Conquering the mobile

A study on the contemporary practices in mobile game development through nine cases and the introduction of the DPS model

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Master’s thesis abstract

After the launch of the iPhone in 2007, the mobile game industry has grown and developed rapidly. The widely adopted free-to-play (F2P) business model requires the companies to integrate business with design. Lowered entry barriers have increased competition, and the industry has polarized in terms of revenue. These changes in the industry and design seem to require approaches and practices not comprehensively documented by the existing literature.

The study describes the contemporary practices in mobile game development, production, and design. To achieve this aim, a literature review of the industry was conducted, and nine Finnish small and mid-sized mobile game development companies were interviewed. Based on the findings, the Design-Process-Stakeholders (DPS) model of mobile game development was designed.

The industry review found the mobile industry competitive and maturing. Due to the large number of games released, visibility in the marketplace is crucial towards the success of the game. The common practices in development point towards the importance of teamwork and iteration: continuously testing, evaluating, and improving the design. These
efforts aim to create value for the user by constructing a platform for a compelling, engaging, and entertaining game experience. The F2P business model requires the companies to establish and maintain a relationship with the players over time.

The analysis of the interviews found that as the companies matured they developed more elaborate processes and structures to manage iteration, and its importance in the development grew. They also paid more attention to the industry trends and preproduction, and rationalized their business decisions compared to the younger companies more driven by creative aspirations. F2P monetization was generally found challenging and learned through experimentation. The more focused the target audience, the more the companies paid attention to understanding their needs. A shift towards producing games as a service was observed.

The DPS model of mobile game development was designed through the synthesis of industry review and interview findings. It guides the companies to validate, evaluate, and improve the in-use value proposition of their game by interacting with the stakeholders throughout the development. The model is aimed specially for aspiring game development companies and multidisciplinary game design teaching.

**Keywords** Business models, free-to-play design, game development practices, innovation management, iterative design, mobile games, monetization design
Tekijä
Lauri Lukka

Työn nimi
Mobiilimaailman valloitus. Tutkimus mobiilipelikehityksen käytänteistä yhdeksän yritystapauksen kautta ja SPS-mallin esittely

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Mobiilipeliteollisuus on kasvanut ja kehitetty nopeasti iPhonen julkaisun jälkeen vuonna 2007. Ala on omaksunut uuden free-to-play (F2P) -liiketoimintamallin, jossa peli tarjotaan kuluttajille ilmainen. Malli edellyttää liiketoiminnan ja pelisuunnittelun yhä läheisempää yhdistämistä. Samalla esteet pelin julkaisemiselle ovat vähentyneet, mikä on lisännyt kilpailua, ja alan yritysten liikevaihto on polarisoittunut. Nämä viimeaikaiset muutokset sekä teollisuudessa että suunnittelussa vaativat uusia lähestymistapoja ja käytänteitä, joita ei ole vielä kattavasti dokumentoitu olemassaolevalla kirjallisuudessa.

Tutkimus kuvaavat tämänhetkisiä käytänteitä mobiilipelikehityksessä, -tuotannossa, ja -suunnittelussa. Tutkimus alkaa kirjallisuuskatsauksella ja jatkuu perehtymällä haastattelujen kautta yhteensä yhdeksään pieneen ja keskisuureen suomalaiseen mobiilipelikehityspyrkyyseen. Saatuja löydösten pohjalta kehitettiin Suunnittelu-Prosessi-Sidostyrmä (SPS) -malli, kuvaamaan mobiilipelikehityskäytänteitä.

Kirjallisuuskatsaus havaitsee mobiilipelialan olevan kypsyvä ja kovasti kilpailtu. Pelien suuri julkaisumäärä johtaa sihten, että näkyvyys kauppapaikalla vaikutaa yhä enemmän pelin menestymiseen. Tiimin


SPS-malli mobiilipelikehityksestä luotiin yhdistämällä kirjallisuuskatsauksen ja haastattelututkimuksen kautta saavutettu ymmärrys. Malli ohjaa yrityksiä olemaan vuorovaikutuksessa tärkeimpien sidosryhmien kanssa koko tuotannon ajan, jotta pelin käytössä esiinousevaa arvolupausta voidaan jatkuvasti vahvistaa, arvioida, ja kehittää. Malli on suunnattu erityisesti nuorille, nouseville pelinkehitysyrityksille sekä poikkitieteellisen pelisuunnittelun opetusmateriaaliksi.

Avainsanat Ilmaispelit, innovaatioden johtaminen, iteratiivinen suunnittelu, liiketoimintamallit, mobiilipelien tuotanto, mobiilipelit, pelisuunnittelun käytänteet
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I am deeply grateful to the companies who gave this study their time, knowledge, and support. This work channels the understanding they have created in the field. I hope their experiences act as a source of inspiration for aspiring developers and lead to exhilarating and engaging games that elevate the industry to new levels. As one of the interviewees commented: a rising tide raises all boats.

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INTRODUCTION

This study explores the practices of mobile game development from the company perspective. Currently, the practices are not comprehensively understood, and the existing literature is unable to describe some distinct aspects of the mobile game industry. The study describes the practices in the context of design and business, and concludes by presenting a model for mobile game development.

THE BACKGROUND

The mobile game industry as we know it was born with the transforming, radical innovation proposed by the iPhone (Feijoo, Gómez-Barroso, Auguado, & Ramos, 2012). After its release in 2007, the adoption rate of smartphones has constantly increased, and the mobile game industry with them. The industry is expected to overtake the PC and console market in terms of revenue in 2016 (Deloitte, 2016).

The revenue in mobile game industry is unevenly shared. Where an average PC or console game title might make $3–5 million in revenue, an average mobile game will generate roughly $40 000, Deloitte (2016) evaluates. There is a huge number of games released monthly but a vast majority of them do not generate any revenue. Out of the tens of thousands of companies, perhaps only 200 will generate over one million in revenue. In
short, the mobile game industry is easy to get into but a pain to financially
succeed in.

The companies that operate in the industry often have their roots in
software development and its practices. However, it seems game
development is its own field within the software domain: the knowledge
from the software industry is not always directly applicable to the field of
games (Kasurinen, 2016; O’Donnell, 2012). This has led to the need to
create models and practices tailored to the game industry.

Over the years, the interest in systematically understanding game
design, development, and production has steadily grown. This has led to
several remarkable titles including the highly influential Rules of Play (Salen
& Zimmerman, 2004), the fundamental The Art of Game Design (Schell,
2014), the playful Level Up! (Rogers, 2010), and the structured Game
Development and Production (Bethke, 2003). Many of these works focus on
games in general, or address the practices of the PC and console industry.
They do not cover, document, and discuss the development practices specific
to the young mobile game industry. As Mäyrä (2015) describes, mobile
games have not been very mainstream in game studies.

Mobile games might be an increasingly distinct area within game
development that requires its own models. One of the unique features of the
industry regards its business model. While many PC and console games still
use the premium business model where the game is paid for before playing
the mobile game industry has nearly completely turned towards free-to-play
(F2P). The game can be downloaded and played for free, and revenue is
generated through in-game purchases (Alha, Koskinen, Paavilainen, Hamari,
& Kinnunen, 2014).

The change in the business model has had a significant impact on
game design. The game needs to guide and persuade the player towards a
purchase decision while providing an entertaining and positive experience
keeping the players engaged over time (Alha, Koskinen, Paavilainen, Hamari,
& Kinnunen, 2014). Hamari, Hanner and Koivisto (2017) describe how this
creates a tension for the designers: how to offer high quality free service and
create a demand for the premium content? The F2P model is only recently
adopted, and there is still little research knowledge on it, the researchers continue.

The mobile games and their business models differ from those in the PC and console industry, and so do the devices. Smartphones have smaller screens that also act as the game’s controller. The devices are accessed throughout the day and they are often an integrated part of the player’s daily routines. The sensors of the device provide context-aware capabilities that can be used to gamify the player’s everyday life, Mäyrä (2015) describes. These features are driving mobile games towards their own genres and affect the practices of development.

The mobile game industry seems to have several features that distinguishes it from other game industries, and the current practices in the field are not sufficiently understood. Without shared understanding the development companies might encounter similar, common pitfalls, and work hard to learn what others have already found out. This creates the need to describe how mobile games are developed today as they are emerging as their own field.

THE AIM OF THE STUDY

The aim of this work is two-fold: to describe the contemporary practices in mobile game development, and to design a model to describe them. The development practices are examined through the three intertwining perspectives: the company, the development, and the game (see Figure 1).
Generally, the function of a company is to identify customer needs, create products and services to meet those needs, and turn this into profit (Teece, 2010). Mobile game development companies are approached as entities that engage in several activities to fulfill this goal. They follow trends in the industry, interact with other companies, gather resources for the development, choose projects to be produced, and create a platform for the production team to develop the game. The aim is to uncover, examine, and describe which company activities are found most important and useful in game development and production.

One of the key activities of the company is game development: the way in which a particular way is designed and produced. The most effective methods of working are constantly explored in the field to optimize the development. The practices are also affected by the current theoretical tides. There has been a recent paradigm shift in software and game development from highly organized and planned manufacturing processes towards flexible, agile practices that stress the importance of customer feedback and collaboration (Cobb, 2015, Kent et al., 2001, Ries, 2011).

The game the company creates is a tangible manifestation of the company business and development practices, and thus a valuable tool in understanding them. The success of the game affects the future possibilities
of the company through the revenue it creates, the playerbase it gathers, and
brand it establishes. It is the primary touch-point with the audience and the
key towards company value proposition.

Thus, the three aspects relate: the company and development
practices affect the game developed. In order to understand contemporary
mobile game development it is first explored through an industry review and
then through nine game development company interviews. Yet, this work
seeks to go beyond descriptions: it aims to combine theory with practice
through design (Buchanan, 1992). Leveraging the understanding created a
model of mobile game development is presented. It is aimed for aspiring
mobile game development companies and multidisciplinary game
production teaching.

The research themes of the study are:

(1) What are the contemporary practices in mobile game
development?

(2) What model would describe them well?

The work is structured into five main chapters. The second chapter
explores the mobile game industry from the perspective of a mobile game
development company covering three aspects: First, the chapter examines
the industry, the competitive environment in which the companies operate.
Second, it describes some of the practices in the mobile game development.
Third, it explores how companies create value to their users through games.

In the third chapter, the approach to the nine game development
company interviews and their analysis is described. An overview of each
company and their game is provided to illustrate their differences and
similarities. The fourth chapter explores the findings from the interviews,
and reflects them in terms of the industry review. The fifth chapter
introduces the Design-Process-Stakeholders (DPS) model of mobile game development based on the interviews and the industry review. The final, sixth, chapter examines the study holistically and looks into the future.
INDUSTRY REVIEW

In this chapter, the mobile game companies are explored and described through a framework presented in the Figure 2. A network of companies is described on the left-hand side. These companies interact with the players, the market, on the right side. This interaction may take many forms but one of them is especially focused on: the games the company creates. This framework elaborates the initial triad presented earlier in the Figure 1: the company, the development practices of the team, and the game, the key value proposition of the company.

To set the stage, the chapter begins with a short introduction of the history of the mobile game industry. Then, the competitive environment of the companies, the industry, is explored. After this, the focus is turned towards the company, the unit of analysis in the study. Common practices in mobile game development and production are explored, especially iteration and interaction within the team. The companies are also placed within a broader network of companies that, for instance, allow games to be distributed to the players. The geographical environment of the companies interviewed is also explored. Finally, the games of the company are examined in terms of innovation and the F2P business model in order to understand the value they create for the market.
THE RISE OF THE MOBILE GAME INDUSTRY

“Play is older than culture”, declares Huizinga (1944) in his seminal book *Homo Ludens*. Playing games is natural for humans, and the ways of playing are affected by the technologies at our disposal. The technological platforms affect how, where, and with whom we play. As games have entered the digital realm four special traits have emerged, Salen and Zimmerman (2004) argue: The player receives immediate feedback from the game but the interactivity with it is limited by the controls of the device. The digital system stores, keeps track of, and manipulates important information for the player allowing them to focus on other aspects in interaction. Many parts of the system are automated: the game only gives the players the results of the complicated calculations to interact with. Finally, digital games allow interaction and communication between the players through digital networks. These features are prominent also in mobile games.
According to Mäyrä (2015), the roots of mobile games can be traced back to two distinct developments. On one hand, mobile game designs miniaturized arcade games of the 1970s and 1980s to handheld devices. This development was led by the Japanese company Nintendo. One of their first digital successes, the Game & Watch series, paved the road for the highly successful handheld console, the Game Boy. Released in 1989, it sold over 200 million copies over the following years. On the other hand, the roots of mobile gaming are in the mobile communication technologies. Mobile phones were first developed as communication devices but over the years they grew to serve various purposes, including gaming. In contrast to the handheld mobile devices, their controls were less suited to gaming but their functionality was more versatile.

Before 2007, the mobile game industry was much more modest than today. Development and distribution were tied to different mobile operator portals which divided the players into silos, describe Feijoo, Gómez-Barroso, Auguado, and Ramos (2012). The developers were forced to comply with operator demands, and porting the game to a different platform was expensive and often restricted by exclusivity deals. Mobile phones were limited in their graphical capabilities and processing power, and the network speeds were lower. Overall, the mobile game industry was searching it place. “Very few companies have made definite strategies that they would be pursuing; it seems rather, that the industry is currently lacking persistence and changes the focus whenever a new technology is introduced,” Partanen (2005) writes.

At the time, the most popular games were rather simple and copied their mechanics from earlier arcade titles. One of the most notable and popular games was Snake that came bundled with the Nokia 6610 handset (Wright, 2016). Yet, mobile gaming could be described more of a curiosity and less a hobby. The simple games did not keep the players engaged for long periods of time compared to the smartphone games today (Feijoo, Gómez-Barroso, Auguado, & Ramos, 2012).
The industry started to change with the release of the iPhone by Apple in 2007 (Feijoo, Gómez-Barroso, Auguado, & Ramos, 2012). The large touchscreen of the device was a radical innovation that revolutionized how the users interacted with their phone. In addition, the device had several technological features such as a precise location system, large storage capacity, camera, and motion sensors that appealed to the customers and provided ample of opportunities for game developers. The iPhone established a standard for a new generation of smartphones that was rapidly adopted by the wide-audiences. In 2015, it seemed the high-growth phase of smartphone technology adoption was slowing down, and 2.3 billion people owned a smartphone (Newzoo, 2016).

The iPhone software was designed to be modular: the users could browse and install applications from the centralized digital marketplace. This was a significant change in how content was distributed (Feijoo, Gómez-Barroso, Auguado, & Ramos, 2012). The Apple App Store was launched in 2008, and Android Market (today Google Play) by Google soon thereafter. While other platforms have been established, these two have prevailed: in Q3 2016, Google and Apple controlled 99.3% of the marketplace (IDC, 2016). Windows and other platforms represent the last 0.7%, and due to their low prevalence, these platforms are not examined in the study. There is one notable difference between Apple and Google: Apple chooses to manufacture their own devices while Android devices are manufactured by various companies, currently led by Samsung (Newzoo, 2016). The devices are powered by the companies own operating systems, the iOS and Android respectively.

The changes in the market have been good news for the developers. The consolidation of the markets and the centralization of distribution portals meant that the developers had access to far wider audiences, the distribution costs were lowered, the integrated platforms made the development easier, and the openness of the technology lowered the development costs (Holzer & Ondrus, 2011). Furthermore, digital distribution reduced the number of actors sharing the revenue, thus increasing developer profits. Compared to the retail model where the
developer share of the revenue was between 8–15%, digital distribution increased the share to 70%, NeoGames (2011) claims.

Engaging devices and content have created the platform for mobile gaming that is emerging as its own genre of gaming (Mäyrä, Karvinen, & Ermi, 2016). Over the years, the number of mobile people playing mobile games has been constantly growing. In 2009, some 14% of Finns played mobile games at least once a month according to the Finnish player barometer (Mäyrä, Karvinen & Ermi, 2016). Six years later, the amount of mobile players was nearly threefold, 37%. This is considerable compared to the waning 4% of Finns who actively play on handheld console devices.

It seems smartphone games are increasingly adopted by the large audiences. No wonder, the global potential for smartphone players is considerable compared to other digital game platforms: there are 1.75 billion smartphones and tablets used to play games compared to 600 million PC players and 200 million console players (Deloitte, 2016). This creates a large market with considerable, growing global revenue. Newzoo (2016) estimates that in 2016, the global smartphone game market is worth roughly $36.9 billion, 27% of the whole game market ($99.6B). While the combined digital game industry is expected to grow 6.6% annually, the share of smartphones is increasing. In 2019, the smartphone game market may be worth $52.5 billion, 34% of the whole digital game market ($118.6B).

In conclusion, the smartphone technology has given birth to a new culture of mobile games that have become widely popular after the release of the iPhone in 2007. Mäyrä (2015) explains this growth in popularity through four factors: The touch-screen smartphones have provided the users with a better, more engaging user experience. The advancements in the distribution platforms have made it easier for the consumers to access the digital content – and the developments in network technologies have made it possible to do so both economically and rapidly. These technological advancements as well as the developers’ interests in the rapidly growing
market have improved the quality of games making them more appealing to the users.

THE MOBILE GAME INDUSTRY

The technological developments offered a platform for the mobile game industry to grow. Porter (1980) defines an industry as the group of companies whose products are close substitutes to each other. As an increasing number of companies were drawn to make mobile games competition increased. This chapter begins by describing the current state of the industry, and continues to examine it in detail with the five forces analysis (Porter, 2008). This review makes it possible to frame the company practices in their competitive environment.

THE COMPETITION FAVORS LARGE COMPANIES

The smartphone technology and the rise of the digital marketplaces created several opportunities for companies to take advantage of. The lowered entry barriers and good profit margins led to an increasingly competitive market which made it difficult for small companies to stand out from the crowd, reach their audience, and gain users (Deloitte, 2016; Moreira, Filho & Ramalho, 2014, Neogames, 2011). The market is unevenly shared. The most established companies generate considerable revenue while 50% of games earn less than $1000 per month: “Deloitte Global expects about 80 percent of mobile games revenue in the top 1000 titles to be earned by the top 20 publishers in each region: that leaves a fifth of the remaining revenue to be shared among many tens of thousands of developers,” Deloitte (2016) claims.

The intense competition can be observed in the ever increasing number of mobile games released. In November 2010, 2 500 games were released on the AppStore. In November 2016, 24 000 games were released – nearly ten times as many as six years earlier (PocketGamer, 2016). In other words, there are 800 titles released daily.
To facilitate the discovery of games the marketplaces have influential listings that provide great visibility for the game for a certain period of time. Being featured on one of these lists has a huge impact on game sales – it can even make or break the whole project (Chamrad, 2016). However especially the smaller, aspiring development companies do not have a direct way to affect being featured. This perceived lack of control contributes to the uncertain nature of the industry. “Mobile game marketing was seen as a bit of a black hole as there is no guaranteed way to get to editor’s choice or to any similar promotion position,” Vanhala and Kasurinen (2014) write.

The games that do not find their audience may be quickly forgotten by the developers who turn towards next projects (Peltoniemi, 2009). This leads to growing sea of dead mobile games that are not played or updated (Adjust, 2014) which again is reflected in the highly skewed download distribution of applications (Appbrain, 2017). The vast majority of games receives but a few downloads, while a small minority gains millions. The game industry is characterized by hits and misses typical to several other cultural and creative industries such as movies and music (Peltoniemi, 2009).

The existing game companies compete fiercely to acquire customers, their key towards revenue. This battle is based on large masses and statistics: if the average revenue per user (ARPU) is greater than the cost per install (CPI), the company creates profit. The competition has been reflected on the average user acquisition cost that has increased 7% annually (Orlanski, 2015). This situation favors large publishers with considerable marketing budgets making user acquisition through traditional marketing methods increasingly out of reach of the smaller companies (Chamrad, 2016, Schell, 2014). Overall, it seems the companies that are doing well can afford to maintain their position and block the smaller companies from the market by investing into marketing.
THE INDUSTRY THROUGH PORTER’S FIVE FORCES MODEL

To examine the mobile game industry in detail, Porter’s (2008) five forces analysis is used. It illuminates the attractiveness and profitability of an industry and sheds light to the possibilities and threats within it. While the model was created before the digital revolution, the changes in technology have not been enough to diminish its validity and it remains relevant today, Dâlken (2014) writes.

The approach rests on the assumption that while industries may appear different, the profitability in each industry is based on the five forces of competition (Porter, 2008). Presented in the Figure 3, these forces examine the company power regarding its buyers and suppliers, considers the interaction between existing companies and the threat proposed by the companies entering the industry, and scrutinizes how easily the buyers can substitute the company offering with another product or service. Each of the forces is next considered in detail to examine the environment surrounding each mobile development company.
Figure 3: The five forces that shape industry competition (Porter, 2008)

The more power suppliers have over the development company, the more value they can keep for themselves by keeping their prices higher, for instance (Porter, 2008). In the mobile game industry, the most critical suppliers include the software companies the developers depend on such as game engine and tool developers. These companies are often larger than the development studios, and their product offering is valuable and difficult to replace once the development begins. However, there are also factors that diminish the power of the suppliers. The competition among the suppliers is beneficial for the developers. Also, their profits depend on the number of game developers using their products, forcing them to consider their offering and keeping their prices aligned with the competitors (Härmä, 2013).
Another key supplier for development companies are the distribution channels. Compared to the game development companies, they are considerably larger and more powerful entities, and their revenue is not tied to any content developer specifically. They exert great power over the developers by creating a gateway between the developers and the players that cannot effectively be substituted by any other means. This is why the marketplaces can make the content creators comply with their policies and the traditional 30% revenue fee (Fischer, 2014).

The buyers – in this case the end-customers, the players – also have power in relation to the developers. When the buyers have power, they can force the prices down, demand more or better services increasing development costs or encouraging industry competition (Porter, 2008). In the mobile game industry, the customers have become increasingly price sensitive strongly favoring low prices. This has made free-to-play (F2P) the prominent business model (Hamari, Hanner, & Koivisto, 2017). The current market situation makes it essentially impossible to compete with the price of the initial product, and paid-to-play games have been pushed to a niche: in 2014, 81% of the top grossing games used the F2P business model and accounted for 95% of the revenue (Oke, 2015). Furthermore, games are not essential products for the customers and they are easily replaced by other forms of entertainment and leisure activities which diminishes developer power.

The mobile development companies can seek to increase their power over the customers by creating engaging, addictive game mechanics, endless content, and highly optimized reinforcement schedules that seek to reduce churn, players leaving the game, and increase retention, keeping players in the game. The game mechanics that encourage players to return to the game over and over again seek to create habits loops which increase psychological switching costs (Duhigg, 2012). The social switching costs can be increased, for instance, by building a community around the game.

The third force that shapes the competition refers to how easily the product can be replaced with another performing a similar function – Porter (2008) refers this as the threat of substitutes. The function of a mobile game is to entertain, often for a short period of time often on the go. The closest
substitutes effectively include all forms mobile entertainment in the application stores, as well as social media channels accessible in the smartphone. More broadly considered, books, movies, and television series can be viewed as substitutes that compete for the most valuable asset of the consumer, their time. Overall, there is a rather high threat of potential substitute products (Fischer, 2014; Seepia Games, 2015) which limits the industry profitability.

The last two forces relate to other companies in the industry: entrants and incumbents. When the competition among existing businesses is high there is more pressure to introduce new products, market them fiercely, compete with pricing, and deliver high quality updates to the existing product-line. In the mobile gaming industry, the competition among incumbents is very high. “Mobile-F2P is one the purest examples of what economists call ‘perfect competition’ pushing price down to marginal cost,” Fischer (2014) claims. The number of companies is also reflected in the top charts. In January 2017, there were 42 different companies behind the 50 top grossing games in the United States App Store (App Annie, 2017).

The threat of entry relates to how easy it is to enter the market and how the incumbents react to entrants (Porter, 2008). High threat of entry puts pressure on the prices, costs, and investments limiting the maximum profit of the industry. In the mobile gaming industry, several entry barriers have been lowered: the technologies required for the development have become cheaper lowering capital requirements, the development tools have improved and their extensive documentation and supportive community have reduced the knowledge requirements, and the global distribution channels have become equally available for every development company. Fischer (2014) claims the only barrier for entry today is Apple’s certification process. Overall, the threat of entry is very high, which limits the profitability of the market by encouraging competition. As the industry is rather new, incumbents have only emerged in the mobile gaming market in the last few
years. They seek fight these entrants by holding on to their customers through game features and vast marketing budgets.

Overall, the situation seems challenging for small mobile game development companies. There are tens of thousands companies in the industry, and Deloitte (2016) goes as far as to suggest three strategies for a small game developer: hope for a hit, align with a major publisher for marketing resources, or turn towards the less crowded console or PC market. This leads us to examine the practices the companies have adopted in this environment.

MOBILE GAME DEVELOPMENT

Having considered the external environment of the company the attention is now turned towards the game development companies. In this part, we explore the most important aspects of game development in order to understand the resources, practices, processes, and networks needed to take advantage of the opportunities in the industry.

GAMES ARE DEVELOPED BY TEAMS

Any company requires resources in order to operate in their environment. Barney (1991) describes resources as, “All assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by the firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness.” This umbrella definition lacks precision but demonstrates the companies truly require and rely on considerably different assets.

Osterwalder and Pigneur (2010) have provided a more manageable, practical distinction between four categories: physical, intellectual, human, and financial resources. The physical resources include any tangible assets used in manufacturing. Financial assets, money, allow the company to make investments. The intellectual resources are, for example, copyrights, brands,
and databases the company can leverage. The human resources include the knowhow, the skills of the employees.

When it comes to knowledge-intensive and creative industries, such as the game industry, human resources form the most important asset for the company. This is recognized by the game development professionals themselves (Vanhal & Kasurinen, 2014) and there is empirical evidence to support this claim both in the game industry (Tozour, 2015a, Tozour, 2015b) and other industries (Collins, 2001).

The game development team provides the company with an advantage over their competition. It is difficult to imitate because its value is based on the complex social system highly interdependent in nature (Barney, 1991). To make the best use of the human resources, the company needs to pay careful attention to their employees, their skills, and the structures supporting them.

Producing a mobile game requires talent in several domains, most importantly software development, graphic design, and game design (Rogers, 2010). While these three aspects can be covered by one person, the scope of the game is often too broad for one person – and they usually don’t have competency in all of the fields. The smallest game productions can be managed with a core team of a software engineer and a graphic artists while larger productions may consist several dozen of people when all aspects of business are considered. The more complex and extensive the development, the more specific competencies the company and the production requires (Bethke, 2003). These include experts in audio design, project management, finance, analytics, marketing, community management, to name but a few.

The different elements of the game – code, art, music, and design – are highly interdependent. Game development requires combining various areas of expertise leading designers to stress the importance of interaction between disciplines (Schell, 2014). The projects are developed over a period of time, and they evolve constantly through the decisions made by the team members. The more the team members share the same vision of the game,
the more aligned the elements created will be. This requires collaboration, and in fact, the coordination of the team efforts is found one of the most important aspects of development (Chandler, 2008, Leon, 2014).

There is also empirical evidence to support the importance of teamwork. Inspired by three influential models of effective teamwork, Tozour (2014) asked the game developers to reflect on a recent project and evaluate the effectiveness of the team and the outcome of the project. He found the project outcomes correlated with the five factors of effective teamwork described by Hackman (2002): 1) The team has clear membership maintained through time and its members are truly interdependent. 2) The team has clear direction motivating the team to work together. 3) The structure through clear roles, tasks, and responsibilities enables the team. 4) The team offers support to one another, and there is an atmosphere of trust. 5) The team has access to coaching that facilitates their motivation and enables their growth.

These findings stress the importance of social interaction in the development: trust and teamwork between employees drive innovation (Tozour, 2015a). This is aligned with a shift in business paradigm from considering individual resources towards examining the interactions between the resources, their orchestration, how the resources are used (Sirmon, Hitt, Ireland, & Gilbert, 2011). When it comes to human resources, this means that the company should pay attention to the environment supporting and enabling the teams: the company culture, production practices, and processes.

GAME DEVELOPMENT IS ITERATIVE

Game development often occurs in phases such as those described in Figure 4. The project begins with an idea turned into a more detailed concept in the preproduction. Throughout the development, the concept of the game evolves from a rough draft towards a more refined product through iterations (Schell, 2014). To test the game before launch the developers may soft launch the game for a limited audience, for instance in a certain country.
Finally, the game is launched with marketing efforts, followed by a post-launch phase when the game is maintained and updated.

Figure 4: The phases of game production

There are models making a clear distinctions between the different phases in production. One of them comes from the elaborate and plan-oriented description of Bethke (2003). He describes video game development through 12 phases from business parameters to vision, and game design documents to alpha and beta versions, and finally to post-release support. This production-oriented approach seems most suitable for large projects requiring heavy coordination as the production staff is large and is coordinated in different design disciplines.

Often, game development is less planned and more agile in nature. Exploring the development processes in seven game studios, Laine (2012) found game productions did not follow typical software development models: they were more flexible and iterative in nature. Unlike software that strives to meet certain objectively measurable criteria, the aim of the games is to entertain (Kasurinen, 2016). However, it is difficult for the developers to anticipate and plan how the game mechanics truly come together and how the game feels. This leads the developers to criticize the most elaborate models as restrictive: the more the production is planned, the harder it is to adjust the project through the development (Bonin, 2014). This leads the companies to use iteration to improve and adjust their designs.
Simply put, iteration simply means something is designed, tested, and the information from the test is used to improve upon the design starting cycle over again (see Figure 5). The importance of iteration seems paramount towards development – both empirically (Kultima, 2015; Laine, 2012) and theoretically. Schell (2014) goes as far as to state the rule of the loop: “The more times you test and improve your design, the better your game will be.”

![Figure 5: The iterative loop](image)

Iteration is a goal-based activity used to identify and minimize the potential risks in the development and improve upon the game (Schell, 2014). Through the analysis of 28 game developer interviews, Kultima (2015) suggests there are four ways in which game companies use iteration. The company may use it elaborate on the design and add features to the game. They can also use it to simplify the design and eliminate unnecessary or unfitting features. Iteration is also used to examine the viability of the core of the game which may lead to pivots to other concepts. Finally, iteration may be used to explore new opportunities by setting aside some features of the game. Overall, iteration is a flexible design approach that seems the de
facto practice of making games – however, it is under-researched and not very well understood, Kultima continues.

Iteration occurs on several levels simultaneously (Kultima, 2015). On the level closest to the design, the developer creates features or assets for the game and evaluates them personally. Salen and Zimmerman (2004) describe this as a play-based design process that allows the developers to step into the shoes of the players and experience the game. While these iteration loops are quick and personal, the project level iteration loops may take weeks or months and several stakeholders may be engaged in the testing (Ries, 2011). These longer loops often aim to evaluate and ensure the business viability of the game. However, engaging different partners takes resources and time, and the developers often find internal iteration significantly easier than working with external play testers (Kultima, 2015).

While the reality nor practices are either or, there are roughly two orientations towards managing game development productions: planned approaches such as those describes by Bethke (2003), and more agile approaches suggested by Schell (2014). It seems best to choose the project management paradigm depending on the project and the company culture. O’Hagan, Coleman, and O’Conner (2014) stress agile practices work best in projects requiring innovation, while hybrid approaches mixing traditional and agile approaches are suited for projects that have clear, stable requirements and a long time span. This is in line with the finding of Tozour (2014) who did not find any meaningful correlation between the outcome of the project and the production methodology. It is most likely mobile game productions follow and combine the traditions of software and other fields of game development.

COMPANY POSITION AND COMPETENCY

Now, let us move from the team and production towards the unit of analysis in this research: the company. It is the company that provides the development team the resources they need to create games. To understand
the company, it seems reasonable to consider its history. Teece, Pisano, and Shuen (1997) describe how the past decisions of the company limit their current opportunities. They call it path dependence. Generally, the companies with longer histories are more specialized and thus their possibilities are more constrained than those with a shorter history.

Teece, Pisano, and Shuen (1997) describe the history of the company manifests in the assets it has accumulated. The authors go over eight distinct assets that describe the company’s position internally and in regards to other entities: 1) The company has certain boundaries that define its position in regards to other companies in the value chain. 2) As the company operates it may have accrued technological assets and knowledge such as specific development tools facilitating their workflow. 3) Previously commercialized or distributed products build complementary assets and capabilities that facilitate similar activities in the future. 4) As the company establishes their methods of operation, they establish governance and structural assets that facilitate their future productions. 5) The company financial assets create limits for their immediate operations as well as effect the scope of the projects and the company long-term strategies. The company also builds assets in terms of other institutions and companies: 6) They build institutional assets as they collaborate with different government organizations and regulatory entities. 7) All relationships establish certain reputational assets: the degree of positive regard towards the company that facilitates their operations. 8) The products of the company have a certain position in the market which affects the company position regarding the competition.

Throughout its operations, the game development company creates a certain position for themselves that paves the road for future projects. One of the most influential and tangible assets of a game development company are their products. The titles are intellectual property: a firm-specific, non-freely available, differentiated resource that cannot be imitated due to laws and regulations (Amit & Schoemaker, 1993). When the title is commercially successful enough, it can be leveraged to create sequels (Tschang, 2007). Established intellectual property gives the company advantage by cutting the development costs: the company is able to reuse existing technology,
processes, knowhow, and assets, and an established brand gives them an advantage in marketing.

Another way of examining the company is through competencies accumulated on several levels. The employees grow in their capabilities, and the teams become more established, coordinated, and capable, and the company grows in its ability to create games. The company collectively learns how to coordinate and integrate its diverse skills in production, and this Prahalad and Hamel (1990) describe as company core competencies. They are the resources and skills the company has harmonized to their disposal. They argue that the most successful companies are able to identify and leverage these competencies and distinguish themselves from the competitors. The core competencies of the company have three key features:

1) They provide access to a wide variety of markets and can manifest in many forms. In other words, the game development company has the flexible capability to create not just a particular game, but a variety of games for different audiences.

2) The core competencies make significant contributions to the end product and increase the user satisfaction with it. The mobile game development company can create games and experiences the players enjoy.

3) The core competencies are difficult to imitate as they exist within the organization, its culture, and people. They are slow to develop and they are deeply embedded within the company. This brings us back to the importance of team, and the networks of the company that cannot easily be transferred to another company.

Ten years later, Prahalad and Ramaswamy (2000) discuss how the locus core competencies has shifted due to the digitalization. The core competencies no longer reside merely within the company but in its enhanced network that comprises of its suppliers, partners, and customers. Through the interactive digital channels and services, the company can leverage the competencies of their stakeholders to create value. This is true for mobile games as well; the online communities, fan-made content, e-
sports, and streamed content are just some examples in which the players actively collaborate to co-create value. This affects the role of the company has in terms of their customers. The companies are no longer passive product manufacturers but active in creating platforms for collaboration and experiences (Prahalad & Ramaswamy, 2004).

GAME DEVELOPMENT IN FINLAND

Every mobile game development company is influenced by the global, digital industry but also their particular geographical, cultural environment where interaction is more direct. The companies in the study are based in Finland where the roots of commercial game development go back to the mid-1980s (Reunanen & Heinonen, 2013). After the initial enthusiasm and several releases, there was a latent period with only a few games published. In the mid-90s the first professional game development companies were established. The development was primarily focused around PC, console development was out of reach of the small development companies. It was only in 2003 the first Finnish console game was released, the ported version of Max Payne by Remedy.

At the turn of the century, the company best known for their mobile phones, Nokia, was growing. There was potential in the rapidly developing mobile devices and between 2003 and 2008, the Finnish mobile game industry grew steadily (Reunanen & Heinonen, 2013). Several small Java-based games were produced each year. However, the release of the iPhone marked their end, and gave birth to a new platform for digital entertainment. The highly successful Angry Birds by Rovio was released in 2009 on iOS. Thereafter, Finnish mobile game development has constantly grown, measurable both in terms of revenue and the number of game companies (Pietarila, 2016). In 2010, revenue from Finnish game companies was 110 million euros, and in 2015, it was 2 400 million euros. Most of this revenue, 93% to be precise, is related to two companies: Supercell and Rovio. Yet, it is not all sunny: 56% of the 138 game companies in Finland operated at a loss in 2015.
There are two institutions that give the Finnish ecosystem a specific flavor: the Finnish chapter of the International Game Developers Association (IGDA) and Tekes. Compared to chapters in other countries, the IGDA Finland is particularly active (IGDA, 2017). The twelve hubs around the country bring together developers from different companies facilitating interaction and communication (Lehtonen, 2014). The most active hubs meet at least monthly.

While game development has often been driven by creative passion that does not look at financial expenses, this approach is ill-fitted towards larger productions. Running a company requires capital that can come from several sources, such as previous revenue, investors, or financial backers. In Finland, one of the significant sources of funding and financial encouragement has been the Finnish Funding Agency for Innovation, Tekes. It has backed up Finnish game companies with over 70 million euros during 2004 – 2015 (Tekes, 2016) which has had a significant impact on the growth of the Finnish game industry (Härmä, 2013; NeoGames, 2011).

THE GAME DEVELOPMENT ECOSYSTEM

Next, the focus is turned from the geographical and cultural context towards the global digital ecosystem. Mobile games are developed and used in a complex digital environment consisting of a large number of companies who enable and support each other. Feijoo, Gómez-Barroso, Aguado, and Ramos (2012) identify three distinct layers within this business ecosystem: content creation, its distribution, and use, as described in Figure 6. The interests of these parties in the network intertwine closely.
Figure 6: The three levels in the mobile game ecosystem
(Feijoo et al., 2012)

Game development studios are among the creators of content along with marketing agencies, game engine developers, musicians, and the movie industry. The content creators depend on distribution networks to deliver their content to the customers – and the distribution networks depend on content creators to create content to be delivered. The distribution channels for mobile games include not only application stores but also mobile networks and, broadly considered, the whole internet. At the user end, the consumers interact with the content on their hardware, the mobile devices, powered by software platforms and operating systems (Feijoo, Gómez-Barroso, Aguado, & Ramos, 2012).

The two dominant marketplaces, App Store and Google Play, are positioned between the content creators and the end-users, their two distinct user groups (Landsman & Stremersch, 2011). In this two-sided market, the user groups provide each other positive network benefits (Holzer & Ondrus, 2011): The number and quality of games in a certain platform affect positively the amount of players on that platform, and vice versa. This means the marketplaces are incentivized to provide their users as high quality as possible in order to gain advantage over the other marketplace.

This rivalry may create some opportunities for the developers. Especially Apple has been tempted by content exclusive to their platform (Takahashi, 2014). Exclusivity means a smaller playerbase which may be
compensated by the visibility the game receives in return from the marketplace. The developers may also find comfort in the fact the average purchase in the App Store is higher than in Google Play store (Sims, 2015).

For the developers, visibility in the marketplace is critical towards their sales. Both stores have more than a million applications (Sims, 2015), and being discovered, found by the user is a challenge. To facilitate the discovery of applications and games both marketplaces feature some of the most interesting releases. These games and apps gain free visibility in the marketplace that has considerable impact on the download numbers (Klein, 2015). Furthermore, the marketplaces include peer reviews to facilitate customer decision-making.

The developers do not have any direct means to influence their position in the marketplace. The marketplace curators and the marketplaces themselves wish to remain unbiased and fair (Takahashi, 2014). Some of the developers seek to affect their standing through title and keyword manipulation which they call app store optimization (Osborn, 2016). The developers carefully select the titles and write the descriptions of their games to match the popular search terms in order to facilitate being organically found in the marketplace.

Besides these somewhat obscure methods, there are some strategies the companies use to seek feature visibility. Naturally, making a high quality game well-received by the public is the first step (Takahashi, 2014). It also seems Apple is favorable towards applications and games that take advantage of the latest features of the devices and showcase them. The App Store content is also curated based on location. Content created for a specific geographic audience may help gain advantage, as well as approaching the market with a seasonal product. The established position of the company and their reputation may also affect the placement in the marketplace.
MARKETING AND F2P TIE TOGETHER
Marchand and Hennig-Thurau (2013) make a distinction between the distribution channels that deliver the content to the player, and communication channels that can be used to reach and interact with the audience in other ways. Communication platforms, marketing, and community building give the company control over their message and brand. They are also a tool to acquire players and thus critical to the F2P business model.

To circumvent their inability to directly influence the placement in the digital stores, the developers use marketing efforts to attract players. While it is difficult to estimate how much marketing, as opposed to the quality of the product, account for the success of the game, Van Dongen (2012) claims that marketing is responsible for one third of the game’s success. This thought is echoed by Jonassen (2013) who further claims small game companies focus too much on the product itself and too little on marketing. DellaFave (2013) even suggests that after creating a first demo, roughly 25-30% of time should be devoted towards marketing. Raising awareness of the game is importance towards its success.

Besides attracting players, advertisements and other marketing efforts build a brand around the game. They create an emotional context around the game, highlight its characters, and entertain the audience (Booth-Clibborn, 2016). This strengthens the company position and establishes the intellectual property which has a powerful impact on the game sales and revenue. In 2011, 18 of the 20 top selling video games were sequels (Marchand & Hennig-Thurau, 2011). They are cheaper to develop and recognized by the consumers, therefore easier to market.

User acquisition through marketing creates the initial contact with the player. With F2P games, it is important to maintain this relationship, and turn the free players to paying customers. The Figure 7 visualizes the ARM funnel describing these three phases (Moreira, Filho, & Ramalho, 2014): First, the players are acquired (A) to the game through social media, ads, and marketplace visibility. The quality of the game is related to how the player engages with it over time which in turn effects the amount of
purchases in the game (Hamari, Hanner, & Koivisto, 2017). As there is an average cost to acquire a user, the longer the player spends with the game the more valuable they are towards the company – this is tracked as retention (R). Monetization (M) refers to the player converting to paying for the content. The ARM model has a clear implication for mobile games. It shifts the attention towards creating a service that establishes and maintains a relationship with the player over time.

![ARM funnel diagram](image)

**Figure 7: The ARM funnel**

The amount of players paying for the content is low. While the F2P model has lowered the threshold for a player to download a game, it has also created a situation where the majority of the income comes from a small portion of players. According to a report by Swrve (2016), merely 1.9% of all active players in a mobile game made a purchase over one month period. Out of the paying players, 48% of the game revenue comes from the top 10%. In other words, nearly half of the company revenue come from 0.19% of players – and majority of F2P players do not bring in any revenue for the company. Still, the company is enticed to keep the players because they might convert towards paying or they might facilitate word-of-mouth marketing: some
5.3% of mobile players play the game over 10 hours a week without paying (Newzoo, 2015).

Small companies require creativity to acquire users. The industry professionals view user acquisition is mostly about money and data, resources in scarce supply for small game development companies (Graft, 2013). Competing against established giants with vast weekly marketing budgets raises frustration, “We have fought this battle and given up. The math doesn’t work for our mobile games.” (Chamrad, 2016). Small game development companies may seek to overcome the financial restrictions through creative marketing materials and innovative strategies that seek to differentiate the company from the competitors. While there is no recipe for creating viral marketing materials, creative content has the potential to have unexpected results. Yet, visibility is crucial and difficult to attain.

The developers may also support the community around their game. This caters to the social needs of the players, drives word-of-mouth marketing, and increases player engagement with the game (Schell, 2014). Community building also reflects turning from one-way communication towards two-way engagement and co-creation with the players. The feedback from the community can be used to improve the game, reinforce the brand of the game, and improve the company reputation (Wera, 2008).

Thus, the company development practices and activities in marketing and communication are linked. Marketing and visibility in the marketplaces attract users to the game. However, equally important is to keep those players engaged high quality content and, for instance, the community around the game in order to create revenue.

CREATING COMPELLING GAMES

We have now examined the game company in terms of the industry and competition, but also the digital network that facilitates content creation and distribution. We have discussed the development practices such as iteration, and framed the development company in terms of their history and
geographical environment. Yet, the features of the end-product have been purposefully avoided to this point. The artifacts of the company act as the tangible manifestations of tacit and explicit knowledge in the company, the effectiveness of the company practices and cooperation, and the company competency in game design.

Let us remember, the function of the company is to create value for the users (Teece, 2010). When it comes to game development companies, value creation is directly tied to the design of the game. This customer-centric approach is not selfless but fundamentally business-oriented: through high quality artifacts the company paves the way for revenue and reinforces the position of the company.

The practices of game development are inseparably tied to the content created. This chapter begins by examining the value games propose, then turning towards examining how innovation is linked to the development. Finally, the intricacies of the F2P business model are discussed.

EXPERIENCE IS THE VALUE PROPOSITION OF GAMES

No product can meet the various needs of all users. They need to focus. The first step in creating value is to understand for whom the value is created (Teece, 2010). The customers form the core of any business, and the better the product is able to satisfy the needs of the customers the better the company will perform (Osterwalder & Pigneur, 2010). The target market of the company might be thought of in terms of age, location, language, and many other parameters. These variables are explored in order to understand the needs and conventions of the users – that then are met with the features of the product.

Non-entertainment software often has a certain, objective purpose. It seeks to minimize the time spent with the product, the quality of the product is based on objective requirements, and design is based on certain, real-world requirements, Kasurinen (2016) describes. Meanwhile, game and entertainment industry focuses on maximizing the time spent with a
product. However, compared to other forms of entertainment, games are more interactive in nature and require the players to take an active role in creating their experiences.

Many of the contemporary business models stress the importance of customers but it seems this thinking is not deeply integrated to game development. Vanhala and Kasurinen (2016) explored how five game development companies managed their relationships with the players. They found the players contributed only narrowly to the development through feedback and ideas. In another study, they interviewed seven game development companies in order to understand their business models. They found the customer segment was actually the least important factor game developers consider and the contact with the customers was reactive (Vanhala & Kasurinen, 2014). It seems much of game development is still designer driven which seems challenging considering the importance of feedback towards iteration, and current trends in business towards customer-centricity.

Whatever the company target segment, the company offers them a certain value proposition (Osterwalder & Pigneur, 2010). Now, what is it the players buy, when they buy a game? The core value of a game is much more difficult to describe than the digital or physical product the player walks away from the store with. The games as products are rather worthless beyond the secondary value derived from the social status gained from their ownership, for instance. Only in interaction games deliver their value (Salen & Zimmerman, 2004).

The value created in the interaction between the player and the game can be described an entertaining experience (Vanhala & Kasurinen, 2014) or hedonic pleasure (Marchand & Hennig-Thurau, 2013). Schell (2014) goes as far as to argue that games are merely platforms for these experiences – and the developers are their architects.

There have been several models that seek to explain the value proposition of games: the enjoyable, appealing experience they create. Weibel and Wissmath (2011) found evidence for a two-factor model. Their first factor, presence, described the sensation of being in the game world, and the second factor, flow, related to the player’s involvement with gaming
action. The two factors identified were found related to the motivation of
the player and their tendency towards immersion.

It seems the developers seek to create experiences of immersion. Brown and Cairns (2004) claim there are three levels to it: engagement, engrossment, and total immersion. The more the player is immersed, the more enjoyable they find experience. When the players are fully immersed in the experience, they lose the track of time, their self-awareness is limited, they gain a deep sense of agency, and they feel the experience intrinsically rewarding – a state of flow first described the Hungarian psychologist Csikszentmihalyi (1990).

There are also models that focus on explaining the reason, the motivation, towards playing games. One of the most influential models in this area is self-determination theory explaining human motivation in varying situations (Ryan & Deci, 2000). The model describes three universal human needs: 1) competency, to feel mastery and skillfulness, 2) autonomy, to control one’s life, and 3) relatedness, to be in contact with other people.

Ryan, Rigby, and Przybylski (2006) found these three needs of competency, autonomy, and relatedness were related to the player engagement with the game in the future, and whether the player enjoyed the game. In another study, they found the appeal of video games was related to the degree these needs were met by the game (Przybylski, Rigby, & Ryan, 2010). Through empirical data, Yee (2007) has independently found somewhat similar factors that explain motivations to play online games, namely achievement, social, and immersion.

The three factors can effectively be used to describe existing games, but they lack precision needed by the designers. There are models with more and clearer factors but even they are self-admittedly not all-encompassing. For instance, Hunicke, LeBlanck & Zubek (2004) list eight categories of fun ranging from enjoying the physical, sense-based pleasures games provide, to using games in self-expression. The challenge with these overarching
categories is that they may manifests in many, radically different forms. For this reason, they are not very practical as design drivers.

Interestingly, it seems that mobile game reviews aren’t a reliable predictor on how the game is found by the players. Alha, Koskinen, Paavilainen, and Hamari (2016) found negative correlation between F2P mobile game reviews and their position in the top grossing charts. The appeal of F2P games might be more precisely measured through download rates or revenue than critical acclaim. Furthermore, compared to premium games, F2P had lower review scores – yet, the F2P games were more profitable. The player behavior and reviews are not aligned.

The importance of creating experiences is stressed in business literature as well. Earlier, a firm-centric view was a commonplace: the company created the value and distributed it one-way to the users, Prahalad and Ramaswamy (2004) describe. Through the digital technologies, the consumers have become more informed, connected, active, and empowered, which shifts the focus towards consumer-company interaction: the value is jointly created in personalized interactions. This means that the companies must turn their attention towards managing the interface between the two parties, as the range of user experiences created goes beyond the company products (Prahalad & Ramaswamy, 2000).

In other terms, there is a shift from goods-dominant logic where the value is tied to the exchange of products towards service-dominant (S-D) logic, where value is created in use (Vargo, Maglio, & Akaka, 2008). The S-D logic emphasizes goods are only valuable to the degree they are used: it is the interaction that creates value. In other words, the company uses their resources and competencies to improve the player’s circumstances, to make their life more enjoyable through games.

In conclusion, the value of games is the entertaining, positive experience they offer to the players. The current models can be used to describe and explain the player experiences after they interact with the game – another argument for the importance of iteration and testing.
GAMES CONSIST OF MECHANICS, AESTHETICS, STORY, AND TECHNOLOGY

Games come in countless shapes and forms, from crossword puzzles to curling, from role-playing games to first-person shooters. This variance has made it difficult for scholars to agree on the definition of a game (Schell, 2014). However, there seems to be a consensus that all games include one or more players interacting with the game system defined by rules. This activity is guided towards a specific, measurable goal. As the players engage with the game, a magic circle is created: an environment where the game has value and meaning (Huizinga, 1944). In the words of Greg Costikyan (2002), “game is an interactive structure of endogenous meaning that requires the players to struggle towards a goal”.

Regardless of their form, there are certain design elements all games seem to share. Schell (2014) lists four of these highly interrelated elements (see Figure 8): Story includes the narrative of the game unfolding over time, technology all the materials that enable game to be played such as the hardware and software of the mobile device. The mechanics of the game define the interaction between the player and the game, and how the game is won. The aesthetics of the game relate to how the game looks and feels. A great game not only excels in all of the four aspects but draws from the deep synergies between them.

The mechanics of the game have less legal, copyright protection than their aesthetics. This is one of the reasons in the abundance of mobile games using a similar match three game mechanic. Games can draw inspiration from and imitate the mechanics of existing games. The players may also find the games sufficiently different even if the mechanics are similar.
INNOVATION IN VALUE CREATION

As we remember, the mobile game industry is highly competitive. Porter (1980) views there are three generic strategies by which any company can seek to out-perform their competition: leading by costs, focusing on certain segment, or creating differentiated products that distinguish themselves from the competitors. Porter argues that the low cost strategy is viable only for the most cost-efficient producer. The game development company seems to have two strategies to choose from. They can either focus on creating differentiated products or create a game for a certain audience – even though in reality, the two often overlap. This chapter examines how product differentiation can be achieved through innovation as the company creates something new for the market (Barros et al., 2013).

Norman and Verganti (2014) identify two distinct types of innovation that arise from very different processes. Incremental innovation seeks to improve and update already existing products. It is related to the human-centered design paradigm where the key design processes involve the users, interview, and observe them. The information and feedback is used to improve on the design – an iterative process. The authors compare creating incremental innovations to climbing a hill: each step brings the wanderer one step closer to the top of the hill but they can ever reach a certain local maximal. The problem is that of path dependence (Teece, Pisano, & Shuen,
1997): the past decisions limit the potential in the future. At times, fundamental, structural changes it may be needed: a new, higher hill.

Radical innovation – doing something that has not been done before – follows a considerably different process (Norman & Verganti, 2014). The design process does not begin with the exploration and analysis of the current environment, market, and customer segments. It originates from intrinsic curiosity of the designers and their perspectives into the future. The authors compare the process of radical innovation to seeking the highest potential hill and starting from the very bottom. The challenge with the approach regards our limited ability to see into the future and identify the hill with most potential. When a radical innovation is established, the process changes to incremental innovation used to iterate and improve on the new design.

These two forms of innovation have been identified in game development, and they are often associated with the maturity of the company. Aspiring game development companies often have the drive to create something new and their processes have elements of radical innovation. Tschang (2007) found the first product of the company often seeks to establish a new genre or innovative gameplay – unless the company is using incremental innovation to iterate on games previously released. The second title of the company depends on the success of the first one. If the sales performance is unsatisfactory and the game was based on radical innovation, the company may seek to refine the genre or reduce the innovativeness of the game in order to make the next release more approachable. If the game was based on incremental innovation and wasn’t successful, the company may look into creating their own intellectual property or increase their efforts in innovation. However, if the game is a hit, the company strategy is often clear: they turn toward incremental innovation by creating sequels. Thus, the success of the title mediates the company stance towards innovation.

Incremental and radical innovation regard the depth and amount of innovation and novelty but not their source. In order to understand the value
proposition of games, we need to understand the two drivers for innovation: technology and meaning (Norman & Verganti, 2014).

Technology has developed in both power and quality. The increasingly powerful processors and larger memory capacities have, for instance, made it possible to create more appealing and realistic graphics in games. The introduction of touchscreens and new sensors have created possibilities for the imagination of the developers. Today, some of the most interesting areas in technological developments include virtual and augmented reality that create opportunities for deeper immersion and breaking boundaries between games and reality.

Innovation on the meaning of the game is a considerably different driver than technology. It seeks to change how the game is perceived by the players and redefine the concept of game. For instance, massive online gameplay has turned games from personal journeys to experiences shared through avatars (Norman & Verganti, 2014). The development in communication technologies opened up new possibilities in gameplay design and redefined social interaction online. Before the release of the Nintendo Wii console, gaming was more of a solitary hobby within the family. The approachable and innovative console made it possible for whole families to play together which broke social barriers in gaming.

The technology and meaning drivers of innovation intertwine. Importantly for the company, they are linked to the company history, resources, and competencies. One of the most prominent examples is offered by Niantic that started a Pokemon mania in 2016 with their breakout hit Pokemon Go. The mobile game gathered 550 million installations and nearly half a billion dollars in gross revenue in its first 82 days after launch (Newzoo, 2016). While the success of the game was unanticipated, the product has an extensive technological history. In Pokemon Go, Niantic continued to improve upon their location-based game mechanic established in the mobile game Ingress first released in 2012. The game mechanics of Pokemon Go and its augmented reality technology encouraged the players to roam and explore their surroundings turning the game into a truly mobile experience. All aspects combined, the game transformed the meaning of mobile gaming from passive distraction to active exploration.
BUSINESS-DRIVEN INNOVATION

Innovation is one of the keys towards customer value creation in the mobile game industry. However, it seems the nature of innovation is linked to the maturity of the industry (Tschang, 2007). Radical innovation is strongest when the industry is still fresh and there are no strong, established conventions. As the industry matures, conventions arise driving the industry towards rationalization and successful products establish into genres. In a more matured industry, the products are no longer created merely through the creativity of the developers. Rather, the consumer expectations, organizational pressures, and uncertainty pressure the studios to reduce the risk by conforming to conventions and genres. This seems reasonable, considering as many as 96% radical innovations fail, and those that succeed take considerable time to be adopted (Norman & Verganti, 2014). The mobile game industry seems to be maturing as game genres are established which again affects the practices in development.

Perhaps due to the difficulty to create something new that finds its audience, the attitudes of industry professionals towards innovation vary considerably and include tendencies to favor either radical or incremental innovation. In their interview study, Kultima and Ahla (2010) found seven different attitude profiles. The four most prominent profiles showcase the wide variety towards innovation: Artists consider innovation vital and seek to create something new. Instrumentalists focus on practical aspects such as innovation management. Followers mainly seek to improve upon the already existing games, and nihilists are pessimistic or resentful towards innovation generally.

Also Vanhala, Kasurinen and Smolander (2013) interviewed seven small game development companies for their approach towards innovation and design. The companies acknowledged the importance of innovation and creativity but stressed that games commercial products. The companies considered closely the marketing and business potential of the product, its
economic feasibility. Innovation within the game industry seems to be driven by rational, business-oriented stances as Tschang (2007) describes.

The economic feasibility of the game is tied to the opportunities in the market. Examining various industries, Christensen (1997) found some successful incumbents fell to listening to their customers and markets too much which lead them to narrowly focus on the current customer needs. Over time, this led the companies to use sustaining technologies and incremental innovations to improve the performance of their products which leads them to be overtaken by smaller companies. These smaller companies can see openings in the market by looking into the future needs of the customers and pleasing niche markets incumbents could not cater to (Christensen, 1997).

Kim and Mauborgne (2005) illustrate similar thoughts with the metaphor of red and blue ocean of market possibilities. Red ocean represents the market space that exists: they are often crowded and highly competitive which threatens product commoditization driving down prices. Meanwhile blue ocean reflects markets that do not exist. He recognizes industries are under constant flux, change, and evolution, and this enables value innovation: “Instead of focusing on beating the competition, you focus on making the competition irrelevant by creating a leap in value for buyers and your company, thereby opening up new and uncontested market space,” Kim and Mauborgne (2005) describe.

The current mobile-F2P market is very much a red ocean: there is lots of competition and some of the most popular game mechanics are exhaustively copied. There are several paths to creating blue oceans in game development. For instance, they could be created by exploring new genres and technologies, redefining the meaning of games and framing their use in new context, or leveraging intellectual property established in other media.

Innovation does not necessarily have to regard merely the core product but the business as a whole. Lindgardt, Reeves, Stalk, and Deimler (2009) divide the company business model to value proposition and operating model. Besides the core product, the value proposition includes the target segment and the revenue model. The operating model includes the value chain, cost model, and organization itself. The game is only one – although central – part of the company business model. The company may
seek advantage by innovating on the business model itself, considering its partnerships, and how their different offerings are linked to one another (Amit & Zott, 2012).

F2P AFFECTS GAME DESIGN

Monetization creates the core of the company revenue model, and in terms of F2P games it becomes more and more central towards the company offering. The history of the F2P business model is rather short. It was first introduced in online games in the late 1990s and early 2000s, and since it has rather rapidly increased in popularity through Facebook and smartphone games (Ahla, Koskinen, Paavilainen, Hamari, & Koivisto, 2014). In F2P services, some parts of the service are free and revenue is generated by selling premium services or additional products. The model allows wide range of players to access the game without entry barriers – and the flexible pricing caters to players with variety levels of willingness to pay for premium content.

Receiving something for free creates a demand far greater than any other price point (Osterwalder & Pigneur, 2010). Today, F2P business model dominates the mobile game industry. This change from premium to freemium is aligned with similar changes in several other sectors such music, data storage, and social networks (Hamari, Hanner & Koivisto, 2017). Beyond mobile games, the freemium model is also increasingly used in PC and console games where, for instance, season passes offer content for the player through the year (Ahla, Koskinen, Paavilainen, Hamari, & Koivisto, 2014, Wong, 2017).

While freemium elements have found their way to the PC and console market, the customers often still pay for at least some of the content before playing. This enables the content of the game to focus on entertaining, and the design does not need to guide the players towards a purchase decision. Hamari and Lehdonvirta (2010) found games with a freemium business model use game mechanics as tools for marketing: the game is
designed to entice the players to make purchases. The virtual environment and game mechanics create the context in which virtual goods are given value, and this value system is leveraged in monetization design. Game designers tie the content of the game and the products sold together. This creates a challenge for the developers: how to create an engaging and fun experience while creating enticing offerings the players find valuable and positive (Alha, Koskinen, Paavilainen, Hamari, & Kinnunen, 2014)?

The F2P model has proposed significant changes to the game design and practices in development. However, the customer behavior with the model is not thoroughly understood (Hanner & Zarnekow, 2015). It is acknowledged games should seek to establish and maintain a relationship with the user. The value is created over time, and the longer the players engage with the service, the more valuable they are towards the company. This is in stark contrast to the days of PC games where the monetary value of an offline user was linked to the one time purchase in a retail store. Even though the line is blurred, it seems mobile games are moving from products towards services (Wong, 2017). The release of the game is the starting point in the line of updates that seek to provide additional content for the existing players and draw in the more.

SEEKING COMPETITIVE ADVANTAGE

In this chapter, we have examined the mobile game industry, the practices in mobile game development, and the value proposition of mobile games with the ambition to understand the interactions between the three. The industry affects the company by creating restrictions and opportunities for it, and the company itself is a part of this industry, and it creates, renews, and affects it through the games it produces (see Figure 9).

The development leverages the competencies of the team through iteration. The practices in development are affected by the F2P monetization model that guides the developers to consider long-term engagement and service orientation. The aim of the company practices is to create engaging
experiences for the users while keeping in mind the need to monetize on them.

As the company operates it establishes a position for itself by interacting with other entities in its geographical environment and the digital network that delivers the value to the players. The company may use incremental or radical innovation in both games and business models to seek competitive advantage. The history of the company and the team is likely to affect the company practices in development.

Figure 9: The company, their game, and the industry intertwine
METHODOLOGY

We have now examined the mobile game industry through external sources, and it is time to turn towards providing fresh perspectives to complement this understanding. In this chapter, we first discuss the approach of the study, and how previous theories and the data gathered relate to each other. Then, we move on to examine the sources of the data, the nine companies participating in the study. The interview structure and the protocol for their analysis is described, and ethical concerns as well as reliability of the study is discussed. Finally, an overview of each case illustrates the different companies and projects.

A QUALITATIVE APPROACH

The relationship between the previous theories and data gathered is always an issue in qualitative research (Eskola & Suoranta, 1998). Chapter two provided a broad overview of the industry, development, and mobile games. This research was conducted primarily before the interviews which allowed the researcher to gain an initial understanding of the field and prepare for the interviews. The interviewees were considered experts in mobile game development (Alastalo & Åkerman, 2011) and their perspectives were actively contrasted with the earlier findings in two phases.

In the first phase (chapter four), the cases were compared to each other in order to identify themes, contrasts, and similarities. This process was influenced by grounded theory (Glaser & Strauss, 1967): the focus was on
the interviews, not on previous theories. These findings were then contrasted with the industry review. In the second, more creative phase (chapter five), a model was created by synthesizing both the industry review and findings using a practical, design approach – as suitable for a complex question (Buchanan, 1992). The three phases of the study are presented on a timeline in Figure 10.

![Timeline Diagram](image)

**Figure 10: The three parts of the study**

This study discusses iteration – while being made in an iterative fashion. Thus, it takes not only a single objective but also a subjective position towards the topic experienced by the author himself. This allows an immersive approach towards iteration and creating knowledge through introspection. As a disclaimer, it was certainly found that iteration and feedback facilitated this study.

There have been developments to the topic of the study. Initially, it seemed ‘company strengths’ would open up avenues to understand how the company competencies have developed over time. As the study progressed, the term ‘practices’ was found to offer a more precise description as illustrated by the two of the three definitions provided by the Oxford Dictionary of English (Soanes & Angus, 2003):

1. The actual application or use of an idea, belief, or method, as opposed to theories relating to it.
2. Repeated exercise in or performance of an activity or skill so as to acquire or maintain proficiency at it.

These two meanings form the core of the study. The work seeks to uncover how contemporary mobile game development companies actually operate – but not only how they operate currently: what they have learned and how they aim to improve their practices in the future. In other terms, the study seeks to discover the practices in mobile game development that are associated with good results and avoid the common pitfalls in production.

To facilitate this aim, the interviews were approached through narrative perspective: humans seek to understand and explain their past experiences and environment by creating stories (Eskola & Suoranta, 1998). The narrative approach affected the interview structure that followed a clear timeline. This guided the interviewees to examine the relationships between events over time which facilitated the aim to uncover the practices in field.

The research also took influences from phenomenological approaches that emphasize the importance of understanding experiences in their contexts (Zikmund, Babin, Carr, & Griffin, 2010). The three contexts, discussed in the second chapter, were stressed: the company, the industry, and the game. The company was examined through its history as it creates a platform for the team to produce games within a certain ecosystem. The company was also framed in relations to the industry and competition. Third, the produced game and its features were viewed to reflect the company relationship towards the industry, market, and itself.

In summary, the aim of this work was to enrich the understanding of the underexplored aspects mobile game development. The approach was theoretically integrative and combines perspectives from both business and design. The initial understanding towards development was created through literature review that by definition examines the past. The mobile game industry develops rapidly, and through the interviews the research jumped on a moving train in the present, and created a model usable in the future.
NINE COMPANIES PARTICIPATED IN THE STUDY

When the study revolves around the stories told, it is vital to understand whose stories are told and who tells them. In order to ensure the companies and interviewees have valid experience from the field, three criteria for suitable companies were identified. First, the company should have published at least one game on iOS or Android since 2014. Second, the company should currently be active in game development. Third, the company should be small or mid-size, which excluded the two largest companies in Finland, Supercell and Rovio.

Suitable companies were first explored through the lists on Neogames, the Finnish game industry hub, and Kauppalehti website (Pietarila, 2016). The suitability of each listed company was explored through internet sources, most importantly the free version of App Annie and the Finnish Registry of Companies. 25 Finnish companies were contacted by individualized email invitations to the study. One company declined and one positive answer was found. To facilitate the sample gathering, numerous industry professionals and academics were contacted in person through various media and IGDA events which led to the final sample of nine companies.

The companies represent a rich sample of the small and mid-sized Finnish mobile game industry. Most of the companies are rather young, but there are also companies with a longer track record. The companies often had one core development team but the sample also included a company with several teams. The employees had differences in their experience in the industry: some were just beginning their careers while others had lengthy experience in several companies. There were also different approaches in the direction of the company. One of the companies had some years ago turned towards the F2P market, another was moving towards console business, and others sought to remain in the field.
The conducted interviews focused around one project, and these projects had a considerable variety to them as well. The projects were in different phases of the lifecycle, including pre-launch, recently launched, maintenance, and at the end of the life cycle. Some games were developed in a rather secluded environment, others in tight collaboration with publisher and other partners. Geographically, the companies came from three distinct areas: Helsinki, Turku, and Kotka. All in all, the sample is versatile and rich both in terms of companies and projects. To illustrate the cases, an overview of each company and project is provided at the end of the chapter.

THE INTERVIEW PROTOCOL AND DATA ANALYSIS

Before their participation in the study, each company was sent a letter of information regarding the study and informed consent (Appendix 1). This letter was discussed in detail before the interview. All companies agreed to participate in the study with their names but it was agreed that the citations would be anonymous. The interviews were held one on one, either in the company headquarters or in a space reserved by the researcher. The interviewees had a holistic perspective towards the company and the project: they were either in executive position, managing the project, or specialist in the field.

With the understanding created in the industry review, a thematic interview structure was designed (Appendix 2). Before this final version, the structure was tested and iterated on with one senior game development student and the thesis advisor. Before each interview, the interviewee, the company, and its games were explored online tailoring the themes discussed – as is typical in an expert interview (Alastalo & Åkerman, 2011). It was found that tailored, focused questions facilitated the contact with the interviewees.

The three themes of the interview – the company, the industry, and the game – were explored in three narratives. First, the interviewee’s history in the game industry was reviewed establishing their relationship with the company and warming them up to the following topics. The company
history, organization, and previous releases were explored as a context for the
game development project in question. Finally, the phases of the
development project were mapped from the conceptual stage to release and
maintenance. This linear approach was consciously chosen to facilitate the
interviewee recollections.

The interview itself was approached as dialogue where the interviewer
is an active, curious, and encouraging participant (Tuomi & Sarajärvi, 2009).
The interviewer was active to probe the interviewee with questions, bring
them back to topic, and made clarifications when needed. Each interview was
concluded with a summary by the researcher to ensure a mutual
understanding of the topics covered.

The interviews were held in two phases in February and March 2017:
first five interviews and then four more. Between these phases, a session of
sensemaking was held to create initial understanding and hypotheses of the
data and its meaning. The data was actively reflected on through industry
review, and the cases were compared to each other. “Sensemaking is about
such things as placement of items into frameworks, comprehending,
redressing surprise, constructing meaning, interacting in pursuit of mutual

Phasing the interviews allowed them to grow more refined over time,
as the researcher’s understanding of the topics grew. Practically, this meant
the last interviews were somewhat deeper than the first when the
understanding to the topic was shallower. It seemed the sample of nine
companies was somewhat large and reached the point of saturation allowing
meaningful conclusions to be made (Luomanen, 2010, Tuomi & Sarajärvi,
2009).

The interviews were recorded and these recordings were manually
transcribed by the researcher. Two of the nine the interviews were held in
English, seven in Finnish. The interviews took between 45 and 95 minutes,
with an average of 75 minutes. Transcribed, the individual interviews were
between 4300 and 10900 words, with an average length of 6600 words. In
total, the material included some 11 hours of recordings transcribed to 120 pages of text. It was found that the act of transcribing facilitated immersion in the data and its analysis.

The transcripts were analyzed thematically. The identified core of each answer was categorized into one or many categories which facilitated finding the most important aspects of the interview. These themes were used to build nine mind maps visualizing the interview into a more manageable format. To facilitate the comparison between the companies and align them with the themes, three key concepts were used as the core of the mind map: company, market / industry, and the game. These mind maps were further summarized to identify 3 – 6 key themes in each interview.

These materials created were comprehensively reviewed, and analyzed for differences, similarities, and patterns in order to understand the practices in contemporary mobile development. The findings were organized into three topics: processes that facilitate learning, from game development to service industry, and creating business through games. Citations were used to illuminate, enrich, and explain the interview data (Glaser & Strauss, 1967).

It was found that none of the reviewed models and theories sufficiently explained the contemporary mobile game development. Synthesizing the review and findings, the DPS model of F2P mobile game development was developed as a practical guide for the field.
ETHICAL CONCERNS AND RELIABILITY

In order to ensure the reliability of qualitative research, Tuomi and Sarajärvi (2009) suggest four perspectives: credibility, transferability, dependability, and confirmability. Credibility describes how the results of the study reflect the current reality and the perspectives of the interviewees. Transferability refers to the degree by which the results are applicable in other contexts. Dependability describes how similar results would have been found by other researchers. Finally, confirmability relates to the degree other observations and methods support the results.

The study seeks to ensure its reliability by several means. Credibility was reinforced by actively seeking shared understanding during the interview. The results were reflected in the light of personal experience in game design, second-hand experiences of the industry, and observations from industry professionals. Transferability was improved by discussing and reflecting on the results with professionals from different fields. Dependability was sought by actively cultivating self-reflection. Also, each interview and answer was critically examined acknowledging the interviewee perspective, biases, and impression management might affect them. Confirmability was sought by reflecting the results in the light of industry observations, theories, and models. The feedback from the advisor, as well as discussions with other professionals in the field, also aimed to improve the study reliability.

A concern for the study regarded the degree one interview represents the company as a whole. Several efforts were taken to mitigate this bias. The participating companies were asked and were free to choose an interviewee who would have a broad, holistic perspective towards the project. This led to interviewees who had a central role in the project and insight into the company as a whole. During the interview, the interviewee was guided to consider the team, the project, and the company facilitating them stepping
out from their individual perspective. Finally, the interviewee perspective was acknowledged during the analysis of the data.

Ethically, it was important the study does not have negative effects on the companies. This was ensured through several means. The companies were given written informed consent about the use of the data and how the results will be published. Secondly, the company overviews were reviewed by the companies, and the quotes were anonymized. The reviews lead to only cosmetic changes in the overviews. Thirdly, at the time of the research, the researcher did not have financial ties to the game industry.

It is rather common for game developers to examine past projects through openly distributed project post-mortem papers. In them, the companies discuss the development process through two key questions: what went right – and what went wrong (see for instance, Petrillo, Pimenta, Trindade, & Dietrich, 2009, Washburn, Sathiyanarayanan, Nagappan, Zimmerman, & Bird, 2016). The interview protocol had some features of post-mortem analysis: it examined executed projects seeking to learn from them. Thus, the interview might facilitate reflection and construction of knowledge, and this thought gained some support in the spontaneous comments from the interviewees. Besides these immaterial benefits, there were no financial benefits for the participating companies. As discussed in Appendix 1, the companies were promised a digital copy of the final paper as well as opportunity to discuss the results with the researcher.
OVERVIEWS OF THE COMPANIES AND GAMES

Table 1 gives a short description of each company participating in the study organized according to the year founded. Then, a short descriptions of each company and project is provided to illustrate the variety of the sample.
<table>
<thead>
<tr>
<th>Company</th>
<th>Founded</th>
<th>Based in</th>
<th>Employees</th>
<th>Releases</th>
<th>Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitro Games, Ltd.</td>
<td>2007</td>
<td>Kotka, Finland</td>
<td>~25</td>
<td>Raids of glory (2015), Charlie Chucker (2013), Sink’em all! (2012),</td>
<td>CEO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pirates of the black cove (2011), Commander: conquest of the Americas</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2010), Woody two-legs: attack of the zombie pirates (2010), East</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>India company (2009)</td>
<td></td>
</tr>
<tr>
<td>Ltd.</td>
<td></td>
<td></td>
<td></td>
<td>2: specialops (2013), Tiny troopers (2012)</td>
<td></td>
</tr>
<tr>
<td>Playraven, Ltd.</td>
<td>2013</td>
<td>Helsinki, Finland</td>
<td>~22</td>
<td>Winterstate (2016), Robocide (2016), Spymaster (2014)</td>
<td>Lead economic and monetization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>designer</td>
</tr>
<tr>
<td>Tree Men Games, Ltd.</td>
<td>2013</td>
<td>Helsinki, Finland</td>
<td>3</td>
<td>Pako (2014), Picnic rumble (2014)</td>
<td>Co-founder, producer</td>
</tr>
<tr>
<td>Tuiske Productions, Ltd.</td>
<td>2015</td>
<td>Turku, Finland</td>
<td>7</td>
<td>World of fashion: dress up (2016), Armadillo adventures (2015)</td>
<td>CEO</td>
</tr>
<tr>
<td>BitWeird Cooperative</td>
<td>2015</td>
<td>Littoinen, Finland</td>
<td>7</td>
<td>Atomic super lander (2016), Defected product (2016)</td>
<td>Chairman of the board</td>
</tr>
<tr>
<td>Superplus Games, Ltd.</td>
<td>2015</td>
<td>Helsinki, Finland</td>
<td>3</td>
<td>Retroshot (2015)</td>
<td>CEO, co-founder</td>
</tr>
</tbody>
</table>

Table 1: The companies participating in the study
NITRO GAMES LTD.: RAIDS OF GLORY (2015)

Founded in 2007, Nitro Games is a spinoff of the digital marketing agency Nitro FX. The company is based in Kotka and employs roughly 25 people. Initially, Nitro Games focused on sea-themed strategy games for PC and consoles but turned fully to the mobile market in 2013. To facilitate this change, the company rationalized its art section and updated its competencies in F2P monetization, analytics, and cloud-based services.

The company saw a trend towards more serious games and an opportunity in the unused technological potential of the handheld devices, and started developing a pirate-themed F2P strategy game for the mobile. With a first demo version of the game, the company found a publisher to complement their competencies especially in marketing. The internal development team consisted of 10 – 15 developers, and in addition, the company had numerous outsourcing partners. The game was soft launched in Canada, however, the playerbase was somewhat too small for the company to gain full understanding on the multiplayer aspect.

After one year of development in January 2015, Raids of Glory was launched exclusively on iOS. It gained good visibility in the marketplace which was maintained through monthly updates. In the fall, the company changed their publisher and started working on the Android version of the game. Significant changes were made to the monetization engine by turning the focus from timer-based buildings to card-based troops which had a considerable effect on the revenue of the game. Today, the product is coming to the end of its lifecycle and the company is turning towards other projects. The company is publishing their next product independently and seeks to test the core gameplay in the live market as early as possible.
KUKOURI MOBILE ENTERTAINMENT LTD.: PIXEL WORLDS (2017)

Since its inception in Kotka in 2011, the company has focused to be a great place to work. The first three titles of the company established the Tiny Troopers brand primarily on mobile devices, the games were ported by subcontractors to other platforms including Playstation and Xbox One. The first two Tiny Trooper games focused on a single-player experience and maneuvering troops, while the third game in the series put the emphasis on multiplayer aspects and base management.

After three games with the same intellectual property, the company wanted to extend from highly competitive genres towards markets with more opportunities. Spending six months searching for a concept for their next title, the company was inspired by the less explored genre of F2P social sandbox games. Pixel Worlds was developed in 18 months – including a two month soft launch focusing on technological stability and improvements – by a team of 10 developers. The game is targeted especially for the younger audience of between 13 and 20 who the company is familiar with through their own children.

Pixel Worlds was launched on Android and iOS early 2017. Both technically and socially, the game has been designed to be an ongoing social platform for the players who are offered new content in biweekly updates. More importantly, the company seeks to engage and reach the players outside of the game: the three community managers create content to social media, especially YouTube. The company also seeks to engage the players through influencers. The game’s influencer program encourages the players to create content for in-game rewards and increased traffic to their own channel.
ROCKODILE GAMES LTD.: LOWGLOW (2015)

Founded in 2013, Rockodile is a five-person startup from Turku, Finland, and supported by the local Game Hub. The core team of two coders, a graphic artist, a game designer, and the CEO met during their studies, and founded the company initially to do web development. As a co-student with experience in game development joined the company, they quickly pivoted towards mobile games. The company seeks to cultivate a culture of agility and flexibility.

The company has released two small mobile games, Rescue Co. for iOS in 2014, and Lemming Dynasty for iOS and Android in 2015. Looking for bigger challenges, the company began developing an ambient puzzle game for the tablet market. Some months into the development the company pivoted towards PC daunted by the saturated mobile market and their previous challenges with the F2P business model. Lowglow was released in 2015 through the Steam Greenlight program at the price point of $7.99. To facilitate the marketing of the game, the company gave a considerable number of copies for free which helped them gain attention, positive reviews, and a large playerbase.

Encouraged by the reception of their title, the company turned towards creating a mobile F2P version of Lowglow soft launched in 2016. The company was, however, unable to find a business case for a wider release. Today, the company is developing games for the PC and console market.
PLAYRAVEN LTD.: ROBOCIDE (2015)

Founded in 2013 by five industry professionals, Playraven has released three games: Spymaster for iOS in 2014, and two titles, Robocide and Winterstate for both iOS and Android in 2015. The company is explicitly ambitious with their vision to “not just to create new games, but whole new genres of games” (Playraven, 2016). Playraven is based in Helsinki, and currently employs roughly 22 industry veterans, half of them from abroad, with experience from AAA console games and mobile games. The company is organized into three teams working on independent projects and backed by venture capital and investors.

Robocide is a F2P real-time strategy game with a core gameplay revolving around swarm control. This game mechanic was innovated by the company through a series of prototypes. The development team consisted of two programmers, two artists, a team lead, and two other part-time experts. The game was developed with updates in mind as an option if the business case existed. Seeking to maintain a close control over the product, the company kept marketing, community management, and relationship management with the marketplaces in-house. The title was prominently featured in both marketplaces and met the company download goals.

Seeking to constantly learn, the company has since considerably developed their game development processes to facilitate even quicker feedback from the market through early soft launch and rapid iterations. Currently, the company is working on several projects for the mobile market including a successor to their first title.
TREE MEN GAMES LTD.: PAKO (2014)

Founded in 2013, the three members of Tree Men Games met studying new media and games at Aalto University in Helsinki. The team is eager to learn and explore, cultivates independence, and seeks to avoid unnecessary processes. The trio developed several small games together, and sought into entrepreneurship through the startup program Summer of Startups. Financed by the AppCampus program, they released their first game, Picnic Rumble, for the Windows Phone in 2014. Backed by a Digidemo grant, the company created a demo for their second title but realized its development would take longer than they initially expected.

The company looked for new concepts. Inspired by a YouTube video, the company created a quick prototype of Pako, a car chase game for mobile phones. The first rough version of the game was released on Windows Phone in 2014, and with its popularity, the company turned towards creating a premium version of the game for the iOS. Over the next two years, the company produced several high quality updates for the game which helped them gain featuring in different marketplaces facilitating the game sales.

The company has actively experimented with different freemium monetization models and premium price points throughout the product life span. The company has developed different versions of the game for several platforms – including Android, Apple TV, Amazon FireTV, and Steam – that have also facilitated its distribution and extended its lifecycle. Combined, the game has gathered nearly 10 million downloads over two years. Currently, the company is developing a sequel of the game for the Steam platform.

Tuiske Productions dates its origins to a local ten-week startup program in 2014. The next year, the company was founded by six friends from Turku University. The core team consists of three developers, a graphic designer, a designer, and an IT- business specialist. Besides game development, the company works as a subcontractor in the IT and game sector.

The first title of the company, a 2D-sidescroller, boasts a technologically innovative drawing mechanic. Armadillo Adventure was released for iOS and Android in 2015, but it didn’t perform up to the team’s expectations. The company identified challenges especially with the metagame and monetization design, and the team turned towards other projects.

In 2015, the company was approached by a more mature company with rather impressive track record in the early 2000s. The other company had a business plan and a concept for a game in mind, and the two companies joined forces to develop World of Fashion, a F2P dress-up game for the teenage girl segment. Compared to the previous project, the second game was more business and target-audience oriented. Released in the spring 2016, the game was successful in its target segment partly due to its innovative and focused marketing strategy leveraging social media influencers. However, this success did not meet the expectations of the other company, and Tuiske Productions Ltd. bought the game business, and is currently developing the game further.
BITWEIRD COOPERATIVE: ATOMIC SUPER LANDER (2016)

Founded in 2015, BitWeird is a cooperative based in Littoinen with a recently opened office in Turku Game Hub. BitWeird currently employs seven developers: the founding team of four IT-professionals who met at a game design training, and three developers from the game design training the four held in 2015.

BitWeird has released two games. The first game, Defected product, is a small sorting minigame released in April 2016 for Android and iOS devices. The second game, Atomic Super Lander, combines elements from platformers and spaceship lander games. The game was created by a team of three coders, three graphic artists, and a musician, coordinated through weekly meetings. In 2016, after four years of development, the title was released with the price tag of 2.99€ for the iOS.

The release of the game was facilitated by a publisher who advised the company on the features of the game and its pricing,organized marketing, and facilitated business relationships. Through this support, the game got featured several times in the App store. Currently, the cooperative is finishing a F2P version of the game for Android devices, and working on undisclosed mobile game titles. In these projects, the company aims to cut their development time considerably and seeks feedback earlier in the development.
SUPERPLUS GAMES LTD.: RETRO SHOT (2015)

Founded in 2015, Superplus consists of three game developers who met working in Rovio. Combined, they have some thirty years of game industry experience. The first game of the company, Retro Shot, is a F2P pinball puzzle game influenced heavily by 80s aesthetics and the synthwave music genre. It was developed with the core team of a game programmer, an artist, and a producer-designer, with some assets from freelancers. After one year of development, the game was first soft launched, and then released for iOS in 2016.

The soundtrack of the game was applauded but overall the game did not fully meet the download goals of the company. Through their publisher the company was able to gain reviews and magazine coverage but not enough visibility in the marketplaces which was detrimental towards user acquisition.

Retro shot validated the company ability to produce high quality games. The company leveraged Retro Shot to gain financial support towards the two mobile game projects they are currently working on. In the next projects, the company strives to focus on market understanding and aims to rivet monetization deep into the core of the game.
SNOWFALL LTD.: MOOMIN UNDER SAIL (2017)

Snowfall has its origin in JamRun Adventures Ltd., the brainchild of an entrepreneur working to create games in collaboration with the renowned Moomin brand, based on the works of Tove Jansson, a Finnish illustrator and novelist. With the support of Moomin Characters Ltd., the company contracted Indium Games to create their first game, Moomin Adventures: Jam Run, a 2D-sidescrolling racing game released in 2015. Since, the company has gathered investments to produce a line of mobile Moomin games especially for the Asian market.

In 2016, the company was rebranded Snowfall, and began developing their second F2P title, Moomin under sail, to be released in the summer 2017. The game development is done with a core team of seven: four coders, and three graphic designers, one of whom is working in project management as well. The team has been combined from the Indium games team and from trusted local contacts.

The game is developed in close collaboration with several stakeholders: Music and story are outsourced to local partners. Together with the licence owner, the company seeks to ensure the feel of the game, the characters, and interactions are aligned with and maintain the brand. The company cooperates with several business intelligence, marketing, and testing partners in the eastern market in order to create an experience well-received by the target segment.
FINDINGS

As the materials were analyzed it became evident the company practices were affected by the maturity of the company. The position and the practices of the younger, less established companies were qualitatively different from those in the companies with longer histories and more established structures. This was also linked to the employees’ experience in game development. Overall, it seemed the company competency and practices evolved in a somewhat predictable manner as its employees grew more experienced, and the company matured. This offered a fruitful basis for the analysis.

The findings from the interviews were contrasted with the understanding created in the industry review. The findings were organized to three domains that had and continued to have a significant impact on mobile game development and the company business (Figure 12).

First, it seemed that as the companies matured, they developed processes, structures, and culture that supported, enabled, and facilitated iterative development. These processes allowed the company to evaluate, reflect, and improve the game throughout the development in interaction with different stakeholder leading to learning. Second, the companies in the F2P field were moving from products to services. As the companies matured, they turned their attention towards user acquisition, retention, and monetization earlier in the production. Third, the maturing companies seemed to be moving towards more rational, business-oriented practices in the development. These three areas are next explored in detail, and then they are contrasted with the industry findings.
Figure 11: The findings in three domains
DEVELOPING PROCESSES AND STRUCTURES THAT FACILITATE LEARNING

Some of the companies were younger and some more mature but it seemed all companies had a similar growth trajectories towards iteration and testing. This manifested as manageable practices and structures but also in the company culture that cultivated their importance. Due to this diffusion they are addressed as structures and processes.

As the companies matured they seemed to pay more attention to testing and interaction with different stakeholders. The nature of testing evolved throughout the development and there was a shift from internal evaluation to testing with external stakeholders. Both quantitative and qualitative methods were used in gathering feedback. The more mature the company and more targeted the audience, the more the companies paid attention to their audience and testing.

“Our games have competitors, but the company itself, we try to keep ourselves agile and moving. We don’t want to do the same over and over again, that’s where the stagnation comes from. The old Darwinism: it is not the strongest or fastest, but the most adaptable to change that survives.”

In the companies most tuned towards this approach, learning, iteration, feedback, and evaluation were tightly knit. Testing and iteration were tactical tools in everyday operations of the company. Longer iterative loops served a strategic function: they were used to evaluate the business viability of the project. However, iteration and testing also had a higher, long-term side-effect. They led to learning, thus strengthening the company competencies. The interrelating structures that relate to these aspects are described in Figure 13.
EVALUATION THROUGHOUT THE PROJECT

Overall, it seemed the company practices in testing and evaluation of the game evolved throughout the production. The first versions were evaluated within the company through qualitative methods. The closer the game was to the launch, the more external partners were involved and more attention was paid to quantitative data. These shifts through the production are illustrated in the Figure 14 and then explored in detail.
Figure 13: Games are evaluated throughout the production

After coming up with a concept for the game, some of the companies tested the first drafts of the game internally in order to gain feedback on the viability of the concept. Some companies created both rough-and-dirty paper and card prototypes to test the game, and sought to create the first digital versions of the game as early as possible. The developers used intuition, experience, and insight to evaluate the prototypes: if the gameplay did not feel right the game was viewed not have potential. The more experienced companies reviewed also the scope and economic feasibility of the project.

“We have killed only one game. After one month of development we realized this equation does not work. The game would have cost so much to do compared to how much money it most likely would have made, so it was better to kill the project and do something else.”

“One of our coders created a prototype over his vacation. More precisely, he never goes on vacation, he just goes home and programs there. He made a prototype, and brought it into the office. It was really fun, people really liked it. It just grew from that nucleus ‘wouldn’t it be cool if’ and it just grew and grew and grew.”
The concepts surviving the first internal phase were developed further. As the project became clearer so did its scope. Some of the companies realized their projects were too ambitious: the scope of the project was too broad, the development would have cost too much, or the project did not have synergies with the company competencies. In these cases, projects were killed. The surviving early versions were tested with friends, family, and other game industry professionals. Some companies found the insight of other developers especially valuable, and their feedback impacted both the design and business decisions.

“They were a couple of fairs and startup events where we got a chance to show our games to people. When we showed them the three games, they all said leave the two games and start making this one. We did.”

Conducting live testing sessions with external testers was rather rare. One of the companies found a session they organized not very useful because the testers focused on superficial flaws the company was already aware of. Some companies used cloud-based testing services. They were found to contribute primarily towards the usability of the game but their impact on understanding the game as an experience was smaller.

“We have put a lot lower importance on our playtest cloud [an online testing service] reviews. It is extremely good at usability testing: can the players figure out how to use the UI, do they click on the screen and get lost? That is wonderful. What the playtest cloud is not very good at is determining is the game fun.”

Nearly all of the companies sought to test, improve upon, and gain feedback on their game in soft launch. Earlier, many of the companies had used iOS as their soft launch platform but today Android was preferred because of the speed to deploy compared to iOS. Yet, it took several days in
order to gain valuable data: the company had to acquire players to the game in order to evaluate how the players interact with the game over time (retention) and how they convert towards paying (monetization).

“In Apple when you want to release a new soft launch build it can take 5 – 7 days between submission and when it’s in player’s hand. This created a bad leg time between what we were working on when we were starting to get data. You need about 7 days worth of player acquisition to get usable data for retention numbers, and about 2 – 3 weeks to get useful data from monetization.”

In soft launch, analytics and data were highly appreciated as the objective measurement of the performance of the game – also the final frontier to the company profitability. The younger companies examined, followed, and reacted to the data on a rather short timespan. Generally, the more mature companies had a more proactive and strategic stance towards soft launch but their approaches were varied: Some actively created hypotheses to be tested, and used soft launch as a platform to improve upon the design. Others took the soft launch as an opportunity to improve the technical aspects of the game such as stability.

“We believe in user testing. The best data comes from real users, not test groups. We put an update online, and if it doesn’t look good, we deploy an update that fixes it. This way you get real analytics, not test analytics.”

“We have not given up, and started to measure and analyze everything. Using our experience in game development we can create hypotheses that we validate as quickly as possible.”

After the launch, the companies were keen on following the performance of the game and adjusted the updates accordingly. If the game was successful on the company standards and had potential towards development, it was actively updated. On the other hand, if the game did not
perform as expected, or the changes needed were too significant in terms of the design, the company moved to other titles rather quickly.

“The initial idea in the company was to create a lot of games quickly. But when the game succeeded so well, we have kinda had to develop it.”

“We soft launched the game and promoted it on several forums, and got feedback from game design professionals. We made some tweaks but it never did as well in soft launch that we would have wanted to release the game there. We thought it made no sense to release. Then we started to look for a publisher. We contacted quite a few, and they said there is no potential in the game. We thought that they are professionals, let’s forget this and start a new project.”

In conclusion, the companies varied in the extent they tested and evaluated their designs throughout the project. However, there was a pattern to test the game increasingly with external parties. All companies appreciated the importance of evaluating the design in-house and valued analytics.

THE IMPORTANCE OF PROCESSES
There was a clear trend that the companies were turning towards earlier testing or soft launch in the projects. None of the companies found they had been too active or spent too much resources in seeking feedback. On the contrary, majority of the companies found they had at some point made a mistake by testing some aspect of their game too little or too late which lead to challenges in the development.

“When we had done almost all of the art content for the game we decided to change the visual style completely. Today, we would make this decision in the very early phases of the project. Our
graphics were too hardcore, and we saw that they would not appeal to the broad audience."

Actively and explicitly cultivating critical evaluation, feedback, and learning manifested somewhat differently according to the company maturity. In the younger companies it manifested in agility and the ambition to learn: a mindset guiding the team and their interaction. In more established and mature companies this had turned into manageable processes that span the whole project. It is perhaps this mindset that paves the way for manageable iterative processes.

“We had a lot of big problems with the code and the design but we did not give up and kill the project. It is our strength that we are not demoralized. The challenges drive our team forward. We are problem-solvers.”

The more the company or their employees had experience in game development the more their processes supported iteration. In these cases, the companies valued and stressed the importance of constant communication, prototyping, and feedback. The product was tested from the very first steps. The companies sought to release the product as early as possible as a minimum viable product, and made considerable changes to it through a fast iteration cycle.

“We have a big poker chip set. No one plays poker with it, the chip represent soft currency, gems, characters, updates. We move the stuff around and it can give you a pretty good feel about the pace of the game, and how the upgrades feel. We also use playing cards. I don’t even know how many decks of playing cards we have at the office with stuff scribbled on them. They are great for prototyping – just throwing stuff on the table and playing with them.”

Comparing the companies that were most active in seeking feedback and the companies who sought it the least, the latter also sought feedback
more infrequently. When they got feedback, it was less structured and it wasn’t found very helpful in improving the design. This may be one of the reasons why some of the companies were not enticed by testing. Some companies acknowledged that extensive internal development may lead to blindness in the features of the game. This makes it difficult to evaluate which features would be most valuable for the players. This, in turn, threatens to bloat the scope of the project as it becomes difficult to prioritize features.

“We did not have enough testing. We got a lot of test users but they never wrote any reports, they were a bit lazy. Maybe we should have gotten a firm to do that.”

One of the clearest implications of testing related to killing a project and pivoting. Some of the companies sought to kill nonviable or unrealistic projects as quickly as possible. Killing a project and ignoring sunk costs was viewed positive even if – or perhaps because – it was difficult. At the same time, there seemed to be a point of no-return for the companies: the further into the development the less likely the company was to kill the project. At some point, the company had to continue with the concept especially if they needed revenue.

“Having to discover problems quicker, earlier in development costs less to fix. Every single game will have something that is not quite right. The longer it stays not quite right the harder it is to change. If you can find it four months into the development as opposed to fourteen months into development, it will cost one tenth as much to change.”

“At some point you have to put the game out there. Nothing is as expensive as an unpublished game. It is a different case if you are Supercell or Rovio, and have a budget. They don’t have to publish
everything. They can kill a game in soft launch if the metrics aren’t right. We don’t have that luxury.”

“We developed a game that was way too broad for our team: a mobile player-versus-player F2P multiplayer game. We got the multiplayer system to work, but the mechanics didn’t click. We killed the project and turned towards a considerably simpler project.”

In conclusion, the companies viewed testing valuable and it had clear project and business implications. As the companies matured, they developed processes and structures that supported and managed these iterative practices tactically and strategically.

KNOWING YOUR AUDIENCE

Roughly half of the nine projects were aimed at a rather broad audience, the rest had a more or less clear target segment. Some of the younger companies seemed to focus on creating a great game experience and considered their target audience less. When a more mature company created a game for a broad audience their reasoning was often based on industry trends and market opportunities, as opposed to the creative influences that drove the younger companies (see the Figure 15). One of the signs of a company growing in experience seemed to be that they considered the target audience more carefully.

“We have made the game for people between 12–65, or 12–80, whoever wants to play. The youngest players are out but the game is so simple to play that even the elderly could play it. We haven’t focused too much. When you make a good game it will sell.”

“We have always been bad at finding the target group. Maybe we did the game partly for ourselves which is always a mistake. However, it is easy to start by making games for yourself. The three first games we have had to create for ourselves because it is difficult to know what games other people like.”
The target audience of the game was directly related to the design, iteration, and testing. The more focused the target audience of the game, the more the developers focused on understanding their specific conventions, needs, tendencies, and behavior. This was especially true when the target audience was significantly different from the core development team. In this case, the developers found they could not fully rely on one of their most important tools: their taste in good games, their introspective ability to distinguish what creates fun gameplay. Meanwhile, the companies who did games for a broad audience did not seek to create understanding on the player profiles, needs, or conventions to the same extent.

“We seek competitive advantage by creating a game that suits the audience. I emphasize that the game needs to suit the audience. We no longer make a damned good game but we make a game the audience likes.”
Yet, understanding the preferences of the target segment was viewed challenging. The companies with clear target segments found it highly valuable to understand the player’s behavior, preferences, conventions, and thinking through first-hand experiences, partnerships, and market research. This was often done early in the production to cater to the key needs and motivational profiles of the players.

“We have thought of all of the specific players we wish to target. That is why we make sure that all of the features of the game will fulfill the players’ needs. This is something that we have had in mind since the very first day.”

The companies that immersed themselves in the target segment found it highly valuable: the understanding created had a considerable impact on the design and business. The companies might, for instance, base their key aesthetic style and genre on testing. As opposed to the mechanics that were viewed somewhat interchangeable the aesthetics were seen as fundamental towards appealing to a certain audience. These companies had a proactive stance towards market understanding and the design was greatly affected by it. This is in contrast to a passive stance where the developers react on the gathered analytics.

“If you are making a killer robot game you probably don’t want to have super casual stuff in it that would appeal to a forty-year-old soccer mom. That is not your target market. Trying to do that will dilute your message and game, and it will not be fun for anybody. You have to know who you are after and what they find fun, and try to make sure you nail that. You can get some ancillary markets, but you have to know who you are selling to.”

“I would lie if I said that this genre of games is difficult to understand. I have never played this type of games myself. However, when you take an analytic and professional perspective, the target audience does not matter. If you are a good salesperson,
you can sell anything, ships or fridges. The type of the game does not matter, because you can understand the analytics.”

All the companies viewed statistics and data important. However, understanding the player needs and profiles was mediated by the nature of the target audience. The more mature companies paid more attention to the market they were catering to through market analysis.

THE VALUE OF THE TEAM
Seeking understanding from external partners was viewed important especially in projects with a target audience. However, the most influential source of insight and feedback was the team development itself. Many of the development teams were rather small – between 3 and 7 – and explicitly low in hierarchy. The autonomy of the developers was cultivated. The teams were working in close proximity to one another enabling the flow of communication between team members.

“It is always good to have money, a business, and networks but without the team no one is going to produce it.”

“If you think about the typical office work meetings, sometimes a large portion of your day is spent on meetings that are of no use to most of the people. Maybe all of us are the doers. If it is possible to create something without much delegation, meetings and stuff, we would like to do that. Then you can adjust the game on the fly.”

Valuing communication extended to outsourcing partners as well. The companies often found it valuable to work with a local designer they can meet in person to ensure the assets support the overall vision of the game. The close contact also made it possible to iterate on the assets when needed.
“The audio designer is just across the street, and it is really easy to design together in that sense. We test the assets straight away. Does it work with the visuals, is this sound good for us? We get and give feedback on the spot.”

The importance of the team was viewed paramount. It was very typical the core teams knew each other beforehand. The previous experiences from school, courses, or work, had proved the synergy and trust between team members which was cherished. This was reflected in recruiting as well. The younger companies first turned towards their networks when they sought to expand their competencies, only the most established companies recruited their talent outside their networks.

“It’s really full-time collaboration, real teamwork, and yes it’s really hard to maintain that I can tell you that. Especially between coders and graphics. But humor helps a lot, and shared pain helps as well.”

Within the team, the companies found clear roles facilitate collaboration between different disciplines, task delegation, project coordination, and communication. When decisions had to be made regarding the design, the developers first turn towards a coworker with expertise in the domain. Features of the game were negotiated in the team and hard management practices were avoided. When something could not be agreed upon or the decision required a company level perspective the project manager or CEO was turned to. This was often viewed as the last resort. However, having some decision making hierarchy was found important. One of the companies found that without decisions the project threatened to bloat and lose its focus which in turn lengthened the development time and increased the resources needed to make the game.

“When there is no leader it means that everything takes longer. No one dares to say that we need to drop this feature. There is a lot of unnecessary stuff that slowly drops off the game.”
In conclusion, the feedback in development was based on face-to-face coordination of the team efforts facilitated by trust. Communication and clear roles facilitated development between different disciplines.

FROM PRODUCTS TO SERVICES

The companies seemed to be shifting towards service orientation (see Figure 16) as they matured and embraced the F2P business model. The younger companies focused on product development and sought to learn the different phases in production. They considered the activities relating to marketing, soft launch, and updates later in development or outsourced them. The more mature the company, the more they were tuned towards creating a service that would draw the players in, maintain a relationship with them, and finally convert them to paying customers. These companies considered and planned for these service aspects early in the development. Furthermore, it was found the role of the publishers was smaller the more the company had experience in these domains in-house.
“Making a fun game isn’t enough. It’s not like money to the table and millions to my bank account, thank you very much. The work starts when you release the game. You need players to the game and you also have to keep them. There is a huge difference in the cost per install whether the player plays for one day or a month. You anyhow pay for the user acquisition, so if someone plays a year, they are a hundred times more valuable. Then, when you keep the players, you need to monetize. That’s the strategy: get, keep, monetize.”

“In practice, if you want to make a product that has chances for success you have to have a good idea and game experience, the core of the game. Around the core you need to build a complex
LEARNING THE PHASES OF DEVELOPMENT
The companies acknowledged the development occurred in phases. The clearest distinction was drawn between pre-production, production, soft launch, and after launch. The more mature the company the more attention they seemed to pay towards the pre-production that involved, among other things, creating understanding of the target audience, and identifying and leveraging the market opportunities. With their experience in previous projects the company was able to anticipate the needs in the future phases of the project (Figure 17).

The younger companies were more focused on the core development and paid less or later attention to the service aspects of the project such as marketing, user acquisition, and updates. Sometimes, this led to challenges. Some of the companies found their game needed structural changes that would not have been financially feasible to make.

"Our game wasn’t enough a service. It had leaderboards and social maps so that you can see where your friends are but it wasn’t enough on the service side considering it was a F2P game. “
The younger companies found it important to learn the phases of development. However, rather than learning them through one long project they often found it better to learn them through a number of different projects. While the projects were considerably different in nature they seemed to increase the company ability to plan for the projects and evaluate their scope, for instance. To compensate for the lack of experience some of the less experienced companies leaned on their agility and flexibility.

“*The project taught us the whole process of creating a game from zero to hundred, beginning to end. The whole process, the conceptual phase, development phase, and release phase.*”

Many companies found it important to learn the release pipeline in the digital marketplaces. Some created and released small games without financial ambitions in order to establish an initial contact with the marketplace and gain understanding in the phases of the process. This sought to mitigate the risk related with an actual game release. Some companies sought to establish a contact with several marketplaces by porting the game to different platforms. The porting took time and effort, and it wasn’t always directly financially viable but it allowed the company some secondary
benefits. It established the brand of the game on different platforms, created new business relationships, and taught them new technologies.

“Earlier we did one test game. It was more like a trial to see how the mobile works and how the Apple process functions.”

As the companies matured they often managed the risk relating to a project by working on several independent projects at the same time. Some of the companies found the employee workload varied considerably according to the phase of the project, and several projects allowed the company to optimize the company workflow and the use of human resources. Several projects also made it possible to employ specialists who worked on several projects concurrently.

“We have always worked on several projects at the same time. Many parts of the development are such that one person is not need throughout the project.”

In summary, one of the more challenging aspects of game development related to its project-based nature. The games were developed through time in phases with different needs. One of the most important skills for the developers seemed to be learning the nature of the phases which facilitated early planning and foresight in the project.

USER ACQUISITION STRATEGIES
After the release the game needs users. Some companies had marketing professionals in-house, others preferred to outsource these aspects to a publisher. The publishers were viewed to offer two key benefits: contacts to the marketplaces, hopefully leading to visibility through featuring, and user acquisition through social media. The companies stressed the importance of evaluating the publisher’s previous track record, and their experience in the genre and the target audience of the game. It was also viewed important to
establish a contract that gives the publishers a clear financial incentive to actively market the game.

“In F2P games something like one in a hundred users bring any money. To get users, you need marketing, and every user has an acquisition cost. If the user acquisition cost is $1 and on average one player brings in $1.2 you have 20% profit for every user. This works well but if you have 50/50 split with someone, and that someone puts in $1 for user acquisition that is not good business for them.”

The company experiences with publishers were mixed. Generally, the younger and smaller companies found them more beneficial than the mature companies. One of the younger companies found that the publisher facilitated visibility in the marketplaces and gave the company useful guidance on the features of the game. The more mature companies were more careful in their words: they found the publisher’s impact on the performance of the game rather small. Some of them found that user acquisition wasn’t financially viable for the publishers in specific cases. The companies that did not work with publishers either emphasized the importance of freedom, control, and flexibility, or they had sufficient marketing competence in-house.

“We would never have got the featuring in Apple store ourselves. The publisher knew what we need to add to the game so that Apple features it. We included support for Apple TV and it was immediately easier to get featuring. When iOS10, 3Dtouch, and other stuff came out our publisher told us to include them in order to get featured. Our game was featured the whole holiday. We would never had figured these out ourselves.”

It seemed the importance of publishers was constantly diminishing in the F2P industry. Their contacts with the press were becoming far less important because the F2P business model requires a considerably larger playerbase than the traditional media could draw in. Also, it seemed the
companies were more and more establishing contacts with the marketplaces themselves – a relationship earlier managed by the publisher. Several of the companies that had previously worked with publishers later turned independent seeking more control over the whole process. This was at times associated with hiring a marketing or community management professional.

“We found one publisher that liked our game. Their deal would have be 70% for them, 30% for us, in this particular market. I asked them what they will do for this 70%: they said they would promote the game to tubers, contact Apple, and stuff. They wouldn’t put one dime into the game. That doesn’t work from the developer standpoint.”

All of the companies found featuring in the marketplaces the most important way to acquire users. Some of the younger companies found the marketplace practices one-way, non-transparent, and outside the company control. Companies who had established contacts with the marketplace found it less so, and appreciated the feedback from Apple. Establishing this relationship with the marketplace either directly by releasing a sufficiently successful game or through a publisher was viewed paramount towards getting featuring. Many of the companies found supporting the latest technological features of Apple products had positive effects on getting featured.

“We would make a premium game if the situation was the same as two years ago. In practice, however, if you don’t get featured the game won’t be successful and turns out unprofitable.”

“You want to make sure they are happy, you are happy, everyone is happy. Calling them ‘get us featured’ that’s not how it works. Apple featuring is very mysterious, no one knows how it works and how they are changing things up. As a good corporate policy
you want to make sure you have good relationship with both Apple and Android, it’s very important.”

Considering the approaches in marketing the companies often viewed paid user acquisition capital intensive and outside their reach. Some of the companies also questioned the effectiveness of paid advertisements. They viewed that the players from paid advertisements engage less with the game over time than those who find the game organically. This led the companies to consider their marketing strategies. Especially the companies with a specific target segment were innovative in their marketing approaches and tied brand management and social media directly to the core of the game. These companies found innovative marketing efforts effective in lowering the user acquisition cost per player, improving retention rates, and having even unanticipated positive effects.

“There was this one teenager, maybe a boy, who made A4 flyers or posters of the game. He printed 700 of them in his mother’s workplace and distributed them all around the city because he liked the game and wanted others to play it as well. You can’t get this with money. You have to gain the support of the players by supporting their sociality.”

In summary, building a steady playerbase through user acquisition builds the foundation of any mobile game. There is a lot of competition for the attention of the players, and it seems the companies have to either leverage their partnerships or internal marketing competencies and creativity to gain users to their game.

FOCUSING ON RETENTION

Some companies made a clear distinction between user acquisition – getting the users to the game – and retention, keeping the players engaged with the game over time. The former was viewed to be related marketing the latter to the quality of the game, its ability to create habits, and engage the players with one another. The more mature companies seemed to pay more attention to
creating designs that would keep the players engaged with the game over time through long-term goals and social features.

“We divide any mobile game to three parts. Core gameplay, the actions phase, what I do with my fingers. Then you have the metagame that presents the long-term goal of the game. Then there is the social or live layer: when the player goes to the game they find friends and weekend tournaments. We have found that the metagame and social elements are somewhat routine to design and produce. The core game requires a lot of iteration, and that is the factor that defines whether the game has flow, the other two define its longevity.”

The companies that focused on keeping the players in the game found it important to consider this aspect from the very early stages of the development. They sometimes had a prioritized and constantly updated roadmap of the features of the game which helped them fight feature creep. Pushing content to the updates kept the scope of the initial release reasonable, and the updates were found a cost-efficient way to extend the lifespan of the product. Updates also played an important role in improving retention with the game. Some of the companies discovered the importance of these service aspects later into the production which sometimes led to considerable changes in the design.

“There was no event structure in the game. During the development it became evident that you need one in order to keep the player in the game so that there is something that happens precisely this week, the next week, and so on. On the other hand, this is normal, because F2P games are more about launching services than products, and the service evolves in the market after launch.”
“We intended it to be a game as a service. From the day one we probably had enough ideas for three years, and there were constantly more. At some point you have to focus: this we don’t bring in because it would delay the project for a month.”

Social media influencers are a topical trend in marketing and their impact was noticed by some of the companies as well. The companies found it was generally difficult to evaluate their market value which, on the other hand, made it possible for small companies to find good value for money in terms of user acquisition. This was especially true for games whose core gameplay was highly social in nature and had synergies with social media. These companies often actively sought to engage bloggers and video-loggers with the game. By staying active in the social media the company drew the players to the game, established the company brand, and kept the players engaged with each other and the game.

“I don’t remember whose idea it was to create an own YouTube channel for the game. What surprised me was that the players are even more social and expect more social contact than I ever expected. While we thought it was important, it was even more important than we imagined.”

“We watched PewDiePie videos. It was where he played the worst three games, and in-between the games he played our game. There was no links or anything, and he did not say the name of the game clearly. He just said ‘this is actually pretty good’. This got us the first bigger spike in sales which was annoying because if he had put the title in the name of the video we could have got 30 000 downloads. It was as big as getting featuring.”

In conclusion, the companies sought to engage the acquired players with the game through events, updates, and social features that may extend to channels outside the game. From a revenue perspective retention sought to convert the players to pay for the game: the more the player played with the game, the more opportunities for monetization were created.
MONETIZATION DESIGN

Many of the companies viewed there was a distinct competency in creating F2P monetization design that was considerably different from the premium business model. The younger companies found the model difficult to learn, some even disadvantageous towards the game experience. Some of the companies considered monetization late in the development, and imitated mechanics from successful, benchmark games. The more mature companies considered monetization earlier and emphasized the importance of integrating monetization with the core of the game design, and creating designs that keep the players engaged over time to increase monetization opportunities.

“The monetization did not work. We had advertisements but we did not exploit them enough. We had in-game purchases that were based on in-game skills. However, there were not enough skills, and the skills did not have a significant enough impact on the game that would have created a feeling that I have to buy them with real money. Same with the ads. The ads were related to the skills and they did not have any impact on the game. The players did not want to watch the ads: why spend 30 seconds on them while I can play the game without them?”

“We would maybe want to do F2P monetized through advertisements. This way the monetization wouldn’t take time from other parts of the design, and the other parts of the design aren’t affected negatively.”

All of the companies sought to learn the F2P business model through several means – often through live experimentation. Some of the companies actively created different builds of the game and experimented on live markets in order to understand the reactions of the market. Some of the more mature companies experimented with monetization in the soft launch
in order to find factual basis for the design decisions. Other companies actively leveraged their networks in order to understand the F2P business model.

It seemed there were considerable differences between the approaches towards monetization: some perceived it as a mathematical business-problem, others put the emphasis on creating a great game experience. Regardless of orientation it seemed the more mature companies paid more attention to the monetization.

“We increased the number of points where the player is rewarded so that the player gets something valuable all the time. Every element the player receives has value in the game but considerably less than before: quantity over quality. This way the player gets a positive experience on a shorter interval but the distance from A to B is longer, and there are more steps, and every step has the potential to monetize. That way we increased our theoretical revenue tenfold and practical threefold.”

“When someone introduces a product the very first thing we ask is what do we sell, it has to be a part of the core pitch. Having that from the day one, allows us to make sure it fits. You want the monetization to feel like a part of the game as opposed to something added on later, ‘oh shit we have to make money on this game’. I have worked on projects like this and players can tell. It feels like ‘oh they just slapped this on here,’ because they probably did.”

The F2P business model was viewed one of the most difficult aspects in mobile game development. The companies found it important to consider and integrate monetization into the design and production early on. Monetization was viewed to be closely related to the user acquisition strategy, marketing, and retention design.
CREATING BUSINESS THROUGH GAMES

Games are definitely creative and a form of art. However, they are also a business. As the companies matured, they seemed not only to turn from product to service orientation but also from leveraging creative forces to creating games that have a place within the market.

The younger companies often focused somewhat more on the game they were developing, and devoted less of their resources to explore the competitive products and market trends. The more mature companies often actively explored the market and rationalized their business decisions on the understanding created. The growing networks and partnerships of the company were leveraged to create designs that would have a competitive edge. These aspects are described in the Figure 18.

“It’s a funny story. The idea for the game came to me in a dream. When I woke up, I wrote the design document, it was done in two hours. That was the macro design but the micro design evolved throughout the development. Many people ask, how to come up with an idea. That is not the problem. It is extremely easy to get ideas, what is more difficult is to adjust the idea to fit the business and making sure it is reasonable to develop. Well executed even a mediocre idea can be a good game. Ideas aren’t worth anything if they aren’t done.”
FINDING AND SEIZING MARKET OPPORTUNITIES

The companies varied in the extent they examined the market and competitors. Some companies were primarily driven by the creative aspirations, others emphasized the importance of market intelligence. The companies with a more rational stance sought opportunities by 1) identifying underrepresented genres of games in terms of potential market size, 2) catering to audiences underserved by current offerings, 3) creating strategic partnerships to create competitive advantage.

The companies sought to identify opportunities in the market through several means. The more mature the company, the more actively they participated in professional events and mobile game industry fairs, explored the latest trends online, bought analysis, and consulted experts. They also found it important to follow the trends in media closely in order to keep in touch with the audience preferences and taste formation. This
knowledge creation had a considerable impact especially on the pre-production where strategic direction of the company and the product was decided.

“Historically, we have put a lot of effort into gathering information. One of the sources is free and paid data about the market. Then there are a lot of knowledge services and banks, such as App Annie, where you can look up data about other games, draw conclusions, and do deeper analysis. Also, every month we are at some game related event in the world where we discuss with other actors in the market.”

“It is important to figure out which movies and books are coming out, what TV shows are on their way up, and which themes will be popular – because art is expensive. It’s in some ways easier to change the mechanics than the art style. So trying to figure out the trends that will be coming in is very important.”

The size of the company network seemed to be associated with the company maturity and their perspective towards the industry and the market. The networks of the younger companies were actively growing, and they often viewed contacts highly valuable in order to gain insight into the industry. The networks also seemed to mediate the company awareness of their strengths. Interaction with other industry entities enabled the company to build realistic and comprehensive understanding on their competencies in regards to the competition.

“The genre is a niche on this platform. There are only a few 2D puzzle game players. There are players who enjoy them but I can’t define them. We didn’t think of it when we started developing. We should have consulted someone more experienced and asked if this game makes any sense, and they would have said that it doesn’t.”
None of the companies found they had done too much research in the field. On the other hand, some companies found they hadn’t sufficiently explored the competitive products and technologies before development which led to challenges later in development. However, it was acknowledged that smaller companies might have limited resources in this regard: pre-production does take resources from the core development. When a company is under pressure to get the game out they may want to focus on development over research and testing.

“We did some research on other games in the genre, but only on a superficial level. We did the same mistake every young game startup does: we went development first.”

“One billionaire told me their view on entrepreneurship. It is when you walk to a precipice and someone pushes you down. As you are in the air, you start to build a parachute so you don’t fall to the ground. This is often the case in this business, there is the pressure to get things done. Then you don’t have much time to monkey around or do master plans. But then again would it be sensible? Yes, it still would be.”

Many mobile game genres, such as match three and endless runners, were viewed highly competitive and therefore unattractive markets. Similarly, some target audiences such as the general 20 – 35 males were highly catered to and companies were inclined to seek opportunities from other audiences. One of the companies emphasized an opportunity in a niche established and validated by another product. The company reasoned that when the competition in the niche is low and its size was relatively small, it remains unattractive for large companies and companies of similar size might not identify it.

“If there are no games in the niche, it is a sign that the market does not work. If there is one or two good games, you could perhaps fit in a third. If there are ten good games, you are too late.”
It seems important to actively create an understanding of the industry and the market the company is operating in. This allows the company to find their audience and differentiate in terms of the competitors. However, the more the company understands the industry, the more rational their approach towards the production seems to become.

BALANCING RATIONALITY AND CREATIVITY

There seemed to be different approaches in the productions ideologies, philosophies. Some companies had a strong business orientation, others emphasized creative aspirations, some actively sought to balance the two. At one end, the companies emphasized creativity. They based their designs on the interests and motivations of the developers. Successful games were looked up to but they were not a direct source of influence. The sources of inspiration were often retro games or media outside the field of games. For example, one of the companies based their successful title on a humorous YouTube video, and another company was highly influenced by popular culture, television series, and music. Exploration, creativity, and combining influences were key drivers for the design.

“When I was a teen I played this online game called Magic Pen. I thought it was great and clearly different from the other games. Drawing actually created something to the world. Then I realized that this mechanics hasn’t been explored in smartphones. First we developed what the earlier game had done but then we took it one step further. We wanted the drawing to manifest in the game as you draw it. When we got that done, we realized that in terms of game mechanics we have something others do not have.”

At the more rational end, the concept of the game was based on a careful consideration of the current market opportunities. The features of the competitive and commercially successful games were carefully analyzed
and dissected. Some of the companies sought opportunities by identifying features that were not present in the current offerings. The target segment and company position regarding the competition was thought of. Overall, the company had clear reasoning to their business case which rationalized the risk related to the project.

“It is very important to have a target market, knowing who you are selling to. The psychology of the player you are aiming at is very important.”

Some companies sought to actively balance between creativity and market opportunities. They first identified market opportunity by closely examining an interesting genre and competitive products. During the production, the company sought to innovate by adopting unused practices from the PC and console games, combining mechanics in an innovative way, or innovating on the technology. This was done in order to meet a certain, identified need in the market.

“We want to take something that other people have proven to work and innovate in places that need innovation. We take appropriate risks.”

There seemed to be a tension between the business orientation and creative aspirations in mobile game development. The companies took different approaches to the challenge but it seemed important to consider both aspects in production: to ensure the product has a place in the market and creates something valuable for the user.

STRATEGIC PARTNERSHIPS

Some of the companies sought advantage through strategic partnerships. These include publishers and freelancers as discussed earlier, and other game development companies and intellectual property owners. Regardless of the partner, it seemed important the company built a relationship with them.
One of the more influential partners seemed to be a brand, intellectual property owner. It was emphasized that the collaboration with a brand requires careful and constant negotiation to ensure the features, characters, assets, and tone of the game are aligned with the intellectual property. There are mutual interests in this partnership. The quality of the game maintains the value of the brand and brings them revenue. The developer can leverage the aesthetics of the game in order to differentiate, gain visibility, and acquire users which effectively decreases marketing costs. Furthermore, it may be possible for the developer to find support from the wide networks of the brand that often extend beyond digital products.

Partnerships allow the companies to complement and extend their competencies, and find unique advantage in the market. However, they are also trade secrets and some companies avoided discussing the topic which limits the degree they are examined in this study.

REFLECTING ON THE FINDINGS

Now that the companies have been contrasted with each other it is time to examine the findings in terms of the industry review. Considering both sources of information, it seems the practices in mobile game development are not very well established. There are considerable differences between the companies in their approaches towards development. While there are considerable differences between the companies, there are some practices that seem to be increasingly adopted. The structures and processes of the company seem to grow more elaborate as they mature. These practices aim to evaluate and ensure the financial validity of the service through preproduction efforts, iteration, and testing: the company decisions are increasingly rationalized. Let us consider these aspects in detail.
THE COMPANY STRUCTURES SUPPORT DEVELOPMENT

As mobile game development companies mature, they form more structures to manage their operations, iteration, and learning, and they shift their attention from products to services and business. This company level finding is in line with the broader, industry level development described by Tschang (2007). As the game industry – and the companies within it – matures, they seem to lean towards rationalization in business and production. Many companies use incremental innovation in established game genres to manage the risk related to the release of the game. Understandably: radical innovations are far more likely to fail than the incremental ones (Norman & Verganti, 2014), perhaps even more so in environments with established conventions that guide user expectations.

At the same time, there is always room for creative content in the entertainment industries, Peltoniemi (2008) claims. This leads to a tension between two forces: On one hand, player conventions and business realities guide the company towards incremental innovations. On the other hand, players expect creative content, and the creative aspirations in the company may guide them towards more radical innovations. The companies resolve this tension in various ways. Some dismissed innovation completely embracing incremental improvements, others embraced innovation. This finding is aligned with the different attitudes towards innovation described by Kultima and Ahla (2010). Overall, it seems there is no common, shared practice regarding the degree of innovation.

Interestingly, the innovation of the company was not limited to their games. It was also a part of the processes and structures that facilitated the productions. Some companies innovated on their business model as Amit and Zott (2012) describe: they actively sought new avenues to market their game, to create value to their players and reach their audiences. Innovating on the business model seemed especially valuable for small companies who can use their creativity to overcome some of their financial restrictions and leverage their agility as an advantage.

As the companies matured, their processes and structures developed which seemed intuitive and natural. Similar developments have been earlier
described, for instance, by Churchill and Lewis (1983) in their paper examining the stages of company development. Sutton (2000) describes how the less mature companies focused on establishing their position. It was found that this was more effectively done through flexibility and prioritization than strict structure. In other words, the smaller and younger startups were more engaged in effectual, entrepreneurial thinking as described by Sarasvathy (2001). They did not necessarily start the project with a specific goal in mind. Rather, they leaned on the assets, knowhow, and partners at their disposal in order to imagine the possibilities they could create – and agile approach.

Similar descriptions are found in the software literature as well. Paulk, Curtis, Chrissis, and Weber (1993) have created an elaborate model of software process maturity. They describe how more mature organizations pay more attention towards user satisfaction, and leverage their experience can create realistic schedules and budgets. While none of the interviewed companies used heavy structures in the productions, there was a trend from ad-hoc operations towards more manageable processes within the companies.

INSUFFICIENT ITERATION AND TESTING WAS A COMMON PITFALL

The companies varied in the extent they engaged in iterative design practices. As we remember, the iterative loop includes three parts: design, test, and learn. The extent of testing reflected the amount of iterative practices. A game cannot be made without design but testing can be cut, and with the testing cut, less attention is paid to the evaluation of the design.

The companies interviewed were operating in a similar fashion as described by Kasurinen and Smolander (2014). They found that testing in game development companies was not very structured or planned in nature. The aim of testing was primarily to improve the user experience of the game, the companies were prone towards reacting to the customer feedback, and
they would make even considerable changes late in development. However, it was found that some of the companies had tested their game too little or too late which led to challenges in development. It seemed the companies were more prone to engage in internal than external iteration as described by Kultima (2015). The companies who were working with designs for targeted audience seemed to pay more attention to the needs of the players. These findings contribute to the growing understanding in iteration in games.

Finally, the value of the game is with the user experience (Schell, 2014, Kasurinen, 2016), and in the way the user interacts with the service (Vargo, Maglio, & Akaka, 2008). The mobile game development companies based their understanding of this experience less on personally observed and qualitative understanding and more on the performance of the game measured through statistics. Some of the companies actively created hypotheses on the design and tested them on live audiences, and sought feedback from the audience. It seems important the company considers closely the practices they use to understand and develop their core value proposition.

Comparing the findings with analysis of game project postmortems, it seems F2P mobile game development has somewhat different challenges than the console and PC industry. For instance, none of the companies interviewed identified some of the most typical challenges in the console and PC industry: too ambitious project scope, extensively added features during production, or cutting features as documented by Petrillo, Pimenta, Trindale, and Dietrich (2009). However, there were also some similar challenges. Among them were challenges with insufficient testing, the projects often took longer than expected, and their planning was sometimes insufficient.

Not testing the product and ensuring its value with the users seems a common, even a grave mistake with startups (Ivicevic, 2016, Giardino, Wang & Abrahamsson, 2014), and game developers (Petrillo, Pimenta, Trindale, & Dietrich, 2009). At the same time, testing seems to be among the best practices in the field (Washburn, Sathiyantarayanan, Nagappan, Zimmermann, & Bird, 2016). The industry leaders create a great number of prototypes, test them extensively, and kill a great number of products to find
the gem (Graft, 2016, Telfer, 2014). The games most appreciated by the players seem to be based on a deep understanding of the user needs (Murphy-Hill, Zimmerman, & Nagappan, 2014). It seemed that as the companies matured they grew to appreciate iteration more, they leaned towards prototyping, and creating and testing minimum viable products in soft launch.

“The industry responds to the intense competition by compressing preproduction into the shortest period of time possible. There is no hype, celebration, visibility, or honor in the game industry as a whole for preproduction. In my opinion, everyone would make a lot more money if instead of 3,000 game projects being launched a year, 4,000 or 5,000 game projects could receive two to nine months of preproduction and get cancelled, and only the top 400 to 800 would get produced and released. Publishers’ net revenues would be five to ten times higher if their hit projects were not bogged down by four to ten failed projects.”
Bethke (2003)

Generally, the interviewed companies seemed to have little passion towards preproduction. Yet, the most considerable challenges with the productions were related to testing of the initial concept, aligned with the description of Bethke (2003). As the companies matured, there was a constant trend towards increased attention to planning and testing but the concept of preproduction wasn’t mentioned. Rather, the companies emphasized market understanding, benchmark games, player understanding, prototyping, killing early, and soft launch, for instance. This may reflect the cultural shift from waterfall towards agile methodologies, and related changes in the nomenclature (Cobb, 2015).
THE COMPANIES MOVED TOWARDS A BUSINESS FOCUS

As the companies matured, they paid more attention to the business aspects in production. They considered the market and the industry dynamics closer (Porter, 1980). Perhaps acknowledging the highly competitive environment led them to seek arguments for their business activities. On the other hand, they often had a more comprehensive understanding of the industry which enabled their reasoning.

As the companies turned their attention to the rational business arguments they seemed to pay less attention on the creative influences. Some of the companies clearly sought to serve a certain target audience not catered to by current products, or they aspired to answer to unmet needs in the market as described by Christensen (1997). Others were even more ambitious. They aimed to affect the whole market and mitigate their competition by creating new genres – aligned with the blue ocean strategy by Kim and Mauborgne (2005).

Regardless of the argumentation, it seemed the maturing companies were engaged in a more rationalized reasoning for their operations and services. Market intelligence, player understanding, and iteration were some of the tools in this regard. The companies leveraged their competencies to create educated guesses, hypotheses, they could test and validate on the users. This way, the companies were able to manage the risk with the design and business.
THE DPS MODEL

“When you can survive in the competition and bring in games with increasing knowhow, the chances to succeed increase all the time – at least according to some perspective.”
From the company interviews

The Design-Process-Stakeholders (DPS) model is a practical framework for F2P mobile game development. Based on the synthesis of the industry review and the practices of the interviewed companies the model describes the elements the company should consider in development. Furthermore, the model guides to the production: embracing iteration, the model suggests the team and the company should continuously focus on evaluating testing, and improving the design in interaction with the identified stakeholders. The model is presented in the Figure 19.

The three columns of the model map its three key aspects. The column on the left-hand side describes the key elements of a F2P game. The column on the right-hand side maps the network of stakeholders of the design. The middle-column, processes, describes the interaction between the two. The processes act as an intermediary, a way in which the design can be validated and improved in interaction with the stakeholders. This is represented as horizontal movement.
In the next subchapters, the model is examined one column at a time. Then, the model is reflected on in the light of the industry review and interview findings.

Figure 18: The DPS model of F2P mobile game development
THE DESIGN

The DPS model suggests four approaches and perspectives towards the artifact created. The value of the game is in the experience it creates to the player through its content. To create value both for the players and the company, it is important to engage the players with the game over time and convert them to paying customers (see Figure 20). The development team and the company should consider these four from the very early stages of the project bearing in mind they are highly integrated: changing one of them affects the other three.

![The elements of a F2P game](image)

*Figure 19: The elements in F2P design*

The game is a platform that creates experiences as the players interact with it. These hopefully positive experiences form the core value proposition
for the players. However, the designers should confirm they are actually creating the experiences they aim to. The more different the target audience is from the developers the more surprises can be expected: the frame of reference through which the players interpret the game is considerably different and they may use the game in unanticipated ways.

As the core value of the game resides in the experience of the player it is vital to seek insight into them both proactively and reactively. Proactive initiatives look in to the future. They include, for instance, evaluating the features of the game with other designers and live audiences. Reactive approaches examine events occurred. They include, for example, improving the features of the game through user feedback and statistics. Examined in other terms, both objective measurements and subjective statements are needed. The objective measurements may act as key performance indicators with which the product performance can be evaluated while the qualitative data can give deeper understanding on the features of the game. Creating this understanding is essentially creating understanding on the game itself.

The content of the game regards the tangible assets that enable the player experiences to be created. The content of the game includes its technological execution, its rules, characters, and aesthetics, for instance. It is important to acknowledge this content is affected by all of the stakeholders. The company observes the industry, market, and media to gain insight into the current trends and opportunities. Ideation, innovation, and creativity are leveraged to create design hypotheses to be tested. This testing can only be done in collaboration with the stakeholders who help evaluate and validate the design.

The content of the game creates a context of meaning for the player contributing towards the player experience. Essentially, the game creates value for the items, characters, and levels in the game through its mechanics, aesthetics, and story. This value can be used to create needs for the players, and these needs can be satisfied with products sold in the game whose value is ingrained in the game system. When the content is found valuable and meaningful by the players they are more likely to react positively to it – and pay for it. This also avoids creating monetization designs that feel superficial and may deteriorate the game experience.
Effective monetization considers the long-term value the game creates. It is not based on manipulation and coercion that drives the players away. The player can easily turn towards a competitive title – especially in the first weeks when the social and cognitive switching costs are low and alternatives plentiful. There are more profits to be gained from creating designs that become a habit, a hobby. This requires developing a platform that can maintain relationship with the player over time: what keeps the player coming back for more?

It seems retention in F2P mobile games is driven especially by two forces: social features and the long-term goals of the game. Friends, teams, and guilds engage the players with each other creating a platform for emerging social interactions. At the same time, the game should offer the player challenges: upcoming updates, event structures, and timer mechanics provide content the players can look forward to and discover over time. The long-term goals and the meta-game give the game direction, purpose, and meaning: each core loop strives towards a higher goal. When the players find the core loop of the game positive they are likely to aim towards the meaningful goals the game provides. These goals have their value integrated deeply into the mechanics, story, and aesthetics of the game.

In conclusion, F2P mobile game design strives to create a service the players find valuable and engage with over time. The sometimes unanticipated experience of the player is at the core of this interaction: by creating value to the players the game can retain the players and convince them to pay for the content. The challenge for the developers is discovering the features that create value for the players – which is discussed in the next chapter.
THE PROCESS

In the DPS model, the term process is used to describe the structures and conventions that enable the company to develop the design in interaction with their stakeholders. Notably, the company is considered its own stakeholder as the members of the team interact with each other and the design. The processes strive to improve the design, the relationship with the stakeholders, and strengthen the competencies in the company.

It is suggested the key process in a mobile game development company is iteration. In the DPS model, iteration is structured in four phases (see Figure 21): The company creates understanding of the industry, market, and the players, and uses it to make an educated guess on the features of the design. This hypothesis is tested with the stakeholders, and evaluated through data gathered. Finally, the data is reflected on in order to create a more solid, deep, and holistic perspective on the design.

Iteration is especially useful when the company is operating in an unknown territory: 1) the company is innovating on features, aesthetics, mechanics, or their combinations not previously validated in the market, 2) the company does not sufficiently know their target audience, and their preferences, motivations, and conventions in advance; or 3) the company is creating the game in collaboration with a partner such as a brand. While the projects may differ in their innovativeness these factors are present to some degree in nearly all game development projects. Where they are present, iteration can be used to create context-sensitive understanding that has clear implications with the design.
Let us start examine the four phases of the loop in detail. Creating understanding may seem vague but it has a practical goal: to create a hypothesis for the design. Several complementing sources of information can be leveraged: personal experiences, fairs, contacts, focus groups, conferences, interviews, and online journals, among many other sources. Synthesizing this information the company can create a number of potential designs to test, or evaluate the existing features in production. As a basic principle, the earlier the better. The earlier the design is tested the easier it is to make changes to it or pivot towards a design with more potential.

Evaluating the design seeks to falsify it – not to confirm it. There is much more strength in falsification: any number of positive findings only maintain the hypothesis but even one finding against it might break our expectations, lead to learning, and thus considerably improve the design by addressing its key challenges. Falsification also seeks to counterbalance our tendency to confirm our existing beliefs. We need to consciously test and
evaluate our beliefs regarding the design to avoid basing it on faulty assumptions.

Generally, the challenge with information is not its scarcity but the fact there is so much of it. This is true for testing as well: you can test everything losing the focus and the vision of the game. Perhaps more often, the practically endless possibilities in testing may lead anxiety, avoidance, and insufficient testing. This requires a careful balance. It may help to bear in mind that testing is goal-oriented and seeks to create a testable hypothesis with clear implications. It is a tool to prioritize the production and focus the development efforts.

Knowing what to test requires meta-knowledge: a perspective towards what is important in the design, what is known, and what is not. For a designer, this requires both trust in their own skills and openness towards changes and learning; humility towards the fact that they are an expert but that there is a limit to their knowledge. This is also a cultural issue with the company. Testing is facilitated by an environment in which it is acceptable, even expected, to make mistakes. They are a powerful tool in learning.

After the hypothesis is created the company should evaluate the sources of data needed to answer it. A man with a hammer sees a world full of nails – the broader the company repertoire in information gathering the more accurately they can answer the questions proposed. Statistical metrics offer unbiased observations in player behavior but lack depth in understanding the human experience. The qualitative methodologies may provide deep insight and explanations but are more subjective and sometimes biased in nature. The company should closely consider the data they need to falsify their hypothesis.

When the data has been gathered the team should focus on reflection – a step perhaps most easily forgotten. Yet, it is reflection that gives meaning to the data. It is an active process in which the hypothesis, the data, and the design are evaluated, and a link between the existing understanding and new information is created. This should open up new avenues to explore, enrich understanding in the design, and lead to clear implications with it.

The iterative process occurs on several levels simultaneously (see Figure 22). On a tactical level, it serves to improve upon the features of the
design in development. On a strategic level, the designs created can be evaluated and reflected on their business potential which may lead to considerable changes on a production level. On the highest level, iteration serves to develop the competencies of the designers, the team, and the company. It guides the company towards continuous learning and reinforces the relationships with the stakeholders.

![Learning]

**Learning**
Developing the company competencies

![Strategic]

**Strategic**
Production-level decisions and pivots

![Tactical]

**Tactical**
Decisions related to the features of the game

Figure 21: Iteration occurs on several levels

In conclusion, the DPS model views that “what” is designed is the function of “how”. The company should constantly seek to evaluate, falsify, and improve their designs in interaction with their stakeholders. It is proposed that iteration is one of the key process in this regard. It is a flexible and goal-oriented method of designing and organizing productions that guides towards constant learning.
THE STAKEHOLDERS

Mobile game development, as many other efforts in service design, is closely related to the questions by whom, to whom, and with whom. These parties affected by the design can be mapped in a network of stakeholders (see Figure 23). They include the company itself that creates the design and acts as a negotiator between the three other groups. The players interact with the design and their behavior, in the end, determines the company performance. The company partners affect and collaborate on creating the design. The industry shapes the design through the existing conventions, trends, and competitive products – and often the finished design becomes a part of the market it was influenced by.

![Figure 22: The four stakeholders of a mobile game development project](image)

The iterative practices ensure the interaction with the stakeholders contributes to improving the design. One of the key stakeholders in this regard are the players. Through iteration the company ensures the design is appreciated by them. However, this may also be more of a two-way interaction: the players are collaborators who interact with the company to improve the design. This may empower the players and the community which contributes towards the long-term reputation of the company.

Besides the players, the company interacts with their partners and the industry who impact the game in different ways. The industry provides the
company with an environment they are operating in. The current games affect the player conventions, their expectations, and their taste in games. The industry itself is affected by the broader trends in technology, culture, politics, and media. By understanding the opportunities and limitations of this environment the company can rationalize their design and business decisions, and seek to test them.

The partners of the company have a more direct influence on the game. They are freelancers, publishers, and brands that collaborate to create the design and complement the competencies of the company. Their impact on the design may be more or less direct, and it is the task of the developers to ensure the development efforts are coordinated.

In conclusion, the project stakeholders affect, create, and collaborate on the design. The task of the company is to negotiate between these influences to create a design that creates value to the players – and revenue, among other assets, to the company and possible partners. Iteration and other processes of the company structure this interaction throughout the development.

REFLECTING ON THE MODEL

The DPS model is an integrative framework of the contemporary practices in mobile game development and production. It describes four elements of a mobile game design that can be improved through iteration with the stakeholders. It aims to be applicable in both operational development and on a strategic project-level. Stating the obvious, the model is ambitious in scope. In this subchapter, it is examined and reflected on.

There were several reasons for choosing the four elements in the F2P design. Earlier, monetization has been identified as one of the distinct features of the mobile game industry (Alha, Koskinen, Paavilainen, Hamari, & Kinnunen, 2014), and its importance was emphasized in the findings.
Many of the companies interviewed found it challenging to integrate F2P monetization with the core of the game which affects the long-term engagement with the game. The connection between retention and monetization was also emphasized in the ARM funnel: only a part of the acquired users brought revenue to the company.

Considering the game as an experience comes both from the industry observations and company findings as discussed in the previous chapters. This approach emphasizes the importance of the interaction between the game and the player which is also important considering game as a service. Many of the interviewed companies were moving towards in this direction which seems fruitful considering F2P monetization requires the company to maintain a relationship with the user. This is aligned with the thoughts relating to service-dominant logic as described by Vargo, Maglio, & Akaka (2008). They, for instance, emphasize the value of a service is created as it is used.

As discussed earlier, the importance of iteration was found by the companies and in the industry review. Ries (2011) emphasized the importance of build-measure-learn loops with startups. He found them a valuable strategic business tool and a method of learning. Meanwhile, Schell (2014) has described their importance on a tactical level in game development. The DPS model continues building on these works taking an integrative approach leveraging iteration both as a tactical and strategic tool in design and learning.

The aspirations of the DPS model to develop company level competencies echo the thoughts of Senge (1990) in his seminal book *The Fifth Discipline*. In it, he describes the five disciplines of a learning organization: personal mastery, mental models, building shared vision, team learning, and systems thinking. The DPS model is aligned with the five: it guides the team to honestly evaluate their mental models and enrich them through interaction. The iterative practices guide the team towards constantly sharing, updating, and creating a shared vision of the game, and learning while doing so.

Active reflection was found one of the most important concepts in the iterative process. It stresses the importance of critically evaluating the
design which was one of the challenges identified with the companies interviewed. Reflection is vital in constructing knowledge and goal-oriented learning (Ries, 2011, Pekkola, Hildén & Rämö, 2015), especially in complex environments (Senge, 1990) such as mobile game development. Because reflection is often dismissed, Pekkola, Hildén and Rämö (2015) suggest a roadmap for companies to gradually adopt more sophisticated practices in it. It seems there is growing awareness in the importance of reflection in organizational learning, and the DPS model supports this development.

The design process was framed to occur in interaction with the stakeholders. The importance of the team is widely appreciated in the previous models on game development (Bethke, 2003, Schell, 2014). However, it seems the company stance towards the players is shifting as games move from being products to services. The players becomes a more active partner, a collaborator, along with the networks of the company as Prahalad and Ramaswamy (2000) describe. The importance of the industry as an environment for operations was found in the industry review, and through the findings it seemed the maturing companies were growing more aware of the laws governing it. Overall, the elements designed are closely related to the company stakeholders but the nature of the company interaction with them requires more attention in future studies.

The model was created a practical tool – but how practical is it? The breadth of the model makes it less precise, and it is up to the companies to identify which structures would most facilitate their productions. While the model lacks specificity in this regard, it is practices what it preaches, and guides the companies and the teams to critically consider, examine, and reflect the degree to which they iterate. This is also intended as a responsible stance: the company has to construct their own understanding. The model guides them to pay attention to the most important elements in the design, to the development practices, and the collaboration with their stakeholders.

It is also worth considering what the DPS model is not. The technological development, game design, and graphical execution of the
project was abbreviated to “game content”. These areas were not within the scope of the model, and they have been earlier explored (Bethke, 2003, Schell, 2014, Rogers, 2010). This is not a value statement. The DPS model does not seek to downplay the importance of technology, design, and art – it seeks to cultivate them by validating them and creating a business with them.

The DPS model is not a description of the company business model. It does not consider such factors as development costs and revenue – crucial factors for any business! In this regard, the company could turn, for instance, to the business model canvas (Osterwalder & Pigneur, 2010). Also, the tools of the industry and market analysis were not comprehensively covered. The model described how the industry and market understanding should be approached and related to the design. Finally, the model complements and extends on the project management practices. Aligned with the recent developments in this field described by Cobb (2015) the model encourages a balanced stance between planning and agility.

In conclusion, the DPS model delivers on the themes of the study, and establishes a fresh approach towards the practices in F2P mobile game development based on interviews and literature review. The model stresses the importance of stakeholders and views games as collaboratively designed services. It encourages the companies to consider the importance of iteration on a tactical and strategic level while reminding iteration is a tool in continuous learning.
CONCLUSION

Taking a bird’s eye view, this study found a competitive industry easy to get into but difficult to succeed in financially. The common practices in mobile game development point towards creating and maintaining a relationship with the player for whom the value lies in the engaging experience games create. This was related to a shift towards developing games as a service.

Iteration was found among the most important practices in the development. It was used to validate the design and ensure it was found valuable by the players. Iteration helped manage the risk related with the release and rationalized the business-decisions of the company. It was not a magic bullet but could help the company avoid some of the common pitfalls in development. Also, iteration facilitated learning, increasing the company competence in mobile game development.

As the study approaches its end, it is reflected on in order to evaluate its strengths and limitations. This examination also explores the questions the study opened up for future inquiries. The study concludes by discussing the domains in which it can be leveraged in practice.
REFLECTING ON THE RESEARCH

There are limitations to every study – and as many qualitative examinations, the work opened up stimulating topics for follow-up studies. These topics are examined in this chapter.

The interview protocol seemed rather comprehensive but could have explored some aspects in more detail. These include the management methods, practices in project management, the documentation of the design, the game’s financial performance, and the tools used in communication within the company. Also the reflective and testing practices could have been explored more deeply as the understanding on their importance grew throughout the project. These topics could have contributed towards understanding the practices in development, interaction within the team, and the relationship between the team and the company.

It should also be noted that the findings of the study are based on the perceptions of the managers which might affect the results. In future, it could be fruitful to extend interviews to the developers working directly with the game to explore their perspective.

Should there have been more resources the study could have investigated the development practices through observation – to understand them in practice. There are always differences between the interviewees’ interpretation and explanation of the practices, and how they manifest in everyday development. Observation could have improved the validity of the results and could be a research approach in the future, should the companies consent to it.

One of the most surprising findings in the study was the considerable differences in practices between companies in different stages. The startups were in a very different position than the more established companies. Would this have been anticipated the company practices and management systems could have been discussed in the interviews more thoroughly and examined in greater detail in the industry review.

The games of the companies were briefly touched upon but not examined in detail. Yet, they are the culmination of the company
competencies and practices in development, and thus a vital source of
information. The future research could use them to examine how the
companies engage in iteration in practice. Examining the evolving builds of
the game it could be uncovered how the companies actually react to the
feedback they receive.

There are numerous questions open in regards to iteration. Both the
extent of iteration, but also when it is most useful in the production, could
be explored. The effectiveness of iterative practices could be evaluated in
terms of game performance and revenue. This quantitative approach could
help understand the extent iterative practices impact the commercial success
of the game.

The sample size of nine companies seemed to reach a point of
saturation, and it is reasonable to argue it is representative of the aspiring
mobile game companies in Finland. The companies had very different
profiles, they were in different phases, and their release histories were
considerably different: factors contributing towards rich data, one of the key
strengths of the study. However, the interviewed companies did not include
large or highly successful companies – their practices were only partly
examined in the industry review.

While the interviewed companies created a diversified sample they
were undoubtedly Finnish. They were all, more or less, influenced by the
Finnish game industry and its culture that values the exchange of
information. Considered in the light of the industry review, it seemed the
interviews were aligned with the international trends and practices.
However, among the most important next steps is to examine the findings
and the DPS model internationally. It is assumed this would lead to changes
rather small or moderate than considerable in nature – but you can always be
surprised when you test a design with target audience foreign to you. It is also
valuable to examine the transferability of the model to the PC and console
industry where the shift towards service orientation is also present.
IMPLICATIONS

There are some who view game development is much about luck. It is true that the game industry includes several unanticipated, unforeseen, even unlikely success stories. One of the games that went viral is Flappy Bird gathering 50 million downloads in a month. Still, it is difficult to pin down what led to this success. The best guesses evaluate it was due to certain unique circumstances, luck, and the drive of the social media – factors that effectively cannot be controlled and replicated by the developer (Warren, 2014).

It is important to avoid falling prey to the survivor bias. At the time Flappy Bird was released, there were literally tens of thousands titles that did not make it. Yet, even if the game industry is less predictable and more risky than many other industries there are companies that are able to reproduce their success: they have higher competence in designing and developing mobile games than other companies. This observation is more than mere hindsight: it predicts the company performance with a certain factor. Luck cannot be controlled but the company competencies and practices in creating games can.

The findings in the study and the DPS model raise awareness of the iterative practices in production, service elements in design, the importance of monetization design, and interaction with the stakeholders. Besides contributing towards the value proposition of the game, these practices also seem to lead towards increased learning in the company.

The findings and the DPS model seem especially useful for two target groups: young mobile game development companies and game development teaching. Currently, there are not many programs in the world that would teach specifically F2P mobile game development even if the industry is growing. Game development teaching may also be product-oriented which risks the aspiring game developers to encounter similar pitfalls as described in the study. The DPS model could be applicable in project-based, multidisciplinary F2P mobile game development teaching that stresses the importance of entrepreneurship and business. Reaching the startups through
the universities and incubators, the model could facilitate their rate of learning.

The DPS model is an act of research-based design, a tool for companies to use. It explores some of the most important aspects mobile game development companies should consider in the young and rapidly developing industry. To live up to its name – and to avoid hypocrisy – it is given out to be tested, validated, and iterated on. The degree of its usefulness is found in the field, not in a laboratory. This is the soft launch of the DPS model.
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APPENDIX 1: INFORMATION REGARDING THE RESEARCH AND INFORMED CONSENT

The Name of the Research
Leaning on the strengths. How mobile game development companies leverage their strengths to create differentiated products in the highly competitive market

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Participant to the study
Name: 
Email: 
Phone: 
Company: 
Position in the company: 
Game to be discussed: 

Purpose of the Study
The mobile game industry has developed rapidly in the past years. Currently, it is not sufficiently understood how game development companies identify, develop, and utilize their strengths.

The study uses comparative case study methodology to identify and compare the key strengths of small and medium-sized game companies. In addition, it is examined how these strengths are leveraged to creating compelling games that offer value to the customer and stand out in the highly competitive market.

This study contributes towards growing understanding of mobile game development and strategic management. It seeks to improve the decision-making in game development companies, help optimize resource deployment, and contribute towards crystallizing company vision.
Study procedure

Participants: The unit of analysis in the study is a company. The companies participating in the study are currently active in development and have experience in publishing games: they have released at least one mobile game for Android or iOS. To ensure the reliability and validity of the study, the participant should have holistic understanding of the company and the game published.

Interview process: The interview guides the participant to reflect upon the company and its strengths through a recently released game. The interview takes roughly 1.5 hours. According to the participant preference, the interview will be held in either Finnish or English.

Recordings: In order to facilitate the analysis, and to ensure the validity and reliability of the research, the interview will be recorded. The recordings will be transcribed by the researcher. Unless the participant indicates otherwise, quotes from the interviews may be used in the following publications to illustrate the cases.

Storing data: The data gathered will be stored password protected on the personal computer of the researcher. The data will not be given to third parties without explicit consent of the participant. Third parties do not include Aalto University employees who are evaluating the research.

Use of the data: The information gathered is primarily used in the master’s thesis of the researcher. Once finished, the master’s thesis will be published digitally and as a hard copy. The data may be used in future publications unknown at the moment.
Benefits for the participant: The participant is not compensated for their participation in the study. However, the reflection done during the interview may contribute towards growing human capital in the company. Once the work is finished, the participant will be sent a digital copy of the final thesis. In addition, the company is offered an opportunity to go over the results with the researcher.

Risks for the participant: It is evaluated there are no considerable risks for participating in the research. The largest concern for the participant regards confidential information. This is managed by voluntary participation throughout the study: the participant may choose how and which questions they answer, and they may withdraw from the study at any point. The research explicitly seeks to avoid any harm towards the participants and the companies they represent.

Independent research: This research is independent, and not commissioned by any entity in game industry or outside of it. The researcher is not working in any game development company.

Confidentiality
The participant may take part in the study either anonymously or with the name of the company and the name of the game discussed. The decision regarding anonymity does not impact the interview process. If the participant chooses to be identified, the company details may be used to illustrate the case examples in the research and publications. The participant is asked to indicate their decision by circling one of the options below. The participant may change their answer at any point without giving a reason.

The company and the game may be identified from the reports
  Yes    No
Voluntary participation and withdrawal
Participation in the study is completely voluntary. Should the participant agree to the study, their willingness is indicated by signing this letter. At any point of the research, the participant may withdraw their consent. They do not need to explain this decision. If the participants withdraws from the study after being interviewed, their data will be retracted from the study and destroyed.

Contact information
Any questions or concerns regarding the study before, during, or after the interview, can be addressed to the researcher. If there are questions or concerns regarding the research that the participant would like to discuss with another party, they may contact the supervisor of the research.

Informed Consent
By signing this from, the participant indicates they have read the information above and that their participation in the study is voluntary.

There are two copies made of this document, one for each party.

_________________________  _______________________
Date                          Signature of the participant

_________________________  _______________________
Date                          Lauri Lukka, researcher
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APPENDIX 2: INTERVIEW STRUCTURE

Personal details and overview of the company
1. Could you introduce yourself?
2. Could you tell me about your background and history in the game industry?
3. What are your responsibilities in your current company?
4. Could you tell me about the backgrounds of people working in your company?
5. If the previous information is lacking: Could you tell me about the history of your company?

Mobile game industry and market
6. How would you describe the current mobile game market situation and competition?
7. What current opportunities and threats are there in the market?
8. As a company, who would be your biggest competitors?
9. How do you strive to stand out from the competition?
10. How did the market situation effect the game developed?

Game development
11. Could you tell me how the idea for the game was conceived?
12. How did the skills, knowledge, and interests of the team affect the concept?
13. How big your development team was?
14. Who were your key partners in development?
Features of the game
15. What are the key features of your game?
16. Who is your game made for?
17. How did your game perform after release and why?

Related activities and unused potential
18. How did you market the game?
19. How did you interact with your players?
20. What unused potential is there in your company?
21. Is there anything we haven’t discussed but you would like add to this discussion?
The mobile game industry as we know it is ten years young, and a lot has happened in that time. The distribution of mobile games has centralized to digital marketplaces where the competition for visibility is fierce. The free-to-play business model has affected the practices in development. It has become increasingly important to design experiences that engage the players over time and monetize through the core of the game. The volatility of the industry has guided the companies to rationalize their decision-making as games emerge as a part of the service economy.

This study presents an overview of the contemporary practices in the mobile game development where the disciplines of design and business converge.

Furthermore, it introduces the Design-Process-Stakeholders (DPS) model that can be used to validate the value proposition of the game and ensure its business viability. The book is intended especially for aspiring mobile game development studios and as a resource in interdisciplinary game development teaching.