Redefining the value chain of the video games industry 2017

Abstract: As the game industry continues to grow and expand its target market to nearly every person with access to an Internet connection, the capabilities needed to gain a competitive advantage are changing too. This paper seeks to identify and reflect on the factors critical to success in the industry of video games and new factors that may arise and contribute to the future success of this dynamic and constantly changing industry. Starting from the analysis of the structure and dynamics of the value chain in the video games industry, this work will discuss the most important changes that have taken place caused by the emergence of the Internet, in an attempt to redefine and understand the new rules and opportunities for companies and players. These last have empowered their role and companies may now understand better the needs and demands of their current and potential players. Business models of video games are constantly evolving to fully adapt to the needs and preferences of users in areas such as platforms (via the Web browser, mobile applications, etc.), forms of payment (pay per download, subscription, payment for access, game extensions, etc.), or gaming devices (game consoles, computers, smartphones, tablets, etc.). Finally, some aspects of the Norwegian ecosystem are analyzed.

Key words: video game industry, value chain, innovation, business model, monetization.

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1. Introduction

Video games have been one of the main elements in the constant line of renewal and modernization of leisure forms in the last half of the 20th century and the beginning of the 21st century. In recent years, there has been a transformation in the way people think about games. In the past, gaming was the domain of young males, and game studios devoted considerable resources to titles that appealed almost exclusively to this target group. Today, as development costs skyrocket   and video game companies compete for the same customers, more studios are finding success in markets that traditionally have not been well served by the video game industry. Today's gamers include women, parents, and even senior citizens who enjoy playing games: whether arcade games or serious games, and currently women gamers outnumber men by a considerable margin.

In addition to their ludic importance, they have played a subtle role as a tool for social transformation and cross-fertilization with other fields. However, this aspect has been barely studied because, apparently, it has been an unintentional, collateral effect of the video game industry. In the last few years, this tendency has changed. The potential of video games as a tool has recently been glimpsed in fields distant from entertainment, and projects are being developed with the aim of including the game and its technology for transforming in a conscious, active, and direct way other more traditional sectors.

This paper seeks to identify and reflect on the factors critical to success in the industry of video games and new factors that may arise and contribute to the future success of this dynamic and constantly changing industry. Starting from the analysis of the structure and dynamics of the value chain in the video games industry, I will discuss the most important changes have taken place caused by the emergence of the Internet, in an attempt to redefine and understand the new rules and opportunities for companies and players. These last have empowered their role and companies may now better understand the needs and demands of their current and potential players.

For the development of this research, I consider three specific objectives: firstly, mapping the value-chain and power relationships in the video game industry; secondly, identifying and discussing the appearance of new business models and thirdly, exploring the trends, challenges and opportunities opened by a new concept in the developer-consumer relationship, advancement of new technologies and the decision to exploit the Internet as a platform for games.

To achieve the goals of the research, the following activities have been conducted:

· Literature Review - The bibliographic section is thought to identify the state-of-the-art of the global innovative activity on video games. Relevant data on research, development, trends and commercialization has been collected through a literature review and a data base research.

For completing this thematic area, all stakeholders involved in the video games industry have been taken into account, as well as the collaborations, networks, and knowledge spillover between them. In this context, incubators and "indie" companies are key elements that have been included as the engine of this system. In addition, some interviews with stakeholders in the Spanish and Norwegian video game sector have been used to illustrate some key ideas.

For this purpose, I have reviewed data and indicators from the latest's trade publications, reports, market researchers, annuaries and official databases such as: Newzoo, DEV, ADESE, Swrve, Global collect and Marketsandmarkets. Data collection has been carried out in line with the proposed guidelines for collecting and interpreting technological innovation data established in the Oslo Manual (E. Commission, 2005).

· Case Study Analysis - Some case studies have been used to illustrate specific examples of some of the ideas and practices presented in this paper.

2. The video game: Conceptual approach

The origin of video games can be placed in the 1950s, with the Noughts and Crosses game, developed by Alexander S.Douglas in 1952. The game was a computerized version of Tic Tac Toe and allowed a human player to play against a machine. Later in the same decade, another game was developed allowing two humans to compete against each other for the first time. It was a game of tennis, which today would be considered a true relic. The decade of the 70s represented the true emergence of video games, with the commercialization of Computer Space 1971 by Nolan Bushnell (Lago Moneo, 2015).

2.1. Definition

There is no clear-cut definition of "video game" and it is common to refer to both the technological support devices (i.e., hardware, such as consoles) and the individual game itself (the software, the program) (Rodriguez, 2002; Tejeiro & Pelgrino, 2003). These inbuilt complexities make it in addition difficult to classify and define the different programmes, as to whether they are games or not.

Video game is a compound noun consisting of *video*, indicating that the output support or fundamental data is the image, and *game*, which gives the difficulty of discrimination but also its potential differential over other technologies.

2.2. Definition of game

After a literature review, two perspectives have been analysed further: The first one derived from humanistic theory, the second from mathematical theory. The first and most common in game theory is the humanistic definition provided by Huizinga (2008) in his book *Homo Ludens* from 1938:

Formally, the game is a free action performed "what if" and is felt as lying outside of everyday life. It can completely absorb the player, without any material interest or advantage, and runs within a certain time and a certain space. It takes place in a specific order subject to rules and gives rise to associations which tend to surround themselves with mystery or disguise and stand out from the usual world (p. 27).

As opposed to this definition, and as a representative of the mathematical theory of

games, Von Neumann and Morgenstern (1944) in their book *Theory of Games and Economic Behavior* propose:

A game is simply the totality of rules that describe it. All forms in which it is used are understood to play (...). The moves are the chances that players have to choose among several alternatives under the rules of the game. (...). The specific alternative that is chosen in a given moment by a player will be defined as choice. (...). Finally, the rules should not be confused with the strategies of the players. (...) Each player chooses their strategies -the general principles governing their election (...) but the rules are absolute commands. If they are breached, then the game stops (p. 49).

2.3. Definition of video game

After the introduction to the concept of game, it is necessary to enlarge on the contributions from the new technologies and video games testing. There is still no unified definition or theory about the definition of game (Rodriguez, 2002), therefore some of the definitions or characteristics that the main theorists in this field have considered fundamental are analysed. Some generic definitions of video game are:

· *Interactive animated images accompanied by an environmental sound and an interface (Clais & Dubois, 2011, p. 16).*

· *All electronic games with an essentially playful objective played with the use of a computer, through diverse media (Rodriguez, 2002).*

In these two definitions we found several important anchor points: the first is that every game has an interface, a way to communicate with the program and interact with it. The second important concept may seem banal; it is the idea that video games are computer programs that have invaded various media.

Darley and Levis proposed a more complete and closer definition, describing the game as:

· *It is an enveloping activity with a specific goal, in a micro-world controlled by relatively simple and clear norms (Darley 2000, p. 164).*

· *A game consists of a computing environment on a screen whose rules have been previously programmed (Levis, 1997, p. 27).*

Concerning definitions, it is important to highlight three characteristics: First, video games are guided by specific objectives, -whether they are more or less explicit or

imposed. Second, they are structured with simple and clear rules. Third, video games are enveloping activities, an idea that links with the definition of Huizinga regarding the absorption of the player.

Finally, a very interesting definition is the one proposed by Chris Crawford (1982), with reference to programming and game design:

Videogames [unlike simulations] are artistic representations of a phenomenon (...). The designer simplifies this phenomenon deliberately to focus the player's attention on those important factors (...). The games create a fantastic representation, not a scientific model (p. 8).

Crawford has two central ideas of video games: the first is the manipulation of the player's attention by the developer of the video games in order to make a relevant determined situation. The second is disregard for the realism of the situation.

3. The global video games market at a glance

According to the latest quarterly update of Global Games Market Report (Newzoo, April 2016) gamers worldwide will generate a total of $99.6 billion in revenues in 2016, up 8.5% compared to 2015. For the first time, mobile gaming will take a larger market share than PC gaming with a quota of $36.9 billion, up 21.3% globally.

Forecast of the Global Games Market per segment 2015-2019 (Newzoo 2016)

TOTAL MARKET +6.6% CAGR 2015-2019

2015 — $91.8Bn: PC/MMO 28%, Casual Webgames 6%, TV/Console 30%, Handheld 3%, Tablet 9%, Smartphone 24% (MOBILE $30.4Bn)

2016 — $99.6Bn: PC/MMO 27%, Casual Webgames 5%, TV/Console 29%, Handheld 2%, Tablet 10%, Smartphone 27% (MOBILE $36.9Bn)

2017 — $106.5Bn: PC/MMO 26%, Casual Webgames 5%, TV/Console 28%, Handheld 1%, Tablet 10%, Smartphone 30% (MOBILE $42.5Bn)

2018 — $112.5Bn: PC/MMO 26%, Casual Webgames 4%, TV/Console 27%, Handheld 1%, Tablet 11%, Smartphone 32% (MOBILE $47.4Bn)

2019 — $118.6Bn: PC/MMO 25%, Casual Webgames 4%, TV/Console 26%, Handheld 1%, Tablet 11%, Smartphone 34% (MOBILE $52.5Bn)

Legend: PC/MMO, Casual Webgames, TV/Console, Handheld, Tablet, Smartphone

The Global Games Market per Region shows how Asia-Pacific (APAC) reaches $46.6 billion this year, or 47% of total global game revenues. This growth represents a 10.7% year-on-year (YoY) increase. China alone accounts for half of APAC's revenues, reaching $24.4 billion this year to cement its place as the largest games market in the world, ahead of the US's anticipated market size of $23.5 billion. China's PC market is showing signs of slowing growth, with a 4% increase compared to the previous 16% as the success of "core" mobile titles is starting to cannibalize PC game spending. However, the mobile segment in China is growing even faster than estimated and will reach $10 billion this year, up 41% from $7.1 billion in 2015. China will remain the largest games market for the foreseeable future, growing to $28.9 billion by 2019.

2016 Global Games Market per region with year-on-year growth rates (Newzoo 2016)

EUROPE, MIDDLE-EAST & AFRICA

$23.5Bn
+7.3% YoY

ASIA PACIFIC

$46.6Bn
+10.7% YoY

24%

2016 TOTAL
$99.6Bn
+8.5% YoY

47%

4%

LATIN AMERICA
$4,1Bn
+20.1% YoY

CHINA TOTAL
$24.4Bn
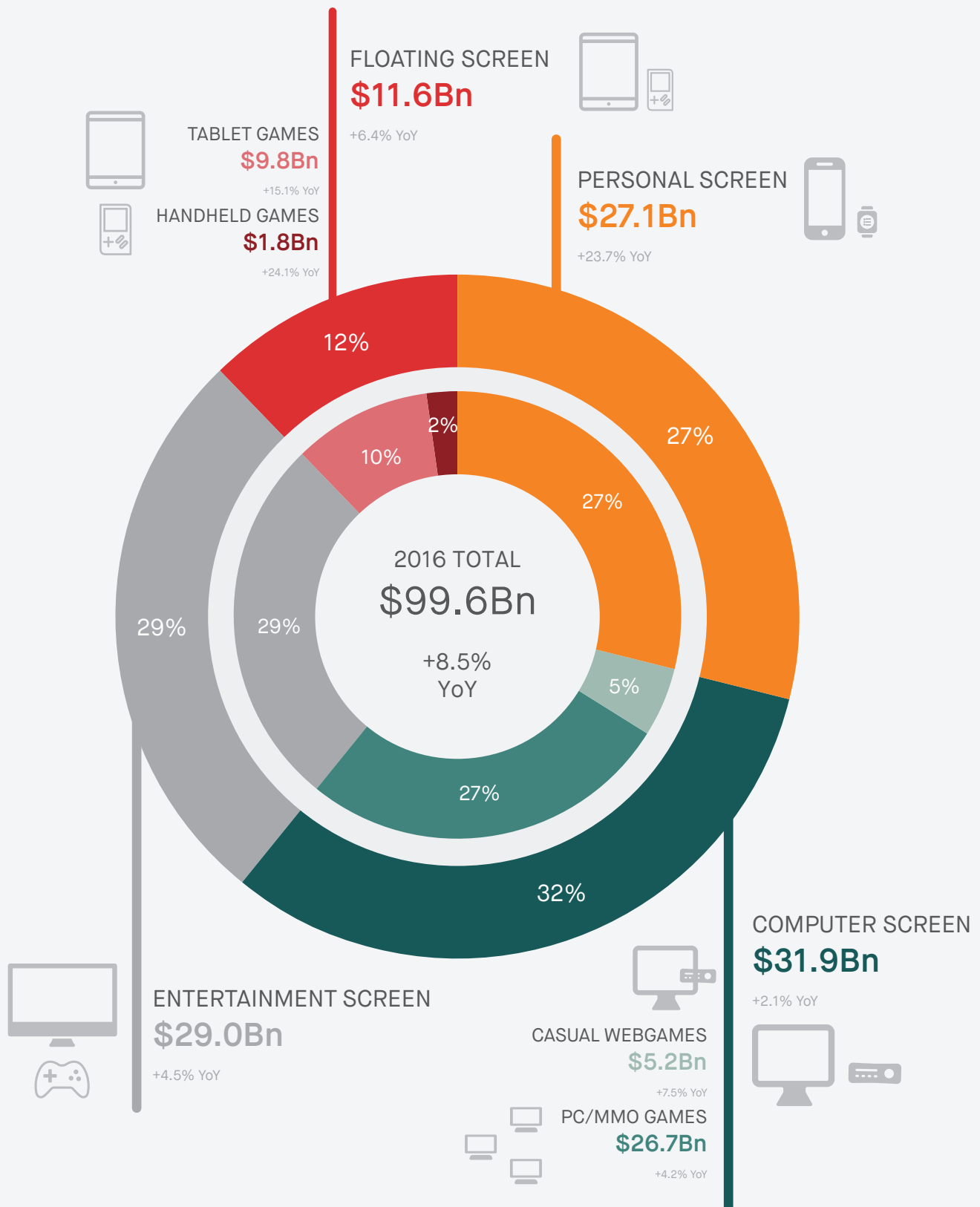
25%

US TOTAL
$23.5Bn

NORTH AMERICA

$25.4Bn
+4.1% YoY
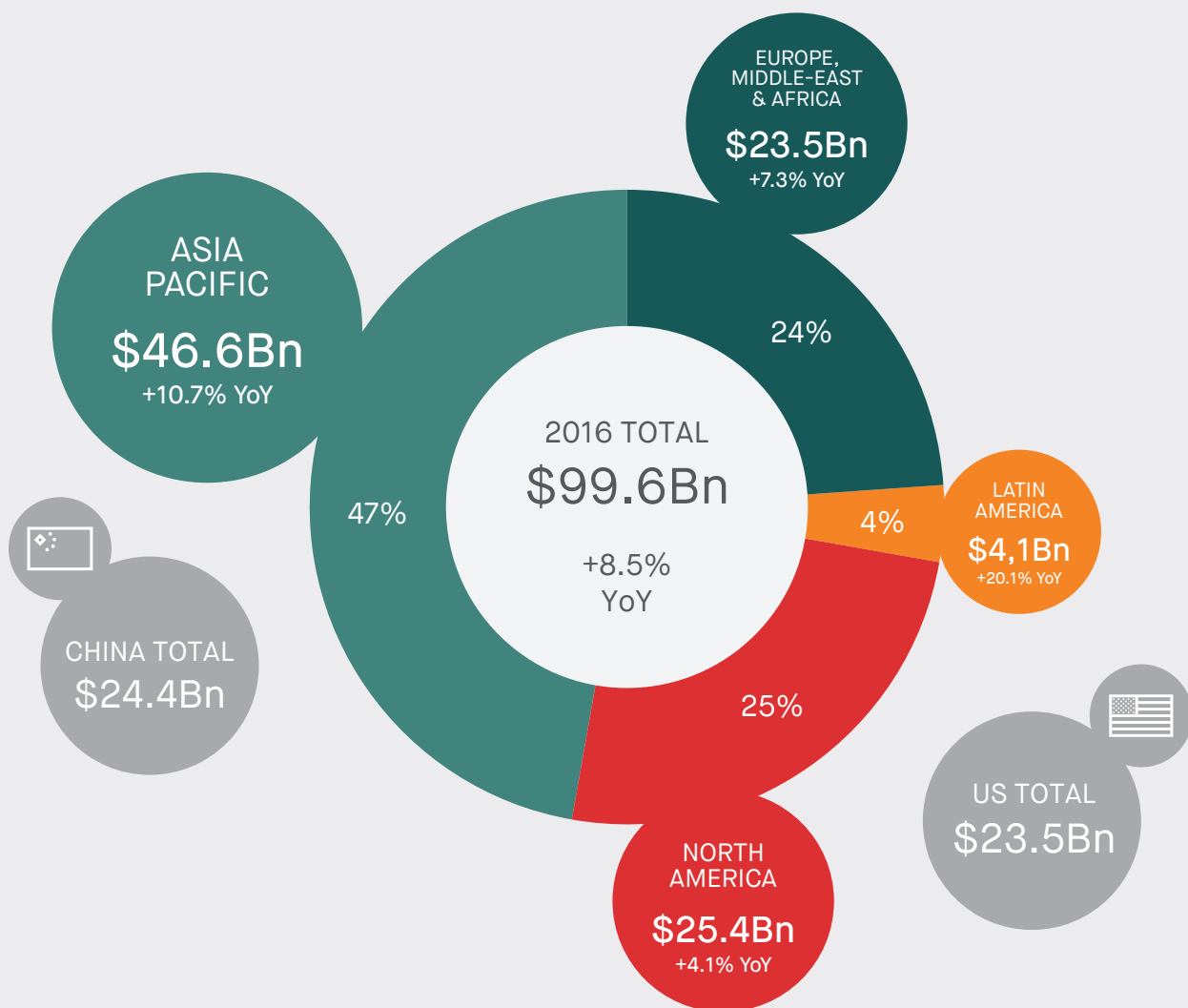
North America is the second largest region with estimated revenues of $25.4 billion in 2016, a year-on-year growth rate of 4.1%. This growth is mainly driven by the mobile segment. Console revenues remain stable as the segment moves toward digital and continuous monetization. Western Europe will see a slightly higher growth rate of +4.4% which can be mainly attributed to the fact that the region has seen slower adoption of mobile gaming to date. Eastern Europe, meanwhile, will even grow a bit more, from the past year's crisis, with a 7.3% year-to-year growth rate.

Latin America is the smallest of the four major markets with just $4.1 billion in revenues in 2016, but it is also growing the quickest, up 20.1% year-on-year (YoY). Mobile games will generate $1.4 billion, up significantly from $900 million last year. Brazil and Mexico combined will contribute over 70% of total gaming revenues in the region (Global Collect 2014). Other market research reports have mentioned far higher revenues for this part of the world but, despite a huge mobile gaming audience of more than 190 million consumers, spending has remained low (Newzoo 2016).

The big moneymaker in absolute dollar terms is PC-based gaming, with revenues of almost $32 billion. A high percentage of the turnover derives from (mid)core PC/MMO games, while casual web game revenues continue to decline. This is followed closely by the *Entertainment Screen* (TV/Console) which will grow to $29.0 billion. The fastest growing segment is clearly *Personal Screen*, or smartphones, with a YoY growth rate of 23.7% and which by 2018 will take the lead globally. The top 10 games in the segment represent nearly a quarter of total revenue. The *Floating Screen* (tablets & handheld consoles) remains the least important gaming screen, with revenues of $11.6 billion, as handheld revenues are expected to plummet another 24% this year.

2016 Global Games Market per screen and segment with year-on-year growth rates
(Newzoo 2016)

FLOATING SCREEN
$11.6Bn
+6.4% YoY

TABLET GAMES
$9.8Bn
+15.1% YoY

HANDHELD GAMES
$1.8Bn
+24.1% YoY

PERSONAL SCREEN
$27.1Bn
+23.7% YoY

12%

2%

10%

27%

29%

29%

27%

5%

2016 TOTAL
$99.6Bn
+8.5% YoY

32%

COMPUTER SCREEN
$31.9Bn
+2.1% YoY

ENTERTAINMENT SCREEN
$29.0Bn
+4.5% YoY

CASUAL WEBGAMES
$5.2Bn
+7.5% YoY

PC/MMO GAMES
$26.7Bn
+4.2% YoY

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4. Value generation

An appropriate way to approach the term innovation is the view of Alfons Cornella who considers it *"a process of three steps: idea generation, idea assessment, and finally results generated. Only when these three steps are accomplished we can talk about an innovation process"*[1].

Regarding the transference and adaptation of this concept to the cultural sector, Cornella argues that *"innovation outcomes do not need to be only economical; they can be measured in terms of use, improvement, satisfaction, troubleshooting, etc."*. Cornella also argued that no one could talk about innovation without value, which includes having a general interest. In the cultural sector, the concept of value is related to satisfaction, optimism or enrichment, but not related to a selfish egoism of the artist (YProductions, 2009). From this perspective, this term plays a key role in any innovation process. All cultural projects or initiatives should be evaluated based on their ability to generate value during different phases of the project, transferring any new idea to market and making progress through the value chain in order to obtain a clear and noticeable improvement at the end of the process. Therefore, we can say that innovation is the process of turning ideas into valuable ideas, with potential of generating sustainable benefit for the organization seeking to monetize this added value (Gonzalez-Piñero et al. 2011).

4.1. The Value Chain

This concept from business management was first described and popularized by Michael Porter (1985: 36): *"Every company is composed of a set of activities performed to design, produce, deliver, bring to market and support the product. All these activities can be represented by a value"*. Porter used the *"value system"* to refer to the interconnection of value chains. This value system includes the value chains of suppliers (and of their respective suppliers), the organization, distribution channels and customers (which at the same time will be extended to their customers, and so will spread to the chain).

Value streams were first introduced by Porter but were later explained more clearly by James Martin (1995: 66), who draws attention to many issues, models and

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1 http://www.historiadeldisseny.org/congres/pdf/47%20Diaz,%20M.%20Sonia,%20%20Garcia,%20Isabel%20M%20%20et%20%20Martinez,%20J.%20Gabriel%20BASTARD%20POP%20DESIGN,%20VISUAL%20REMIX%20AND%20MASHUP%20BY%20UN%20MUNDO%20FELIZ.pdf Retrieved May 21 2016

methods to transform the vision of traditional enterprise into a more value-generating organization. Martin used the value flow (rather than the process) to define the integrative flow of the delivery activities for each customer (external or internal).

This type of exemplification shows how *the value* is being incorporated into every step of the process from research or development to the market. This gathering of value throughout the process allows the product or service to reach the market with an additional value.

A value chain is the breakdown of an organization into its strategically relevant activities in order to understand the behaviour of costs and existing differentiation pathways. The concept has been extended beyond individual organizations. The industry widely interacts synchronously with those local value chains to create a wider value chain, sometimes with a global scope. The new focus of many management strategists is related to capture of the value generated along the chain. By exploiting the upstream and downstream information flowing along the value chain, organizations can avoid intermediaries creating new business models. Moreover, this is the new challenge for many organizations in the cultural sector: trying to create value by leveraging existing resources and by seeking new ones to obtain the desired results.

4.2. Value Innovation

The importance of value creation has been studied by W. Chan Kim and Renée Mauborgne in *the Blue Ocean Strategy* (2005) through 150 strategic actions developed in 30 sectors over 100 years. Through this research, value innovation is conceived as an innovative vision in relation to business strategy: success is achieved through a non-competitive approach. The innovation value strategy is based on the metaphor of a blue ocean compared with a red one. The red ocean represents those organizations that compete in an existing market space. This ocean is highly explored and is characterized by a low differentiation normally based on pricing. In this ocean, the fierce competition turns the water red. On the other hand, the innovation value strategy is in the blue ocean, where organizations that create new market spaces make competition irrelevant by creating and capturing new demand, aligning all activities of the organization with the goal of reducing costs while increasing the value of their products and services.

Innovation value strategies are not focused on competition. Rather, they search among all other competitive factors in the sector. The efforts and resources of the organization are focused on differentiating features, which can be clearly perceived by the consumer. Organizations that follow the logic of value of innovation release their resources and seek to identify new value sources to offer them to their customers.

W. Chan Kim and Renée Mauborgne proposed a process that seeks to create value through innovations in four stages:

1. Eliminate what is not valued.
2. Reduce what is less valued.
3. Increase what is valued most.
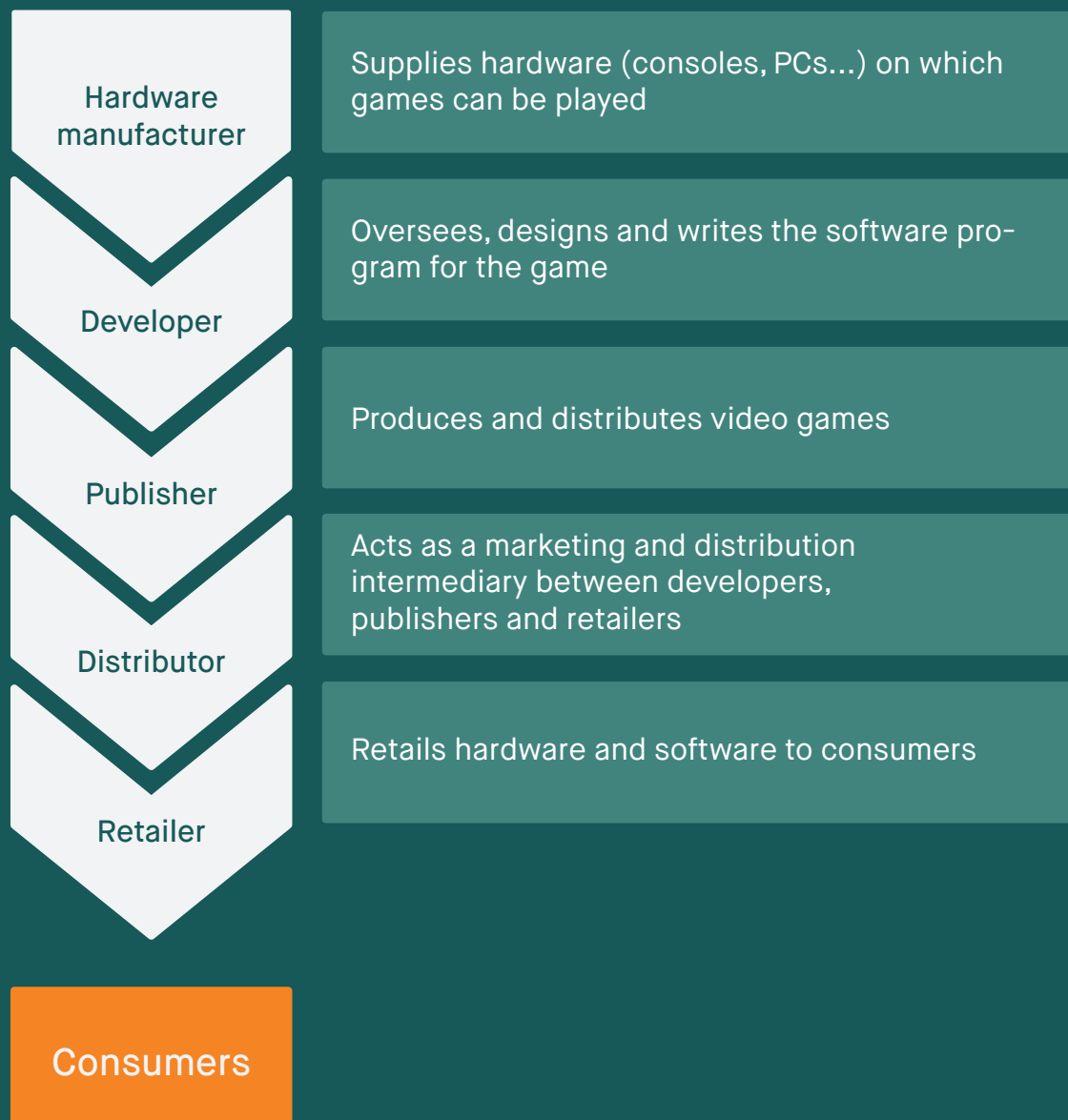4. Create what anyone else is offering.

From this point of view, the concept of *user empowerment* (user force that influences each of the stages of the value chain of a product or service) clearly determines what gives real value to the customer, and therefore their opinion becomes essential when launching new ideas to market.

In a world where knowledge is widely distributed, organizations cannot afford to rely entirely on their own research and should rely on open innovation processes. The boundaries between an organization and its environment have become more permeable and customer-company collaborations are needed to develop new solutions (Chesbrough 2003).

Relying on consumers to design a work can be justified by the theory of sticky information: the required information is shared by both producer and consumers and is costly to acquire, transfer and use (Von Hippel 1994). In that case, the producer provides customers with 'toolkits for user innovation' to enable them to design customized products for themselves. One of the first industries to place emphasis on empowering its customers was the computer game industry indicating that this field is at the forefront of applying the toolkit approach (Jeppesen & Molin 2003).

Traditional video gaming value chain
(Adapted from Business Insights 2009)

Hardware manufacturer	Supplies hardware (consoles, PCs...) on which games can be played
Developer	Oversees, designs and writes the software program for the game
Publisher	Produces and distributes video games
Distributor	Acts as a marketing and distribution intermediary between developers, publishers and retailers
Retailer	Retails hardware and software to consumers

Consumers

5. The value chain of the video games industry

5.1. The Traditional Value Chain: a close innovation approach

Value chain analysis, which represents analysis of an organization or industry that uses value-creating activities, is a useful way to understand influence of key players during video game development process (Dess, Lumpkin et al. 2010).

From a closed innovation perspective, the figure above illustrates 5 critical industry players that put value in the development of video games. Every step adds value to the final product and incomes are distributed among agents according to preset percentages. Hardware manufacturers can best be described as console, gaming platform manufacturing companies, which produce hardware components and devices to process video games: PCs, gaming consoles, tablets, handhelds and smart phones. Nintendo, Sony and Microsoft are the top hardware manufacturing companies for video game platforms.

Developers are key players in this value chain analysis. They are the ones that develop software to make players able to play video games with specific devices as indicated above. Software developers do not always work in video game publisher companies. They might own different software developer companies that might sell software licenses or develop software for video game publishers. The development cycle of the video game starts with design, research, implementation, testing and lastly mastering.

Video game publishers are software marketing companies that pay commissions (licensing fees) for rights to publish video games or contract and sub-hire developers to produce video games for them. Afterwards they market the game titles and distribute them to retailers and end-consumers. As with book publishers, video game publishers are responsible for their product manufacturing, distribution and marketing.

According to Neely-Cohen (2014) "publishers could collaborate with indie game developers," much like a comic book writer collaborates with an artist, and that "literary magazines and libraries could sponsor gamejams," increasing accessibility and inclusivity by providing their unique writing resources and beta readers to

game writers. Some book publishers are already dipping their toes into the depths of the music industry, creating soundtracks for books. A logical next step could be that video games become a medium for book publishing, exemplified by the publishing company Madefire[2]. In the case of the novel *Echo of the Boom* (2014) by Neely-Cohen, six independent video game developers have been making experimental games inspired by the text[3]. The use of other platforms to tell a story is known as transmedia, which refers to when a brand reaches out beyond one media.

Distributors adopt an intermediary role between publishers and retailers. Most publishing companies own their special distribution networks to move their products to retailers, where end consumers can buy video games.

Retailers deal with selling video games to end consumers. However, the latest trend in the computing industry, which is digital distribution of video game licenses directly to consumers, has a negative influence on physical sellers in the sector (Business Insights, 2009).

As seen, the value chain is a concept of critical analysis which let us understand the important role of players in the video games industry. Also, hardware manufacturers, video game publishers and developers seem to be key players in the industry, adding value on the software in order to turn it into a successful video game.

An essential aspect in the traditional value chain is the video games funding and investment. Production of video games for console and PC is characterized by high initial development costs, which are generally assumed by publishers. In the case of vertical integration, the publisher and developer are part of the same company, and it is the company which finances all processes. When there has been no vertical integration publishers are responsible for financing the development of the game, thereby obtaining commercialization rights and a high percentage of sales.

Distribution and retail sale to the end user is done through specialized agents that sell the game in exchange for a fee based on the sales. Furthermore, we cannot forget the important role played by the technology providers that facilitate both developers and publishers development environments, hosting, game engines, graphics software and animation, etc., all essential elements for creating videogames.

2 Madefire works with a team of legendary and cutting-ege storytellers to bring its Motion Books to life: www.madefire.com
3 www.echooftheboom.com

5.2. The impact of Internet: redefining the Value Chain

The progressive shift to online gaming has introduced new methods of distribution and has begun to reorganize the functions and dynamics of interaction between actors in each of the different levels of the value chain.

One of the levels and functions most affected by the emergence of the Internet are the retailers and their logistic distribution function. This process is no longer relevant in the online gaming segment, due to the fact that the "digital goods" are produced and distributed on the network at marginal costs approaching zero.

As stated in the *Libro Blanco del Desarrollo Español de los Videojuegos* (DEV 2014), online digital distribution is affecting the operational structure, causing a convergence between the functions of the distributor and the retailer with the editor or publisher. Much of the main activity involving distributors and retailers tends to disappear, since the distribution of content on physical media is replaced by its direct distribution via the Internet. The publisher, in many cases, distributes video games directly without the need for a dealer acting as an intermediary between the publisher and retailer. This first emerging disintermediation process, negates the role of the dealer.

Publishers may also choose to distribute games through Internet service providers (ISPs) or via device manufacturers. ISPs and device manufacturers act as content aggregators and provide game markets (app stores) for the distribution of games, which facilitate the promotion and localization of new video games for users while attracting advertising, an additional source of income. The increasing importance of Internet service providers and device manufacturers resulted in a process often called "re-intermediation": ISPs and device manufacturers take the role previously held by distributors. In this new scenario, access to an unlimited global market for distribution of video games through ISPs or device manufacturers provides a quasi-direct relationship for the development companies with end users, avoiding the existing network of intermediation in the traditional value chain. This has favoured the emergence of new business models diverging from traditional ones such as free to play (F2P), commercialization of virtual goods, games financed by advertising, etc., all based on a continuous and direct relationship with the user.

The following figure provides an overview of the changes described. These disruptive trends, coupled with technological advances, have transformed the video gaming landscape. The battle lines are drawn between console manufacturers and publishers. Hardware manufacturers are moving on to more advanced models such as sensors

and motion controls, while depending on the type of game (e.g. massive online games – MMO[4]) the publisher can act as a distributor of the video game and as a potential seller of games edited with other agents, such as ISPs, mobile operators or handset manufacturers, for commercialization through their own app stores.

The emerging video gaming value chain
(Adapted from Business Insights 2009)

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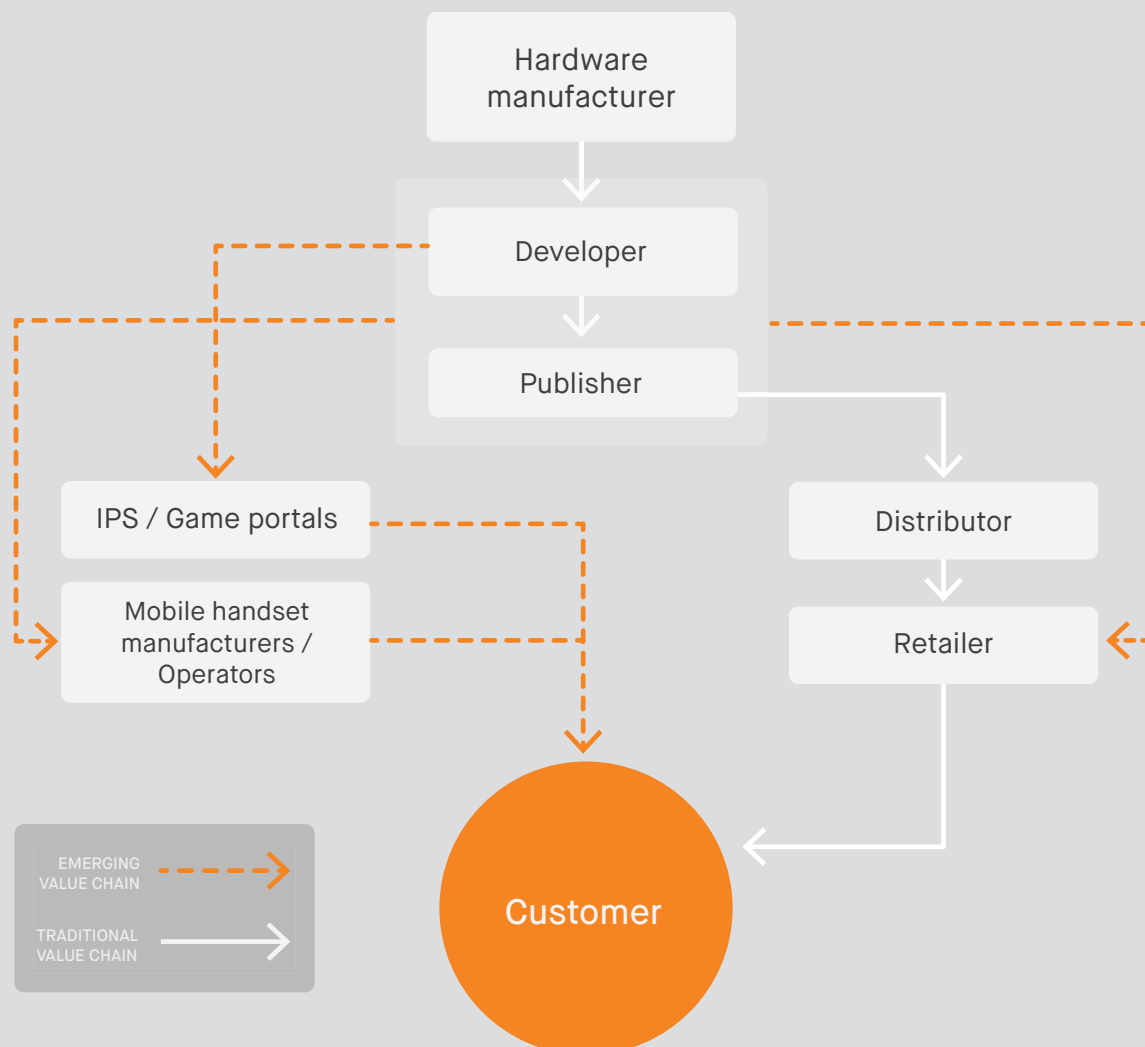
4 MMO and MMOG: Massively Multiplayer Online Game

These changes in the commercialization of online games, in comparison with the traditional value chain, not only affect the interactions between the various stakeholders in the process of value creation, but also the type and number of stakeholders involved.

Primarily technology providers have an essential role in the new value chain. Particularly the role of middleware provision is gaining importance; middleware is commonly known as engines that facilitate development environments for creating video games, as well as hosting providers who provide storage and processing of huge data traffic generated by online games. The access of thousands of users via the Internet is a technological challenge for developers of online games, who require the solutions provided by these providers.

Secondly, today's online games enhance the role of certain actors, such as localization professionals and team motivators. Localization professionals, who were already part of the traditional value chain, are taking an important role reinforced by the internationalization of the games thanks to the Internet. Thus, these professionals are not only mere translators but, on the contrary, the localization task becomes a process of adapting a product to the nee ds and demands of the potential gamers and the target culture. Therefore, localization professionals work with different skilled profiles such as graphic designers, programmers, editors, linguists, sound technicians, etc. In addition, depending on the size of the publisher company, these professionals may be inside the structure of the publisher or outsourced.

On the other hand, the team motivator also acquires a significant role because nowadays players from around the world form "clans" in which they study the games. They train and play together for many hours a week to form virtual communities. These communities are defined as places on the Internet where users interact and communicate about related topics. To prevent these communities from dissociating from the game or communication between players being reduced and dying away, the community motivator has to direct, encourage, motivate and facilitate interactions between users with the game on which the community has been created. An additional important function is the management and administration of the community.

Online payment methods also have a special relevance in the new scenario. At present there are various forms of online payment such as electronic purses (Moneybookers, Google wallet), credit cards and debit cards (VISA, MasterCard), bank transfer payment, prepaid cards (Ukash, paysafecard), payments by reference, peer-to-peer payments (Twyp, Bizum, Venmo, Pay Pal, Android Pay, Samsung Pay, Apple Pay), electronic banking and other solutions. These services are used by agents who act as distributors of online video games (the developers, publishers or app stores) to charge end users a fee.

Clearly, developers and end users have benefitted the most by the Internet disintermediation. Developers access to greater opportunities for commercializing their games, with new multiple alternatives (e.g. portals games, app stores, own distribution platforms, etc.). On the other hand, end users have been increased significantly in number by the supply of games available with various business models that fit to their specific demands: monthly subscriptions, pay to play, free games accepting advertising, free to play (F2P), etc.

Free to play (F2P) refers to video games that give players access to a significant portion of their content without paying (Weidemann 2009). There are several kinds of free-to-play games, but the most common is based on the freemium business model. For freemium games, users are granted access to a fully functional game, but must pay microtransactions to access additional content. Free-to-play games are the opposite of pay to play, in which payment is required before using a service for the first time.

Free to play games were first popularly used in early massively multiplayer online (MMO) games targeted towards casual gamers, before finding wider adoption. Various forms of F2P games include: browser-based games including the Massively Multiplayer Online Games (MMOGs), client-based MMOGs, social network-based games (eg, using Facebook) or casual games (Runge 2014).

These new strategies for business generation have introduced new concepts such as DLC[5] (Downloadable content) which refers to the extra content for a video game we download from the internet, either distributed by the game's official publisher or a third party content producer. This content enhances or completes the video game's features. Total Annihilation[6], released on September 1997, was the first modern game featuring DLC offering additional free new units, maps, and scenarios.

The inspiration of this practice comes from the serialization by the film studios in the 80s and the 90s when the digital game industry discovered that the code of the game could be re-used by creating new content on top of the existing engine –a possibility harnessed by game fans through the use of game mods[7] (alteration of content from a video game in order to make it operate in a manner different from its original version). Short for modification, mods were created pro bono and shared by fans on the Internet. The gaming industry soon discovered the tendency to extend games this way on the part of the audience, and thus the commercial expansion pack was born. Limited to the PC gaming culture, these add-on packages came in many shapes and sizes, and were distributed both through physical and digital distribu-

tion channels. Due to their small size and subsequently faster development cycle, expansion packs made serializing games an increasingly fast-paced affair (Nieborg 2006). This practice of "branche serialization" can be seen as the starting point for the modern DLC strategies of exhausting intellectual properties through as many franchise instalments as possible (ibid).

Unlike in the earlier economies of scale[8] , it has now become profitable to develop and publish game content that costs only around 1-10€. Designing smaller games and add-on content has had many benefits: due to small investment, companies can take more risks and try out things, and the game content can be both attuned to wider spectrum of demographies and be better personalised for individual players (Sotamaa et al 2011). DLC has also allowed more flexibility with "branched serialisation" than ever before.

Game design on most platforms can now take for granted the possibility of patching, updating, and changing games when needed. This is also increasingly often expected by the audience, as the most celebrated applications seem to be those which constantly improve the experience they are offering with a stream of new content. According to Stenros and Sotamaa (2009), "business-wise the objective behind the flow of upgrades and add-ons is not only to create some additional revenue but perhaps even more importantly to create a long-term service relationship with the customer". Moving away from single expansion packs towards distribution of content how and where ever, it is this service mentality that clearly is the next logical step in the evolution of franchising and serialisation.

DLC is responsible for driving players' engagement in many games and can be free, paid or a mix of both. Also, it is very useful for the acquisition and monetization, but more importantly, for the retention of users in social games. Greater game longevity can be achieved with a constant stream of DLC releases that help players get a sense of continuing support for the game. It keeps player interest alive thus reducing the drop out. Plus, it can make players who stopped playing come back and check the new content for the game (Hamari 2011).

As Ed Fries (2014)[9] -the former vice president of game publishing at Microsoft-said, "we've gone from a situation where we dream up a game, we spend three years making it, we put it in a box, we put it out in stores, we hope it sells, to a situation that's incredibly more fluid and dynamic, where we're constantly modifying the game with the participation of the customers themselves". This thought synthesizes

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8 Economies of scale arise because of the inverse relationship between the quantity produced and per-unit fixed costs; i.e. the greater the quantity of a good produced, the lower the per-unit fixed cost because these costs are spread out over a larger number of goods. More information at: http://www.investopedia.com/terms/e/economiesofscale.asp#ixzz4XGVz3nwr
9 http://www.geekwire.com/2011/experiments-video-game-economics-valves-gabe-newell/

the importance of the player in the co-design and co-development process of a video game.

There is a general movement to use the creative potential of consumers (Von Hippel, 2001, 2002). The idea that the user can be considered as an innovative resource refers to community sourcing in open innovation literature (Linder et al., 2003; Chesbrough, 2003). A traditional way of involving players participation is in the development of the game before marketing. For example, while developing the gameplay, companies like Activision Blizzard[10] share the game with its fans in the testing phase via open and closed betas. This soft launching enables debugging and balancing the game for the fans. It is also a means of motivating fans to participate in the hard launching of the game (Davidovici-Nora, 2009).

Activision Blizzard acquired King in early 2015[11]. Combining their revenues, this newly created entity is the third biggest public company by game revenues in the world in 2015 (6.7 billions). This company uses for innovation purposes small computer programs that enhance the interface of the game. They are called add-ons. Contrary to physical product design by the online consumers' community, World of Warcraft (WoW) players' contributions fit their individual needs perfectly. Indeed, the advantage of digital innovations designed for digital use is that both innovators and users can immediately test them and can modify them consequently. Outsourcing innovation to players is also a mean to hyper differentiate the game at lower costs while maximizing the potential sources of innovation. Activision Blizzard develops the gameplay and invests at minimal level to develop the interface (Davidovici-Nora, 2009). The benefit is that the product is tailored to the individual needs of the consumer (Thomke & Von Hippel, 2002; Von Hippel & Katz, 2002; Von Hippel, 2001). This approach enables deeper understanding of customers' behaviours, to identify upcoming trends and to reduce the failure rate of new extensions.

Adaptation in an industry with constant change requires an evolution in the way major studios currently think and operate. It requires re-thinking content and developer relationships, creating captivating gamer experiences, delivering content where gamers want it, and innovating both business model and franchise intellectual property. According to the role of the companies along the value chain, Kelly (2014) classifies them as:

· **Portfolio Management Companies**: those who look more like portfolio management companies, as they continue to regularly acquire new IP and
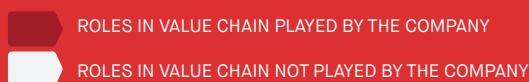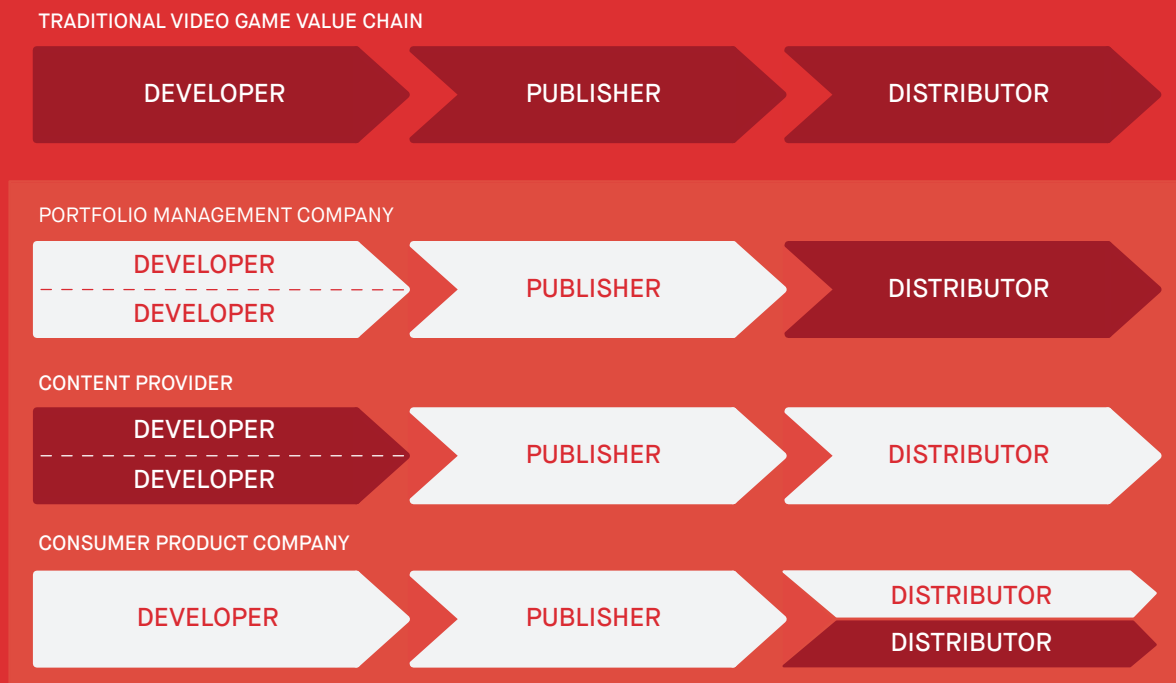
10 www.activisionblizzard.com
11 https://techcrunch.com/2016/02/23/activision-blizzard-closes-its-5-9b-acquisition-of-king-makers-of-candy-crush/

a broad assortment of brands that target various gamer groups. It requires a strict ownership of future creative decisions and branding.

· **Content Provider:** those who bring together content creators within a single distribution channel that work together to achieve economies of scale, but maintain individual control of branding and creative license. The content creator owns the IP and the content provider makes a margin on the consumer transaction. Distributors can leverage their strong capabilities in delivering content to the gamer.

· **Consumer Product Company:** they own the value chain from conception to distribution. The focus of these companies is to maintain complete ownership of the brand and its extensions into new product categories.

The Evolution of the Video Games Industry Value Chain (Adapted from Kelly et al, 2014)

TRADITIONAL VIDEO GAME VALUE CHAIN

DEVELOPER	PUBLISHER	DISTRIBUTOR

PORTFOLIO MANAGEMENT COMPANY

DEVELOPER DEVELOPER	PUBLISHER	DISTRIBUTOR

CONTENT PROVIDER

DEVELOPER DEVELOPER	PUBLISHER	DISTRIBUTOR

CONSUMER PRODUCT COMPANY

DEVELOPER	PUBLISHER	DISTRIBUTOR DISTRIBUTOR

ROLES IN VALUE CHAIN PLAYED BY THE COMPANY

ROLES IN VALUE CHAIN NOT PLAYED BY THE COMPANY

6. Business models: monetizing video games

Business models for commercialising video games are constantly evolving to fully adapt to the needs and preferences of users in areas such as: platforms (via the Web browser, mobile applications, etc.), forms of payment (pay per download, subscription, payment for access, game extensions, etc.), or gaming devices (game consoles, computers, smartphones, tablets, etc.).

Monetization is crucial because it is the factor that turns the production of the game a project sustainable over time, capitalizing the effort in design, development, marketing and distribution of the video game. Currently, different business models are being applied, often combined to suit different user profiles of the same game. These business models are the following[12]:

· Pay to Play: this is the more traditional model, in which the game is purchase physically or by paying for its download.

· Free to play (F2P) and freemium: This model gives the user a free version of the game, with the ability to purchase upgrades or new features through micro payments (In-App purchases).

· Advertising: the game includes advertising for which the developer/owner of the game gets revenue. There are different alternatives:

> · In Game Advertising: games contain advertising such as messages or products of a certain brand.

> · Around-Game Advertising: publicity surrounds the game, and may appear before or after playing, very common in online games.

> · Advergaming: a brand is specifically promoted throughout the game (work for hire), because it is itself funding the development of the game.

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12 http://weirdlogicgames.blogspot.com.es/2013/04/importancia-de-la-monetizacion-y-los.html

6.1. Pay to Play

This is the most common distribution and sales system for physical games. As with the purchase of any product, consumers simply pay at the store (physical or online) to buy the game. This model is used in the traditional distribution. But it has also been used in the online video game download, for both PC and mobile games. Through the app stores for mobile devices or specific portals (like Steam[13]) users download games on their mobile devices (smartphones and tablets) and computers, either for a fee or for free.

If a game company decides to stick to the traditional model, it is imperative to justify the higher price point with more than just the cost to provide the experience. Game companies can demonstrate value with differentiated game mechanics or an increased number of gameplay hours. Upping the replay factor with new gameplay modes (such as online multiplayer) and multi-branched storylines can help justify a premium sticker price. If the experience is unique, highly valued by gamers, and "worth the price" it can still be successful in the traditional model (Kelly et al, 2014). Titanfall[14], which was released exclusively on Xbox One, had more than 900,000 copies sold within a week of its release on March 11, 2014[15]. The traditional model may not be growing, but the model is still viable for the mega studios that can support it. But from an open innovation perspective, large studios that use the traditional outright purchase model are adopting elements of other business models to extend their revenue, trying to extend the life of existing games and extract additional revenues from these high value gamers who are open to paying for additional content above the initial sticker price.

6.2. Free-to-play (F2P) and freemium

This is another model initially developed by the gaming industry. The F2P model has its roots in the dot-com boom where companies discovered that the most valuable asset in the Internet era was an audience and the biggest audiences were attracted by free services. The engagement of these audiences could be turned into profits through advertising and upselling to premium services.

However, F2P really became popular alongside the explosive uptake of the social networks and mobile devices that put games-capable platforms into the lives of over a billion people of different backgrounds, ages and genders. In addition, the openness of these platforms allowed developers previously locked out of the video games

industry by platform and retail gatekeepers a route to the market (Luton, 2013)

Using this model, the player can have access online to the game for free and only pays if he agrees to new features, improved extensions or to purchase virtual goods that helps advancement in the game play. In-app purchases refer to a form of monetization that has become widely used in social games, consisting in exchanging real money for currency that can be used in-game for buying experience points or other objects. In the free part of the game advertising may also be used as a source of income. The concept of this model is based on the existence of a large user base that play for free. A small percentage paying small amounts periodically for virtual goods is enough for ensuring the profitability of the game -this percentage varies between 5% or 7% of F2P players (Luton, 2013)

This 5 percent is even considered a good conversion rate –the percentage of people moving from non-paying to paying. This means that 95 percent of players do not spend anything. Although these non-payers do not contribute financially, they do add value to the game.

Spend vs. Players power law curve (Adapted from Luton, 2013)
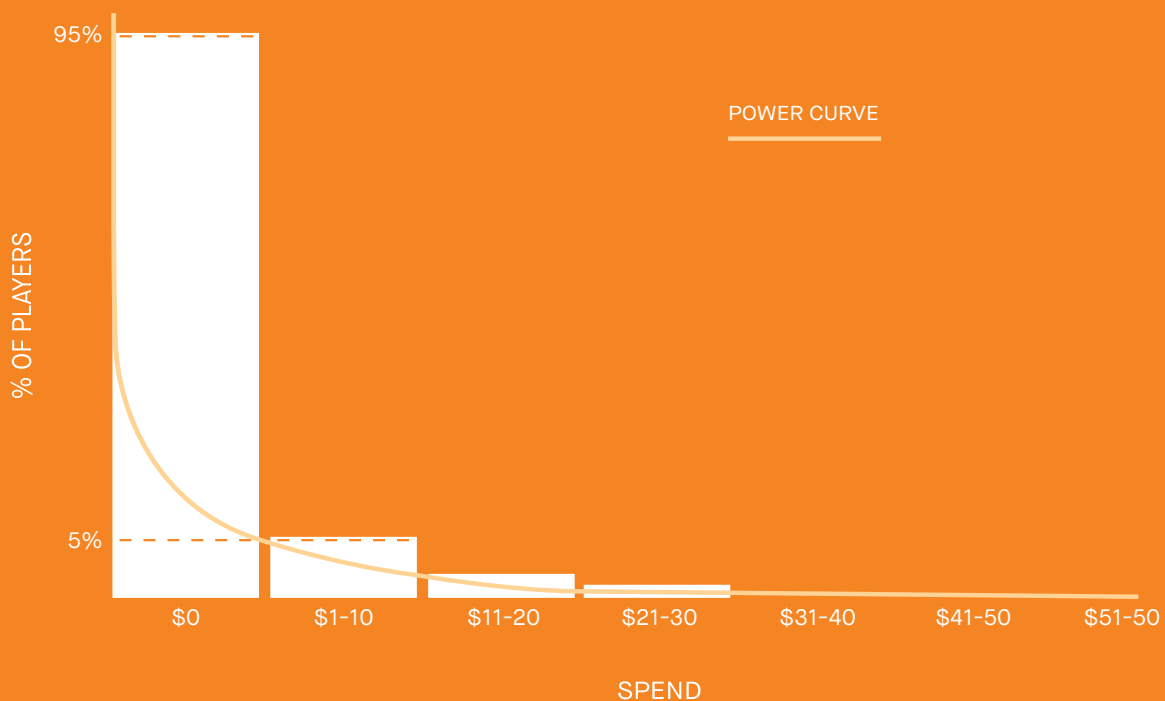
F2P has an inherent quality that makes the model work: consumable purchases. These allow players to buy a resource that can be depleted and repurchased repeatedly. Therefore, the key is to reach a critical mass of users to obtain an optimum number of paying users.

The Monetization Report 2016 by Swrve, a company that manages users of several successful free-to-play games, shows that less than 1.5% of players are actually paying any money at all. Therefore, we have a huge base of 98.5% of the players who never makes any micro-transaction. Nevertheless, there is a much more important fact: half of mobile games money comes from 0.15% of players. Those spending the biggest sums in-game have earned the nickname of *whales* (a term re-purposed from the casino-industry[16]). Meanwhile, those with lower spends are known as *minnows*. Thus, the value of certain types of players, and having tools to identify them becomes paramount.

However, why does a player pay in a free-to-play video game? There are different motivations:

1. Time: There are players who have more money than time and others who have more time than money. So, players with less time are willing to pay to speed up the gaming experience.

2. Personalization: The visual differentiation is very common and used for Asian audiences. They have no impact on the gameplay but may be a reason why a player engages with the free-to-play (Luban, 2011).

3. Content: It is paid for extra content that adds hours to the gaming experience -extra chapters, missions, levels or any additional supplement to the original game

4. G ameplay options: Free-to-play provides an opportunity to diversify gaming options, the range of choice, and offer different game experiences. Options that can be offered could be different game modes, different characters, levels of difficulty and any option that will enhance replayability by providing new experiences. It is usually combined with motivation content.

5. Grants and benefits: It is necessary to pay to get extra help to match the level of a player with average skill to make progress in-game. For example, when buying a power-up[17] to facilitate the achievement of a level in Candy Crush

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16 http://www.cnbc.com/2015/08/03/the-shocking-truth-about-mobile-gaming.html
17 Power-up: a bonus which a player can collect and which gives their character an advantage such as more strength or firepower.

Saga[18]. In addition, the premium objects are included. They allow for leveling up directly or access to important advantages. They are a way to earn income at the expense of favouring players who pay. Such a practice means that the game will be distorted, converting a free-to-play game into what has been called "pay-to-win" because players who are willing to pay for special items or downloadable content may be able to gain a significant advantage over those playing for free.

A common suggestion for avoiding what critics of such games call "pay-to-win" (p2w) is that payments should only be used to broaden the experience without affecting gameplay. Some suggest finding a balance between a game that encourages players to pay for extra content that enhances the game without making the free version feel limited by comparison (Delucci et al, 2013). In response to concerns about players using payments to gain an advantage in game, titles such as World of Tanks and the next World of Warplanes and World of Warships (all by Wargaming[19]) have explicitly committed to not giving paying players any advantages over their non-paying peers. The strategy is called "free-to-win" by the company, which first started testing it in 2012. The core basis of "free-to-win" is to remove all payable options that could be viewed as giving a player an advantage in battle. Now, revenues come from sales of non-advantageous content, such as premium vehicles, personalization options and the like. This free-to-win strategy has been applied to all the last, current and future Wargaming titles and the move is in part meant to make Wargaming a bigger player in the burgeoning eSports arena -they currently have a Wargaming.net League[20] (Graft, 2013; Pitcher 2013).

In single player games, another of the critics concern with "pay-to-win" is the tendency for free games to constantly request that the player buy extra content. Payment may be required in order to survive or continue in the game, annoying or distracting the player from the experience (Meer 2009).

18 https://king.com/es/play/candycrush
19 www.wargaming.net
20 http://eu.wgleague.net

6.3. Advertising

In video games, advertising is undergoing a process of constant innovation, in which there co-exist different trends for integration. Some trends include the screening of advertising before the game begins (**around game advertising**), the insertion of advertising in mobile applications (banner ads), or even the distribution of video games developed specifically for advertising brands, products or public or private initiatives (**advergaming**). This last model is used by companies who want publicity, developing a game as part of their advertising strategy because it is less intrusive than traditional advertising and offers a high viral impact.

Finally, **in-game advertising** (IGA) involves the insertion of an actual ad in the game, which adds more realism and increases efficiency of the advertising action. The earliest known IGA was the 1978 computer game Adventureland[21], which inserted a self-promotional advertisement for its next game, Pirate Adventure[22]. IGA anticipated to grow to $7.2 billion by 2016 (Tassi, 2011).

This clear interest of companies in IGA also attracted the interest of several academic researchers to understand how effective IGA is, and trying to quantify this effectiveness through some studies. Yang et al (2015) found some types of recognition were low among college students, although players did retain word fragments in sports games. Grace and Coyle (2011) went beyond this, saying that 35% of players could recall advertised brands in a controlled study of car racing games. Lee and Faber (2007) found that the primary factors for player-retention of IGA are location of brand messages in the game, game involvement, and prior game playing experience.

21 https://boardgamegeek.com/boardgame/183231/adventure-land
22 https://en.wikipedia.org/wiki/Pirate_Adventure

As I have shown, monetization is one of the key aspects for game companies. Experimentation with pricing models and dynamic pricing changes allows game companies to better understand the elasticity of their product, and adjust quickly to changes in demand. The next chart summarizes the most important strategies followed by companies for the distribution of video games:

Game Industry Monetization Models
(Adapted from Kelly et al 2014)

Distribution method of games	Physical Distribution	Digital Distribution	Subscription-based services	Free-to-play (F2P) + Micropayments
Upfront cost of the game	$20-$60 Not including downloadable content	$0.99-$4.99 Depending on marketplace platform	Varies Depending on game service	Free Not including micro-transactions
Primary challenge	Insufficient stock (not when downloadable)	Marketplace crash / Downtime	Server crash / Downtime / Attrition	Conversion
Responsible party	Retailer / Supply chain	Marketplace host	Cloud service provider	Cloud service provider
Financial impact	Deferred revenue / Lost sales	Deferred revenue / Lost sales	Refunds / credits to win back customers	Inability to generate revenue-loss is permanent
Owner of risk	Gamer High upfront cost without a trial	Developer Revenue share with marketplace	Publisher / Developer Attrition of customers over time	Publisher / Developer Conversion rate of customers from free to paid

7. Future growth trends

The most important change the video game industry is experiencing is the advancement of new technologies, the decision to exploit the Internet as a platform for games and additionally the redefinition of the developer-consumer relationship. According to the information presented in the previous sections, six key trends and challenges in the development have been highlighted:

7.1. More Screens and connected Ecosystem

Only seven years ago, gamers played mainly on two screens: the TV and the PC. That number has since doubled giving room for more time and ultimately money to be spent on gaming. Gamers will still spread their budget across all screens putting pressure on individual game revenues.

In order to combat the noise and multi-tasking, games need to be able to transcend the individual device and connect across an ecosystem of connected devices. A seamlessly connected ecosystem has the ability to captivate users on every screen, blocking out competing leisure activities (Kelly et al, 2014).

Being able to deliver a connected experience requires a strong understanding of consumer behaviour to inform the design of companion experiences, as well as thoughtful engineering and cloud hosting capabilities to enable cross-platform integration, all of which are relatively new to the traditional studio.

Cloud gaming is a game mode that allows the user interfacing online via streaming on your PC or mobile device while the game is running on the developer's server and is transmitted directly to devices with access to the server through the client application installed (Game as a Service). This allows access to games without powerful devices because the user devices' processing capacity has no importance from a technical perspective, as the game company's server is the system that runs the game with all the processing needs required.

Furthermore, the booming market for mobile devices like smartphones and tablets has intensified the battle of the consoles between the major brands (Sony, Microsoft and Nintendo), in a race to create an attractive secondary device game for players.

7.2. Free Games, Apps and Unique Personalized Experiences

Consumers have become used to the idea of trying a game before they decide to spend money. The days of low quality free games have passed as in-game spending business models have proven successful. A deeper knowledge of the "whales" (preferences and consumption habits) is required for a better personalization of the game experience. Additional value can be obtained driving customer value as a differentiating characteristic of the game and using the data derived from personalization. Game companies that can enhance their data analytics capabilities will be able to glean new insights to inform future content and distribution decisions, and drive additional revenues – the most important component of personalization is getting buy-in from the gamer, who is more willing to share their information if he/she can see the value and potential benefits of doing so (Kelly et al, 2014). The challenge for game companies is getting the balance between the science of data-driven decision making, and other core aspects of game design.

Furthermore, F2P games have lower barriers to entry which drive growth in successful content produced by indie game developers. Worldwide mobile gaming is growing rapidly which brings an influx of independent developers effectively lowering costs of development. This is an opportunity for countries with an emerging and dynamic game scene such as Norway where some indie developers have already tasted mainstream success –DirtyBit's FunRun[23] games have scored 65 million downloads. The studio Krillbite[24] raised $248,000 for Among the Sleep on Kickstarter. In the case of Norway part of the gaming industry's success can be attributed to the Norwegian Film Institute, facilitating a budget which let the studios focus more on the creative process (Stafford, 2015); but this facility in obtaining the necessary resources for the game development could mean that the overall strategy is not adequately market oriented.

Hamar Game Collective[25] is an interesting and inspiring initiative to create a sustainable games industry on the regional level. They have helped developers to solve some of these challenges by creating an environment where the companies can grow and share, learn and work (Thorsen, 2015). After three years of work, Hamar Game Collective passed from three to eight companies demonstrating that by pushing the local talent they can act as incubator for companies aiming to reach for a share of the market. However, big players are taking notice of how low development costs and a cult-like following can draw large loyal communities. For example, in

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23 http://www.dirtybit.com/
24 http://www.krillbite.com/
25 http://www.hamargamecollective.com/

2014 Microsoft purchased Mojang AB[26], maker of "Minecraft[27]", for $2.5 billion in an effort to capture a larger audience for its smaller form factor devices (Ovide and M. Rusli, 2014). Some voices as Salim Ismail (2016) consider that disruptive innovation no longer takes place in large companies.

According to App Annie (2016) mobile consultancy, consumers spent 41100 million dollars on apps in 2015 through digital stores such as Google Play and the App Store. Although video games in 2015 represent 41% of global downloads of apps, all together accounted for 85% of overall spending, about 34800 million dollars. This figure will double by 2020, reaching 74.6 billion dollars, 74% of 101100 million of global spending expected for that year. Also, App Annie's report analyzes the average estimated time to maturity for new games, which dropped 60% from 2014 to 2015 –from almost 30 weeks to just over 17. Compared to just three years prior, this is a remarkably slim window in which to generate downloads. For games released in 2012, average time to reach maturity was over 10 times longer than it was for those released in 2015.

This naturally impacts marketing and monetization strategies as publishers seek high visibility and engagement upon release. Furthermore, it has significant ramifications for the portfolio management, with most publishers requiring more frequent releases to maintain the momentum that may have been sustained by a single title in previous years. Meanwhile, as mobile game revenue grows, it is also becoming less concentrated among the top publishers. Even as the biggest names in mobile gaming draw attention with multi-million-dollar ad campaigns and high-profile releases, the concentration of revenue in the mobile gaming market has been trending toward less concentration at the top (App Annie 2015).

26 https://mojang.com/
27 https://minecraft.net

The benefits from Hyper-Personalization
(Adapted from Kelly et al 2014)

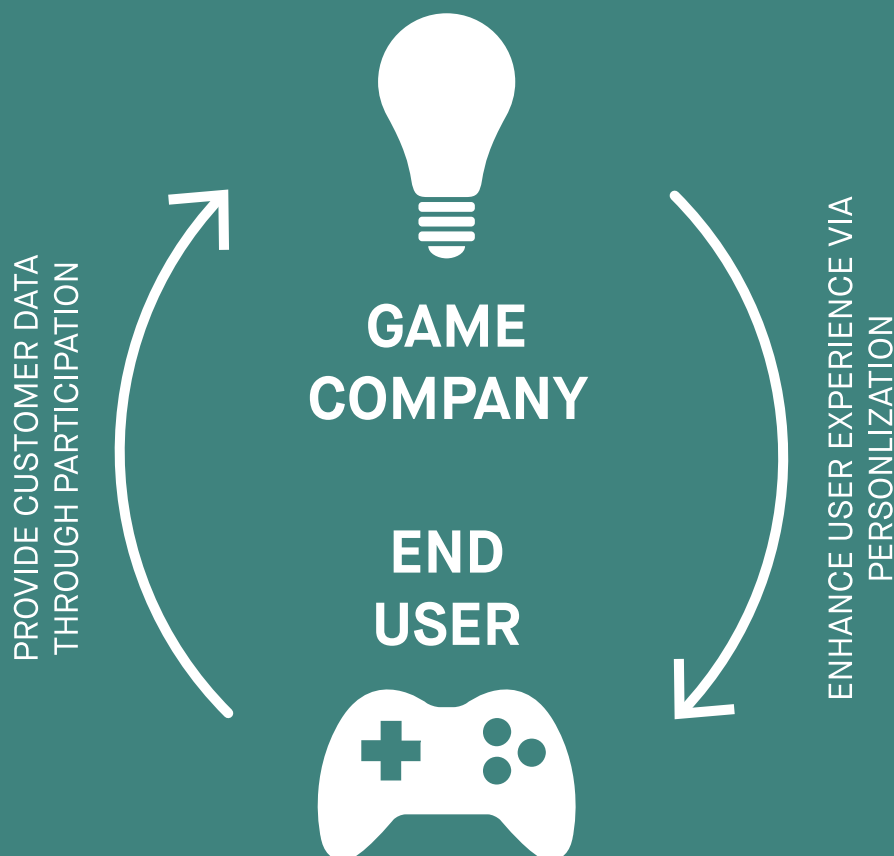| Capabilities	Description	Benefits	Challenges
Gamer Segmentation	Break down entire user base according different criteria: demography, gameplay patterns, new targets, culture...	· Inform future game design and development · Refine features and content to tailor to segments	· Data ownership · Privacy · Centralize acces of gamer records and analysis
Pricing and Targeted Offers	· Develop pricing strategies based on user segments · Implement dynamic pricing and offers for specific user / segments	· Quickly adjust prices to maintain competitiveness · Increase propensity to buy based on offer / promotions	· Perceived price discrimination · Requires pricing control · Recommendation engine costs and maintenance
Next-Best Action Marketing	· Achieve better insights into the lifecycle of a customer · Understand progression of purchases for users	· Anticipate customer needs to provide timely offers · Improve more personalized recommendations	· Requires long lead time to achieve enough data to track trends
Churn Analytics	· Identify pre-cursor behaviors to attrition of users · Track success of win-back strategies	· Anticipate user churn before it occurs · Improve success of win-back strategies	· Time-to-insight can be lengthy

7.3. Business Model Balancing Act

New Business models require continuous balancing between value for the consumer and profit for the developer and/or publisher. Monetization of the game should keep free gamers happy and provide room for spending by the "whales". According to Swrve (2016), over 11% of revenue was delivered by only 1% of purchases (those over 50%), mostly because in many games there were no purchases at that level. There are always some customers who want to buy in at higher levels, and that needs to be supported.

It is currently possible to test multiple configurations and layouts in game stores and establish what works. Even more powerful is the ability to learn from user's preferences and format the store accordingly –such as by showing more expensive bundles to players who have already purchased.

Personalization and Data Sharing Cycle
(Adapted from Kelly et al 2014)

PROVIDE CUSTOMER DATA THROUGH PARTICIPATION

GAME COMPANY

END USER

ENHANCE USER EXPERIENCE VIA PERSONLIZATION

7.4. Digital distribution

As monetization now takes place within the game at a moment the consumer chooses, publishers and developers are even more incentivized to keep their gamer engaged as long as possible. Video content and eSports are increasingly becoming part of this strategy. Running games as a service requires a different organizational structure than selling (boxed) products. Distribution has become more of a portfolio management function than a single decision: pricing control, level of customer interaction, and ownership of gamer-related data are important variables in determining channel strategy.

The new value chain offers the opportunity to the company to define how it creates the relationship with the gamer. The company can create its own direct-to-consumer relationship, and decide whether it is better to invest the effort to build a new channel or to leverage already established channels with proven reach. Obviously, owning a direct-to-consumer channel means having a complete control over the data analytics, pricing, marketing and management of customer relationships. However, the purchasing process needs to be frictionless and simple and it requires strong capabilities in managing a cloud-based commerce platform and efficient customer relationship management. According to Fries (2011)[28], "it's not just that we have digital distribution to our customers. It's that we have this incredible two-way connection that we've never had before with our customers".

7.5. Global Market Place

The games market is now a truly global playground. Online connectivity in general and mobile devices specifically allow companies to localize and launch games anywhere on the planet. To secure growth, emerging markets should be a part of any game company's strategy. Some governments have defined strategic programs to help their companies to penetrate in these new markets. Recently the Norwegian Ministry of Culture, Innovation Norway and the Norwegian Film Institute together launched the Games Go Global initiative - a new export programme for Norwegian computer game companies to help facilitate their games reaching its audience (Norwegian Film Institute, 2016).

Companies need to create game portfolios that reduce overall risk and improve success rates for games in development. Game analytics and live experimentation can improve a game's understanding of its consumers, and how they relate to content. Innovation can come through development of a completely new story or in the form

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28 Bishop T., 2011. How Valve experiments with the economics of video games, Geek Wire: http://www.geekwire.com/2011/experiments-video-game-economics-valves-gabe-newell/

of new gamer mechanics. Developing a new story with new characters can invigorate a game company's existing core base, gain new fans and re-acquire those that might have fallen off an existing franchise (Kelly et al., 2014).

Additionally, selecting where and how to promote a game plays a critical role in determining its success. Content creators must leverage platforms like Twitch[29] to highlight the new stories and demonstrate new game mechanics to enable game discovery and start the flywheel of gamers generating their own clips to share with others.

7.6. The game as more than a game

There are new applications for the technology and methodology developed by the video game industry. Some of these opportunities are:

· **Serious games**. Those games used for purposes other than entertainment and applied in various fields such as education, defense, medicine, health, job security or culture. This is a model of collaboration between the video game industry and other sectors, whose synergies are estimated to reach $5,448.82 Million by 2020, at a CAGR[30] of 16.38% between 2015 and 2020 (Marketandmarkets.com, 2015).

· **Immersive experiences**. Devices that enable virtual and augmented reality gaming experiences, like Oculus[31], are nearing broad commercial release, leaving the door wide open for new game content specifically for these devices. Initiatives like Google's Project Tango[32] are encouraging experiences similar to virtual reality by enhancing the real world surrounding the gamer.

· **Gamification**. This is the application of typical elements of game playing to other areas of activity[33]. This idea comes from trying to use the intrinsic motivator potential seen in video games in non-game contexts in attempts to improve user engagement, organizational productivity, and interactions with customers, among others. Currently we can find three groups of gamification projects: marketing, training and improving working efficiency (DEV, 2014).

· **Interaction with other fields**. Film and television companies make their content more interactive as AMC has with The Walking Dead[34] and HBO has with Game

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29 Twitch is the world's leading video platform and community for gamers: https://www.twitch.tv/
30 CAGR: Compound anual growth rate
31 https://www.oculus.com
32 https://get.google.com/tango
33 https://en.wikipedia.org/wiki/Gamification
34 http://www.amc.com/shows/the-walking-dead

of Thrones[35] and game companies can no longer only look at each other as the competition. Other non-traditional gaming companies like Amazon are realizing the value in original content and are further raising the competitive stakes. The idea of multi-channel story telling is just beginning; pioneers like Disney and Amazon are tying media assets across comics, movies, games and a range of physical items. However, future advances may open up for the possibility of a multi-platform product in which the current differences between a movie and a game will not exist. The narrative will continue in new formats or at the confluence of some formats we already know.

35 http://www.hbo.com/game-of-thrones

8. A look at the Norwegian ecosystem

Norway has long been quite low key when it comes to game development, with Funcom[36] being the only major player. However, a couple of companies has made quite a splash in the last years, such as Bertheussen IT's success Wordfeud[37] and the social gaming company Playfish[38] acquired by EA for 400 million USD. The Norwegian industry is growing at a slower pace than its Danish and Swedish counterparts, but all the countries are seeing plenty of new additions in their industries; both from new talent and from experienced developers who decide to go indie. The advance of game education –approximately 500 students in Norway in game-related studies in 2011 (Marklund 2012)- means that an increasing amount of new talent will constantly be looking for a way into the industry. For newly graduated students the indie route is becoming increasingly attractive as they can directly reach an extraordinarily wide audience through new digital distribution channels.

The Norwegian games industry consists of 565 people, resulting in each employee generating a turnover of about $74,000. This places Norway far below its local competition. Turnover is $170,000 per employee in Denmark, $288,000 per employee in Sweden and a massive $648,000 per employee in Finland. An equally interesting number is the one that shows that the growth in total revenue of the Norwegian games industry has not tracked the growth in the number of developers. The Norwegian games industry managed a turnover of $42 million (NOK 330 million) in 2014, compared to $36 million (NOK 287 million) in 2012. So while the number of developers has grown by 75% over three years, turnover has only grown by approximately 15% (Virke 2015)

Approximately half of the Norwegian game studios are developing entertainment games, while the other half are doing other activities in addition to game production. About one third of the companies are self-sufficient, in the sense that they do not do commissioned work. For the rest, commissioned work such as commercials, apps, installations, and other interactive services is an essential part of their income. Funcom is undoubtedly the country's major player, and is representing almost half of the total revenue from games in Norway. There are approximately 310 people working for Funcom in total, and about half of them are working from their offices in Oslo (only the Norwegian workers are included in the presented numbers (Marklund 2012).

36 https://www.funcom.com
37 http://wordfeud.com
38 http://www.playfish.com

Oslo is home for over a third of the registered companies and half of the industry's employees. However, plenty of smaller developers are scattered around adjoining counties. Trondheim, Bergen and Hamar have an active and growing game developing community. The case of Hamar Game Collective[39], introduced in previous pages, is an interesting and inspiring initiative to create a sustainable gaming industry on regional level. Founded by Sarepta Studio[40], Krillbite Studio[41] and Moondrop[42] in the summer of 2013, three years later Hamar Game Collective passed from three to eight companies demonstrating that by pushing the local talent they can act as an incubator for indie companies aiming to reach for a share of the market. They were all driven by a desire to have a common place to meet, work and exchange knowledge. The philosophy of this collective is being more than a co-working space, promoting the interests of their members and contributing to the growth of their community, arranging interesting lectures, workshops, social gatherings or putting in contact the students with these companies.

This kind of collaborative work space also inspired four game studios who in 2015 created Bergen Game Collective. They rent out extra office space on a zero profit plan to companies that either work in the games industry or have some relevant connection to what they do there. One of the biggest advantages according to Krister Berntsen (2015)[43] from Bitsquad[44] is *"the fact that we are now a more condensed gathering of expertise. Problems can be solved much faster due to the fact that we always have people with experience within any topic related to Gamedev"*. Working in a collective is an easier way to manage the creative resources. Each company is less dependent on their own creative skills as they can get input and help from nearby companies, making them more effective. *"We also have space for "In-Residence" mentors/artists/ gamdevs to help us with topics we lack expertise in"* Berntsen explains.

These collaborations promoted by collectives focus specially on the first stages of the value chain. Many of their actions are oriented towards the development, the creative work and in some cases the research, but there are not specific actions for supporting companies in their business strategy. In some cases a publisher can be invited to the headquarters of the collective but more beyond this, there is not a strategy to train these indies with the objective to professionalize teams and increase their possibilities of success in creating, consolidating and growing the company, defining a commercialization strategy or planning risks.

The main differences with an incubator would be the professional training, the

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39 http://www.hamargamecollective.com
40 http://www.sareptastudio.com
41 http://www.krillbite.com
42 http://www.moondrop.no
43 http://nordicgamebits.com/2015/02/26/norwegian-developers-build-a-game-collective/
44 http://bismuth-game.com/

mentoring program and a scholarship program. Master classes, networking and contacts, demo days can be provided by the collective, not forgetting that an incubation process offers support and tools for professionalization. Some incubators offer access to an Acceleration Program for the best projects and companies at a later stage, as the following do: Game BCN[45], STUGAN[46] or Montreal Games Incubator[47]. In Norway, through incubator environments related to Kunnskapsparketn[48] Hamar (although it is not a specialized game incubator) several companies have been established and have later released games with backing and support from Norwegian Film Institute.

One of the common problems for indies emerges when companies try to make game development for a living and not just as a hobby. The Norwegian industry is a young and small industry that cannot survive solely serving a Norwegian market aimed at children and young people. However, it is also difficult for commercially oriented start-up companies to attract funding as long as they have no equity or experience (ESAC 2010: 13, SECOR 2011: 19-20). According to Jorgensen's article (2013) based on interviews with representatives of four Norwegian gaming companies, the industry needs to be understood better by the public administration to solve its real needs. Innovatio Norway[49] is the Norwegian Government's most important instrument for innovation and development of Norwegian enterprises and industry. In 2012 twenty gaming companies of the Producers Association's report stated that they had received some form of support from them (Jorgensen and Tharaldsen 2012: 4).

As Jorgensen (2013) stated in her article, Innovation Norway had not defined game development as an explicit priority, something that the interviewed developers believed was problematic. According to the representative of Hyper Interaktiv[50], Innovation Norway had invited game developers to seek support without adapting their framework for this: "If you travel to Innovation Norway and presents an idea or a concept for a game: They do not have the expertise to understand what you are doing. Two: They have no business understanding of how to monetize it. Three: They do not know what is required (Hyper Interaktiv, 23 June 2011)". This criticism of Innovation Norway, a view also supported by Mini media[51] and D-Pad[52], is that they did not have sufficient industrial expertise in relation to the video game industry. But it is important to point out that they supported several gaming companies, although it is unclear whether this support had been linked to game related or other activities. It could be argued that the industry is still so immature that it may be

45 http://gamebcn.co/
46 http://www.stugan.com/
47 http://tag.hexagram.ca/incubator/about.php
48 http://www.hkp.no
49 http://tag.hexagram.ca/incubator/about.php
50 http://www.hyper.no
51 http://www.minimedia.no
52 http://www.dpadstudio.com

difficult for Innovation Norway to establish tailor-made arrangement for games of today (Jorgensen 2013).

But this learning and willingness to support the industry has led to changes. The Ministry of Culture, Innovation Norway and the Norwegian Film Institute launched the pilot project "Games Go Global" on Monday 8 February 2016– an export trade program with a budget of NOK 10 million[53] (€1.1 million) that is the answer to the challenge for the industry to reach out internationally. Initiatives contained in the program shall help stimulate the exploitation of the companies' commercial potential through providing fresh capital and skills fresh capital and skills for competing internationally. fresh capital and skills for competing internationally. In 2014, The Norwegian gaming industry saw sales for NOK 330 million[54] (€ 36.4 million), of which about 90% are revenue from the International market.

In relation to education, there is an urgent need for educational programs that emphasize business and the industrial dimension of producing video games (ibid). Currently, a majority of the Norwegian game-oriented programs are aimed at teaching and developing the student's technical skills but these curriculums would have to include also the multidisciplinary skills involved in creating video games and interactive material. So, students would gain a broader knowledge of the industry and could learn about entrepreneurship, financing systems and approaches to monetization in the sector. As an example, the bachelor's degree in Video Game Design and Development[55] of the Technical University of Catalonia[56] (Barcelona) includes the following subjects related to the industry: Game Industry (first course), Business Environment (second course), Marketing and Digital Distribution (third course), Entrepreneurship and IT Innovation (fourth course), Financing and Business Models (fourth course).

Nowadays, many of the graduates from Norwegian universities with game programs are recruited into work in entirely different industries (Jorgensen 2009) or disappears abroad. But all this knowledge created through inter alia education could stimulate the creation of new, self-sufficient companies. Here the role of game incubators and an adequate cluster policy could stimulate the creation and later growth of new companies. No less than 60 companies have been formed the past three years, and that is out of a total of just 140 companies in the whole sector (Kristiansen 2015). Almost all of the newly established companies are more indie-inspired, basing themselves on smaller teams, producing smaller, often more experimental titles for PC and mobile platforms, rather than traditional gaming consoles.

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53 https://www.regjeringen.no/en/aktuelt/nok-10-million-to-new-pilot-export-programme-for-Norwegian-computer-games-companies/id2437329/
54 http://www.nfi.no/english/news/the-pilot-project-games-go-global-has-been-launched
55 http://www.upc.edu/learning/courses/Bachelors-degrees/video-game-design-and-development-terrassa-citm
56 http://www.upc.edu

One step beyond collectives and incubators there is a cluster organization. There all the agents, located in different phases of the value chain, work together to achieve and defend common or complementary interests. Game clusters have different origins but according to Porter (1998), clusters can effect competition in three ways: by increasing the productivity of the companies in the cluster, by driving innovation in the field and by stimulating new businesses in the field.

In a cluster, companies and institutions are related or inter-related in a geographic area. It accompanies its members in the short and medium term (exports, training, R&D support or financing advice) and helps towards structuring the industry in the long run (defining job and skills profiles, joint action, lobbying, etc). Capital Games[57], the Video Game Cluster for Paris and the Paris Metropolitan Area, currently federates around sixty companies and undertakes all its actions working closely with its public partners (Région Ile de France, the Paris City Hall, the Ministry for Industry,..). Also, Capital Games works in liaison with the other video game and digital content representatives: the National video Game Union, Cap DIGITAL and others.

Game IN[58] is a second example of cluster. Born in 2009, Game IN is a trade association gathering video game industry companies located in the region Nord Pas-de-Calais and Walonia. Game IN is made up of 40 gaming industry companies from development studios, publishers, distributors, accessories, schools to specialized services providers. It aims to organize, to develop, to promote the video game activity and to enhance business opportunities. Their activities deal with professional training, business development, support for international affairs and sustaining creativity and innovation. Game IN founded several collective projects as the company Play IN Lab for user test services or Zoo Machines Festival dedicated to innovation and the future of gaming.

These two examples chosen from many others like those located in Seattle, Montreal, Vancouver or Austin try to highlight the importance of collaboration between the agents along the value chain for creating more competitive advantages, having a better market knowledge, driving new business lines or opening new markets. This market orientation of the cluster is one of the key aspects to consider for the Norwegian companies. The majority of the country's registered companies are small and independent and 78% of the companies says that no other Norwegian or foreign stakeholder has any ownership in their company (Marklund 2012). These characteristics of the Norwegian ecosystem make it relevant to create support structures between companies, where they can define their problems and challenges and get

57 http://capital-games.org
58 http://www.game-in.org

a better market orientation for their business strategies. Furthermore, they could collaborate defending common interests with the administration, boosting competitivity and promoting the creation of new goods.

Therefore, taking a step more beyond the collectives, a cluster would help to establish new structures of collaborations for driving the activity of all companies and positioning the Norwegian Video Game Industry worldwide. Innovation Norway works stimulating the creation of clusters through a government supported cluster program[59]. As happens with the Windcluster[60] or the Smart Care Cluster[61], a Video Game Cluster could stimulate the relationship between all the agents involved in the value chain for fostering the innovation and the business development in the Norwegian Gaming scene. But a key point is that the driving force must come from companies who will benefit the most from this cluster strategy.

For a small country like Norway, the public sector, the business community, the video game developers, the associations (Virke[62]), collectives and academia must work together to identify key areas and create innovative gaming solutions that can be developed, tested and adopted by the market. By stimulating the creation of partnerships within Scandinavia and Europe, this cluster would strengthen the innovative environment and facilitate the development of new alliances in the industry, for creating new projects with a focus on the international market.

59 http://www.innovationclusters.no
60 https://www.smartcarecluster.no
61 http://windcluster.no
62 The Enterprise Federation of Norway: http://www.virke.no

9. Conclusions

Value creation is one of the key aspects in the definition of innovation. Value could be incorporated in each step of the value chain (screening, selection, evaluation, protection and exploitation) from the research or development to the market. The accumulation of value throughout the process is what causes the product or service to reach the market with additional value.

Kim and Mauborgne (2005) have studied the importance of value creation. These authors conceived innovation as an innovative vision related to business strategy: success with a non-competitive strategy. Through a metaphor, the red ocean represents organizations competing in existing market spaces (much more explored) with low differentiation, normally based on the price. However, the strategy of innovation in value is the basis of the blue ocean metaphor. In this, organizations create new market spaces making the competition irrelevant by creating and capturing new demand, aligning all activities of the organization with the goal of reducing costs while increasing the value of their products and services (Kim and Mauborgne, 2005).

The value of innovation strategies causes organizations to focus efforts and resources on differentiating features, enabling them to create differentiation that will be clearly perceived by the consumer. User empowerment enables us to clearly determine what the customer gives real value to and therefore his opinion becomes essential when launching new ideas to market. Often the client does not demand a specific solution but expresses his dissatisfaction at some stage of the process. It is at these points that an organization detects an opportunity to implement improvements in the process.

Co-creation is a form of continuous dynamic customization and undoubtedly, innovation is one of the hallmarks of the video game industry. The trends described show the constant evolution of the sector, incorporating the latest technological advances in the creation and distribution of video games in order to provide users with better gaming experiences, thereby obtaining substantial economic returns. Also, the relationship between developers and players has evolved to a cooperation in which the player is the most important step of the value chain.

The traditional gaming value chain has been eroded by the new methods of distribution and has begun to reorganize the functions and dynamics of interaction between actors in each of the different levels of the value chain. From a linear traditional value chain, hardware manufacturers, developers and publishers seemed to be the

key players in the industry. They were influential and capable of defining trends in the market due to their critical role in the industry.

But the emergence of the Internet changed the rules and one of the groups most affected was the retailers and their logistical distribution function. Publishers may also choose to distribute games through the ISP[63] or via device manufacturers, accessing a global market without limits on the distribution. This new scenario provides a quasi-direct relationship of the development companies with the end users, avoiding the existing network of intermediation in the traditional value chain. This model facilitates the disintermediation in the process of editing the video game, reducing, or even eliminating the role of the publisher and increasing the relevance of developers.

Developers and end users have benefitted most from the Internet's disintermediation. Developers' access to new multiple alternatives for commercializing their games and to the players have been increased significantly by the supply of games available with various business models that fit to their specific demands. Consumers have an active role in the gaming value chain because the companies outsource, hyper-differentiating the game at lower costs while maximizing the potential sources of innovation.

Business models are focused on monetization, the factor that makes the game a project sustainable over time, capitalizing on the effort made along the value chain until the game goes into the market. I have identified three main strategies for monetization: Pay to Play, Free to play or freemium and Advertising. The first one is used in traditional distribution but is also used in the online video game download.

Free to play is based on the existence of a large user base that play for free and only a small percentage paying small amounts periodically for virtual goods –this percentage is around 5%. On the Internet the most valuable asset is the audience and the biggest audiences were attracted by free services. There are always some players (whales) who have different motivations for paying in a F2P game. And for the companies there is a challenge: increasing the percentage of players they can turn into payers spending real money in the game. The third monetization strategy is Advertising, with different trends such as around game advertising, advergaming and in-game advertising.

The paper also includes some challenges, opportunities and trends based on the important change that the game industry is experiencing: the advancement of new technologies, the decision to exploit the Internet as a platform for games and the re-

63 ISP: Internet Service Providers

definition of the developer-consumer relationship. These six challenges identified emphasize different aspects such as: more screens and connected ecosystem (the game has to transcend the individual device and connect across an ecosystem of connected devices); free games, apps and Unique Personalized Experiences (trying to get the balance between the science of data-driven decision making and other core aspects of game design); Business Model Balancing Act (new business models require a continuous balance between value for the consumer and profit for the developer and/or publisher); digital distribution (the new value chain offers the opportunity to the company to define how it creates the relationship with the gamer); global market place (there is a truly global playground in which game analytics and live experimentation can improve a game's understanding of consumers, and how they relate to content); and the game as more than a game (new opportunities for the technology and methodology developed by the video game industry: serious games, immersive experience, gamification, interaction with other fields,...)

The trends described above show us a sector in constant evolution, concerned to know better the end user and incorporate him/her in the development process, incorporating the latest technological advances in the creation and distribution, cross-fertilizing with other fields to provide users with better gaming experiences, thereby obtaining significant economic returns. This innovative character of the field generates new relationships that push companies to determine the best approach for managing direct-to-consumer relationships, troubleshooting gamer issues, reducing gamer churn and preventing loss of gamer engagement.

The digital endpoints, the lower barriers to entry for low-cost alternatives, and the need to innovate and join the group of disruptors is more critical than ever. This innovative character as described throughout this paper makes the game one of the most competitive and attractive investment sectors, with an audience that grows from year to year in non-existing percentages in any other sector.

The global market of vídeo games will continue growing with a 6,6% annual rate to achieve 118600 milions of dolars in 2019 (Newzoo 2016) and it is an opportunity for the Norwegian games industry which grows at a slower pace than its Danish and Swedish counterparts. The majority of the country's registered companies are small and independent and 78% of the companies says that no other Norwegian or foreign actor have any ownership in their company (Marklund 2012). Related to education, there is an urgent need for educational programs that emphasize business and the industrial dimension of producing video games (Jorgensen 2013). For newly graduated students the indie route is becoming increasingly attractive as they can directly reach an extraordinarily wide audience through new digital distribution channels.

The market orientation of the cluster is one of the key aspects to consider for the Norwegian companies. This collaboration along the value chain is crucial for creating more competitive advantages, having a better market knowledge, driving new business lines or opening new markets. The characteristics of the Norwegian ecosystem make it relevant to create support structures between companies, where they can define their problems and challenges and get a better market orientation for their business strategies. Furthermore, they could collaborate defending common interests with the administration, boosting competitivity and promoting the creation of new goods.

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