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Freemium in the Mobile Applications Market

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A Competitive Strategy or a Marketing Tool?

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Abstract

Title: Freemium in the mobile applications market: a competitive strategy or a marketing tool?

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Purpose: The purpose of this study is to develop frameworks for *how* and *why* application developers use freemium, adding to business model theory and our general understanding of freemium.

Methodology: A qualitative study with an explorative nature was conducted. Semi-structured interviews were used to collect data. Interviewees were from mobile application developers based in Sweden. All interviews were recorded and transcribed.

Theoretical perspectives: This thesis aims to understand freemium from a business model perspective.

Empirical foundation: The freemium model is the dominant revenue model used in the mobile applications market, and thus this study brings empirical data from firms that base their business on the development and commercialisation of such applications.

Conclusions: We present an increased understanding of freemium by presenting several reasons as to why developers choose to use or avoid to use freemium. We also conclude that freemium does not qualify as a business model, and should rather be considered as a competitive strategy or a marketing tool.

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Problem Formulation

In the '60s Doody and Davidson (1967) prophesied that in just a couple of years consumers would be able to shop comfortably from their home through "Direct Shopping Consoles". While their timeframe turned out to be optimistic it is safe to say that we have now both reached and surpassed the point of shopping from home. Today the advances in technology have led to products that are completely digitized. As these software products have gotten increasingly sophisticated they have not just changed industries, but also brought new ways to market them.

An important marketing concept that has changed immensely due to the digitizing of products is the concept of free. To offer free samples have been a common practice in marketing for decades. For instance, Hopkins (1923) praised the practice in his marketing classic *Scientific Advertising*. But as products, services and media have become digitized the concept of free has been expanded to more than just samples. An example is Google, which offers its search engine and many other complete products at no cost to users and without any time limit. What has made this new type of free possible is, among other things, the low marginal cost of distributing software (Niculescu & Wu, 2011). In order to create a physical product a completely new product has to be created, but in order to create a new digitized product all that is needed is duplication. This makes serving a new user of a software product almost free. Revenue can therefore be generated by for instance showing ads (Anderson, 2009). The digitizing of goods and services has also led to illegal means to get free products, one example being digital piracy made possible by websites such as The Pirate Bay.

This new landscape where consumers have gotten used to getting things for free (The Economist, 2009) provides new marketing challenges. How does a company compete with *free*? An example of an industry struggling with this question is the music industry, which according to Adermon and Liang (2010) would have had 72 percent higher physical music sales and 131 percent higher digital music sales if not for piracy.

One solution to the problem of competing with *free* is to use a freemium model. The term freemium is a fusion between the two terms *free* and *premium*. The term can be dated back to

2006 when the venture capitalist Fred Wilson asked his blog readers to name a business model (Wilson, 2006). Wilson explained the business model as follows:

Give your service away for free, possibly ad supported but maybe not, acquire a lot of customers very efficiently through word of mouth ... then offer premium priced value added services or an enhanced version of your service to your customer base (Wilson, 2006).

In other words, freemium is a business model where products consist of two components: a free limited component and a paid unlimited component. Since there are multiple ways to limit the free component there are also multiple versions of freemium. Two of the most common variations are *time-limited freemium* and *feature-limited freemium* (Niculescu & Wu, 2011). Time-limited freemium is when the full product is offered for a limited amount of time. An example of a company that uses this model is Netflix, an on-demand video streaming service, which offers their full service for free for 30 days (Netflix, n.d.). Feature-limited freemium is when the free version lacks features available in the premium version. An example of a company that uses this model is Skype, a telecommunications service, which offers free PC-to-PC communication, but charges for calls made from a PC to a mobile phone or landline. A third version of freemium can also be created by combining these two versions (Niculescu & Wu, 2011).

A salient characteristic of all versions of freemium is that only a small amount of users will convert into paying customers. The conversion rate varies from case to case but is rarely higher than a few percentage points, and many companies therefore plan their break-even around a 5-10 percent conversion rate (Anderson, 2009). The rationale behind why such low conversion rates are workable is that the five percent of the user base acquired through a freemium model is larger than the amount of customers acquired with a traditional paid model. In short, the idea behind freemium is to reach a bigger user base and having a majority of users not pay, rather than having a smaller user base and having every user pay.

Despite its practical relevance, freemium has remained relatively unexplored in academic literature and the studies that exist usually focus on one out of two perspectives (Wagner, Benlian & Hess, 2014). The first perspective compares freemium to other revenue models with the goal of determining what is optimal. The second perspective investigates how consumers' willingness to pay changes when they can get part of a paid service for free.

Another limiting characteristic of past academic research is that it mainly has positive outlook on freemium (Wagner et al., 2014; Teece, 2010; Anderson, 2009). Outside of academic research the attitude is more nuanced. Non-academic case studies have raised concerns regarding whether freemium should be used without an existing base of paying customers (Chestnut, 2010), the massive amount of users needed (Quora, n.d.) and whether *free* risks converting paid users into free users (Gamez, 2010). These are just examples, but they give an idea about how practitioners have a more nuanced view of the model than academic research.

The conclusion that can be drawn from reviewing the available academic research is that more studies on freemium are needed. There are identifiable gaps that could be filled by studies that do not investigate consumers or optimal pricing and does not take either a positive or negative stance.

This lack of research should be worrying since the freemium model dominates several markets. An example of such a market of special interest is the mobile applications market (Liu, Au & Choi, 2012). Mobile applications are software applications that run on mobile devices such as smartphones or tablet computers. A major characteristic is that mobile applications are available to download through centralized marketplaces (Liu et al., 2012). For devices running the iOS operating system that means applications can be found in the App Store, for devices running the Android operating system that means applications can be found in Google Play. These two stores are the most prominent, but there are other such stores such as Windows Store for Mobile, BlackBerry App World (Liu et al., 2012).

The applications market is an important market due to its growth and it has been growing ever since Apple first launched the App Store in 2008 (Liu et al., 2012). In 2010 the App Store had about 140,000 applications. In 2013 that number had increased to about 700,000 and the total market was expected to reach 25 billion USD (Lessin & Spencer, 2013). This increasing competition is one reason for application developers to consider their business models. Today freemium is commonly used in both the App Store and Google Play (Distimo, 2011). There are two main ways to use the freemium model in the application market. The first one is to offer an application that is free to download, but contains in-app purchases (IAP). There are no exact definitions of in-app purchases, but in this thesis the term will be treated as a synonym to microtransactions or micropayments. In-app purchases should be seen as a type of feature-limited-freemium where users have the option to pay small amounts for small

upgrades or consumables (such as virtual currency) within the application or game, rather than upgrading to a premium version through a one-time payment or subscription. This model has rapidly grown in popularity in the past years (Makuch, 2012). The second way to use the freemium model is to offer two applications: one basic version which is free and one full version for which customers have to pay. These two applications are often referred to as *lite* and *premium* versions. Using both these types of freemium appears to be positively associated with success in the application marketplaces. This is shown in a report by Distimo (2011), which found that 65 percent of the revenue from the top 200 grossing apps in Google Play, then called Google Android Market, came from applications using the freemium model. For the App Store that number was around 50 percent. These findings are also confirmed by Liu et al. (2012) who found a correlation between a freemium model and both increased sales volume and revenue. They also found that while freemium increases visibility, it is the quality of the product that ultimately determines revenue.

This makes the application market, where freemium appear to enjoy success, an important market to investigate in order to understand freemium, especially since mainly mathematical research, usually focused on consumers, has been conducted previously. The research question this research project hopes to answer is:

What are application developers' motivations for adopting or avoiding a freemium strategy?

Purpose

The purpose of this study is to develop frameworks for *how* and *why* application developers use freemium, contributing to business model theory and our general understanding of freemium.

Research Method

In this segment we present the approach taken in this study. We start by describing the general approach, followed by how we found the interview persons and by describing how we collected and analysed the data. This segment then ends with a critical view on the quality of the research method.

Choice of Method

For this thesis we decided to conduct a qualitative study. This decision was made early on in the process for the reason that people's motivations are complex and subjective, and thus difficult to quantify and measure. The purpose of this paper it is not to generalize to a population, but rather to create an initial understanding of developers' motivations and business practice in a new type of market. Explorative research is closely linked to qualitative studies (Bryman & Bell, 2011) and we believed this to be the best way to fulfil the purpose and answer the research question.

As discussed in the introduction, freemium is a relatively new model and most studies either research consumers, and take a quantitative approach, or companies, and take a theoretical approach. This is also coupled with the difficulty of discussing business models in general (Teece, 2010), which makes quantitative research even less doable. Thus, we concluded that a qualitative study was the right option.

Academic Approach

This thesis takes a hermeneutic academic approach. Hermeneutics is a method of interpretation, which aims to explain human behaviour in their social context (Lavoie, 1990). Hermeneutics originally came from interpreting religious texts (Warnke, 1987), but has since then spread to many other field of academia, such as economics (Lavoie, 1990). The reason why we now have used it in marketing is the data we collected on the motivations of developers, which required much interpretation. We do not aim, as previous theoretical academic papers have done, to model optimal decisions based on certain parameters. Instead

we hope to understand the context where the decision between business models is taken. To do this we need to take a hermeneutic approach. The main impact the hermeneutic approach had on this research was the division between presenting the empirical data and interpreting it. By first presenting the data and then analysing it we were able not only to focus on interpretation, but to also more clearly show the process of interpretation.

The hermeneutic approach also helped to control our own subjectivity, which no doubt biased the interpretation of the empirical data to some extent. We are both affluent application users, which implies that we have pre-existing attitudes towards applications and their business models. One such notable attitude is that one author has a more questioning and the other a more accepting attitude towards freemium. Seeing our own part in the interpretation of the data, and minimising the impact of our subjectivity, was important. This is further explained in the trustworthiness and authenticity segment.

Semi-structured Interviews

As mentioned above, freemium remains a relatively unexplored territory (Wagner et al., 2014), and some room had to be left for adaptability. To pre-define a survey to track a specified metric would diminish that adaptability (Bryman & Bell, 2011), making quantitative methods undesirable in this case. The risk of focusing on the irrelevant and missing the essential would be high. In situations where adaptability is necessary more loosely structured interviews, where the interviewee gets a higher degree of freedom in his or her responses, is recommended (Bryman & Bell, 2011).

At the same time an unstructured approach would not be optimal. Firstly, unstructured interviews leads to high difficulty coding interviewee answers (Bryman & Bell, 2011), which could have posed a problem due to time limitations. Secondly, unstructured interviews are most commonly used when the interview template concerns personal questions of a private nature (Bryman & Bell, 2011). In this research the focus is on a company-level, thus an important reason to choose unstructured interviews is lost. While weighing the trade-off between adaptability and coding difficulty, we believed semi-structured interviews were the most suitable option.

Interview Persons

Application developers are a heterogeneous group differing in size, motivations, and niche in the application market. In order to investigate a more homogeneous group and raise the quality of the data, application developers were chosen according to three criteria. First, the application had to encompass a significant part of the company's main product or service and could not be a complementary application. This was chosen as a criterion since many companies provide an application to enhance their core offering, such as public transportation companies with applications for time tables. Since these companies do not rely on revenue from their applications they are irrelevant to our study. Secondly, the application has to be developed by a limited liability company. The barrier of entry to creating an application is low and thus it is possible for developers to create applications with other purposes than to make money, such as trying to improve their programming proficiency. Since the interest of this study is in business models we were interested in companies that strive to make a profit. The criterion of only interviewing limited companies was broken on one occasion when a general partnership firm was interviewed. This exception was made since the interviewee at the firm had a long experience of developing applications and it was clear that the purpose of the firm was to generate revenue. Thirdly, we limited the country of origin of the companies to Sweden. Initially, the country of origin limitation was set to Europe, but we discovered that there were more developers in Sweden than we had expected, resulting in a narrower focus.

To find interview persons we decided to first find the applications and through them find their developers. In order to do this we used both Google Play and the App Store. If it would have been possible to search for the characteristics we described above, a probability sampling method could have been employed. Unfortunately this is not possible in the two application marketplaces and therefore developers had to be found by browsing the two stores in a non-probabilistic way. Since the purpose of this thesis is to gain an initial understanding rather than to generalize the findings we accept this convenience sampling. One risk in the two stores is that they recommend applications based on past downloads, creating a bias for similar applications that we have used ourselves. In order to control this subjectivity we decided to draw our sample from the top lists in the two stores. These are not dependent on past downloads. The selection process took place between the 12 March and 10 April 2015. Thus all interview persons were developers featured in a top list during that timeframe.

As we found applications and developers that fit the described characteristics we reached out through email, and phone when it was possible. Reaching potential interview persons turned out to be difficult and time consuming. Therefore, significant effort was put into reaching developers, resulting in at least two emails and several calls for potential interviewee. Still, we were unable to reach a clear majority of the developers we identified. One likely explanation to this is that many developers run small companies with limited resources, thus being inaccessible. Out of the developers we were able to reach, some did not have the time or were not interested in the study, but in general the ones we were able to reach became interested and decided to participate in the study.

Initially, we had planned to categorise the interviewee companies into three separate groups: those who used freemium, those who did not use freemium and those that used both. The reasoning behind this was to more clearly distinguish the unique characteristics of the developers who chose a freemium model, compared to those who use different business models. It became apparent, however, that most companies had applications that used different types of revenue models or that they at least had tried different models in the past. Out of the interview persons only one had no experience with freemium. Therefore, the categorisation became redundant. Instead of focusing on comparing perceptions between interview persons, we focused on comparing perceptions over time for each individual developer in order to understand why and how they were using freemium.

The companies that took part in the research can be seen in the table below. Since anonymity was promised we have used pseudonyms. When creating the pseudonyms we attempted to make a distinction between the companies that were agencies focused on creating applications and those companies with a single or a few applications. To mark this distinction we included the word 'Apps' in the names of the agencies, hopefully making it easier to understand the business that the company is in. It should also be mentioned that one developer was running a general partnership firm (HB). In order to keep our promise of anonymity to the interviewee this has been replaced by the abbreviation for a limited company, AB.

Name	Length	Interview method
Earth Apps AB	70 min	In-person
Water AB	51 min	Skype
Ice Apps AB	67 min	Phone
Fire AB	56 min	Phone
Wind AB	29 min	Phone
Glass Apps AB	65 min	Skype

Table 1: Interviews.

Interview Template

In order to systematically collect the empirical data, an interview template was created to function as a frame during the interviews. The questions were derived from the theory described in the next segment of the thesis. A challenge when creating the interview template was the limited theory about freemium. This lack of research has for instance been noted by (Wagner et al., 2014) and is a result of freemium being a new subject, having been defined as late as 2006 (Wilson, 2006). Therefore, having used the relevant research in the field, some non-academic sources were used to create a deeper understanding of the topic. This created a risk of lowering the quality of the interview template since it depended on the quality of the theory. We countered this risk with two distinct measures. First of all we used the academic sources available, such as Niculescu and Wu (2011). Secondly, we were flexible during the interviews, as we wanted to make sure that we had the adaptability to pick up on aspects not brought up by the theory we used. It is also important to note that this inclusion of a small number of non-academic sources was used to create a deeper understanding of freemium, not business model theory. For the part about business model theory we did not see the need to use non-academic sources since the subject is more explored in academic research.

An influential factor when creating the questionnaire was to have a process research perspective as presented by Pettigrew (1997). The definition of processes used by Pettigrew

(1997, p. 338) is that a process is “a sequence of individual and collective events, actions and activities unfolding over time in context”. As described above, a key concept in hermeneutics is that no action can be understood without context and an important context is past events. Therefore we created the questionnaire in such a way that we would get data about how the developers use of business models had changed over time and what they thought it would look like in the future. This understanding of past, present and future became an important part of understanding *why* and *how* the application developers used freemium.

As explained above, the original thought was to divide the respondents into three groups: those who used freemium, those who did not use freemium and those who used or had used both. Therefore, three different questionnaires were created, one for each group. Since it turned out every research subject had experience from multiple business models, we realised that we had to merge the three questionnaires into one. The only difference that remained were some small adjustments based on what the interviewees’ most commonly used business model was. The questionnaire that was used in the interviews is presented in Appendix 1 and Appendix 2. There are two versions, as the interview template was slightly altered after half of the interviews had been conducted. These alterations were a small number of additional questions regarding business models, as it became clear that this would be of greater interest than we initially had expected.

Interview Procedure

For this thesis we mainly conducted distance interviews, which is associated with some negative implications. One risk of distant communication is that it is easier to end a call than it is to end an in-person interview (Bryman & Bell, 2011). This poses a problem in qualitative research where rich descriptions are dependent on the amount of collected data. Another risk of interviewing at a distance is that body language is not discernible (Bryman & Bell, 2011). We took two main measures to minimize these risks.

Firstly, we attempted to do interviews in-person when it was possible. This was usually not possible due to time constraints of the interviewees and geographic distance. Since our technique of finding interviews involved searching the Google Play and App Store without looking at geographical location we ended up with developers in cities all over Sweden. For

one interview we travelled to another city to be able to do the interview in-person, but doing this for all the interviews would not have been possible due to budget and time constraints. Secondly, we attempted to use Skype, a video and voice chat software, when interviewing. This made the interviews more closely resemble in-person interviews since we could discern facial expressions and body language creating a more personal connection, and thus hopefully resulting in richer data. Two interviews were done in this way. The remaining three were done over telephone. To minimise the risk of getting quick answers and short interviews over the phone we were clear in the beginning of each telephone interview that we would not ask yes-no questions and that our aim was to listen to what the interviewee had to say, rather than to get specific answers.

To avoid steering the interviewees' answers, we informed them that the purpose of the interview was to discuss how they relate to business models in the application market, with a focus on the prominence of *free* in the industry. No more details of the purpose of the study were revealed.

In general we aimed for hour-long interviews and were successful in doing so. Only one interview lasted for less than 50 minutes. The interviews were all done in Swedish, as this was the shared language. This had the disadvantage that quotes had to be translated into English, risking poor translations, but also the advantage of creating a more comfortable environment for the interviewees (and interviewers). Since a main goal of the interviews was to get rich data, it was important that the interviewees would feel comfortable expressing themselves freely. Thus, we determined that the advantages of doing interviews in Swedish outweighed the disadvantages. We also took special care when translating the quotes and did so with feedback from our supervisor.

Data Processing

Since the sample of qualitative studies will never be representative (Bryman & Bell, 2011), we did not base our decision on how many interviews were appropriate based on representativeness. The aim was to finish interviewing when we experienced that the new information we were gathering from each interview was declining, thus implying that there was little new data to gather using the same interview template. In this research project we stopped doing interviews after six interviews. There are two main reasons why we ended

interviews when we reached this point. First of all, since the interviews were long, we had gathered a sizable amount of data and we could see repeatable patterns in the interviewee answers. The second reason why we ended interviewing there was because of time constraints. As discussed above we found challenges in finding relevant interviewees, partly due to difficulty finding developers that fit the criteria for the thesis, partly due to getting in contact with developers. Thus we stopped interviewing at six interviews as we had more than enough data to start analysing it, but also because we did not have time for more.

At the beginning of each interview the interviewees were asked if they gave permission for the interview to be recorded. At that point we also made it clear that the records was for us only and guaranteed that the interviewees would not to be associated with their answers. All interviewees consented to this. This allowed us to avoid taking notes during the interviews, allowing us to focus on listening, as recommended by Bryman & Bell (2011, p. 482).

The work of transcribing the interviews was conducted simultaneously with the interviews. All interviews were transcribed. After transcription followed the analysis. For this we drew inspiration from Marshall (1981), who recommends structuring the collected data under headlines. Instead of using headlines, though, we color-coded the transcriptions as our way of connecting different parts of data together. As this more structured way of working with the data was going on we were having daily discussions, which were especially focused on what was surprising or unsurprising in the data. We saw this as part of the hermeneutic perspective where the researcher is part of the discovery process. As we were analysing the data this way we started to see themes in the data of how the theory was not explaining reality. Therefore our “headlines” as Marshall (1981) discussed became the ways which the theory about freemium and business models could not explain reality adequately. The data was then sorted under these themes.

Trustworthiness and Authenticity

In quantitative research, reliability and validity are cornerstone concepts, but it is contested how applicable they are in qualitative research (Bryman & Bell, 2011). Several attempts have been made to solve this problem. One such attempt has been done by Lincoln & Guba (1994)

who propose to replace reliability and validity with *trustworthiness* and *authenticity*. In this paragraph we will discuss the trustworthiness and authenticity of our research method.

Trustworthiness

Trustworthiness can be determined by examining four different aspects (Lincoln & Guba, 1994). The first, *credibility*, questions whether the findings are believable. Two strategies for ensuring credibility in a research project, as suggested by Shenton (2004), are to make it subject to peer scrutiny and to have frequent debriefing sessions. When it comes to peer scrutiny we discussed the research project with our supervisor on six occasions, offering ample opportunity for us to get feedback on our research method to develop better explanations of the research design. When it comes to frequent debriefing sessions, the research project was conducted with us writing and analysing during in-person meetings, making debriefing a daily occurrence. We also held debriefing sessions after each interview to discuss what had been said and what we could improve on in our interviewing technique.

The second aspect to determine the trustworthiness of a research project is *transferability*, which questions whether the findings are applicable in other contexts. Since the findings in qualitative research are specific to the particular environment where the research has been conducted, it is impossible to create conclusions that can be generalised to other situations (Shenton, 2004). This is why it is important to have rich empirical data so that the readers themselves can understand whether the findings may apply to their own research or not (Bryman & Bell, 2011). This is one of the reasons why we decided to make a clear distinction between empirical data and analysis in the thesis disposition. Anyone interested in the context can read the data segment without comments on our part. Due to space limitations,, the transcribed interviews could not be included in full but we have attempted to create as rich descriptions of the empirical data as possible, with the goal of facilitating the judgment of whether the findings are transferable or not.

The third aspect is *dependability*, which questions whether the findings apply at other times. While, in qualitative research, repeatability is not expected, it is important to make sure that others can understand exactly how the research was conducted (Shenton, 2004). Our efforts to improve dependability are linked to our efforts to improve credibility and to as clearly as

possible describe our research method. It has been suggested (Bryman & Bell, 2011) that researchers keep notes of the entire research project from everything between the development of the problem formulation to discussions about the findings. While we have taken notes during our research the notes were not collected in a structured way and will therefore not be made available. Instead, we hope that this method segment has provided clarity into how we conducted the research. It is also worth mentioning that the criterion of dependability is difficult to satisfy (Shenton, 2004), which might be one of the reasons why the publishing of notes from the research has not been widely adopted (Bryman & Bell, 2011).

The fourth and last aspect is *confirmability*, which questions whether the subjectivity of the researchers has had a major impact on the findings. One important way of ensuring confirmability is triangulation, where all information from one source is cross-checked with other sources (Shenton, 2004). Triangulation has not been done in our research. The reason for this is the difficulty of cross-checking the interviewees' personal perceptions, which were the focus of the interviews. One important measure we took to prevent too much subjectivity was to record and transcribe all interviews, minimising the risk that our own selective memory would dictate the empirical data.

Authenticity

Lincoln and Guba (1994) also suggest the use of authenticity as a measurement of the quality in qualitative research. The authenticity aspects focuses mainly on whether the viewpoints of the interviewees have been fairly presented and if the research has helped the members of the social setting being investigated to arrive at a better understanding of themselves and their peers. We have worked with strengthening the authenticity in our research by presenting the empirical data with direct quotes and took special care not to change the meaning of anything that was said. This was helped by the fact that no recordings were deleted before the analysis was finished, meaning that if the meaning of any statement in the transcription was unclear it could be reheard and discussed. When it comes to working with making the interviewees better understand themselves and their peers, we believe this to be helped by dividing the empirical data and the analysis, thus making a clear distinction between what was said by the

interviewees, and what was our interpretation. In other words we took distinct measures to help with the understanding of the context of the interviews and analysis.

In summary several points that could harm the trustworthiness and authenticity of this research project have been identified. We have also described how we have worked with those points in order to strengthen the quality of the research. Since we have taken specific action to avoid pitfalls as described above, we believe that the authenticity and trustworthiness of the thesis is of a good academic standard.

Theory

In this segment we will use existing literature to define freemium, resulting in a framework over its positive and negative traits. We then define the concept of business models and how it relates to freemium.

What is free?

It is surprisingly difficult to define *free*. One of the first comprehensive books on the subject is by Anderson (2009). In his attempt to define *free* he classifies the concept into four different types: *nonmonetary markets*, *direct cross-subsidies*, *“two-sided” markets* and *freemium*.

The first form of *free* is *nonmonetary markets* where services are given away with no expectation of payment. One example of this type of *free* is the online encyclopaedia Wikipedia, which relies on contributions and donations from its community. The remaining three types of *free* are all different variations on cross-subsidisation, which is when one product or user group covers the costs of another.

Direct cross-subsidies is when a product is subsidising another product. Here, a product can be offered for free since it is paid for by another product. An example of this is Apple giving away their iTunes software for free in order to sell more hardware. Another example is how malls provide free parking in order to entice more shopping. A *“Two-sided” market* is when one group subsidises another group. Here, a product can be offered to users for free since it is paid for by another group. An example of this is how Facebook is free for users and instead charges advertisers to display their ads. Another example is how museums provide free admission to children, but charge adults. Finally, *Freemium* is when users subsidise other users. Here, a product can be free since it is paid for by another user. Examples of this are companies using the freemium model, such as the music streaming service Spotify. It is important to note that, unlike in two-sided market, there is only one user group. Thus, there are not adults subsidising children or advertisers subsidising users, but rather users subsidising other users.

The takeaway from these definitions is that there is more to the term *free* than is normally conveyed in the everyday use of the word. Since the focus of this thesis is freemium, we will leave the definition of *free* here and move deeper into the definition of freemium.

Defining Freemium

As with *free* there is no one definition of what freemium is. Despite the fact that product samples are by no means a novel concept, some researchers consider it to be part of the freemium phenomenon when used for software and web-based services. Anderson (2009) and Niculescu and Wu (2011) refer to it as *time-limited freemium*, which means offering a full version of a product for a limited amount of time, after which the consumer is denied further access unless the user pays. In other words, it is a sample limited by quantity, as is often the case with physical goods which have a real cost associated with them. Examples of time-limited-freemium include Microsoft Office 2010.

Then, there is the *feature-limited freemium*, which does not have an easily identifiable equivalent in the world of physical goods. Businesses using this model offer a basic version of the product for free, without time constraints and without requiring any commitment to future payment by the user. The company then also offers a premium version with full functionality that users can choose to upgrade to by paying. Feature-limited freemium is interesting as it is a concept unique to digital products and services. Niculescu and Wu (2011) accepts Anderson's (2009) definitions of freemium but note that it is unclear under what circumstances they should be used.

Anderson (2009) presents two central themes as the driving forces behind freemium. One is the cost structure characterising digital products, and the other is piracy. The cost part can be explained through technological development. The amount of transistors on a circuit-board has been roughly speaking doubled every two years since the '60s, resulting in immense improvements in computer power (Lundstrom, 2003) This means that resources relevant to the digital industry such as storage, bandwidth and processing power have been depreciating rapidly and are still becoming cheaper.

As for piracy, Anderson (2009) belongs to the group who regards the move towards free as an adaptation to piracy, and not one of the causes. The author writes “Free doesn’t encourage piracy. Piracy encourages free. Piracy happens when the marketplace realises that the marginal cost of production and distribution of a product is significantly lower than the price asked.” (Anderson, 2009, p. 224).

At this point we are one step closer to finding a definition to the concept of freemium. We have definitions presented by Anderson (2009) and Niculescu and Wu (2011) to describe freemium as a specific type of *free* where a small group of paying users cross-subsidize users who pay nothing. We have also discussed that there are two main different versions of freemium: feature-limited and time-limited and what the potential driving forces behind the phenomenon. In the following paragraphs we present the positive and negative traits of freemium as established by current research.

The Positive Traits of Freemium

We have discussed the basic concept of freemium and how it aims to attract paying customers through a free offer. In the next segments we will continue to define freemium by reviewing the positive and negative traits of freemium discussed in academic literature. Positive effects are here defined as effects that will help increase revenue over time, whilst negative effects are defined as effects that reduce revenue over time.

When it comes to positive effects, past studies have focused on three positive effects of providing free versions with limits (Jiang, 2010). These are network effects, word of mouth effects and demonstration effects.

Network Effects

Many software products have characteristics that make them subject to positive network effects (Gallaughar & Wang, 2002). A positive network effect, also known as a network externality, exists when the value of a product increases as the number of users increases (Haruvy & Prasad, 1998).

The reason network effects increase the value of a product has been described by Gallaugh and Wang (2002) as three factors: *exchange*, *stability* and *extrinsic benefits*. The exchange factor relates to how all networks have some sort of exchange (e.g. content or money) and how each new user has a potential to add to that exchange. Examples would be how eBay needs users in order to match sellers to buyers. The stability factor relates to how a higher user base is assumed to be a sign of long-term stability. This is important because it reduces the perceived risk of investing in a program which, if it disappears, results in a wasted investment due to sunk costs. The extrinsic factor relates to how software with a large install base tend to have more manuals, add-ons and other supportive content which add value for the user.

The result of these benefits is that when network effects are present, early adopters increase future adopters' valuation of the product (Jiang, 2010). An important take-away from this is that the benefits of network externalities are not reliant on paying customers. As long as there are users the value of the product increases.

There has been much research of how software companies could optimally exploit this value-enhancing effect by offering something for free. Decision-models to determine what time and feature limitations should be imposed on the free product are especially prominent. Haruvy and Prasad (1998) have created a decision model where two different versions of a product, one free and one paid, can be used to exploit network effects. Cheng and Liu (2012) found that when there are strong network effects, offering a feature limited version for free generates greater profits than time-limited versions. They also found that the opposite was true: when the network externality was moderate, time-limited trials outperformed the feature limited trials.

Word of Mouth

Word of mouth as a phenomenon has been a research subject since the '50s (Brown & Reingen, 1987). While there is plenty of research done on the importance of word of mouth, it is not commonly applied to the context of offering free-samples. This, though, is the research topic of Jiang and Sarkar (2009).

As discussed above, one benefit of having a free offering is to exploit network externalities, but that is not the only reason. Jiang and Sarkar (2009) have shown that even if there is no network externality there are still benefits to providing a free offer. The reason for this is that free offerings speed up the diffusion rate of the product. Free adopters speed up the diffusion rate by both verbally spreading information about the product and exposing potential customers to the product due to a display effect, when the software is used in public. These direct and indirect effects that speed up the diffusion of the product are jointly referred to as word of mouth (Jiang & Sarkar, 2009). They show that the diffusion rate through word of mouth, without sacrificing revenue, is maximised when consumers who have low product valuations are targeted for the free offer. If it is too expensive to identify low-valuation consumers the free offering could be given to all consumers.

Demonstration Effects

Some software products are to be considered experience goods, meaning that it is tough for consumers to get an idea of the quality of the product before using it (Cheng & Liu, 2012). Therefore several authors recommend free trials when products are complex (Haruvy & Prasad 1998; Hui, Yoo & Tam, 2008). Hui et al. (2008) claim that if there is no uncertainty about the quality of the software product, a free version should not be offered. Therefore, the free version should be directed towards non-users to maximize the demonstration-effect without cannibalising on the paid version. Another finding in their research is that companies that consumers find trustworthy can have more limitations on their free versions since there is less of a need to convince the potential customer that the product is worth paying for (Hui et al., 2008).

Apart from not knowing the quality of a product, the demonstration effect can also be associated to learning. Some software is very complex, meaning that some learning is required before a customer can fully appreciate it. Faugère and Tayi (2007) investigated optimal time- and feature limitation in trials. They found that the optimal levels of limitations greatly depended on what type of software was being offered. They categorise software according to its level of complexity: the minimum amount of features that has to be included in a meaningful trial and the marginal importance of each feature. Based on this

categorisation they create 16 different categorisations of software and define their optimal limitations in time and features. While all the 16 categorisations are not of interest in this paper, a main takeaway is how the complexity of a product necessitates more learning by the user, thus benefitting from a longer trial period.

Framework of the Positive Traits of Freemium

We have now reviewed the three main positive effects of offering free limited samples: network effects, word of mouth effects and demonstration effects. By doing this we are now ready to create a framework of freemium and its positive traits:

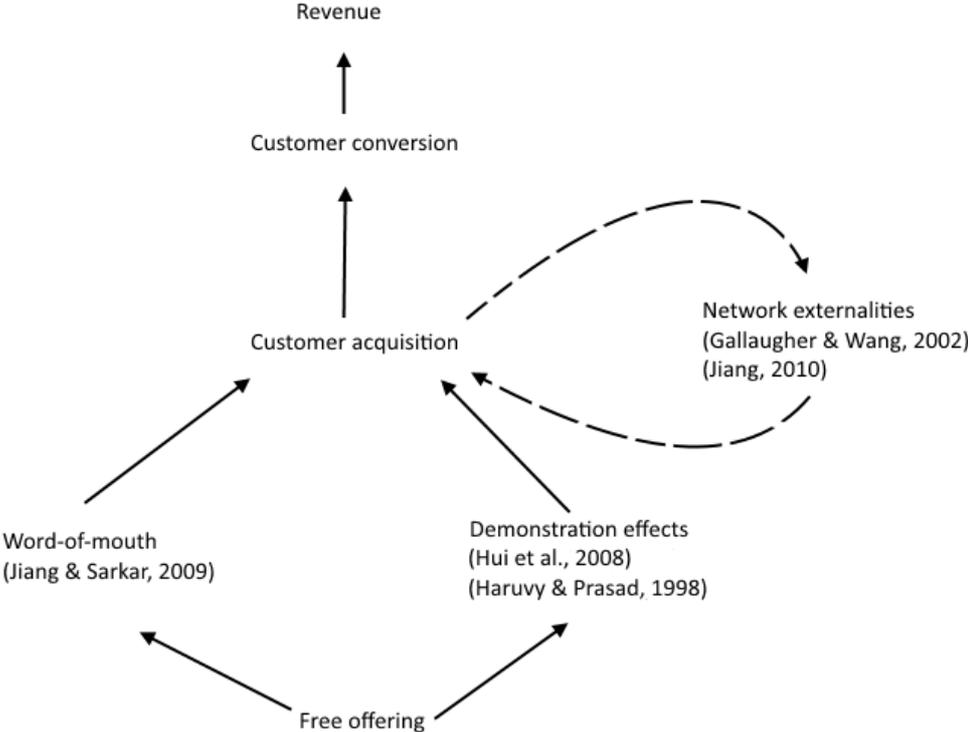


Figure 1: The positive traits of freemium.

The framework starts with the free offering at the base. This free offering gives rise to demonstration effects (Jiang & Sarkar, 2009) and word-of-mouth effects (Hui et al., 2008; Haruvy & Prasad, 1998), which in turn facilitate customer acquisition. The self-fulfilling paradox of network externalities, that customers begets more customers, is illustrated by arrows both to and from customer acquisition. Those arrows are dotted to illustrate that the network externalities are not necessary for free offers to be beneficial (Jiang & Sarkar, 2009). After customer acquisition comes customer conversion, the process of turning free users into paying customers, which results in revenue.

The Negative Traits of Freemium

While there is plenty of academic research on how to optimise free trials and thus indirectly about freemium (Haruvy & Prasad, 1998; Jiang, 2010), there is less research that explicitly discusses the potentially negative effects. As we have mentioned previously, practitioners in the software industry seem to have a more nuanced view. As an example, Universal Music has gone from accepting freemium to instead championing other business models (Kafka, 2015). The existing academic literature mainly discusses two potential drawbacks: increased costs without guaranteed revenue and cannibalisation. We will now review what the literature has to say about them.

Increased Costs without Guaranteed Revenue

As established previously, freemium relies on that the marginal costs of serving a new user is close to zero (Niculescu & Wu, 2011). A central purpose of freemium is the conversion of free users into paid users (Anderson, 2009). Even if the marginal cost of each free user is close to zero in software products, it is not non-existent. Two costs that scale with the amount of users are servers and support. For services such as Dropbox, a cloud-based file-syncing software, even free users create server costs related to the files they upload (Rogowsky, 2013). Since not every Dropbox user is a paying customer, this means that there is no guarantee that revenue will cover these costs. The second cost that can increase based on amount of users is costs associated to support. If consumers are allowed to send support tickets there is an associated cost in time and money, even if the users generate no revenue.

To counter this, some companies offer a freemium model where the free version does not include support.

To clarify, the potentially negative effect of freemium is not that the business model results in higher costs, but rather that it might create costs that are not matched by revenue. It is theoretically possible for a company using the freemium model to only have costs from serving customers, but no revenue to show for it. This can not be the case for a company that charges up front.

Sales Cannibalisation

Sales cannibalisation is when a product takes market share from another product launched by the same company. Sales cannibalisation is problematic to companies who use freemium since it is not a revenue-generating product cannibalising another revenue-generating product, but rather a free product cannibalising on the revenue-generating product. So while sales cannibalisation does not reduce the amount of users, it does reduce revenue. There are two reasons for this (Haruvy & Prasad, 1998). The first one is that offering a limited version might cause some users to settle for that version, instead of buying the complete version. If the paid version was the only one available they would have become paying customers, but since they have the option to not pay they settle. The second reason is that the company might be forced to lower the price of the complete product in order to compete with its limited version. Faugère and Tayi (2007) also flag for the problem of sales cannibalisation. They find that allowing users to reinstall software with the goal of extending a time-limited trial period can cannibalise on the sales of the full product. Both the perspectives of Haruvy and Prasad (1998) and Faugère and Tayi (2007) are based on that consumers act rationally.

Some research also shows that consumers do not always act rationally in their cost-benefit calculation in the presence of *free* (Ariely, 2008). In an experiment performed by Ariely (2008) consumers were given the choice between a high quality truffle, priced at 15 cents, and an ordinary one priced at one cent. In this setup about 73 percent chose the higher quality truffle. In the second part of the experiment, the higher quality truffle was priced at 14 cents, and the other was offered for free. In other words, the price-quality calculation should have been the same, but in this set up 69 percent went for the lower quality truffle. The experiment

was repeated with slight variations later on to counter the possibility of consumers simply not having to look for change in their pockets by choosing the free offer. Ariely’s findings indicate that consumers rationally compare the benefit of two paid products, but when one product becomes free consumers will greatly overvalue that product. This concept has been observed by business practitioners (Kopelman, 2007) to apply to software products.

Framework of the Negative Traits of Freemium

We have now defined the potentially negative effects of freemium: increased costs without guaranteed revenue and sales cannibalisation. We are now ready to add them to the framework presented above about the positive traits of freemium (see figure 1):

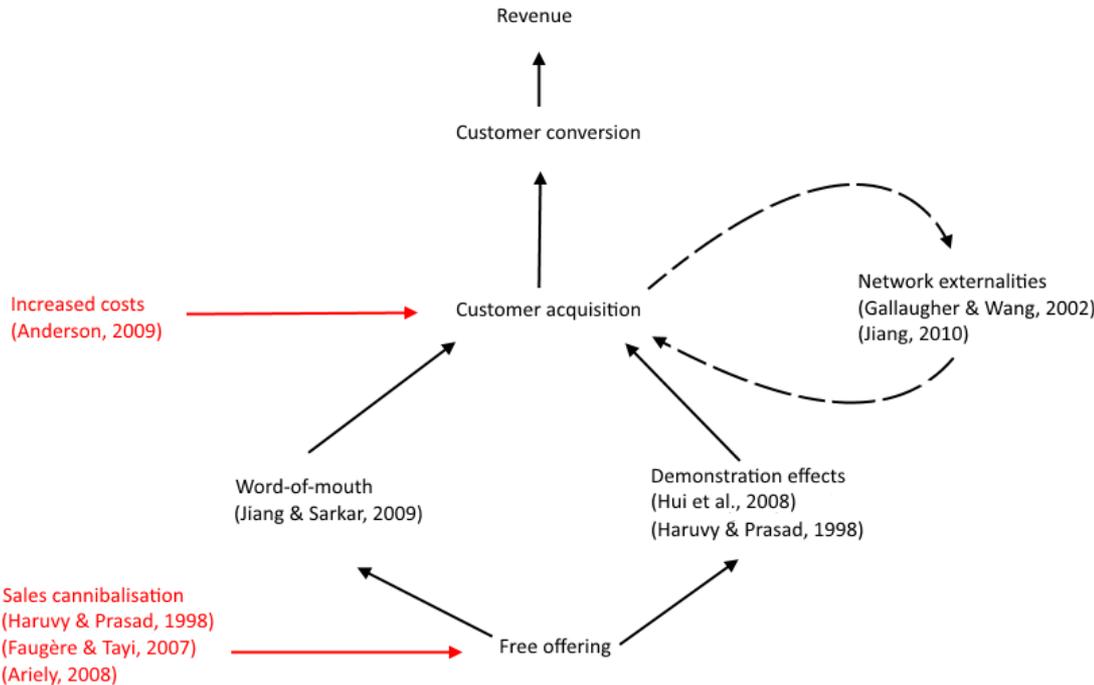


Figure 2: The negative traits of freemium.

The framework of the negative traits is built upon the framework of the positive traits in order to better illustrate which parts of the freemium business model that give rise to the negative effects. The risks are illustrated as the text on the left hand side, with arrows pointing to the part of freemium that are the source of the negative traits given in the model.

We have now defined freemium by reviewing academic literature. We will now move on to reviewing literature on business model theory and how it related to freemium.

Business Model Theory

Research on business models is scarce, and does not seem to belong to any particular discipline (Teece, 2010). The author notes that the word business model is often mentioned, but rarely analysed and thus poorly understood. For instance, Magretta (2002) raises the question of where the difference lies between business strategy and model, and suggests that strategy comes into the picture when competition is taken into account. As will become evident, there have been some attempts to define the concept, and this section will begin with an overview followed by a closer look at business models within e-commerce. There is also some confusion as to what kind of model freemium actually is. Some authors, such as Niculescu and Wu (2011) refer to freemium as a business model whereas according to other definitions, as will be described shortly, it is merely a revenue model.

There is no one definition or widely accepted model of what a business model actually is. Teece (2010, p. 175) writes “*The concept of a business model lacks theoretical grounding economics or in business studies.*”. The author states that business models describe the logic of how the business creates value for customers, how it can entice payments and, finally, how these payments are turned into profit. Johnson, Christensen and Kagermann (2008) propose a framework of the elements of a business model. A business model begins with the *customer value proposition*. This in turn comprises three elements: the target customer, the problem to be solved or need to be fulfilled and, finally, the offering. The offering is what is sold to satisfy the problem or need, and the way in which it is sold. The next part of the business model is the *profit formula* that describes how the company intends to make a profit. It includes the revenue model to be used, the cost structure, the margin model and resource velocity. The third part of the business model framework presented in Johnson et al. (2008) is

key resources, resources such as the people and technology needed to deliver the value proposition to the customers. Then there are *key processes* that enable scalability and repeatability of the business. While the nature of the works described in this section is different, there are similarities in the view on what a business model is. Both authors consider the value proposition to be of high importance, and it is clear that the revenue model is only a small part of a business model. Osterwalder, Pigneur and Tucci (2005) also express the concern that the word business model is used interchangeably with what should be considered only a part of it, in particular the revenue model or pricing mechanism. This brings us one step closer to defining what the freemium model encompasses. So far we have touched on the subject of business models in general, and in the next section we present an overview of research conducted on business models within e-business.

Business Models in E-business

Amit and Zott (2001) investigate value creation within e-business, and identify four main sources of value in their sample. Even though their research is not focused on the business model as a theoretical construct it is, as we have seen, relevant since creating value is an important part of any business model. The four primary sources in e-business, as presented by their research, are *efficiency*, *novelty*, *lock-in* and *complementarities*. It is important to note that in their research, they do not define value exclusively as customer value or value that is appropriated by customers. In their discussion, the authors touch on the subject of business models, however, the focus lies on value creation and the results they present are in line with the advantages of freemium discussed previously. Their definition of a business model is “*A business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities.*” (Amit & Zott, 2001, p. 22). Interestingly, these authors also point at the tendency of business model being confused with revenue model, and propose a definition of the latter to clarify the difference. In their definition, a revenue model describes in what way the business model enables revenue generation.

A visual framework for e-business models is presented by Dubosson-Torbay, Osterwalder and Pigneur (2002).

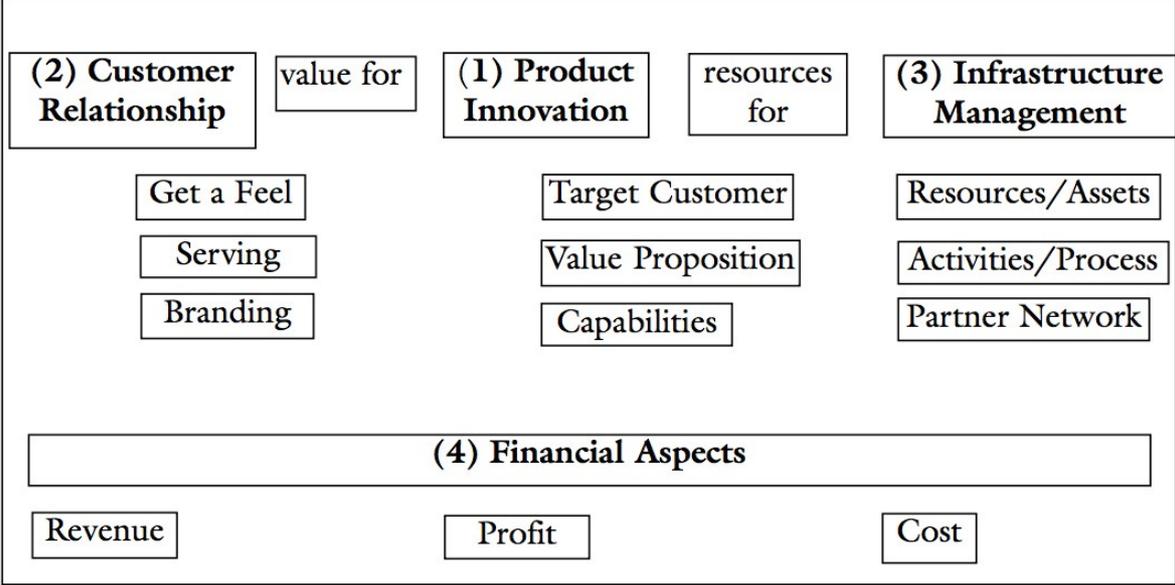


Figure 3. E-business Model Decomposition. Dubosson-Torbay et al., 2002, p. 6.

They propose a model consisting of four elements, *product innovation*, *customer relationship*, *infrastructure management* and lastly *financial aspects*. Product innovation refers to the value proposition, the target segment and the capabilities required in order to deliver this value. The value offered by the product or service is normally directed at a certain target customer, where some companies target a very broad audience, and others are more niche. An example of a capability required to deliver value is research and development. Customer relationship includes CRM and branding. This includes the level of support and service that comes along with a product, and whether to work on creating brand loyalty. The third refers to the resources, assets, processes and partner networks needed to deliver their offering. To a game developer, for instance, these resources might mean intellectual property such as game characters, either owned by the company itself or licensed from a third party. Partner networks exist if the firm has decided to outsource a capability needed to deliver its offering. And finally, financial aspects maps out the revenue model and cost structure that enables a positive cash flow. The revenue part is about how the company captures part of the value it offers to its customers. A company has to align the pricing strategy with the nature of the product, and aim at the highest price the customer is willing to pay. In order to be profitable,

companies also need to be aware of their cost structure (Dubosson-Torbay et al., 2002, p. 11). As we presented earlier, digital products and services are characterised by low marginal costs, which is one of the enabling factors of freemium models. The authors put financial aspects as the last part to be considered, illustrated by the following quote:

rather than qualifying financial aspects such as the revenue or pricing model of a firm as the unique and most important element of a business model, we consider them as the fourth component and as the consequence of the formerly described (Dubosson-Torbay et al., 2002, p. 11).

Summary of Business Model Theory

Based on this review of business model theory we suggest the following conclusions, along with an approach to analysing our data. First, scholars seem to produce templates or definitions of business models that comprise similar components, whether it is business models in general or e-business in particular. Secondly, business models appear to be a construct drawing from several theories within business research, and consequently it is not surprising that research on the subject is scarce and researchers have struggled to assign it any particular discipline. This makes even small contributions to current theory valuable. Thirdly, and perhaps most relevant to this paper, it becomes apparent that according to current theory freemium is not a business model, but rather a revenue or pricing model. On the other hand, when part of the business model changes so dramatically, it is bound to have a profound impact on the other components. Are businesses still consciously working with all components, or have some of them diminished in importance? The model presented above was used as a basis for some of the questions we asked our respondents, and will be used for comparison when we analyse our results. It should be noted that there are other models presented by different authors, but we choose this one as the authors are well-cited in the area of business model research. Perhaps some components will be left out in an updated framework, some will be added and others yet will have their indication of importance altered.

Empirical Data

In this segment we present the empirical data from the interviews. Each interview will be presented separately with a description of the company, their experiences with their business models, their thoughts on the industry and what business model they would prefer to use going forward. This segment is focused on creating rich descriptions of the context the interviewees are part of. Therefore, readers with an interest in the market or in generalising the findings of this thesis to other areas will find this segment especially helpful.

Earth Apps AB

Earth Apps AB is a medium sized developer specialized on games aimed primarily at a younger audience. Their applications are available for download on App Store, Google Play and Windows Store, and they use mainly feature limitation where two separate versions are offered; a free lite version and a full version purchased with a one-time payment. Their latest release, however, uses an in-app purchase approach. The interviewee currently spends most of his time on his duties as CEO and as a game designer. Prior to working with mobile applications he designed games for computers, and the interview began with a relatively lengthy introduction in which he explained why they made the transition to mobile games.

Business Model - Earth Apps AB

In his view, boxed games for computers (at least for a younger audience) were phased out and became untrendy as online web-based games emerged. They then received investment to create an online web-based world, but by the time they were almost ready to release their game, the iPad was released. This caused what the interviewee called the "death" of online gaming. The online world they had made was according to him too complex to be directly ported to an application for tablets:

And there we saw another kind of game model appear as CD-ROM games were complex with lots of content and priced at 500-600 kronor. But iPad-games cost nine kronor and then it's okay that they offer less content.

We then asked what business model they were using at that time. The interviewee replied:

We have always used a premium model, from the start. Except with our latest release. We tried an in-app purchase model for one of our early [mobile] games but we received so much negative feedback that we had to drop it very quickly, people didn't like it at all.

According to the interviewee one reason for the negative reaction, which was particularly strong from Swedish parents, was the combination that the game featured well-known characters among Swedish children and contained in-app purchases. The feedback came primarily from reviews in the application stores. The interviewee felt that that the strong reactions were a bit excessive: "it wasn't exactly Smurf berries we were selling, but this is a perpetual dilemma. So apart from that brief experiment our new game is the only freemium game we have done."

Here the interviewee refers to an incident which took place in Sweden in 2011. A mother downloaded the application Smurfs' Village for her children. The main resource in the game, Smurf berries, were purchasable through in-app purchases. Her children then proceeded to purchase berries worth 50,000 Swedish kronor (Thorsson, 2011). This resulted in media attention and headlines such as "children tricked into buying expensive Smurf berries" (Sveriges Konsumenter, 2011).

At this point in the interview it became necessary to clarify what the different terms such as *premium* and *freemium* meant, as it became apparent that we had different understandings of the concept. We pointed out that Earth Apps AB has free lite versions of most of their games:

You could call it freemium I guess, but it's in a grey zone since you can't make purchases inside the app. Instead it's more like 'if you like this app, buy the full version' which is actually the same thing as an in-app purchase model by which you unlock the game, but for parents it isn't. Since there are two units you don't get the same negative feedback, but it's replaced by other issues like the 'oh so this is all this game contains? What a bad game'. This was in the early stages when people didn't really understand these different models, so it wasn't that easy, but yes we have lite-versions but no IAP.

We pointed out that it was interesting that the negative feedback is less prevalent without in-app purchases, to which he replied: “With a lite version most consumers understand that it’s a form of trial, whereas IAP is associated with ‘let’s trick the children [into paying us money]’. It’s unfortunate and it was the Smurf berries that caused it.”

Another interesting revelation in this part of the interview is the fact that having time-limited trials is not possible in App Store or Google Play. We moved on to asking if he could describe his experience with the freemium model thus far:

my experience is that it’s easy to think that if you release a free version and you get, say, 1,000 downloads you will get 10 people buying the full version. But when you release it you realise... it’s actually 100,000 people downloading it. But it’s not [even] 10 people buying it, more like 5. The numbers are crazy, but it’s changed a bit.... some countries have a prominent “free” culture, everything needs to be free. And it’s not necessarily because they are poor, it’s just a part of their mentality. We quite often get comments such as ‘why can’t your games be free?’, a lot of people say this. So the experience is that we get an incredible reach with the free versions, and much less with the paid ones. The free version then gets lots of reviews, which in turn leads to even more downloads and it goes on. And then it’s difficult to get people to buy the full version, so there is some kind of barrier there. Especially since you need to look up the second version in App Store. But if you got IAP then the barrier is weaker and it goes easier. It’s easier for people to think ‘I like this, it looks good, then I’ll upgrade’, so more people do that compared to when they have to find a full version.

To the question as to whether they planned to use freemium from the start of development or later on the respondent said: “We had seen others do this so we thought it was the only way, at that time.... we just went with it and it seemed to work alright.”

To the question of what the main risks are with freemium the response was:

There is the risk you end up in the mess ... look, let’s say 100,000 people download your app, then you can be sure 60,000 of those shouldn’t even be trying it in the first place ... some of them have heard of the game and wants to try it out, and then there is a small group who didn’t even need a free trial, they would have purchased anyway [even if there was only a paid version]. If you’re very commercially minded you might think ‘how to reach these 60,000 non-customers then?’ ‘maybe if we add some cool character, maybe some pictures of a half-naked woman’ ... Going there is risky.

Future Business Model - Earth Apps AB

The interviewee mentioned that one of the hardest decisions the company ever had to make was the choice between releasing their latest application for free with in-app purchases or as a paid application. The decision hinged upon whether Apple would like the application enough to feature it in the App Store. If they did, Earth Apps AB should use a paid model since a recommendation from Apple would make many people buy the application straight away. If Apple did not feature it, they should go with in-app purchases in order to get more downloads, generating the revenue in the application instead. The problem was that they had to release the application to know whether Apple would feature it or not. In the end, they decided to go with the in-app purchase solution, but the decision turned out to be bittersweet:

Then we released it [the application] and it turned out Apple didn't just like it, but loved it. So they featured it in a lot of countries.... And that was total anguish because if we would have released a premium version, this number of people downloading [and thus paying] would have been much higher than those who converted [in the in-app purchase version].

In other words the in-app purchase model was used to generate downloads, sacrificing revenue. When Apple featured the application they gave Earth Apps AB the marketing power, resulting in them sacrificing revenue without anything in return.

When asked about whether Earth Apps AB would focus on releasing paid applications in the future, the interviewee answered positively with some hesitation, and then explained his reasoning:

Because it's so nice to only have one application. One binary [the link between an app and the App Store]. So I feel a bit like: 'now it's possible to watch videos and get a good idea about how the game works'. No, I can't stand it [having multiple applications]. Because it's actually tiresome.... And then it results in spread reviews... It would be so nice to only make a premium application.

When asked whether the interviewee considered the biggest challenge to be reaching out to customers with the application, or converting free users to paid users, his answer was: "Reaching an audience with a new app is the most difficult, reaching through the noise. You're in the hands of Apple and bloggers and such."

Outlook on Business Models in the Industry - Earth Apps AB

He then moved on to say that things seem to be changing. Previously, charging even one dollar for a game was met with scepticism, but now more and more people are ready to pay up to five dollars for a game they think might be good:

People are tired of freemium, it's become too messy, it's just annoying ads and ugly tricks, and application developers have become more 'no, we don't want to be a part of this mess, we are going to charge 39 kronor for this game because we are proud of it'.

We asked if the application market is characterized by all or nothing, specifically if everyone is just hoping to get that "smash hit". He responded that there is a middle ground, and that Earth Apps AB are part of it since they are working with known characters which gives them more stability than other developers.

To round this section off, the interviewee definitely believes it is possible to compete with a pure paid model. But your product needs to be of high quality, and then you need to work hard on your relationship with Apple and bloggers to reach out to an audience.

Wind AB

Wind AB is a company providing legal support services aimed mainly towards businesses, but also towards private customers. They have one application, priced at 49 kronor, which is live in both the App Store and Google Play. We spoke to their operations manager.

The reason they entered the application market as a legal service company was that the company had a lot of expertise in their niche legal area and hoped to reach a broader segment by developing an application:

We know that it's difficult to get large customer segments to pay several thousands to get help with the type of legal services we offer. So we had to find a product where we help the average Joes and where they can get knowledge about the company. That's what we thought the application should be.

Business Models - Wind AB

The application was first launched as a completely free application with no in-app purchases or ads. The reason for this was to test the market demand for the application:

During the time when the application was free it was downloaded over 100,000 times and we got a lot of input, which was its purpose: to really get a grip on what people wanted. Everybody was in agreement.

What the users were in agreement about was that they were not interested in the legal services aspect. Rather, they wanted an application with a functionality that would help them block unwanted calls, which was a feature that did not exist in the application. This feedback resulted in the application being re-launched with this new functionality. During the re-launch, Wind AB also changed the application's business model - users now had to pay to download the app.

The reason for a paid business model was mainly that generating revenue from the app through ads or feature-limitation were not perceived as reasonable options. When asked about putting ads in the application, the interviewee answered:

We have a dilemma there since we keep a high moral standard. We've been offered to put in ads, but since that's so close to our service of blocking unwanted calls we have to stay away. We could've had 10 times more revenue from our app, but we've chosen not to. We're a bit odd in that regard.

When asked about feature-limitation, the interviewee spoke about the difficulties of implementing this business model due to the characteristics of the application:

It's either everything or nothing. Either we help you by blocking 97 percent of unwanted callers or you'll still get calls from half. Then you'll think that the other half, which we don't block, isn't nice. So we must block everything.

Future Business Models - Wind AB

Still, the interviewee had a favourable perception of using a freemium model:

I don't believe the threshold can be there at all. I want them [the users] to be in my app when they make the decision to pay. It's a lot like standing in the stairwell as a salesman. To get over the threshold, that's the environment where the opportunity is. That's where the sale will take place.

Therefore, if they release a new application, they would try to use feature-limitation if it was possible. The interviewee was also sure that if they would have had a product that allowed for in-app purchases they would have seen better results:

If we would've done that for the 100,000 that already were "in" we would've had 10 times more users than we have today. Because then they would've been inside our world, buying more features. Now they're outside again and we have to open the door and they'll see that the price of the app is 49 kronor. It's like they're new users.

Outlook on Business Models in the Industry - Wind AB

The interviewee stressed that the price of the application does not really matter. It is not the height of the threshold that matters, it is the fact that it is there at all: "No matter if you're going to put nine kronor, 20 kronor or whatever amount, there's always a resistance compared to downloading it for free."

He mentioned that there have been users who were slow to update to the new application, and that they sometimes call Wind AB to ask why the application is not working as well anymore: "When we speak to them there's nobody who has backed away from the price 49 kronor as a one-time cost. Then everybody has updated to the new version."

In summary, Wind AB used a free model to get feedback on their first initial application, which resulted in the new application with the functionality the users had requested. The interviewee really believed in in-app purchases as the future and as the best way to monetise applications, but can not seem to use it at Wind AB since their applications is of an all or nothing nature. They do not wish to use ads because of high moral standards.

Fire AB

The founder of Fire AB works primarily as an IT-consultant and has a long history in the digital space. He developed his first application when the iPhone first came to Sweden. Since then he has developed several applications, of which two are still live in the App Store. Those applications are both utility applications aimed at the professional market. The first application has a full version for 49 kronor and a free version with limited features. The second, and more successful, application only has a full version, which costs 49 kronor.

Business Models - Fire AB

When it comes to the first application, the premium version is still being updated, while the lite version has not been updated for the last three years. The interview described this as a result of disappointment in the lite version.

I released a lite version, free with ads, but it's almost completely pointless. There's so little money per shown ad. You must make sure it's an application that's huge, we're talking millions of users, for there to be any money in it.

When asked about the motivations for releasing a lite version in the first place the interviewee said:

I thought it could be a good gateway... since then I haven't really bothered to update it at the same speed as the premium version since it doesn't generate any revenue, and I don't think it makes for much of a gateway.

Future Business Models - Fire AB

Regarding the application the interviewee was working on at the time of the interview, he was planning on using a free application with in-app purchases. The interviewee also had thoughts of changing the business model of his existing applications to in-app purchase as well, but saw two major problems with going that route. For the application which already had a free lite version, the problem was the work that would require: "I wrote my application in the first

API that Apple released for the iPhone, and that means that if I'm going to do something like this I'm going to have to rewrite the entire application.”

For the more successful application, which is paid only, there was another barrier to introducing in-app purchases: trouble finding the cut-off point between what should be free and what should be behind a paywall. He found difficulty making the application usable in the free tier, while still making the upgrade worth it.

Outlook on Business Models in the Industry - Fire AB

When discussing the pricing of applications, the interviewee noted that there is a big difference between a paid app and a free app, but that the price level is not as important as one would think:

This isn't something I know, but I think that the fact that it is a paid app is more important than the price-level. There aren't that many people who think about the price. Either it's free and you download it, or it's paid and you think about whether you want the application or not. Whether the app costs seven or 38 kronor is pretty irrelevant.

I've tried lowering the price, a couple years ago, and nothing happened. Then I raised the price again and nothing happened. The sales stayed the same. So the people who wanted it were buying it anyways.

He continued by relating this experience with his own application to a phenomenon he observed in the App Store:

A couple of years ago... there was a race to the bottom phenomenon on App Store where everybody lowered their prices hysterically. Everything cost seven kronor, but I don't think sales went up. Then people [developers] started going up again and now I think it has stabilized.

In summary, Fire AB has tried both freemium and a paid strategy. The interviewee believes in in-app purchases as the superior business model, but cannot seem to make it work for Fire AB. Partly due to time constraints and partly due to difficulty finding a good cut-off point between what should be free and what should be behind a paywall.

Ice Apps AB

Ice Apps AB is a small company developing games with an educational aspect. They use a free offering with in-app purchases, with an additional paid version available with all in-app purchases unlocked from the start. They also have one application, which only uses paid, but this game is not considered to be their main application. Ice Apps AB focuses mainly on creating applications for the App Store, but two of their games are available on Google Play. We spoke to the founder of the company.

Business Model - Ice Apps AB

The interview began with the question of what the most important parts are in a business model. The interviewee accounted for his experience with freemium revenue models, but did not seem to have a clear stance on what a business model should include. The interviewee noted that the freemium model is very effective in reaching a broad user base, but that they are not strong supporters of the elaborate revenue models of many games available today (he mentioned the in-app purchase model used in the popular game *Candy Crush Saga*), nor are they fond of advertising as a source of revenue. Advertising, in his view, makes you lose control of how your application is presented: “We haven’t really wanted to use one of these sophisticated models, we want to sell content... and not things like costumes for the characters.”

He pointed out that the educational aspect of their games is one of the reasons, as users are often young and sometimes schools purchase their apps for use in learning. The interviewee also said that the two versions of their main game, where one is a full version paid for upfront, and one is unlockable through in-app purchases, represent a rather even share of the revenue generated. We asked what he believed to be the reason for this: “there have been discussions about what is appropriate, some children want to pay large amounts of money in these types of games... IAP has become synonymous with trickery, sometimes.”

Network effects were brought up as one advantage of freemium by the interviewee, as illustrated by the following quote from the interview:

Having a large base of users who are not paying customers is not necessarily bad, they help spreading the game by talking about it and showing it to other people, and we have global leaderboards where the free users are also represented, so they are valuable users in that sense.

Additionally, he noted that in the early days of the App Store market, prices quickly stabilized at the lowest price point, and everyone thought the next logical step was completely free. But today, he continued, there are types of applications where it works well to charge a somewhat higher price, perhaps because consumers have become accustomed to the fact that these types of transactions are safe.

The company does have a target customer segment in mind, in particular for one of the apps, which is designed for a younger audience. The upside of this, he said, is that it becomes clear what the product is all about, which can be valuable on a market with so many actors and offerings.

When asked whether the revenue model was a part of the plan early on in development he responded that they knew quite early on that they would offer some kind of free content, for sampling purposes and a wide reach. He also said it was something that seemed to work since most developers were choosing that approach. The downside, however, is the difficulty of setting the cut-off point between the free and paid content, and for one of their applications they decided to only release a paid version.

Future Business Models - Ice Apps AB

Whilst future revenue models were not touched upon explicitly in the interview, it became clear that the interviewee was fairly content with their current models. When asked about if they had thought about raising the price in the future, the interviewee expressed some hesitation: “maybe, we've thought about it. But as it is right now... we think it works fine.... we've thought about raising the price an additional step, but right now it's staying at the same level.”

The interviewee's experience with the freemium model can be summarized by this quote:

So on our end, we have tried to stick to what we feel is right, we have tried to take a long-term approach, and not do... we could have been more sophisticated [in regards to revenue model] and made more money short-term... in some way. But we want to think more sustainably and make quality products.

Outlook on Business Models in the Industry - Ice Apps AB

In the interviewee's view, the willingness-to-pay for applications is quite low in general, but he had noticed that their customers are not too price sensitive. They raised the price at one point, which led to a smaller number of paid users but revenues increased. He believes the price sensitivity depends on the target customers of the product.

In summary, Ice Apps have experience with both freemium and a paid strategy, and are a company that believes in making qualitative content for the right audience. They recognize the benefits of free versions such as demonstrating your product and reaching a wide user base which indirectly adds value to other users.

Water AB

Water AB is a business based around a technical application geared towards consumers. The application is using a freemium business model where the premium version is priced at 30 kronor in Google Play and 39 kronor in the App Store. We spoke to the CTO and co-founder of the company. The application was first released in 2010 as a free test version to see if there was any interest for the relevant type of application. The result was the following:

The first few days we got 5,000 downloads so we thought: 'okay, at least somebody is interested in this'. Then, after a year, we had about 100,000 downloads and that's when we released version two. Then we thought: 'okay, maybe we can make some money out of this'.

Business Models - Water AB

As version two was released the founders decided that they would use a freemium business model: the old version would remain free and users would have to pay for the upgraded version. This model took two different shapes in the App Store and Google Play. In the App Store in-app purchases were used, in Google Play two versions were used: one lite version and a premium version. The reason for why two versions were used instead of in-app purchases in Google Play was: "When we first released our application [on Google Play], there were no alternatives. You couldn't choose in-app purchase or similar models. We were too early."

So when it was time for the App Store release they decided to test the IAP model, mainly because they were curious. What they found was that there are some significant pros and cons of using one version with in-app purchase compared to using two versions:

The biggest advantage [of having two versions] is that we can advertise in a completely different way. We'll discount the price by something like 70 percent and then there are websites and media which look for discounts and publish immediately. So we get loads of free advertising. If we do a change like this we see 10,000 new purchases in a day, compared to a couple of hundred. You can't do this with in-app purchases.

Another reason he mentioned was:

Since our app sells relatively well, it ranks high in the top lists. The top lists make people click the full version. If you remove the full version that marketing spot will disappear, and it's not evident that the in-app purchase will rank as quickly on those pages [toplists] again.

The interviewee also mentioned that it is easier to rank on the paid lists in the application markets:

It's much easier. There's less competition and most importantly there are very few who make any money. As soon as you actually start earning some money you rise high in the lists [for paid applications]

There was, however, one significant benefit to using in-app purchases compared to a lite and premium version. This was that the conversion rate of users buying a feature through in-app

purchase was significantly higher than the conversion rate between the lite and premium versions. The interviewee pointed out, though, that this might be because the two models are used in different marketplaces. Since the audiences of the App Store and Google Play are different, there is thus difficult to accurately compare results between the two marketplaces.

When discussing customer contact the interviewee mentioned that Water AB uses several services that lets them analyse data on their users behavior. When we later asked about the interviewees perception on providing support to users, he saw this as mainly positive and as a way of acquiring more qualitative data: “It's really positive that we have users who reach out to us and want to talk to us. It teaches us a lot compared to just statistics. But it takes time and it costs money.... In any case, we have to do it.”

Future Business Models - Water AB

Right now the freemium model is working well for Water AB, but the plan is to, in the future, move to a subscription-model with recurring monthly payments or maybe even a platform business model where users can buy and sell user-created content related to the application.

When asked about the possibility of raising the price on the application the interviewee did not see the benefit at all:

We've thought about it, but we've thought more about lowering the price.... I don't believe in raising the price. Not at all actually. The reason for this is that we're already offering our product at a high price compared to applications in general.

Outlook on Business Models in the Industry - Water AB

When discussing why the prices were so low in the first place the interviewee talked about the habit created at the beginning of the App Store:

I would say it's Apple's fault that people are [only] willing to pay one dollar instead of four. If Apple would've had set the standard, or the starting price, at ten dollars, four dollars would've been seen as cheap.

Since people have gotten used to that applications can cost one dollar everything that doesn't cost a dollar is suddenly a big problem when people think that "whoa, this is expensive" even though it's nothing to the majority of our users.

Because of these cheap prices the interviewee felt that application developers always have to chase the masses, which affects the quality of applications. It is not possible to provide advanced features that do not appeal to the masses. That would only be possible if the prices of applications were higher.

When discussing the future of the application market the interviewee saw a future with higher quality in the application market. This will be driven by developers:

I think this will happen automatically because they [applications] hold a low quality and nobody earns money of them. It's one thing to do an experiment and release an application and get some downloads. It's a completely different thing to maintain this application for five, ten years. That's what costs money.... So we'll see how more and more of these services disappear, which neither is good nor bad for consumers.

Developers will need to charge for their applications or quit, because ads don't pay off. I think we are moving towards subscription models, which we can see signs of already. At the same time there will always be free apps, but they will never be able to have the same quality as paid ones.

When discussing the challenges of developing digital products, the interviewee spoke about the difficulties of getting attention and maximising revenue in the application marketplace:

Generally speaking the most difficult is to get people to notice the application. Especially when it comes to apps. There are a million applications and to get noticed is impossible unless you've made a name for yourself.

Our biggest challenge is probably to find the perfect business model to earn as much money as possible. To get people to convert."

In summary, Water AB started as a side project with a free application, which grew into a freemium model. The interviewee believed in a future with higher quality applications and more subscription models, but that free offers always will be around, just at a lower quality than paid applications.

Glass Apps AB

Glass Apps AB develops health applications aimed at a relatively wide audience. They released their first application in 2011, and have since then expanded their offering with several applications as well as new content for the existing ones. They are the only company of the interviewed that do not offer any free downloads, though most of their applications have in-app purchases in addition to the basic content you pay for initially. We spoke to one of the two founders.

Business Models - Glass Apps AB

We initiated the interview by asking what, in the interviewee's view, were the most important components of a business model. To this he responded they when they started they had not thought much about it, and instead were just focused on making qualitative and relevant content. He said the business model developed as they worked on getting to know who their customers were. They were not certain of what revenue model they would use until it was time for the launch, and they were not certain of their target customer, even though they had a tentative typical customer in mind:

We did not know in the beginning, definitely not. We were rookies in this industry, so we had to learn as we launched it. We sort of did this by using our hearts rather than heads in the beginning. We had our content and we knew it was good and relevant, and we also thought that the market was ready for our product.

In their view, paid applications were more common when they released their first application, and that freemium solutions have become more common since then:

When we created our application, paid applications were much more common. A lot of the apps that are free now were paid then, there was almost a culture that it was okay to charge for something you thought had value.... Nobody had dared to take that step or had these business strategies about what to do with a free app. It's not difficult to release a free app, but then you must have a business model that holds up.

A lot of free applications [developers] have chosen to live of advertising. But to do that in an app like this would have been very weird. In our circles that would have ruined us. It wouldn't have been respected.

Future Business Models - Glass Apps AB

While Glass Apps AB has had success using paid applications and in-app purchases, they are experimenting with their pricing:

We're experimenting with lowering and raising the price, and we'll also release some new apps. One of those apps will be free to download and have an IAP-model. Partly because it's an interesting app, partly to test our way. Since we haven't got much experience in this world we must explore.

Going forward, Glass Apps AB were especially interested in applications that are free to download and have in-app purchase, as opposed to the model they use today with both paid and in-app purchase:

'Why not make the application free, increase the amount of downloads, and just focus on in-app purchases?' That's something we're having an on-going discussion about, but we're not quite there yet even if the conversions are good on the in-app purchase side

Glass Apps AB also mentioned about catering to their current customer base instead of always chasing new customers:

Something that has grown over time, as we've been getting more and more users, is to think: 'okay, these are the people we want to cater to' rather than to seek new users all the time'... 'How can we continue to communicate with these people, are there any possibilities that they want more of this?'

Part of this plan to cater to existing customers is to create a subscription model, build a more personal relationship with their current users, and reduce the dependency on the app marketplaces. Regardless of whether the future of Glass Apps AB lies in subscription models or free apps, the reason why they are yet to change is that it is seen as a big step to leave the current revenue model with paid applications. This is due to fear that the company might lose their stable revenue source and due to doubting whether free offerings are the right model for health applications:

An interesting question is why so many health apps are still represented on the top list of paid apps. Maybe, when it comes to medicine and health, people have a different mindset and think that that somehow means quality.... For our part, it's hard to let go since we've been generating money from our paid model since day one. Converting [users] feels more difficult. When we do that change we have to have a great plan since we're putting that whole income source at risk.

Outlook on Business Models in the Industry - Glass Apps AB

Part of the experimentation that Glass Apps AB is doing is because they see a market where paid gets rarer and rarer:

I think we'll move more towards subscription models and IAP and I think more applications will be visible in the free category.

I can't say that I notice any 'we-don't-want-to-pay-anymore'-mentality. There can be some rare review where somebody writes 'was this all I got for 15 kronor?', but those are very rare. It's rarely the price that's questioned. We've tested increasing and decreasing the price, but it doesn't seem to be that sensitive. At least not in our world.

When asked about what the most difficult thing about working with digital products the answer was: "Marketing. No doubt". The interviewee continued:

In a way, making an app isn't that hard. You must have a good idea, you must have a feeling of how you're going to present the interaction design, the customer journey in the app. You must have some kind of business model. But to get people to download it, want to see it, and to get people to write about it. THAT is hard. And if you're a startup that can't flex the big muscles and roll out a red carpet for the world you have to think differently.

In summary, Glass Apps AB is a company that started out by using a paid model and have since moved on to offer additional content in these apps with in-app purchases. They have now switched focus from acquiring new customers to serving the ones they have, which means they are planning changes to their revenue model. The interviewee perceived the freemium model as a model where it is easier to acquire users, but unless there is a plan of what to do with these users, all one accomplishes is a large user base without revenue.

This ends the presentation of the empirical data and we will now move on to bringing theory and empirical data together in the analysis.

Analysis

In this part of the thesis we will analyse the empirical data, presented in short in the segment above. The aim here is to return to the purpose of the thesis: to understand how and why freemium is used by developers. We will do this by bringing the theory we have discussed and empirical data together to first answer the question of why freemium is used or avoided and then how freemium is used.

Why Freemium? The Aspects Presented in the Framework

In the theory section we drew from several sources of academic research to create a framework over the positive and negative traits of freemium. This then became part of the interview template that was used to collect the data. The framework could not explain all of the data, but it turned out to be stable enough to explain the most prominent parts. In this section we will discuss what aspects the framework could explain, followed in the next section by the aspects that the framework could not explain.

The two main benefits of free offers, word mouth effects as described by Jiang and Sarkar (2009) and demonstration effects as described by Hui et al. (2008) and Haruvy and Prasad (1998), were commonly brought up by the interviewees. One interesting characteristic, however, is that there was a clear difference between how often the two effects were brought up. Regarding word of mouth effects only one interviewee, Ice Apps AB, brought up the positive effects of free users filling the function as ambassadors. Regarding demonstration effects, several, and especially Fire AB and Water AB, discussed the importance of lowering the thresholds in order to get potential customers *inside* their applications. This perception is best illustrated by the way Wind AB looked at the threshold:

I don't believe the threshold can be there at all. I want them [the users] to be in my app when they make the decision to pay. It's a lot like standing in the stairwell as a salesman. Getting over the threshold, that's the environment where the opportunity is. That's where the sale will take place.

Getting people to use the application was clearly an important benefit of having a free offer. The reason more interviewees brought up this benefit, as opposed to word of mouth, is a sign of the importance of sales. As described in the theory, word of mouth effects speed up

diffusion (Jiang & Sarkar, 2009), while demonstration effects are linked to sales (Hui et al., 2008). The interviewees who talked about demonstration effects often mentioned it in combination with making a sale. Ice Apps AB, that mentioned word-of-mouth effects, instead talked about word of mouth in the context of why free users are valuable. Thus, it appears as if the developers in this research focus more on sales, achieved through demonstration effects, than diffusion rate, as achieved through word of mouth, when they consider what revenue model they should use.

The importance of word of mouth effects and demonstration effects was also reflected in the answers to the question of which the most difficult parts when it comes to working with digital products are. A majority of the interviewees said that it was cutting through the noise in the application marketplace. The most telling quote from these is the one from Glass Apps AB when the interviewee discussed the difficulties of making digital products:

In a way, making an app isn't that hard. You must have a good idea, you must have a feeling of how you're going to present the interaction design, the customer journey in the app. You must have some kind of business model. But to get people to download it, want to see it, and to get people to write about it. THAT is hard. And if you're a startup that can't flex the big muscles and roll out a red carpet for the world you have to think differently.

Earth Apps AB also talked about a similar point to this: that that the most difficult thing was not to optimize the applications for conversions, but rather to get users. This marketing problem explains the need for word of mouth and demonstration effects, which in turn explains the favourable view all interviewees had of free offers as a way to attract users. This sentiment is best reflected by a quote from Wind AB, which went from a free offering to a paid offering, but wished that they would have been able to use in-app purchases instead:

If we would've done that for the 100,000 that already were "in" we would've had 10 times more users than we have today. Because then they would've been inside our world, buying more features. Now they're outside again and we have to open the door and they'll see that the price of the app is 49 kronor. It's like they're new users.

One trait that was not mentioned much were the network effects discussed by Gallagher and Wang (2002) and Jiang (2010). The one time network effects came up during the interviews was when Ice Apps AB, which also mentioned word of mouth effects, mentioned the benefit

of having users who could compete on leader boards, enticing more competition. Thus the free users, who could compete on some of the leader boards, had a positive network effect since they enticed more competition. The reason network effects only were mentioned once is likely tied to the kind of applications created by the developers who took part in the research project: none of which were for instance messaging applications. Thus it is reasonable to say that network effects matter, but not for all applications.

There was also some evidence of sales cannibalisation as described by Haruvy and Prasad (1998) and Faugère and Tayi (2007). This was illustrated in the interview with Earth Apps AB. They decided to go with an in-app purchase solution in order to be able to provide a free download and cut through the noise in the App Store. But when they released the application and got featured by Apple they regretted the decision:

Then we released it [the application] and it turned out Apple didn't just like it, but loved it. So they featured it in a lot of countries.... And that was total anguish because if we would have released a premium version, this number of people downloading [and thus paying] would have been much higher than those who converted [in the in-app purchase version].

Apple had given them the marketing they needed to get many downloads, but now users would download a free application with in-app purchases instead of a paid application. A case of cannibalisation requires an existing product to cannibalise on another existing product, therefore this example is not a perfect example of cannibalisation. However, this quote is an example of the perception that users may “settle” for a limited version as described in Haruvy and Prasad (1998), which is the core of cannibalisation.

The majority of the factors from the framework turned out to be relevant, but they could not perfectly explain why the interviewees were using or avoiding freemium. We will now discuss these shortcomings of the framework, followed by an updated version of the framework.

Why Freemium? The Aspects Not Presented in the Framework

Comparing the framework to the empirical observations, it is clear that the existing framework for the negative and positive traits of freemium was not sufficiently good at explaining why developers use or avoid freemium. Several unexplained aspects were found, and should be included in a revised framework, and one aspect was not found, and should be removed. The aspects to be added are that freemium requires more resources since it requires two offerings instead of one, that freemium might risk the legitimacy of the developer and that having many users can be used for receiving customer feedback. The aspect that was not found was the freemium would risk increasing costs without any guaranteed revenue. We will now discuss these factors, followed by an updated framework of why freemium is used.

Freemium requires more resources than free or paid

An important point that came up during several interviews was that freemium requires more resources than using only free or paid applications. This seems to take several forms. First of all, Fire AB talked about the inconvenience of having to rebuild their applications due to changing the business model if the interviewee wanted to introduce purchases in the application. Secondly, there is work required to create the cut-off points required for feature-limitation. Both Fire AB and Wind AB did not use freemium because they had difficulties finding cut-off points in the applications between what should be free and what should be paid content. This was mainly due to the nature of their applications, which was of an all-or-nothing nature, but at the same time both mentioned that it might be possible to add new features that could become premium features. There thus appeared as if freemium was not possible for the current product. Thus, it appeared as if they would spend resources to develop more features, freemium would become available. The third way more resources being required, was mentioned by Earth Apps AB, which used a lite and a premium version. This can be illustrated by how the interviewee from Earth Apps AB considered only releasing paid applications in the future:

Because it's so nice to only have one application. One binary [the link between an app and the App Store]. So I feel a bit like: 'now it's possible to watch videos and get a good idea about how the game works'. No, I can't stand it [having multiple applications]. Because it's actually tiresome.... And then it results in spread reviews... It would be so nice to only make a premium application.

The extra resources and work needed was not brought up by other application developers. For instance Glass Apps AB and Ice Apps AB did not mention this at all. Still, there is an interesting pattern to be found in who uses freemium and the focus they put on their applications. For instance neither Fire AB, nor Wind AB, that arguably put more focus on other sides of their businesses than their applications (consulting and legal services respectively), used freemium. The more established developers, on the other hand, all used freemium as their main business model. The exception to this is Glass Apps AB who only had paid applications, but they still had in-app purchases and *could* make the applications free if they chose to, as opposed to Fire AB and Wind AB who could not. Thus, this study found a connection between the resources available to focus on applications and whether a developer used or avoided freemium.

Freemium might risk legitimacy

Several of the interviewees brought up a link between business models and legitimacy in the eyes of the consumer. Some business models were seen as less honest. Glass Apps AB, which creates health apps, Ice Apps AB and Earth Apps AB, which both create games geared towards a younger audience and Wind AB, which has a utility application, all cited this reason for avoiding using ads. Serving ads within the application was not seen as being compatible with their companies' values. This perception can be illustrated by how Glass Apps AB talked about ads: "A lot of free applications have chosen to live off advertising. But to do that in an app like this would have been very weird. In our circles that would have ruined us. That wouldn't have been respected"

This perception was also clear in the interview with Wind AB which mentioned that they could have had ten times more revenue if they would have allowed for ads, but they still avoided them.

And it was not just ads that were perceived to risk the legitimacy. in-app purchase solutions were also associated to negatively influencing the legitimacy of companies. Earth Apps AB was worried about this, as they had had previous negative experiences by offering in-app purchase solutions. Ice Apps AB also mentioned this risk: "there have been discussions about what is appropriate, some children want to pay large amounts of money in these types of games... IAP has become synonymous with trickery, sometimes."

The reason why Earth Apps AB and Ice Apps AB both saw this risk with in-app purchases might be because they both make games geared toward younger audiences. This scepticism of free offerings was however also brought up by Fire AB, that creates applications geared towards businesses. The interviewee thought that charging might have an effect on the perceived seriousness of the application.

Thus freemium seemed to be perceived as a model that might risk the legitimacy of the company that uses it. This perception of lost legitimacy was the strongest when it came to ads, but there were also perceived risks of using in-app purchases and free downloads in general. Thus, there appears to be a connection in this study between a fear of losing legitimacy and being cautious with freemium. It is, however, important to note that this finding seemed to be very dependent on the audience of the application. Developers with an audience that were sceptical of in-app purchases, such as parents buying games for their children, saw the legitimacy problem with in-app purchases. Developers with audiences that were sceptical towards ads, such as the audiences of Glass Apps AB and Wind AB, saw the problem of legitimacy with ads.

Freemium leads to customer feedback, not increased costs

In the original framework increased costs due to support was listed as a negative side effect of acquiring a large amount of users. This negative trait of freemium was not found to be a reason to avoid freemium in the interviews. Instead, we found evidence to the contrary: more customer contact can be used as customer feedback.

When Water AB, Wind AB, Fire AB were directly asked whether they worried about free users costing too much by requiring support, nobody saw that as a reason to avoid freemium. Water AB saw the support as a cost, but concluded that it definitely was worth it since the support might help convert users and also helps Water AB stay in touch with their customers. Customer acquisition in order to get customer feedback was also used Wind AB, which launched a free application in hopes of getting many users, listening to their feedback and then improving the application. Thus, there was no indication at all that increased costs would be a reason to avoid freemium in this study. Instead increased customer feedback from more users was considered a positive trait. The perception of giving support to customers is best

summed up by how Water AB described it: “It’s really positive that we have users who reach out to us and want to talk to us. It teaches us a lot compared to just statistics. But it takes time and it costs money.... In any case, we have to do it.”

Why Do Application Developers Use Freemium? The revised framework

In the two sections above we have seen how well the framework over the positive and negative traits of freemium could explain the empirical data. In this section we improve the framework by adding the new aspects to the original framework. The result is the revised and final framework, visually conceptualising the above analysis about *why* developers use freemium. The revised framework can be seen below:

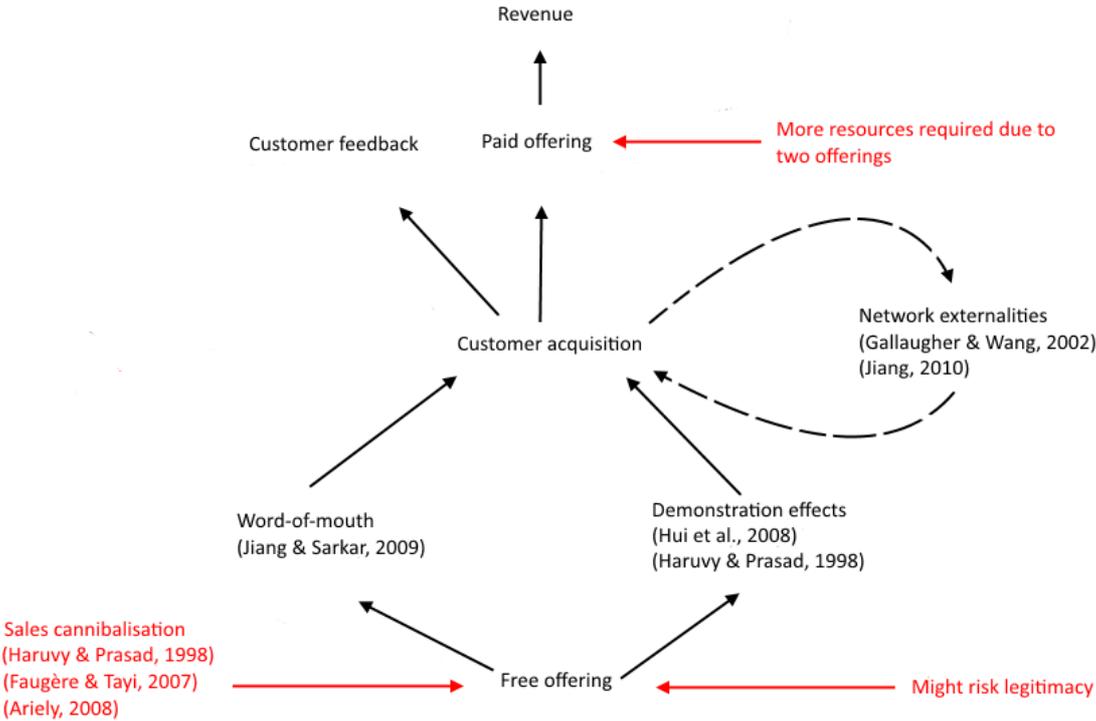


Figure 4: Revised framework of the benefits and risks of freemium.

Compared to the original framework presented in the theory several changes have been made. The trait that freemium leads to increased costs without guaranteed revenue has been removed. This has instead been replaced by the trait that freemium can lead to more customer feedback. Another addition to the framework is that freemium requires more resources

compared to offering a paid or free application. The reason for this is that it takes more resources to create and manage two separate offerings compared to one. The last addition to the framework is that freemium might risk the legitimacy of the developer. This, however, is dependent on the developer's audience. Different audiences have different views on what is considered to be acceptable.

This revised framework concludes the analysis of *why* application developers use freemium. In the next section we will use business model theory to analyse *how* freemium is used.

Freemium as a business model

In the theory section we presented the framework for business models for firms working in e-business as proposed by Dubosson-Torbay et al. (2002). This model consists of the following four main modules: *product innovation*, *customer relationship*, *infrastructure management* and *financial aspects*. The authors suggest that the revenue model of the firm should be adapted to the other parts of the business logic, such as the value proposition and target customer. In this segment we compare this model to how the developers in this study work with freemium. We present the data from our interviews that is related to the components of the business model, with an emphasis on whether or not freemium corresponds to the different parts of a business model, according to the theory.

Freemium is used as inexpensive customer acquisition

The first part of the e-business model framework is *product innovation*, which includes target customer and value proposition. Our results suggest that freemium models affect both of these aspects. One of the main advantages of a freemium model is the potential to reach a large user base. Companies employing this model then hope the users who find the product or service valuable will convert into customers. The words users and customers are sometimes used interchangeably, but there is an important distinction. Some of the developers, such as Earth Apps AB, Fire AB and Ice Apps AB have a specified target group for most of their games, which are designed with this in mind. For instance, Earth Apps develop games aimed at a young audience, and Fire AB developed a tool for small businesses (primarily consultants). The others, Water, Ice and Glass AB did not really plan in terms of target customers during

the development of their product which means that, in our study, one half of the developers had a clear target segment in mind, and the other half were less certain. Those who did not initially have one, mentioned that they later got to know who their customers were through statistics on downloads and purchases. One possible take-away from this is that a freemium model allows companies to launch a product and only later figure out who their customers (as separated from users) are. It should however be noted that Earth Apps AB indicated that if a developer decides on a target customer and focuses on delivering value for them, it will be possible to charge a higher price, as a large portion of those who download the application for free are never going to upgrade no matter how low the price point is set. Water AB, however, suggested that these low prices are in some way set and that chasing the masses comes as a result:

Since people have gotten used to that applications can cost one dollar everything that doesn't cost a dollar is suddenly a big problem when people think that 'whoa, this is expensive' even though it's nothing to the majority of our users.

The value proposition is central to a freemium type of business model, even though consumers can access the product for free. It is worth noting, however, that given the low prices of applications, it appears to be acceptable to offer less content, as illustrated by this quote:

And there we saw another kind of game model appear as CD-ROM games were complex with lots of content and priced at 500-600 kronor. But iPad-games cost nine kronor and then it's okay that they offer less content.

One possible difference between the freemium model and other models is that the value proposition can be less articulated initially, as free applications receive a large number of downloads just because consumers want to try it out. Some kind of value has to be offered however, as users will quickly discard a useless product even if it was acquired at no cost. The sampling of products was one of the prominent benefits of freemium according to our interviewees:

There is the risk you end up in the mess... look, let's say 100,000 people download your app, then you can be sure 60,000 of those shouldn't even be trying it in the first place... some of them have heard of

the game and wants to try it out, and then there is a small group who didn't even need a free trial, they would have purchased anyway...

As we have noted earlier in the analysis, a freemium model is focused on growth. However, not every developer in the study focused solely on this goal. Glass Apps AB mentioned that they have initiated plans to focus on providing more value to their current customer base:

Something that has grown over time, as we've been getting more and more users, is to think: 'okay, these are the people we want to cater to rather than to seek new users all the time'... 'How can we continue to communicate with these people, are there any possibilities that they want more of this?'

Freemium changes the focus to financial aspects

The three remaining parts of the framework presented by Dubosson-Torbay et al. (2002) are *customer relationship, infrastructure management and financial aspects*. In the model, questions such as what pricing mechanism to use should be considered last. The topic of how to generate revenue was brought up frequently in the interviews, whereas working with customer relationship and the infrastructure management did not appear to be an important part of the freemium model. Our results suggest that questions of pricing and revenue model to be used have a strong influence on application developers' business models. Water AB indicated that the low prices and available free content are now a fixed variable, to which questions such as content depth and support must be adapted:

Since people have gotten used to that applications can cost one dollar everything that doesn't cost a dollar is suddenly a big problem when people think that "whoa, this is expensive" even though it's nothing to the majority of our users.

Converting their large user base into revenue was brought up as one of the biggest difficulties of freemium models. A popular free version generates even more downloads of the same, but not necessarily paying customers. This can be illustrated by a quote from Earth Apps AB:

So the experience is that we get an incredible reach with the free versions, and much less with the paid ones. The free version then gets lots of reviews, which in turn leads to even more downloads and it goes on. And then it's difficult to get people to buy the full version, so there is some kind of barrier there.

Several of the interviewees mentioned that having an in-app purchase model does not work for all applications, as the nature of the product must be such that it allows for limiting features (in particular for applications as the marketplaces do not allow time-limited trial versions). Both Fire AB and Wind AB, who found that an in-app purchase-solution did not work for their current applications, stated that they would like to offer an application with it in the future, suggesting that the value proposition is sometimes dictated by the revenue model. Another point that was brought up by several of our respondents, which is a potential flaw in the calculation behind a freemium business model, is that consumers seem to overvalue *free*: “No matter if you’re going to put nine kronor, 20 kronor or whatever amount, there’s always a resistance compared to downloading it for free.”

Whether the application costs one or four dollars does not matter too much, it is either free or it costs money. This is also in line with Ariely’s (2008) findings, and the result could be that the cannibalisation effects accounted for in the theory section, where users settle for the free version, is amplified.

When Glass Apps AB discussed the change of focus from new users to serving current customers, they also mentioned that a part of this change would be to switch to a platform model which reaches outside the boundaries of the mobile market places, and that they are considering changing to a subscription model.

The companies in our study did not mention the cost aspect as often as scholars on the subject do. One of the companies, Ice Apps AB, mentioned that one reason freemium has become so dominant is that copies and digital distribution is so cheap. This concludes the recount for how the freemium approach relates to business model theory.

To round off this section we return to the four components of the e-business model: product innovation, customer relationship, infrastructure management and financial aspects (Dubosson-Torbay et al., 2002). Based on the analysis above, we can conclude that how the freemium model was used in practice mainly corresponded to two of these: product innovation (which includes target customer and value proposition) and financial aspects, while customer relationship and infrastructure management seem largely unaffected. We find that the freemium model does not match every part of the e-business model proposed by

Dubosson-Torbay et al., (2002). Freemium has a particularly strong influence on two factors in the business model, target customer and revenue generation. It also appears to have a minor effect on the value proposition. In the following segment we discuss as what type of model freemium should be classified.

Freemium is either a competitive strategy or a marketing tool

When we started this research we believed freemium to be a business model. This was due to sources such as Niculescu and Wu (2011), which used the term when discussing freemium. Even the person who defined the term, Fred Wilson, titled his blog post “My favorite *business model*” (Wilson, 2006). It did not occur to us that perhaps no previous academic literature had asked the question whether freemium truly was a business model. In the previous section we have given an account of the difficulties we found applying business model theory to how the developers used freemium and concluded that they do not match. In other words, developers do not use freemium as a business model. The important follow-up question therefore becomes: if not a business model, then what is it? This question is important to answer in order to reconcile how freemium is used and perceived in practice and business model theory.

In this final segment of the analysis we will present two suggestions to how business model theory and freemium can be reconciled. The first suggestion is that freemium should be considered a competitive strategy and the second that it should be considered a marketing tool.

Freemium is a competitive strategy

As presented in the segments above, we found financial aspects to be highly important to developers in our research. In our data we could see two reasons why financial aspects were important: users’ low willingness to pay and competition. Low willingness to pay was described by many interviewees, for instance by Water AB, as has been shown in the quote in the section above. Competition was also brought up several times, for instance when Water AB would not consider raising their price since it were already high compared to competitors. Both the perceptions of competition and low willingness to pay can be summed up in the experience of Fire AB:

A couple years ago... there was a race to the bottom phenomenon on App Store where everybody lowered their prices hysterically. Everything cost seven kronor, but I don't think sales went up. Then people [developers] started going up again and now I think it has stabilized.

It could thus be argued that this high competition and low willingness to pay, leads to financial aspects becoming hugely important. The reason for this is that they set strong boundaries of what price that can be charged, and thus also affect the others parts of the business. Consider how Water AB felt that they had to chase the masses because the price they were able to charge was so low. A higher price would have allowed them to focus on the product and create more niche features. This, however, was not possible due to the limitations of the price they could charge.

This finding, that financial aspects are important, is not in line with the framework presented by Dubosson-Torbay et al. (2002, p.11), where financial aspects are described as:

rather than qualifying financial aspects such as the revenue or pricing model of a firm as the unique and most important element of a business model, we consider them as the fourth component and as the consequence of the formerly described

In the authors' framework, financial aspects are described as the consequence of the other parts, such as infrastructure management. In our data the opposite appears to be true: that the other parts of the framework are influenced by the financial aspects. Thus, the framework over e-business business models presented by Dubosson-Torbay et al. (2002) could not accurately describe how freemium was used by developers in our research.

In order to reconcile business model theory and why financial aspects are perceived to be so important in our data, we have to consider Magretta (2002). The author suggests that the difference between a business model and a competitive strategy should be that in the latter, competition is taken into account. The explanation provided by Magretta (2002) therefore manages to explain the failure of Dubosson-Torbay et al. (2002) to describe the importance of financial aspects.

Therefore, our first suggestion that freemium should be considered a competitive strategy, and not a business model. In other words freemium is similar to a business model, but puts so much focus on financial aspects due to competition, that it should be considered a competitive strategy.

In the next segment we will argue for our second suggestion, that freemium is used as a marketing tool.

Freemium is a marketing tool

Our second suggestion is that freemium is a marketing tool. The reason for this is the perceived trade-off between generating users and generating revenue that we found in our data. This, just like the suggestion above, is linked to the competition in the application marketplace, which makes standing out a significant challenge. In the analysis we have already quoted Glass Apps AB, which perceived marketing as the toughest part of creating digital products. Two additional quotes, by Water AB and Glass Apps AB respectively, reveal this perception:

Generally speaking the most difficult is to get people to notice the application, especially when it comes to apps. There are a million applications and to get noticed is impossible unless you've made a name for yourself.

Reaching an audience with a new app is the most difficult, reaching through the noise. You're in the hands of Apple and bloggers and such.

As we have discussed in the section about why freemium is used, these marketing challenges was what created the need for demonstration effects, the most important reason why developers used freemium in our sample. However, creating these demonstration effects was perceived by some developers in our research as a trade-off between the marketing and revenue. This is most clearly illustrated by how Earth Apps AB chose a free application with in-app purchases instead of paid, but when Apple decided to feature their application they realised that they had sacrificed the potential revenue from paid without anything in return. In their case, Apple provided the marketing, thus a free application with in-app purchases was not needed.

The second suggestion is thus that in the pursuit of getting users, developers use freemium as a marketing tool. In other words freemium is used as a complement or substitute for other marketing activities. This reduces revenue from each individual user, but hopefully generates more revenue over time, just like how marketing often costs short term, but generates more revenue long term.

This concludes the analysis of *how* freemium is used. We have presented two suggestions as of how to describe freemium. We do not believe that one explanation is more accurate than the other, since they both describe the same phenomenon from a different perspective. These two suggestions should nuance the view that freemium is a business model.

To summarise the analysis segment we have used our data and theory to answer the questions of *why* and *how* developers use or avoid freemium. When answering the question of *why* we added a number of factors to our framework, adding to a more accurate understanding of freemium. When answering the question of *how* we suggested two alternative ways to more accurately describe how freemium is used, adding to a more nuanced view of freemium as a business model and to business model theory. This ends the analysis segment and this thesis.

Conclusions

In this research project we found that application developers use the freemium model mainly in order to achieve demonstration effects and, to a lesser extent, to achieve word of mouth effects. Due to the saturation on the application market these effects are desirable from developers' point of view, resulting in a mainly favourable perception of freemium among developers. We also found several reasons why application developers might wish to avoid using freemium. Firstly, there is a perception among developers that freemium might risk their legitimacy towards their users. The reason for this is that free offers may be associated with trickery and dishonesty. It is important to note, however, that this association appears to be different for different audiences. Some audiences perceive in-app purchases to be dishonest, other audiences perceive ads to be dishonest. Secondly, freemium often requires more resources, compared to models such as paid or free. This is a result of freemium consisting of two offerings instead of one. This makes freemium less approachable to developers without a narrow focus on creating applications. In other words, freemium, or any model with two offerings, is more likely to be used by professional developers who focus on making applications full-time.

When it comes to *how* freemium is used we found that freemium did not qualify as a business model when compared to business model theory. Despite this, it is still perceived as a business model by developers. Developers generally perceived business models as being the way customers are charged, which only is a small part of a complete business according to business model theory. Additionally, the e-business business model as described by Dubosson-Torbay et al. (2002) failed to stress the importance of financial aspects in some markets. To reconcile business model theory and how freemium is used in practice, we therefore suggest that a more accurate way of describing freemium is as a competitive strategy or a marketing tool.

Practical Implications

There are three practical implications that can be drawn from the empirical data and the analysis. Firstly, developers should be aware that nobody knows what the right answer is when it comes to generating revenue from applications. In this research we found a deep uncertainty about what is right, what is wrong, and what should be done when it comes to generating more revenue. This uncertainty also appears to give rise to a mentality that the grass is always greener on the other side of the fence. Few developers appear to be content with their current revenue models. Since there is so much uncertainty, developers should consider testing different revenue models to see what works for their specific application. The second implication is that special consideration should probably be given to offering free applications with in-app purchases, as this was seen as the most favourable revenue model by the interviewed developers. The main reason for this was that in-app purchases allows users to download the application for free, while at the same time providing the best circumstances for converting those free users. There are some risks to be considered with this model, such as risking legitimacy. However, these risks seem to be dependent on the perceptions' of the audience. Since these perceptions differ from audience to audience, it is important for developers to know their own audience's perception of this model. Lastly, raising and lowering the price of an application does not seem to have much impact on turnover. Either the sales go down a minor amount as the price rises or they stay the same. Either way the price *level* does not appear to matter nearly as much as one would think. What matters, and thus becomes the more important choice, is whether to make an application free or not. Here there are no clear answers since applications are heterogeneous and what might work for one category of applications might not for another.

Future Research Suggestions

There is much to investigate in both the fields of the application market and freemium. Applications today are incredibly cheap, but still have to sustain developers. In order to achieve this, innovative ways must be utilized in order to market applications and generate revenue. Therefore, researchers focused on understanding how developers can use the in-app purchase model to sustain themselves would be beneficial. There are also more research to be done on the revenue models which are relatively nascent in the application market today, such as subscription models and platform models. Research on the feasibility of these models and

on consumers' perceptions of them would be of interest both to business model theory and developers. Another area where more research should be conducted is on consumers' willingness to pay. There has already been some research on this topic, but for instance investigating whether there is a trend of increasing or decreasing willingness to pay in the application market, and why, has not been done. Finally, more research of how business model theory is applied in practice is needed. This is especially true if business model theory can be applied to new markets where free offerings have a dominant position. In this way, we believe that many more additions could be made to business model theory.

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Appendix

Appendix 1: Interview Guide used for Ice Apps AB, Water AB and Glass Apps AB

General questions

- Could you tell us a little bit about your firm?
- How long have you worked here?
- What is your past experience? E.g. Past jobs and education

Business models

- What are, in your view, the most important parts of a business model?
- How do you know what your customers want?
- What is the relationship like with your customers?
 - How do you develop it?
- Do you target a specific customer segment?
 - Why / Why?
- What does your relationship with Apple or Google Play look like?
 - When do you get in touch with them?
- What is your experience with freemium?
 - How does freemium benefit you as a company?
 - What are the main advantages?
 - What are the main issues?
- What is your perception of app users willingness-to-pay?
 - What is it that makes it difficult to charge customers?
- What have been your biggest issues when working with digital products and services?
- What made you decide to adopt this model?
- How much time have you spent on pricing discussions?
- When in the application development process was the decision made?
- Did you ever consider another model? Why, why not?
- Do you think freemium changes the application quality?
 - If so how?

- Do you think freemium affects the kinds of products offered?
 - In what way?
- To what do you attribute the rise of free offers?
 - What has had the biggest impact on how to conduct business in the digital marketplace?
- Have you ever thought about switching to a different business model?
 - Why/why not?
 - What would happen if you tried freemium / charge full-on for your product?
- Looking ahead, what do you think the future of freemium is in your industry?
 - Why?
 - How would you like the application market to look like in five years?
- Do you see any long term risks of freemium for your industry?
- Do you see any long term risks of freemium for your company?
- How can a company compete with a free offer?
 - Do you think it would be possible to reach a wide audience with an app priced at 300 SEK?

Appendix 2: Interview Guide used for Fire AB, Earth Apps AB and Wind AB

General questions

- Could you tell us a little bit about your firm?
- How long have you worked here?
- What is your past experience? E.g. Past jobs and education

Business models

- What is your experience with freemium?
 - How does freemium benefit you as a company?
 - What are the main advantages?
 - What are the main issues?
- What is your perception of app users willingness-to-pay?
 - What is it that makes it difficult to charge customers?
- What have been your biggest issues when working with digital products and services?
- What made you decide to adopt this model?
- How much time have you spent on pricing discussions?
- When in the application development process was the decision made?
- Did you ever consider another model? Why, why not?
- Do you think freemium changes the application quality?
 - If so how?
- Do you think freemium affects the kinds of products offered?
 - In what way?
- To what do you attribute the rise of free offers?
 - What has had the biggest impact on how to conduct business in the digital marketplace?
- Have you ever thought about switching to a different business model?
 - Why/why not?
 - What would happen if you tried freemium / charge full-on for your product?
- Looking ahead, what do you think the future of freemium is in your industry?
 - Why?
- Do you see any long term risks of freemium for your industry?

- Do you see any long term risks of freemium for your company?
- How can a company compete with a free offer?