in Ho Chi Minh.

And here are a few examples from other industries: as of December 2017, KSC Education was hiring a game programmer with iOS experience in Hanoi. Ecomedic Smart Health Solutions was hiring a programmer with experience in developing iOS applications in Hanoi. E-commerce company SmartOSC was hiring a Junior iOS Developer in Hanoi to participate in building applications for e-commerce projects.

As of December 2017, Watchmaker Fossil was hiring a Senior Associate for Mobile Apps Project Management with knowledge in iOS app development in Ho Chi Minh. Communications firm Softfoundry was hiring an iOS Developer in Ho Chi Minh. Exercise company WeFit was hiring iOS Developers in Ha Noi. IMAP Digital Mapping Technology Joint Stock Company was hiring an iOS Developer in Hanoi. Travel agency HG Holdings was hiring an iOS Developer to design and develop its mobile application in Ho Chi Minh.

As of December 2017, H2 Technology, a startup specializing in education and the IoT, was hiring a Mobile Developer in Ho Chi Minh. Giao Hang Nhanh, an express delivery service firm, was hiring a Senior iOS Developer in Ho Chi Minh to develop new features for its mobile app. Social painting event company Topsy Art was hiring a Mobile iOS Developer in Ha Noi to develop its mobile application. ABA Cooltrans, which specializes in cold storage, was hiring a Mobile Application Developer with iOS experience in Ho Chi Minh.

## LONG-TERM POTENTIAL AND OBSTACLES

Tech has emerged as an important export and source of growth for the Vietnamese economy. Indeed, high-tech products contributed 28.7 percent to Vietnam's GDP in 2013.<sup>8</sup> According to the World Bank, Vietnam had \$38.7 billion in high-technology exports in 2015 – an increase of almost tenfold compared to 2010.<sup>9</sup> And it is estimated that, by 2020, high-tech products and applications will account for 45 percent of Vietnam's GDP.<sup>10</sup>

**Tech has emerged as an important export and source of growth for the Vietnamese economy.**



Vietnam has taken important steps this decade to realize technological innovation in its digital economy. The Strategy for Science and Technology Development for the 2011-2020 period prioritizes the development of information and communication technology, including operating systems for computers, tablets and mobile devices; biotechnology; new materials; and machine manufacturing and automation.<sup>11</sup> Additionally, the Sustainable Development Strategy calls for a strong R&D investment policy and encouraging technological upgrading in the private sector.<sup>12</sup>

However, more can be done to improve the regulatory climate for tech in Vietnam. The draft Law on Cybersecurity required foreign providers of telecom and Internet services to obtain operation licenses, locate a representative office in Vietnam, and locate the server that manages Vietnamese users' data in the territory of Vietnam.<sup>13</sup> Regulations like this raise the cost of doing business in Vietnam — stifling foreign investment and slowing growth as businesses gravitate to more attractive opportunities. In particular, the expansion of the export-oriented App Economy will slow if it becomes more difficult for data to cross the Vietnamese border.

A skilled labor shortage has also emerged in Vietnam's tech sector. According to online recruitment company VietnamWorks, from 2012 to 2015, the number of jobs in the IT sector increased by an average 47 percent per year, while the number of employees increased by only 8 percent.<sup>14</sup> It is estimated that Vietnam will face an annual shortage of 78,000 IT workers and lack one million IT workers by 2020.

## CONCLUSION

Since its invention in 2007, the iPhone has supplied an important source of jobs and economic growth for Vietnam. We estimate Vietnam's App Economy employment to total 42,500 as of December 2017. This includes core App Economy jobs, indirect App Economy jobs, and a conservative estimate of spillover jobs. App Economy jobs span sectors across the economy, ranging from tech to finance and others.

Vietnam has made significant strides in embracing tech and growing its digital economy. For example, the Strategy for Science and Technology Development for the 2011-2020 period prioritizes the development of information and communication technology, including operating systems for computers, tablets and mobile devices. However, more steps can be taken to enable the next generation of app development, such as ensuring a light-touch regulatory framework and teaching digital skills to close the skills gap.

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# Appendix

## METHODOLOGY

Our methodology consists of six distinct steps:

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### 1. Identification of App Economy job postings

Using summary statistics generated by searches on indeed.com, we identified job postings for App Economy jobs containing one of the following keywords: iOS, Android, and the Vietnamese equivalent for related phrases such as “mobile application” and “mobile engineer.”

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### 2. Validation

Invariably, some job postings identified in Step 1 will not fit the criteria of an App Economy worker (e.g, a job posting for a truck driver using an app). We therefore validated the sample by manually examining a sample of the job postings from Step 1 to eliminate those that do not fit our criteria of an App Economy worker. This allows us to estimate a validation ratio that we applied to the results of Step 1.

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### 3. Identification of IT job postings in Vietnam, and estimation of the ratio of job postings to employment for overall IT occupations

We constructed a keyword list to identify job postings for IT occupations in Vietnam. This included a core list of Vietnamese and English words and phrases commonly found in job postings for IT occupations.

We then validated the outcome using the same methodology as Step 2, manually examining a sample of job postings to assess which actually correspond to IT occupations. Then the resulting number was used to estimate the ratio of job postings to employment for overall IT occupations.

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#### 4. Estimation of App Economy core jobs for Vietnam

We multiplied the ratio generated in Step 3 and the validated number of App Economy job postings generated in Step 2. The result gave us the estimate of core App Economy jobs for Vietnam in December 2017.

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#### 5. Estimation of total App Economy employment for Vietnam

Using the same multipliers as in our previous work, we estimated the total number of App Economy jobs in Vietnam. We assumed that each core App Economy job is supported by one job-equivalent at the same company (e.g, managers, human resources, accounting). Then we assume that each company job generates one job in the rest of the economy. This is a very conservative assumption for spillovers.

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#### 6. Estimation of the total employment in the iOS and Android ecosystems in Vietnam

Out of the set of job postings containing the terms “iOS” or “Android,” we identified the share that contain terms belonging to the iOS ecosystem (Apple, iPad, iPhone, iOS) and the share belonging to the Android ecosystem (Android, Google). Then those shares were applied to all Vietnam App Economy employment.

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## About the Authors

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