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THE ROLE OF PRODUCT MANAGER IN FREE-TO-PLAY MOBILE GAMING INDUSTRY

ABSTRACT

The purpose of this Master's thesis is to investigate how mobile game companies are trying to use the role of the product manager in their operations and how this role differs from the role of the product manager in the software industry. Traditionally, the product manager has been responsible for enabling the technical implementation of the product and maintaining the vision, but the research revealed that the roles differ somewhat across industries.

For the study, nine industry professionals were interviewed from a number of mobile games companies across Europe. The study was conducted as a semi-structured interview due to the prevailing Covid-19 pandemic via video link. All product managers interviewed agreed, among other things, that the product manager should be dedicated to prioritising and designing game features together with game designers. In contrast, the product managers interviewed were of the opinion that in the mobile games industry, the product manager should not necessarily be involved in user acquisition but should focus more on the aforementioned product development and the refinement and testing of its functionalities. In addition, the interviews revealed that, compared to the role of the software product manager, many of the tasks directly comparable to the role of the software product manager in mobile games were divided between the product manager, the producer, and the game lead, allowing for a clearer focus.

Keywords: mobile games, mobile gaming industry, product management, product manager, product

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Tämän maisterin tutkielman tarkoitus on selvittää, miten mobiilipelialan yritykset pyrkivät hyödyntämään tuotepäällikön roolia toiminnassaan ja miten kyseinen rooli eroaa ohjelmistoalan vastaavasta roolista. Perinteisesti tuotepäällikkö on ollut vastuussa tuotteen teknisen toteuttamisen mahdollistamisesta ja vision ylläpitämisestä, mutta tutkimuksessa paljastui, että roolit eroavat jonkin verran toimialojen välitse.

Tutkimusta varten haastateltiin yhdeksää alan ammattilaista useasta eli mobiilipeliyrityksestä ympäri Eurooppaa. Tutkimus toteutettiin semi-strukturoituna haastatteluna videoyhteyksien välityksellä vallitsevan Covid-19 pandemian vuoksi. Kaikki haastattelut tuotepäälliköt olivat yhtä mieltä mm. siitä, että tuotepäällikön tulisi omistaa pelien ominaisuuksia priorisoiminen ja niiden suunnitteleminen yhdessä pelisuunnittelijoiden kanssa. Vastavuoroisesti haastatellut tuotepäälliköt olivat sitä mieltä, että mobiilipelialalla tuotepäällikön ei tulisi välttämättä ottaa osaa asiakkaiden hankintaan vaan keskittyä enemmän juuri edellä mainittuun tuotteen kehittämiseen ja sen toiminnallisuuksien hiomiseen ja testaamiseen. Lisäksi haastatteluissa kävi ilmi, että verrattuna ohjelmistoalan tuotepäällikön rooliin, monet mobiilipelialla suoraan ohjelmistoalan tuotepäällikön roolin verrattavissa olevat tehtävät oli jaettu tuotepäällikön, tuottajan ja pelinvetäjän kesken, mahdollistaen selkeämmän fokusoitumisen.

Asiasanat: mobiilipeliala, tuotepäällikkö, prosessit, tuote, free-to-play

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1   INTRODUCTION

The mobile game market has grown tremendously during the past decade. It has surpassed both console gaming and pc gaming in popularity and is accounts for more than 57% of the total mobile gaming market (Barbour, 2021). While the industry is currently well established, the current state of industry began to form only after the release of the first iPhone, which revolutionized the practices in the mobile gaming space (Wright, 2009). The fast nature of the development has required the companies to adopt new practices, product management being one of these.

Originally from the software industry, product management is a practice that rose into prominence when live-service games started to gain a foothold in the game industry. People practising product management are called product managers (PM), and they are the people steering the ship called product. The decision made by them defines the future of the product. For a product to access new markets, the PM must know the intricacies of the market and take them into account when making decisions about the product.

In this thesis, we examine the role of a product manager in the free-to-play mobile gaming industry compared to the one originally found in the software industry. The research will be conducted by interviewing product managers from well-established free-to-play mobile gaming companies and comparing their tasks to the past research on the software industry's product managers.

1.1   Research Questions

The approach to the research topic needs to be narrowed down to achieve adequate results; thus, the following two research questions are used:

- How is the role of a product manager defined in the free to play mobile gaming industry?
- What are the key tasks of a product manager in the free to play mobile gaming industry?

At first, we need to answer the question "*How is the role of a product manager defined in a mobile gaming industry?*" This is since being a relatively new practice in the games industry, there is no existing research on the topic apart from one focusing on the software industry. For this, we are focusing mainly on a western approach to product management to have a reference point.

The second question delves deeper into the role of a product manager and focuses more on the tasks the product manager is frequently executing. This could include, for example, following the performance of the game, concepting new features, or prioritizing the features that need to be developed for the game.

1.2 Scope of Research

As the title of the thesis implies, this thesis will be scoped for the free-to-play mobile gaming industry. The product managers interviewed for the research will be chosen from well-established mobile gaming companies which have released at least one top-grossing game. This means that the company has been able to release a game, which has achieved a top 200 in the Apple AppStore or the Google Play store. The companies interviewed also will target western companies. For the software product management comparison, previous research will be utilized.

1.3 Structure of the thesis

In the first chapter, the motivation and layout of the thesis are being laid out for the reader. A short recap on why the topic was chosen is given, and meaningful information regarding the thesis is defined.

The second chapter focuses on the mobile gaming market. A brief recap on how the mobile gaming market grew to what it currently starts the chapter after the market classification is presented to the reader. The classification has been derived from classifications done by market-leading analyst companies. After the classification, the major stakeholders of the mobile gaming market are described

and analysed. This gives a great insight into the structure of the industry and allows the reader to understand what kind of stakeholders it contains.

The third chapter focuses on the practice of product management. The first definition of the role is defined as it is found from the software industry. Due to the similarities of gaming and software industries, this is used as a basis of the definition. The second subchapter has devoted the differences between a product manager, project manager and a product marketing manager are explained as the role of a product manager is often confused with one of these. After the definitions' foundations have been laid out, the differences between product managers in the software industry and the gaming industry are being examined.

In the fourth chapter, the design of the research is explained and explained to the reader. This includes the research method, target audience, the method of gathering the research, and how the research material was analyzed.

The fifth chapter is used for describing the results from the interviews. The results are categorized into four sections by the findings from the interviews. Each section is then divided into smaller subsections that all contain a single task or a product manager's responsibility.

The sixth chapter is reserved for discussing the results from the research. The results are compared against an existing product management framework made for the software industry. Practical and theoretical implications are also discussed.

Seventh chapter discusses the potential future research topics on the topic of product management in the mobile gaming industry, goes through the study limitations and finally closes the thesis with a conclusion.

1.4 Terminology

The mobile game industry is full of acronyms to shorten certain concepts so some of the more important ones are defined in here. Also, some other terms are defined in here which are not acronyms but equally as important. Not all the terms are used in the thesis, but to understand video game business, it is good to know these.

ARPDAU: Average revenue per daily active user, the average amount of revenue generated by player during the day they were active. Calculated as daily revenue / daily active players.

ARPPU: Average revenue per paying user. The average amount of money players who spent on a game on a given date. Calculated as daily revenue / revenue / number of players who spent during that day.

ARPU: Average revenue per user, the total revenue generated by a single player until certain date. Used sometimes interchangeably with LTV.

Core of the game: the core gameplay found in the game. In match-3 games, it is the matching of matchables and in base building games, it is the base building and attacking other people's bases.

Churn: The percentage of players who stopped playing the game for N days after a given date. Usually D7, D14 are used to measure churn. For example, a May 20th D14 churn of 10% means that 10% of the players who played during that day did not play the game anymore during any of the next 14 days.

CPI: Cost per install, the cost to acquire a single player to install the game based on advertising costs.

CPP: Cost per spender, the cost to acquire a single spender to the game. It is calculated as money spent on advertising/players who installed the game and spent money on the game.

DAU: Daily Active Users, the number of unique players playing the game daily.

DNU: Daily New Users, the number of unique players who have started playing the game on a given date.

IAP: In-app purchase, a consumable, usually cheap purchase that gives the player something to use in the game

LTV: Lifetime value. The total amount of money generated by a player.

Microtransaction: A purchase that is made inside a game or an app to make a digital purchase.

Meta game: The secondary game which is layered on top of the core of the game. For example, some puzzle games require players to complete match-3 levels (the core game) to decorate a house, with the decoration being the meta game.

Retention: Term used to indicate what percentage of players kept playing the game after N days. For example, the May 20th D7 retention of 20% indicates that out of the players that started playing the game on May 20th, 20% were still playing the game after 7 days on May 27th D7.

ROI: Return on investment. Used to calculate the value of advertising investment (In mobile games user acquisition context). Calculated as (LTV of a cohort) / (acquisition costs of a cohort).

UA: User acquisition, the act of acquiring users to a play the game through advertising.

2   MOBILE GAMES

In this chapter, we first inspect the growth of the mobile game market, what caused the relatively small industry to become the biggest one of its peers, compare it to the console and pc gaming market. After the market state is established, a look into the structure and taxonomy of the current state of the mobile game market is done. Lastly, the relevant stakeholders in the mobile gaming market are examined to give the reader a succinct insight to the industry.

2.1   The state of Mobile game industry

During recent years, the mobile game industry has kept growing along with the game industry. During 2020, the Mobile game market accounted for 57.2% of the gaming market (Barbour, 2021). The growth has been rapid, especially in Southeast Asia, where mobile gamers have grown from 148.8 million in 2016 to an estimation of 250.6 million in 2021 (Statista, 2021). The growth has been mainly driven by the growth of the available gaming audience as the ARPU (Average revenue per user) has grown only 20% from 2016 to 2020, much slower to the growth rate of (Hreninciuc, 2020). The growth of the mobile games industry is estimated to continue, whereas console and PC gaming audiences are estimated to more or less stagnate (Grand View Research, 2020).

2.1.1   From Angry Birds to Genshin Impact – growth of a mobile game industry

While mobile games have been a known phenomenon since 1997 when Nokia introduced the original Snake for its Nokia 6110 handheld (Wright, 2016),

mobile games rise to prominence began only after 2007 when Apple released the very first iPhone. (Wright, 2009) Mobile phone manufacturers such as Nokia and Blackberry had tried manufacturing touch screen phones, but Apple was the first to bring a product to the market that was easy to use and was relatively robust. This allowed mobile game developers to bring experiences to the handheld that were not feasible before.

While the device did not have an AppStore to download apps at first, it already made waves among the game developers many developers started developing games despite being unable to release them on the platform. In 2008, when AppStore, Apple's platform to provide developers with a means to distribute games and applications for iPhone, was finally released, many developers started publishing apps for this new platform (Jade, 2008). The very first games made for iPhone were either renditions of existing games such as Apple's very own 'Texas Hold'em' (Which was first killed in 2011 (Slivka, 2011) and then subsequently brought back for AppStore's 10th anniversary (Clover, 2019)) or puzzle games such as iDrops (Pocketgamer, n.d.). It was not until 2009 when a Finnish mobile games developer Rovio released a slingshot-mechanic based Angry Birds, which changed how the general public saw the mobile games and market around them (Rovio, 2019). After the release of Angry Birds, many other developers also released successful games, which are still fondly remembered these days and have seen remastered releases in Apple's game subscription service Apple Arcade (Paladin Studios, 2021).

The very first games, such as Angry Birds, were released with a premium model, which means the player needs to play upfront to play the game. In 2008 when the game was initially released, it was available only for Apple's iPhone. It was not until the Android release was done only in 2010 when the company decided to publish the game without a price tag but as an ad-supported version (Sterkenburg, 2010). This proved to be an extremely successful endeavour as Rovio was seen making over a million dollars a month from ads alone (Rosoff, 2010). This caused other developers to adopt the free-to-play (F2P) model, where the game is initially available to be downloaded for free but may contain in-app purchases or advertisements. This shift was swift, and soon the market was flooded with free games with microtransactions.

While Angry Birds was not the first game in the market to be free-to-play, due to its fame, after had established the F2P model, the number of freemium games surged in the Appstore. Games no more did have an upfront cost to play, and the barrier was lower than ever. This newfound business model allowed various F2P games to rise and become defacto market leaders. Games such as Candy Crush Saga and Bubble Witch Saga (King, 2021) were the forerunners of the new

monetization strategy and popularized the monetization of attempts instead of supporting the by ads or upfront costs. Now the gamers needed to pay real-world money to bypass timers to try the same level again after failing it. This new method of monetising was a massive success for King, which made almost $1.3 billion in yearly revenue, with the Candy Crush saga at the peak of its popularity (Curry, 2021). Other popular F2P mechanics that were popularized during the period were in-game currency, and build-timers found mostly in core games such as Clash of Clans (Graebner, 2014) and gachas or loot boxes, popularized by Dragon Collection (N3TWORK, 2018).

The success of these new free games did not go unnoticed by the press and media, and various news outlets wrote about the *"Soulless Video Games That Are Just Slot-Machines"* (Downling, 2014), compared IAPs to be like *"Selling candy to Babies"* (Stanton, 2014) or how the games *"want to get you hooked, then get your money."* (Williams, 2014). The press exposure and the need to prevent a potential led Apple to change the "FREE" button to read "GET" in the AppStore (Tweedia, 2014). Commissions on IAP purchases are a huge business for Apple since, at the moment of writing this, they take 30% of each IAP purchase made on their platform (Apple, 2021).

The mobile game industry grew, but the growth remained stable for the next couple of years. It was not until 2016 when two games that were going to shape the industry's landscape were launched. In July 2016, a global phenomenon called Pokemon GO was released (Pereira, 2016). The Augmented Reality (AR) game caught the world by storm, and for few months, it seemed like everyone was playing Pokemon GO as the nature of the game caused people to flood the streets to catch their favourite creature. While there has not been another as successful AR game, Pokemon GO keeps growing and in 2020 resulted in $1.23 billion in revenue and was the third best-grossing game that year (Iqbal 2021; Chan, 2021). Another game, perhaps not as widely known to the general public, called Gardenscapes, was also released that year and almost immediately took the top stop in the top-grossing category in the app stores. The game utilizes the same match-3 mechanic as Candy Crush saga but introduces a garden decoration meta game. The game's success spawned a considerable amount of other puzzle games with the main focus on the meta of the game instead of the core (Williams, 2019).

2017 was the year that saw perhaps one of the most influential games being released. Originally released only for consoles and PCs, Fortnite was an almost overnight success which with PlayerUnknown's Battlegrounds popularized the battle royale genre (named after the 2000 Japanese film Battle Royale (IMDb, 2000)). The genre, where a vast amount of players compete against each other in

a constantly decreasing area to remain as the sole survivor, became viral and inspired games, such as Brawl Stars which previously did not have the mode, to implement it with positive results (Tylwalk, 2018).

The latest trends as of 2021 in mobile games are user-generated content and story-rich single-player games with F2P mechanics. The popularity of games including user-generated content, was first popularized by Minecraft, but on mobile, the mantle goes to Roblox. The game allows players to create and play user-generated content and even monetize the creations so that the content creator will receive payments from the Roblox Corporation. While a relatively old game, it grew into popularity in only a couple of years while multiplying its yearly revenue twentyfold from 2017 to 2020 (Curry, 2021). On the other spectrum, Genshin Impact, which overnight became a massive global success and brought its developer over $1 billion in revenue in less than six months (Sensortower, 2021). The anime-styled and Zelda's Breath of the Wild inspired RPG required players to engage with a gacha to acquire new or better characters and weapons (Silvija, 2021). Joined with solid core gameplay and shallow barrier to play, the game amassed an enormous fanbase and subsequently the spot of the best performing game of 2020.

The future of the mobile gaming industry is uncertain, but as seen from the past, it will keep living and developing. User-generated content will most likely become increasingly relevant, and metaverses, where the player can engage with a multitude of activities could also become more prominent.

2.1.2 How do consoles and mobile compare?

While gaming has traditionally been attributed to console and pc gaming, the share of players playing only on consoles or pc has gone down throughout the years. Whereas in 2017, console and pc gaming accounted for around 50% of the revenue, in 2020, it was only 43%, totalling $74.73 billion. Out of the 43%, console gaming was the second largest segment with the annual revenue being $40.61 billion while pc was slightly behind with $32.12 billion in revenue

The growth of the market has, however, not been equal. Between 2019 and 2020, the overall gaming market grew 21.6% year-over-year, with mobile gaming growing 25% Y-o-Y, console gaming 21% Y-o-Y and PC gaming growing only 6% Y-o-Y (Palandrini, 2021). There are several reasons why the growth paths of these respective markets are so different, but the most crucial reason for the slower growth of the console and pc market is the market maturity. The first gaming consoles were released already in the seventies, and the so-called golden age of consoles was during the 80s when Nintendo Entertainment System (NES) was

released. This amounts to almost 50 years for the industry to develop compared to mobile gaming, which took off only in the late 2000s (Poh, 2021).

Market immaturity is one of the primary reasons why mobile gaming keeps growing so much year over year. The more mature console and PC gaming require dedicated devices to play the games and is more a luxury hobby. On the other hand, mobile gaming is much more approachable as almost anyone can play the games with the mobile phone, they already own. It is also considerably cheaper for a person in a developed country to access mobile gaming than console gaming due to console and pc prices not being linked to the country's GDP. Cheap mobile devices are instead being developed in developing countries for people to access the internet. This allows game publishers to approach millions of potential new players yearly as they get their first devices to play the game.

2.2   The Classification of mobile games

Categorizing mobile games varies from company to company and analyst to analyst, so for the thesis, a definition for different genres is required to refer correctly to the games adequately. The games are usually divided into three or four categories depending on who is inquired. Below, for example, are the high-level taxonomies defined by the leading mobile games intelligence companies, App Annie, Gamerefinery and Sensortower.

Mobile Game Taxonomies		
App Annie (2020)	Gamerefinery (Julkunen 2020)	Sensortower (2021)
Casual Core Casino	Casual Casino Mid-Core Sports & Driving	Casual Casino Mid-Core Sports & Driving

Table 1: Various mobile game taxonomies

The high-level taxonomies are relatively similar, with both Gamerefinery and Sensortower having the same high-level categories. Only App Annie provides a different view into the market, as they have combined Sports & Driving games into the Core category. Differences between Gamerefinery's and Sensortowers' taxonomies might arise in lower-level taxonomy. For this thesis of this thesis, App Annie's taxonomy will be used. Next, each of the high-level categories is defined and explained.

2.2.1 Casual Games

Casual games are defined as targeted at a large mass market and are relatively forgiving in terms of difficulty and time required to play them (Mäyrä, 2015). Casual games usually have a relatively low difficulty curve, and the difficulty is tuned to minimize player frustration to retain them in the game longer (Chiapello, 2013). Players often play casual games to pass the time, challenge themselves or competing against friends and teammates (Whitbourne et al., 2013).

App Annie categorizes the following categories as casual games: puzzle, racing, simulation, sports, arcade, hyper-casual, idle, kinds, lifestyle, and party. While some of these subgenres, such as racing and sports, can also be found in core games, the casual versions are tuned to be more forgiving and allow more frequent and shorter play sessions. Out of these major subgenres, the biggest, in terms of revenue and daily players, are puzzle, arcade, and hyper-casual games.

Puzzle games are the most profitable among casual games while accounting for around 13% of the total global mobile game market's revenue and 29% of western mobile games in 2020, and 66% of casual games revenues (Sensortower, 2021). According to a report by mobile games analytics company Aarki, 65% of casual puzzle game players are female, with most players being between ages 25 to 44 (Gasparyan, n.d.). Casual puzzle games usually advertise themselves to improve the cognitive abilities of the players, and this is what the players also claim to be one of the reasons to play the games, but the research around the topic is divisive, and no clear conclusion on whether the games improve cognitive abilities or not has been achieved (Souders, 2017; Chen et al., 2019).

The most popular type of puzzle game is a Match-3, where the player moves and matches coloured pieces in a play area while trying to achieve a level goal under a set number of moves (Gamerefinery, 2020). Match-3 games are primarily monetized by in-game purchases of +5 moves to help the player complete the level. Notable examples of this genre are Candy Crush Saga, Homescapes & Toy Blast (Gamerefinery, 2020).

Arcade casual games used to be the most popular casual genre, but their popularity has fallen after introducing hyper-casual games (Sensortower, 2021). Arcade games usually have noticeably short repeatable game sessions, with the focus being on fast-paced gameplay. Casual arcade games are often divided into shooters, runners, rhythm games and platformers (App Annie, 2021). There is not a single defining factor of a casual arcade game, but when compared to their core game counterparts (arcade core games), they are usually relatively easy to play and pick up. Major casual arcade games include Among us, Subway Surfers, Archero and Plants vs Zombies.

Hyper-casual games are a rising sub-genre of casual games. The genre is characterized by straightforward gameplay and relatively low difficulty curves, and they are designed for short sessions (Heinze, 2020). As with most mobile games nowadays, hyper-casual games are also free-to-play type of games. In contrary to how casual games are monetized, hyper-casual relies heavily on ad-based monetization. Their in-game economy is usually almost non-existent, and subsequent attempts require the player to watch an interstitial advertisement, which occupies the whole screen without player action required to activate them (Korman, 2021; Google, N.d). Due to the ad-monetized nature of the genre, hyper-casual games are also known for their ability to cheaply acquire users compared to other genres, allowing them to scale much more rapidly (Tenjin, 2018). This is caused by the advertising networks pricing players who only watch ads much lower than players who spend money on games (Radovic, 2019). The low CPI allowed hyper-casual games to account for nearly one-third of 2020's mobile game downloads (Sensortower, 2021).

2.2.2 Core Games

Core or mid-core games are more punishing and require longer and less frequent sessions from the player. In the mobile games space, the term "core games" refers to games meant for a more engaged gaming audience, looking for longer sessions, demanding gameplay mechanics, and deeper systems (Applovin, 2021).

Under the umbrella term of "core games" are grouped genres such as strategy, action, Role Playing Games (RPG), racing, shooting, simulation, and sports. While the genres on a first glance, do not appear to share any distinct similarities, they are defined by the fact that they are traditionally targeted to a more engaged audience (Fahey, 2015).

The most popular core game genre by revenue is Role-Playing Games, as it accounts for over 50% of the core game segment's global revenue (App Annie, 2021). In Role-Playing Games, the player controls a character or a team of characters and levels them up over a more extended period. While Role-Playing Games on mobile are usually a bit more constrained and most of the offerings available are much streamlined compared to role-playing games on other platforms, lately increasing the number of publishers has started to publish mobile-only role-playing games with relatively complex mechanics. An excellent example of this is Genshin Impact, an RPG game developed by miHoYO, which made over $1 billion in revenue in its first six months in the market (Sensortower, 2021) was previously unheard of for a mobile game.

Another primary mid-core genre is strategy, including games such as Clash of Clans, Age of War and Raid: Shadow Legends. (Sensortower, 2021). Strategy games require players to plan for the future, and they emphasize strategic, logistical and tactical challenges. Most popular strategy games belong to a base building subgenre, where the player builds a base and manages its resources while defending it against other players' attacks. (App Annie, 2021). Popular games from the strategy genre include Clash of Clans, Age of War, State of Survival and Clash Royale. (Supercell, n.d.)

2.2.3 Casino Games

Casino games are games that focus on simulating a casino experience in a virtual environment. The casino games usually mimic real-world games found from casinos, such as slots, blackjack, various card games and other games, which could be constituted as gambling. The genre is phenomenally successful in countries where real online casino gaming has been effectively banned, such as in the United States (Gamerefinery, 2021). Compared to real casino games, the player can't withdraw the credits they have won in the game but only use them to play more. Combined with the fact that the house always wins (Maverick, 2017), mobile casino games are an extremely lucrative avenue for various game developers.

While the casino games are usually mirroring their real-world counterparts, games that use the casino core but have a heavily gamified meta also perform well in the market. Take, for example, Coin Master, which combines the addictiveness of casino gaming with an easily spinnable slot machine and the simplicity of hyper-casual games. The meta is gamified, with the player required to update their ever-evolving village through different themes to earn more in-game credits (Moonactive, 2021). The marriage of hyper-casual and slot gaming has made the game one the highest-grossing ones of recent years.

The success of the casino games has not been left unnoticed by relevant parties. The gambling portion of both traditional and mobile gaming has been under intense scrutiny by both local governments and conscious consumers. In some states of the US, an online gambling has been ruled to equal to real world gambling, causing the providers of gambling games to constitute as illegal online gambling provides (Levy, 2018). This has led various game providers to change their game design to resemble less gambling or even block parts of their products from countries where mobile and online games resembling gambling have been banned (Orland, 2018). Despite the controversies, the future of online gaming remains undecided, but the amount on ongoing lawsuits does not bode well for the industry (Levy, 2018; Edwards, 2021).

2.3 Stakeholders in the mobile gaming market

The mobile game market is constructed of multiple stakeholders who interact with each other. The major stakeholders in the mobile game industry are developers, publishers, advertisers and players. While other stakeholders exist, these are minor, and most organizations might not interact with them ever. Below are listed the most critical stakeholders and their responsibilities.

2.3.1 Developers

Developers are the ones who participate in creating the games for the mobile market. Depending on the size of the game developing company, a single game can have from a few to hundreds of different game developers (Moore & Novak, 2010). Below is listed some of the typical roles found in the mobile game industry (Shylenok, 2019):

- **Game Designers** are tasked with designing the core mechanics of the game. Depending on the size of the game studio, one project can have one or multiple game designers. If the project has multiple game designers, each can be tasked with their respective areas, such as *event designer, weapons designer,* and *mechanics designer.* Other significant examples of game designers are *Narrative designers,* who oversee the narrative and any dialogue found in the and *Level designers* who oversee developing the levels for the game and making sure the flow of the levels found in the game is adequate, so the overall experience is enjoyable for a player.

- **Game developers** or **programmers** are the people in charge of bringing the ideas of the designers to life. They are tasked with programming the features designers have produced. Game developers usually do not focus on what the game is going to be but how the game will be, meaning they do not do any actual design work.

- **Artists,** as the title implies, oversee the art of the game. Artists can specialize to be *Concept artists,* who are tasked with producing an overall look of the game, *2D artists,* who create two-dimensional graphics, such as UI elements or in-game elements, or *3D artists* who are tasked with creating three-dimensional assets to be used in various parts of the game.

- **QA engineers** or **QA specialists** oversee quality assurance, which means they manage the game's testing and attempt to find any bugs the game developers might have introduced in the game. QA Specialists might also point out inconsistencies in the game designers' design.

- **The analyst** is a role that is not traditionally found in the games industry, but due to the amount of data, it is a role that is found in more and more mobile game companies. The analyst is tasked with understanding the data the players generate and providing reports to the product team of the game to help in decision making (Eldishnawy, 2019).
- **The Project Manager** or **Producer** is the person in charge of managing the development efforts. Their primary task is to be on top of everything going on within the development and provide assistance for anyone who might need it. If the project in question utilizes agile methodologies, the project manager organises daily stand-ups and weekly meetings.
- **Product Manager** is a role usually found only in the free-to-play industry of games. Product managers are tasked with prioritizing the features to be developed, together with analysts finding and solving issues in the game, communicating with stakeholders about the state of the game and providing benchmarks of the industry (Chapple, 2018). Product managers are usually the people responsible for the financial growth of the game.
- **Other roles:** Mobile Game development is now a significant business with over 86 billion yearly revenues in 2020 (Statista, 2021), so the number of other roles related to game development is also significant. Other roles include roles such as **User Acquisition Specialist** (Manages the advertising campaigns), **Audio Designer** (Handles the sound and audio effects), Creative Designer (Handles the production of advertisement creatives), Product Lead (Is financially in charge of the product and has the final say in product development), Product Marketing Manager (Handles the marketing efforts of the product outside of advertisement) and many more.

2.3.2 Publishers

Developers can also be publishers, but in the case of smaller developers, sometimes a separate entity manages the publishing of the mobile games. Publishers in mobile games function similarly to publishers in other industries. While the developers manage the game's development, the publishers are usually in charge of the marketing, customer support and gathering of data (Heinze, 2018). Publishers might also provide the developers with data points regarding the games they might not have had access previously and point them to potential market strategies. In some cases, the publishers might directly influence the game's development in terms of features or monetization mechanics.

2.3.3   Advertisers and advertising networks

Advertisers are increasingly essential stakeholders in the mobile game market since the number of games available in the market means that the acquisition of players is more complicated than ever. When mobile games first started to emerge, and the app marketplaces were relatively empty, a single great IP might have been enough to amass a large player base. While that is still technically possible, the amount of competition means that it is by no means an easy feat. To solve this problem, advertisers target users most likely to play the game and show them the most relevant advertisements. They do this by leveraging metrics from the game and attributing specific steps of the funnel to the consumer profile (such as "has spent money", "watches many ads", "is competitive"). This allows the advertisers to offer the publishers highly targeted players who will most likely perform as expected in the game (Nieborg, 2017).

However, the influence of advertisers might change due to the paradigm shift in the mobile games industry. Due to the increased focus on consumer security and privacy, various platform owners have started to decrease the number of data advertisers can retrieve from the player base. A significant example is Apple's change in managing the usage of the ID for Advertisers (IDFA). As Apple is strengthening their image as a privacy-conscious brand, they are no more allowing advertisers to access the IDFA of the player without their explicit approval (Apple inc., 2021). Various tests have estimated the opt-in rate to the IDFA to be around 40% (Scott, 2021; Rosenfelder, 2021) which understandably is much less than the almost 100% advertisers got before the change. Apple's proposed solution is to use their own advertising toolkit SKAdnetwork, which, much to advertisers' dismay, exposes much less information on the players' behaviour (Apple inc., 2020). This means that while the advertisers still are required to highlight the ads, the developers cannot trust the advertisers to serve the advertisements to relevant parties as well as previously. The deprecation of IDFA has been estimated to hit the worst of the games which rely heavily on high-spenders or high ad-watchers since the publishers will not be able to acquire that kind of users anymore as they could previously (Seufert, 2020).

2.3.4   Players

Players, also known as the users of mobile games, are the most critical stakeholders a mobile game has. The players are the lifeblood of a product since even if the game is the best, it is not worth the business if it does not have players. The F2P landscape of the mobile gaming market has made players very agile, and they can leave the game the second they deem it is not worth their time anymore.

This makes it extremely important to retain the player playing the game as the longer the player plays the game, the more they spend on it.

2.3.5 Other stakeholders

The mobile game industry also includes several other smaller stakeholders that can manage, for example, some distinct functions of mobile game marketing or function as a mediator between different platforms. External agencies, quality assurance providers, media studios, data aggregators and other stakeholders are often part of the game marketing and development. The amount of other stakeholders a game company interacts with depends on the size of the organization, and the smaller companies might not interact with any other major stakeholder outside of the publishers, advertiser, player trinity.

3 PRODUCT MANAGEMENT

In this chapter, product management and the role of a product manager are being examined. Next the difference between a product manager, a project manager and a product marketing manager is also briefly discussed. Last, we go through the existing definitions of the game industry's product manager and the role and processes found from non-academic sources.

3.1 Product Management

The rapidly increasing competitiveness in various markets has required modern organizations to produce solutions to better manage the products they are developing and come off victorious against multiple competing products. Product management is a discipline and business process that governs a product from its inception to its delivery. In other words, product management is used to prioritize features by the customer and organizational needs (Ebert, 2014).

According to the past research, for many organizations, not enough thought is reserved for the product itself but instead is spent on developing the technology behind the product (Ebert, 2012). The reason for this is usually the lack of a resolute product owner, which might lead to the product not being fit for the market as the development was conducted on the product, not for the product. The lack of product management or mismatched product management has also been found to be responsible for not shipping products in time (Cooper et al., 2014). By adequately defining the requirements of the product and positioning it for the market, an organization has a higher chance of succeeding in the market.

Product management itself is a practice that spans the entire product life cycle. Depending on the state of the product (Ebert, 2014), the product management might take part in defining the product and position it for the market or

plan the potential market entry for the product. For live products, the product manager oversees developing the product further.

Product management, however, is usually found only in large organizations, where the product plays a pivotal role. In a small or mid-sized company, there might not be a need for a product manager, and a product lead can handle the role's duties (PMBOK, 2001). However, as the organization grows and the responsibilities of the personnel increase, it has been advised that integrating product management in the form of a product manager in the processes can be used the maintain a healthy development of the product. This allows the smaller teams to leverage their strengths and build a product more agilely.

3.2   Product Manager

Product management is usually handled by a product team consisting of cross-functional teammates, which hold responsibilities for product management, product marketing, product analytics, user research, and experience (Aha!, n.d.). The integral member of this team is a product manager, who often holds the responsibility for product requirements, release definitions, product release lifecycles, creating an effective multifunctional product introduction team and implementing the business case (Ebert, 2007). Despite holding the title of manager, the product manager often does not have direct subordinates due to the need of the role to communicate without any impediments with other team members (Ebert & Brinkkemper, 2014).

The role of a product manager is often described as an embedded CEO or mini-CEO of the team (Ebert, 2014). They decide what next steps the product development team might do and discusses with various stakeholders, ranging from the team members whom they discuss the new features to upper management to whom they report the performance of the product and even with the actual customers of the product to understand the need of the market better. Due to the need for good communications skills, a product manager's role is versatile in how people approach it.

Product managers are often classified on three distinct skills: technical, design and business. As no organization is the same, the skillset of a product manager will differ from one to another. In more b2b oriented organization the product manager will be more business oriented, in an organization looking to find a market fit the focus can be more on the focus and a highly technical company will emphasize the technological understanding of a product manager (Chisa, 2014).

3.3 Software Product Management Body of Knowledge

One of the frameworks to describe product management is based on the Software Product Management Body of Knowledge and are shown in the table below highlighted in gray (ISPMA, 2021). The framework describes a holistic view on the responsibilities of product management based on the software industry. The duties and tasks of a product manager based on the framework are listed below.

Strategic Management	Product Strategy	Product Planning	Development	Marketing	Sales and Distribution	Service and Support
Corporate Strategy	Positioning and Product Definition	Product Life-Cycle Management	Engineering Management	Marketing Planning	Sales Planning	Service Planning and Preparation
Portfolio management	Delivery model and Service Strategy	Roadmapping	Project Management	Customer Analysis	Channel Preparation	Service Provisioning
Innovation Management	Business Case and Costing	Release Planning	Project Requirements Engineering	Opportunity Management	Customer Relationship Management	Technical Support
Resource Management	Pricing	Product Requirements Engineering	Quality Management	Marketing Mix Optimization	Operational Sales	Marketing Support
Market Analysis	Sourcing			Product Launches	Operational Distribution	Sales Support
Product Analysis	Ecosystem Management			Operational Marketing		
	Legal and IPR Management					
	Performance and Risk Management					
Participation	Core SPM		Orchestration			

Table 1: The software product management framework (Ebert, 2014)

3.3.1 Market Analysis

Market analysis is the act of researching the market the product is positioned in following the competitors (Day, 1981). The market analysis allows the product manager to understand what the competitors are doing. The dept of the market analysis depends on the state of product, but usually, the market analysis consists of understanding the industry, defining the target market, understanding the competition, and benchmarking the competitors' products (Parsons 2021).

3.3.2 Product Analysis

Product analysis is the act of analysing the product's performance, comparing it to the clients' expectations, and offering feature prioritization plans based on the analytics. While a product manager can perform this task, in some cases, it is performed by the business analyst (BA), who then reports to a product manager or another product based employee (Lazarevich, 2021). The product analysis usually means that the product manager will work with the data produced by the product they are working with.

3.3.3 Positioning and product definition

The act of product positioning includes but is not limited to defining the value proposition of a product, focusing the company on the potential target market of the product, defining which channels to provide the product through and forming partnerships and alliances. On the other hand, the product definition includes defining the functional and quality scope of a product, confirming the intended use and the users of the product, planning the UX scope and offering an architecture to work with (ISPMA, 2021).

3.3.4 Delivery Model And Service Strategy

Based on the product definition, the delivery model needs to address the type of the product is going to be (licenced product vs SaaS), the amount of tailorability of the product and the mode of delivery (ISPMA, 2021).

The tailorability means how modifiable the product is in the user's hands and how much they can, for example, change the product by changing parameters or rearranging elements. The mode of delivery on the other hand is focused more on the medium the product is offered. While the physical medium was more critical in the past, nowadays, it is focused more on how it is provided for the user. Via an online download, through a website or in addition to a subscription, for example (ISPMA, 2021).

3.3.5 Business Case and Costing

The business case and the costing could be grouped under the term fiscal management. The business case includes defining the product investment feasibility and the decisions to drive the product to achieve the intended outcome. This includes but is not limited to understanding various investment evaluation models such as NPV, ROI, Pay Back Time, the importance of the concept of Opportunity Cost and the necessity of identifying the alternative to an investment,

the concept of Cost of Delay and how time affects the business case for a proposed investment and various financial management objectives during different Product Life Cycle Stages (PLC) (ISPMA, 2021).

The costing, on the other hand, is usually divided into a two-step process. It includes defining the cost target and is referred it in the budget. This can be defined in money, resource allocation (headcount), or a mix. The execution of the project is then expected to be done within the budget. This is the responsibility of the line or project manager. (ISPMA, 2021).

3.3.6   Pricing

Pricing is one of the most important aspects of a product strategy, and it is usually in the hands of a product manager to come up with the product appropriate pricing strategy. This includes but is not limited to understanding the importance of price concerning business success and customer value, market- and value-based pricing, problems of cost-based pricing for software and typical pricing models for software, including freemium (ISPMA, 2021).

3.3.7   Sourcing

Sourcing is the act of defining how many external human resources will work on the project. This does not include the internally available personnel but is related to external resources, such as developers or other field-specific experts (ISPMA, 2021). The decisions based on the need to outsource the product development are also included in this duty.

3.3.8   Ecosystem Management

The software ecosystem can be described as multiple parts of a business functioning as a unit and subsequently interacting with a shared market for software while maintaining beneficial relationships with each other (Iansiti & Levien, 2004). The product manager plays a part in forming these ecosystems and deciding how their business function interacts and provides benefits for the other parts of the ecosystem.

3.3.9   Legal and IPR Management

While the core duty of product management is not to focus on the legal aspects of the business, the product manager will still need to consider several legal aspects while maintaining the product. The legal matters the product manager should consider are but are not limited to the scope of the license of the service,

the warranty guarantee, transferability, type of charges, liability, maintenance provisions and other miscellaneous legal provisions (ISPMA, 2021). Depending on the organization, a separate legal entity might also handle these matters instead of the product manager.

3.3.10 Performance and Risk Management

Performance management involves continuous tracking and analysis of selected relevant measures and taking timely action if needed (ISPMA, 2021). The performance management can include following relevant financial metrics such as Average Revenue Per User (ARPU) or Lifetime Value of a user (LTV) and changing the product based on trends. Changing the product also based on the market trends and changes in the user preference fall under this section.

On the other hand, risk management requires continuous tracking and analysis of risks identified in connection with the development, sales, distribution, delivery, and customer use of the software product and timely action if needed (ISPMA, 2021).

3.3.11 Product Life Cycle Management

As the product manager is responsible for a product throughout the life cycle, they need to consider its characteristics and focus areas. Product manager must have a solid understanding of the various phases to develop strategies and activities that optimally support a product in a specific phase. This requires tight cooperation with the involved functional units within the company. (ISPMA, 2021)

3.3.12 Roadmapping

Product roadmapping translates the long-term product strategy into a series of releases that satisfy the company's business goals and cover the strategic time frame, i.e. between one and five years. The type of the roadmap differs from one organization to another but can contain the timescale of the roadmap, releases, release themes, target markets, product dependencies, and the technology impacts of the product. (ISPMA, 2021). The roadmapping is closely related to the next section, release planning, as the product roadmap heavily influences the releases.

3.3.13 Release Planning

Release planning concerns planning the upcoming releases and defining what comes into these. Usually, the releases are defined by how impactful the contents of them are and they are then subsequently named as either Major, Minor, Update or Service releases. The product manager defines when a particular release should be released and what should go into this release (ISPMA, 2021).

3.3.14 Product Requirements Engineering

Requirements engineering (RE) in a software product management context covers typical requirements engineering activities such as elicitation, analysis, specification, validation, and management, adapted to a market-driven situation with many customers, competitors, and suppliers (ISPMA, 2021).

The product requirements engineering can be divided into three distinct sections: stakeholder requirements, product requirements and detailed requirements. The stakeholder requirements concern addressing the stakeholder needs, whether they are the customers or the company leadership. The product requirements address no individual customer but concern more of the market the product is in. This includes all product-related requirements that must be filled to have the product address the need of a market. The detailed requirements are the last ones that are fixated on a specific part of the product release. This could mean, for example, that a specific version of a framework needs to be shipped before a specific date.

3.4   Product Manager & Project Manager & Product Marketer

The role of a product manager is often mistaken with other roles with product or project related names. Namely, some employees might mistake product marketing and project management for product management and vice versa (Ebert, 2014). While some roles do overlap with others, each has its distinct business functions and roles in driving the development and lifecycle of the product.

As the titles of the roles might indicate, product marketing works closely with sales and instead of asking what and how to make something, as the product manager would ask, asks how to sell the product the best. They ensure the product makes sense for the market and that the customer would adopt it while simultaneously keeping up with the market architecture and the factors influencing its development. They strive to communicate the market proposition to both

customers and the upper management. In short, the product marketing manager is responsible for the user adoption of the product and it to make sense to be developed (Ebert, 2014). Without a product marketing manager, the product manager would produce a high-quality product without anyone to sell it for.

If the product manager is the brains of the product and the product marketing manager makes sure the brains of the product manager are appropriately focused, the project manager makes sure that the ideas from these said brains are appropriately executed. The role of a project manager includes responsibilities such as defining the best practices to execute the development of the product, selecting the processes which fit the business model developed by the product manager and oversees day-to-day operations and functions. So, if the product manager were to ask the developer how feasible something would be to be executed, the project manager asks the developer how long it would take to develop (Ebert, 2014).

Product Management	*Product Marketing*	*Project Management*
Asks what to make and how to make it	Asks how to best sell it	Asks how to best execute a project or contract
Ensures it will make business sense	Ensures it will make market and customer business sense	Ensures project is executed as designed
Understands how it fits customer needs as a solution	Understands the market architecture and influencing factors	Agrees on technical details; mitigates risks and resolves conflicts
Defines road map beyond a single release and decides what to keep or kill	Understands the customer need	Business and customer responsibility for a commercial project
Responsible for all aspects of a product or solution (value chain)	Communicates content/functionality as a value proposition	Selects processes to best fit the business model
Leads teams with various functions through the life cycle	Drives the project plan for sales and marketing; closely cooperates with sales to assure adoption	Leads various technical, supplier, and service teams to achieve a shared goal

Table 2: The responsibilities of Product Manager, Product Marketing Manager and Project Manager (Ebert, 2014)

3.5 Product Management in Mobile Games Industry

While the role of a product manager is somewhat similar in games and software, some differences entail. In this section, we examine the industries roles through a review of job applications and examining the most frequently occurring keywords.

A role of a product manager is relatively new for the games industry, and it rose to popularity when Games-as-a-service (GaaS) games became more prominent. These are games that are constantly updated based on player data and business trends (Somayanda, 2018). The rapidly moving environment required someone to handle the hurdle, and thus the role of a product manager was borrowed from the software industry and planted into the games industry.

To single out the most important aspects of product manager for mobile games, six job postings from six different organizations were analysed, and the most frequently appearing keywords were analysed. A classification made by a senior product manager at Zynga was utilized on defining the appropriate keywords (Somayanda, 2018). Out of the six job postings, five recurring themes could be listed: features, experimenting & live-ops, analysis, strategy, and market analysis. Below is a table where the most frequently occurring keywords are listed and the respective quotes from the job postings.

Duties of a product manager based on Job Listings

	Features	Experimenting & LIve ops	Analysis	Strategy	Market analysis
Peak (2021)	"Create fun and engaging features"	"Test ongoing tasks"	"Analyse and interpret data"	"Help make strategic decisions" ,	
Activision (2021)		"-- experiments to optimize and improve how we manage live ops"	"--do deep dive analyses—"	"Define the strategy—"	"Help identify areas of opportunity —"
Big Fish Games (Workday, 2021)	"Create tuning for features that cause user delight—"		"Analyze data and translate findings into actionable next step"	"--define road map for our live service features—"	"Monitor the competitive landscape to understand market opportunities and industry trends"
PlayQ (Greenhouse, 2021)	"Create clear and concise spec documents"	"Design experiments that drive measurable business value--"	"Conduct various data analyses—"	"Oversee live-ops; define live event schedule"	"Identify areas of opportunity"
Electronic Arts (2020)	"--create an exciting experience for our players"		"Partner with the analytics team to postmortem all key launches"	"you'll determine the publishing model"	"Stay on top of the competition by supporting the team with insights "
DraftKings (2021)	"You'll translate each business need into detailed product specifications. "	"Conduct UAT, product acceptance testing"		"Manage product backlogs--"	"Collaborate with Product Managers across our organization on requirements preparation, refinement, and planning.

Table 3: Product Manager key responsibilities

3.5.1 Features

Building and designing features was the first common task found in the job listings. The listings mention the product manager would be creating fun and engaging features (Peak, 2021) and translating business needs into detailed product specifications (DrafKings, 2021). Designing features and being involved in the design process appears to be on the more important tasks for a product manager. While traditionally a designer's task, it seems the product manager is also heavily involved with in in the mobile gaming industry.

3.5.2 Experimenting & Live-operations

Experimenting and live-operations might at first appear unrelated to each other but they have a lot in common. Live-ops or live operations means managing the game while it is published for the masses. This means, for example tuning the rewards gained from an event or deciding which events run and when. Experimenting then is used to determine whether the live-ops changes are beneficial to the game or not. This is usually conducted by A/B testing the feature, which means running two or more game variations simultaneously and comparing the performance metrics between the two cohorts (Chopra, 2010). Depending on the test's target, the following metric could be either retention, average revenue per daily active user (ARPDAU), conversion or even reduced churn in specific points of the game. The winning variant is then introduced to the game, which is part of the live operations.

3.5.3 Data Analysis

Data-analysis means analysing the game's data and trying to find either anomalies or potential improvement points. In the PSMBOK framework, this was named as Product Analysis (ISPMA, 2021). Usually, this is conducted in tandem with the team's data analyst but depending on the size of the team and the organization, data analysis sometimes might be left on the product manager's shoulders. This has led product management to be a popular next step for data analysts looking to step into the business role from a support role (Fabey, 2014).

3.5.4 Strategy

Strategy is related to defining the game's strategy the product manager would be involved with. Interestingly, all listed strategy related tasks were related to working with live games. None of the job applications mentioned "working with an organizational strategy" or "the product strategy for new products".

This paints a slightly different picture to what the PSMBOK's product management framework (Table 1) did. It appears that in the games industry, the strategic decisions are left for more senior personnel, and the product managers are left with strategic decisions related to running the game.

3.5.5 Market Analysis

In the product management framework, market analysis was found from the participation column, but in the rapidly moving games industry, competitor analysis is crucial for being on top of the wave. Due to the extendable nature of the games, market analysis is conducted almost weekly and is crucial for the success of the game (Merryweather, 2020). New games are released almost weekly, and new events and features even more frequently. Implementing the most successful features and events and refining them to fit the game the product manager is managing will most likely lead to a better product's overall performance.

3.5.6 Other Tasks & Duties

Another task of a product manager not listed on all of the analysed job interviews was to "*act as a liaison between different stakeholders*" (DraftKings, 2021). To share information between different parties is an essential task of a product manager and one could call the role of a translator between different parties. A technical document is necessary for the developer to develop the feature, but the more business-minded people might not be interested as much. Instead, they are interested in knowing how the feature produced with the help of said documentation contributes to the organization's bottom line. Being able to speak both languages is an invaluable skill

4   RESEARCH DESIGN

In this chapter, the research design is examined, the target audience is defined, and the research method is described.

4.1   Research Method

This research was conducted as a semi-structured interview by interviewing product managers from multiple well known mobile games companies mainly from the European economic area. A semi-structured interview is a qualitative method where the interviewer asks only a few predefined questions (Drever, 1995). The advantages of a semi-structured interview include but is not limited to the casual nature of the interview, ongoing dialogue, clarifying questions and the structured part of the interview allows comparable qualitative data.

However, the semi-structured interview method is by no means perfect and requires much more preparation from the interviewer than a structured interview. Due to the interviewer also working as a product manager, the method chosen was suitable and did not pose challenges.

4.2   Target audience and participants

To define the research scope and gather adequate results, a certain scoping was required for the product managers to be interviewed. To gather an up-to-date view on the state of the industry, the organizations chosen for the interview had to have a top-grossing free to play game currently either on Apple's AppStore or Google's Google Play. The top-grossing is defined as a game among

the 100 most profitable games during a specific period. In August 2021, the threshold to get into the top 100 list in Apple's AppStore was 2 million gross revenue a month (Sensortower, 2021). The free to play was chosen as a criterion due to the nature of the role of a product manager being fundamentally different from a non-free-to-play game where the game's monetisation was done upfront instead of during the playing of the game.

The geographic scoping was done to choose companies that had released a game in the English-speaking market. This excluded games primarily targeted for larger markets such as Chinese and Japanese markets. While scoping like this excluded a considerable portion of the potential interviewees, the cultural differences in the role of a product manager might have skewed the research. To analyse the effect of culture in product managers role has been left as a future research topic for the reader.

The last criteria to be fulfilled was the product manager's seniority. To be picked for the interview, the product manager had to work for at least two years in the mobile gaming industry. This criterion was chosen to limit the interviewee pool to persons who potentially had an unobstructed view of the role of a product manager and have had time to work in the role to experience multiple aspects of it.

To summarize, the criteria for being picked for the interview were as follows:

- Works in a mobile gaming industry
- Works in a studio, which has released a top-grossing game
- Works in a studio, which has released a game for the English-speaking market
- Currently works as a product manager or a senior product manager

The interviewees were searched with the above criteria from LinkedIn, a social media platform for professionals from various industries. The potential interviewees were then contacted and asked for an interview to be conducted over a Google Meet video communication platform. In total, 35 interview invitations were sent out, and nine people answered the invitation affirmatively. Out of the 26 invitations which were unsuccessful, four were accepted in LinkedIn but were never followed and three were cancelled due to scheduling issues.
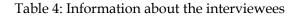
All of the interviews were conducted from different organisations. This was to gather as broad material as possible since the tasks of two product managers from the same organization would be sharing the same responsibilities with a high probability. All of the interviews were conducted in western countries due to the Asian product managers not being available for interviews.

4.3 Data Collection

For the research, a total of nine product managers were interviewed. The interviews were conducted in English and over the internet with a Google Meet. The companies interviewed were sourced globally, although most of the interviewed organizations were from Europe.

The interviews were always approximately 50-60 minutes, with some of the interviews being slightly shorter. The interviews were conducted as semi-structured interviews. Specific key questions were the same for all interviewees, but clarifying questions were also asked if the topic of the interviewee's answer was going in an exciting direction.

Interviewee	Length	Language	Location
A	57 minutes	English	Finland
B	57 minutes	English	Finland
C	50 minutes	English	Russia
D	28 minutes	English	Sweden
E	50 minutes	English	Israel
F	56 minutes	English	Ukraine
G	53 minutes	English	Spain
H	53 minutes	English	Finland
I	36 minutes	English	Spain

Table 4: Information about the interviewees

Due to the ongoing Covid-19 pandemic, the interviews were conducted through a video conferencing tool. The participants were asked for a recording, and 8 out of 9 interviewing participants accepted this. For the one unrecorded interview, additional notes were taken during the interview process.

The interviews were recorded and transcribed with Google Meet's built-in tools. The recordings and transcriptions were verified after the interviews for accuracy and any mistakes in the transcription process were fixed. There were 163 pages on transcription from 8 different interviews and two notes from the one non-recorded interview. Additional notes were also taken during all the interview processes.

As the interview was semi-structured, there were specific questions around which the interviews were constructed. The questions asked in the interview are listed below in figure 5.

No	Question	Topics	Reason
1	Starting the interview; asking permission to start recording; mentioning the confidentiality of the interview	Metainformation	Introduction to the topic
2	*How is a typical day for you at work*	Daily & common tasks	To answer RQ1 by inferring the typical responsibilities & tasks for a product manager
3	*What would be the most important tasks for a product manager*	Tasks that might not happen daily but are essential for the PM craft	To answer RQ2 by inferring the essential responsibilities for a product manager
4	*How vital is topic X for a product manager?*	Experimenting, designing, strategy, analysis & market strategy	To answer RQ2 by inferring the important tasks for a product manager
5	Ending the interview; asking if there's something to add		Ending the interview

Table 5: The interview questions

4.4   Data Analysis

The analysis of the research material was conducted on the results collected from the interviews. The data collected through semi-structured interviews are often rich and varied (Schmidt, 2004). There are few standardised analysis techniques in qualitative research, and there is no one right way to do analysis. There are also differences between researchers in how, as separate activities, the data itself is classified, analysed, and interpreted.

Due to the nature of semi-structured interviews, the interviews lack a precise format and order of questions, but the interview topics are the same for everyone (Schmidt, 2004). Because of this, the automatically transcribed interviews were read, organised, and structured according to the themes of the interview. The analysis on the job applications was used for the initial thematical analysis, but additional responsibilities were listed in a spreadsheet as they were uncovered during the process. The organisation and structuring helped to better outline from the transcribed data which of the issues reviewed during the interview

fell under which thematic area. In the process of clarifying the data, responsibilities that had less than one response were marked as non-important due to their low occurrence ratio. The original transcripts were retained so that they could be referred to in case of ambiguity.

After the initial description had been conducted, the classification of the data was conducted. The data classification provides a basis for interpreting the interview data and is essential for comparing parts of the data. The classification was mainly conducted so that, based on the description of the data, the listed responsibilities were put into distinct categories based on their similarity. In the end, four distinct categories emerged from the data. Each one of these categories contained multiple responsibilities of the product manager. The findings are described in the next chapter.

5   EMPIRICAL RESULTS

The responsibilities of a product manager found in the interviews are listed below in figure 6. Symbols are used to describe the perceived importance of the responsibility to a product manager. "◎" means the responsibility was perceived to be essential for a product manager. "○" means the responsibility was perceived to be important but not essential for a product manager, "X" was used to tell the responsibility was not deemed to be essential for a product manager, and if the cell was left empty, the responsibility was not mentioned during the interviews.

The duties listed in the table below are inferred from the Product Management Framework (ISPMA, 2021) and the job postings for a product manager's role, as shown in chapter 3.5. Additional duties which were uncovered during the interviews are also listed in the table below.

Tasks & Duties of a Product Manager in the mobile games industry	Interviewed Product Manager								
	A	B	C	D	E	F	G	H	I
Business Performance Ownership		◎		◎		○	○	○	◎
Collaboration with other PMs		○	○	○	◎	◎	◎		X
Strategy		○					○		◎
Experimenting & AB-testing	◎		○	◎	X		◎	○	
Feature Concepting	◎		◎	○		○	○	◎	◎
Feature Designing	○	○	◎		◎		X	◎	◎
Feature Prioritization		X	◎	◎	◎	◎	◎		◎
Knowledge on User Acquisition	○	X	X		X	X	X	○	◎
Maintaining Game Configurations		X	X	X	X	X	◎	○	
Managing Live-Operations	◎	◎	○			○	○	◎	
Market Analysis	○	◎	○	◎	◎		X	○	X
People Management		X	X		○	○	X	○	X
Performance Management	○	◎	○	○	○	○	○	○	○
Project Management		X	X		○	X	X	X	◎
Thought Leadership	◎				○	X	○	X	○

Table 6: The Tasks and Duties of a Product Manager in the mobile games industry.

◎: Responsibility was perceived to be essential for a product manager
○: Responsibility was perceived to be important but not essential for a product manager
X: Responsibility was not deemed to be essential for a product manager
Empty: Responsibility was not mentioned during the interview

> PEC 1: Designing and prioritizing features, performance management, market analysis and collaboration with other Product Managers were found to be the most important tasks for a product manager.

5.1 Product Business

The business tasks are the core of the product management as the reason for the role to exist is to maximize the business impact of the product. The core

business tasks identified in the interviews were Business Performance ownership, Market Analysis and Defining Game or Studio Strategy. While almost everything the product manager does is related to the game's performance in one way or another, these were the ones that could be categorized as pure business tasks.

5.1.1 Business Performance Ownership

The business performance ownership was slightly different from one organization to another, but the shared aspect of it was that the person owning the performance was usually relatively high in seniority. In organizations where there was a product lead, it was usually perceived as such that the owner was the product leader. The Product Manager was seen as a catalyst for the performance, but in the end, the responsible person was the product lead.

> *In the end, it is the product lead who's gonna get the management on the back of their neck. Out sort of product managers is usually for, like,* protected *from that. So it is the product lead who's gonna have to explain these decisions ultimately (Interview B)*

In another organization, the importance of owning the games business performance also depended on the seniority of the product manager. The more junior the product manager was, the less business performance ownership they had. The same sentiment was shared from another studio where the lead product manager of the team had the business performance ownership, whereas the line-product managers were responsible for completing their tasks.

> *So yeah, I would say that it also really depends (on seniority). On the team and the product and structure, I would say PMs have a great influence still because they are responsible for the performance in the very end. (Interview F)*

> *We are reporting to our VP pretty often, but he let's do a lot of things. So he trusting us to define things, but he has the end saying no, what are the goals and he reports to them to the executives. (Interview G)*

The sentiment that the business performance was shared between a product manager and a product lead was prevalent also in other organizations. One of the interviewees mentioned that the product manager might have more business performance ownership if the product lead is more design-oriented. This kind of arrangement was rare and was not repeated in other interviews.

> *So I don't think it is necessary. I think it is dependent on the type of this type (of product manager) and the second type depends on the game leads. So if the game lead is creative and focused more on the creative side and the PM is more that data-driven he should be more responsible for the monetization and be the balance there. (Interview H)*

The role of a product lead was also clarified a bit in one of the interviews as it was mentioned that the product lead was usually a product manager. While this does not apply to all of the companies interviewed, it makes sense for the product lead to come from the product management craft as the tasks and responsibilities are relatively similar.

> *Product managers are responsible for the business of the game. And normally we would have a game lead who is also a product manager and normally we share the responsibility. I think this is shared among all the teams. (Interview I)*

All in all, all of the product managers who mentioned or discussed the topic of business performance ownership thought it was either crucial for the product manager or essential for the product manager. As the product manager was deemed the team's de-facto business person, this task was only natural for them.

PEC 2: Product manager should own the business performance.

5.1.2 Market Analysis

Market analysis is the act of either following the news of the latest moves in the mobile games industry or breaking down competitors games and creatives and establishing the idea of what makes them so successful among the studios. While a product manager themselves can conduct market analysis, it was also mentioned that some of the product managers use market analysing services such as AppAnnie or Gamerefinery to reduce the heavy workload spent on market analysis.

While the market analysis was deemed a relatively important task by almost all interviewed product managers, there were a couple of companies where the market analysis was left for a separate role. The product manager, in this case was more involved with the live operations and not designing the features for the game.

> *We have a marketing specialist from the ad monetization side. She's more in charge of […] doing more of the research. (Interview G)*

The same kind of arrangement was shared with another company, where a research division was conducting the actual market research. The size of the team was, however, allegedly relatively small, so they did not have time to conduct market analyses, for example, on features. This left the product manager to be the one to conduct them when they needed it.

> *We have a dedicated team for this, but I think, they're pretty small, so they end up being more focused on a problem from like, like the strategy team Etc. They don't really help much with feature research (Interview D)*

The market research was also outsourced for another team in one of the interviewed companies, so the product managers were not directly involved. However, it was not a dedicated market research team that did these analyses but a group of producers that analysed features and shared their findings with the group. While still slightly dislocated from the product manager, this kind of approach gives a better view of the market as the analysis is still conducted and shared within a game team personnel.

> *We have some initiatives where people play the games for us, one of the producers of several producers and share the insights from on released games, on new updates and this kind of stuff. (Interview C)*

While a separate research division or a person reduces the workload from the product managers, another product manager pointed out that if the product manager is not aware of what is happening in the industry, they cannot compete against the other games. Being able to replicate the industry's best practices quickly is something that almost all mobile game companies are nowadays doing. Being left from such a train can cause the business a considerable portion of their potential revenue stream.

> *If you're not aware of what's happening in the industry, you just won't be able to compete. The industry changes all the time and especially Mobile, and it is like, you have to be on top of it and you can see it. We all copy from each other everybody, right? (Interview E)*

However, market analysis was something one of the product managers deemed as something that needed to be done while, for example, designing a new hard currency sink. A daily market analysis was deemed less critical even though it was seen as a good practice to be aware of the competitors' actions.

> *The portion of my time is actually spent trying to understand what's new in the market and what's new in consumer research. So I think that's, that's right to look at it. And, you know, this, this last bit obviously doesn't happen daily, which is kind of why it is let down. But it basically is something that I would spend, at least, maybe half a day every week on the interface, synthesizing market, research, and maybe another half a day consumer research. (Interview D)*

Market analysis was also necessary for product managers not working directly with live games as they were looking for a market fit and honed the game based on the audience response. They were building games rapidly and testing what would work and whatnot—being aware of the market and knowing which kind of gaps the market had allowed them to create products that had a significant market fit.

> *We were checking the market. What would fit and based on that? We did an MVP in two weeks and we checked if it had a market response. And if it was, then we build the game. (Interview H)*

The same kind of approach was shared in another company, where the product manager who worked with the product from the beginning of the development cycle and held up the game's vision would conduct all of the analysis.

> *If we are proposing a new vision, like a new product, a new game and the product manager again designer in charge of like holding the vision from the start. He would do all the analysis. (Interview I)*

The most straightforward answer was, however said in one of the earliest interviews and it was as follows:

> *I have not met a good PM who did not do competitor analysis. (Interview B)*

Overall, keeping up with the market and market analysis was an extremely important task for a product manager. Whether the actual market analysis was conducted by the product manager or someone else from the organization differed slightly from one organization to another, the shared sentiment was that the product manager should be very well aware of the industry's happenings. As the games industry is exceptionally agile and new competitors appear almost every month, a product manager in a live game needs to be very aware of the situation and should be able to adapt to the changes.

> PEC 3: Keeping up with the market trends is beneficial for a product manager.

5.1.3 Strategy

Defining game or studio strategy was brought up a couple of times in the interviews, but not during all of them. The act of defining game strategy is to come up with a vision for the game and then think of a loose roadmap on how to get there. This strategy is then used to plan new features to the game and to make sure they align with the strategy. This is to prevent feature creep and that the game still holds a vision and feels like a cohesive product.

In the companies where the strategy was mentioned, the person defining the strategy was usually relatively high up in seniority. This was to make sure that the person making these decisions understood the consequences of their actions.

> *We have a VP [of Product Management], which oversees all the game, the strategy and, and defines the strategy (Interview G)*

Another product manager mentioned that strategic thinking should include a plan for the next year of the game, including but not limited to the features and A/B tests to be conducted during the year.

> *So I would say thinking about that area, strategy is pretty good like where do we want to be in a year? What do we want to grow? What do we want to try in terms of A/B tests for all the different features? (Interview B)*

The interviewee who worked in a company with multiple product managers working on a single game mentioned that it is very important to have the other product managers follow the vision. As product management is a business-oriented role, the product managers can be people with strong personalities. This might cause friction on how the business is conducted, so it is good to have one central person defining the strategy.

> *I would say the most important one into whether the other product managers to hold the vision. (Interview I)*

While defining the product strategy was not brought up multiple times in the interviews, the interviewees who mentioned it agree unanimously that it is essential for the project's success. While not mentioned during the other interviews, it is relatively safe to assume that the other projects also have a strategy behind the decision making processes, but the person defining the strategy is not a product manager but another person working on the project, such as a product lead.

PEC 4: Strategy was not brought up often during the interviews. In most cases it was left for the product lead.

5.2 Live-operations

Live operations are anything that has to do with working the live game. This includes but is not limited to following the game's performance, managing the balance of the economy, deciding the event cadence, experimenting with new features and A/B -testing them, and maintaining the game configurations.

5.2.1 Performance Management

Following the game performance and staying on top of the business was a shared task with almost all product managers. It was mention that the product manager needed to be up to date on how the product was performing. For many

product managers, it was also a part of their daily routine to check how the product had been performing the previous day or the previous hour.

> *I always start the day by looking at my daily check bookmark set on in my browser. So a list of dashboards that would be indicative of the past performance and the current performance. (Interview B)*

This kind of periodic check-up was shared with almost every product manager. As the product manager is responsible for the game's performance, it was vital for them to understand how the game was performing the previous day and to make sure there were no issues.

> *The first thing is like, I start my day, of course, by checking out the game before the previous day. Of course, if it was like a Monday, then I check actually how the game performed (Interview A)*

> *I check the main health metrics every morning. (Interview C)*

The variability of the role of a PM could be seen from the product manager who in their current position was more involved with the data but on their previous position dedicated it to a data analyst. The same behaviour was also exhibited in other organizations as the product manager was less involved in checking the metrics by themselves, and it was dedicated to either a dedicated data analyst or a live operations manager.

> *It was not necessarily PM's job to find interesting insights and the data, but rather use it and the data comes from the data analyst. (Interview B)*

PM however needs to be proficient in utilizing the data. While a data analyst often conducted the actual data analysis, it was mentioned that the product manager should be able to work with the data. As the product manager is the one responsible for the business of the game, it is only natural that they should be able to use the data from the game to back up their claims and hypotheses.

> *We [Product managers] need to be really strong in terms of data, Excel and being able to interpret the data and work with it, you know, on a daily basis. (Interview F)*

The technical capabilities and expectations of a product manager, however differed between companies. Where in one company it was usual for the product manager to understand SQL language, in another company, the product managers did not themselves access the data. This was explained the nature of the role and the usual background of the product managers working in the company, as in some companies, the role of a product manager was more design-oriented and in another one more data-oriented.

> *If everyone can access the data easily and [then] you can easily check the data and draw conclusions. So usually I did it. (Interview H)*

I don't think that most of our product managers can do the SQL queries and these things. Most of them are from, from design game design background. So yeah, we can't do SQL queries and we have analytics for that. (Interview C)

One interviewee claimed that it varies between PMs. This was due to how the PM-craft was constructed at the company they were working for. As a single feature might have had its PM assigned to it, they were responsible only for monitoring the performance of the said feature and not responsible for following the performance on a larger scale.

I think it definitely varies by for each PM. And again for each feature, because some features are a lot more consuming. I guess some features are definitely that like core features instead of meta-features. So there you would have to be a lot more involved [in following the core feature]. But in some cases you won't really need to if you're building a new feature for like the store right, then you can't really [track it]. You can really get involved for minigames and I feel like that personally because these are the features that I own. (Interview E)

In addition to daily analyses, a weekly or even less frequent checkup of the product's performance was also something multiple product managers told they were conducting. An infrequent analysis was usually conducted to check whether there were changes, for example, in the trends of certain key metrics of the game. These key metrics included but were not limited to in-game currency balances, retention numbers, ARPDAU and other metrics that indicate the game's health.

So we have analysts that provide the dashboards and other requests. But as there are a lot of things going on with the game because it has been running for a long time, we have a lot of information, and we can already check feeds for ourselves. And when we do the reporting, it is more on our side to check the performance and then present the results. So I would say, it is like, if I can do it myself, like, check some numbers on and prepare the report, I do it. (Interview G)

Most analyses that I run, you know, on a weekly basis I already have like, I access that through looker. (Interview D)

One product manager said that they also have feature-specific ownership and analysis responsibilities. While ownership on designing the feature was brought up multiple times during the interviews, this was the sole occurrence when a single person oversaw monitoring the feature's performance.

We have the concept of a champion which is basically the featured owner […]We have meetings every once in a while, review the performance of the feature. And it is voluntary if you want to get involved and then provide feedback and, and what you need to do. (Interview G)

Overall the analysis of the game's performance was perceived as an essential task for the product manager. However, it differed greatly between companies on how much the product managers themselves were involved in gathering the data.

In some companies, the actual analysis was left for the data analyst, and the product manager only inferred metrics from the dashboards the analyst had created, whereas in other companies, it was also the product manager doing these queries to gather data. Nevertheless, the notion that the product manager should understand what was going on with their game was shared among all product managers.

> PEC 5: Performance management was deemed as an essential for a product manager. Personally, understanding the product gives new avenues for growth.

5.2.2 Managing Live Operations

Managing live operations or live-ops is the act of defining, for example, what kind of events or offers are being available in the game and making sure the player always has something new waiting for them when they launch the game. Events can be but are not limited to events that happen inside the game and try to drive the player to behave in a specific manner. For example, an event where the player competes against other players to complete levels drives the player to complete more and do so, most likely also spending more in-game currency to progress faster and better. Events can also include collaborations with other brands.

Maintaining offers is something that almost every live-service game does. Usually, by looking into the purchase history of a player, the product manager attempts to come up with a setup that most efficiently serves the player the offer they are most likely to buy.

Managing and maintaining the economy of the game is also included in this section. To paraphrase, managing live operations contains everything that has to do with decisions related to the meta of the game, whereas the core related decisions are usually left for the designer.

Somewhat unsurprisingly the product managers who brought up the act of managing live operations thought it is really important for the product manager to have ownership on it. One went as far as to claim it is the sole ownership of the product manager and the product manager should not interact with design and strategy of the game.

> *Design is not your ownership, strategy is not your ownership, the production, live production or live operation in general is your ownership of course (Interview A)*

The other product managers weren't as adamant on the live operations being the only responsibility of the product manager. They however mentioned that it is important for the product manager and it is what they are most likely involved most of the time in their daily tasks.

> *Most often you're focusing on liveops and, kind of the, I guess the overall live game. Existence. (Interview B)*

> *I would say that product managers do a lot of Live-ops stuff too. So, I did design bundles on my own, and I do, and they (Interview F)*

One interviewee went further and elaborated on which parts of the live operations were handled by the product manager. While the explanation included basically everything as described previously in this section, it was good validation on the topic of a managing live operations.

> *If the player goes to the game, he should find all ways or not always but often something new. Something surprising something positive. But if we divide it to set up the events, set up the Special offers, analyzing even changing events then Like designing new events and evaluating events and also like checking the other similar games to learn from that. But basically everything there should be covered [by the product manager]. (Interview H)*

In one of the interviewed organizations the arrangement for live-operations management was slightly different. This was a larger organization, so the game teams were large enough to sustain a model, where the product manager only has the vision for the live operations and it is then realized by the designers. This approach was different from the other interviewed teams as this meant that the product manager was less hands on with the live operations and only handled it on a conceptual level. Due to this, the product manager did not know the exact schedule of the events for the game as it was handled by a different person.

> *The vision of the balance, Live Ops and the economy overall comes from producers from product managers but it is realized by the designers. In case of events, sales and such, I have the point of view on the conceptual level, you know, the exact schedule, I don't know. (Interview C)*

In larger organizations where the product team was larger, the game team could have their own live operations team. In this case the live operations were handled by this team and the strategy and more business oriented product management tasks were handled by a senior product manager who was hands off from the live operations.

> *I have my boss, who is the liveops Product manager, who oversees the whole live ops operation team. And then inside the team of live-ops, we are three 2 pms and one level specialist. And I'm more in charge of ad monetization and offers. (Interview G)*

Overall the product managers shared a common sentiment that the management of live operations was one of the product managers main tasks. In the interviews it was brought up multiple times it was the task the product manager should spent the most time on. This of course was slightly different for the organizations which had a live-operations manager, who handled the live operations and the more business oriented tasks were left for the product manager.

> PEC 6: Live-operations management is important for the product manager if the team does not have a live-ops manager.

5.2.3 Experimenting and A/B -testing

Experimenting and A/B testing are the act of coming up with tests to test a certain feature in the game with one or multiple variants against a control (Chopra. 2010). This means that the current state of the game (Control) is tested simultaneously against an alternative state of the game (Variant A/B/C…) for a predefined period of time. One AB-test for example can be testing the level which a feature is unlocked at and analyse, how it affects a certain key KPIs, such as ARPDAU, retention, minutes played or purchases made. After the test is analysed and concluded, the winning variant is baselined in to the game or if the control variant wins, no changes are made.

Most of the product managers mentioned that designing and following A/B -tests was an integral part of product managers workflow. One of the interviewees mentioned how it was something they would do every single day, if they had one live. This meant that they checked there was no alarming signals in the tests performance and if the test was performing lower than expected, understanding why it performed as it did.

> *"Another chunk of work would be going through any live A/B tests, trying to understand how they're performing, how they're not performing, and trying to understand why something is happening. " (Interview D)*

One of the interviewed product managers mentioned also how it is important to change the already well established pillars of the product once in while to keep things fresh. This can mean changing the certain part of an event making it behave differently to the previous implementation to make sure that the same style of the event is not repeated for most of the players all the time.

> *Experimenting is really important and even if you rerun the old event, it is good to change something small because the after while you have like, let's say 20% users who are there and seen events multiple times. So that's important. (Interview H)*

While most of the interviewed product managers usually tested even the smallest changes, one of the product managers told that one should test only something that has a potential for a huge impact in the game. While this approach might be less careful than the others and poses higher risks for the game, it allows a much more faster development cycle of the game. The caveat in this type of testing, however, is that it is harder to pinpoint causes for negative performance in the game, if the game starts to perform worse than expected only a while after the feature has been rolled out. So while it is a more agile approach, it needs to be utilized with caution.

> *Regarding the A/B testing, I think it is important just to test big things so that you expect, let's say, 20% difference in. Conversion or something like that. (Interview H)*

Most of the times it was however not only the product manager who was involved with the A/B testing. Data-analyst was often mentioned person also working with the A/B tests, not only because they were usually the one to analyze the test, but because they could also give insight for the product managers, whether the tests they were about to conduct made sense.

> *"I think it is, it is usually a fairly heavy on the PM, like the PM helps to define "what kind of operability we want", "How should these tests look like" "why are we defining these AB [test] cases?" Etc. We also obviously have like a data scientist who helps make sure that these make sense. But after I think, the PM is responsible to make the call on, like, why it is something is being tested. (Interview D)*

In some cases the product manager was not the designing or even suggesting the test but it was delegated for another team. In most cases where the product manager was not the one designing the test, it was a data-analyst, whose job was monitor the game performance and find interesting insights to iterate on. On a practical level this makes sense, as the data-analyst in most cases is the one working the most closely with the game data and has the deepest understanding of the underlying game.

> *A lot of the time the test will come from Economy analysts. They work closely together to kind of like optimize the configuration and stuff like that. And sometimes it will come from the monetization team with they want to do special promos and stuff like that. So I want to kind of understand exactly what we want to do to the first. How do we want to reward them and stuff like that? The product? [I] rarely suggest A/b testing. It is a kind of case, like case basis, Like I think I had a few features that I was very involved in that process and I wanted to kind of like get right, so let's optimize this and let's figure out what we can do. I've done what I can hear like, let's leave it to the other departments. They can take it from there. They don't need me involved. So really, it really changes based on how big the feature is. And what, what else is on my plate? (Interview E)*

A slightly more balanced approach was implemented in another organization, where the share of work between a product manager and an analyst regarding A/B testing was roughly 50:50. The product manager was still the one to come

up with the tests and design them, but the data analyst was used to come up with optimal thresholds of values used in the tests and calculate the expected impact of the test.

> *So we are pretty involved in testing. Like, what is the things that we want to try we know that the demographics are going to target, the expected impact that we want to have? And then we leverage on the analytic side to compute those expected impacts. But yeah, in terms of definition, and even setting, we have them, so it is a bit of 50:50 between us and them [analysts]. (Interview G)*

While the share of ownership between a product manager and a data analyst is different between companies, all of the interviewed companies mentioned it is important to test changes in the game to make sure they are causing only a positive impact on the game's key metrics.

PEC 7: Product managers were often the owners of A/B testing and the ones proposing new tests. In some cases, it was a shared responsibility with data analysts.

5.2.4 Maintaining Game Configurations

Maintaining game configurations is the act of personally setting up the A/B-tests in the system the company uses or changing the values in how the players are rewarded in the game. As the games' need nowadays to be extremely agile on how they are developing, most of the games fetch the configurations from the server without the developers needing to publish an update to use them. This is used to quickly update certain aspects of the game over the air.

The most frequent answer was that the product manager does not set up the configurations by themselves, but that there is a separate person in the team managing these said configurations. It was usually a live-ops manager or a live-ops producer who was in charge of these. It was mentioned that it is helpful for the product manager however to know what parameters they can play with so that they can come up with realistic A/B tests or balancing ideas.

> *I don't think [that the product manager should set the configurations by themselves]. But I think it is definitely helpful to know what are the parameters to play with. (Interview B)*

> *PM helps define the core hypothesis and stuff like that. But then we'll have a like someone who's from the operations area doing the actual configuration. (Interview D)*

> *[PMs] sometimes do even the setup thing sometimes, you know, but in some teams and some projects product managers, by maybe more like high-level specialists and level say, lower level specialists will be liveops or senior live ops, who will take care of this. (Interview F)*

However, in some cases, it was told that a product manager in addition to being the one who designs the changes which require game configuration changes also implements them by themselves.

> *So in our team, in the past, it used to be like one product manager that defines everything, and then two seniors that did all the work. But when I joined, we have tried to do more and more vertical things. So everyone is accountable of what they define. (Interview G)*

One of the product managers who set up the game configurations told that it is not a bottleneck for the production so they did not mind managing them. It should be noted this was a smaller company they were working on so the team most likely did not have a dedicated live operations manager, whose main task would be to keep up the game configs.

> *Usually, the bottleneck is not a PM so making life easier for PMs, it is not my top priority. Like, I'm okay to configure a little bit more to save programming time for new features and so stuff. (Interview H)*

Overall the management of game configurations was not deemed essential for a product manager. In most cases, a separate person was managing the configurations, but it is easy to imagine that in a smaller company the product manager has to also set up the changes and tests they have envisioned.

PEC 8: Product managers should not maintain game configurations but knowledge on them is beneficial.

5.2.5 User Acquisition

User Acquisition (UA) is the act of managing the organization's user recruiting efforts. Traditionally this has been handled by the Product Marketing Manager, but a surprising amount of product managers mentioned it is something that they are also doing. The approach to the topic, however, differed greatly from one organization to another.

From a traditional product manager's point of view, the UA is not something the product manager should be handling. According to them, it was still important that the product manager was aware of the major shifts in the UA efforts. This meant that if, for example, the major traffic coming to the game was changed from value optimized (Targeting a small number of users who are likely to spend money, expensive to buy. Facebook, 2021) to mobile app installs

(Targeting a large number of installs, unlikely to spend money, cheap to buy Facebook, 2021), the product manager needs to take this into account and for example increase the number of advertisements shown to increase ad revenue from players who are less likely to spend money in the game.

> *The major shifts are important, but I don't know how the campaign level is important. How important level is? I'm sure it is helpful for some things but I don't know. (Interview B)*

The same sentiment was shared with other product managers and it was clarified that the product manager still should not be the one doing the actual UA. They just should be aware of what's going on on the UA front.

> *It is important but it is something you don't do by yourself here. (Interview F)*

> *Like, it is if the game is too big, you just can't expect the PMs to be a part of it, right? Because UA is such a big undertaking, right? The marketing is off the charts. It is such a big like, the campaigns are massive. You can really help [with User Acquisition] but you can't really expect the PM to be part of it all the time. (Interview E)*

Another reason why it is good to keep product managers and UA aligned was brought up in one of the interviews. The interviewee claimed that it is important to keep the crafts aligned so the selling point of the game is clear for the UA team so there's always a clear marketing message and the customers will get the product that they were advertised for.

> *So right now, our main priority is to focus on what we can leverage on an app, and we have levers like monetization. But yeah, I think it is my personal view, I would say that it would be equally important that there's more collaboration [on UA] and that, you know, broken marketing goes together and define what they want to sell, and what are the selling points, because in the end, if there's a mismatch between the, what you're selling and when you are providing to the users, I think that in the long run is worth for you. (Interview G)*

One of the interviewed product managers suggested that it should be someone's responsibility in the game to keep up with it, but not necessarily the product managers. It could for example be a data analyst who attends the UA meetings and reports the status of the operations to the product manager.

> *Someone from the game team should be responsible. For communication with the marketing and during the marketing performance, because if it is divided, then it is usually the performance is not that good. So I would say it is important and usually, the PM should be responsible for that or the data analyst. (Interview H)*

An interesting thought came from one of the product managers, who claimed that instead of the product manager being involved with the UA, the UA personnel should be involved or at least knowledgeable about the state of the

game. The benefit of this approach is that the product manager doesn't need to relay the information about the state of the game and potential core gameplay creative ideas to the UA specialist but the UA specialist can get first-hand experience with the game. The caveat was that for the product manager it makes it harder to know the trends in the UA without an active conversation with the UA team.

> *I think the product manager should be very involved in user acquisition or marketing. But I would replace it. I would do it the other way around. I mean, I believe marketing should be inside the product. You know, that each team should have like someone responsible from marketing inside the daily and everything. So they are very aligned and we can work together at marketing. (Interview I)*

None of the interviewed product managers were against being more involved in the UA, but some of them mentioned that currently they were not involved with it. One of the interviewed product managers mentioned that they currently are not interacting at all with the UA team and another one said that while they currently are not involved with each other, they have a plan to get closer in the future.

> *I don't really see a lot of that. I think that's very low. I actually haven't interacted much with the UA component at all. (Interview D)*

> *[I think] it is a good idea and we are moving towards the, you know, overall management of product management, that includes the user acquisition as well. But for now, marketing is pretty divided from production (Interview C)*

Knowledge and understanding of the organisation's user acquisition strategies was something that the product managers did deem relatively important for a product manager. The depth of involvement depended heavily on the organization but overall it was seen as a good approach to be aware of what was happening on the UA front. The reason for this was to be aware of the traffic of users coming to the game to better cater for the experience for them and to be more in line with the marketing with the UA to provide the players with the experience they were looking for.

> PEC 9: Product manager should not get involved with User Acquisition but it useful to understand how it affects the game's performance.

5.3 Features & Design

Features are parts the game is constructed from. One feature might be for example an event, which the player participates or the store where the player spends their resources to buy items. Features are usually designed by a designer, but depending on the organization the product manager is also involved in the creation of these.

This part of the product manager's tasks is mean to examine their involvement in being part of the design process of a feature. This involves the acts of coming up with the feature, designing it and prioritizing the planned features. The actual development of the features is not part of this section as none of the product managers mentioned it as a part of their role.

5.3.1 Feature Concepting & Pitching

Concepting in the interviews refers to the act of coming up with a rough design and/or idea for a feature but leaving the final design up to the game designer.

The sentiment towards a product manager's involvement in concepting a feature was largely split between product managers. In some organizations, the product manager was the sole person to pitch and come up with features as they were more closely aligned to the design craft than analytics or the business side of the business. In contrary to that, in other organizations, the product manager's involvement was only to define what the feature should achieve and the final design and theme would be left for the designer.

The first interviewed product manager claimed that the PM should be involved in the process from the get-go. If the PM is not involved, the designer might create a version of the feature which would not work in the context of the purpose it was designed for. So for example the designer might design a feature so that there are no knobs and twists for the product manager to use while testing the feature in the production.

> *After it is designed, that's another common mistake. Okay, now to design let's figure out how we will test it. So the product manager says, "Okay, I want to see these variations in the future", I think it is already super late, you should already be the one actually defining the purpose of working on that feature, if not the one even saying or, or having great justification on why we should be building this feature. (Interview A)*

In a similar vein, in one of the interviews, it was also mentioned that the product manager should be involved with the design of the features because there's this

"conflict" between product managers and designers. The designers usually want to create something that is fun for themselves and likely for the gamers, but in production, it might not make sense to create since it would not affect positively the KPIs of the game. So the product manager is required to keep the designer focused on creating features, which in the end are bringing value to the product.

> *In gaming industry usually have a conflict between game designers and product managers. Let's say it may be a conflict or it may be a collaboration, it depends on the team. You know, I've met various game designers and some of them were like, very far away from free to play, and they were suggesting features, which will never make money. They are even thinking in terms of engagement, in terms of fun. They were suggesting stuff that will, you know, like, seem fantastic for themselves but it would take lots of time in production and sometimes it even takes like external license. So I remember brainstorming with some of the beginner game designers new features. They were suggesting making a huge Marvel event for a small game, you know, like there are no licenses and it happens and usually have product managers on your side. (Interview F)*

It was later clarified that this conflict of sorts should however be avoided since the goal is better achieved with collaboration.

> *It is better not to have conflicts and to collaborate because basically you serve towards the single goal and the whole team needs to know the focus and the targets. (Interview F)*

In the same interview later on it was also mentioned that the Product Manager should still be a gamer by heart since a purely business-oriented product manager might not understand what makes the product fun and ends up draining the designers.

> *A lot from game designers, believe me, game designers get really irritated when they get like a purely business product manager, who has no idea about what users enjoy and not a gamer by himself and just guys who want to make money, These are let's say Project Manager from Applications, you know, they just imitate being the product manager in the game industry because you really need to have at least some understanding and some background if you are in this industry. (Interview F)*

A similar sentiment was shared with another interview, but in addition, the PMs involvement was emphasized even more and it was claimed that the PM should be part of the whole design process and own it. So it is not just the concepting phase the PM would be involved with but the whole process from the first drafts to finally pushing it live.

> *When it comes to the features a PM is part of the entire process like he's the one up until the future launches, the product manager is responsible for everything, right? So he will be the one that will kind of like, Manage the task for over for everybody, right? And provide like what we need regarding KPIs goals economy,*

all that stuff and one direction plan like for. And when I design a new feature I sit down with every department like "All right guys, what do you want from this?" (Interview E)

One of the interviewed product managers took the involvement a step further and told that in their organization, the product managers have historically been very involved with the concepting of the features. In their case, the product manager would be the primary person to come up with an idea and the team would then evaluate these ideas and pick the one they deem to be the best. This approach was a bit different from other teams as the product manager had the ownership of the ideas to be worked on and the designers more or less only realized these ideas.

Historically PMs are very involved in this process. In fact, for most of the time, PMs were the main source of finalized concepts for features and teams just pick these Concepts and make how they talk, you know what, what was written in this concept. But right now, with the growth of the company, we change we're changing things. Because of the autonomy of the teams and the responsibility for designers and yeah, I hope this these will help because, you know, if you have a lot of smart, people are better than you have just 10 of them [instead of], I don't know, say 20. So yeah, right now but still product managers is tightly into interacts with designers on the concept. (Interview C)

The same approach was also used in another company.

I think, in general, what we do is like a product manager would come up with the general idea and then designing from that would be part of designer (Interview I)

In some of the organizations, the PMs involvement in the design process was much less involved. While they still had product managers focusing solely on the features, they were merely part of the process and the designer had the last say in defining what goes into the feature.

We have two product managers focusing on features alone like they are from the beginning to the end of the project. But it is true that when it comes to the game, the system and content design alone, like the game designer would say they have the last saying. (Interview G)

In smaller teams where fewer people are working in the game, the product manager might have even more ownership in the design process as explained by one of the interviewees. In their case, the designers were the ones working in the core gameplay features, such as the matching in match-3 or the fighting mechanics in RPG games so the meta-features (such as events) were left mostly for a product manager. This kind of arrangement is suitable especially for smaller teams as the meta-features are not as important for the overall enjoyment of the game so they might not require a full-time designer working on them.

I think it is important. It depends on the team. So, for example, how I see now in the small studios, usually the game designers are core gameplay designers or experienced designers, or something like that. And it helped them to have that background and those ideas but I'm biased because I like to put my ideas but I'm okay if they are not Done. But I think it is quite important in small teams. (Interview H)

Overall, the interviewed product managers all agreed that the PM should be very involved with the concepting phase of the features. This allows them to define what kind of goals the features have and give their insights on what the game requires. For example, if the player's in-game currency inventories are experiencing inflation, the product manager might come up with a sink feature the designers might've not done themselves as they don't have the same visibility to the data as PMs. But as the design is not the main task for PMs, they should always give space for the actual designers to execute the features as they seem to work for the best.

> PEC 10: Product manager should be heavily involved with concepting of the features so they align with the business needs.

5.3.2 Feature Designing

While the previous section was about coming up with ideas to implement as features, this section is about actually executing on the idea and designing these features. Designing a feature usually requires the one designing the feature to write detailed design documents and think of the user experience (UX) of the feature in terms of a player and also optimizing the balance of said feature.

While concepting was unanimously agreed to be important for the product manager, designing of features was deemed mostly as less important. The actual involvement was, however, slightly different from one organization to another. One of the interviewed product managers told that they are part of the design process but only in terms of giving feedback and optimizing the design the designer was creating. So their involvement was more or less based only on superficial aspects.

> *Like I think product management is more the optimizing and design is more creating if it makes sense. (Interview B)*

A similar sentiment was also shared by another PM, but they also added that it should be a collaboration where the designer has the last say and the PM would then be mostly giving feedback to the designer. An important aspect told was that the PM should not dismiss what the designer had done and let them have full ownership of the feature, including spending time on thinking of the graphics and the metaphors for the feature or an event.

So the product should not dismiss the designer and should not make them feel like "Hey, I don't care about the artistic side of things". (Interview A)

While the concepting phase was highlighted in the previous section, it is good to note here too that some of the product managers are involved in the design process due to them owning the concepting of the features. While this does not apply to all interviewed product managers who conceived the features, it was still relatively common among those.

The product manager is very involved because we designed everything with the team, and we make all the proposals. (Interview I)

In some teams, the product manager was much more involved with designing the features. This was mostly caused by the fact that in the company the interviewed product manager worked for, the product manager acted as both the PM and the designer and there were no designated designers in the team. This was the sole occurrence of such arrangement, but it caused the product manager to plan and design the features by themselves as well as monitoring the performance of the said feature.

So once the features go live, the PM kind of takes a step back from it. They are still there to still oversee it, you are still involved in a lot of the decisions but they are already focused on the next thing, right? That's the thing that one when I release the feature like "good, let me go back to work on the new concept that I was working on". (Interview E)

In one case the product manager and designer had shared ownership on designing features. The designer focused more on features that were likely to increase player retention due to them creating loops and

I think both [product managers and designers] should be involved. And usually, they [designers] came up with something else and it can help. Like PMs, maybe have more ideas for monetization and desktop. So for example, like, most of the game designers I work with, wouldn't spend time on, let's say, a subscription or something like that so that's usually more like a PM idea. (Interview H)

Overall the sentiment towards the product manager being involved with the actual design process of the features was somewhat divided. A part of the product managers was heavily involved in the process and some of them were even the sole designers in the team. On the other spectrum some product managers only gave feedback on the design but apart from that were not involved in the process.

A generalized statement could perhaps be that the product manager should be aware of what is being designed and give feedback on the designs so that they are addressing a business question but they necessarily do not need to be involved with the actual design process.

> PEC 11: Designing features can be beneficial for the Product Manager but it is enough that they align with the designers about the needs of the features.

5.3.3 Feature Prioritization & Roadmapping

Feature prioritization and road mapping are the acts of deciding which features are relevant enough to be designed and implemented for the game and prioritizing them so that the development order is the most beneficial for the game. For example, it might not make sense to create two features in a row, which only reward the player as there's a risk that the players' in-game currency inventories start to inflate. So one possible action a product manager has is to prioritize a sink feature between those two gain features, which would then sink the players' inventories.

Overall all of the interviewed product managers agreed that road mapping is an almost essential part of their work. They define what should be done first either by themselves or together with a product lead or someone else in charge of the project. The most common answer was that the product manager is the one having the ownership in the feature prioritization as illustrated by the following quotes:

> *A large chunk of what I focus on is essentially organic Asana filling up the backlog. So I try and go identify what features we should work on how they should look how they should feel. (Interview D)*

> *Features are basically what's related to the roadmap and roadmaps are something that product managers are responsible for. (Interview F)*

It was clarified by a couple of interviewed product managers that they do not do this act in isolation but by discussing it with other people. Meetings with relevant stakeholders help the product managers understand, for example, how long it does take to develop a feature. If the feature takes a while to develop, it might not make sense to allocate most of the developers working on it and decide that it should be the next feature to publish. This would slow down the development and the players could perceive that the company is losing interest in the game.

> *Because from point of view, we have a lot of meetings and a lot of teams that can influence the way, how the product will develop. But in the end, it is only me who decide, where we go again, because of the culture of discussion and this kind of thing. (Interview C)*

> *So every product manager is in control of the roadmap and checking with all the teams and the peers. So as the game has a lot of dependencies, like in live, we*

need a product manager, game designer, getting the game right to QA. So, we are more in charge of making sure that everyone is on a track that we are delivering things on time. (Interview G)

It depended on the team how deep the collaboration between product manager and the other stakeholders in terms of the road mapping went. In some cases, it was just the product manager collaborating with the leading people in the game, such as product lead, lead designer and lead developer but some of them also told that the opinion of the whole team should be assessed when developing a feature.

Ideally, everyone in the team should be able to contribute. And even if I was game lead or product lead in a team of 37 people, I think everyone should be [able to contribute]. (Interview H)

One product manager also mentioned that the prioritizations should always be based on something. While rare, there's always the possibility a product manager would favour their ideas, they still should assess the situation objectively and plan the roadmap in a manner that is the best for the game.

The product manager is the owner of the roadmap and has to make all the prioritization that goes in line with the vision and also with the data. (Interview I)

Discussion and dialogue were brought up multiple times as one of the required skills for a product manager. This makes sense, as the product manager is often the one facilitating discussions between different stakeholders and making sure everyone understands why a certain feature is being developed. This makes it easier to align the team towards a common goal.

It is a collaboration. Yet again so in the past I've had a very good team where we just sat down and, like, discuss them together. And if somebody was not on board we made sure they are like convincing or discussing or whatever. The product lead is the one with the ultimate veto. (Interview B)

One side note came from a product manager who mentioned that the product managers in the team are not equal in terms of tasks. While seemingly obvious fact, it is still good to note that the seniority in the team defines how much of an impact does the product manager have in terms of deciding which feature is being developed next. The more senior the product manager, the more weight their words have whereas the junior PM might not have much impact at all. This of course depends on the team composition, so the junior PM might have more impact if they are the sole product manager in the team.

If there is a senior pm and a junior pm on the project, the senior PM is the one ultimately taking responsibility for product management and road mapping. (Interview B)

Overall feature prioritization and road mapping were seen as one of the core tasks for the product manager. While the product managers' involvement with

the actual design phase of the features differed slightly from product manager to product manager, it was unanimously agreed that having ownership of the game's future is something the product manager should be doing.

As mentioned in the first business section, the product manager usually has a deep involvement in the business of the game. For the product manager to own the roadmapping and the feature prioritization, it makes much sense since the process is related to the business performance of the game. Releasing features, which do not complement each other but in tandem can cause adverse effects on monetization can be fatal for the game's business and ability to grow.

> PEC 12: Product manager should be involved with the feature prioritization to control the business growth of the game.

5.4   Management & Collaboration

The management and collaboration related tasks relate to tasks, which have to do with people interaction. This includes tasks where the product manager would have to interact with other people to either lead them and or to engage with them. Included here are also some more non-official tasks, such as interacting with other product managers and thought leadership and fostering. While they are not directly related to the managing part of the product manager's role, they still indicate how the product manager's role is handled in various different environments.

5.4.1   Project Management

Project management, as described in the earlier chapters, is the act of managing the project in terms of processes. It includes for example keeping the project informed on what is going on with each craft (art, programming, product, design etc), managing the expected timelines, relaying information between different crafts and organizing various meetings and overall making sure the tasks required to develop the project are being executed.

This topic was one where the opinion concerning it was very different based on the organization the product manager worked for. In some organizations, project management was not deemed to be essential for the product manager and the interviewed product manager mentioned how the role is not about the process. This means that the product manager is concerned about "what to do"

whereas the project manager is concerned about "how to do". Usually, each team had their project manager.

> *I don't think product management is about the process. (Interview B)*

> *So, yeah, on the product we have Product Managers and general project manager who responsible for processes and people management and these kinds of things. So there are two parallel chains of management one from the product point of view and the other from a project like processes. (Interview C)*

One product manager acknowledged the ambiguity of the role and told them they were aware that the role is different from one organisation to another one. The term "wearing multiple hats", which implies that each hat the person is wearing is a specific role, was brought up in multiple interviews. These interviewed product managers emphasized that the product manager needs to be flexible on what they do to do their work well.

> *A product manager is such an elusive role definition that it can be anything between a project manager and product owner, and data analyst and like, technical product manager. So, there are many many options. (Interview B)*

> *We wear a lot of hats as product managers, you kind of need to deal with a lot of stuff on your own because you're also the game designer. You're also the project manager and you also the product manager. So it is kind of like, Everything, everything rests on us. (Interview E)*

The difference to project managers was highlighted also in another interview, but they also mentioned that in the game industry project managers are often called producers. Even though the name would imply they have something in common with movie producers, they actually behave like product managers in the software industry). They "-- basically manage the relationship with the artist. They find the talent, work out product deals, get contracts signed, manage them, and bring them to their conclusion" (Lemmons, 1985). While the previous quote is relatively old, it still holds water in terms of the tasks of a video game producer.

> *They [Project Managers] are mostly interested in your performance certain tasks in a certain time in certain budget and that's usually some sums it up like why we are doing this for what we are doing this and are we doing the correct thing? You know they just need you to execute things properly and producers are usually the ones in the game industry, who are these project managers and they can collaborate with all the technical tasks to make sure they are executed and they are executed properly. (Interview F)*

Some product managers claimed they had been doing also project management in addition to product management. But the person interviewed who told this also mentioned it is not very important and they did not do it for a long. They appended their statement by saying that it is more important whom you work

with than what you do. It makes sense as it is important to work with people who can manage a project so the product manager doesn't need to do it.

> *I would say I did it but it is not that important. It is most important to choose with whom you will work and then it is quite okay. (Interview H)*

> *I've been a, I would say, very involved because I think that the company eliminated the role of a producer sometime ago. Like five. Six years ago? Yeah, I'm not wrong. So project management is shared between the tech lead and the product manager. (Interview I)*

In some companies, however, it was really up to the product manager to decide if they wanted to manage a project or not. This is great if the product manager wants to pivot into a more project-focused career, but it also means that they have less time for actual product related tasks.

> *I would say it is really up to you in the company or how you want to grow and, and interact with things you like. (Interview G)*

Overall most of the interviewed product managers were not enthusiastic about sharing the tasks with a project manager. While someone without intrinsic knowledge about the roles might think the roles are interchangeable, the reality is that the actual tasks are very different. As was mentioned above, the product managers on what to execute whereas the product manager focuses on how to execute.

PEC 13: Project management should be left for the producer or the project manager.

5.4.2   People Management

People management is the act of managing people and serving as a supervisor for them. This can include being the direct supervisor of another employee or leading a group of people and telling them what to do.

Despite the name of the role having the title "manager", people management was deemed to be non-essential by almost all product managers. Product managers were mostly working with the product and managing it. The only cases when a product manager was required to have people management skills were when they had reached a seniority level high enough and subsequently had junior product managers under them.

> *They don't have to manage people unless they are the leads of the product managers. (Interview H)*

I think it really depends on the responsibilities but I don't see the product manager as a people manager unless there is a specific like Liveops team [of product managers] for example. (Interview B)

One of the interviewed product managers mentioned that they also act as mentors for some old team members of theirs. While this doesn't necessarily fall under the traditional definition of people management, it is good to note that this kind of behaviour is something that is found in the games industry, as it can be extremely valuable for the mentored people as well as the mentor themselves.

I don't have as many one-to-one with the team, but I care about people management. Plus, I also wanted to, so I am also a mentor of some other people in the company that were in my last team. So yes, I would say. Yes. (Interview I)

Close collaboration with other crafts was, however, mentioned multiple times, but a direct manager-subordinate relationship between a product manager and the people they were working with was not brought up a single time. The product manager could ask the analysts or liveops-managers to execute a task to help the product manager, but the relationship between them was still more of a vertical nature.

So for project managers, they usually manage liveops guys and we usually have also liveops QA's [Quality Assurance] and also sometimes separately economy designers. --- product managers will be also like managers for, their own department in the game industry, but we don't manage (for example) the artists. (Interview F)

I have more of a horizontal relationship with marketing and analytics. We all collaborate and they don't report to me. (Interview G)

One important addition to the relationship dynamic of a product manager was added by one product manager, who mentioned that the PM should act as a glue between different stakeholders in the team. This means, that they should be able to translate the business requirements for the technical people and be able to communicate about the technical requirements with the business people.

Basically product manager should collaborate with every stakeholders and act like a glue between everything and the product basically. And then it depends on the company. (Interview H)

In some cases, it was mentioned that the product manager does manage the daily aspects of a development team of a game but even in that case, the product manager was not their direct manager. In this case, the product manager also acted similarly to a product lead, so the responsibilities were also a bit broader.

I manage the Dev team but I'm also not their direct manager, right? I don't deal with Career goals, reviews, all that stuff. I just deal with day-to-day tasks. (Interview E)

Overall, people management was not deemed essential for product managers. There were some organizations where the product manager had some kind of additional leadership tasks, but none of the product managers mentioned it being one of the main tasks in their role. It, however, was also mentioned that the higher the product manager got on the corporate ladder, the more likely it was they would bet getting subordinates from the other more junior product managers. So in that sense, there is a certain level of people leadership skills required from a product manager, at least from a senior one.

> PEC 14: People management is not a needed skill, but the product manager needs to get along with everyone.

5.4.3 Collaboration with Other Product Managers

The collaboration with other product managers is not a task per se but is a good indicator of the practices of the product managers and overall the organization dynamics. While collaboration can only happen, if multiple product managers are working for the organization, it is still something that should be highlighted when talking about the role. The collaboration can be simply something that happens semi-passively, such as water cooler talks or questions in slack or something more organized, such as weekly meetings, where knowledge is shared with other product managers.

Somewhat surprisingly collaboration between product managers was not something every single organization did. The majority of the interviewed product managers however told that it was important for them and helped them to solve problems they were facing. Without interaction with other product managers, there was a risk that the product manager could silo themselves and not question their assumptions.

> *The product manager shouldn't only be working in his or her own silo. (Interview A)*

Another product manager compared collaboration to an algorithm. They claimed that the more product managers the better the results would be. The returns, however, would start to diminish after a while so infinitely adding product managers to the problem don't fully solve it. This was a good validation of the assumption that collaboration is healthy for the business.

> *I see it as an algorithm. So if you are alone, let's say you are 50%, good. If you are too, you are 65%, good. And then the returns are diminishing, but more*

people usually higher quality but then the added people usually don't add value. (Interview H)

One of the interviewed product managers also mentioned how the collaboration was driven by the incentives of the company. This meant that the company culture favoured knowledge sharing and collaboration.

I think there's a fairly heavy amount of like knowledge sharing that goes on. You can obviously be better, but I think overall, it is very healthy and I think a large part of that is because people are very collaborative like our incentives are driven by the performance of the overall company. (Interview D)

In most cases, the collaboration between other product managers was mainly something they had to actively do themselves without organized processes. This meant that there were no meetings and to get feedback from their peers, they had to actively contact and interact with them. While this by no means is a problematic approach, there is a risk it causes friction in problem-solving as there was a higher threshold to ask questions.

Yeah, definitely like it is like I've had a chance to work with a few from other studios on, like, multiple features because like, I mentioned earlier right the industry steals from each other all the time. So it would only be natural that inside the same company, you will steal from each other all the time. (Interview E)

One of the product managers who told that they have no official processes to interact with other product managers said they usually met in a more informal setting such as lunch. This allowed them to more candidly discuss the topics while still sharing valuable information.

I have a lot of relationships with a lot of meetings and have lunch together. So more or less, they there's almost like one in every game right now at the moment. So I have a very close relation to them, to ask them how things are performing. (Interview G)

Despite the positive sentiments from a majority of the interviewed product managers, there were still some who told that they do not think collaboration and knowledge sharing was critical for the success of the product. This was often explained with the overall culture of the organization, where knowledge sharing was not emphasized as much as in some other organizations.

[On receiving feedback from other Product Managers] Well. Usually, it is not very critical. It is not very urgent. (Interview C)

One of the product managers from a team with multiple product managers told it depended on the project and the team. In their team, there was no active collaboration with the other product managers. The dynamic in their team was also relatively formal so no chit-chat meetings were organized to foster the collaboration. They, however, mentioned it was mostly due to the remote work that was heavily promoted during the Covid-19 pandemic. The interviewed

product manager also acknowledged it was not the most optimal way of working, but it was working for them for now.

> *It depends on the project and product, every team have their own processes how they, you know, structure these meetings and if they want to have them at all. I can say that our culture at least on [The Game Interviewee works on] is quite formal, we don't have a lot of you know just Chit Chat meetings and all this stuff. Maybe it is not very good but I think that remote mode you know. (Interview C)*

Last interviewed product manager told they do not have any kind of processes in terms of collaboration or knowledge sharing. Some of the teams did have updates once in a while but organizing such an event was voluntary so it was not enforced in any way.

> *I think that we don't have processes or anything it is more of an active thing that you would do. If you're interested in the status of another project, we have like an update once in a while. But they share it if they want to, but we don't have it systematically. (Interview I)*

Overall collaboration between product managers was seen in a positive light by most of the product managers. It was mentioned collaboration fosters better results as the more people there were working on a problem the broader view the problem got. Even the product managers who told that they currently are not engaging in active communication and knowledge sharing in their organization mentioned that more active collaboration would not result in worse results, quite the contrary.

> PEC 15: Collaborating with other product managers was seen as an important way to foster knowledge and improve product.

5.4.4 Team Spirit and Thought Leadership

Another passive task of a product manager that was brought up during the interviews was keeping up the team spirit and fostering the team's thoughts. This meant that the product manager would be fostering the team's enthusiasm towards making the game and persuading them to accept any possible new features that might first be received negatively by the team. This does not mean that the product manager should disregard other people's opinions, but it is to get them to understand why something was done instead of something else.

The term thought leadership came from the first interviewed person and was thus used in this section. While it does not cover every use case, it still conveys the meaning required by the term.

Only one Product Manager talked about how "thought leadership" or flourishing the ideas of the team was a role of a product manager. According to them, it is important to inspire other people in the job to always strive for their best

Yes, for thought leadership, if you may say, yeah, that's a good word. So yeah, it is such an honour communication, it is, it is really easy. In the product manager role, that you create some friction, if you are not careful, and it is very easy as well to be not doing your job or not having your place in the team. (Interview A)

You need to be really good in communication really good, inspiring people really good and understanding (Interview A)

One product manager answered from the view of a game lead and told that they would try their best to make the team feel appreciated. They however mentioned that in their current role it was not something they would be doing.

If I were to lead the project, I would really try to make the project members feel engaged and give them a feeling they are being listened. (Interview G)

The same sentiment was shared by another product manager, who thought that some kind of thought leadership should be kept up in the team, but the person handling it doesn't necessarily have to be a product manager.

I would say it is important to have some kind of thought leadership in the team but it doesn't have to be specific for PM. (Interview H)

Some other product managers connected the word to convince the other team members to agree with the idea. In the discussion, they did not associate the phrase with inspiring other people but more with making the team align with the common goal and understanding why a certain feature might be developed or not.

Now, I've been often calling the meetings where I do sort of this feature pitch. I call them convincing because I know people already know of the feature, it is just that I have to convince them that it is a good idea. (Interview B)

The product manager should make the team connected to the business, take ownership and celebrate and successfully have by sharing the numbers with the team by showing them why we're doing things in a certain way (Interview A)

I think it is always important. I think the PM's job is to you're the PM is the conduit for the business value, right? You're the business needs your it. That's what you're representing and it is important that you, first of all, convey that to everybody what you work with. (Interview E)

One product manager mentioned how too much thought leadership can lead to negative results. If the product managers start to think they are the creative genius ala Steve Jobs in the project, it might demotivate the team. Instead, the product manager or the one fostering the thought leadership should make the other feel appreciated instead.

I would say that it actually may be a problem sometimes and I know there are different product managers in terms of this. So one part of product management, product managers, let's say, they like to play Steve jobs and imagine that they are like, strong leaders, who own everyone and you know like direct to their own opinions because they are the most important ones [in the team]. But here you may like actually let's say the vision from other people, you may be wrong and you may also demotivate your team. (Interview F)

Lastly, one of the interviewed product managers mentioned how it is not really about leading the thought in the team but more about challenging the team and making them think from another direction. This is extremely valuable if, for example, the only dimension the team has thought about a certain topic is how enjoyable and easy to use to pass the time the game is for the player. In an ideal world, the player's enjoyment would be the only thing that matters but in a corporate environment, the business aspect of the game should be kept in mind too. This doesn't mean that the game should be designed to be as extremely greedy as possible, but it means that the topic should be thought from multiple directions to understand, why a certain decision was made.

I think it is very important that the team is passionate about the project and to foster this passion and motivation. It is important that managers challenge the team all the time. It is helping the team. (Interview I)

Overall the team spirit and thought leadership could be summarized as that the product manager should communicate well with the team, why a certain decision has been made. While most product managers did not agree that the product manager should lead the team's thoughts, they agreed that the product manager

> PEC 16: Product manager should keep everyone involved with the project and the business but they necessarily do not need to foster the team spirit.

should influence them and challenge the established ideas. This allows both the team and the product manager to grow.

5.5   Summary

This chapter included the analysis of the interview material gathered from semi-structure interviews. From the interviews, four different areas of expertise were identified and each one of the categories included multiple tasks. The tasks were inferred from either the PSMBOK Framework (ISPMA, 2021) or from the analysis conducted on the job postings for a product manager's position in a free-to-play mobile gaming industry. Below are listed the primary empirical conclusions found from the interviews.

The Primary Empirical Conclusions

PEC 1: Designing and prioritizing features, performance management, market analysis and collaboration with other Product Managers were found to be the most important tasks for a product manager.

PEC 2: Product manager should own the business performance.

PEC 3: Keeping up with the market trends is beneficial for a product manager.

PEC 4: Strategy was not brought up multiple times during the interviews. Seems it was left for the product lead.

PEC 5: Performance management was deemed as an essential for a product manager. Personally, understanding the product gives new avenues for growth.

PEC 6: Live-operations management is important for the product manager if the team does not have a live-ops manager.

PEC 7: Product managers were often the owners of A/B testing and the ones proposing new tests. In some cases, it was a shared responsibility with data analysts.

PEC 8: Product managers should not maintain game configurations but knowledge on them is beneficial.

PEC 9: Product manager should not get involved with User Acquisition but it useful to understand how it affects the game's performance.

PEC 10: Product manager should be heavily involved with concepting of the features so they align with the business needs.

PEC 11: Designing features can be beneficial for the Product Manager but it is enough that they align with the designers about the needs of the features.

PEC 12: Product manager should be involved with the feature prioritization to control the business growth of the game.

PEC 13: Project management should be left for the producer or the project manager.

PEC 14: People management is not a needed skill, but the product manager needs to get along with everyone.

PEC 15: Collaborating with other product managers was seen as an important way to foster knowledge and improve product.

PEC 16: Product manager should keep everyone involved with the project and the business but they necessarily do not need to foster the team spirit.

6   DISCUSSION

The global mobile gaming market is larger than ever the growth of it doesn't show any signs of stopping. More and more companies are improving their processes and they want to have key people focusing only on the growth of the product. In the software business and the gaming business, these people are usually referred to as product managers. While the practice of employing product managers to manage live games is not new, research on the topic is relatively underdeveloped.

6.1   Practical Implications

6.1.1   Conclusions on the role of a product manager in a free-to-play mobile gaming industry

The role of a product manager in the gaming industry is more ambiguous than not. Certain key topics were important for all of the product managers, but the interviews showed that some of the topics were divisive among the interviewees. This section aims to answer the first research question and shine a light on the critical issue of, how is the role of a product manager in the mobile gaming industry and how does it compare to the product manager in the software industry

Product Management
Asks what to make and how to make it
Ensures it will make business sense
Understands how it fits customer needs as a solution
Defines road map beyond a single release and decides what to keep or kill
Responsible for all aspects of a product or solution (value chain)
Leads teams with various functions through the life cycle

Table 1: Responsibilities of a product manager (Ebert, 2014)

For a frame of reference, Ebert's (2014) classification of product managers' responsibilities in the software industry will be used. It includes seven different high-level concepts of product management. Each one of these is looking into the role from a different view.

The first two responsibilities concern the product managers high-level role and their part in the business process. In the software industry, it is up to the product manager to ensure that what they are building does make economic sense. It was also up to them to come up with the question "what to create" and "how to create it", effectively meaning that they were responsible for deciding what kind of features or product they are building.

From the interviews, the product managers in the free-to-play mobile gaming industry were well versed in the "what to make" and "ensuring it makes business sense." The "How to make" section could be referring to either the actual execution of a certain feature or the design of this said feature. As exhibited by the PEC 10, the product managers were heavily involved with the features and assisted the designers to produce new ideas which were aimed to answer the business questions. The importance was also highlighted in PEC 12, as the prioritization is in its essence asking what to make and when to make it. Depending on the organization type, the depth of involvement was different. In more design-oriented organizations, the product managers also were working with the design, effectively meaning that the craft was divided into design-oriented product managers and business-oriented product managers.

The third responsibility was to understand, how the product managers were creating fits the customers' needs as a solution. While it is essential to create a game that fits the market, the interviewed product managers were rarely involved with the game's pre-production. In the free-to-play mobile gaming industry, the product manager's role was to manage the game after it went live, so they were not building a completely new product as a product manager usually does in the software industry. They, however, still needed to take the customer into account when designing new features for the game and planning the live operations, as exhibited by PEC 6. So, while in theory, they both were involved with understanding the needs of the customer, the product manager in the games industry needed to be more reactive on what the customer wanted because the games industry is more fast shifting, unlike the software industry.

The fourth responsibility mentioned in Ebert's table was that the product manager needs to define the road map beyond a single release and decide what to keep or kill. From the interviews, it became apparent that this was one of the primary responsibilities of a product manager as exhibited by PEC 12. Depending on the organization, the product manager was entirely responsible for the

road map or managed it with a game lead. However, the overall sentiment was clear that the product manager should have a clear responsibility in owning or at least have a considerable influence in deciding what kind of features the game would be benefitting. So, in that sense, this responsibility would be the same as it is in the software industry.

The fifth responsibility for a product manager was quite different in the free-to-play mobile gaming industry compared to the software industry. In the software industry, according to Ebert, the product manager is "Responsible for all aspects of a product or solution." This "value chain" means managing all of the actions a firm takes to deliver a product (Porter, 1985). In the free-to-play mobile games industry, the product manager thinks of "what the product will be" instead of "how it will be". The producer or the project manager's responsibility is to define how the team will achieve their goal and deliver what the product manager has envisioned with the team members, as exhibited by PEC 13. When positioned to Porter's model of the value chain, the product manager is involved only with the "Service" part of the framework. This means that they are working with the activities, which are required to keep the product up and working after it has been delivered for the client (player). In this light, the role of a product manager differs heavily in the industries compared here, and in the software industry, the product manager is more involved in the actual production of the product.

The sixth part of the responsibilities is about team leadership. According to the interviews, this is another responsibility, which was not one of the product manager's primary responsibilities in the free-to-play mobile gaming industry. Instead, it was usually the product lead who was responsible for leading the team in their daily functions through the product's life cycle. The only time a product manager functioned as a leader in their role was when they had other product managers as their subordinates. In the software industry, the product manager might assume the role the product lead would in the games industry, as seen in PEC 14, creating a disparity between the two industries. The product manager still should get well along with all team members, as they functioned as the catalyst between several business functions, as exhibited by PEC 16.

Overall, the interviews revealed that the software and mobile gaming product managers were relatively similar, but some of the differences highlighted how the responsibilities were different. One general aspect of the product manager in the games industry was that they were usually less technologically focused than their software industry's counterparts. As brought up by Chisa (2014) the software product managers were usually either design, business or technology oriented or multiple ones of these. Since the interviewees did not bring up

any technological aspects of the craft and in some cases even resented them (PEC 8), it can be assumed that the product management in the games industry falls to the design and business-oriented section of product management.

The primary differences in the role of a PM in the games industry was that some of the software industry's product manager's responsibilities were dedicated to the producer. Also, the product manager did not lead the team themselves in the games industry. In short, this meant that the responsibilities of a product manager as it is known in the software industry were shared between three distinct roles in the games industry. The product manager, the producer or project manager and the game/product lead were all involved in the same roles as the product manager in the software industry. This disparity would not mean that the product manager in the games industry would be doing less than their software counterpart, but rather that they also had other responsibilities.

Product Management in Software Industry	Product Management in the Free-to-play mobile games industry
Asks what to make and how to make it	Asks what and when to make and is involved in making it happen
Ensures it will make business sense	Ensures it will make business sense
Understands how it fits customer needs as a solution	Understands how to evolve the game to keep it up with the players' needs
Defines roadmap beyond a single release and decides what to keep or kill	Defines feature roadmap beyond a single release and decides what to keep or kill
Responsible for all aspects of a product or solution (value chain)	Responsible for keeping the game working effectively
Leads teams with various functions through the life cycle	Does not have direct subordinates outside of the PM craft

Table 2: The differences in responsibilities between a software product manager and a free to play mobile gaming product manager

6.1.2 Key tasks of a product manager in a free-to-play mobile gaming industry

While the previous section focused more on the overall responsibilities of a product manager in the free-to-play mobile gaming industry and how it differs from the software industry, this section focuses on the actual day-to-day tasks the product manager interacts with. The tasks are derived from the software product management framework (SPMBOK, 2013), where the Core Software Product Management tasks are divided into two different pillars. Some of the core tasks were also in the first pillar, which included the market and product analysis cells (Fig 9).

The interviews with the free-to-play mobile gaming product managers uncovered some interesting similarities and differences between the product managers. As the primary functions of a product manager reside in the Core SPM columns, a focus will first be directed to those. First, the product strategy column will be examined and compared against a free-to-play product manager.

Market analysis and the product analysis were in the original framework in the column of strategic management, but for the mobile free-to-play gaming industry's product manager they would be more in the section of a product strategy and the product planning. As exhibited in the interviews and by the PECs 2, 3 & 4, the product manager was not strongly involved in the strategy of a game or a studio, but they were following the competitors and the performance of their own game. This information was then actively used to improve the game with which they were working.

Positioning and product definition was the act of defining how the product will be sold for the customers. The product manager was heavily involved in this process in the software industry before the product was released for customers. The PM researched the market and attempted to find the best product-market fit. In the free-to-play mobile gaming industry, the product manager was

Strategic Management	Product Strategy	Product Planning
Corporate Strategy	Positioning and Product Definition	Product Life-Cycle Management
Portfolio management	Delivery model and Service Strategy	Roadmapping
Innovation Management	Business Case and Costing	Release Planning
Resource Management	Pricing	Product Requirements Engineering
Market Analysis	Sourcing	
Product Analysis	Ecosystem Management	
	Legal and IPR Management	
	Performance and Risk Management	
Participation	Core SPM	

Table 3: The tasks of a software product manager

rarely involved in this step as it was the product or the game lead who was tasked with finding the right product-market fit as exhibited by PEC 4. Instead, the product manager was more in charge of developing the product in the direction, which would be the best considering the product and the audience. So, they were not involved in the initial positioning and definition but kept evolving the existing definition.

The next two cells in the product strategy column, delivery model & service strategy and business case and costing were also something the free-to-play product managers were not involved with. The producer defined the delivery model and service strategy in the games team, and the product lead handled the business case and the costing. As exhibited in section 6.1 and in PECs 4 & 13, a lot of the tasks considered owned by the product manager in the software industry were divided between multiple employees in the mobile games industry.

Pricing is a curious cell in the product strategy. While the free-to-play games themselves are free to play, the games still have optional in-application purchases, which the product manager is usually in charge of, which in turn falls under the live-operations management. So while the game industry's product manager might not be involved in the standard sense of product pricing, where the software might be sold for the customer as a subscription service, they still are in charge of deciding how to monetize with the game, as exhibited by PEC 6. The dynamics were a bit different, but the concept was still the same.

While the previous cell was shared between the product managers, the following three cells were again something the mobile gaming industry's product manager was not involved with. The sourcing to find new products to foster the game development was, in most cases, in the hands of a producer (PEC 13). Ecosystem management was out of the reach of a staff-level product manager because they usually own only one game's performance. Legal and IPR management was not brought up during the interviews, and usually, the more prominent games firms had a separate legal department handling such matters. Again, the product manager had less direct involvement with matters involving the actual production of the game. There were exceptions where the product manager also acted in the role of a producer, but as mentioned, these were more of an exception rather than a rule.

The last cell in the product strategy column was the performance and risk management. While the product manager was not as involved with the risk management, performance management was something the games industry's product manager was very involved with, as seen in PEC 5. They needed to be on top of the performance of their product and understand why a particular behaviour was being exhibited in the metrics.

In the second column, product planning had more in common between the product managers from the two different industries. Product life-cycle management was something both product managers shared and was actively involved with. In the games industry, the product manager positioned their solutions to address the product's state at any given point. From the growth phase of the product, for example, the product manager could be involved with the first time user experience, in the mature phase, they could focus more on the retention and monetization, and in the decline-phase shifted their focus even more to the retention side to keep the existing players in the game. This is manifested the best in what features the product manager prioritizes for the releases, as was exhibited in PEC 12.

Roadmapping is the second column in the product planning column and directly related to the previous life cycle management section and PEC 12. This was a task that all of the interviewed product managers agreed was essential for the product managers. It was necessary for the product's performance to understand what features the product required and what was essential for the business.

Release planning was the third cell in the release planning column. While the product manager in the free-to-play industry was involved with this task, it was shared between the product manager, producer, and the product lead. The product manager, however, according to the interviews, had a considerable role also in deciding which was being made into a release. The final word was, however, with the product lead.

Due to the differences in the industries and the methods of creating products, the product requirements engineering task was not mentioned once during the interviews. The software development is often more cyclical, and releases are planned more in ahead and there are more systematic approaches to the development. Requirements engineering is usually an approach found in those mature industries mentioned above where the products need more detailed requirements than in the highly agile free-to-play environment.

Other essential tasks, which rose from the interviews and were not directly part of the original product management framework, were the heavy involvement in the live operations and different subtasks of it and designing and planning features. While theoretically, the design-related tasks could be positioned under a product life-cycle planning, their importance in the product managers role was significant enough to dedicate an individual cell. The product manager's involvement with the live operations also took a great chunk from their daily activities to sustain a cell for the task. The PECs 10, 11, 12 imply that the design should be included in the product managers core tasks.

During the interviews, other tasks arisen with the product managers were not shared significantly with all the interviewed product managers. To visualize the differences in the product management between software industry and a free-to-play mobile gaming industry, the This meant that they did not earn their spot on the updated task framework of the product managers working in the free-to-play mobile gaming industry, which is pictured below. The tasks that were not essential or the product managers were not involved are greyed out in the table. The two additional cells are also included in the product planning section to appease the differences between the industries. This table should more accurately describe the tasks of a product manager in the free-to-play mobile gaming industry.

Software Product Management		Free-to-play Mobile Game Product Management	
Product Strategy	Product Planning	Product Strategy	Product Planning
Positioning and Product Definition	Product Life-Cycle Management	Positioning and Product Definition	Product Life-Cycle Management
Delivery Model and Service Strategy	Roadmapping	Delivery Model and Service Strategy	Roadmapping
Business Case and Costing	Release Planning	Business Case and Costing	Release Planning
Pricing	Product Requirements Engineering	Pricing	Product Requirements Engineering
Sourcing		Sourcing	Feature Management
Ecosystem management		Ecosystem management	Live-operations Management
Legal and IPR management		Legal and IPR management	Market Analysis
Performance and Risk Management		Performance and Risk Management	
		Product Analysis	

Table 4: The differences in tasks between a software product manager and a free to play mobile gaming product manager

6.2 Theoretical Implications

To the best understanding, research on the product management in the mobile gaming industry is relatively novel research topic and academic research on it has not yet been published. Thus this thesis aims to provide a foundation to built upon in hopes of fostering new research on the topic. To assess the findigs from this research, PECs uncovered during the data analysis are assessed below:

Identifier	Empirical conclusion	Relation to existing research
PEC 1	Designing and prioritizing features, performance management, market analysis and collaboration with other Product Managers were found to be the most important tasks for a product manager.	Contradicting with previous research. Product managers in the software industry were also in most cases found to be technologically adept (Chisa, E, 2014).
PEC 2	Product manager should own the business performance.	Corresponding with previous studies (Kittlaus & Clough 2009)
PEC 3	Keeping up with the market trends is beneficial for a product manager.	Corresponding with previous studies (Kittlaus & Fricker 2017).
PEC 4	Strategy was not brought up often during the interviews. In most cases it was left for the product lead.	Contradicting with previous research. Product managers in the game industry were not responsible for the product strategy. (Kittlaus & Fricker 2017).
PEC 5	Performance management was deemed as an essential for a product manager. Personally, understanding the product gives new avenues for growth.	Corresponding with previous studies (Kittlaus & Fricker 2017).
PEC 6	Live-operations management is important for the product manager if the team does not have a live-ops manager.	Novel, previous research on product managers' involvement in live-operations was not identified.
PEC 7	Product managers were often the owners of A/B testing and the ones proposing new tests. In some cases, it was a shared responsibility with data analysts.	Corresponding with previous studies (Siroker & Koomen 2013).
PEC 8	Product managers should not maintain game configurations but knowledge on them is beneficial.	Novel, previous research on product managers' involvement in configuring products was not identified.

PEC 9	Product manager should not get involved with User Acquisition but it useful to understand how it affects the game's performance.	Corresponding with previous studies (Seufert, 2013)
PEC 10	Product manager should be heavily involved with concepting of the features, so they align with the business needs.	Novel, previous research on product managers' involvement in concepting features was not identified.
PEC 11	Designing features can be beneficial for the Product Manager but it is enough that they align with the designers about the needs of the features.	Novel, previous research on product managers' involvement in designing features was not identified.
PEC 12	Product manager should be involved with the feature prioritization to control the business growth of the game.	Corresponding with previous studies (Andrews, 2005)
PEC 13	Project management should be left for the producer or the project manager.	Corresponding with previous studies (Kittlaus & Fricker, 2017).
PEC 14	People management is not a needed skill, but the product manager needs to get along with everyone.	Contradicting with previous research. Previous research has implied the product manager leads the product team (Maglyas, 2013; Rauniar et. al 2008)
PEC 15	Collaborating with other product managers was seen as an important way to foster knowledge and improve product.	Corresponding with previous studies (Maglyas et. al, 2013)
PEC 16	Product manager should keep everyone involved with the project and the business, but they necessarily do not need to foster the team spirit.	Novel, previous research on product managers' involvement in team spirit was not identified.

Table 5: The theoretical contributions of the research based on the PECs

Most of the theoretical implications in this research are focused on the responsibilities specific for the games industry. As discussed already in the previous chapters, the product manager in the mobile games industry was, according to the interviews, focused in the design and business aspects of the game and none of the interviewed product managers brought up the importance of technological understanding (PEC 1).

The other finding, which contradicted the existing research was that the product manager was not involved in the game's strategy, but it was left for the game lead (PEC 4). This differs from the software industry as according to the

past research, product manager either managed or had a strong influence over the strategy of the product (Kittlaus & Fricker 2017).

Third finding, which was conflicting with previous research was product manager's involvement with people management. In multiple past research, it was identified that the product manager not only managed the product but also was in a leadership position in the team and required people management skills (Maglyas, 2013; Rauniar et. al 2008). In the games industry, the product manager did not require people management skills as they were not directly leading any as the focus was more on the communication between different crafts.

The novel findings, which could not be tied, to our best understanding, to any existing research, were related to the games industry. As live operations are unique for the games industry, the existing frameworks or research did not have mentions to this topic (PEC 6). Similarly, the findings related to the product manager maintaining the game and its configurations (PEC 8) could not be identified from the existing research.

While the product managers importance in roadmapping features (Andrews, 2005; Chisa, 2014) and being involved in deciding what features to build for the product (Ebert, 2014; Maglyas e.t al, 2013) are well researched, the product manager's involvement in the actual design process of the features to our best understanding is a novel topic to focus on. As uncovered in the interviews, the product manager in the games industry is involved both in concepting and designing features for games (PEC 10 & PEC 11). In the software industry the closest to concepting would be gathering and writing down requirements (Ebert, 2014), but due to the inherent differences of designing and requirements, in this thesis these are attributed as two different topics.

7 THE FUTURE AND BEYOND

This chapter presents the final conclusions for the study. These conclusions include the answers to the research questions, limitations of the study, future research opportunities and the closing words over the research.

7.1 Answers to research questions

This thesis aims to identify how the product managers in the mobile game industry are operating and to answer to the following two research questions:

How is the role of a product manager defined in the free to play mobile gaming industry?

What are the key tasks of a product manager in the free to play mobile gaming industry?

The first research question was answered in the chapter 6.1.1. The empirical findings indicate that the product manager in the free-to-play mobile gaming industry could be classified as a person, who asks what and when to make and participates in making it happen, ensuring it will make business sense. They also understand how to evolve the game to keep it up with the players' needs and define feature roadmap beyond a single release and decides what to keep or kill. In addition to the previously mentioned, they are also responsible for keeping the game working effectively and in terms of leadership, they do not have direct subordinates outside of the PM craft. And in addition to all this, they are more business and design oriented than technologically oriented.

For the second question, the key tasks were identified in the chapter 6.1.2. The product manager should manage the product's road map, design and decide which features to build for the game, report on the games' performance, collaborate with other product managers, have an understanding on the market and have ownership on the live-operations. The less important tasks for the product manager were strategy of the game, maintaining game configurations, user acquisition, people management and fostering team spirit. The one task that was almost unanimously agreed to not be on the product manager's table was project management.

7.2 Study Limitations

While researching the mobile gaming industry, it became apparent that the existing research on the topic is all relatively new and had many holes. This meant that some of the topics did not have reliable or any kind of academic research available and a lot of the references had to be sourced from commercial sources. The same kind of issue was brought up with the topic of a product manager. Product management is already a well-established practice, but it does not have much academic research. This research, in a way, tries to address the problem by providing a foundation to build upon.

This research was initially also supposed to consider the Asian companies and their way of handling product management. However, due to unforeseen circumstances and a cultural barrier, it was not possible to get them interviewed. The eastern aspect of the thesis was dropped out, and the focus pivoted into a more general view of the product managers role in the free-to-play gaming industry.

The last explicit limitation in the study was the limited amount of senior-level product managers interviewed. Due to most of the product managers being staff level and only a couple of them working as senior product manager, some of the answers might be skewed into a direction, which does not take the more senior product manager's involvement in the organizational strategy setting. Future research with a larger sample to better understand the effect of a seniority could be considered in the wake of this research.

7.3 Future Research

Due to our best knowledge, the research in product-management in a mobile gaming industry is not very well traversed topic, which gives a huge incentive for future research. Some of the potential topics could be related to how the role of a product manager differs from one environment to another when looked through lenses of, say, organizational culture or national culture. Other topics worth researching could be related to the actual measured impact of the product manager in an organization. A short, compiled list of potential research topics are as follows:

- What is the effect of organizational culture in the role of a product manager?
- What is the impact of a product manager on a team?
- How does product management differ in the east versus the west?
- How product management differs in free-to-play oriented organizations compared to premium oriented organizations
- How does the role of a product manager differ in the traditional AAA game industry compared to a mobile gaming industry?
- What kind of product development processes lead to a successful product?
- How the product manager's seniority affects the product manager's role in the organization?
- How are features prioritized in the games industry?

In addition to what was mentioned above, a structured interview on the role of a product manager in the mobile games industry could provide additional valuable information on the topic of the thesis, as the semi structured interview structure might have missed some aspects of the product manager's tasks.

7.4 Conclusion

Product management is the act of defining what goes and whatnot in the product and overseeing the product's vision. Due to the agile nature of the games industry, more and more organizations are adapting to the change and employing product managers to manage the game's vision for the game team. As the role is originally from the software industry, due to the differences of the

industries, it is not just a simple task of implementing the role as is to the games industry.

This thesis was made to examine the differences in the profession of a product manager in the software and the free-to-play mobile gaming industries. The interviews revealed that despite having the same title, the responsibilities and tasks of the role differed between the industries. In the free-to-play mobile gaming industry, the product manager was more involved in the daily operations of the product, and the production process related tasks were delegated for the producer of the team. In the software industry, the product manager was more involved in the processes than they were in the games industry. The product manager in the games industry was also less involved in planning the product as that responsibility was more in the hands of a product lead or the game lead.

Despite having interviewed product managers from nine different organizations, the roles and responsibilities were similar. While some product managers were more design-oriented or business-oriented, the underlaying tasks they performed regularly were more or less the same. Owning the games business performance, managing the game's live operations, and owning and designing new features was something all the interviewed product managers agreed to be essential for the success of a product manager. Some of the product managers rose more divisive tasks such as involvement in User Acquisition, project management, people management and thought leadership. While some of the product managers saw them as beneficial, a minority of the product managers saw these as necessary for the craft.

8 REFERENCES

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