



Change in the Game

Business Model Innovation in the Video Game Industry Across Time

Austin Locke

Bianka Uhrínová

Supervisor: Associate Professor Tina Saebi

Master Thesis within the main profile of International Business

NORWEGIAN SCHOOL OF ECONOMICS

This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible – through the approval of this thesis – for the theories and methods used, or results and conclusions drawn in this work.

Abstract

Technological innovation has changed business models across multiple industries – retail (Amazon), taxi (Uber), hotel (Airbnb). Through exploratory research, using secondary data, this thesis describes changes that have occurred in video gaming industry from its creation to the current, modern era that are connected to technological innovation. Based on the current research of business models, the authors created a “Value Creation-Revenue Stream Framework” that they use to analyse the industry to point out the main changes that occurred in the video game industry’s business models. Through the framework, the authors discuss representative types of models in three eras – traditional, transitional, modern – and point out the main differences and how the industry progressed through the framework over time. In addition, an overview of other business model innovation trends in the industry is included, expanding the current insight into the industry. Key finding of the study is the industry trends of having the consumer create the value of the product; compared to the business models of the traditional era, the importance of community is more prevalent in the modern era. This study contributes to the existing literature of the video game industry by providing a comprehensive overview of the development of the business models in the industry and by exploring business model trends that are related to other areas than revenue structure. Additionally, it contributes to the overall research of business models by introducing a new framework that can be used in the further research.

Keywords: video game industry, video game, business model, business model innovation, business model disruption, technology, value creation, value proposition, revenue stream

Acknowledgments

This master thesis has been written by Austin Locke and Bianka Uhrínová in the spring semester 2017, as a part of the Master of Science in Economics and Business Administration at the Norwegian School of Economics (NHH), within the International Business profile.

First and foremost, we would like to express our gratitude to our outstanding supervisor, Associate Professor Tina Saebi. She supported us through the whole process, never losing either hope or patience. She has never failed to provide quick and thorough feedback, keeping us on the right track and focus our minds on the important questions. We could not have asked for a better supervisor. It was thanks to her that we were able to deliver our work in a timely manner. We appreciate her hard work and we will always be grateful to her.

We would also like to express gratitude towards our family and friends who stood by our side throughout our studies at NHH and provided us with moral and financial support. We appreciate everything that you have done for us, this thesis would not be written without you. We hope to repay you for your support and kindness in the future.

Bergen, 10 June 2017

The image shows two handwritten signatures in blue ink. The signature on the left is 'Austin Locke' and the signature on the right is 'Bianka Uhrínová'.

Austin Locke & Bianka Uhrínová

TABLE OF CONTENTS

ABSTRACT	2
ACKNOWLEDGMENTS	3
TABLE OF CONTENTS	4
LIST OF FIGURES AND TABLES	6
1. INTRODUCTION	7
1.1 GAPS IN LITERATURE AND RESEARCH QUESTIONS	8
1.2 OUTLINE.....	10
2. THEORETICAL FRAMEWORK	12
2.1 BUSINESS MODEL	12
2.1.1 <i>Business model innovation and distruption</i>	15
2.1.2 <i>Key elements of business model</i>	16
2.2 BUSINESS MODEL CANVAS	18
2.3 CURRENT RESEARCH ON VIDEO GAME INDUSTRY	21
2.3.1 <i>Value Creation studies</i>	21
2.3.2 <i>Revenue Streams studies</i>	22
2.4 VALUE PROPOSITION – REVENUE STREAMS FRAMEWORK	23
3. METHODOLOGY	26
3.1 LITERATURE REVIEW	27
3.2 ANALYSIS STRATEGY	27
3.3 CREDIBILITY	28
4. ANALYSIS AND FINDINGS	30
4.1 VIDEO GAME INDUSTRY.....	30
4.1.1 <i>Overview</i>	30

4.1.2	<i>History</i>	32
4.2	FRAMEWORK APPLICATION	35
4.2.1	<i>Traditional era</i>	35
4.2.2	<i>Transitional era</i>	37
4.2.3	<i>Modern Era</i>	38
4.3	BUSINESS MODEL CANVAS ANALYSIS.....	40
5.	DISCUSSION AND CONCLUSION	44
5.1	HOW HAS TECHNOLOGY, AS A TRIGGER, CHANGED THE BUSINESS MODELS IN VIDEO GAME INDUSTRY? 44	
5.2	WHAT CURRENT BUSINESS MODEL INNOVATION TRENDS CAN BE IDENTIFIED IN THESE NEW MODELS? 45	
5.3	MANAGERIAL AND THEORETICAL IMPLICATIONS.....	46
5.4	LIMITATIONS AND FUTURE RESEARCH.....	47
6.	BIBLIOGRAPHY	49

List of Figures and Tables

List of Figures

Figure 1 Value Creation Model by Marchand and Thorsten Hennig-Thurau (2013), p.142 .. 22

Figure 2 Value Creation - Revenue Streams Framework 23

Figure 3 Research steps..... 26

Figure 4 Video game industry revenue distribution for year 2015 (Statista)..... 32

Figure 5 Traditional era..... 36

Figure 6 Transitional era 38

Figure 7 Modern era 39

List of Tables

Table 1 Selection of business model definitions. Source: Authors’ research 13

Table 2 Summary of the history of Video game industry Source: Authors’ research 34

1. Introduction

In recent years, many scholars have started to pay closer attention to technological innovation, and its impact on business models in many different industries. From healthcare to finance, technology has changed the way business is conducted – the business models have changed. There is a various number of new innovations when it comes to specific products and their manufacturing that have caused this change, like 3D - printing, for example (Rayna & Striukova, 2016).

Nevertheless, the most impactful technologies that have changed the business models across the board are Information Technologies (IT). Starting with the use of personal computers through the internet to modern era and digitalization, the impact on the business is immeasurable. Some of the most cited changes to business practices in general are connectivity, increased collaboration, time and cost efficacy, and cloud computing (Olson, 2016; BGO Software, 2016; Pirouz et al., 2012). As pointed out by many researchers (for example Cavalcante, 2013; Baden-Fuller & Haeflinger, 2013) new IT technologies impact business models in all areas. Therefore, it is essential to study how businesses implement these changes and to what degree they rebuild their business models to fit together and profit from these technological innovations. As said by Olson: “Technology is a wave: you can either ride it or wipe out.” (Olson, 2016).

There is a belief in business that not to innovate is to die. Many authors believe that companies can become very successful by having innovative business models and ways of operating and disrupting their industries. When it comes to the changes in business models that have been influenced by the technological innovation, we can mention a few. Uber being valued at over \$50 billion (Macmillan et al., 2015) despite them being a taxi service that doesn't own any vehicles. Uber benefited from the appearance of easy-to-use new platform – the smartphone. In a similar way, Airbnb, a hotel service with no rooms that is valued at over \$30 billion (Rosoff, 2016), used the easy connectivity across the globe that internet provides to create their service. Similarly, Amazon started as a retailer with no stores as an online retailer and is now worth \$250 billion (Gandel, 2016). In general, these three companies have not come up with a different business, but with a changed business model for the taxi, hotel and retail services. These three companies are examples of firms using

technology to innovate a new business model and disrupt their industry in the process. Technology has the ability to disrupt seemingly everything and if it has not already started in an industry, it soon will (Miller, 2016). This threat of technology to incumbent firms and the opportunity technology provides to entrants makes the studying of the role it plays in business models an important subject to explore.

In order to further examine changes in business models that were caused by technological innovation, we have decided to focus on an industry that is closely tied to technology – the video game industry. With an estimated value of 91 Billion USD associated with it (Takahashi, 2016), it is one of the fast-growing industries, and one of the most important ones within the larger entertainment industry grouping. Even though it is only present for about 50 years, it has been transformed many times and in different ways. Much like other industries, as technology has progressed and allowed more advanced and complicated structures, new business models emerged. In the next section, we look at the current research of business models in this industry and the literature gap that we aim to fill with our research.

1.1 Gaps in literature and research questions

Even though the revenue of video game industry in 2013 was larger than for example the combined revenues of the box office revenues of all films worldwide and global record music sales (Laakso & Nyman, 2014), it has not been a focus of many business model-oriented studies. Only in recent years are the scholars taking up this subject.

While some studies (Rayna & Striukova, 2014; Goumagias, et al., 2016) are focused only on comparing the general old model that was used in the video game industry in the first years after its creation with the general idea of the new model that has emerged in the recent years, looking only at some aspect of these business models, other limit their research to one specific part of the industry, such as mobile gaming (Lescop & Lescop, 2014), or just one specific model, such as the freemium model that has emerged (Huang, 2016), or an aspect of the model, such as cost structure (Davidovici-Nora, 2014).

On top of that, the terms and frameworks are inconsistent among the studies, since even the term “business model” has not yet been clearly defined – multiple definitions and frameworks are used to this day by many scholars. Therefore, a more comprehensive study of business models of the video game industry is needed.

Furthermore, even though some research papers discuss the innovation of the business models in this industry (Sandqvist, 2015; De Prato, Feijoo, & Simon, 2014; Davidovici-Nora, 2014) they are mostly looking at change of cost or pay structure, while there are other important changes in the business model. There is little focus on the change of the other parts of the model caused by IT innovations. Since technological advances and social changes are constantly putting pressure on companies in this industry to innovate their approach to business, more recent research is needed to reflect the past, current and potential future trends of the business models in this industry.

Therefore, looking at the current research, we can conclude that there are gaps that need to be addressed. Firstly, a more comprehensive research is needed to explore the changes that occurred in the video game industry business models over time. Secondly, there is a need to research the business model from multiple dimensions, with the focus being beyond the cost structure.

Therefore, in order to address these gaps in the research literature, this thesis aims to answer two research questions:

1. How has technology, as a trigger, changed the business models in video game industry?
2. What current business model innovation trends can be identified in the video game industry?

To answer these two questions, we first look at the definition of the term business model, and then we look at its components using the business model canvas framework. Taking this framework, we derive our own framework that we use to analyze the business models of the video games industry. We also look at the industry, its history and current structure. In the discussion, we answer our research questions and further discuss if there was any business model disruption present in the video game industry.

This paper thus contributes to the existent literature in **two ways**:

- On the practical level, it contributes to the scarce number of research papers that focus on business models in video games industry; it provides an analysis of video game industry from the business model perspective throughout its history with implications for the future development that can be researched and thus be either proven or negated.
- On the theoretical level, it introduces a new framework that can be utilized to answer similar research questions in other industries, using our research method as an example to follow, in order to compare the changes in the video game industry to the changes in other industries affected by technology, such as music or publishing industries. In addition, this framework can be used again at a later date to analyze further development of the video game industry.

1.2 Outline

To answer our research questions, we will first start with theoretical framework. First, we define the term business model and what has been researched about it thus far. We also introduce the concept of business model innovation and business model disruption in order to discuss whether disruption occurred in the video games industry. As the final step of this chapter, we define the concept of business model canvas, which is crucial for our research. We derive our framework from this model using the value creation and revenue stream blocks as main components. We use the rest of the blocks in our analysis to answer the second research question.

The methodology chapter provides an overview of our research design and strategy. It provides an overview of the steps we have taken in order to answer our research questions. It also discusses credibility, validity and generalization of our results.

In the next chapter, we discuss and analyze our findings from the data we have gathered. First, we provide an overview of the video game industry, its history, then we move on to analyzing different time frames of the industry using our framework. Then, we explore

business innovations trends in this industry using the other business model canvas blocks that were not discussed through our framework.

In the discussion and conclusion chapter, we discuss our main findings as well as how our thesis contributes to the existnt literature. We also discuss possible future developments in the industry, and how our framework can be applied to other industries as well. In the end, we discuss managerial and theoretical implications, limitations of our study as well as areas for future research.

2. Theoretical Framework

In this chapter, we first introduce the concept of a business model and the previous research regarding this term in order to familiarize the reader with the concept and to clearly define what business model definition is used in our research. Second, we introduce the definitions for business model innovation and disruption in order to clearly distinguish in our analysis if the changes in the business models in the video game industry can be seen as innovation or if they fall into the disruption category. Next, we describe the business model canvas framework which we use in two ways - to derive the framework for our analysis, a value creation - revenue stream typology, and to further analyze current changes in the video game industry business models.

2.1 Business model

The most basic description offered by Investopedia (2017) defines business model as “a way in which a company generates revenue and makes a profit from company operations.” But looking at the vast research that has been done concerning this subject, the definition of business model is more complicated, and more importantly, it is not unified. Many authors have defined business model in their research papers, and even though there are some similarities, these definitions are still different. Andrea Ovans (2015) summarizes many concepts in her article for Harvard Business Review and concludes that many definitions are tightly connected to the area that researchers are studying, e.g. strategy, economics, etc.

According to the research done by Osterwalder (2004) and Zott et al. (2010) the term first appeared in an academic article by Bellman in 1957. From then on it was further developed by authors such as Jones (in 1960) and Norman (in 1977 and 1983). But the true surge in number of articles and researches devoting themselves to business models was in 1990s together with the appearance of the internet. Research by Zott et al. (2010) shows that before 1990, the number of publications did not even reach 100 while at the time of publication of their research, the number was well over 1000. This proves that the concept of a business model is getting more and more attention in recent years.

In the following table, we include some of the most accepted and known business model definitions.

Author(s)	Definition
Amit & Zott (2001, p. 511)	“A business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities.”
Magretta (2002, p. 4)	“The Business model tells a logical story explaining who your customers are, what they value, and how you will make money in providing them value.”
Osterwalder, Pigneur, & Tucci (2005, p. 17)	“A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm.”
Chesbrough (2007, p. 12)	“The business model performs two important functions: value creation and value capture. First, it defines a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or service in such a way that there is net value created throughout the various activities. Second, a business model captures value from a portion of those activities for the firm developing and operating it.”
Johnson, Christensen, & Kagermann (2008, p. 52)	“A business model consists of four interlocking elements (customer value proposition, profit formula, key resources, key processes) that taken together create and deliver value.”
Osterwalder and Pigneur (2010, p. 14)	“A business model describes the rationale of how an organization creates, delivers, and captures value.”
Lewis (in Ovans, A. 2015)	“Business model is a term of art.”

Table 1 Selection of business model definitions. Source: Authors' research

In our research, we have decided to adopt and adapt the definition of business model proposed by Osterwalder et al. (2005):

“A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific product.”

This differentiation – not focusing on a specific firm but rather on a product - is needed because of the specific features of the video game industry that are further discussed in the analysis chapter.

Except for definitions, researchers are also looking at business model from different sides. Osterwalder (2004) concluded in his research that there are three main categories of articles written about this topic:

1. An abstract concept that can describe all real-world business
2. Studies that describe types of business models
3. Studies that describe an existing world business model

Our research can be viewed as being part of two categories. In our analysis, we offer the description of types of existing business models. On the other hand, we offer a framework that can be used to describe different types of business models; it is not limited to video game industry.

In the most recent literature, such as numerous Harvard Business Review articles, the concept of business model is moving forward, focusing more on its possibility to drive innovation. The environment in which firms operate changes at a quick pace, even more so in the industries that are heavily tied with information technologies. Therefore, it is necessary to look at the term business model innovation and what it consists of. We also need to define the business model disruption concept in order to discuss in our analysis if it was innovation or disruption that have occurred in video game industry.

2.1.1 Business model innovation and disruption

Since our research is focused on changes and innovation brought by technology, we need to define and distinguish these two important terms. Even though these terms are sometimes used as synonyms, they are different. It is important to properly define them in order to analyze if the changes in the business models in the video game industry have been innovations or if they have gone as far as being disruptions.

Business model innovation

According to Dodgson and Gann (2010), there are three types of innovation - incremental, radical and transformational. Although their impact might be scaled differently, they all represent a form of change. Many scholars acknowledge that innovation, mainly technological, plays a key role in obtaining competitive advantage in any business (Gassmann, Frankenberger, & Csik, 2014). As Baden-Fuller and Haefliger (2013) point out in their study, some scholars tend to ignore the fact that firms face enormous problems while implementing these new technologies into their business models. This is in accordance with previous statement of Teece (2010) that “getting business model and the technology strategy right is necessary to achieve....sustainable competitive advantage... and profit...”. Therefore, any innovation should be connected to the configuration of some or all of the elements of the business model. But Teece (2010) also points out that innovation alone is not enough – in order to be profitable, the business model also needs to be differentiated from other firms and has to be hard to imitate by new entrants.

Business model disruption

The theory of disruptive information was first introduced by Bower & Christensen in 1995 and since then it has been a focus of many scholars in many business areas. Especially in connection with IT, disruptive innovation offers a perspective on why and how small companies are able to overtake the incumbent of the industry. Christensen, Raynor & McDonald (2015) define disruptive innovation as a process by which new entrant targets the underserved segments of the market and then gradually building up their performance to reach the mainstream customers. In order for the entrant and new business model to be defined as disruptive, it needs to fulfill these conditions:

1. It originates in the lower-end or new market foot-holds

2. Mainstream customers join only after the quality rises to their standard

Furthermore, authors also mention that it is important to differentiate between disruptive and sustainable innovation, which only offers improvement to the product or a part of business model. Therefore, these two characteristics are the main difference between innovative business models that just offer an improvement and disruptive business models. This is an important distinction that we need to keep in mind during our analysis in order to clearly distinguish between them.

For example, in their book *Digital Transformation* Caudron & Van Peteghem introduced some disruptive business models that were created thanks to technological innovation. They include subscription model, freemium model, free model, marketplace model, access over ownership model, hypermarket model, experience model, pyramid model, on demand model, and ecosystem model (Marsden, 2015). Although examples given by Marsden in his article do not always correspond to the definition of disruptive models given by Christensen, Raynor & McDonald (2015), we can still characterize them as innovative models, even if they are not essentially disruptive.

In connection to our research topic, it is important to mention that Christensen, Raynor & McDonald (2015) and stress the importance of technology innovation. They further explain that even though technological innovation is the driving force behind disruption, the disruption occurs on the business model level - it is essential that companies change their business models accordingly and implement it in the correct way. As research by Baden-Fuller and Haeflinger (2013) shows the technology itself does not mean that company is able to innovate and gain profit since it raises many issues during the implementation process.

2.1.2 Key elements of business model

Deducing from the Table 1, we can acknowledge that there have been some changes in how the term is viewed. While in the early stages that described the dot com bubble – in the early 2000s, the definitions usually talk about structure and economic value, but in the more recent years, a business model is viewed as a more fluid concept, with different attributes. Although profit creation is still important, the customer value seems to be the priority. This fact is also supported by the research of Nenonen and Storbacka (2010) who concluded that the definitions of business model have these similarities:

1. *Customer value creation.* We can find this or a similar term in the majority of definitions. It is described as one of the core elements of any business model because each business model should answer the question of how the firm creates value for its customers.

2. *Earnings logic.* Discussed in different terms, earnings or profit of the model is also an area that is also a crucial part of many definitions of a business model.

3. *Value Network.* Under this and similar terms the business model definitions highlight the importance of relationship with other stakeholders within its value chain.

4. *Resources and capabilities.* Several different definitions also discuss resources. Therefore, a complete framework should also include them in the models.

5. *Strategic decisions, choices, and capabilities.* According to Nenonen and Storbacka (2010), strategic decision and positions also need to be addressed while creating business models, and are therefore part of many definitions.

As we can see, the first two components that these definitions share are customer value creation and earnings logic, thus they can be seen as key elements of business model.

Furthermore, many authors such as Webster (2002), Kaplan and Norton (2001), Payne and Frow (2014) support the idea that value proposition is a key concept when it comes to business model and its strategy. Value proposition was one of the research priorities of the years 2010-2012 of Marketing Science Institute (Payne and Frow, 2014). The term has been research based on the concept itself, its value for business model, or in connection to specific industry, service or product. There are more than 3000 studies dedicated to this area in the past 10 years. On top of value proposition being in the center of business model research, its connection to technology and innovation is made through more than 600 studies, the most notable ones being collected in Management of Technology Innovation and Value Creation (Sherif & Khalil, 2008).

Thus, we can conclude that our research should definitely consider the value proposition as one of the key elements of business model. As a key element of the business model, it can show the change in business model caused by technology development. This claim is supported by the statement of Moore and Khagram (2004) that business model innovation

stems from re-definition of value proposition or organizational roles in value chain. As Huang (2014) concludes that “business model innovation aims to create added value for customers”; therefore, any changes due to technology would be visible in the value proposition.

We have identified the earnings logic of revenue streams as the second key element of business model for our research. Compared to the value proposition, the research in this area is smaller, roughly 500 research papers with revenue stream as main topic. Nevertheless, the way firm gathers revenue is one of the top priorities and key factors of most business model literature ad discussed previously and therefore we believe that it is important to analyze how this particular element has been influenced by the technological innovation.

2.2 Business model canvas

In this section, we introduce the concept of business model canvas. We use its description of nine building blocks in two ways:

- We use the description of the value proposition and revenue stream to derive our framework, since as mentioned before, these two are some of the most important elements of any business model definition.
- We use the rest of the blocks to further analyze the video game industry and answer our research questions, since we want to offer a comprehensive look at the innovations present in the video game industry.

The business model canvas is a framework designed by Osterwalder and Pigneur (2010) that is widely recognized as one of the most coherent and complex frameworks and is widely used in business (Ovans, 2015). Authors presented the first part of this framework in his dissertation paper and developed it further from there. Currently, his book *Business Model Generation* has sold over a million copies in 30 languages and gains positive feedback from around the world.

The business model canvas consists of nine building blocks, that are in line with previously mentioned definitions of business model. These blocks are:

- 1.Key Partners
- 2.Key Activities
- 3.Key Resources
- 4.Value Proposition
- 5.Customer Relationship
- 6.Channels
- 7.Customer Segment
- 8.Cost Structure
- 9.Revenue Streams

According to the Osterwalder and Pigneur (2010), a business model should work as a blueprint for a strategy that is to be implemented throughout an organization. In order for us to use these blocks in our analysis, we need to look at their definitions:

Key Partners

Key partners are defined by Osterwalder in Business Model Generation as “the network of suppliers and partners that make the business model work”. The Key Partners block fits in with the rest of the business model by further detailing who the key partners and suppliers are, which parts from the Key Resources block the firm receives from the partners and suppliers, and which parts from the Key Activities are provided by the partners and suppliers.

Key Activities

Key Activities is defined as “the most important things a company must do to make its business model work”. The Key Activities block fits into the overall canvas by detailing what activities are required to deliver on the Value Proposition block, obtain the distribution channels in the Channels block, positively effect Customer Relations block, and allow for the capture of the revenue in the Revenue Streams block.

Key Resources

Key Resources is defined as “the most important assets required to make the business model work”. The Key Resources block fits into the rest of the canvas by elaborating on what Key Resources are needed to deliver the Value Proposition block, distribute through the chosen Channels block, positively influence the Consumer Relations Block, and how to capture value in the Revenue Streams block.

Value proposition

Value Proposition is defined as “the bundle of products and services that create value for the specific Customer Segment”. The Value Proposition block details What the value delivered to each Customer Segment, which Customer Segment’s problems or needs are being solved with the company’s offerings, and which bundle of services or goods is being offered to each specific Customer Segment.

Customer Relationship

Customer Relationship is defined as “the types of relationships a company establishes with specific Customer Segments”. The Customer Relationships block examines what the specific Customer Segments expect the relationship between them and firm to be, which relationships are already established and which need to be established, how costly it is to establish and maintain these relationships, and how the relationships integrate with all of the other blocks in the business model.

Channels

Channels is defined as “how a company communicates with and reaches its Customer Segments to deliver a Value Proposition”. The Channels block elaborates on which Channels the Customer Segments want to be reached by, how the company is reaching them, how the channels are integrated, which ones are best and most cost efficient, and how they can be integrated into the Customer Segment’s routines.

Customer Segment

Customer Segment is defined as “the different groups of people or organizations an enterprise aims to reach and serve”. The Customer Segment block determines who the firm is creating value for and who among them are the most important customers.

Cost Structure

Cost Structure is defined as “all costs incurred to operate a business model”. The Cost Structure block examines what the most important costs are in relation to the business model, which Key Assets are most expensive, and which Key Activities are the most expensive.

Revenue Streams

Revenue Streams is defined as “the cash a company generates from each Customer Segment (costs must be subtracted from revenues to create earnings)”. Revenue Streams examines the willingness to pay of the Customer Segment for the Value Proposition, the current payment and method of payment for the Customer Segment, and how much each Revenue Stream contributes to the overall revenue (Osteralder & Pigneur, 2010).

2.3 Current Research on Video Game Industry

In this chapter, we offer a closer look at current research on video game industry with the focus on the studies conducted on the value creation and revenue streams.

2.3.1 Value Creation studies

There are two notable papers focused on value creation. Gidhagen, Persson Ridell, and Sörhammar (2011) explored in their research the interaction between the firm and customers, focusing on showing the different contribution levels of customers to the value proposition. Depending on the level of contribution and interaction, customers can directly affect the value proposition; for example, through extra development and change of the game or community building. The other notable research paper in this area is by Marchand and Thorsten Hennig-Thurau (2013) that offered a comprehensive value creation model of the industry shown on the following diagram. As shown, the value of a given game is a combination of multiple sources of value.

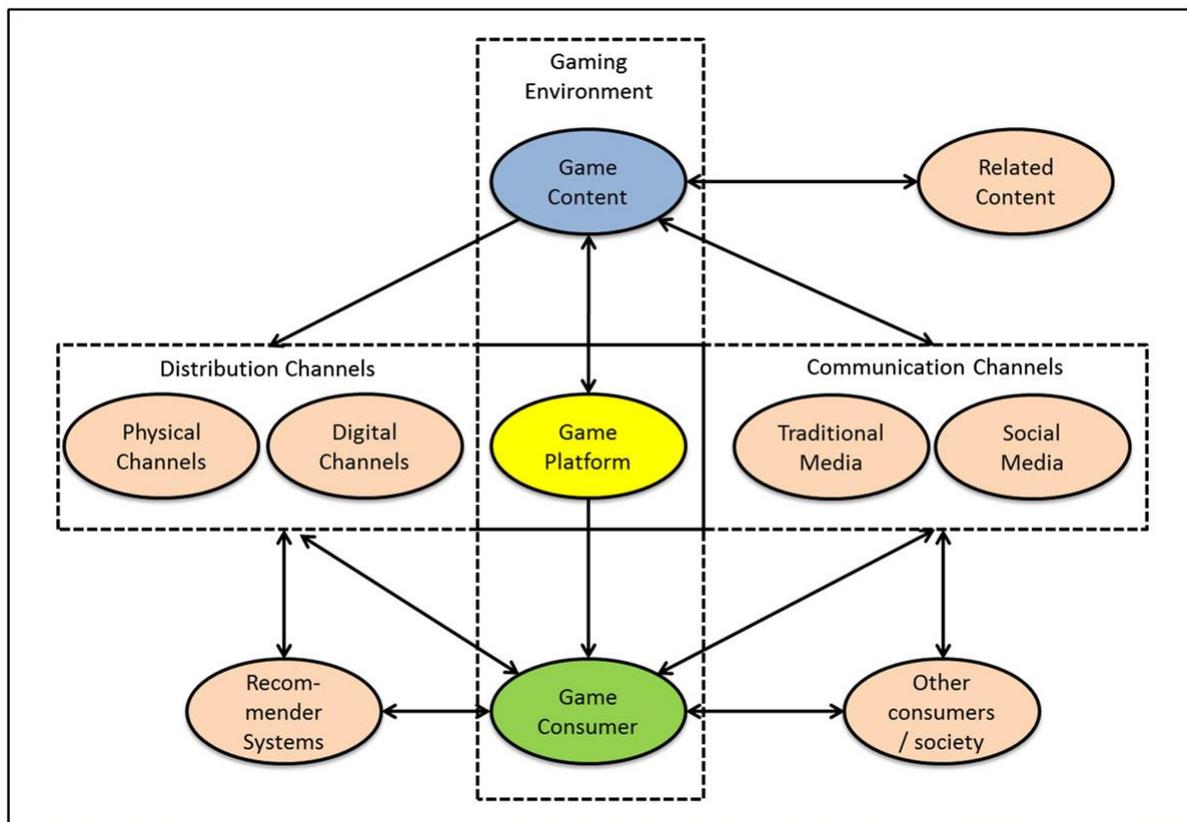


Figure 1 Value Creation Model by Marchand and Thorsten Hennig-Thurau (2013), p.142

2.3.2 Revenue Streams studies

Within the scope of video game industry, there are many studies devoted to one particular model and its revenue structure, for example Huang (2014) discusses the idea behind the freemium model as utilized in video gaming industry. The most comprehensive study into the revenue stream structure thus far is research done by Davidovici-Nora (2014). This research is focused on three main types of revenue structures currently present in the video game industry, while it lists some examples from the industry.

In conclusion, even though there is research present for these two business model elements separately, there is no study linking these two areas into one framework while looking at their development over time, in connection to technology innovation. There is a clear gap in the research that we can fill with our research in addition to the overall gaps mentioned in the chapter 1.1.

2.4 Value proposition – Revenue Streams Framework

As mentioned before, we have decided to create our own framework to analyze the video game industry business models across time. We have decided to focus on two elements - value proposition and revenue streams – as these have been identified as two key parts of business model. The reason why we have derived our framework is to be able to clearly show changes triggered by the change in technology that have occurred in these areas of business model thus answering our research questions. This framework is used in analysis to create a typology of business models present in video game industry across time.

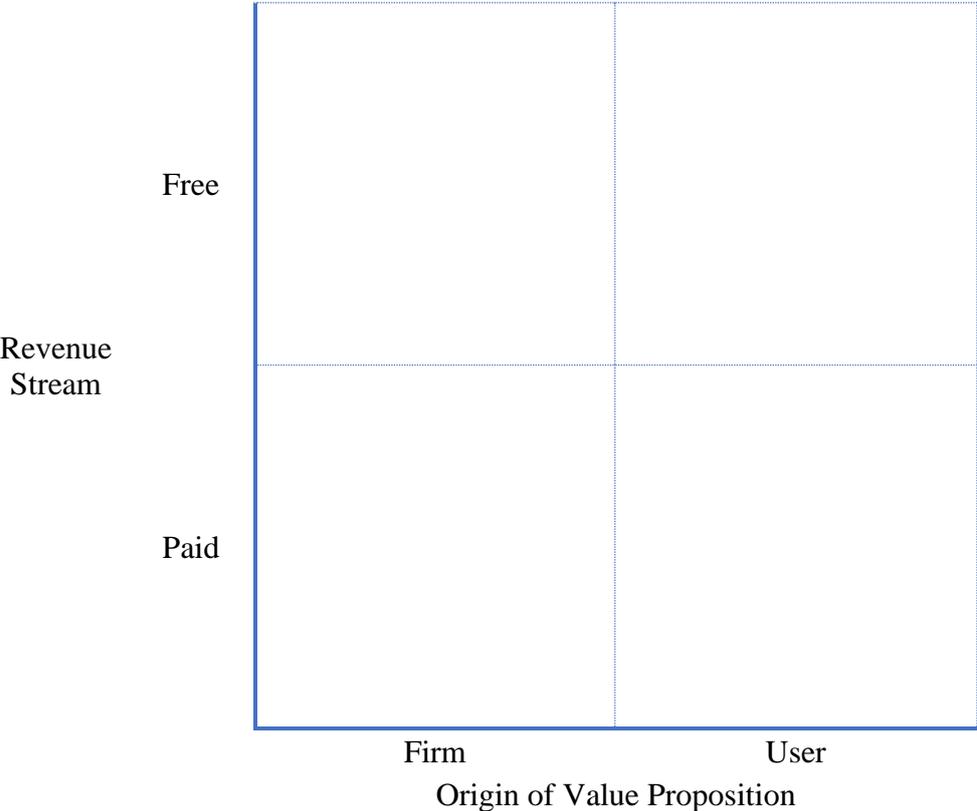


Figure 2 Value Creation - Revenue Streams Framework

Following the research done by others in this area, we compare the origin of the proposed value, either predominantly from the firm or predominantly from the consumer, and the method of revenue stream from the perspective of the consumer, either paid or free.

On one of the axes in our typology are the origins of the value proposition the consumer derives from the good or service of the firm. Some firms provide the majority of the value themselves to the consumer. Other firms allow for the creation of consumer generated content, and a significant amount of value is derived from the other users.

For our typology, **firm created value** firms can be defined as firms that create the majority of the value that the users derive from the product. Because the value is mostly derived from the firm and not from the other consumers, there is little to no network effects associated with the good or service created by a firm in this category. The role technology and digitalization plays for firms in this category is to streamline and make the good or service easier to use, rather than to create additional value through user generated content. In some instances, the inclusion of consumer generated content is either not possible with the current technology, or would otherwise not make sense to have for the industry. For example, before the widespread use of the internet, it would be difficult to obtain network effects from having additional consumers, or a raw materials manufacturer would most likely not want to include consumer generated content in their offerings.

On the other end of the spectrum from the firm created value is a **Consumer generated value** firm, which has users who derive most of the value in the good or service from consumer generated content. Since users gain value from the other users, there are network effects from having additional consumers, and a business model must be adjusted to facilitate the value created from the consumer generated content. Technology and digitalization plays a connecting role for the consumers, allowing for the dissemination and creation of consumer generated value. In some instances, the inclusion of consumers in the value creation process allows firms to outsource some of their process or extend the life of their product through the consumer generated content. In order to attract enough users to overcome a critical mass needed to be sustainable for the network effects, firms attempting to have a user generated value proposition need to structure their business models in a way so as to capitalize on the positive externalities. For example, a firm may want to keep the

costs lower for the users since they are generating value, and use a variety of pricing mechanisms to still make money while maintaining a high user base.

On the other axis in our model is the method of revenue from the perspective of the consumer. Some goods and services, the firm charges the end consumers directly. Other goods and services, the firm gives the consumer access to the good or service for free, and generates revenue through some other means, for example advertisement or additional services.

On this axis, the **Paid product** category includes firms who have the consumers pay for the good or service that they are providing. These goods or services are typically universal in nature, so the consumer is getting close to the same experience as the rest of the consumer. Technology allows for the firm to collect the payment through various methods, such as transactions at the time of sale, subscriptions collecting revenue every certain period, or even offering premium versions of otherwise free services to incentivize the direct purchase from the user. The means of collecting revenue needs to match the rest of the model, including the origin of where the value comes from. For example, if a good or service requires continual action from the firm to maintain the good or service, a subscription fee could make more sense to cover the cost of the continued action and make profit off the heavier users who continue to use the product. Or, to make profit off the sale of a good in a more traditional sense of a transaction.

On the other end of the spectrum on this axis is a **Free product** aspect, where revenue is collected through other means than from a regular fee or transaction with the consumer. These goods or services can typically be described as having positive externalities associated with the number of consumers, and so the firm would want to maximize the number of total consumers by lowering the cost to them, and thus capitalize on the externalities. Technology and digitalization allows firms to be creative and have many different options for how best to collect revenue and make money while still offering a free good or service to the consumers. An example of this could be to sell smaller goods or services to augment and complement the existing free good or service, allowing firms to profit off the users who find more value in the augmentation rather than the whole user base as a whole.

3. Methodology

This chapter explains the methodological steps of our thesis. It contains an insight on how we approached the subject, our strategy when it comes to analysis and reasons why we chose this approach. Lastly, it addresses the credibility aspect of our research.

We have decided to conduct an exploratory research. There is insufficient research into how business models in video game industry have changed over time, as discussed in the previous chapters. There is also no uniform approach on how to study this topic. The main aim of our research, by answering our research question, is to gain further insight into the topic and develop a way to study this topic by creating a new framework. Additionally, the scope of our research limits our availability of resources, such as time and financial resources, thus limiting other methods for our work. Our research focuses on qualitative description rather than quantitative in order to offer a more broadly applicable framework which we hope provides guidance for future research. We are using secondary data in our research, given the constraints on our resources and the abstract and firm specific nature of business models.

In the following figure, we include the steps of our research.

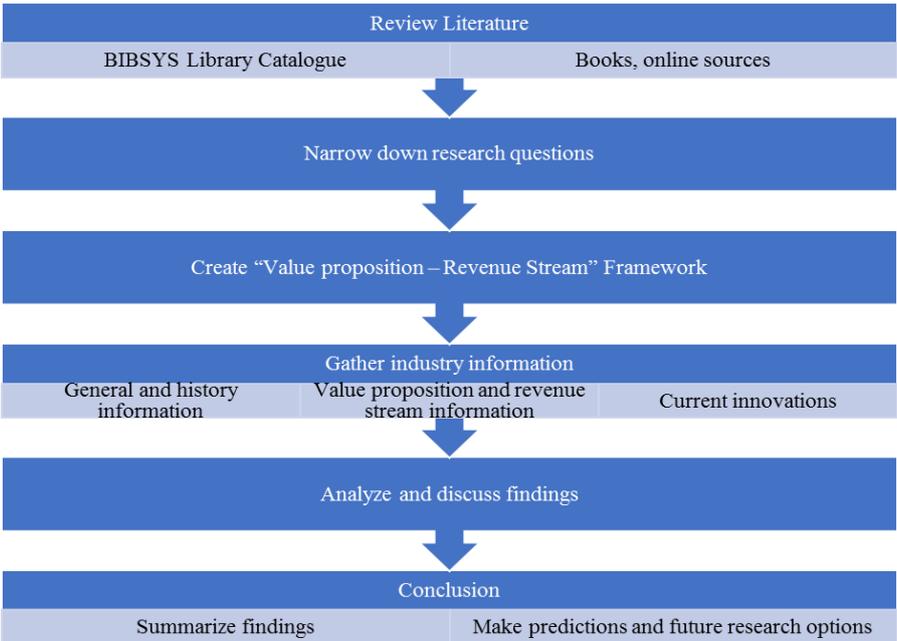


Figure 3 Research steps

3.1 Literature review

We began our research with a thorough search in the BIBSYS Library Catalogue to find viable sources of information in the academic articles and books while using the keywords “technology”, “innovation”, “business model”, “video game”, “video game industry”, and their combination and synonyms. Although there is a vast number of articles written about technology and business models, yielding in over a million search results, when we introduce the keyword “video game industry”, the results became more limited. After the revision of the research on business models, we further narrowed the scope of our search to value creation and revenue stream oriented research in video game industry, to familiarize ourselves with the current research situation and to find the gap we could address. This search provided us with a strong theoretical background as well as the research gap, thus creating our research questions. Furthermore, based on this research, we have created a framework that we have used in our analysis.

After obtaining the initial information from the academic database and defining our research question, we began to gather data about the industry. We looked at articles written in online publications, video game companies’ web pages and their annual reports, blogs of well-known people of the industry in question, networking sites for the gaming community such as Reddit, and electronic sports events pages. We also watched related interviews, online discussion or videos. We gathered a more complex and detailed secondary data and information on the industry and issue at hand than we have used in our analysis.

3.2 Analysis strategy

In our analysis, we first focus on the overall review of the industry, using the previously gathered data. We describe the history of the industry and identify the most impactful technological changes, dividing the timeline into different eras. We then proceed to analyze these eras separately using our framework proposed in the previous chapter – value proposition - revenue stream framework. We use information gathered from sources mentioned in the previous section to compare the changes in the business models in the video gaming industry while using concrete games as examples. Rather than focusing on leading companies in the industry, we focus on the models of leading games, since large

video gaming companies use different types of business models depending on the type of the game and its target audience. This practice is further explained in the industry overview, together with information on key players in the industry.

We use games to support the typology introduced in our analysis. The titles of the games that are used were chosen based on their level of popularity and revenue at given time, making them a fair representation of the given era.

We use the finding from this analysis to answer our first research question.

To answer our second research question, we look at the most recent development in the industry regarding remaining business model canvas blocks. We point out the most important innovations and practices in the selected business blocks, and in addition, we analyze the most recent articles and attempt to make predictions of the future development of the industry based on our research.

3.3 Credibility

Since our research is exploratory, it is subjected to the questions of credibility, mainly in the area of validity, reliability and generalization.

Validity refers to the fact that the findings of our research are really what they seem to be (Robson, 2002). To ensure the validity of our research, we have used multiple sources to gather and verify obtained data and information (e.g. research papers, newspaper articles, videos, webpages). To further avoid subjectivity and individual bias, we as partners worked and discussed the findings together, to find an objective result. Some bias might persist in our research but we believe that we had kept it to the minimum, thus keeping our results valid.

Reliability refers to the consistency of the results (Saunders et al., 2009) meaning if our research was reproduced it would yield the same results. Since we are relying on secondary data in our research that are widely accessible we believe that while using the same data and following the same research strategies, the results would not change. Even though, as we mentioned before, we acknowledge that some bias might be present, it is not to such an

extent where it would influence the reliability of our research. On the other hand, if the research is done at a different point in time, although the part of our findings connected to previous models in the industry would not change, the current state and current innovation trends may differ.

The last characteristic that we need to address is the generalization of our study. Since our research questions are focused on a specific industry, we cannot conclude that the same change and same trends are present in other industries as well, as this was not in scope of our research. Nevertheless, even though our findings cannot be generalized, our research method as well as our framework can be used widely and other researchers can apply them in other industries and make comparisons in the future. Therefore, even though we cannot draw general conclusions across industries, our research contributes to the general understanding of business models and the relationship between value proposition and revenue stream.

4. Analysis and Findings

In the following chapter, we analyze the information we have gathered and formulate our findings. We start with the overview of the industry and its history that is crucial in identifying the technological triggers that have changed the business models in the video game industry.

4.1 Video Game Industry

4.1.1 Overview

The structure of the video game industry is complicated and can be described from multiple sides.

Firstly, the structure of the video game industry can be divided into 2 sides, the development side and the publishing side. Development can be further broken down to be first party development, second party development, or third party development. First party developers are owned by the publishers and create games for the publisher. For example, Bungie Studios, the creators of the Halo series, are first party developers because they are owned by Microsoft, a console producer and major publisher. Second party developers are contracted for a specific publisher, but are not internally owned by the publisher. For example, Game Freak, developers of the Pokemon series, are contracted to make the series for only Nintendo but are not owned by Nintendo themselves. Third party games are developed independently from the publisher and can develop games for multiple publishers. Activision Blizzard, creators of the Call of Duty series, develop games for multiple publishers, such as both Sony and Microsoft. Publishers are the firms that distribute and license the games. These include but are not limited to the platform manufacturers, such as Nintendo, Microsoft and Sony (Ninjametrics, 2014).

Further analysis of the industry also shows that the majority of developers are owned or contracted by their publishers, and many of the top games are developed and published by a relatively few companies. (Statista, 2016).

There is some regulation to the industry in the form of age restrictions on some material. Ratings boards such as the ESRB were created to rate games according to their content and rate them for certain age groups (Civic Impulse, 2017)

The industry, much like the other entertainment industries, have genres which appeal to different users and can include a complex construction to create new mixes in the genre (Lee et al., 2014). Furthermore, the industry has a more or less even split between three kinds of gaming, mobile console and personal computers, with mobile earning \$36.9 billion in revenues, PC earning \$31.9 billion, and Console earning \$29 billion.

As previously mentioned, video game industry market can be considered an oligopoly – the majority of the revenue is generated by a small number of big international firms (their revenue is shown in the following figure). This is also concluded in the research of Marchand and Thorsten Hennig-Thurau (2013). Therefore, rather than focusing on companies, in our research we are focusing on particular products – particular games titles. The reason behind this distinction is the fact that each of these big conglomerates owns numerous game titles that have different attributes and different revenue streams. For example, Activision Blizzard owns in their portfolio both free and paid games, games that are aimed to play solo or in a team, which affects the value proposition of these titles. Therefore, to correctly analyze the impact of technology on the change in the business models, we need to look deeper and closer into the game titles itself rather than looking at the overall strategy of the companies, that have in most cases other interests than just video games.

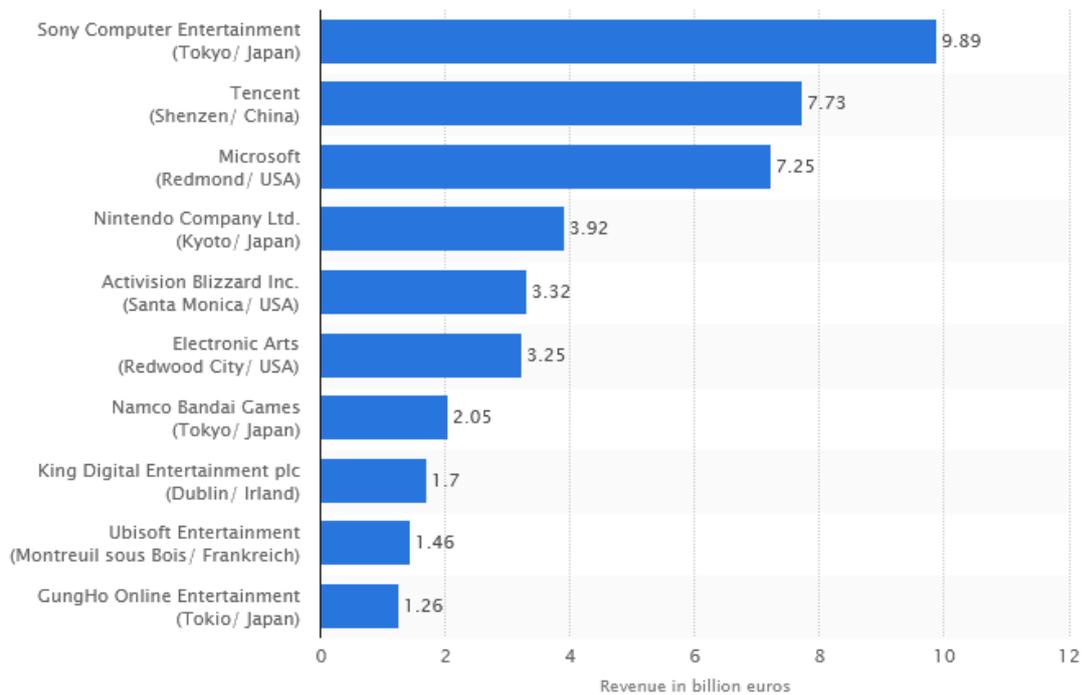


Figure 4 Video game industry revenue distribution for year 2015 (Statista)

4.1.2 History

The first video game machine was exhibited by Dr. Edward Uhler Condon at the New York World's Fair in 1940. The game was based on an ancient mathematical game called Nim. Approximately 50,000 people played at the Fair but only about 5000 managed to beat the computer. In the late 1960s Ralph Baer developed the "Brown Box". The Brown Box was a vacuum tube circuit that connected to a home television and allowed players to control cubes displayed on the TV screen. Players could chase each other, or the system could be programmed to play several games such as ping pong, checkers, 4 different sporting games, and, with more advanced add-ons, shooting and golf. In 1972 the Brown Box was licensed to Magnavox who turned the system into the Magnavox Odyssey becoming the first home console. From 1972 until it was discontinued in 1975 Magnavox sold approximately 300,000 units, with poor sales being blamed on poor marketing in stores and lack of customer awareness to the new industry.

Around the late 1970s, the PLATO computer network had several popular games played on the teaching system including, Empire, a strategic turn based game, and Spasim, a 32-player 3D space shooter. PLATO was a computer network created by University of Illinois and

then later taken over by Control Data, who built the hardware and the network that PLATO was operated on. PLATO was originally intended to be an educational tool and it served as a forerunner to the internet. Only large organization like universities and large companies could afford the computers and connections necessary due to the large cost of such a network. However, as years progressed and technology became more powerful, more powerful and complicated capabilities became cheaper until Personal Computers (PCs) and home game consoles could be sold at a more commercial rate. In 1993 Path of Darkness was released and Local Area Network (LAN) Parties become popular. LAN parties were the precursor to the internet and was widely used until the internet became a more viable option. Around the same time, CERN makes the World Wide Web public but it has technical limitations as to how powerful it can be limiting its effectiveness for gaming. In 1996 Windows 95 and cheaper Ethernet cards allowed for more LAN games, including the popular First Person Shooter, Quake. In 2000 the Sega Dreamcast was launched as the first internet-ready console. It had a 56Kbps modem and a web browser imbedded in the console making the internet a core part of its offerings instead of only an add on. However, the internet was still slow and costly to use, leading the Dreamcast to ultimately be a failure because it was too far ahead of the technology available. Other consoles makers such as Microsoft, Sony, and Nintendo adapted lessons learned from the Dreamcast into their own online capabilities later on.

In 2001 Runescape launches as one of the first Massively Multiplayer Online Role Playing Game (MMORPG). Millions of players around the world could play together, interact with each other, and compete, as well as communicate with each other through chat functions which could create a sense of community within the game. In 2002 Xbox Live launches allowing players on the Microsoft Xbox console to connect to the internet to play with other users around the world. Sony's PlayStation also launched its own online capabilities through an external adapter however the online service was the responsibility of the game developer rather than Sony's. In 2003, the game developer Valve launched Steam, an online marketplace that allows for the purchasing and downloading of games straight to the machine rather than installing through physical copies. In 2005, the next generation of consoles was released with much better technical capabilities and embedded online capabilities. Assisted by more proliferate high quality internet accessibility, Sony, Microsoft, and Nintendo also start offering sales through online marketplaces accessed by the consoles.

In 2007 Smartphones entered the market and introduced a new platform for gaming. With the popularity of smartphones and the ease to which apps can sell on the devices, mobile gaming took off (Chikhani, 2015). By 2011, Multiplayer is such an important aspect of the game that developers go into projects with an idea that 90% of players won't finish the game and will instead enjoy the multiplayer aspects (Snow, 2011). By 2014, mobile games had introduced many more casual gamers and simple games such as Angry Birds broke 2 Billion downloads. (Chikhani, 2015)

1940	First video game machine exhibited at New York World's Fair
1960s	Ralph Baer developed the "Brown Box", the first attempt at a home video game
1972	The Brown Box licensed to Magnavox, turned into the Magnavox Odyssey, the first home console
1970s	The PLATO computer network had several popular games, precursor to PC games
1970s-1990s	technology became more powerful, more powerful and cheaper PCs and home game consoles could be sold at a more commercial rate
1993	Local Area Network (LAN) parties become popular. CERN makes the World Wide Web public but it has technical limitations
1996	Windows 95 and cheaper Ethernet cards allowed for more LAN games
2000	The Sega Dreamcast was launched as the first internet-ready console
2001	Runescape launches as one of the first Massively Multiplayer Online Role Playing Game (MMORPG)
2002	Xbox Live and other similar online services launches
2003	The game developer Valve launched Steam, an online marketplace
2005	The next generation of consoles released with much better technical capabilities
2007	Smartphones entered the market and introduced a new platform for gaming
2014	Mobile gaming popular, accounting for a third of the total gaming market

Table 2 Summary of the history of Video game industry Source: Authors' research

4.2 Framework application

Applying our model to the video game industry, we can look at different and distinct eras in gaming. We have created these eras based on the technology changes that occurred, which resulted in the changes in the business models. We analyze these changes with the use of our framework, introduced earlier.

First there was the Traditional era, which we will define as from when the industry started until 2003 when Steam was launched, as it marked a shift when the internet and other technologies allowed for different options. This led to a Transitional era, when firms were implementing technology to their best advantage to create the most value. Some firms would outsource some of value creation to the users and the community, while others were slower to adapt and would maintain the traditional model with small changes to their business model to stay with the trends. Finally, we provide analysis on a modern era. We define the end of the transitional model and the beginning of a final Modern era as ending in 2007 with the launch of the Apple iPhone and similar smartphones, as it marked a new market and level of technological power and prevalence that allows firms to have even more options for their business model, particularly among ways how the value created is collected.

4.2.1 Traditional era

In the traditional era, technology limited the options for the firm to have a different business model. The games that the firms produced could be considered only as goods, not services. The firm would create the digital content on their own computers, and then have to transfer them to individual physical copies to produce the games. And then the goods would be transported to retail centers for sale. Because these early games also had limited connectivity to other users, there were no positive externalities of having more users. Some firms included the option for multiplayer, however it would only be for people playing on the same device, or otherwise in a local area. For example, Nintendo's Super Mario Bros. has an option to play as a player 2, and multiple people can play together on the same game, but the overall experience would be essentially the same. The games created in this era were universal goods, with the same value offered to all users, and only slight variances in the overall experience depending on how the user played. Within this same era there began Local Area Network games, where multiple devices would be connected together to run

much larger multiplayer matches. Games like Doom and Quake were pioneers in this regard and allowed for the large LAN parties to give added value to their games. However, the games were at their core stand alone titles that could be played without ever linking up for multiplayer, keeping them in line with the era’s Firm created value proposition and sale’s revenue stream. Although there are other means to make money for game producers outside of sales, such as merchandising, sales are the most important because it demonstrates the brand value which may attract the means for the other revenue streams.

Many firms may have combined their business model canvas into different combinations. However, the technological limitations of the traditional era impacted the models so that the origin of the value created in the value proposition aspect and the means of revenue for the revenue streams aspect of the business model fall into the category of having Firm derived value, and Paid value capture from the user in our model.

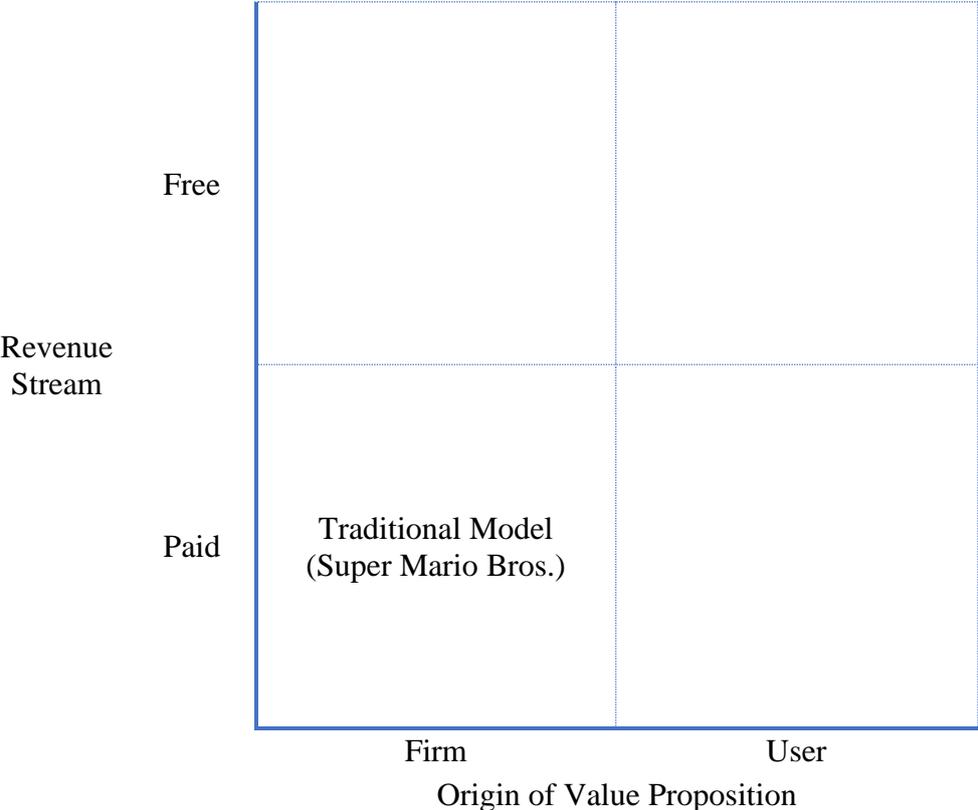


Figure 5 Traditional era

4.2.2 Transitional era

As technological advances, especially the internet, became more powerful and commonplace, the era shifted into a transitional era for the industry. We have defined the shift to begin in the early 2000s because the launch of several online services and trends towards interconnectivity mark when Internet and a digitalization of the medium became a more integrated part of video games' business models. With the launch of Steam, an online digital marketplace for PC games, and other services similar to Steam, digital and other forms of distribution became possible, giving firms more options in their business models. This digitalization trend continued with the launch of the popular Massively Multiplayer Online Role Playing Game, World of Warcraft, in 2004, and the console services of Xbox Live and PlayStation Network receiving updates and becoming a more integrated part of games in the Xbox 360 and PS3 generation of consoles.

These innovations allowed for firms to integrate user generated content in addition to the firm created content. Steam users create value for the other users by creating content through their community. Games receive ratings and comments from the users and users also create modifications for the games on Steam, playing the modified code through the Steam library platform to ensure it runs more smoothly. World of Warcraft, one of the most played games of all time, offers a unique value to its users of not only providing value through the firm created content of the game design and mechanics itself, but also with the user created content such as the social aspects and player community within the game. Console services like Xbox live and PS Network allowed games on the consoles to have multiplayer options, giving games an extra value outside the single player firm created content by allowing players to play countless matches with other users, allowing the users to generate value for other users. Many firms still functioned with a traditional model, such as Rockstar Games's 2004 Game of the Year Award winner Grand Theft Auto: San Andreas, however the technology and rising prevalence of digitalization and the internet allowed firms to expand from just a Firm/Pay model to also include a User/Pay model.

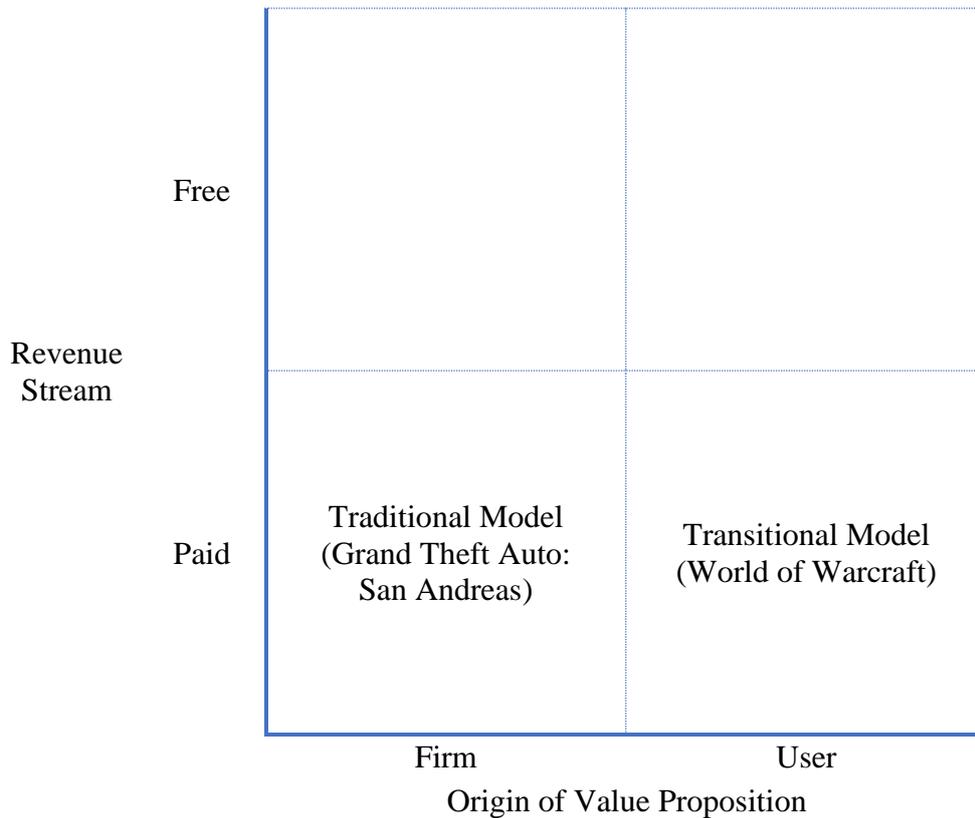


Figure 6 Transitional era

4.2.3 Modern Era

The third and current era in the video game industry we define as a modern era, which begins with the launch of the Apple iPhone and other similar smartphones. We believe that the launch and prevalence of smartphones constitutes an important shift in the industry, as the digital services such as Apple App Store and Google Play combined with the widespread use of smartphones means that the launch marked a time when a very large population owned a gaming device. Additionally, the digital payment allowed by having a centralized platform such as the App Store or Google Play, which already has the user's payment information stored on their account, also enables many of the other options for payment than what was previously possible in the Pay category of our typography. These additional options allow firms to best fit their revenue streams to their value proposition. For example, if there are high positive externalities to having more users, a firm could make the service completely free for the users to encourage more to get involved, and thus create more value through the externalities. In order to still make profit, this firm would need to use another method of revenue generation. Some examples of these could be advertisements, microtransactions, or arranging sponsors to fund the operation.

Many free mobile games, such as Clash of Clans or Candy Crush, confer certain benefits to their users which the users earn by watching an ad. Many of these same benefits can also be outright purchased for a small fee. These advantages are typically designed to be short lived and with minimal effect, not only to keep the game balanced for the free users, but also to encourage the purchases of more small cost purchases which can add up over a longer period. The games still remain free for all users, however the firm generates revenue off of only the users who pay for purchases, or from advertisers who reach their target audience through the game. With the rise of Electronic Sports (e-sports), some firms, such as League of Legends, can even be sponsored or earn revenue through the competitions. In this modern era, firms in the video game industry can be in all four quadrants of our typology, with games like Fallout 4 being Firm/Paid, World of Warcraft being User/Paid, Candy Crush being Firm/Free, and League of Legends being User/Free.

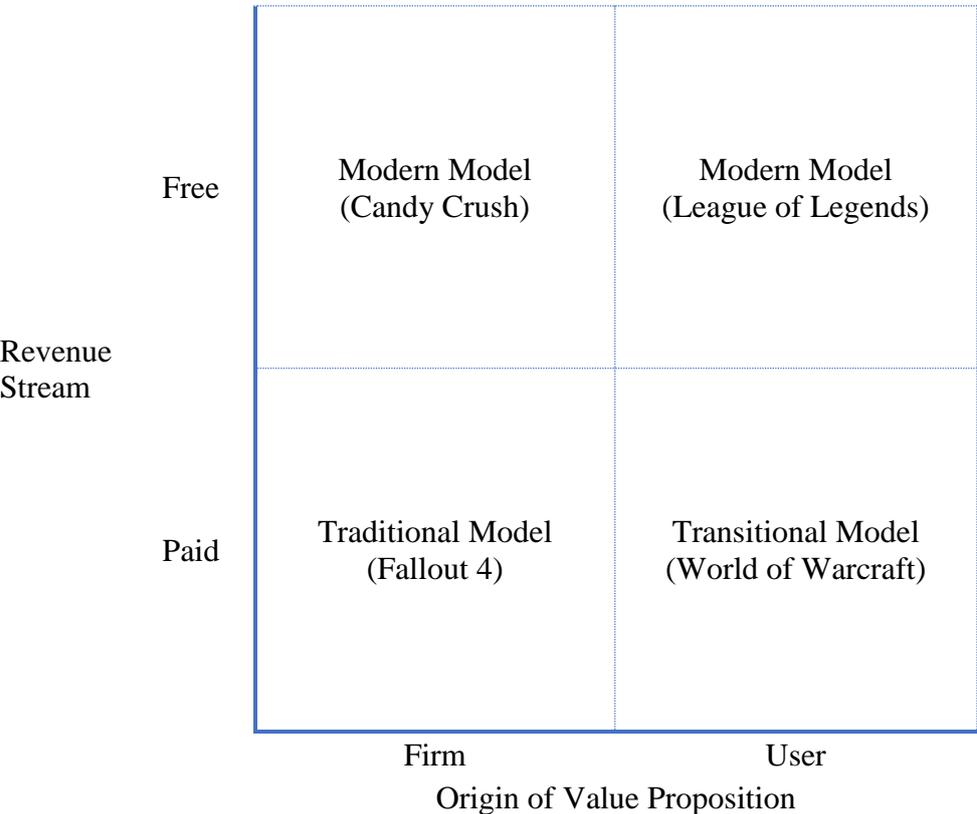


Figure 7 Modern era

4.3 Business model canvas analysis

In the following part, we discuss the rest of the business model canvas blocks (except value proposition and revenue stream).

The customer block has been relatively the same throughout the video game industry's existence: people who wish to play games on some form of device. Over its existence, the device that the user could use has had many forms, such as arcade machines, personal computers, specialized gaming consoles, mobile devices, and more recently, smart phones and tablets. The devices are required to play the games and the games are what give the devices their value to the customers so there is a symbiotic relationship and network effects between the producers of gaming platforms and game developers. As such, the target audience for game developers can be broadly defined as anyone with a device on which to play.

Because this broad definition does not lend itself to accurate representation of the many different ways in which a user may be attracted to a specific game, game producers can further segment the market into more detailed and accurate segments through the use of genres. Following the work of Jin Ha Lee et al., there are several facets that comprise a genre, and a firm can mix and match different facets to fit their target customer segment mix (Lee et al., 2014). Given the wide range and number of facets to choose from, a game developer could make a very similar yet completely different game compared to other games. The game developer Bioware's and publisher Electronic Arts's Mass Effect series is very similar to developer Gearbox Software's and publisher 2K's Borderlands series in terms of Gameplay (RPG, Shooter), Purpose (Entertainment), Target Audience (Mature rating), Presentation (3D), Temporal Aspect (Real Time). But the two games are different in terms of Artistic Style (Realistic and Cartoon respectively), Point of View (Third Person and First Person), Theme (Sci-fi and End of the World), Setting (Space and Desert), Mood (Adventurous and Humorous), and Type of Ending (Finite and Circuitous). The mixing facets to create games' genres allows for a wide variety of possibilities to create value for a wide variety of customers and can segment the broad market in a wide variety of ways to attract the most users and differentiate themselves with their innovative games.

Another aspect the firm can use to segment is to use the self-imposed regulations on age which has become standard for the industry. Regulation authorities, such as the Entertainment Software Ratings Board (ESRB) were established when ethical concerns brought about attempts for government regulation of the industry, such as in the US the attempted passage of the Video Game Ratings Act of 1994 (Civic Impulse, 2017). These systems classify the content of the game and rate it according to how appropriate the game content would be for different age groups. For example, an extremely violent and gory game such as game Mortal Kombat, a fighting game that features a series of gruesome animations for fatally killing enemy characters after defeating them, would be restricted to only mature audiences, defined as 18 years old or older by the ESRB, and could not be sold to younger impressionable gamers (Crossley, 2014) . Keeping in mind the age restrictions can help developers target their audience and craft their genre facet mix to best fit which segment they are looking to attract and provide the most value to them.

The customer relations and distribution channels have changed significantly, however the reason for those changes have been to provide more value, and as such, we will elaborate further in our later analysis. Before the use of technology and digitalization allowed for it, the role the user played was somewhat limited. The users created a community of other users who could discuss the games through magazines and other print media, but the level of communication was limited because of the limits of the technology. By the time issues were brought to the attention of developers and game publishers, it would be too late to fix all of the product already produced and shipped for sale. As technology and digitalization allowed for it, firms could get closer to these communities to help derive what specific aspects the users liked and did not like about the games, and thus implement the popular mechanics and aspects into their next games, or fix the existing games through downloadable patches. As technology became more integrated, the customer became more of a contributor to the firm. In a related way, the distribution channels have evolved to create more value. Originally the game producers would ship physical product to the retail locations to sell the product. Digitalization and services such as Steam, and later other content providers such as Apple's App Store or Google Play, allow for a more convenient process through which the end user could bypass the hassle of going to a store and downloading the game directly to their device. This decreases the reliance on retail stores for distribution and can save the firm on

production costs, however the main impact is on the value it creates for the user through the ease of buying and using the product increases with the digital distribution.

On the cost side of the business model canvas, the video game industry has more or less stayed the same, implementing technology as needed.

The *key resources* for game producers have been their intellectual property rights for the content they create, enabling them to expand the franchise or license out their property to other firms for merchandising (Merchoid) or other for use in other mediums such as tv shows (The Super Mario Bros. Super Show!, 1989) or movies (Jankel & Morton, 1993) . These intellectual property rights allow the firm to continue to deliver value to the users already interested and invested in the story of the existing franchise, and protects the firm from competitors when creating new content.

The firm's *key activities* are tied to the development and management of new and existing games. Starting new projects and making new games are ways in which the game producers can attract new customers and offer value to new users. And creating new games following previously made content in a franchise is a way to maintain customers who already have invested themselves in the franchise and want to continue receiving the same value. As technology became more powerful and prevalent, other ways to create value through game development and management, such as multiplayer capabilities and downloadable content (DLC), emerged, as we will elaborate on further in our model.

Some *key partners* have also stayed rather constant in the industry. For example, game console producers typically charge a licensing fee to the developers to be able to write games that operate on their platforms. This pricing strategy enables the console producers to sell the hardware of their consoles to the end users at a loss and make money off the licensing of games. Because the consoles are cheaper, more users will buy the console, and because more people have the console, the larger the target market becomes for games produced on that platform. This larger market leads to more developers wanting to produce games for the console and thus sell more games, which is why the console producers charge the developers the licensing fee rather than set a higher price for the consoles (Hagiu, Andrei, and Hannah Halaburda, 2010).

Console producers were and still are important partners because they allow for a wider target audience because of the prevalence of their platforms, but the consoles are only as good as the games made to play on them. Another partner is the distribution channels for the developers and publishers. Traditionally the only opportunities for distribution were physical. Publishers and developers would need to establish a distribution chain from their work, to physical copies manufacturing, to transportation to retail locations to sell the physical copies of their good to the consumers. As technology improved the availability of digital downloads of the good instead of physical copies allows for more variety and choice for the game developers and publishers have to choose how to distribute their goods and services. Distribution channels are partners with the developers and the publishers because they need the games to sell to make money themselves, but the game developers and publishers need the distribution channels to be able to sell their products.

Overall this leads the cost structure to involve the costs associated with the key activities of game development and management, maintaining the relationships with the key partners, and expanding the key assets of intellectual property owned by the firm. These costs allow the firm to continue to add value to the customers after the initial sale and create new value for new customers to generate more sales.

5. Discussion and Conclusion

Technological innovation has impacted business models across industries in different ways. In our thesis, we have focused on how technological changes modified business models in video game industry. In the following, we discuss the most important findings and answer our research questions, we deliver managerial and theoretical implications from our findings, we discuss limitations, and propose directions for future research.

5.1 How has technology, as a trigger, changed the business models in video game industry?

From our analysis and findings in the previous chapter, we came to multiple conclusions. Technology has enabled new and more options in how a firm can choose to provide and capture value. In the traditional era there were not many options because of technological barriers. As the technology improved, and especially with the emergence and prevalence of the internet, new models became possible for firms to offer value in a different way, opening up the possibility of having user based value creation rather than only firm based. As technology continued to improve and become more prevalent, such as the proliferation of smartphones, more options were available for value capture in the revenue segment of the firm's business models, shifting from only a paid method in the traditional and transitional eras into the possibilities of both paid and free models. Technology has changed the role of users into more than just customers. They are assets in the community and to other paying parties, such as advertisers. Technologies such as the internet connect users, empowering them to create more value than before. The goods are also easier to access through digitalization, enabling new and more variety in their distribution, and the ease of access itself, creates value for the users. Digitalization also makes it easier to have transactions, allowing for microtransactions in both paid and, more importantly, free models.

5.2 What current business model innovation trends can be identified in these new models?

The internet's connectivity is making users more of an asset. More value is being outsourced to users, and the users are receiving more value from more users, a cheaper or even free price for the good so as to attract more users to create more value, or are otherwise compensated for their increased input into the product. Digitalization and electronic distribution is allowing a shift towards streaming services and memberships to libraries, such as the new Xbox Play Anywhere, PS Now, or Steam. These libraries operate similar to Netflix, where users pay a membership fee to the service providers, and then get access to a library of games that the service provider has access to (Tassi, 2017). Digitalization also has enabled microtransactions to be easier to carry out, allowing for free and paid models to capitalize on the users wanting to buy an advantage or a customized experience. Because of the ease of carrying out the microtransactions, they have become more commonplace and will likely continue to become easier as the game library services become more used.

Concluding from these trends, we have our own prognosis for the video game industry development. We believe that in the future, the need for physical distribution will disappear – the CD/DVD will become obsolete. We also believe, looking at the current trend, that more games will become either free, with video game producers gaining profits through different means, or accessible through a specialized library. The singular sell of a copy will disappear.

In the theoretical framework, we mentioned the distinction between business model innovation and business model disruption. After the analysis of the video game industry we conclude that the introduction of the free model can be considered as disruption. Looking back at two main characteristics of disruption as defined by Christensen, Raynor & McDonald (2015), we can say that the model started at the lower end of the market – with consumers that could not afford to pay for the games. As the number of consumers gradually increased, the games have become better – the graphics and services provided improved. This fulfills both conditions of the disruptive business model. When it comes to other changes, we conclude that they can be characterized as innovation, since they were adopted

by major players in the industry in order to react to the changes in technology and in the industry.

5.3 Managerial and Theoretical implications

The managerial implications of our work are that video game firms can use our framework and analysis to assess what they want to do for their target audience, how best to combine their business model to give and collect the most value to their users, and by so doing, determine where they want to be in our framework. For example, if a firm which is designing a new game wishes to use outsource value creation to the users, they will need to choose how they will generate revenue. On one hand, they can have a Pay model and thus have fewer players playing because of the cost of joining but collecting revenue on all of the players, and on the other they can offer a Free model which would make the cost of joining less and thus have more players, but only generate revenue on a few of them which choose to purchase in game items or endure advertisements. Before our model, firms may not have had as clear of a picture of what their choices might have been, and firms can use our framework to help them shape their decisions on where they want to lie in the framework in terms of their business model. Firms outside of gaming can also use our framework to see where their industry is, where it might go, and determine how their firm can use technology to be innovative and move to another quadrant. For example, a firm might see that their industry is currently in an era similar to the traditional era, where only one form of model is available. And by attempting to branch out through offering value from a different source or different method of revenue stream, the firm can be disruptive and a first mover in a new model for their industry. An example of this could be the hotel industry with Airbnb. Hotels were traditionally a Firm generated value and Paid revenue stream, similar to the Traditional era in gaming. Airbnb noticed an opportunity to use technology and the internet to shift to a business model with more User generated value with the users offering their own housing as the product and service for other users, resulting in Airbnb's model to be User/Paid, more similar to firms in the Transitional era for gaming. Other firms would need to assess if our work applies to their industry or to their customers, however if it does, they can use it to become more innovative and possibly a first mover and disrupter in their industry.

Furthermore, other industries that are technology-sensitive can look at the innovations trends of the industry and try to apply it in their industry, if they have not been applied yet (for example, the change in distribution channel).

When it comes to theoretical implications, there are two. First, our framework. The use of this framework is not limited to this one industry; thus, it can be used by researchers to analyze different industries and compare their findings with ours. In such a way, researchers can compare the changes triggered by the technology in industries such as publishing or music industry to the results of our research; they can determine if the changes in the business models followed similar pattern, if they occurred at different time, etc. In addition, using our framework to analyze other industries can help advance the academic communities understanding of the relationship between Value Proposition and Revenue Stream. On top of that, following our reasoning, it is possible to create similar framework using different elements of the business model in the future. Therefore, it broadens the research of the concept of business model.

Second, our research adds to the existent research on video game industry. In particular it builds off of Osterwalder's business model canvas, offering a better understanding of the relationship between value proposition and revenue streams. Its findings are comparable with previous research on value creation and revenue stream of the industry, mainly the research of Marchand and Hennig-Thurau (2013) and Davidovici-Nora (2014), adding a new unique perspective by combining two key elements of business models to look at the development over time.

5.4 Limitations and future research

During our work, we have gained deeper knowledge of video game industry and its business models. Nevertheless, our work has several limitations. We predominantly used secondary data which could weaken the validity of the research. Similarly, many of our points are from observations and there were very few hard numbers to analyze, which may have led to some bias. Other possible sources of bias could be in the selection of our examples for the framework, however the games were used to demonstrate the principals of the framework, so we believe that the bias, although present, would have minimal impact on the usefulness of

our framework. We also only analyzed one industry which may not translate exactly to other industries, however the framework we created is broad enough that the general principals could be applied to other industries. The validity of such would need to be researched in later work. The descriptive nature of our research may only highlight a relationship between value proposition and revenue stream, and not demonstrate or establish a definitive cause and effect relationship between the technology innovation and changes in the business model. In general, even though our work lacks empirical data, our main goal was to explore the industry and its changes by using our framework. As mentioned before, our results may be proven or disproven by future research.

Therefore, we suggest a further research in video game industry and its business models by using more empirical data, where the degree of firm/customer value creation can be tested. This would further prove that relationship explored in our framework exists and improve the validity of our framework. In addition, it would provide a deeper understanding on how technology affected business models in video game industry, establishing a clear causal relationship between them. Another stream of research could be tied to a comparison of profitability of the models, which would possibly require involvement of the firm present in the industry. Conducting research on profitability could help the industry establish a set of best practices and know which kinds of models fit well together to maximize profit. This research would establish a more in depth understanding of not only the relationship between revenue and value, but also how that understanding can be used to obtain a profitable outcome.

Another suggestion for further research involves our framework. As mentioned previously, its use is not limited to video game industry. We therefore suggest its application in other studies that focus on other industries – such as other entertainment industries such as publishing, music, etc. – that are also connected and have been influenced by changes in technology. These industries are recommended because they have many similarities with the gaming industry and are likely to yield similar results. Further research could apply the framework to other, unrelated industries, the results of which would either continue to add validity or limit our research.

6. Bibliography

- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6/7), 493-520.
- Baden-Fuller, C., & Haeflinger, S. (2013). Business Models and Technological Innovation. *Long Range Planning*, 46(6), 419-426.
- BGO Software. (2016, May 17). Retrieved June 19, 2017, from <https://www.bgosoftware.com/blog/5-ways-technology-has-changed-business-forever>
- Bower, J. L., & Christensen, C. M. (1995). Disruptive Technologies: Catching the Wave. *Harvard Business Review*. Retrieved June 19, 2017, from <https://hbr.org/1995/01/disruptive-technologies-catching-the-wave>
- Cavalcante, S. A. (2013). Understanding the impact of technology on firms' business. *European Journal of Innovation Management*, 16(3), 285-300.
- Chikhani, R. (2015, October 31). The History Of Gaming: An Evolving Community. Retrieved June 19, 2017, from <https://techcrunch.com/2015/10/31/the-history-of-gaming-an-evolving-community/>
- Christopher, F. (1982). The economics of industrial innovation. London: Frances Pinter. Informationalism and the network society, 43.
- Civic Impulse. (2017). S. 1823 — 103rd Congress: Video Game Rating Act of 1994. Retrieved June 19, 2017, from <https://www.govtrack.us/congress/bills/103/s1823>
- Crossley, R. (2014, June 02). Mortal Kombat: Violent game that changed video games industry. Retrieved June 19, 2017, from <http://www.bbc.com/news/technology-27620071>
- Davidovici-Nora, M. (2014). Paid and Free Digital Business Models: Innovations in the Video Game Industry. *Digiworld Economic Journal*(94), 83-102.

- De Prato, G., Feijoo, C., & Simon, J. (2014). Innovations in the Video Game Industry: Changing Global Markets. *Digiworld Economic Journal*(94), 17-38.
- Dogson, M., & Gann, D. (2010). *Innovation: A Very Short Introduction*. Oxford: OUP Oxford. 168.
- Gassmann, O., Frankenberger, K., & Csik, M. (2014). *The Business Model Navigator : 55 Models that will revolutionise your Business*. Harlow: Pearson.
- Gidhagen, M., Persson Ridell, O., & Sörhammar, D. (2011). The orchestrating firm: value creation in the video game industry. *Managing Service Quality: An International Journal*, 21(4), 392-409.
- Goumagias, N., Purvis, K., Fernandes, K., Cabras, I., Li, F., Shao, J., . . . Kudenko, D. (2016). A strategic roadmap for BM change for the video-games industry. *R & D Management Conference* (p. 12). Cambridge: Online.
- Huang, H.-C. (2016). Freemium business model: construct development and measurement. *Internet Research*, 26(3), 604 - 625.
- Chesbrough, H. (2007). Business Model Innovation – it's not just about technology. *Strategy & Leadership*, 35(6), 12-17.
- Christensen, C. M., Raynor, M. E., & McDonald, R. (2015). What Is Disruptive Innovation? *Harvard Business Review*. Retrieved June 19, 2017, from <https://hbr.org/2015/12/what-is-disruptive-innovation>
- ESRB. (n.d.). Frequently Asked Questions. Retrieved June 19, 2017, from <http://www.esrb.org/ratings/faq.aspx#2>
- Gandel, S. (2016, February 04). 10 Most Valuable Companies in the Fortune 500. Retrieved June 19, 2017, from <http://fortune.com/2016/02/04/most-valuable-companies-fortune-500-apple/>
- Hagiu, A., Halaburda, H. "Responding to the Wii?" (2010) Harvard Business School Case 709-448, January 2009.

- Investopedia*. (2017). Retrieved June 19, 2017, from <http://www.investopedia.com/terms/b/businessmodel.asp>
- Jankel, A., & Morton, R. (Directors). (1993). *Super Mario Bros* [Motion picture]. USA: Allied Filmmakers.
- Johnson, M. W., Christensen, C. M., & Kagermann, H. (2008). Reinventing Your Business Model. *Harvard Business Review*, 86(12), 50-59.
- Kaplan, R., & Norton, D. (2001). Transforming the balanced scorecard from performance measurement to strategic management: part 1. *Accounting Horizons*, 15(1), 87-105.
- Laakso, M., & Nyman, L. (2014). Innovation Opportunities: An Overview of Standards and Platforms in the Video Game Industry. *Technology Innovation Management Review*, 4(7), 15-21.
- Lee, J. H., Karlova, N., Clarke, R. I., Thornton, K., & Perti, A. (2014). Facet analysis of video game genres. *iConference 2014 Proceedings*.
- Lescop, D., & Lescop, E. (2014). Exploring Mobile Gaming Revenues: the Price Tag of Impatience, Stress and Release. *Digiworld Economic Journal*(94), 102-122.
- MacMillan, D., & Demos, T. (2015, July 31). Uber Valued at More Than \$50 Billion. Retrieved June 19, 2017, from <https://www.wsj.com/articles/uber-valued-at-more-than-50-billion-1438367457>
- Magretta, J. (2002). Why Business Models Matter. *Harvard Business Review*, 80(5), 86-92.
- Marchand, A., & Hennig-Thurau, T. (2013). Value Creation in the Video Game Industry: Industry Economics, Consumer Benefits, and Research Opportunities. *Journal of Interactive Marketing*(27), 141-157.
- Marsden, P. (2015, August 26). *Digital Intelligence Today*. Retrieved June 19, 2017, from <http://digitalintelligencetoday.com/the-10-business-models-of-digital-disruption-and-how-to-respond-to-them/>

- Merchoid. (n.d.). Super Mario Bros. Retrieved June 19, 2017, from <https://www.merchoid.com/brand/nintendo-super-mario-bros/>
- Miller, R. (2016, March 16). Technology is disrupting everything. Retrieved June 19, 2017, from <https://techcrunch.com/2016/03/16/technology-is-disrupting-everything/>
- Moore, M., & Khagram, S. (2004). *On Creating Public Value: What Business Might Learn from Government about Strategic Management*. Harvard Kennedy School. Retrieved June 19, 2017, from: https://www.hks.harvard.edu/m-rcbg/CSRI/publications/workingpaper_3_moore_khagram.pdf
- Nenonen, S., & Storbacka, K. (2010). Business model design: conceptualizing networked value co-creation. *International Journal of Quality and Service Sciences*, 2(1), 43-59.
- Olson, S. (2016, December 5). *www.appdataroom.com*. Retrieved June 19, 2017, from App Data Room: <http://appdataroom.com/eight-ways-technology-changing-business/>
- Osterwalder, A. (2014). The business model ontology: A proposition in a design science approach. Dissertation. 172. University of Lausanne, Switzerland. Retrieved June 19, 2017, from http://www.hec.unil.ch/aosterwa/PhD/Osterwalder_PhD_BM_Ontology.pdf
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation*. New Jersey: John Wiley & Sons, Inc.
- Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying business models: Origins, present, and future of the concept. *Communications of the Association for Information Systems*, 16, 1-25.
- Ovans, A. (2015, January 23). *Harvard Business Review*. Retrieved June 19, 2017, from What is a Business Model: <https://hbr.org/2015/01/what-is-a-business-model>
- Payne, A., & Frow, P. (2014). Developing superior value propositions: a strategic marketing. *Journal of Service Management*, 25(2), 213-227.

- Pirouz, D. M., Johnson, A., Pirouz, R., Thomson, & Matthew. (2012). Exploring the Mythology of Viral Videos and the Epic Fail: Why Video Communications Capture the Market's Imagination. *NA-Advances in Consumer Research*, 672.
- Rayna, T., & Striukova, L. (2014). 'Few to Many': Change of Business Model. *Digiworld Economic Journal*(94), 61-81.
- Rayna, T., & Striukova, L. (2016). From rapid prototyping to home fabrication: How 3D printing is changing business model innovation. *Technological Forecasting and Social Change*, 214-224.
- Robson, C. (2002). *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. (2nd ed.). Oxford: Blackwell.
- Rosoff, M. (2016, August 6). Airbnb is now worth \$30 billion. Retrieved June 19, 2017, from <http://nordic.businessinsider.com/airbnb-raises-850-million-at-30-billion-valuation-2016-8?r=US&IR=T>
- Sandqvist, U. (2015). The Games They are a Changin': New Business Models and Transformation Within the Video Game Industry. *Humanities and Social Sciences Latvia*, 23(2), 4-20.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. (5th ed.). Harlow, UK: Prentice Hall.
- Sherif, M. H., & Khalil, T. M. (2008). *Management of Technology Innovation and Value Creation: Selected Papers from the 16th International Conference on Management of Technology*. Singapore: World Scientific.
- Snow, B. (2011, August 17). Why most people don't finish video games. Retrieved June 19, 2017, from <http://edition.cnn.com/2011/TECH/gaming.gadgets/08/17/finishing.videogames.snow/index.html>
- Statista*. (n.d.) Global companies gaming revenues 2016 | Statistic. Retrieved June 19, 2017, from <https://www.statista.com/statistics/421848/game-revenues-global-companies/>

Statista. (n.d.). Video Game Industry - Statistics & Facts: Retrieved June 19, 2017, from <https://www.statista.com/topics/868/video-games/>

Statista. (n.d.). Revenue of the largest video game publishers worldwide 2015 | Statistic. Retrieved June 19, 2017, from <https://www.statista.com/statistics/273838/revenue-of-the-largest-video-game-publishers-worldwide/>

Takahashi, D. (2016, December 21). Worldwide game industry hits \$91 billion in revenues in 2016, with mobile the clear leader. Retrieved June 19, 2017, from <https://venturebeat.com/2016/12/21/worldwide-game-industry-hits-91-billion-in-revenues-in-2016-with-mobile-the-clear-leader/>

Tassi, P. (2017, February 28). Microsoft Takes Aim At PlayStation Now With Netflix-Like Xbox Game Pass. Retrieved June 19, 2017, from <https://www.forbes.com/sites/insertcoin/2017/02/28/microsoft-takes-aim-at-playstation-now-with-netflix-like-xbox-game-pass/#739069de3d9e>

Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning*, 43, 172-194.

The History and Structure of the Video Game Industry – Structure, Development to Publishing – Part 4. (2014, February 7). Retrieved June 19, 2017, from <https://www.ninjametrics.com/blog/the-history-and-structure-of-the-video-game-industry-structure-development-to-publishing-part-4/>

The Super Mario Bros. Super Show! [Television series]. (1989, September 4).

Webster, F. (2002). *Market-Driven Management: How to Define, Develop and Deliver Customer Value* (2nd ed ed.). Hoboken, NJ: John Wiley & Sons.

Zott, C., Amit, R., & Massa, L. (2010). The business model: Theoretical roots, recent developments, and future research. *IESE business school-University of Navarra*, 1-43.