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Sustainability of revenue models and monetization of video games

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Abstract

The digitalization of the video game industry has facilitated the shift in paradigm in how video games are monetized. While video games in the past have been distributed as physical copies by retailers, the emergence of digital distribution platforms has laid the groundwork for various alternatives to have been introduced. These revenue models have proven to be vastly profitable for major video game publishers and have significantly contributed to the growth of the industry. Despite their financial success, these revenue models have been widely criticized for partaking in ethically questionable and addictive practices and impairing the customer experience of video games. This thesis aims to critically evaluate the sustainability of these revenue models from both a customer and an ethical point of view through a literature review and to analyze whether these revenue models can be expected to prevail in the foreseeable future despite their impressive capability of creating monetary value and for video game companies and their shareholders. While this thesis confirms the financial success of these revenue models, it also finds that many popular ones used by major video game companies are extremely close to the definition of gambling, yet regulatory action is still to be taken in a widespread manner to protect adolescents and people with e.g. addictive tendencies or other traits that could be exploited. Other adversary effects include a noticeable negative effect on working culture within the video game industry, as well as a detrimental effect on employees' career longevity and mental health. Further action and research is recommended for both academia and video game companies to innovate more ethical revenue models to reduce the negative societal impact and to better cater to employee well-being in the industry.

Keywords video games, business model, revenue model, microtransactions, sustainability

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Glossary

AAA	Colloquial classification for video games produced by a major publisher. Implies high development and marketing budgets, akin to the term 'blockbuster' in the film industry
EA	Electronic Arts, a major international video game publisher headquartered in North America
F2P	Free-to-play
FPS	First-person shooter
IP	Intellectual property
MMO	Massive multiplayer online
MMORPG	Massive multiplayer online role-playing game (e.g. World of Warcraft)
P2P	Pay-to-play
PC	Personal computer
RPG	Role-playing game
RTS	Real-time strategy

1 Introduction

Video games have grown substantially from their humble beginnings in computer scientists' hobby projects to a global phenomenon, a multi-billion-dollar industry and a competitive spectator sport viewed by millions of people both online and at large venues. The games industry is forecasted to generate \$152.1 billion of revenues in 2019, an increase of 9.6% to the previous year – and industry experts are expecting yearly revenues to climb as high as \$196 billion by 2022 (Wijman, 2019). This growth is largely due to technological advancements in Internet connectivity and download speeds as well as the development of alternative revenue models to establish continuous monetization of video games.

One of the most important driving forces behind this paradigm shift in how video games are monetized has been the emergence of the free-to-play (F2P) revenue model popularized by mobile games. This model offers the base game for free for customers, but introduces additional paid functions and services to enhance the core product and its experience for the customer for monetization (Flunger, Mladenow, & Strauss, 2017). These in-game purchases, often referred to as microtransactions, usually provide players with virtual items, cosmetic upgrades, virtual currency or power-ups and can range from mere cents to hundreds of dollars. Having proven to be vastly profitable, this model has since extended its reach to the PC & console markets as well, and its elements of continuous monetization have been incorporated into more traditional, transactional revenue models, where customers are required to pay a full price for the base game instead of it being free of charge. In contrast to this widespread financial success, a specific type of microtransaction has become increasingly prevalent in video games, commonly referred to as the 'loot box' – *“an in-game reward system that can be purchased repeatedly with real money to obtain a random selection of virtual items”* (King & Delfabbro, 2019, p. 2) that has been heavily criticized in both media and academic research for possessing mechanisms resemblant to those found in gambling (Drummond & Sauer, 2018; King & Delfabbro, 2019; Zendle & Cairns, 2018; Zendle, Meyer, & Over, 2019).

It is for this conflict between profitability and the societal impact and externalities of the prevalent revenue models in the video game industry, that the motivation for this thesis

has arisen. While the industry and its biggest players are raking in more revenue than ever before, the criticism for how this is achieved seems to be constantly increasing across customers, journalists and even manifesting itself in political discussion of the mental well-being of today's youth.

1.1 Scope of research

The scope of this research is the console & PC market of the video game industry, with main focal points on large, well-established video game publishers and their video games and utilized business models. In-depth analysis of the business models of mobile and indie games will be, for the most part, left out of scope to keep research concise. However, due to their significant impact on the industry, they cannot be completely ignored and will be reflected upon in some parts of research.

1.2 Research objectives and research questions

This thesis will consist of an introductory chapter detailing the research questions, scope of research and methodology, followed by an overview of the games industry in brief, its evolution and the facilitators of its growth and different platforms for the digital distribution of games that are used today. After this, the most common revenue models utilized within the video game industry will be introduced in further detail, which will lay the groundwork for the following chapter in which the sustainability of loot boxes and other revenue models will be further discussed. In this thesis, sustainability will be defined quite broadly by the author – its main purpose is to address whether the revenue models can be expected to continue functioning 'as is' in the foreseeable future, or is it likely for any interference to occur (e.g. from legal or regulatory entities).

The key research question that this thesis will aim to answer is as follows:

Are the most prevalent revenue models of PC & console video games sustainable from the customers', ethical and legal standpoints?

1.3 Methodology

The research for this thesis is carried out in the form of a literature review, following the general direction of the guidelines and goals of a literature review as proposed by Rowe (2014). Initially, research articles were found from both Scopus and Google Scholar using keywords such as “loot box”, “video game monetization” and “microtransactions”. Upon having found multiple relevant research articles, the references of these articles were then looked into and more relevant articles selected, prioritizing articles that had appeared in multiple research papers analysing the topic of video game monetization and microtransactions.

During research, this material was classified into three main categories according to the preliminary structure of the thesis to better diagnose the research problem (Van de Ven, 2013) – ‘*business & revenue model definitions*’ for material that provided insight on a broader scale about business and revenue models in general, ‘*industry & platforms*’ for laying the groundwork for further analysis and to provide readers with an overview of the video game industry and its participants and finally ‘*legal & ethical issues*’ for material that addressed the prevalent issues such as imposing gambling upon adolescents and employee well-being on an in-depth level. While some material was overlapping and many research articles provided insights for multiple sections of this thesis, this categorization proved to be helpful in structuring the research and organizing a large amount of material.

In addition, to better support the findings of these research articles, concrete examples were found from a multitude of well-established online media outlets focusing on reporting on the video game industry. Some industry reports were also utilized to gather quantitative data for a more comprehensive view of the industry.

Mendeley was chosen as the software for organizing all research articles, news articles and industry reports as well as adding citations and a list of references. Finally, this thesis poses no concerns regarding ethics or academic integrity; instructions and guidelines have been meticulously followed and all results and conclusions have been truthfully reported, and the thesis is fully compliant with the Aalto University Code of Academic Integrity (Aalto University, 2013).

1.4 Theoretical background

To better analyse both the ethical and legal connection between gambling and the monetization mechanics in many AAA video games, we will introduce five characteristics common to most gambling activities as defined by Griffiths (1995) to be utilized as a theoretical lens during the discussion in Chapter 4:

1. The exchange of money or valuable goods
2. An unknown future event determines the results of this exchange
3. Chance (at least partially) determines the outcome of this exchange
4. Losses can be avoided by not participating
5. Winners gain at the sole expense of losers

In their research, Drummond and Sauer (2018) also point out a sixth characteristic often considered as one of the criteria for gambling by regulatory entities – can the winnings be converted into real currency (i.e. ‘cashed out’). Controversy and lack of consensus regarding whether some monetization mechanics should be considered gambling or not has been a heated topic of discussion among several legal and regulatory entities around the world, with some European countries ruling certain monetization mechanics illegal, while in the United States, common ground is yet to be found. These issues will be further discussed in Chapter 4.

1.5 Structure of research

This thesis will follow the structure as follows. Chapter 2 will provide a comprehensive overview of the video game industry. This chapter will explain the characteristics of the industry, different roles within the industry as well as briefly touch on the subject of digital distribution platforms and their effect on the evolution of the industry. This part is to form a basis for further research and attempt to have any reader regardless of previous knowledge about the industry on a similar level of understanding.

Chapter 3 will begin by defining the terms ‘business model’ and ‘revenue model’ in more depth, after which the chapter will continue with a literature review defining different revenue models commonly utilized within the video game industry and what kinds of ways of monetization they consist of.

Chapter 4 will further discuss these revenue models from three perspectives: legal, ethical and employee well-being. This will discuss the findings from the literature review and reflect the findings with recent events and actions within the video game industry and around it.

Finally, concluding the thesis and discussing possible future insights of the industry and its revenue models will be the main foci of Chapter 5.

2 Industry overview

2.1 Characteristics of the video game industry

The video game industry has grown from being mere creative explorations of computational capabilities to a gargantuan of an entertainment industry, even surpassing the Hollywood box office in revenues (Zackariasson & Wilson, 2009). This enormous growth has largely been the result of technological advancements in Internet connectivity, the emergence of digital distribution platforms for video games and the digital nature of video games – from beginning to end, they seem like the perfect product for digital online distribution due to them being directly developed into a digital format – therefore no conversion is required (Jöckel, Will, & Schwarzer, 2008).

While the video game industry shares striking similarities to the software development industry, it's creativity that best characterizes it. Zackariasson and Wilson (2009) argue that creativity is very much present in the video game industry throughout its entire structure, which is also supported by Tschang (2007), who in hand points out that the industry is similar to other creative industries in a variety of ways, one significant characteristic being that the relative costs of production are very high compared to the relative reproduction costs (Kerr, 2006) – developing a game is often costly, whereas reproducing multiple copies of it is relatively cheap. However, Tschang (2007) acknowledges that it differs from other industries in that it requires a constant utilization of technology and possesses a high level of complexity in its development processes. Yet, despite a high utilization of technology being constantly present in developing and publishing a video game, it might be a lesser contributor to the success of a video game than that of creativity (Zackariasson & Wilson, 2009).

Nowadays, in addition to the above, the video game industry is largely characterized by casual gaming in the format of free-to-play mobile games, large and established intellectual property (IP) and franchises, competitive gaming, online communities and video game streamers amassing tens of thousands viewers at a time. Different platforms have disrupted the way that the video game industry has operated for a long time in terms of distribution (e.g. Steam), monetization and community-building (e.g. Twitch).

2.2 Roles within the video game industry

In their research, Zackariasson & Wilson (2014) have identified six (6) participants within the dominant structure of the video game industry value chain – developers, publishers, distributors, retailers, customers and consumers. For the sake of simplicity, the latter two will be combined into one (since the distinction between the two will only apply in the case in which the customer and consumer are different people, e.g. a parent buying a game for their child) and referred to as ‘customer’ throughout this chapter. Below, these participants and their roles will be briefly explained as well as the relationships between them, as explained by Zackariasson & Wilson (2014).

Developers

The developers’ role in the value chain is to actually develop the games. Developers can vary from small-scale indie developers (or even a single person as the developer) to billion-dollar game studios (e.g. Electronic Arts) employing thousands of people. The development process of a single game oftentimes requires the expertise of a wide variety of professions working together (designers, programmers, artists etc.) in an extremely complex, even chaotic environment and making this multitude of moving parts function together in order to deliver a finished product for the customer.

Publishers

Publishers, on the other hand, specialize in bringing games to the customers – they carry the financial risks of developing a video game, since this can be very costly – for example, the development cost for Rockstar Games’ AAA title Grand Theft Auto V (Rockstar Games, 2013) was \$137 million with a marketing cost of \$128 million, bringing the total cost to a hefty \$285 million*. Publishers work with different developers (third-party, in-house or independent) and build portfolios of their games to attract customers and create sales. Tschang (2007) points out that publishers often act as gatekeepers in further delivering the games to the customers while Readman and Grantham (2006) imply that the role of the publisher in the video game industry’s value chain has become increasingly dominant. Other functions include licensing, localization and artistic and design work.

* It’s worth noting, however, that despite its high total production cost, Grand Theft Auto V raked in a record-breaking \$800 million during its first 24 hours of sales (Goldfarb, 2013) and in April 2018, was reported to be the ‘most profitable entertainment product of all time’, having generated \$6 billion in revenue (Batchelor, 2018).

Distributors

Distributors commonly act as the middleman between the retailer and the publisher, bringing the games to brick-and-mortar stores and online retailers. However, during the past decades, publishers have been partaking increasingly in vertical integration by also taking the role of the distributor and/or retailer in order to bring down costs as is typical to cultural industries (Kerr, 2006) and to further attract customers on their digital distribution platforms (e.g. Valve's Steam and EA's Origin platforms).

Retailers

Retailers are the touchpoint for customers where video games can be purchased. Despite the prevalence of digital sales of video games there still exists a market for physical retailers such as specialized stores (e.g. GameStop), consumer electronics retailers and supermarkets. Nowadays, a majority of video games are purchased through digital distribution platforms such as Steam and Origin (in 2018, only 17% of video games were sold as physical copies in the United States (Entertainment Software Association, 2019)), which are often owned by major video game publishers.

Customers

Customers are the final participant of the value chain and the source of revenue for all other participants in the value chain. Tschang (2007) argues that customers influence video game development both directly and indirectly by communicating their needs and wants to developers and publishers. With the widespread communicational capabilities of the internet, many customers of video games partake in discussion in online communities to discuss, critique and to provide feedback on video games.



Figure 1. Video game industry value chain as interpreted by Zackariasson & Wilson, 2014, p. 3

2.3 Digital distribution platforms

Digital distribution's effect on the video game industry

As previously mentioned, digital distribution platforms have rapidly become the platform of choice for purchasing video games during the recent decade. These platforms have significantly benefitted both game developers and players alike – in addition to providing players with a streamlined way of purchasing and downloading games, these platforms also facilitate distribution of downloadable additional content, customization of games (also known as ‘modding’), socialization among players as well as acting as a tool for digital rights management (DRM) to prevent piracy and to protect developers’ intellectual property (IP) (Jöckel et al., 2008; Sotamaa & Karppi, 2010). They have also vastly contributed to the growth of the video game industry, having made video games more accessible than ever. Another fundamental element of these distribution platforms for the developers and publishers, as mentioned before, is the ability to vertically integrate the distribution and retail stages of the traditional value chain of the video game industry.

The emergence of these platforms has resulted in various major video game companies competing for users, with several companies having released their own digital distribution platforms during the early 2000s. While the console market’s distribution platforms are inherently tied to the consoles themselves and therefore primarily compete in terms of console sales, the PC market has been more fragmented. Whereas the console market merely has three main competing platforms (Sony’s PlayStation Network, Microsoft’s Xbox Live Marketplace & Nintendo’s Nintendo eShop), the PC market consists of over 15 different platforms, of which Valve’s Steam has remained as the dominant player, being the platform of choice for 75% of players (Edwards, 2013) and boasting over 90 million monthly active users worldwide (Taylor, 2018).

Steam

To claim that Valve has been one of the most pioneering video game companies to exist within the PC gaming industry is hardly an overstatement. During its lifetime, Valve has released multiple critically acclaimed titles (e.g. Half-Life, Counter-Strike & Dota 2) as well as significantly contributed to the growth of the competitive gaming scene. Their annual Dota 2 tournament, The International, is credited for introducing one of the first

examples of the battle pass as a source of revenue (further explained during Chapter 3.2.1.2) and also for holding the record for the largest single-tournament prize pool of any esports event at over \$34 million (Esports Earnings, 2019). Yet their tremendous financial success* can largely be credited to their digital distribution platform, Steam.

Launched in 2003 as an integrated way for providing updates for and access to Valve's games (Sayer & Wilde, 2018), Steam has since evolved into a gargantuan of a platform consisting of an online store of over 30,000 games and massive seasonal sales, a streaming service, a marketplace for virtual items and a social network service for players to communicate and play with each other. However, Steam's success has caught its competitors' attention during its growth, and many developers and publishers have attempted to imitate by providing their own platforms to better cross-promote their own game and to increase customer engagement. Some of the most popular examples include Origin by EA and Epic Games Store by the Fortnite developer Epic Games (EA, 2011; Epic Games, 2018).

Exclusivity in the video game industry

Competition among rivaling platforms is inevitable. Most commonly seen in the console market, exclusivity in the context of the video game industry commonly means that a game will be available only on one platform – commonly due to the fact that the console manufacturer has funded the game, owns the development studio or has simply made an exclusivity deal with the developer in order to drive hardware sales and gain a stronger standing on the competitive market (Hamilton, 2017). Timed exclusives, on the other hand, are planned to release on other platforms after a set period of time. While the reasoning behind the business decisions are understandable due to competition, many customers are left out and unable to play exclusive releases if they happen to favour a different console. However, this might be a necessary evil to compete within the console market – in their research, Song, Jung and Cho (2017) find that major video game releases have a disproportionately remarkable effect on hardware demand, suggesting that the exclusivity of AAA releases are vital to gain a competitive advantage, especially due to a high degree of similarities in hardware capability between competitors.

While customers see these practices as somewhat commonplace on the console market, during the recent years exclusivity has increasingly spread to the PC market as well, which essentially functions as a single platform from a hardware perspective, as opposed

* In 2011, Valve employed approximately 250 people with a net worth of over \$3 billion, making them the most profitable company in the United States on a per-employee basis, surpassing tech giants such as Google and Apple (Chiang, 2011).

to the console market. Rivaling platforms are buying exclusive rights to the sales of new releases to attract more users on their platform and to chip away the dominant status of Steam on the market, offering a larger share of revenue from the sales for the developers (Orland, 2019a). For customers, having to alternate between multiple game libraries and launchers can be an inconvenience, especially due to many customers' video game collections residing almost entirely on Steam. However, industry experts see this change as healthy competition (PC Gamer, 2019).

3 Monetization of video games

In order to gain a deeper understanding about how video games are commonly monetized as well as the video game industry's business and revenue models and their impacts, we need to define both terms and what distinguishes them from one another. While the term 'business model' has been in common use in the recent decades, the academic literature on the topic is both fragmented and perplexed by definitions being inconsistent (George & Bock, 2011). Difficulties also arise when the term is used almost interchangeably with similar terms such as 'strategy' and 'revenue model'. Thus, we will aim to analyse research encompassing the terms business model and revenue model and how they're interpreted and defined in academia – and while the focus of this research leans heavier on the side of revenue models, it's essential to define both terms in order to fully comprehend what they consist of.

3.1 Defining the business model and revenue model

As researched by DaSilva and Trkman (2014), the term 'business model', albeit making its first appearance in academia in 1957 (Bellman, Clark, Craft, Malcolm, & Ricciardi, 1957), only gained prominence upon the emergence of internet-based businesses during the dot-com bubble (Spring & Araujo, 2009). They continue to argue that the term was "initially just a buzzword", but still remained and spread from just Internet companies to brick-and-mortar companies as well. Yet, despite its common use in both academic literature and discourse in business environments, it's often stated that the term 'business model' is lacking a clear consensus on its definition (DaSilva & Trkman, 2014; Fielt, 2013; George & Bock, 2011). Some definitions found in academic literature are as follows:

"A business model depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities." (Amit & Zott, 2001, p. 493)

"In short, a business model defines how the enterprise creates and delivers value to customers, and then converts payments received to profits." (Teece, 2010, p. 173)

"The functions of a business model are to: articulate the value proposition, identify a market segment, define the structure of the value chain, estimate the cost structure and

profit potential, describe the position of the firm within the value network, and formulate the competitive strategy.” (Chesborough & Rosenbloom, 2007, p. 7)

In addition to the definitions above, Johnson, Christensen and Kagermann (Johnson, Christensen, & Kagermann, 2000) define the business model consisting of four interlocking elements that together, create and deliver value: customer value proposition, profit formula (in which the revenue model is integrated), key resources and key processes.

It's worth noting that while not representative of all definitions of business models, many definitions either explicitly state or imply that a means of profiting from creating value (i.e. a revenue model) is an essential component of a business model (Amit & Zott, 2001; Chesborough & Rosenbloom, 2007; DaSilva & Trkman, 2014; Teece, 2010; Wagner, 2013). DaSilva and Trkman (2014, p. 385) describe a revenue model as *“the specific mode in which a business model enables the generation of revenue”*, while Osterwalder and Pigneur (2002, p. 85) define it as *“the ability of a firm to translate the value it offers its customers into money and therefore generate incoming revenue streams”*.

To summarize, whereas the definition of a business model has been difficult to encapsulate in a clear and concise consensus even decades after its emergence, it seems that the revenue model has been easier to define, likely due to its more pragmatic nature – we can capture the essence of the revenue model as the way in which companies transform customer value into monetary income or revenue streams.

3.2 Revenue models in the video game industry

For a long period of time, the majority of video games were sold as physical copies and games were monetized through a simple, traditional, transactional revenue model with a set price and with all content of the game unlocked upon purchase (Lee, 2013). Upon the emergence of digital distribution in the video game industry, publishers have been able to increase their profit margins by being able to vertically integrate and decrease the costs of retailers and distribution, while allowing for increased collection of user data (Marchand & Hennig-Thurau, 2013). However, it could be argued that the biggest monetary gain from this paradigm shift to digital distribution hasn't simply been a stronger position in the value chain, but the complete rehaul of how games are monetized.

While the often criticized, yet proven to be vastly profitable free-to-play (F2P) model has become an increasingly popular revenue model in the video game industry (Alha, Koskinen, Paavilainen, Hamari, & Kinnunen, 2014), its popularity and profitability depend heavily on the platform, with mobile games utilizing the revenue model most commonly (SuperData Research, 2019). However, on PC & console markets, the traditional transactional model is still often favored due to the different nature of the games sold. In this chapter, we will go into further detail on what characteristics do these different revenue models possess, followed by further analysis on potential downsides and externalities both from a customer and a societal perspective.

3.2.1 Free-to-play (F2P)

3.2.1.1 Defining F2P

The F2P business model completely and irreversibly changed the video game industry (Luton, 2013), having first appeared in Asian massive multiplayer online (MMO) games during the late 1990s and early 2000s by monetizing these games by the sales of virtual goods (Alha et al., 2014). Widespread use of this business model was facilitated by social media platforms such as Facebook upon the introduction of viral F2P games such as FarmVille (Zynga, 2009) and Candy Crush Saga (King, 2012). As of 2017, F2P games reaped a stunning 82% of digital games market revenue (Digital River, 2017).

A F2P game can be both acquired as well as played free of charge. During gameplay, players are given the option and are encouraged to buy virtual goods (Alha et al., 2014), often referred to as microtransactions. For developers and publishers, this has opened up a wide range of opportunities due to decreased risk in game development, as generating revenue isn't dependant on the initial sales of the game, allowing for more experimentation and a lower threshold in developing and publishing a game. The F2P model also enables a broader range of players to access the game and can cater to players with different levels of willingness to spend money on microtransactions (Paavilainen, Hamari, Stenros, & Kinnunen, 2013).

The F2P model has spread to other platforms and genres since its emergence and proven to be vastly profitable. Alha et al. (2014) find that nearly all top-grossing games on Apple's App Store are F2P. Even so, it has faced a significant amount of critique from industry experts, customers and the media for their aggressive methods of monetizing and persuading players to spend money on microtransactions, often attempting to

exploit players' possible addictive behaviours and tendencies. King and Delfabbro (2018) call this 'predatory monetization', further explaining that these practices often disguise or withhold true long-term costs of the activities until players are psychologically and financially committed. These points of criticism and possible externalities will be further discussed in Chapter 4.

3.2.1.2 Microtransactions

To better understand the underlying mechanisms and ways of monetization in F2P games, it will be necessary to explain the different types of microtransactions that exist within these games and how they differ from one another.

Virtual currency

For F2P games, it's commonplace for them to feature a so-called 'double currency model', where a soft currency can be earned by playing the game and completing in-game tasks or challenges, whereas premium currency (often called gold, gems, diamonds etc.) can almost exclusively be bought with real money (Alha et al., 2014). Oftentimes the soft currency can be bought or converted by using the premium currency, but not vice versa. Premium currency can then be used to buy exclusive items, cosmetic upgrades, speed up game progress or eliminate cooldown timers that allow players to proceed within a task only by waiting a certain amount of time or spending premium currency.



Figure 2. Store page for purchasing virtual currency in the FPS video game Apex Legends (Source: EA, 2019a)

While many games award the player with a small amount of premium currency time to time, it's particularly scarce and is often bought in bundles (see Figure 2), where the players receive bulk discounts, incentivizing spending more money. Combined with the fact that premium currencies are often larger in numerical value than the real currency (e.g. \$1 equals 100 gold), this has been criticized by King and Delfabbro (2019) for potentially disguising the true costs of transactions for the player due to the dissociation from the actual cost in real currency. It's also not uncommon for virtual items to be priced slightly higher than a bundle of virtual currency, so that players are once again incentivized to buy a bigger bundle – and when they do, they will have a small amount left over that is rarely enough to make another purchase, leading players to possibly spend more than originally intended.

Cosmetic upgrades or 'skins'

Cosmetic upgrades, often referred to as 'skins', alter the appearance of in-game assets such as character models, weapons et cetera without affecting the functional experience of gameplay (King & Delfabbro, 2019). During the past years, even brands outside of the video game industry have shown their interest in skins, collaborating with video game developers in creating special, exclusive cosmetic items, such as Lionsgate and Louis Vuitton (Leane, 2019; Servantes, 2019).



Figure 3. Weapon skin in the widely popular FPS video game Counter-Strike: Global Offensive
(Source: Valve, 2012)

While these types of microtransactions are often deemed the least detrimental by players due to them being purely cosmetic, there has been controversy around the aftermarket for cosmetic items where players have traded these cosmetic items for real money, with prices of rare, sought-after items reaching as high as over \$61,000 (Chalk, 2018). While trading virtual items for real money can hardly be deemed as controversial (although often against the developers' Terms of Service), the controversy has arisen from the real-world value of these items providing the means for the emergence of third-party gambling and betting websites, where players could wager their in-game items, for example, on outcomes of competitive gaming matches, as was the case with the massively popular first-person shooter (FPS) Counter-Strike: Global Offensive (Valve, 2012) and the third-party skin gambling website CSGOLounge, which ran rampant for several years until Valve, the developer of the game, decided to take action and send requests to cease operations to multiple gambling websites in 2016 (Hardenstein, 2017; Lahti, 2016). It was found that during the year 2016, approximately \$5 billion was wagered in virtual in-game items, of which \$3 billion was wagered on casino-style gambling websites with in-game items as currency, and the rest bet on competitive esports matches (Assael, 2017).

Loot boxes

Loot box, as defined by King and Delfabbro (2018), is an in-game reward system obtained either through gameplay or by purchasing, often repeatedly, with real money (or virtual currency purchased with real money) to obtain a randomized selection of virtual items. These virtual items can range from minor cosmetic upgrades to boosters and items that give the player a significant advantage within the game, either in terms of progression or when playing against other players online. Loot boxes often include a hierarchy of rarity – meaning that there’s a miniscule chance of being rewarded an exceedingly rare item (and vice versa, a significant chance of obtaining a common item of very little value or use), but no guarantee for obtaining it, essentially making it based on chance. Developers aren’t required to disclose the odds of obtaining a specific item, and very rarely volunteer to do so.



Figure 4. Loot box in the FPS video game Overwatch (Source: Activision Blizzard, 2016)

When it comes to discussion about microtransactions and revenue models in the video game industry, nowadays one cannot escape the term 'loot box'. Despite their widespread criticism, they have seemingly become the most prevalent ways of monetization, especially when it comes to AAA games. During the past few years, there has been an increasing amount of discussion around loot boxes both in media and on a political level (Webb, 2018), as well as a number of research papers around the phenomenon and its

externalities (Drummond & Sauer, 2018; King & Delfabbro, 2018, 2019; Macey & Hamari, 2019; Zendle & Cairns, 2018; Zendle et al., 2019), which will be gone into further detail in Chapter 4.

Despite their remarkable financial success across the industry, there seems to be a line that once crossed, can result in repelling players from the game. Such was the case with *Star Wars: Battlefront 2* (EA, 2017), which ended up costing the developer/publisher, EA, almost \$3 billion dollars in stock value (Chalk, 2017). The game heavily utilized microtransactions and loot boxes, with plenty of content locked behind “optional” purchases – some community members calculated that in order to unlock all in-game content, it would require the player to open 3,111 loot boxes, requiring approximately 4,528 hours of gameplay or to spend \$2,100 (Frank, 2017). This is a significant leap from the earlier days of video games, when for \$60 one could purchase a video game and all content within. The backlash from this resulted in EA temporarily removing all microtransactions from the game and a mass of players abandoning it completely (Lim, 2018).

Battle pass

Battle pass is a way of monetization that provides additional content, often through a system of tiers, rewarding players with in-game items upon completing challenges and gameplay. Rewards for each tier are shown in advance, eliminating the element of chance existing in loot boxes. Upon purchasing the battle pass the player can earn experience to advance to the next level, which consequentially unlocks new items. Battle passes often have a time limit of several weeks or even months (often called a ‘season’), after which the possibility of acquiring further rewards is no more upon the release of a new battle pass. While some battle passes grant the players the consecutive battle pass for free, provided that the player has reached the final tier, oftentimes upon the introduction of a new season and thus, a new battle pass, it has to be purchased again.

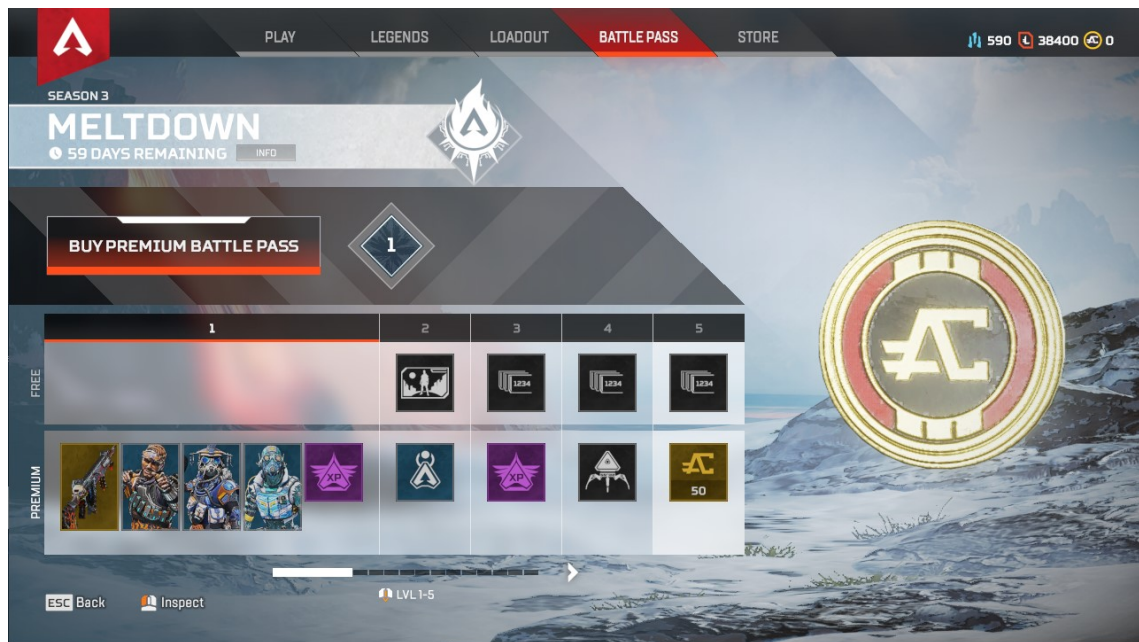


Figure 5. Free and premium battle passes and their progression in the FPS video game Apex Legends (Source: EA, 2019a)

Likely the most recent entrant to the world of in-game purchases, the battle pass has claimed its position as a lesser evil than its counterparts within the field of microtransactions due to its transparency, less frequent and aggressive approach to getting revenue from players as well as giving players a sense of progression. Some criticism, however, has arisen for its psychological effect in the form of urgency, loss aversion and social standing among other players (Jordan, 2018).

Downloadable content (DLC) & season pass

Downloadable content, also known as DLC, was one of the earlier forms of microtransactions. Initially, DLC was extra content for the base game for an additional fee (Heimo, Harviainen, Kimppa, & Mäkilä, 2018) – for story driven games, this could mean a new area to explore with more quests whereas for multiplayer games, this could mean additional maps to play on et cetera. While rarely seen as detrimental for players, it has since evolved into the so-called ‘first-day DLC’, which functions identically, only it’s available already on the launch of the video game, essentially locking out a part of the game’s content behind a paywall. DLC has received some criticism especially in multiplayer games, where it has divided player bases by ownership of the content – for example, if a player has purchased the DLC and their friend hasn’t, in some cases these players would be unable to play together on certain levels. Season passes are closely

linked to both DLC and first-day DLC – for a one-time purchase, the player can gain access to most or all future DLC for a discounted price, essentially pre-ordering them in bulk.

3.2.2 Traditional

Before the emergence of F2P, there was little variety from the traditional revenue model of video games. In its essence, purchasing a game would be a simple transaction – the customer pays a set price and receives the game in its entirety for themselves. Games could be borrowed or freely resold, provided that the game didn't require online verification or registration. The traditional, transactional revenue model still exists to a large extent – albeit major publishers have distanced themselves from it due to better existing alternatives that have the potential to rake in a continuous cash flow.

The traditional revenue model can also be divided into two – retail and digital distribution, with retail concerning sales of physical copies of video games and digital distribution meaning games that can be downloaded online. During the past decade, digital sales of video games have turned the tables on retail sales and brick & mortar stores specializing in video games (e.g. GameStop) are struggling to stay afloat (Gilbert, 2019b) – a shift in paradigm closely resembling the movie rental industry upon the widespread adoption of streaming services as the standard for watching movies at home became commonplace. As seen in Figure 6, the share of digital sales of video games has surged from 20% to 83% in less than a decade in the United States, which is likely the result of digital distribution platforms such as Steam, as well as console manufacturers (e.g. Sony, Microsoft) implementing distribution, sales and social platforms onto their systems, which are, to some extent, mandatory to use in order to be able to play.

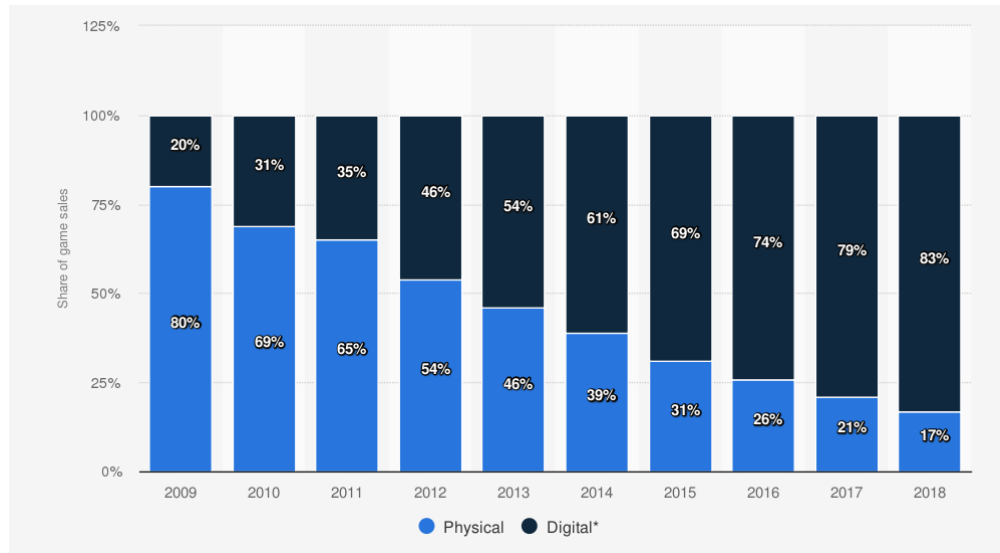


Figure 6. Breakdown of U.S. computer and video game sales from 2009 to 2018, by delivery format (Source: Entertainment Software Association, 2019)

3.2.3 Subscription or pay-to-play (P2P)

The subscription model, also known as P2P, only allows the player to access the game once a fee has been paid for a given amount of time, often a period of a month (Olsson & Sidenblom, 2010). This model is especially prevalent in MMO games and is occasionally also combined with the traditional model, where the base game has to be purchased but in order to keep playing the game, a continuous fee is required. Among the most popular games to utilize this model is the MMO game World of Warcraft (Activision Blizzard, 2004), which even over a decade after its release, boasted over five million monthly subscribers (Trefis.com, 2016). While this model has been largely overshadowed by the F2P model, companies such as Google and EA have been developing cloud gaming services (similar to e.g. Netflix) with a monthly fee to access a wide array of games to be launched in the upcoming years (Knapp, Lynch, & Hood, 2019; Moss, 2019).

3.2.4 Traditional with microtransactions

While this model has not yet been identified or defined within academic research, the phenomenon of video games utilizing the traditional revenue model yet also including microtransactions within the game is difficult to avoid, especially when it comes to AAA video games. Most research concerning microtransactions focuses on F2P revenue models, yet often fails to address the prevalence of microtransactions even in paid video games.

Along with the widespread success of microtransactions as a way of monetization in F2P games, the profitability of these revenue models have also inevitably attracted major video game publishers previously accustomed to the traditional revenue models, providing high-budget games for a relatively high price point, commonly around \$60. However, instead of shifting from the traditional model to developing and publishing F2P games, these publishers have decided to combine the two revenue models to maximize profits, which has been heavily criticized and deemed as greedy by players, industry experts and journalists alike. Many companies claim that development and marketing costs are constantly rising – and while it's not false, the annual revenues for most AAA games exceed their development costs manifoldly, causing suspicion in many (Pearce, 2017).

4 Discussion

But just how sustainable are these aforementioned revenue models? Can they be envisioned to maintain themselves for the next decade? As criticism seems to be perpetually increasing and legal entities are thoroughly investigating the negative impacts of these revenue models, companies are attempting to fight back and ensure the public that there is nothing to worry about. In this chapter, these revenue models prevalent in today's video game industry will be further critically analysed mainly from a societal and a legal perspective, also taking into account employee well-being within the industry. Unless otherwise stated, in this chapter revenue models will be used to refer to revenue models that utilize microtransactions and loot boxes due to their extensive use in the video game industry and the amount of issues they pose.

Ethical concerns of revenue models

As briefly discussed in Chapter 3, the revenue models in the video game industry have been under heavy criticism due to ethical issues and practices often deemed predatory by researchers and media personnel – mostly due to gambling-like elements being aggressively marketed to players, of which a large portion is adolescents, making the matter increasingly concerning and questioning whether these revenue models can be perceived as sustainable.

As introduced during Chapter 1.4, when discussing the lack of consensus as to whether loot boxes and similar types of in-game purchases can be constituted as gambling, we will be using Griffiths' (2005) five characteristics common to gambling. In addition to this, the sixth characteristic of whether winnings can be converted into real currency or not, as pointed out by Drummond and Sauer (2018), is also to be taken into account.

Drummond and Sauer's (2018) case study of video games containing loot boxes in 2016-2017 find that out of the 22 video games analysed, all games fulfilled at least four out of the five criteria defined by Griffiths (1995), with 10 games fulfilling every single one. While many games didn't allow for an option for converting in-game rewards to real currency, it was noted that many games allow for trading of these in-game items, therefore allowing third-party websites to facilitate sales of these items. In games where trading of virtual goods is prohibited, players can still cash out by selling their accounts (and therefore, their owned virtual goods) in exchange for real currency. Drummond and

Sauer's findings indicate that all of these games allow for or even actively encourage underaged players to engage in these activities akin to gambling. Furthermore, Zendle, Meyer and Over (2019) find in their research that there is a moderate to large link between spending money on loot boxes and problem gambling with adolescents, who are especially susceptible to problem gambling due to e.g. increased impulsivity. And while adolescents participating in gambling-like activities within video games is a major concern, these harmful effects can also affect adult players. A large-scale survey by Zendle and Cairns (2018) discovered evidence for the link between money spent on loot boxes and the severity of players' problem gambling, finding that this relationship was stronger than that of between problem gambling and depression or alcoholism. With the repercussions of participating in these activities being so severe, it cannot be assumed that these mechanics could continue unchanged into the foreseeable future, thus claims of sustainability seem to be unwarranted.

To better understand how these revenue models affect players, it's vital to further analyse the underlying mechanics behind them. Heimo, Harviainen, Kimppa and Mäkilä (2018) approach the phenomenon from an Aristotelian virtue ethics perspective, stating that game development cannot be virtuous if it's done with the desire of tricking or using psychological traps to financially benefit from the customer – and unvirtuous actions tend to be unsustainable in the long run. They argue that many F2P games use a 'lure-to-pay' approach to commit players to the psychological trap of a sunk cost fallacy – since the player has invested a significant amount of time in the game, it must have a strong meaning to them, thus lowering the threshold of paying to get more value out of the game. While not necessarily harmful or unethical per se, combined with the mechanics of predatory monetization, this can become quite detrimental to players' psychological well-being and behaviour within these games. King and Delfabbro (2019, p. 3) describe predatory monetization schemes as "*in-game purchasing systems that disguise or withhold the true long-term cost of the activity until players are already financially and psychologically committed*", which is aligned with the views of Heimo et al. (2018). These schemes aim to encourage player spending by e.g. limited-time offers, aggressively encouraging players to purchase in-game items and manipulating reward outcomes to further reinforce habits of spending money over skilful gameplay. King and Delfabbro (2018, 2019) also acknowledge the exploitation of an information asymmetry, where the analytics and gathering of data carried out by the game can be used to increase the likelihood of player spending. It's also worth noting that in-game purchases based on

chance are in full control of the developers, meaning that they possess the capability of setting and modifying the odds however they desire. Heimo et al. (2018) conclude that in many cases when video games utilize these revenue models where microtransactions have a strong foothold and provide a significant stream of revenue instead of the traditional game sales, developers have chosen to prioritize revenue over game quality, which has a vast negative impact to the enjoyment of the game and can lead to taking advantage of players by utilizing psychological traps. These views have been commonly shared in the field of video game journalism, especially upon being increasingly utilized by AAA publishers in paid video games (Crider, 2018; Gies, 2014; Pearce, 2017), often being attributed to corporate greed. With the most common revenue models fulfilling most or all of the criteria defined in Griffiths' (1995) research and further research confirming the unvirtuous nature of these revenue models and the alarming connection between loot boxes and problem gambling, these revenue models can by no means be called sustainable. The vast amount of ethical issues posed, despite being neglected for a long time, can be expected to change in the future. However, whether this will happen by the companies acting on the issues themselves or regulatory entities forcing action to be taken is yet to be seen.

Legal discussion around revenue models

These revenue models utilizing loot boxes have also been recently discussed by legal entities whether they could be constituted as gambling or not, but a consensus is yet to be reached. Due to microtransactions being a significant part of major video game publishers' revenue – the 13th largest video game publisher by revenue, Ubisoft (Newzoo, 2019), reported already in 2017 that their revenue from microtransactions surpassed that of digital game sales for the first time (Hruska, 2017) – publishers are actively fighting to be able to continue using revenue models based on microtransactions. While it has been unclear whether loot boxes can be classified as gambling, there has undoubtedly been an outcry for regulatory action to be taken.

In many cases, the hindrance has been the difficulty of classifying loot boxes and similar microtransactions where the outcome is dependent on chance as gambling. As mentioned earlier, regulatory entities often require an ability to convert winnings into real currency in order to consider something as gambling. Major publishers such as EA have denied accusations of loot boxes being a form of gambling by highlighting that transferring items or in-game currency outside of the games is forbidden (Arif, 2018a)

or that they hold no monetary value or are owned by the company, as explicitly stated in the Terms of Service of major video game publishers such as Activision Blizzard, EA and Rockstar Games (Activision Blizzard, 2018; EA, 2019b; Rockstar Games, 2019). The Gambling Commission in the United Kingdom also reached a consensus that loot boxes cannot be classified as gambling due to virtual items holding no monetary value (Kleinman, 2019). Despite claims of virtual items being essentially worthless and that trading them outside of the game or converting them to real currency is prohibited or impossible, a multitude of third-party websites offer and facilitate such services, occasionally even allowing for players to participate in gambling by wagering virtual items (Hardenstein, 2017; Juniper Research, 2018), undermining the arguments for the monetary value of virtual goods or currencies being non-existent. As mentioned before, many regulatory entities require the ability for winnings to be able to be cashed out, and since this is, for the most part, happening unofficially without the consent of the publisher, they have been able to argue against these claims by pleading to this technicality, continuing business as usual. For the sake of adolescents' well-being, it could be useful to classify loot boxes into a category of their own, instead of struggling to fit it into the classification of gambling, defining a set of rules specifically for this phenomenon.

Some European countries have already taken initiative, such as Belgium, which deemed loot boxes to be in violation of their gambling legislation in 2018, forcing major publishers such as EA to remove paid loot boxes from their video games localized for Belgium – and failing to comply could result in a hefty fine and up to five years in prison (BBC, 2018). Purchasing and trading in-game items, for many games, has also been completely disabled for Dutch players upon this ruling and as of 2019, EA has halted the sales of its in-game currency in the immensely popular video game FIFA 19 in Belgium as well (Hoggins, 2019). A similar stance was taken by the Netherlands in 2018, with the Dutch Gaming Authority ruling that some forms of microtransactions could be classified as gambling, enforcing a ban on loot boxes (Arif, 2018b). In contrast, France's gambling authority ARJEL has ruled that loot boxes are not a form of gambling; however, the matter requires further investigation. Even so, French authorities have acknowledged that whether they can be classified as gambling or not, they are “close enough that they normalize gambling behaviours and could instigate an early gambling addiction in young people” (Valentine, 2018). As a precaution to the ongoing loot box controversy in Europe, the game Counter-Strike: Global Offensive has implemented a way for French players to

reveal items inside loot boxes prior to opening them to circumvent possible restrictions in the future (Nunneley, 2019). In September 2018, The Gambling Regulators European Forum released a joint statement by the regulatory entities of 15 European countries as well as the Washington State Gambling Commission, stating that they will be committed to raising awareness and protecting consumers from malpractices and gambling-like elements of video games, as well as expressing their concern of the risks that they manifest (Webb, 2018).

Outside of Europe, however, very little action has been taken by government agencies, with China being one of the only exceptions, the government having ruled in 2016 that the odds of receiving specific items or item types from loot boxes must be disclosed to the public in order to ensure that video game companies are transparent and that customers are aware of what they're paying for (Dent, 2016). In the United States, despite many politicians partaking in the conversation and deeming loot boxes and compulsive microtransactions unethical, no concrete action has been yet enacted from public entities. The Entertainment Software Rating Board, the self-regulatory organization in the United States responsible for video game age and content ratings, has issued a cautionary label reading "In-Game Purchases" on video games that include microtransactions, similar to how age limits are communicated on digital storefronts or packaging of physical copies (Vance, 2019). Still, the impact of this is arguably miniscule, considering that in the past, age limits of video games have rarely prevented adolescents from obtaining their copies one way or another.

On the video game companies' side, however, three of the largest video game developers and publishers – Sony, Microsoft and Nintendo – have recently announced to increase transparency regarding loot boxes starting from 2020 by requiring video games released on their platforms to disclose the relative odds of receiving items from loot boxes, which could be a step towards developing a safer environment especially for adolescents or players struggling with problematic gambling (Orland, 2019b) due to the three companies' considerable effect on the industry and the console market in particular.

While the legal aspect of this issue doesn't necessarily focus on the sustainability of the revenue models per se, it does confirm that the revenue models are being questioned by legal entities. The pursuit of regulatory action to be imposed on the revenue models by countries around the world is foreshadowing that these common practices are going to undergo changes in order to lessen their adverse impacts on the society – thus, arguably,

confirming the claim that these revenue models are not sustainable. It is also ethically questionable how these major video game companies are defending the use of these predatory monetization mechanics by pleading to technicalities that are misaligned with the reality of the situation, which has been hindering the progress of legal entities handling these issues. However, as the effects of loot boxes and other revenue models are further investigated and brought to the public eye, it will be increasingly difficult to defend these ways of monetization, despite them being a remarkable source of income for the companies themselves.

Working culture in the video game industry

The substantial growth of the video games industry along with its record-breaking game releases during the past years can be seen as reflecting the success of how these games are monetized. Yet, in recent years, various reports have emerged with people employed by major video game developers and publishers anonymously reporting of poor working conditions, overworking of employees and an unsustainable work culture of crunch (working over 40 hours per week over extended periods of time (Take This, 2016)), where some employees are required to work up to 100-hour weeks to reach tight deadlines and deal with last-minute changes in development.

An article published by Kotaku in October 2018 that sparked the recent influx of employees speaking out about unhealthy working cultures across the industry described the late development process of Rockstar Games' major title, Red Dead Redemption 2 (Schreier, 2018). Having been in development for eight years, top directors insisted a change during the last year of development that would require weeks of extra work for many employees – which essentially forced them to work overtime, since the game had already been delayed several times publicly and couldn't be rescheduled to release even later. Several employees were anonymously interviewed and reported that the stressful working environment had led to working overtime with no guarantee of compensation, mental breakdowns, burnouts, damaged relationships and even heavy drinking at work. Many employees reported feeling pressured to working late or working weekends at the office, with several people even describing a 'culture of fear' encompassing the atmosphere. This wasn't the first time Rockstar Games' working culture had been discussed – during the development of the first Red Dead Redemption game almost nine years, a similar culture of crunch was also present, according to anonymous reports from employees and their spouses.

During 2019, several articles were published across industry media outlets with employees coming forward with reports of unbearably heavy workloads and poor working conditions (Gilbert, 2019a; Schreier, 2019; Semuels, 2019). Employees of some of the most profitable companies within the industry were being anonymously interviewed and their experiences beared a striking resemblance to each other, despite working in different companies. One of the most controversial cases regarding these working conditions addressed Treyarch, the developer behind an iteration of the internationally known Call of Duty franchise – where quality assurance testers were essentially segregated from game developers, being told not to speak to the developers and having to work night shifts in entirely different floors from everybody else – with no air conditioning in over 30 Celsius degree heat. Employees were left disgruntled when high-ranking officers of the company were receiving bonuses worth millions, while the quality assurance testers didn't even qualify for a \$15 bonus (Schreier, 2019).

Similar reports could be dated as far back as the early 2000s, when EA was ruled to pay out nearly \$15 million dollars in settlements to developers and programmers for unpaid overtime hours (Surette, 2006), which introduced the prevalence of crunch culture in the video game industry to the public. However, the situation has seemingly not improved since then. An extensive report published by the mental health organization Take This focused especially on the video game industry, acknowledged these issues to be remarkably prevalent across the industry – finding that game development as a career path constantly demands long hours, lacks job stability and clear trajectories for career advancement. With only one third of developers remaining in the video game industry for 10 years or more and 53% of developers reporting that a culture of crunch is an expected part of being employed within the game industry, these issues can hardly be dismissed as mere wrongdoings of a select few companies (Crevoshay, Hays, Kowert, Boccamazzo, & Dunlap, 2019). Some workers in the video game industry acknowledge that there exists a belief that working in it is a privilege – and employees should yield to any request in order to remain in their position (Semuels, 2019). And while to many it is a privilege and a passion to work in the industry, finding that the career longevity of the majority of game developers is relatively short is alarming to say the least. And for every employee that experiences burn out and leaves the industry, there's a plentiful supply of new employees waiting – just to be exploited by companies that seem to care very little about the creative minds behind the games.

Some reasoning behind the unhealthy, profit-driven working culture could be attributed to a divide existing between developers and executive or business personnel. In his rigorous research conducted through interviews of employees within the industry and project postmortems (documentation of development process performed at the conclusion of the project), Tschang (2007) acknowledges the existing tensions between e.g. profit maximization and creative forces as well as between different roles in video game development. Publishers and employees on the project management side (e.g. business) hold a high level of control over development, yet many know very little about video games or developing them – whereas developers are oftentimes avid video game players. In Tschang’s (2007, p. 993) research, one studio head is quoted: “[*the development process is] completely dominated by people who are not creative. It’s completely dominated by the business people*”. This can result in the goals of different roles being misaligned – one aims to maximize profits, while the other aims to create an innovative work of art for their peers. This can also lead to the last-minute decisions, since employees working on an executive level might not perceive how taxing these changes can be for the developers, despite being extremely lucrative for the companies themselves (Semuels, 2019). Bridging this gap could be the solution to a healthier workforce – and perhaps finding common ground could also establish better business practices from the perspective of the customer.

In this thesis, these work-related issues are viewed from an ethical perspective instead of a legal one due to lack of knowledge about the contracts of employment or other matters regarding employment law in the field. However, it is worth mentioning that due to these issues being as commonplace as they are, there has been an ongoing discussion about unionization of employees in the video game industry (Garst, 2018; Semuels, 2019). Issues of this magnitude that are directly related to employee well-being and coping with workload are closely linked to sustainability. Overworked employees suffering constantly from stress and mental health issues cannot be expected to remain in the working life for long periods of time – therefore it’s sensible to draw a conclusion that the working culture within the video game industry is by no means sustainable, as explicitly confirmed in the previously mentioned reports on the mental health of employees within the video game industry (Crevoshay et al., 2019; Take This, 2016).

5 Conclusion

The research question that this thesis has aimed to provide an answer to has been “*Are the most prevalent revenue models of PC & console video games sustainable from the customers’, ethical and legal standpoints?*”. While being a broad, complex subject with its pros and cons, the answer is no, they are not. It can be concluded that the video game industry, in terms of profitability, is thriving. The revenue models introduced by F2P games have been a widespread financial success and have lowered the barrier of entry for both developers and customers alike even further into the world of video games. Even so, these revenue models can hardly be called sustainable in the long run as is. With an alarming rate of employees leaving the industry, suffering from mental health issues and burn out as well as adolescents being encouraged to participate in gambling-like behaviour, it seems that these vast profits have come at a price. The long-term effects of the largest video game companies abusing these monetization mechanics can be difficult to quantify and the bill for the damage done is likely to be footed by the victims themselves.

Yet, that is not to say that this financial gain has been without its highlights. Video games nowadays are more accessible and graphically detailed than ever and constantly updated with new content. The growth of the industry has paved the way for new innovations and created entire new areas of business such as streaming and esports. Despite having been seen as a sort of niche of the entertainment industry, video games have proven themselves to be a form of entertainment enjoyed by people from all walks of life.

It should also be noted that during the past three years, research on the subject of loot boxes and other ways of predatory monetization has increased at a fast pace. Media reporting on the video game industry has also participated in the discussion and legal action is being adamantly pursued to better regulate this recently emerged phenomenon. Until now, it has been mostly in the hands of the video game companies to regulate themselves, which often fails especially when regulation would mean a detrimental effect on the bottom line. While some companies steer clear of loot boxes, many of the largest companies defend them, fighting against regulatory entities by appealing to technicalities. The discussion surrounding loot boxes and other revenue models is on the rise – and the more these issues are brought to the eye of the public, the better are the

chances of innovating more ethical and sustainable revenue models as people become more aware of the underlying issues. For it is the customers who have the potential for the biggest impact through their decisions to purchase or play video games and to be more vocal about these issues, thus forcing companies to improve their practices.

5.1 Limitations and future research

Limitations

For this thesis, two main points of limitation have been identified, time constraints and lack of access to company insights. First of all, due to time constraints, this thesis can merely provide an overview of the situation occurring throughout the video game industry. It has aimed to combine recent research and public discussion into a coherent unity – presented in a way that would be easy to approach for readers unfamiliar with the video game industry and its business practices – and for this, I believe to have succeeded. However, to further build on the existing research and to provide insights as to how this situation could be improved, more in-depth research is required, some of which will be touched upon when addressing future research. Second, it is often the largest video game companies utilizing the somewhat problematic revenue models discussed in this thesis. Being private companies, these industry giants are very strict with what company information is revealed to the public. For this reason, finding relevant company insights within the video game industry can occasionally be difficult, especially when combined with an approach critical of the ongoing business practices of these companies. Thankfully, many research papers as well as media articles analysed for this thesis had undergone copious amounts of groundwork and provided this thesis with an immense amount of insights and examples of the impacts these revenue models have in practice.

Future research

Regarding the subject of loot boxes and revenue models within the video game industry, there is plenty of potential for future research and actions to be taken. Video game companies should aim to innovate better, healthier revenue models to replace the current ones – especially since regulatory action being forced by governments seems likely to happen in the long run. While for many established video game companies, the profits are simply too high to steer away from, it's up for someone to take initiative and step to

the forefront, showing that profitability and sustainability can coexist within the revenue models utilized. Companies could benefit from researchers' insights and expertise, ensuring that these newly innovated revenue models would be safe to use by both adolescents and adults.

For academic research, the effect of disclosing odds of loot boxes could be further investigated – whether this is something that actually benefits players and decreases the adverse effects, or if it's merely a temporary solution to appear more sustainable in the public eye with no concrete effect on the well-being of customers.

In the end, the discussion around loot boxes, revenue models and the juxtaposition of profitability and sustainability is part of a bigger picture – a global issue that is still to be resolved; how to drive private companies to more ethical practices? How to encourage companies to change their ways of working to a more sustainable approach? Oftentimes, this only occurs once regulatory action is taken and companies are forced to do so – which is why it's vital to research and innovate sustainable ways of doing business that would be mutually beneficial for the companies and their customers.

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