



# Comparative Analysis of Freemium Policies and Procedure between Major Mobile Platforms

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**Abstract:** Smartphone ownership is fast becoming a birth-right in the world of today. For developers, this opens up a whole new world of business opportunities where applications are being purchased every single day. Besides the multi billions of dollars spent each year on application purchases alone, consumers nowadays are facing an even newer trend; In-App Purchasing. In-App purchasing refers to a scenario where the initial applications are downloadable for free, however some additional functions or elements of the applications may be acquired within the applications for a small (or not so small) fee. This paper aims to review this trend and the guidelines that is applied to this phenomenon by the three main smartphone operating systems; iOS, Android and Windows. This would be done by highlighting the major strengths and weaknesses that each platform has to offer, as well as the common policies that are enforced across all three platforms.

**Keywords:** Comparative Analysis, Freemium, In-Application Purchase, Mobile OS, Policies and Procedures, Smartphones.

## 1. INTRODUCTION

This main content of this paper is to initiate a survey study on the policies and procedure that was created for handling in-app purchase transactions on major mobile platform. Mobile platforms that are available in the market are Windows, Android, Apple, BlackBerry etc. Both perspective, which are consumer and developer of the policy will included in this survey. The main purpose of this paper is to do a detail study on the three major mobile platforms in-application policies and procedure, then comparing the in-application policies and procedure in advance preparing initial benchmark criteria for the execution phase (real-life purchasing). The outcome of this survey is a clear and comprehensive review of the three major platforms in-application purchase policies and procedure. This will be used a benchmarks for the execution phase of this project, whereby the team will do the actual purchasing through in-application from different mobile platform and assess the overall purchasing policies and procedure whether everything is comply or otherwise.

## 2. FREEMIUM

In-app purchasing was introduced to the market during the early 2010 [1]. The definition of term in-application is

activities or transactions that are being done within the application. The definition of the word purchase is acquire (something) by paying for it. The term of "in-application purchase" are digital goods which, when bought from within an app, often either unlock new features, enable the user to skip mundane tasks or provide additional content. In-app purchase is closely related with the term Freemium. The origin of the term Freemium is a combination of the words "free" and "premium" used to describe a business model that offers both free and premium services [2].

Each major consumer application provider has established policies regarding the process of including in-app purchasing function for all applications that are published through their channel. But are these policies enough to avoid consumer dissatisfaction and irresponsible spending in using this service? In-app purchasing is no longer centralized, prior to the conventional app purchasing method (Premium application), that occurs before downloading the application.

Before in-app purchase was introduced, purchasing in mobile device is usually done before an application is being downloaded or installed on a mobile device. Before a consumer can use an application, they must purchase the app through the means provided by each specific device

(Apple Store, Windows Phone Store, Google Play) then install the application.

In-app purchase innovates the process of how consumer spending through mobile devices and how enterprise makes profits [3-6]. Consumers are being drawn to the intuitive services or goods provided when they first install an app for free on their device. After certain amount of period or usage, certain functionalities inside the app will require the user to subscribe or do purchase to continue using the app to its full potential.

According to the graph, most developed applications are moving from developing premium application to freemium application at an alarming rate.

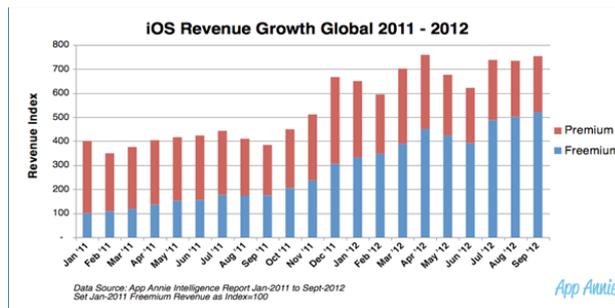


Figure. 1. : iOS Revenue Growth Global 2011-2012 [5]

In order for publisher to control the quality of the application published through their channel; new policy and procedure are being deployed as a guideline for developers who publish their freemium application [7-9]. Each policy and procedure from each publisher differs in terms of content, parties involved and most importantly, communication channel of the consumer.

Some publishers give the absolute control of in-app purchasing function to the developer, and some take full responsibility on this function by introducing strict quality control procedure before the app can be published.

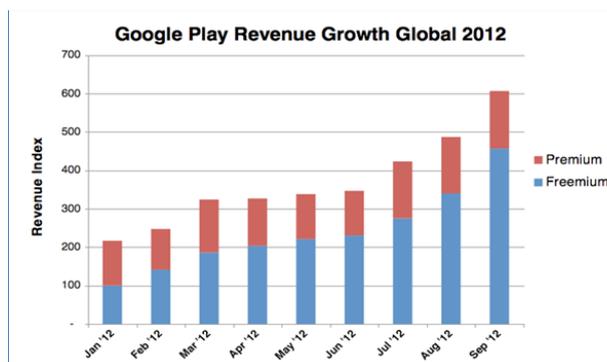


Figure. 2. Google Play Revenue Growth Global 2012 [5]

### A. Apple iOS

Apple, through its App Store alone made US\$ 10 billion in the year 2013 [10]. This is owed in no small part to the popularity of iOS devices among developers and consumers alike. Apple has been creative in its marketing by limiting the use of its proprietary technologies to only iOS devices. An example of this is the iOS itself, which is only limited to Apple manufactured devices; a stark contrast to Android devices that cater to a variety of manufacturers. Other proprietary technologies include AirDrop [11], Bonjour [12], Siri [13] and many more which attract developers to create a plethora of applications in various domains such as Social Network [14], Education [15] and of course, entertainment.

Besides the common paid applications, Apple has also established a clear and concise guideline for In-App purchases [16]. This widely available document defines the properties, configuration and pricing policies for In-App purchases. In the following sections, this guide would be summarized under four sub-topics; Item Categorization, Refund Policy, Purchase Limit and Pricing Policy.

#### 1) Item Categorization

Apple categorizes In-App purchasing into five main categories; Consumable, Non-Consumable, Auto-Renewable Subscription, Free Subscription and Non-Renewing Subscription.

Consumable items refer to products that are used one time, after which they become depleted. Apple also provided an amusing example of consumable item where fish food can be categorized as consumable product in a fishing app. After the fish food has depleted, it can no longer be used.

Non-consumable category on the other hand refers to items purchased that can be used many times or never expires. Apple's example of a non-consumable purchase is a new race track purchased within a racing application.

The next category is auto-renewable subscription which allows user to purchase dynamic content for a particular duration of time. This subscription is renewed automatically unless explicitly stopped by the user. An example of this categorization is a magazine subscription that is auto renewed every month.

Free subscription is similar to auto-renewable subscription with one distinct difference; payment. This category of purchases is usually available in the Newsstand application. Finally, the Non-renewing subscription category refers to purchases made for a single edition and does not auto-renew. This is also typical for Newsstand applications where magazine editions are purchased one at a time.



## 2) Refund Policy

Free subscription is similar to auto-renewable subscription with one distinct difference; payment. This category of purchases is usually available in the Newsstand application. Finally, the Non-renewing subscription category refers to purchases made for a single edition and does not auto-renew. This is also typical for Newsstand applications where magazine editions are purchased one at a time.

## 3) Purchase Limit

This is another area in Apple's In-App purchasing guide where no clear definition is given. At present, it seems that Apple has not enforced any purchasing limit of sorts that governs the number of purchases that could be made. There is however an inbuilt mechanism in the iOS that allow users to restrict the ability to perform In-App purchases. The restriction mechanism is located within the settings of each individual iOS device, and can be used to stop In-App purchases from being made. This enables concerned parents to forbid children from making expensive In-App purchases without their consent.

## 4) Pricing Policy

Prior to June 2011, Apple enforced a pricing policy that seemed to side with consumers instead of developers when to policy stated that any developer that offers any type of content outside the App Store needs to maintain the same pricing structure when selling the content inside the App Store despite the 30% commission that is charged by Apple. An example of this scenario is a magazine subscription; if a magazine subscription is available for US\$ 99 outside the App Store, it needs to be made available for the same price is the App Store.

However, Apple backtracked on this policy and removed the price restriction in June 2011. Developers may now make any content available without any price restriction. As such, to continue with the same example as above, the publisher may now charge as high as they want for the magazine subscription that costs only US\$ 99 outside the App Store. This action by Apple is deemed to succumb to the pressure by developers who felt that the restriction was unfair on them.

## B. Android OS

Android OS is a free source operating system based on the Linux Kernel, any of the developer free to customize the UI for the OS. It is designed primarily for those touch screen device for example tablet and smartphone. The Android OS is owned by Google and the latest version of Android OS now is Android KitKat. Android OS is now the most popular mobile OS due to the free source license on it. Samsung is one of the companies that apply the Android OS on their smartphones and tablets.

## 1) Item Categorization

Google Play categorizes In-App purchasing into four categories; trials, subscriptions, consumable and non-consumable

Google Play only has built-in support for trials in in-app purchases. There is support for free subscription trials (but no support for trials of an in-app product that is a one-time purchase and no support for trials of an app). When the trial period ends, Google Play automatically initiates billing against the credit card that the user provided during the initial purchase, at the amount set for the full subscription, and continuing at the subscription interval. In Google Play, these free subscription trials must be 7 days or longer [17].

Subscriptions or recurring charges within its in-app billing API (so subscriptions are purchased from within your app, not directly from Google Play). It provides a way to charge users on a monthly or annual basis, and will automatically charge the user's credit card every billing cycle. Subscriptions can offer a free trial period, after which the user's credit card will start to be billed automatically.

In-app purchases or in-app billing refers to the ability to buy extra features from within the application. Google Play requires that buyer must use Google Play's payment system as the method of payment, except; where payment is primarily for physical goods or services (e.g. buying movie tickets; e.g. buying a publication where the price also includes a hard copy subscription); or where payment is for digital content or goods that may be consumed outside of the application itself (e.g. buying songs that can be played on other music players) [18]

In Google Play, an in-app purchase can be bought and then "consumed" and then the in-app product is available to buy again. The in-app purchase cannot be bought again while it is owned but not consumed yet.

## 2) Refund Policy

For normal Google Play apps, it allows subscriber to be refunded if they decide to cancel an order within 15 minutes time frame. The refund will be done by Google. During this 15 minutes time frame, buyer credit/debit card will not be charged. Any transactions on statement are only authorizations. Beyond 15 minutes after the purchase was made, it is up to the seller's policy to decide if there is a refund upon request by buyer.



As for subscription base apps, there is no 15 minutes time frame provided for refund. Buyer can decide to cancel at any time but the content of subscription will still be able in the app up till the end of subscription period. Refund can be request but generally given at the app developer's discretion. This is basically similar to in app purchases [17, 19].

### 3) *Purchase Limit*

There is no publicly documented policy on purchasing limit for apps in Google Play both for normal apps and in app purchases. However, buyers will be bound by their credit/debit card limit.

For security, Google do allow user to block in app purchases in the general settings to prevent from any unwanted in app purchase made by children [17..

### 4) *Pricing Policy*

Minimum and maximum price of an app in Google Play are based on currency sellers decide to use. For example in USD (United States dollars), seller can charge \$0.99 - \$200 for each apps. Up to this moment, Google supports up to 20 different currencies. Google Play takes a 30% cut of the revenue and seller gets to keep 70% [18] For in app purchase, sellers are not allowed to set an in-app price of "0" (free) [17].

## C. *Windows Phone OS*

The term application monetization [20] is to include functions were monetary transaction are being made possible within an application in the form of consumables or durable goods. This will be discussed in detail in the following chapter inside this paper.

In order to use monetization function within an application, developer has two choices. Whether they will use Microsoft existing in-app purchase API or they may also use third party libraries or services to implement the in-app purchasing. Either way, they need to abide to certain policies that are being announced by Microsoft. This is to ensure that all the consumers will not be a victim to scams or any other problems.

### 1) *Item Categorization*

Sometimes people are often purchase goods through in application purchase, such weapons and power ups for their character, new functions for the office application, beautiful wallpaper for the phone etc. There are two categories of item that was provided by the people from Microsoft to ensure consumers get the best from the application.

The first category is durable goods. The category implies that once the goods have been purchase by the consumer, it will remain within the consumer inventory and will not be exhausted [21]. This category of good is permanent.

And the second category is consumable goods. These types of goods are considered as product that are being used or consume, and then purchased again if needed [21]. For example, you are running low on credits for a certain application.

In providing goods in an application, developers are bound to some rules. It is stated in the policy that goods that made available in in-app purchase must [21]:

- a. Must only sell digital item and services only.
- b. Cannot be converted into to any legal valid currency
- c. They are responsible to deliver the In-App product acquired
- d. For the case of United State, digital magazines cannot be sold in In-App purchasing

There are still many topic needed to be discuss that we as a consumer may question about what it is for us inside the policy. This will also give room to improvement to the policy itself.

### 2) *Refund Policy*

It is not being stated within the "App policies for Windows Phone" regarding any refund policies for in application purchase. Based on some consumer experience, all problems that are faced including problem within any in application purchase needed to be direct to the Microsoft Service Centre.

### 3) *Purchase Limit*

The way windows implements their purchasing procedure within windows phone 8 is somewhat different than the other top mobile platform in the market. An application named "Wallet" [22] is being used as a mediator between consumer and the purchasing process.

Wallet is an app that is being used to keep information about your credit cards and authorization will be executed by this app for any purchases that will be done whether it is buying an app or in-app purchasing. Method of control and security is similar with other mobile OS, by using username and password method.

Microsoft Gift Card [23] is another option that is made available as a method to present gifts to your friend and family. Rather than giving the person a certain amount of cash for them to purchase an application for their special occasion, consumer can purchase a Microsoft Gift Card.

Microsoft also provides an alternative means when consumer chooses to do in-app purchasing. This method is by using Paypal [24]. When a consumer initiates an in-app purchase transaction, Windows Phone 8 OS will initiate an API that will guide the consumer to do their payment transaction using Paypal.

As this being said, the security mechanism that is being implemented by Microsoft is quite common and similar the other major mobile platform in the world.

### 3. CONCLUSION

Based on the table in Appendix A, we may conclude that all policies that were created by each of the major mobile operating system company have their own strength and weaknesses. By compiling all of the relevant information that was made public to the consumer and the developer in a form of table, we can see clearly differentiate the overall reliability.

Even though all of the policy strength and weaknesses has been plot out, we still need to proof that it is not just on paper. Each of the item stated must be test and verify to ensure that the policies are being implemented. The next step is to initiate a real in-application purchase to produce a real-life result. Focusing on applications that are popular, problematic or insecure.

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APPENDIX 1: In-Application Purchase Policy Comparison

Platform	Apple IOS	Android OS	Windows Phone OS
Item Categorization	<p><b>Consumable</b> A product that is purchased, used (consumed), and purchased again. A product of this type is purchased every time the user needs it and chooses to purchase again.</p> <p><b>Non-Consumable</b> A product that is purchased once and then owned by the user.</p> <p><b>Auto-Renewable Subscription</b> A subscription based purchase that is automatically renewed for a set period of time.</p> <p><b>Free Subscription</b> Same as Auto-Renewable Subscription but without any payment.</p> <p><b>Non-Renewing Subscription</b> - A subscription based purchase that is not automatically renewed.</p>	<p><b>Trials</b> When the trial period ends, Google Play automatically initiates billing against the credit card that the user provided during the initial purchase, at the amount set for the full subscription, and continuing at the subscription interval. In Google Play, these free subscription trials must be 7 days or longer</p> <p><b>Subscriptions or recurring charges</b> It provides a way to charge users on a monthly or annual basis, and will automatically charge the user's credit card every billing cycle. Subscriptions can offer a free trial period, after which the user's credit card will start to be billed automatically</p> <p>In-app purchases or in-app billing refers to the ability to buy extra features from within the application.</p> <p><b>Consume In-App</b> can be bought and then "consumed" and then the in-app product is available to buy again.</p>	<p><b>Consumable</b> A product that is purchased, used (consumed), and purchased again. A product of this type is purchased every time the user needs it and chooses to purchase again.</p> <p><b>Durable</b> A product that is purchased once and then owned by the user.</p>
Purchasing options	<p><b>Apple ID</b> All purchases are made through the Apple ID of the user. Apple uses a standard ID and password mechanism to control purchases. Gift Cards, Vouchers, etc. all needs to be linked with the user's Apple ID.</p>	<p><b>Debit &amp; Credit card</b> Purchases made in U.S. dollars using any credit, debit or gift card with the following logos; Visa, MasterCard American Express ,Discover</p> <p><b>Direct Carrier billing</b> Some mobile devices and service plans can use carrier billing to make app and digital content purchases.</p> <p><b>Google Play credit</b> Credit can be purchased in \$5, \$10, \$15, \$25 and \$50</p>	<p><b>Microsoft gift card</b> Gift card can be purchase from Windows Store and receiver can redeem it through a Microsoft account, the money can be used to buy apps, games and more.</p> <p><b>"Wallet" application</b> Manage the payment instruments that they use in the app and music store.</p> <p><b>Paypal</b></p>



Purchase security control	<b>Apple ID</b> Purchases are made using Apple ID and password. For devices starting from the iPhone 5S, a fingerprint scan mechanism has been introduced in place of the password.	Customer can change their preferred purchasing option by changing their preferred option. Password will be prompt to change	<b>Microsoft gift card</b> Customer will need to provide give code (Similar to Microsoft product key) <b>“Wallet” application</b> PIN number can be setup inside the application to increase security of your transaction. (Similar to ATM pin number) •Paypal Default security control for Paypal is username and password.
Refund policy	No refund policy defined.	For non-in app purchases, refund can be made within 15 minutes window after the first purchase. After 15 minutes, request can be made, however refunds will depend on app developer’s discretion For in-app purchase, no refund by google. Refund can be request but generally given at the app developer’s discretion	Stated within the developer agreement. All costs and expenses for returns and chargebacks of your App or In-App Products, including the full refund and chargeback amounts paid or credited to customers
Refund procedure	No refund policy defined.	Within 15 minutes window, request can be made within Google Play app. After 15 minutes or in-app purchase, buyer need to contact seller directly	Microsoft Customer Service Centre All requests for refund will be handled by Microsoft and must be reported to Microsoft customer service.
High frequent purchasing control	No high frequency purchasing control policy defined.	Not stated in the policy.	Not stated in the policy.
Item Pricing Policy	No price restriction control implemented. Developers are free to charge the price they require with a 30% commission to Apple.	Developer is given the freedom to set the pricing with 70/30 revenue sharing (70% to seller and 30% to Goggle) Developer can set the currency. However for in app purchase, Google does not allowed zero “0” pricing	Developer will stated the price of each goods and Microsoft will charge Customers that price (or its reasonable equivalent in local currency)