

Essentials of Mobile App Development

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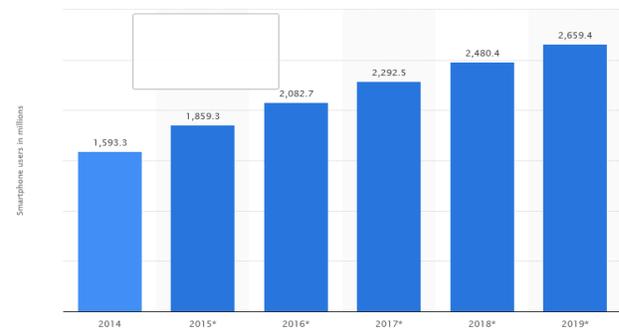
Abstract— In today's hyper connected world, mobile apps have become integral part of our life. Mobile phones are no longer a mere communication devices but they are addressing every day needs of an individual from entertainment to shopping, healthcare to transportation. With mobile phones becoming core part of business models, Mobile Apps are fast becoming primary platform for delivering software. It raises several questions around software development part of Mobile Apps in comparison with traditional software development process. This paper shades a light on specific needs and essentials of mobile app development process.

I. INTRODUCTION

In today's world we call a cab without getting on a street, buy the grocery without getting in a shop and get a loan without visiting the bank. Mobile App technology is changing the world around us. Phenomenal rise in usage of mobile devices / internet users is driving the way businesses use to reach their customers, provide their services, sale their products and gather intelligence about customer. Across the world, startups has exploited this opportunities more than traditional businesses. Innovative usage of technology is key to the success of most. Many believe this is just the start of digitalization. Increasing adoption of SMAC (Social – Mobile – Analytics – Cloud) is expected to impact the way each and every business will be run in future.

New age companies like Uber, Amazon, Snapdeal etc. have built their products and services around SMAC. Effectiveness and differentiation through usage of mobile app technology is going to be the critical success factor in digital world. **This paper attempts to shade a light on needs and essentials of mobile app development.**

II. RISE OF MOBILE DEVICES:



[Fig1. Number of smartphone users* worldwide from 2014 to 2019 \(in millions\)](#)

There was a time when every business felt that they cannot survive without traditional websites. Almost every business created their website to reach to its customers. However dependency on expensive computing devices (desktop or laptop) severely impacted its growth beyond point due to factors like affordability as well as mobility (Can you imagine carrying laptop with you for 24 hrs. a day?). Advancement in technology made it possible to have a small device like mobile phone having more computing power equivalent to computers. This started mobile revolution across the world. Chart (fig-1) depicts the growth of mobile device users across world.

III. MOBILE APP EVOLUTION:

Rise in usage of mobile devices triggered evolution in software programs written specifically for handheld devices which were later renamed as Mobile Apps. Phone directories, calculators, Word processor, spreadsheets installed on handheld computers/PDS in early 90's can be called as the first generation mobile applications. Iconic iPhone and Apple store started the whole new change in the world of Mobile App. Since then popularity and usage exponential went up with other companies like Google, Microsoft coming up with their own set of operating systems. This was aided by advancement in data transmission technologies like 3G/4G. Soon the entrepreneurs started realizing potential of mobile technology and mobile apps. Every mobile device user was a 'potential customer' for them thus starting a phase where mobile app is center to almost every new start-up. The data given above indicates the phenomenal rise in usage of mobile apps and it is going to increase at same or higher rate for some time.

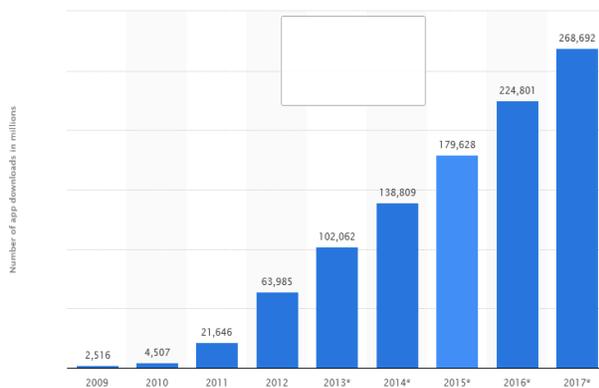


Fig2.Number of mobile app downloads worldwide from 2009 to 2017 (in millions)

Primary reasons for popularity of Mobile apps are:

Even now, industry experts are not unanimous in preferring Mobile Apps as a software platform over other ways like responsive web. However both users and new age companies continued to use Mobile App as a primary platform. Inherent advantage of mobile apps can be summarized as:

Availability- Most of the Apps are free to download, so user can download the app and start using it.

Usability- Apps are friendlier and help messages are available for guiding the user.

Customer convenience: Convenient for users now to perform routine transactions simply using app from anywhere i.e. bill payment, Ticket Booking.

Evolving Technology: Because of its popularity, every day new apps are getting introduced with more advanced technology.

During early phases, mobile app development process was perceived as same as any other software development. However there are few things that differentiate mobile app

from traditional software thus impacting its development lifecycle.

IV. DYNAMICS IMPACTING MOBILE APP DEVELOPMENT:

Traditional business use information technology primarily to drive efficiencies through automation. However mobile app based businesses face different dynamics as technology is core to their business model.

Innovation: Mobile apps serve needs from banking to e-commerce, networking to gaming. We are in a time where innovation is all about usage of existing technology to come up with innovative business models. It is core to the success of business.

Time to Market: Every time you hear about new startup concept, it is followed by number of companies copying the same. So we have dozens of companies doing e-commerce, hotel reservations, travel planning etc. basically doing the same business in similar manner. To make money in this market, simply coming up with new concept is not enough, you need to keep differentiating from your competitors. Time to market has reduced from years to months to days.

Creating customer need: Steve Jobs famously said that 'The customer never knows what they want until we show them'. New age companies are not developing their products, applications based on requirements / needs gathered from customer but they are inventing it. Arguably, success will depend upon 'how creative you are' rather than 'how diligent you are'.

Improving Customer engagement: The moment you search a particular holiday destination, you are flooded with advertisements related to airline tickets. If your mobile app crashes carrying out particular activity, you will see it being upgraded in no time to fix the issue. Once the product is launched, tracking customer behavior has become an important input for subsequent improvements. Handling issues faced even before it is reported by customer is fast becoming normal.

Ease of development: Today, you can develop your mobile app, website in no time. Advancement in base technologies, software is making it easy to develop an application, website. Internet reach and App-stores have made it extremely easy to distribute your product to end customer.

Technology risks = Business Risks: FlipKart app couldn't take surge in customer demand during festival times, resulting in huge loss of business opportunity for the company. Since entire business model is depending on underlying technology; it is imperative for companies to build robust platform to survive and sustain.

V. ESSENTIALS OF MOBILE APPLICATION DEVELOPMENT PROCESS

In order to be successful in long run, above mentioned dynamics of need to reflect in the way underlying software

applications are developed or maintained. Essentials of mobile application development process are:

Involvement of business: Since mobile apps are core to the business model, involvement of business owners is essential factor. Software development cannot be an isolated process.

Short development cycles: Essential to enable time to market requirement to meet changing business & technology needs

Design simplicity: Considering expectations of mobile apps users, creative but simple design is key. This also makes development process quick to implement

Collaborative Development: Scale of development efforts may not be need large workforce. However separation of responsibilities e.g. development, testing will be a challenge.

Quality Assurance: Though release cycle is short but due to business criticality quality cannot be compromised. It is essential to have strong quality assurance mechanism that typically involves usage of automation testing tools.

Anticipate future changes: Frequent changes in business dynamics and technology makes it essential for development to devise a process to anticipate future changes and make it a part of maintenance process.

VI. CONCLUSION:

Essentials of mobile application development process can be better addressed by agile development methodologies than waterfall. However one needs to remember that business and technology dynamics makes mobile application different than the traditional software. This is a fastest growing and has a huge potential for worldwide growth.

VII. LINKS AND BOOKMARKS

1. <http://www.statista.com/statistics/266488/forecast-of-mobile-app-downloads/>
2. <http://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>
3. <http://www.statista.com/statistics/266488/forecast-of-mobile-app-downloads/>