



Review Report



## Key characteristics of mobile applications and trends in mobile app Industry

Malyadri K<sup>1</sup> and Surya Teja N<sup>2</sup>

<sup>1</sup>Micro Services Lead Developer, CGI at Client PNC, Pittsburgh, PA, USA.

<sup>2</sup>Software Engineer, Microsoft, India.

### ARTICLE INFO

**Corresponding Author:**

[mkoripi@gmail.com](mailto:mkoripi@gmail.com)

**DOI:**

[http://dx.doi.org/  
10.17812/IJRA.7.25\(3\)2020](http://dx.doi.org/10.17812/IJRA.7.25(3)2020)

**Manuscript:**

Received: 21st Jan, 2020

Accepted: 15th Feb, 2020

Published: 18th Mar, 2020

**Publisher:**

Global Science Publishing Group, USA

<http://www.globalsciencepg.org/>

### ABSTRACT

The mobile application field has actually been receiving astronomical attention from the recent few years because of a developing lot of mobile app downloads as well as withal because of the revenues being engendered. With the surge in the number of apps, the variety of lamentable apps/failing applications has withal been growing. Interesting mobile application studies are consisted of in this paper which might make use the developers understand the concerns and advantages of mobile apps. The writers have actually helped make an effort to incorporate all the critical aspects that lead to applications to stop working which include negligence due to the programmers, technical concerns, poor marketing attempts, as well as higher prospects of the users/consumers. This paper provides the key characteristics of mobile applications and trends in mobile app industry.

**Keywords:** Mobile communication, characteristics, trends.

### 1. INTRODUCTION

Lately, cellular phones are actually acquiring a brand new drive with the appearance of cell phones and tablets. Mobile apps (or mobile applications) are sleek courses established to deal with cellular phones, tablet computers, and also feature phones. A fast rise in mobile phone apps has actually inspired mobile designers enormously. There is a continual increase in the

number of mobile documents created and also installed yearly. As well as the quick introduction of cell phones has created the brand new computer platform economically useful for not only businesspeople however additionally individual software program creators. Mobile use growth is actually rather different from conventional software growth. To develop a good mobile phone treatment, it is vital to know the essential components that

specify an excellent mobile phone application which, if almost used, produce them valuable and also useful. The wide variety of devices and platforms of mobile phones requires an exam of the distinct features of mobile phone apps as well as an evaluation of brand-new features and strategies for the development procedure, featuring making, coding, testing, and setting up, and also sustaining mobile phone apps. Without enough understanding of these attributes, mobile devices might be revealed to possible strikes that cannot be dealt with promptly. Nevertheless, there is still a lack of investigation initiatives of various kinds, classifications, and also attributes of mobile applications.

For this reason, a web questionnaire was carried out in the present paper including mobile phone companies, mobile app development team members, mobile phone specialists, analysts and also relevant stakeholders to check out current surfacing strategies as well as brand new investigation instructions in the place of mobile phone app progression. The paper illustrates the factors to consider that developers require to take into consideration when developing mobile phone applications, due to hardware, software, and communication characteristics details to those devices.

By using Mobile communication which includes units making use of methods, companies, data transfer & protocols to help within the stated services. The structure of the style of the record is effectively defined in the stated services. This provides that there is no barrier with various other existing units that provide the very same company. The superimposing infrastructure is actually more broadcast sign adapted, these signs are rollover the sky to planning tools that are capable of getting & delivering signs.

#### **Mobile hardware:**

Mobile equipment that includes smartphone elements that access the solution of mobility. It assortments coming from Laptops, smartphones, tablet computers, personal computer, personal digital assistants etc. These

devices will definitely possess qualified to receive & noticing signs. These are actually set up to function completely duplex, there through sending & obtaining the indicators simultaneously. They do not possess wait up until one gadget has actually completed the communication for other tools to initiate interaction.

#### **Mobile software:**

Mobile software application is the Program that runs on the application on mobile phone components. It deals with the needs & gadget functionalities of the apps. It assists in and run the program in the gadget as well as likewise relies on the system software that home appliance. It is actually center component that helps make the mobile phone to run the request. Portability is the principal aspects to manage the app in various unit certain systems. This kind of calculating solutions makes sure the customer is actually not linked to single gadget. They manage to run from anywhere will integrate all facets of the interactions.

There are pair of forms of mobile phone apps Advancement

- Native Mobile Applications
- Mobile applications

We have to concentrate 2 factors in mobile app development

- 1) User interface design (UI)
- 2) Efficient utilization of device capabilities

Indigenous mobile phone treatments are actually created using the native language of the tool particular platforms. For example Objective C on iPhone system, Espresso on Android and.net on Windows. The main Perk of building Native Mobile Requests is to boost the Functionality of the Use.

## **2. BASICS OF THE MOBILE APPS INDUSTRY**

Although the mobile phone apps business began with Apple's overview of the iPhone, its incredible development is due to the contestant of numerous rivals right into the marketplace,

especially Motorola, LG, as well as Samsung. This competition has actually brought about a completely brand new item room called smart devices. Smart devices possess much higher functions than typical smart phones as a result of their potential to run mobile phone apps. These apps provide on smartphones the capacities to deliver and also get e-mail, participate in music, motion pictures, and video games, and also communicate remotely along with pcs from basically anywhere in the planet.

Smart devices consist of much of the very same elements as computers. Every smart device has a processor, random access memory stick(s), USB slots, show adapters, and also interior storage devices. Customers may also individualize and upgrade their devices to satisfy their personal necessities. As an example, a user that desires to use the smartphone for video gaming can easily acquire a tool along with a multi-core processor chip as well as added storage to secure big video games. Most cell phones are actually additionally outfitted along with a touchscreen obviating the requirement for a bodily essential board. USB peripherals including audio earphones and also information transfer cable televisions are additionally offered for cell phones.

The center software application found in a mobile phone is actually called the system software. The system software contains all the drivers required to perform directions between the software and equipment of the unit. The operating system may be imagined as a software application pile consisting of a number of coatings. First, the piece deals with the vehicle drivers that manage a smart device's equipment, including its built-in electronic camera or even USB ports. Middleware contains software program libraries which connect to mobile apps. The function completion environment consists of all the application programming user interfaces (APIs) for developers to program brand-new mobile phone applications for the OS. Ultimately, the app suite has center apps which are packaged along with the system software through default. These applications

consist of phone call software application, content messaging, menu display screens, and calendars, as well as much more. A mobile phone app is actually software application that a consumer can easily mount on a cell phone to perform a specific duty. As an example, Android possesses a FAMILY DOCTOR application which makes it possible for the individual to acquire trip instructions in real time, or perhaps track the locations of family members from anywhere in the nation.

### 3. CONSUMER PREFERENCES IN MOBILE APPS

By the year 2010, the mobile apps sector became significantly saturated as new competitors went into the marketplace flooding it along with many wide arrays of utilitarian along with way of living apps. A poll performed through Nielsen in 2010 showed the kinds of apps that remained in biggest requirement by consumers. A breakdown of the several categories of uses made use of within a period of 1 month as surfacing coming from the study is presented. Facebook, Google.com Maps, and also the Weather Network were the absolute most preferred apps all over all systems. In social media, Facebook was by far one of the most prominent app, with Myspace trailing behind in part because of its continuing recognition with teenagers. LinkedIn additionally drew in a large number of customers in the age group of 25 to 44 (The Condition of Mobile Application, 2010).

The news and also weather condition app category was dominated due to the Weather Stations, which was actually downloaded by 58% of the consumers checked. Amazon and also eBay led the buying group with 57% and also 41% specifically. Eventually, the songs group was actually increasingly very competitive along with iTunes, Pandora, Sirius-XM, and also Yahoo! Popular music all contending for the # 1 posture (The Condition of Mobile Apps, 2010).

Records picked up through Spurt in Might 2011 disclosed that activities and social networking applications, led through Facebook, continued

to be the best well-known app group's one of consumers, as shown. Outbreak also found that consumers not only accessed activity and also social media apps even more regularly yet additionally for longer time frames per session. That lots of individuals were actually accessing Facebook so as to participate in games accessible on that particular platform indicate the mind-boggling supremacy of this category of mobile phone applications.

In 2010, one of the most recognized selection for app authors was actually the iPhone's iPhone OS. Nonetheless, various other operating systems like Android, iPad, Microsoft window Mobile as well as Symbian likewise appreciated big spikes in use as the devices connected with all of them came to be a lot more well-liked as well as developers attempted to diversify their products appropriately.

In 2011, the developing operating systems, especially Android as well as Microsoft's Microsoft window Phone 7, were expected to obtain in usage. Microsoft has sought to promote developer passion in its platform by offering incentives to developers to produce beta functions.

#### 4. REVENUE GENERATION FROM APPS

By the year 2010, the mobile apps sector became significantly saturated as new competitors went into the marketplace flooding it along with many wide arrays of utilitarian along with way of living apps. A poll performed through Nielsen in 2010 showed the kinds of apps that remained in the biggest requirement by consumers. A breakdown of the several categories of uses made use of within a period of 1 month as surfacing coming from the study is presented. Facebook, Google.com Maps, and also the Weather Network were the absolute most preferred apps for all overall systems. In social media, Facebook was by far one of the most prominent apps, with Myspace trailing behind in part because of its continuing recognition with teenagers. LinkedIn additionally drew in a large number of customers in the age group of 25 to 44 (The

Condition of Mobile Application, 2010). The news and also weather condition app category was dominated due to the Weather Stations, which was actually downloaded by 58% of the consumers checked. Amazon and also eBay led the buying group with 57% and also 41% specifically. Eventually, the songs group was actually increasingly very competitive along with iTunes, Pandora, Sirius-XM, and also Yahoo! Popular music all contending for the # 1 posture (The Condition of Mobile Apps, 2010).

Records picked up through Spurt in Might 2011 disclosed that activities and social networking applications, led through Facebook, continued to be the best well-known app group's one of the consumers, as shown. The outbreak also found that consumers not only accessed activity and also social media apps even more regularly yet additionally for longer time frames per session. That lots of individuals were actually accessing Facebook so as to participate in games accessible on that particular platform indicate the mind-boggling supremacy of this category of mobile phone applications.

In 2010, one of the most recognized selection for app authors was actually the iPhone's phone os. Nonetheless, various other operating systems like Android, iPad, Microsoft window Mobile as well as Symbian likewise appreciated big spikes in use as the devices connected with all of them came to be a lot more well-liked as well as developers attempted to diversify their products appropriately.

In 2011, the developing operating systems, especially Android as well as Microsoft's Microsoft window Phone 7, were expected to obtain in usage. Microsoft has sought to promote developer passion in its platform by offering incentives to developers to produce beta functions.

#### 5. KEY CHARACTERISTICS OF MOBILE APPLICATIONS

There are common problems to both typical software engineering and also MAD like components unit integration, performance, reliability, storage space constraints and security

concerns [2] Nevertheless, MAD provides some added demands like prospective interaction along with various other apps, assimilation along with tool sensing units, native and also hybrid (mobile phone web) applications, households of software and hardware platforms, security requirements, variability of user interfaces, intricacy of testing, electrical power usage, limited information, and also brief length session activities performed on smart phones [3,4] Mobile located apps have actually been actually increased as the progression of mobile computing and also interaction technologies [5] Divergent components producers for mobile phones and also tablet platforms have actually warranted developers to help make a series of the same request adapted for each kind of units. Program reuse in MAD has been advised too.

Moreover, the key attributes that specify a productive mobile phone application are actually capability, integrity, flexibility, access, mobility, productivity, maintainability, usability as well as responsiveness, repeated according to users criteria, the high quality features indicated in ISO 9126.

The ten personalize ds whereby personal computer internet sites vary coming from mobile internet sites on the manner of web content prioritization (consisting of the most crucial functions and also functions); upright as opposed to straight navigating; bars, tabs, and hypertext; text and graphics; contextual as well as global navigation; footers; breadcrumbs; improvement indicator; combination with phone functionalities; and localized & individualized hunt.

Mobile computing modern technology makes it possible for mobile consumers to create, access, method, establishment and also correspond info without being actually constrained to a solitary location. Strong mobile computing solutions are actually achievable because of the honesty of extremely powerful and small computing hardware (defined by size and form factor, weight, microprocessor, primary storage, secondary storage, screen size and type, means

of input, means of output, battery life, communication capabilities, expandability, durability of the device); specialized system and application software (common system software and operating environments include MSDOS, MS Windows, UNIX, and more) and improved telecommunication (communication with fixed information system categorized as Connected, Weekly Connected, Batch and Disconnected).

Furthermore, the specific mobile app, hardware, software, and operating location/environment determine which communication media are appropriate to use for a mobile computing solution.

The current advancement in mobile applications and different market and technology trends have dramatically benefited developers. They have generated many new development opportunities, to distribute and generate significant revenues with the emerging mobile Application portals.

Characteristics related to Hardware
Less Power
Input Mechanism
Screen Size and Form Factor
Start-up Time
Physical Parameters
Device Fragmentation
Characteristics related to Software
Application Interaction
User Experience
User Interface
Interaction with Information Sources
Integration with other Apps
Action Feedback
Error Notification
Application Development
Application Focus
Experienced Resource
Convenience
Responsiveness
Personalization
Localization
Reachability
Application Security
Encryption
Expire Sessions
Request Validity Period
Prevent Repeat Request
Characteristics related to Communication
Network Connectivity

Table 1: Characteristics of Mobile Applications

## 6. MOBILE APP INDUSTRY TRENDS

Adjustments develop so swiftly in the mobile phone application market that a completely

brand-new fad makes its own existence annually. For example, in 2010 smart devices and mobile phone apps were the trendiest products in the market, while in 2011 tablet computer personal computers pioneered along with a pointy rise in consumer demand. These improvements in demand have triggered corresponding boosts in the supply of applications readily available in the application markets. Through assessing previous trends, one might anticipate the items which would certainly be in high need in the future.

In 2010, the leading app classifications were actually mobile gaming as well as social networking. Nonetheless, in 2012, a growth region is counted on to be service apps along with functional utility. App designers need to serve users by generating applications to manage traits such as opportunity management and multitasking. One problem linked with the growth of company apps involves the collection of the right platform to fit your business consumers' needs. Designers should establish the most well-known platforms used by companies as well as execs so as to maximize incomes. Toward the end of 2011, the variety of service applications downloaded had climbed significantly, yet in regards to the overall market, there appears to be also greater potential for growth.

Individuals have also begun utilizing their mobile devices for online purchasing in addition to making usual investments. As a result, another trending app type for 2012 could be the mobile phone pocketbook, in which the mobile phone works as an online kind of credit score or debit card as well as online banking. Numerous banking companies have already begun to provide mobile phone apps to address this demand. Such digital pocketbook applications are actually counted on to end up being a lot more common in 2012.

The latest significant increase popular for cloud computing will certainly proceed as additional fields change towards cloud-based services. This will definitely in turn create the necessity for

cloud sync service providers and cloud-based apps. More apps that arrange information with the cloud, both personal and social, are expected to become created as designers incline web-based functions, as these are actually much more reliable for cloud-based software.

One more substantial pattern for app development in 2012 will be the utilization of area-based keeping an eye on bodies. This will allow application publishers to deliver targeted advertising and marketing to customers based upon their GENERAL PRACTITIONER site. Targeted ads will certainly be so much more dependable and price-helpful, which will definitely additionally increase the application incomes. Along with the purchase of applications to users, yet another lucrative part of the mobile application industry counted on to see growth in 2012 is actually the offering of advertising and marketing services to app programmers. As a result of the ever-growing source of applications with all the significant application markets, it has come to be exceptionally challenging for application authors to differentiate their products from the competition. It is actually tough for programmers to pitch the excellence of their products because of the over-saturation and also shortage of structure in the market place.

## 7. CONCLUSION

Good mobile apps give a targeted and reliable adventure for achieving certain activities simply put treatment timeframes. It is very important that the mobile phone development neighborhood understands these ideas along with the details technologies. Extremely handful of scientific magazines could be discovered which exclusively pinpoint essential attributes and also what creates mobile uses various coming from traditional program. Significant job still stays to be performed in this field in relations to further validation of the rooting speculations, and also extensive explanation of each quality. This paper provided the key characteristics of mobile applications and trends in mobile app industry.

REFERENCES

- 1) Andersson, K., & Johansson, D. (2012). "Mobile e-services using HTML5". In Proceedings of the IEEE 37th Seminar on Neighborhood Computer System Networks Workshops (LCN Workshops), 814-- 819. DOI: 10.1109/LCNW.2012.6424068.
- 2) Balduini, M., Celino, I., Dell' Aglio, D., Della Valle, E., Huang, Y., Lee, T., Tresp, V. (2013). "Reality Mining on Micropost Streams. Deductive and also Inductive reasoning for individualized as well as Location-based Recommendations". To be published in Semantic Internet. Pre-press [On the web] Available: <http://iospress.metapress.com/content/57280j6764328332/>.
- 3) Beldad, A., de Jong, M., & Steehouder, M. (2011). "I count on not for that reason it needs to be unsafe: Determinants of the recognized risks of making known personal data for e-government transactions". In Computers in Individual Actions, 27, (6), 2233-- 2242. DOI: 10.1016/j.chb.2011.07.002.
- 4) Malyadri, K, "Need for Key Management in Cloud and Comparison of Various Encryption Algorithm", International Journal of Scientific Research in Computer Science, Engineering and Information Tech, vol. 1, issue 1, July-August 2016
- 5) Yeshwanth Rao Bhandayker, "an overview of theintegration of all data mining at cloud-computing" in "Airo International Research Journal", Volume XVI, and June 2018 [ISSN: 2320-3714].
- 6) Yeshwanth Rao Bhandayker, "Security Mechanisms for Providing Security to the Network" in "International Journal of Information Tech and Management", Vol. 12, Issue No. 1, Feb-2017, [ISSN: 2249-4510].
- 7) Malyadri, K, "Security Threats, Security Vulnerabilities and Advance Network Security Policies", International Journal of Innovative Research in Science, Engineering and Technology, Vol. 2, Issue 9, September 2013.
- 8) Sudheer Kumar Shriramoju, "Access Control and Density Based Notion of Clusters", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN: 2395-602X, Print ISSN: 2395-6011, Volume 1 Issue 3, pp. 215-220, July-August 2015.
- 9) Sudheer Kumar Shriramoju, "Review on NoSQL Databases and Key Advantages of Sharepoint", International Journal of Innovative Research in Science, Engineering and Technology, ISSN (Online): 2319-8753, ISSN (Print): 2347-6710, Vol. 7, Issue 11, and November 2018.
- 10) Sudheer Kumar Shriramoju, "Capabilities and Impact of SharePoint on Business", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN: 2456-3307, Vol. 2, Issue 6, Nov-Dec-2017.
- 11) Sudheer Kumar Shriramoju, "Security Level Access Error Leading to Inference and Mining Sequential Patterns", International Journal of Scientific Research in Science, Engineering and Technology, Volume 2, | Issue 4, July-August 2016.
- 12) Pushpa Mannava, "An Overview of Cloud Computing and Deployment of Big Data Analytics in the Cloud", International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), Online ISSN: 2394-4099, Print ISSN: 2395-1990, Vol. 1 Issue 1, pp. 209-215, 2014. DOI: <https://doi.org/10.32628/IJSRSET207278>.
- 13) Pushpa Mannava, "Role of Big Data Analytics in Cellular Network Design", International Journal of Scientific Research in Science and Technology (IJSRST), eISSN: 2395-602X, Print ISSN: 2395-6011, Volume 1 Issue 1, pp. 110-116, March-April 2015. DOI: <https://doi.org/10.32628/IJSRST207254>.
- 14) Pushpa Mannava, "A Study on the Challenges and Types of Big Data", "International Journal of Innovative Research in Science, Engineering and Technology", ISSN (Online): 2319-8753, Vol. 2, Issue 8, and August 2013.
- 15) Pushpa Mannava, "Data Mining

- Challenges with Bigdata for Global pulse development”, International Journal of Innovative Research in Computer and Communication Engineering, ISSN (Online: 2320-9801, vol 5, issue 6, june 2017.
- 16) Pushpa Mannava, "Big Data Analytics in Intra-Data Center Networks and Components Of Data Mining", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN: 2456-3307, Volume 1 Issue 3, pp. 82-89, November-December 2016. DOI: <https://doi.org/10.32628/CSEIT206272>.
  - 17) Malyadri. K, "An Overview towards the Different Types of Security Attacks", International Journal of Innovative Research in Computer and Communication Engineering, Vol. 2, Issue 8, August 2014.
  - 18) Sugandhi Maheshwaram, "An Overview of Open Research Issues in Big Data Analytics" in "Journal of Advances in Science and Technology", Vol. 14, Issue No. 2, September-2017 [ISSN: 2230-9659].
  - 19) Yeshwanth Rao Bhandayker, "Artificial Intelligence and Big Data for Computer Cyber Security Systems" in "Journal of Advances in Science and Tech", Vol. 12, Issue No. 24, Nov-2016 [ISSN: 2230-9659].
  - 20) Sugandhi Maheshwaram, "A Comprehensive Review on the Implementation of Big Data Solutions" in "International Journal of Information Tech. and Management", Vol. XI, Issue No. XVII, Nov-2016 [ISSN: 2249-4510].
  - 21) Sudheer Kumar Shriramoju, "An Overview on Database Vulnerability and Mining Changes from Data Streams", International Journal of Information Technology and Management, Vol. VII, Issue No. IX, August-2014.
  - 22) Sudheer Kumar Shriramoju, "Integrating Information from Heterogeneous Data Sources and Row Level Security", Journal of Advances and Scholarly Researches in Allied Education, Vol. IV, Issue No. VIII, October-2012.
  - 23) Sudheer Kumar Shriramoju, "A Review on Database Security and Advantages of Database Management System", Journal of Advances in Science and Technology, Vol. V, Issue No. X, August-2013.
  - 24) A.Monelli and S. B. Sriramoju, "An Overview of the Challenges and Applications towards Web Mining," 2018 2nd International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC) I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), 2018 2nd International Conference on, Palladam, India, 2018, pp. 127-131. DOI: 10.1109/I-SMAC.2018.8653669
  - 25) Pushpa Mannava, "A Comprehensive Study on the Usage of Big Data Analytics for Wireless and Wired Networks", International Journal of Scientific Research in Science and Technology (IJSRST), Online ISSN: 2395-602X, Print ISSN: 2395-6011, Vol 4 Issue 8, pp. 724-732, May-June 2018. DOI: <https://doi.org/10.32628/IJSRST207256>.
  - 26) Pushpa Mannava, "A Big Data Processing Framework for Complex and Evolving Relationships", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, ISSN: 2278 – 8875, Vol. 1, Issue 3, and September 2012.
  - 27) Pushpavathi Mannava, Vijay Namavaram, "A STUDY ON THE ROLE OF DATA MINING TOWARDS INFORMATION SECURITY", Airo International Research Journal, Vol 20, Issue 1, January 2020.
  - 28) Pushpavathi Mannava, Vijay Namavaram, "a comprehensive study on ppdm and code reuse attacks", Airo International Research Journal, Volume XVI, Oct. 2018.
  - 29) Pushpavathi Mannava, "Applying Data Mining Strategies towards Evaluation of the Selected Decision Tree Model", International Journal of Science, Engineering and Management (IJSEM), Vol 4, Issue 4, April 2019.
  - 30) Pushpavathi Mannava, "An Overview of Machine Learning and Deep Learning", International Journal of Research, Volume VIII, Issue III, March 2019.