

No Such Thing As A Free App: A Taxonomy of Freemium Business Models and User Archetypes

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ABSTRACT

The Freemium business model is becoming increasingly prominent in the current digital economy. In the mobile game market, total revenue from free to download apps is overtaking those from paid apps. The purpose of this article is to propose a taxonomy that examines and categorizes the various types of Freemium business models. This study uses the systematic, logical partitioning approach to generate a taxonomy of the Freemium business model, identifying advertisement and microtransaction as two primary sources of revenue. The taxonomy also reveals different types of in-app purchases, the most dominant form of Freemium business model in the mobile game market. Further discussion connects the taxonomy to related issues such as user archetypes and user flows. This paper also extends the existing archetypes of Freemium users by adding new categories, namely Remoras and Barnacles, to differentiate free users. Finally, it conceptualizes a novel framework of user flows between the free and the paying state, arguing for a nonlinear flow. These findings should be of interest to academics and policymakers as it provides the foundation for further investigation on the sustainability of the free to download apps.

Keywords: *Freemium business model, Microtransaction, Monetization strategy, Mobile games, Classification schemes, Logical partitioning.*

1. INTRODUCTION

There is a saying that “There's no such thing as a free lunch.” The quote highlights the truth that there will always be a hidden price for goods and services provided for “free”. Nevertheless, a business model that revolves around providing “free” products is becoming increasingly prominent in the current digital economy. From mainstream online news media to big hit games, the nature of its practice in the app market is developing rapidly and showing seemingly universal application. As an illustration, in the Google Play Store, not only has the total number of “free” apps significantly exceeded the total number of paid apps, but those “free” apps also attract a higher user download rate. Slightly more than 8 per cent of total “free” apps can attract more than 50000 downloads, while less than 1 per cent of total paid apps can pass that threshold. On the other side, more than 85 percent of paid apps are only downloaded by 500 users or less, while less than 55 percent of “free” apps fail to pass that threshold [1].

Interestingly, mobile games currently dominate the app market. The total revenue for the mobile app

market, dominated by revenue from all game apps (81.4% of the total annual income), reached USD 50.4 Billion in 2016 and is forecasted to exceed USD 105.2 Billion in 2021[2]. Of the total app revenue, income from “free” apps is estimated at 15% of total revenue in 2013 and forecast to exceed 45% in 2017[3]. Even though revenue from paid apps is still the majority, it is essential to note that the trend shows an exponential growth of revenue from in-app purchases while paid apps revenue grows only logarithmically. This trend means that income from “free apps” is growing much faster than income from traditional paid apps. Soon the income from “free” apps will overtake the revenue from paid apps.

The goal of this paper is to conceptualize what is Freemium business model by offering a new definition and developing a comprehensive taxonomy of Freemium business models by classifying how users “spend” money on a “free” product. This taxonomy aims to enhance the understanding of Freemium by revising and extending our knowledge of who are the users (aka user archetypes) and how do they spend (aka ‘user flows’). Furthermore, the purpose of

classifications is to help prevent the confusion of theories. A proper taxonomy will facilitate building theories of Freemium user behaviour by ordering and structuring the phenomenon. Hunt [4] highlights the importance of classification-oriented theories in the systematic investigation of social science phenomena, to structure and categorize types and subtypes of the objects for further study.

In sum, this paper will investigate and aim to clarify the definition of Freemium business models. Additionally, it analyses key features of different Freemium business models and organizes them into a formal classification model. The authors are happy to start an academic discourse on which business models are Freemium and which are not. Furthermore, the paper also distinguishes corresponding archetypes of Freemium users and identifies their specific consumer behaviours.

2. LITERATURE REVIEW

Alt and Zimmerman [5] in their editorial for an issue in *Electronic Markets*, highlighted how business model innovations by Internet thinkers and practitioners had caught many traditional strategists unprepared. Unfortunately, many academics are also unaware of the rapidly evolving business models in the internet market. Arguably, Freemium is fast becoming the dominant business model in the app market [6]. However, few articles have investigated, let alone formally define, the Freemium business model.

Huang [7] conceptualized a construct for Freemium business models and proposed a measure for it. He also attempted to define what Freemium is and what its characteristics are. His definition of Freemium focuses on the two tiers, one is the basic free tier, and the other is the premium tier. He also conceptualized a framework for Freemium business model adoption with an underlying assumption that Premium and Free users access distinctly separate content, and there is a clear boundary between the basic free tier and the premium content.

Furthermore, multiple studies have identified the challenge for "free" apps to find alternative sources of revenue to monetize the offering in order to pay back the cost of development and provide a return on their product investment. Wagner, Benlian, and Hess [8] studied the conversion of free users to paying users in the case of music as a service app, such as Spotify. Importantly, they differentiated Freemium from free trials which they consider part of product sampling. Subsequently, Koch and Benlian [6] studied the effect of two different free sampling strategies, Premium-first and Free-first, on Freemium conversion rate. They focused on the form of Freemium where the app provides the essential function for free with additional

subscription options for premium access. Users were given free access to the premium contents to increase their likelihood of conversion into premium users.

Unique to the context of games, Georgieva, Arnab, Romero, and de Freitas [9] defined a Freemium game as a game that lets users play without paying any money but offers them options to purchase virtual goods to enhance their game experience. More recently, Hamari, Hanner, and Koivisto [10] studied in-app purchase intention and identified sales of virtual in-game goods as one of the primary ways for Freemium games to monetize their apps. They also separate the intention of users to use the service for free and the intention to make in-app purchases.

Earlier definitions focus on the dual-tier nature of Freemium with an assumption of a distinct boundary between free and premium offering [7]. However, this distinction is not as central in more recent studies [10][6]. This study revisits the assumption made by earlier studies on Freemium by arguing that the current Freemium practices have moved toward a more blurred boundary and dynamic interactions between the free and the premium elements. Given the rapid development of the Freemium business model, the earlier assumption becomes increasingly untenable. In some cases, paying and free users frequently cross the barrier and intermingle in their access to free and premium contents. On the other hand, relaxing this assumption enables more business model innovation to be included within the Freemium framework. Therefore, this paper proposes user flow as another vital characteristic of Freemium.

3. RESEARCH METHODOLOGY

The primary method for this paper is the logical partitioning approach, as used by Jiménez, Voss, and Frankwick [11] to classify the co-production of goods. This procedure employs a deductive approach to specifying systematically different categories of a concept and then to identify its characteristic properties and to label them accordingly.

Logical partitioning is suitable because it assumes that the number of classes is limited, and some knowledge about the objects already exists (e.g., academic literature). Logical partitioning has the advantage that its classification schemes are more generalizable than the grouping procedure, the first alternative approach. The grouping method can be more robust to classify objects in a set of a specific database, yet practitioners might not be able to apply the result beyond that particular database. Since this paper aims to develop a formal definition for a broader context of applications, the logical partitioning approach is more appropriate than the grouping approach for this study.

The logical partitioning method involves asking a series of yes or no questions to classify objects. Accordingly, the study formulates a series of such methodical inquiries to define Freemium and explore which business models are Freemium and which are not. Even though the authors develop this classification of Freemium business models using the mobile game market as the focus, the authors would like to show how the readers can also use this taxonomy in a broader context in the internet market.

Hunt [4] summarised three characteristics of classifications formulated with the logical partitioning approach. The first characteristic is that it generates monothetic classifications. Monothetic means that the classified objects must exhaustively display the defined attributes set in the taxonomy. The second is that it can create hierarchical multilevel schemata. The third is that the resulting classification will have no known examples or have very rare examples in more than one of the categories. The important thing for consideration is the possibility of a particular type to exist based on the selected classification criteria.

Throughout the development of the taxonomy, the authors have self-assessed it on the five criteria to evaluate the quality of a marketing schema by Hunt [4]. The first criterion is the adequacy of the definition of the phenomena to be classified. The second criterion is the appropriateness of the properties or characteristics selected as the basis for the classification. The third criterion is that the identified categories must be mutually exclusive. The fourth criterion is that the classified categories must be collectively exhaustive. The final standard is the usefulness of the schemata.

4. RESULTS

4.1. Classifying Freemium

After an examination of existing Freemium business models in the game app market, the authors argue that the main characteristics of monetization strategies are the source of revenue and the degree of overt monetization. This study defines Freemium as a business model that provides a fully functional product for free without any upfront payment required but monetizes by offering additional value beyond the free basic functionality by offering additional features or capabilities to generate revenue such as through microtransactions and advertisements (ads). The premise of this paper is that the monetization strategy itself is the essential characteristic that defines Freemium business models. The first part of the taxonomy discusses how the different types of Freemium can be classified based on their source of revenue and monetization strategy.

The two most common sources of income are advertisement and micro-transaction revenue models. However, future innovation may expand beyond these two. It is conceivable that additional possibilities emerge from unusual or hypothetical "new models" that do not rely on income from either ads or micro-transactions. One possible avenue for such development, albeit controversial, is the monetization through big data analytics, where users pay with their personal information. Another avenue is by leveraging consumer co-production within the app's service delivery. Augmented or Virtual reality may enable developers to integrate some form of activities into the gameplay of the app which adds value to a third party for possible monetization (such as visiting a location or scanning a QR code).

Another arrangement of monetization sources is the "mixed models" that combines both ads and microtransactions. While it may seem an obvious thing to do, some apps prefer using either ads or microtransaction strategy only since mixing both sources of revenue would require finding the right role and balance for ads and microtransaction. An interesting issue is whether enthusiast users who are more likely to pay for microtransactions would also be the one most irked by having to watch intrusive ads.

A monetization strategy becomes more overt as the users perceive increasing intrusiveness to their game experience. Users may label these strategies as "pay-to-win" or "pay-to-progress" and consider them irritating. An extreme form of overt monetization would be when the users perceive the Freemium app to be more costly than a similar Premium app, either financially or otherwise.

Some Freemium business models are more overt in monetizing their app than others. Thus, this study classifies ad-based and micro transaction-based Freemium business models further based on its degree of explicit monetization. The in-app advertising model is the Freemium model that explicitly monetizes by asking users to view the ads it hosted. Grewal, Bart, Spann, and Zubcsek [12] proposed a framework that features third-party apps as one mode of delivery for mobile advertising. Furthermore, they mention it requires the advertising firm to pay for the ad, but in return, it expanded the ad's reach to carefully targeted audiences (e.g., players of similar games). One typical example is when app users have the option to watch videos to earn items or in-game currency. Alternatively, the app can also include a content lock ad, where a part of the app content is blocked until the user views an ad (e.g., an ad before a tutorial video). This type of advertising is more intrusive to the gaming experience since viewing the ad is not by choice. Chou and Wang [13] highlighted the intrusiveness of "interstitial ads" that appeared mid-task in mobile game apps. They

contend that it adds a sense of incongruity which undermines satisfaction with the play session.

Conversely, the native advertising model is the Freemium model that monetizes by ads less explicitly so that the users cannot clearly distinguish the app from the ad. This form of Freemium includes subtle sponsored content or product placement within the app. In a broader context, this type of advertising is part of the branded content domain [14]. In the specific context of games, this kind of advertisement is called *advergames*. Kuo and Rice [15] highlighted how *advergames*, which they define as “games in which branded content is embedded”, are distributed for free.

Furthermore, they pointed out that in these games, the ad messages are often difficult to distinguish from the game content, masking their persuasive nature. This sort of advertising is also less intrusive to the gaming experience than In-app advertising. Some examples of these native advertising apps include the Chipotle Scarecrow app on iTunes and most Lego® game apps.

In the micro-transaction-based group, the Pay-What-You-Want (PWYW) or the donation model is the Freemium model that does not have explicitly defined prices and benefits. This model provides microtransactions options with flexible size of payments, and each transaction is independent of any purchase of virtual goods. The “pay what you want” option allowed buyers to have absolute control over the price of the transaction, including paying nothing if that is what they want [16].

In essence, apps in this group use microtransactions other than the in-app purchase model. Marett, Pearson & Moore [16] highlighted that PWYW payment option is becoming increasingly popular in real-world applications, especially for cultural services and digital goods. These apps encourage the user to make payments by appealing to their sense of altruism or a tie-in with a particular cause. They also emphasized that social factors, such as loyalty and fairness, have a dominant role in the amount users are willing to pay for such business models. Sleesman and Conlon [17] refer to both “pay what you want” and charitable giving as prosocial behaviour. In both cases, the user determines the amount of money they pay or donate willingly in return for the use of the product. Some notable examples include Mekomara and Proun.

Alternatively, an app may use crowdfunding campaigns via a third-party platform such as Patreon and set donation targets to release additional content updates. Johnson and Cui [18] described how sellers could use external reference price strategies in PWYW (i.e. a minimum price, a maximum price, and a suggested price) to influence buyers’ chosen prices. If the total user contributions achieve that specified target of funding, the app will then release the new contents.

The app may also reward top contributors with extra perks. Schmidt, Spann, and Zeithammer [19] highlighted how the seller could use PWYW as a price-discrimination mechanism in monopolistic and competitive markets. If used effectively, users with more engagement and commitment to the app will price-discriminate themselves willingly.

The final classification is the In-app purchase model. In this category, the app uses microtransactions with a fixed price tied to a particular offer and features no ads. Currently, this category is the most dominant model in the mobile game market. Roma and Ragaglia [20] found that apps with the in-app purchase option are more successful concerning revenue and adoption compared to paid apps and apps without in-app purchase. However, this model uses a more overt monetization compared to the PWYW / Donation model and has the risk to be perceived by users as more intrusive to the gameplay. Since In-app purchase is the dominant model in the mobile game market, it will be classified further in the next section.

4.2. Sub-Classifying In-App Purchase

The logical partitioning continues by classifying the popular in-app purchase model further into sub-categories. Georgieva et al. [9] and Hamari et al. [10] identified sales of virtual goods as one of the primary sources of revenue for in-app purchases. Further examination identified six sub-groups of in-app purchase, namely Currencies, Cosmetics, Loot Boxes, Durables, Consumables, and Subscriptions, based on the type of virtual goods offered by the in-app purchase.

The first sub-classification of in-app purchase is virtual Currencies, which is the basis of the in-game economy. In-game Currencies involves the purchase of virtual currencies that the players can use for other transactions within the app. Game apps may have multiple types of currencies with differing availability of earning it for free. Some currencies can only be obtained via in-app purchases or as a bonus for in-app purchases.

The rest of the in-app purchase sub-groups can be classified based on the type of virtual goods. Cosmetics are in-app purchases for virtual goods that do not have any direct impact on the gameplay. This type of virtual goods may not have any in-game functionality but provides psychological value and social value. Some users may opt for a personalized in-game look for in-game characters using Cosmetics, such as character skins or costumes, to fulfil aesthetic values or to show off preferred [21]

For virtual goods that do have a direct impact, those with permanent effects can be distinguished from those with temporary effects. Loot Boxes are virtual goods with permanent effects that use a random number

generator (RNG) in the purchase. The RNG introduces uncertainty in the purchase of relatively permanent in-game objects using a set of predetermined probabilities (i.e., characters in Summoner Wars, summoning Fire Emblem Heroes, cards in Hearthstone), with each object having different levels of rarities (e.g., common, uncommon, rare, or ultra-rare). This form of In-app Purchase is also known as "Complete gacha", an evolution of "gashapon" which is a vending machine for collectables highly popular in Japan. Also known as "loot crates," the user may need to pay for repeated draws to get the specific hero or item that is desired. At the time of this writing, there is the extraordinary development that new regulation in China requires the odds to be declared for this type of in-app "gambling"[22].

We classify virtual goods with a permanent effect that does not use RNG as Durables. Durables involve the straightforward buying of relatively permanent in-game features, such as an ad-removal option or barracks upgrade. In essence, it is any virtual goods with unlimited duration of effect and no randomization in its purchase. As it is considered relatively permanent, and users can directly pay for the items they want, users will not make too many repeat purchases.

For virtual goods with temporary effects, they are classified further based on the duration of the effect. If the effect is one time and instant, this in-app purchase is classified as consumables. It involves the purchase of items with specific instant effects or functions within the app, such as boosters or potions. These effects can provide boosts to the users' in-game performance or restore game attributes such as hit points or stamina. Due to the instant consumable nature, users will be more likely to make repeat purchases than other types of in-app purchase.

If the gameplay effect lasts within a specific duration before it requires renewal, then this in-app purchase is a subscription. Subscriptions involve the purchase of license or functions within the app with a definite time limit or expiry. This type also includes various time specified boosts, such as increased resource production or immunities from attacks. The user must repurchase the subscription after the time limit has ended. In some cases, the subscription can be set to auto-renewal. Thus, the in-app purchase occurs automatically.

5. DISCUSSION

Different users react to Freemium differently. Some will pay peanuts, some will pay a lot, and some will pay nothing. Thus, this section extends the discussion by examining existing user archetypes and adding new user types unique to the Freemium context. Prior studies on Freemium described two groups of Freemium users,

paying and free users. Lovell [23] proposed a user typology of Whales, Dolphins, and Minnows that focus only on paying users. This classification captures the difference of willingness to pay among the paying users. The term "whales" has become part of the vernacular for describing users who pay big money for a Freemium game.

However, this framework does not capture the variety of the non-paying segment, which is the majority of Freemium users. Lovell [23] grouped all free users as freeloader. Additionally, the three paying user archetypes only exist in the transaction-based and the mixed business models. Ad-based Freemiums are populated strictly by free users.

This paper also proposes two new archetypes of non-paying users, namely Remoras and Barnacles, to capture the complexity of being a free user. The remora, sometimes called a suckerfish, can attach itself and free ride on larger fish, but can also detach and move on its own. Even though both Remoras and Barnacles are freeloader, Remoras are less of a freeloader by providing some benefit back to the app, such as clicking ads, spreading positive word-of-mouth, identifying and reporting bugs, and building an in-game community. Remoras are also not as irrevocably opposed to the concept of paying for in-game virtual goods. Some Remoras may even evolve into paying users in the future.

In contrast, Barnacles are pure parasites and do not provide any support in exchange for using the app for free. They have an inherent aversion to paying for in-game virtual goods and viewing ads to support the app. They are the ultimate free riders and firmly believe that Freemium apps should be completely free. They are philosophically or psychologically-opposed to spending money on free-to-play apps. Arguably, Barnacles also exist for premium apps. As Teece [24] mentioned, users of digital products have ways to access paid contents for free. In the app market, users can do jailbreak or sideloading to install pirated paid apps. Thus, Barnacles would also be more likely to use pirated traditional paid apps. These two free user archetypes exist in all forms of Freemium business models.

Finally, the concept of user flow as an essential characteristic of the Freemium business model is addressed in this section. After expanding the definition of Freemium and including more business models within the Freemium classification, this paper argues that the framework proposed by Huang [7] can be extended to describe the Freemium adoption process better. Thus, this section discusses a newly conceptualized framework based on the premise of a less rigid boundary between free and premium tiers.

The majority of prior research on Freemium focuses on the one-way conversion of free users into paying

users [6][8][10]. In his study, Huang [7] conceptualized the Freemium business model adoption flows linearly from potential users to free and paying users, and from free users to paying users. While it is agreed that converting free users into paying users is a significant concern for any Freemium app marketers, this paper argues that focusing only on the conversion process would paint a linear, one direction, and static flow of Freemium users.

After classifying the Freemium business model, this study addresses the bigger picture of Freemium user flows beyond the conversion process. Firstly, it is argued here that in the Freemium business model, no potential user can convert into paying users without becoming a free user first. Direct conversions from potential users to paying users are only present in the trial or lite version apps, which was excluded from the Freemium business model. In this conceptualization of the Freemium user flow, all paying users will start as free users and then convert into paying users. For example, a paying user in the in-app purchase business model will first download the app and spend some time playing the game for free before deciding to spend real money to get an ultra-rare character or purchase a personalized skin.

Aside from the process of user adoption and conversion, the framework adds two more processes which describe the dynamics of user flow in the Freemium business model. The first process is the reversion, which is the direct opposite of conversion, from paying users back into free users. The indistinct boundary between free and paying content present in current forms of the Freemium business model means that paying users can and most often do stop paying, thus becoming free users again. The focus on converting free users into paying users overlooks the need to stop those converted paying users from reverting into free users.

The second process being proposed is the rejection, which is the direct opposite of adoption, of free users back into potential users. This process starts when users stop using the app and ends by them uninstalling the app. Kim, Jung, Suh, and Hwang [25] highlighted the connection between user segmentation and marketing strategy in e-businesses regarding customer lifetime value (CLV). They argued that building sustainable success requires the ability to build and maintain loyal and valued customer relationships to reduce churn. With thousands of new apps submitted daily, and the limited device capacity, competition among game apps is fierce. It is an ongoing challenge to prevent existing users from uninstalling the apps. Users stop playing when they feel bored with the game, perhaps due to the lack of updates that refresh the game, while old and rarely used apps are often uninstalled to make room for new apps to download and try.

With these four processes at play (adoption, conversion, rejection, conversion), the user flow of Freemium game apps becomes much more dynamic. Instead of linear progress, the flow can be cyclical in which users can go through several iterations between the three user states. Not only can users flow back and forth between free and pay user states, but they can also flow between free and potential user states.

The newly conceptualized user flow can also be related to the new Freemium user archetypes proposed earlier, in a way that generates new managerial implications. Metaphorically, the different business models can be thought of as creating different ecosystems for each type of user. Put in another way; each user archetype has its preferred ecosystem. For example, Whales may prefer no ads, while Barnacles thrive on ad-based Freemium. Consequently, mobile game app marketers should always consider how their selected business model affects different types of user.

This framework also suggests that Freemium apps must also be concerned about the reversion rates of paying users when considering the monetization strategy. This study proposes that a less explicit monetization strategy may be better at retaining paying users. Conversely, explicit monetization strategy may be better at converting free users into paying users at the cost of higher user reversion and rejection rate. For example, explicit ad-based monetization may appeal to Remoras while discouraging some Dolphins and Whales who would rather pay to play through more quickly than to spend time watching ads. Thus, mixed models must find just the right balance between ads and transaction-based monetization to stop mass reversion of their paying users due to excessive ads and stop mass rejection by ad-viewing customers due to too strong of a need to pay to play. Complaints about a particular Freemium game's intrusive pay to progress or pay to win requirements are one of the main types of complaints in public game reviews such as game reviews on Google Play on iTunes app store.

6. CONCLUSION

In sum, this paper highlights the unique characteristics of different freemium business models and argues against the use of "one-size-fits-all" approaches in the study of freemium. The proposed taxonomy identified six types of Freemium business models and six types of in-app purchases. This paper also expanded existing user archetypes to include two types of free users, Remoras, and Barnacles. Based on the taxonomy, the paper conceptualizes a Freemium framework with a less distinct boundary between free and premium status; thus, more dynamic and nonlinear user flows.

The authors are happy for this taxonomy to provoke more scholarly discussion on what is Freemium and what is not. Even though this proposed taxonomy is based on the mobile game market, it can also apply to a broader scope of the apps market. However, the authors recognize that the deeper the taxonomy goes to make it fit with the important games market, the harder it will be to apply it to a broader context. Thus, application of the in-app purchase sub-classification beyond the context of mobile game apps may require some modification. Therefore, the authors encourage researchers interested in studying Freemium businesses to adapt, revise or extend this taxonomy, user archetypes, and user flows to create a better framework to guide future theory development and empirical research.

This taxonomy also recognizes that the Freemium business model is at a growth stage, and its application is still developing rapidly. As newer Freemium business models emerge, this proposed taxonomy might no longer keep up with the rapid pace of innovation. Despite the current dominance of the in-app purchase model, future business model innovations may emerge and replace it. Finally, the authors suggest marketing practitioners that understanding the match between the monetization models and user types is the key to designing a successful Freemium strategy to keep ahead of the competition.

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