

AlphaBeta research brief: The estimated economic impact from Android across five Asian markets

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Mobile technology is transforming society – and nowhere is this more apparent than in Asia. More than half the world’s mobile subscribers, 2.7 billion people, are based in the Asia Pacific (APAC), spearheading rapid growth in the mobile market globally.¹ Over one billion of them use smartphones to access the internet. Smart devices have changed the way millions of APAC users interact, do business, and stay connected to the world.² This has driven new innovative businesses models (e.g. mobile commerce) productivity gains (e.g. time savings from being able to carry out tasks on the go), as well as employment opportunities (e.g. app development). Further, the mobile economy is linked to consumer benefits in terms of time savings and improved quality of leisure time (such as being able to access information and favourite content on the go). Yet, understanding the benefits supported by the mobile economy can be difficult, as traditional, transaction based, economic measures, such as the Gross Domestic Product (GDP), tend to underestimate its impact.³ This creates problems, in particular for public policy as typically “**what we don’t measure, we don’t value**”.

While there are multiple drivers of the growth of the mobile economy, the existing evidence suggests that that “open-source” software, such as the Android operating system, has played a potentially important role in this transformation. Open source Android, provided free-of-charge, can power a variety of smart devices and has been linked to increased competition and reduced smartphones prices. As a result, today, Android is ubiquitous in Asia, powering many of the region’s smartphones.⁴ A 2017 report estimated the economic impact of the Android operating system on South Korea.⁵ In this research brief the analysis is extended to other major app markets in Asia – China, India, Japan, and Taiwan. The analysis estimates the benefits to Original Equipment Manufacturers (OEMs), app developers, as well as consumers and the society. The research shows that Android supports large economic benefits including reducing development costs for OEMs and app developers, increasing consumer choice, and helping to facilitate greater affordability and higher smartphone penetration rates across Asia.

Some key insights from the analysis are summarised in Exhibit 1

¹ GSMA (2017), *Number of Mobile Subscribers Worldwide Hits 5 Billion*.

² We group touchscreen mobile devices such as smartphones and tablets, as well as smart televisions and other household appliances under the collective term of “smart devices”.

³ For example, a standard metric such as the GDP can measure the number of mobile app sales per year but will fail to capture the total value of app development in a country because open-source software is usually provided free-of-charge for users.

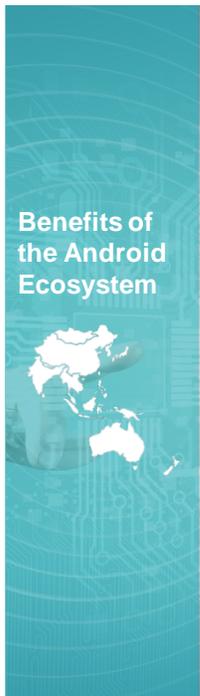
⁴ Android is a software developed by a consortium known as Open Handset Alliance (OHA), comprising Google and 83 other mobile device makers, as well as the name of a corresponding “open-source” project. Primarily designed for touchscreen mobile devices such as smartphones and tablets, the operating system today also powers televisions and other household appliances.

⁵ This estimate covers India, Taiwan, South Korea, and Japan. For details on the methodology, refer to AlphaBeta (2017), *Android Impact: How the Android Ecosystem supports Economic Impact in South Korea*. Available at: <http://www.alphabeta.com/android-impact-android-ecosystem-supports-economic-impact-south-korea/>

EXHIBIT 1

The estimated economic impact of Android:

Key insights across Asia's largest app markets China, India, Taiwan, South Korea and Japan¹



Benefits of the Android Ecosystem



For OEMs

- Each OEM saves over **100K** software development days on annual upgrading (including **30K** days saving which would otherwise be needed to maintain **Android** security level for consumers) 

For app developers

- App developers can target more than **1 billion** users worldwide
- App developers save up to **25%** in development time, implying up to **US\$360 million** in costs saved² 

For consumers and society

- Consumers can choose from over **1,300** smartphone brands (over **92** of them local); smartphones selling below **US\$100**, and over **2.8 million** apps
- Consumers value **Android** at over **US\$9.6 billion** annually³
- Android** may have facilitated up to **590 million** additional smartphone users since 2010, potentially adding up to **US\$430 billion** in GDP through higher productivity growth 
- Android** supports over **3.2 million** direct app economy jobs⁴

¹ Estimated by AlphaBeta using a range of original and third party sources. Unless otherwise stated, estimates refer to annual benefits based on 2017 data.

² Savings are derived from not having to replicate apps across different operating systems.

³ These estimates cover Taiwan, South Korea, and Japan.

⁴ These estimates cover India, Taiwan, South Korea, and Japan.

- **OEMs benefits.** Over 90 OEMs, local to the five markets, use the Android operating system on their devices. Being open-source, the Android ecosystem (i.e. OEMs, developers, Google) contributes to debugging and cybersecurity efforts. This enhances the software and minimises the need for regular maintenance by OEMs themselves.⁶ Based on the analysis of operating system maintenance processes, it is estimated that open-source operating systems can save each OEM over 100,000 software development days annually (including 30,000 days to ensure the optimal security of the system). Being able to use Android for free has helped smaller OEMs, in particular, to remain competitive and secure.
- **App developer benefits.** Android app developers can benefit from increased demand for apps and cost reductions in developing apps. Android app stores provide a direct export channel for local developers to tap into over 1 billion users globally.⁷ Furthermore, having baseline compatibility across different Android OEMs has made it easier and less costly to develop apps. Not having to port apps across different OEMs' operating systems can save app developers up to 25 percent of development time from, which results in up to US\$360 million development costs saved across the five markets, to date.

⁶ This is crucial because many OEMs lack the scale, resources, or expertise to constantly combat threats and update their operating systems.

⁷ Global data from Android Developers (2018), *The Google Play Opportunity*. Available at: <https://developer.android.com/distribute/googleplay/about.html>

- **Consumer and society benefits.** Consumers can choose a variety of Android smartphone brands, devices, and device types for all budgets.⁸ It is estimated that consumers value the Android operating system experience at over US\$9.6 billion in 2017.⁹ Consumers cite the availability of apps and customisability on Android as a key driver of this. Further, it is estimated that Android has led to increased smartphone penetration (up to 590 million) and positive GDP impact (up to US\$430 billion) in the five markets since 2010. Furthermore, a growing Android app economy supports over 3.2 million direct app jobs.¹⁰

When analysing these benefits of Android, it should be noted that: i) Android is part of a larger ecosystem of hardware manufacturers, developers and users and the benefits provided rely heavily on the interaction within this ecosystem. In many instances it is impossible to completely isolate the contribution of Android versus other factors and as such, we describe the benefits as being supported by Android, but not solely driven by Android. ii) Many of the benefits rely on a level of baseline compatibility of the Android operating systems variations used in different devices, meaning that compatibility is essential for the ecosystem to function optimally.

The research shows that Android has a large economic impact across the five markets – China, India, Japan, Taiwan and South Korea. More so, since Android is just one example, or case study, of mobile technology, it is clear that the overall opportunity of the mobile economy is likely to be much greater. For example, mobile internet growth in Southeast Asia alone is estimated to boost GDP by US\$58 billion and support 1 million additional jobs from 2015 to 2020.¹¹ Further, app spend in China, Japan and South Korea combined is estimated to reach a combined US\$91.2 billion by 2022.¹² Policy makers need to take the mobile economy's economic impact into account in order to design policies in a way that maximises the opportunity for their economies.

⁸ Some smartphones in India cost as little as US\$50. See: Fortune (2015), *Google is trying to perfect the \$50 smartphone*, The Economist (2014), *The rise of the cheap smartphone*, and CNBC (2017), *Smartphones for under \$100 a big market in billion-plus India*.

⁹ This estimate, derived from representative consumer surveys, covers Taiwan, South Korea, and Japan.

¹⁰ This estimate covers India, Taiwan, South Korea, and Japan. For details on the methodology, refer to AlphaBeta (2017), *Android Impact: How the Android Ecosystem supports Economic Impact in South Korea*. Available at: <http://www.alphabeta.com/android-impact-android-ecosystem-supports-economic-impact-south-korea/>

¹¹ Oxford Economics (2016), *One million opportunities: The impact of mobile internet on the economy of Southeast Asia*.

¹² App Annie (2018), *The 2017-2022 App Economy Forecast: 6 Billion Devices, \$157 Billion in Spend & More*.