

# The Growth and Effect of Smart phone Based Applications in Indian Markets

## Abstract

India has become the world's fourth largest mobile application using economy. App downloads were up by 15%, time spent in apps was up by 25%, and the revenue paid to developers increased by 40%. Forrester's estimated that 85 percent of the time spent on smartphones is in mobile apps having important productivity enhancing impacts throughout the economy. The growth of the mobile application market has led to a more digital and modernized way of living but has created a social barrier among the masses and challenges for the existing offline businesses. This paper focuses on and analyses the growth of the mobile application market from 2008 to 2016 with high projected growth rate for the upcoming years.

**Keywords:** Market, Mobile, Growth, India, Apps, Smartphone, Users, Economy.

## Introduction

Origins of the 'app economy' can be traced back to the launch of the iPhone in 2007 followed by the App Store in 2008. Since then, the global market for apps has been growing at an unprecedented rate. Analysts estimate that app downloads have increased from \$ 24.9 billion in 2011 to \$ 81.4 billion in 2013. This number is expected to rise to \$ 310 billion by 2017.

The app market has grown over the past couple of years and it is estimated that by 2020, the app economy could double in size to \$101 billion, according to market researcher "App Annie". The growth will be driven by increasing usage of apps and by greater smartphone adoption around the globe.

A mobile application or app is a computer program or code or design that runs on mobile phones (smartphones), tablets, computers and various smart gadgets. A mobile application is most commonly referred to as an app. It is software which is designed to run on only smartphones and tablets. Most such devices are sold with several apps bundled as pre-installed software such as a web browser, calendar, mapping program etc. Mobile apps are designed after keeping in mind the demands and constraints of the devices and also to take advantage of any specialized capabilities they have. A gaming app, for example, might take advantage of the iPhone's accelerometer.

There are many apps now that help users learn about new languages, read music, navigate cities, share files, read the news, learn recipes, and record important health-related information among many other things. The growth of apps across many regions underlines why this sector is regarded as an 'economy' in itself. India is a source of enormous demand for apps. Even though the use of smartphone has been estimated at just 10% of total mobile users, still India experiences 100 million downloads per month placing it amongst the top five regions for Google Play, the official Android app store. India's rapidly expanding middle class will inevitably make the switch from feature phones to smartphones.

All the apps present in our smartphones are not always pre-installed, some of the apps are supposed to be installed from the app stores inbuilt in our smartphones, tablets and computers. Mostly apps are installed for free but certain apps are not for free installation, we need to pay some kind of charges through online payment to the respective apps. For example apps like zomato, whatsapp, uber etc. are installed for free but certain apps like Antivirus pro, cut the rope, books. Movies etc are not free apps.

The growth of the application market in India is vast and has a great bearing on the economy directly or indirectly. It has created pressure and immense competition for the offline businesses. For example the Uber



**Sarthak Roy Chowdhury**

Assistant Professor

Deptt. of Economics

Gokhale Memorial Girl's College,  
Kolkata

app has caused the business of the metered taxis in the cities to fall. In some cities in India the Uber and Ola apps have taken over almost the entire cab business. In today's world people are completely dependent on these apps which have led to the vast growth of the app economy. In this paper we will see the growth of application users in India and around the world and the growing use of smartphones. India captures 13% of the worldwide mobile application users (as per Figure.1).

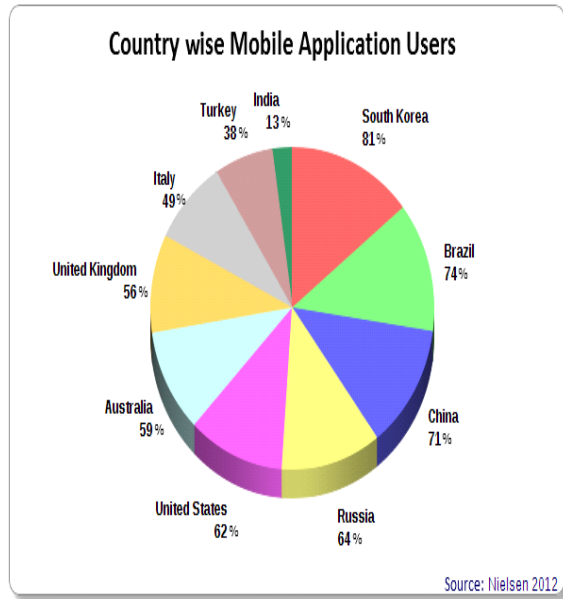


Figure-1:Source: Nelson 2012

### Aim of the Study

Objective of study of this paper is to focus on and analyse the growth of the mobile applications market in India from 2008 to 2016 (with high projected growth rate for the upcoming years) and its overall impact on the society and economy as a whole.

### Review of Literature

An Inquiry Into the impact of India's app economy, R. Kathuria, S. Roychowdhury, M. Kedia, S.Srivastav, Indian Council For Research on International Economic Relations, April 2015. The paper deals with a large and varied set of data to trace back the history and to find the reasons behind the sharp rise of apps. It also highlights the effectiveness of apps in multiple sectors and sections of daily modern life and underlines the employment generating power of this upcoming sector along with its effects on user's actions and psyche.

Mobile Phones in India-A Platform to Narrow the Digital Divide, Asha Rao, Kellogg School of Management, 2016. The paper shows how mobile phone applications are now key component of bridging the digital divide in India and access to the knowledge and services that technology can provide. The paper explores how the proliferation of mobile phones makes it an ideal platform to deliver necessary content and services to the underserved population, providing an efficient and effective way to narrow the growing digital divide.

The impact of mobile commerce in India: a SWOT analysis, Satinder.J, Niharika.S, 2<sup>nd</sup> international conference on science, Technology and Management, University of Delhi, Sep. 2015. This paper argues as large number of mobile application, growth rate in mobile penetration in India is increasing day by day, the users has intensely increased on mobile phone and consuming bandwidth of internet providers still a good number hesitate to use M-Commerce because of security problems, payment issues and complexity of mobile applications. This paper identifies facts about the feasibility of M-Commerce in India today its growth and the Strength and opportunity, weakness and threats lying ahead.

The Current and Future State of the Sharing Economy, Yaraghi, Niam, Ravi, Shamika; Brookings India, IMPACT Series No. 032017, March 2017. This report examines the current state of the sharing economy, investigates the underlying economic, technological, social, and political factors that lead to the rise of the sharing economy and predicts the growth of this sector in the coming years. The sudden emergence of the sharing economy has introduced many unforeseen challenges for consumers, incumbent businesses, regulators and policy makers. The report identifies these challenges and provides recommendations on how sharing economy platforms should address them.

The mobile app industry, T.L. Rakestraw, R.V. Eunni, R R. Kasuganti, Youngstown State University, 2015. The paper deals deep into the evolution and the basis of the mobile app industry. It focuses on the inevitability of apps in the future global economy.

History of mobile application: Theory and Practice of Mobile Application, J. F.Clark. The paper helps to understand the history, initiation and introduction of the applications (apps).

### Hypothesis

The smart phone apps have become an inevitable part of daily life for average consumers and grown successfully in the Indian app market at a faster rate with a few failures.

### Methodology

#### Research Question

What is the volume and spread of 'applications' that are present for various uses and why there's a rapid rate of growth of the application market over the years from 2008 to 2016.

#### Type of Research

It is both quantitative and qualitative (mixed method/triangulation).

#### Research Design

It is descriptive, exploratory and explanatory.

#### Methods of Data Collection

Quantitative method involving secondary data from various sources.

#### Methods of Data Analysis

It is mixed, textual, statistical, pictorial and tabular. Simple analysis has been done on the basis of data available online and is represented through a series of tables, graphs, pie charts, line and bar diagrams.

## Inference

The rising use of smart phones throughout the past years with advancing technologies have resulted to a rise in the growth and use of application market which has created a much easier and smarter way of living for all. Most apps have grown and succeeded in the Indian app market at a faster rate with a few failures.

## Research Design

The paper describes the impacts and explores the pros and cons of the rapid growth of app market in India. It is explanatory, exploratory, descriptive and involves textual reading.

## Findings/Analysis

Initially apps were considered as small arcade games, ring tone editors, calculators, calendars, and so forth. The beginning of the new millennium saw a rapid market evolution of mobile content as well as applications. Operating systems for smart phones (Windows Mobile, Symbian, RIM, Android, Mac iOS), were now available in most of the smartphones. Origins of the 'app economy' can be traced back to the launch of the iPhone in 2007 followed by the App Store in 2008. Since then, the global market for apps has been growing at unprecedented rates. The App Store was one of the first commercially successful digital distribution platforms because it challenged the monopoly of the 'walled garden' through which mobile operators controlled content. Competition triggered by technological advancements such as the development of Wi-Fi enabled smartphones and the emergence of special online stores allowed bypass of an operators' network. This weakened their grip on the app ecosystem. These developments encouraged the shift from a telecom-operator controlled network to Wi-Fi as a means of content delivery. This marked the inflexion point for the app revolution. India has a huge demand for apps. Even though smartphone penetration is estimated at just 10% of total mobile users, India experiences 100 million downloads per month placing it amongst the top five regions for Google Play, the official Android app store. India's rapidly expanding middle class will inevitably make the switch from feature phones to smartphones creating vast opportunities for new entrant. The well-known and established IT cities in India are better for app developers because they provide with easy access to infrastructure, skill and a ready market for products. The concentration of app developers in the cities of Bangalore, Mumbai, Delhi, Hyderabad, and Ahmedabad increased over time. In most of the other cities such as Bhubaneshwar, Cochin, Coimbatore, Gandhinagar and Kota, app development is done primarily on a part time basis and is not the primary source of income.

## App and Its Source

We first need to know about some basic points about the application market before we analyze its growth. Applications or apps are not pre-installed in the phone when we buy it. Applications are originated via computer programs built on various platforms like IOs, android and windows every operating system

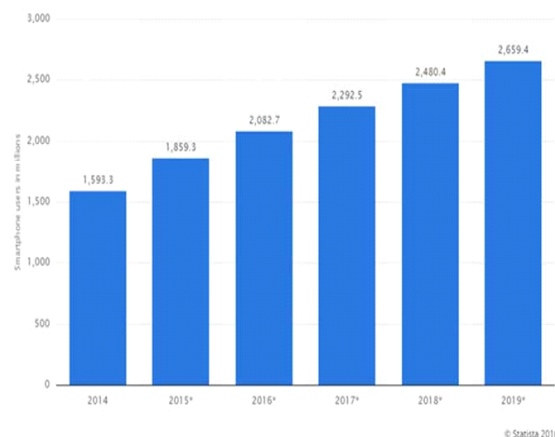
has a unique store where the apps can be uploaded and later downloaded. Some of these app markets are: App Store (ios)- The App Store is a digital distribution platform, developed and maintained by Apple Inc., for mobile apps on iOS. The store allows users to browse and download applications that are developed with Apple's iOS SDK. Google Play Store (android) - Google Play is a digital distribution service, including a digital media store, the Google Play Store (originally the Android Market), operated and developed by Google. It serves as the official app store for the Android operating system, allowing users to browse and download applications developed with the Android SDK. Windows Store- Windows Phone Store (previously Windows Phone Marketplace) is a digital distribution platform developed by Microsoft for its Windows Phone platform that allows users to browse and download applications that have been developed by third parties.

The developers of an app earn from various avenues. Some of which are: Advertising- Is one of the easiest and the common way. Subscription- It gives you access to all or some features of the app at a predetermined rate normally billed monthly or yearly. Physical Purchases- Many e-commerce businesses release apps for free to attract customers to sell their product. In app Purchases- These can generate a great deal of revenue - the Finnish start-up Supercell are rumored to be making over \$1 million and more per day from their Clash of Clans game which is currently no.1 in the iTunes highest grossing chart for iPad. Downside: The app developers have to keep people hooked to the apps so that they keep paying. Many people will never pay for them but the ones that do will spend a lot if the advertisement is right.

## The Growth of App Market and Its Revenue

It isn't surprising that the smartphone usage trend is only experiencing an upward rise. In fact, worldwide smartphone usage grew by more than 300 million users between 2014 and 2015 according to Statista. Their report further predicts that more than 2.6 billion people in the world will own a smartphone by 2019. So what could this mean for the app industry? The graph (Figure-2) below shows the immense rise in use of smartphones by 2019.

Figure-2: Source: Statista 2016

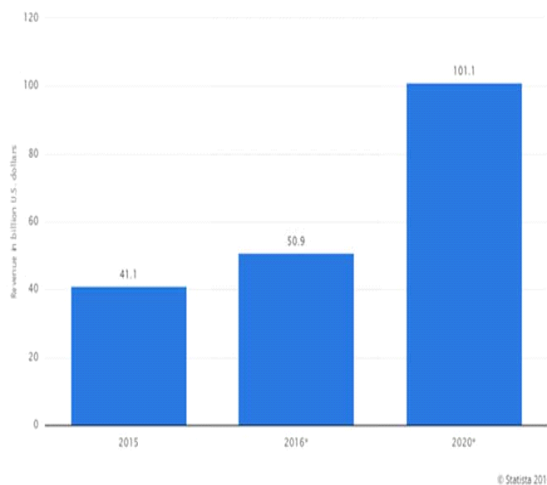


The data shows the growth of the application

market.

The increase in app usage will automatically enhance the growth in revenue in the app industry. In fact, Statista further goes to report about this revenue growth for apps across the globe. According to their report, the worldwide mobile revenue for 2015 amounted to \$41.1 billion. Considering that the upward trend continues with smartphone usage and app usage, the global mobile revenue is expected to reach \$101.1 billion by 2020. The figure-3 below shows a graph of the growth in revenue to reach to about \$101.1 billion by 2020.

**Figure-3: source: statista 2016**



There are number of factors which affect the growth of the app market and they are: Advancement in network technologies, lowering of mobile data usage cost, growing adoption of smartphones around the world, continuous increase in application usability. There are number of factors that affect the marketability of these mobile apps. Such as: The category isn't as popular as other app categories, some of the apps is not being able to properly optimize in order to rank in app store search, or maybe the app isn't developed enough in order to get positive reactions from the users.

While the last two factors can be controlled by the user, he/she doesn't really have any control over the popularity of some of the app categories.

There are various categories of apps- Utilities, Entertainment, Games, News, Productivity, Lifestyle, Social Networking and Health.

A study by "Flurry Analytics" shows that personalization apps seemed to be the most popular in 2015 with sessions increasing by 332%. News and magazine apps came second with an increase of 135%, while productivity apps came third with an increase of 125%. Lifestyle and shopping, travel and navigation, sports, health and fitness, and messaging and social networking were some of the other top-ranking app categories.

### Growth of Some Popular Apps

WhatsApp has been the most used app of all time. It is the most famous messaging application in the world. It has a user base of more than one billion and it is available for free on android, ios, windows

phone etc.

Smartphones have revolutionized the way we communicate with each other and Messaging Apps are arguably the most commercially successful among the millions of apps available across various App Stores. WhatsApp had an early advantage in the smartphone messaging world as they have been around since 2009. However, it would be almost four years, April of 2013, when they reached 20 million. The next million came in just six months, on August of 2013; WhatsApp was at 300 million users figure. From there onwards, they have steadily grown by adding approximately a million users every 4 months.

With stiff competition from other Messaging Apps, the growth rate has been a bit off recently. They took 5 months to climb from 800 to 900 million active monthly users. Yet, what they have achieved is no mean feat, in fact, to put these numbers into perspective; Twitter has just over 300 million monthly active users. Facebook Messenger, their closest rival in this space has 700 million and their parent company Facebook, just crossed 1 billion daily active users.

WhatsApp co-founder and CEO Jan Koum said through his Facebook page that the messaging app now has more than 800 million monthly active users. That's an additional 100 million new MAUs (monthly active user) in just 4 months. The growth of whatsapp throughout the years has been outstanding and it has driven away all the other messaging apps present and dominates the messaging and texting world.

### Uber and Ola

Uber and Ola are both apps used for booking cabs through your smartphones both the apps are downloaded for free. Whenever you need a taxi or a cab you just use these apps to book uber or an ola cab which comes down write in front of your house to pick you up. The cabs are much safer and relaxing than our usual taxis which are why people tend to prefer it more. Throughout the past couple of years the use of Ola and uber in India has grown drastically, since it is pretty affordable and easily available. People will rather sit at home and book a cab rather than go out looking for a taxi and not sure if they will be refused or not. These two apps are competing apps and have a pretty intense rivalry. Initially ola cabs used to dominate the taxi app market in India but with time uber has risen with its demand and popularity and with a better pricing method.

### Flipkart

Flipkart is an electronic commerce company whose headquarter is in Bangalore, Karnataka. It was founded in 2007 by Sachin Bansal and Binny Bansal. According to Morgan Stanley the current market value of Flipkart is \$5.54 billion as of November 2016. Sachin and Binny Bansal worked for amazon another global online app but left it to create their new company in October 2007 as Flipkart Online Services. The first product they sold was the book "Leaving Microsoft to Change the World" to a customer from Hyderabad. Flipkart now employs more than 33,000 people. Flipkart allows various payment methods.



Flipkart currently dominates Indian shopping apps. Along with fashion e-tailer Myntra, acquired by Flipkart in the year 2014 and later acquired Jabong in 2016. Flipkart currently has gross revenue of Rs.13,177 crore. Together, Flipkart and its fashion-focused Myntra unit have a 60% market share of Daily Active Users (DAU) out of India's top six Android e-commerce apps. Flipkart grew steadily since the start of 2015 compared to leading Indian shopping app competitors. Flipkart shows the highest user app in India followed by snapdeal, amazon, and paytm.

### Snapchat App

Snapchat is an image messaging and multimedia mobile application created by Evan Spiegel, Bobby Murphy, and Reggie Brown. Initially Beginning as "Picaboo", the idea was to create a selfie app which allowed users to share images that were short-lived and self-deleting. The temporary nature of the pictures would therefore encourage privacy and emphasize a more natural flow of interaction. In May 2012, 25 images were being sent per second and, as of November 28, 2012, users had shared over one billion photos on the Snapchat iOS app, with 20 million photos being shared per day. In December 2012, Snapchat added the ability to send videos which lead to the rise of its popularity and demand. According to Snapchat's published statistics, as of May 2015, the app's users were sending 2 billion videos per day, reaching 6 billion by November and by 2016, Snapchat had hit 10 billion daily video views with revenue of \$1.81 billion. This year, Snapchat's US user base will jump by 34.9% to 66.6 million users. By 2020, Snapchat will add 26.9 million users double than that of other famous apps like twitter and Pinterest.

### Paytm App

Paytm also known as 'Pay through Mobile' is an Indian payment and commerce company based out of Delhi NCR, India. Launched in August 2010. The application enables users to book air tickets and taxis, mobile recharge, broadband and electricity bills among others. Users can also pay for fuel at Indian Oil Petrol pumps and buy movie tickets through the paytm wallet. Paytm had a steady growth since its introduction in 2015 as it was India's largest mobile payment platform, it is growing faster and they have over 20 million registered users as per their current data.

The app downloaded on various platforms has touched the mark of 7 million but after the demonetization announced on 8th Nov. 2016 Paytm has been making Rs.120 crore per day. Paytm has gone through a huge growth in transactions and new users coming on board with people turning to digital platforms to avoid waiting outside ATMs. Since 9<sup>th</sup> Nov.2016, Paytm claims to have registered 700% rise in overall traffic on the platform and 1000% growth in the value of money added to mobile wallets. Paytm says the average transaction value has increased by 200% and the number of mobile app downloads by 300%.

Keeping track of how your social media updates affect your follower/unfollower statistics,

checking the relationship between any two Twitter/Instagram1 accounts and doing a whole lot more.

Used by over 10 million Twitter and Instagram users are available on the web, Android and iOS, Crowdfire has come a long way since the time it was first introduced. With every year it has grown and its users have increased. Starting with just 100k users in September 2010 to 16.5k users in January, 2017 crowdfire app has grown and helped its users in various platforms.

### Impact on Offline Businesses

The rise in the growth of app user economy has created a lot of problems for the offline businesses which provide the same services but not through the various application providers.

The growing popularity of app-based cab services like Uber and Ola has already eaten into the incomes of traditional auto and taxi drivers in all the cities of India but things are set to get worse. App-based cab services have grown popular in India because they offer more comfortable, air-conditioned transport at rates that are often cheaper than taxis. Taxi and auto unions typically demand fare hikes from the government at this time of the year, to help drivers' incomes keep up with inflation. However, with the rise in popularity and use of apps like uber and ola providing lower rates, they are not pushing for a revised fare, for the fear of losing even more commuters. This has left them in an unpleasant situation, if they agitate for a hike in their fares, they could lose more passengers to aggregator cab services; if they don't get higher fares, and their already-dwindling incomes are likely to shrink even further over the upcoming years. As said by K.K. Tiwari the leader of the Swabhimani Taxi Rickshaw Union that "Ola and Uber have ruined the demand for our autos and cabs, and so there is no demand from our drivers to push for a fare hike this year", "Business is already bad, and drivers are afraid it could get worse."

The rise in the user base for shopping apps like myntra, jabong, flipkart, koovs etc have created a decline in footfall in small malls and normal offline clothing and merchandise businesses. Nowadays people stay at home and order online at a much cheaper rate and in a much more convenient way. It is definitely better for people to sit at home and order at home rather than go to shops and stand in billing queue during rush hours and rush seasons.

The growth of apps have effected and caused problem for various offline businesses that are now advancing themselves and opening their own online apps to cater to their customers as they have realized that this generation is dominated by the technology and convenience of apps.

### Suggestion/Conclusion

India's app ecosystem functions in an environment that is inimical to growth. There are several constraints like, absence of skilled manpower, high cost of development, limited or no access to finances are considered major impediments to growth. A few other challenges include high cost of user

acquisition, hyper competition driven by independent and freelance developers and the high cost of marketing. Although with the rising use of smartphones and concept of digital India and a proper balance between protection and sharing of innovation of apps and with the increase in users and with modernization, the application or app market will keep on growing with passing years depending on the category and the popularity of the particular app. Apps currently account for 75,000 jobs in India. The emergence of apps embedded in mobile devices that go beyond providing basic access leads us to conclude that apps could potentially have a large impact on the economy and on livelihoods of many. Emerging markets such as India are the driving force behind rising trends in app downloads. India is among the top three countries for Google Play downloads in the world. Slowly and steadily the app market in India is growing with rise in the number of user and downloads. The market for mobile apps is already big, and it's just going to keep getting bigger. It is expected that the projected growth rate of the application market in 2017 will rise to 268 billion user downloads and will generate \$77 billion worth of revenue. Soon the whole world market will be available to us with just a click of our finger if the entrepreneurs and policy makers keep their focus on educating and digitizing the nation on a serious note.

## References

1. Aimonetti, J. (2012, April 26). *Study: Apple's UDID restrictions cost developers 24% revenue*. CNET Reviews. Retrieved June 9, 2012, from [http://reviews.cnet.com/8301-19512\\_7-57422554-233/study-apples-udid-restrictions-cost-developers-24-revenue/](http://reviews.cnet.com/8301-19512_7-57422554-233/study-apples-udid-restrictions-cost-developers-24-revenue/)
2. Kathuria, R, RoyChowdhury, S, Kedia, M, Srivastav, S, April 2015, *An Inquiry Into The Impact of India's App Economy*, . P Indian Council For Research On International Economic Relations.
3. Alcatel-Lucent. (2010). *Generating revenue for the application explosion: What's the right business model?* [Article was published in March 2010 TM Forum's "Monetizing New Business Models" report].
4. Barr, A. (2012, May 12). *Facebook's Zuckerberg says mobile first priority*. Reuters. Retrieved June 9, 2012, from <http://www.reuters.com/article/2012/05/12/net-us-facebookroadshow-idUSBRE84A18520120512>
5. Gair, G. (2011, December 1). *The app store landscape is moving toward segmentation and niche stores*. Research2Guidance. Retrieved February 12, 2012, from <http://www.research2guidance.com/the-app-store-landscape-is-moving-towardssegmentation-and-niche-stores/>
6. Holbrook, B. (2011, January 28). *5 ways to make money with iphone apps*. AppCraver. Retrieved February 19, 2012, from <http://www.appcraver.com/make-money-with-iphoneapps/>
7. Mathew, J. M. (2012, January 10). *Mobile apps development industry in the transformation fervor of 2012*. EzineArticles.com. Retrieved March 16, 2012, from <http://ezinearticles.com/?Mobile-Apps-Development-Industry-in-the-TransformationFervor-of-2012&id=6807438>
8. Perez, S. (2011, July 5). *App development services market to reach \$100 billion by 2015*. ReadWrite Mobile. Retrieved June 9, 2012, from <http://readwrite.com/2011/07/05/appdevelopment-services-market-to-reach-100-billion-by-2015>
9. Rakestraw, T.L, Rangamohan V. Eunni, Rammohan R. Kasuganti, 2012, *The Mobile App Industry*, Youngstown State University.
10. AppAnnie  
<<https://www.slideshare.net/BUEntrepreneurship/mobile-application-in-the-marketplace-research-paper>.
11. <http://venturebeat.com/2016/02/10/the-app-economy-could-double-to-101b-by-2020-research-firm-says/>
12. <https://www.consumer.ftc.gov/articles/0018-understanding-mobile-apps>
13. <http://www.digitalvidya.com/blog/mobile-app-market-india-4th-largest-app-economy/>
14. <https://yourstory.com/2016/09/revenue-growth-app-industry/>
15. <https://yourstory.com/2016/06/global-technology-businesses-india/>
16. <https://dazeinfo.com/2015/09/07/whatsapp-facebook-messenger-wechat-hike-monthly-active-users/>
17. <http://digiday.com/media/mobile-apps-driving-digital-growth-5-charts/>
18. <https://scroll.in/article/807342/unfair-competition-how-uber-and-ola-are-killing-livelihoods-of-mumbais-auto-and-taxi-drivers>.