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# An Analysis and Evaluation of the Mobile App Development Industry as an Emerging Support for Business Practices

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**Abstract:** *In our current era, we frequently encounter disruptive technologies that fundamentally alter the market's perspective. An illustration of this is the emergence of Mobile App Development, which profoundly transformed the way individuals engaged with software. In the past, software development primarily focused on creating stand-alone or web applications. However, there is now a significant emphasis on the development of mobile applications. Previously, standalone technologies necessitated the user to possess a Personal Computer in order to utilize their applications. However, the target audience for this type of application development significantly widens because the platform on which the software is provided is limited to just a mobile phone. Due to the widespread availability of mobile devices, the development of applications for portable devices has become the standard method for delivering services to their target audience more quickly. The App Development sector has seen significant evolution. Since its inception, it has consistently and significantly grown. This research provides an extensive analysis of the Mobile App Development Industry and its prevailing influence in India.*

**Keywords:** Mobile App Development, Android, iOS, Industry Analysis

## I. INTRODUCTION

Ever since the inception of the Information Technology industry, several software applications have been revolutionizing our perception of things. Almost all other tasks that were previously performed manually are now mechanized and handled by technology. This encompasses the domain of software development. Parent is a comprehensive term that encompasses the creation and implementation of software for both websites and standalone applications. The minimum hardware requirements specified for the development of these programs were typically a computer with suitable capabilities. Individuals who possess the means and inclination to purchase a computer are limited to utilizing it solely during the software's lifespan. Recently, drug users were only able to access websites through Cyber Cafes. Although laptops and PCs are accessible to many individuals, the proportion of people who have access to them is far lower than the overall population. With the advent of mobile phones, which essentially function as handheld computers, there has been a significant increase in the number of people purchasing mobile phones and a rise in the number of individuals who are capable of understanding and using applications. Individuals of all age groups are already acquiring the skill of utilizing a mobile application. In addition, the App Development Industry has also utilized it.

### Overview of Mobile App Development:

Mobile App Development refers to the process of designing and building software specifically for use on portable digital devices, such as mobile phones. The industry is seeing enormous growth and has become a crucial element in every imaginable organization.

Although other mobile phones are available, Android and iOS dominate the majority of the market. Now let's examine the global market share of mobile operating systems. Professionals in this field usually focus on developing Mobile

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Apps for Android and iOS, which currently hold a dominant share of 99.24% in the global market. Although iOS dominates 96.07% of the market in India, it only holds a 59.97% share in the United States. Consequently, the App Development industry predominantly focuses on these two Operating Systems. While traditional software creation remains profitable, app development surpasses it by offering functionalities that are not available in standard desktop or web applications. The application may experience a failure to deliver. The inclusion of GPS, Compass, Accelerometer, Sensors, Bluetooth, and other features significantly enhances the functionality of mobile phones, making them more versatile deployment devices compared to PCs. When building a Mobile App, it is essential to choose a programming language and/or framework, similar to how we would do so for traditional software. While Android and iOS development may appear distinct, it is crucial to comprehend the several avenues of Mobile App Development that are available. There are three primary categories of app development, namely:

**Development of web applications using HTML**

Web applications are essentially webpages designed to mimic the look and functionality of a responsive website. Usually, they are generated within a web browser using HTML5, CSS, and JavaScript. By installing such an app, we are essentially creating a bookmark to this page and identifying that link as an app. Due to their responsiveness, they will automatically adjust to the screen size of any device that is being used. Native app development outperforms them in terms of functionality and performance. The tools needed for constructing a web app are HTML5, CSS, JavaScript on the client side, and PHP, Perl, Python, Ruby, and other server-side technologies. This is because the process of building a web app is identical to making a website.

**Benefits of Mobile app for business**

• There is no requirement to focus on a particular platform; once the creation is complete, it may be used on any platform.
• Since there is no need to download any content onto the device, it consumes minimal storage space.
• The process of maintaining the app is made easier because any changes or updates are automatically released on the internet, removing the requirement for upgrades.

**Drawbacks of Mobile app for business**

• The user experience may vary based on the browser used by the user, as it is entirely reliant on the browser.
• Due to their nature as websites, these platforms are dependent on internet connectivity for their proper functioning.
• The full range of features on a mobile device cannot be utilized.
• The app cannot be found on the Google Play store, thus specific instructions or marketing efforts are needed to add or download it onto a phone.

**Development of hybrid applications**

Hybrid applications consist of a combination of native apps and web apps. They can be distributed through an application store and utilize specific inherent functionalities [10]. As web applications, they depend on HTML code that is shown on a web browser. Although the hybrid app may resemble and function like a native app, it is just a basic web program that runs within a browser, hence its name. Developers can expand their target demographic and monitor app downloads without the need to create two distinct applications [11]. Various methodologies can be employed to develop a hybrid application, such as React Native, Flutter, Cordova, Ionic, Xamarin, and more alternatives.
Why Native app development is more time-consuming and costly compared to creating an app using this method.
• It is necessary to maintain a single code base that will update simultaneously on each targeted platform.
• Can be accessed offline.
• The most optimal approach is to promptly provide an MVP (Minimum Viable Product) using an application.
Although numerous applications on the market utilize a combination of the aforementioned development methods, each app is created in a distinct manner, considering factors such as Development Cost, Timeframe, Required Features, and various other customizable options. The global app development industry has had significant growth and continues to expand. Perform this task on a daily basis. The market's value was $106.27 billion in 2018 and is projected to reach

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$407.31 billion by 2026. In addition to the app's financial earnings, it is important to additionally address the development industry. The cost of producing a typical app is influenced by multiple factors.

**The app development industry in India**

According to a 2019 research by the progressive Policy Institute of the United States, India, known for its strong focus on technology, is projected to surpass the United States as the top hub for developers by 2024. Based on the survey findings, India is among the top countries in terms of mobile application downloads, with a user base of over 500 million smartphone users. Understanding India's position in the realm of apps and app development is crucial. It is undeniable that India has made significant progress in the realm of app development. Indian App Developers have recently published their apps on both the Google Play Store and the Apple App Store.

**The Introduction of the 5G Network:**

5G is the latest addition to a group of network technologies that allow for high-speed communication without any delay. The velocity of the Internet is crucial in the contemporary era of advanced technology that requires great performance. Previously, data used to be billed based on the kilobyte (KB), but now we have an abundance of data available on mobile devices without any apparent limit. Although there is a notable discrepancy in internet access between broadband at home and mobile data, the introduction of 5G technology will help bridge this gap. The data will not hinder your ability to download and utilize data-intensive applications.

**Applications for wearable technology and other technological advancements in the medical field:**

The scope of app development has extended beyond mobile devices and tablets to encompass applications that need to be installed on wearable devices like watches and body monitoring devices. etc., which mainly provide advantages to individuals and healthcare workers. The businesses of agriculture and health care are of utmost importance and should not be disregarded under any circumstances. The development of applications that assist in the surveillance of an individual's heart rate and other physiological indicators, as well as the quantification of physical activity such as step count and calorie expenditure. A significant number of individuals who prioritize their health are eagerly anticipating the utilization of wearable devices to monitor their own well-being.

**Mobile commerce:**

E-Commerce has transformed into m-Commerce, where the majority of orders are made using a mobile application. Certain prominent e-commerce industries frequently provide numerous incentives to customers who opt to make purchases through a mobile application instead of a website. This allows them to promptly notify and present future offers to the customer. The client is 15 years old. The user's primary concern revolved around the payment for these orders made on internet platforms. The market's many payment methods, such as Cash on Delivery, Credit Cards, Debit Cards, Net Banking, and UPI-based payments, have now diminished its significance.

**The mobile app development life cycle:**

Recent trends indicate that the predominant mode of digital media consumption is through mobile phones, with apps occupying 90% of the time spent on a mobile phone, excluding calls and SMS. Developing a mobile application is less challenging than it may seem. We have already observed various types of applications. Potential expansion. Now, we will analyze the App Development Life Cycle of a standard mobile application project, irrespective of the app's intricacy:

**Objectives and Specifications for Mobile Application**

Defining the objectives of app construction is a crucial stage in the development process when the customer aims to establish the specific goals that the app needs to achieve. This process also guarantees that all of the technical and non-technical requirements of the app are thoroughly documented. In order to complete this stage, the developer must thoroughly understand both the issue description and the customer's requirements. For instance, it is imperative that we have the capability to address inquiries like the ones provided below:

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The app's target consumers or end users are individuals who are intended to utilize the app. The objective of developing this application is to achieve a specific purpose or target.

• What benefits would the developer/company accrue from developing this app?

• Which technologies and tools are necessary to develop this application?

• What are the competitors in the market, and what will be the distinctive feature of this app that sets it apart from others?

These are only a few of the questions that need to be answered before the First Stage is concluded. Furthermore, it is vital to explore a method for this application to be upgraded and capable of offering novel offerings as the organization or region grows.

**Application development and prototyping**

Once the app's objects are well defined, it becomes evident what the app will provide. We should be capable of creating a prototype and generating a storyboard in the next round of development. During this phase, our focus should be on optimizing the app's functionality and user interface. The stoner interface (UI) is the platform where we create the visual design, user interaction, and functionality of a system. The manner in which the software will be utilized by the individual who regularly consumes cannabis is of interest. Wireframing is a common practice used to create a functional prototype of the stoner interface. Wireframing is a method used to create a basic structure or framework for our software. Inventors utilize it to enhance their comprehension of the application's functionality, while contrivers employ it to gain a deeper understanding of the user interface design process.

**Information architecture refers to the organization and structure of information in a system or website.**

The focus of this wireframing part is on determining the optimal placement, positioning, and prioritization of important information in a way that enhances the user's understanding and enjoyment. User Interface (UI) Design is a form of design that presents information in a manner that facilitates clear and direct communication.

Designing the layout and structure of a navigation system.

Wireframing in this phase constructs a navigation system that utilizes a set of criteria to determine which runner to display next based on the environment and conditioning observed on a single screen. The relationship between each screen and its connections must be clearly defined to ensure that the user comprehends how to navigate the app and access its vibrant features.

User Interface Design

In this phase of wireframing, an interface is designed for the user to input or select data using various UI elements like as text boxes, check boxes, radio buttons, etc. It guarantees that the program is user-friendly and operates with maximum efficiency.

Selecting a Backend:

Data storage is a necessity for any application, and its location is decided by factors such as the nature of the data, the cost, and the effectiveness of the storage environment. Typically, users have the ability to store data on the internal storage of their phone. The data is often stored in a key-value pair format, commonly in XML or a Relational Database such as SQLite. Nevertheless, if the data needs to remain durable across several users and devices, a Web Server is the optimal choice. There are other choices available depending on the specific requirements, such as using a customized server, a cloud server, or an MBAs. Mobile Backend as a Service (MBaaS) is an example of a service that utilizes either a bespoke server or a cloud server to support mobile applications.

**Mobile application development:**

Upon successful completion of the preceding two steps, a definitive understanding of the necessary requirements and the manner in which they must be achieved will be obtained. The next step would involve commencing the development of the application, utilizing the knowledge acquired throughout the preliminary stages of planning, designing, and learning experiences. Subsequently, the developer or firm has the option to choose the specific development environment in which they choose to operate. There are numerous choices available, contingent upon the target demographic of the application. For example. If the software is specifically designed for Android users, it will be

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created using Android Studio using either Java or Kotlin. If there are only iOS users, the iOS app will be developed using XCode with the Swift programming language.

**Testing and Quality Assurance:**

Regularly testing the app is crucial once it has been fully developed with all its functionalities, as it allows us to identify and address any potential flaws or defects. The application should undergo comprehensive testing with a substantial user base. Multiple real-world occurrences are utilized to detect any technological deficiencies in the application. It is commonly recommended that the testing team should be separate from the team that developed the app due to the substantial danger of supervision on their part. The development team may be unable to uncover further challenges and insights due to a lack of clarity.

The release of the app is contingent upon the platforms where users are required to get an authorized version of the software. The Google Play Store and the Apple App Store each have their own distinct testing procedures. The software program. After successful completion, the app is officially published, allowing people to download it on their mobile devices. Before proceeding, the team will have determined the specific pricing model for the user, including options such as Single Purchase, Freemium, Subscription, and others. Every download will result in the imposition of a publication fee and/or a transaction cost, which may vary depending on the host.

## II. CONCLUSION

The Mobile App Development Industry, although relatively new, has already exceeded the revenue generated by other IT or IT Enabled Industries. This industry has undergone significant transformation and expansion within a brief timeframe, including individuals who previously would not have contemplated utilizing software. Having become experts in the utilization of a Smart Phone and its various applications, these individuals have acquired this proficiency over the course of their entire life. It is justifiable to assert that a mobile phone is currently employed for a multitude of purposes beyond mere voice conversations and text messaging [43]. On a daily basis, a significant influx of new users enlists with Apple or Google to activate a new device. Each day, a substantial influx of new clients enlists with Apple or Google to activate a novel device. India has leveraged this industry to establish itself as a nation with the most rapidly expanding user base and developer community for mobile applications globally. In addition, India's contribution has resulted in the country's ascent to the position of the third largest, with remarkable app revenue. This enterprise has played a crucial role in facilitating India's ascent to global prominence, not just as a major consumer of mobile applications but also as a leading hub for app creation. India has been a popular choice for global investment in app development. We have thoroughly examined the current and future state of this industry. It is quite probable that the App Development Industry would thrive in the coming days, as there is no evidence of a decline in the usage of mobile phones in our daily routines. In order for the Mobile App Development Industry to progress in the coming years, it must prioritize effectively leveraging existing IT advancements and creating Apps that are not simply replicas of previous ones.

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