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The Video Game Industry

Formation, Present State, and Future

Edited by
Peter Zackariasson
and Timothy L. Wilson



The Video Game Industry



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Introduction

Peter Zackariasson and Timothy L. Wilson

In his seminal treatise on the media, McLuhan (1964, 23) asserted, “The medium is the message.” That is to say, “the personal and social consequences of any medium—that is, of any extension of ourselves—result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology.” We have at hand a new technology and a new medium—video games. The presence of video games in media consumption could have hardly missed anyone’s attention. As we move into the second decade of the twenty-first century, video games have become one of the major media we interact with during the course of a day. Traditional forms, as film, TV and newspapers, still play a major role, but it is video games that have attracted interest. This book is oriented toward understanding this media, and the industry producing it.

The aim of this book is to present an overview of the video game industry at this point in time; while doing that, we hope to put a focus on this industry and offer a base to stand on to reach further. This industry has attracted surprisingly little attention from researchers of business and economics. It is important to note that the video game industry has a comparatively short history compared to other media industries, such as the film industry, which has a history stretching more than one hundred years. If we define the start of the video game industry with the introduction of the first coin-operated video game, *Galaxy Game*, in 1971, then we are talking about an industry that is forty years old. Of course, video games were developed before that, but not used for business transactions between a provider and a consumer. Instead they were part of fiddling with computers in order to see what they could do, part of military, academic and business research.

Steve Russell, one of the developers of *Spacewar!* in the early 1960s, said in an interview that “we thought about trying to make money from it [*Spacewar!*] for two or three days but concluded that there wasn’t a way that it could be done” (cited in Kent 2002, 20). The main reason for this pessimism seemed to have been the cost of computers at that time (Donovan 2010). This conclusion is quite extraordinary considering that the industry today is worth upwards of \$60 billion (see De Prato, Lindmark and Simon, this volume).

For us, the editors of this volume, we might go so far as to say that video games have been life changers. In our partnership, Peter is the gamer, and

he adroitly found a way to leverage that interest into his dissertation work (Zackariasson 2003, 2007). Timothy, on the other hand, has over forty years of experience from doing research and teaching in business schools in the U.S. and in Europe. While Peter was working on his dissertation, we tested the waters to see if he was onto anything with a paper at the other players' conference (Zackariasson and Wilson 2004). We were mildly surprised to find that not only might we be onto something, but others might be interested in what we thought about things. Subsequently, we started a series of papers that pursued 1) the operations of a developer (Zackariasson, Walfisz and Wilson 2006); 2) the manner in which projects were handled (Walfisz, Zackariasson and Wilson 2006); and 3) creativity in development (Zackariasson, Styhre and Wilson 2006). As we have continued our work (cf. Zackariasson, Wåhlin and Wilson 2010; Zackariasson and Wilson 2010), we join the growing number of academics, and writers, that take on the task to create an understanding of this field—the industry (Deuze 2007, 2010; Kerr 2006; Kline et al. 2003; Kushner 2003; Takahashi 2002); the history (Donovan 2010; Herz 1997; Kent 2002; King and Borland 2003; Poole 2000); games and business (Beck and Wade 2004; Chatfield 2010; Edery and Mollick 2009); and the association with the military (Halter 2006).¹ Perhaps the high point to date on academic interest in this area of video games and gaming was the special issue in the *European Management Journal* (2006), edited by Loic Cadin and Francis Guerin.

Today, researchers of this discipline, game studies, now have their own journals and conferences, and we recommend anyone interested in video games to get acquainted with these. It is not the ambition of this edited volume to engage in the definition of, and understanding of, video games as media. This has already been done in other places. As an entrance point we would suggest two edited volumes by Wolf and Perron (2003) and Perron and Wolf (2008); both contain a large number of informative and interesting chapters. There is still much to be done on this industry, however, and we are sure that we will continue seeing an increased interest from academics. As the industry itself grows, it also attracts interest from governments and other structures that have the possibility to further deepen our understanding. For instance, in 2009 Peter was invited to the European Commission joint research centre Institute for Prospective Technological Studies (IPTS) to participate in the development of a report on the state of the European video game industry. The effect of this report is yet to be seen, but it is our hopes that this edited volume and our joint efforts will carve out the map of this industry and its relationship to the rest of society.

INDUSTRY STRUCTURE

In order to fully appreciate the content of the chapters in this book it is important to have a basic understanding of the dominant structure of the video game industry: its participants and the relationship among these

functionaries. In many ways this industry is similar to other publishing industries, e.g. books, television and film (Hesmondhalgh 2007; Caves 2000). There is thus much to be learned from comparing the video game industry to these “older” industries, but of course any generic description will always suffer from its inability to include the finer details and differences within this complex industry. In this case, the chapters following the introduction of this book will provide the essence of an understanding and continue to add details to the inevitable simplistic picture painted here.

The participants within the video game industry are mainly considered to be developers, publishers, distributors, retailers, customers, consumers, IP-owners, platform owners and hardware owners. Readman and Grantham (2006) have suggested that the value chain has changed in the last twenty years to be one that is more publisher centric. Nevertheless, these participants could be described as making up the core of the value chain in video game development—from developer to consumer—where each actor contributes and adds value to the video game.

The developer is the participant who makes the actual games. This development employs a large number of persons, in a wide variety of professions, working together in a game studio to develop each part of the game (graphic, sound, design and programming), and, more importantly, making each of these parts work together as one in order to present a coherent and an immersive gaming experience for the consumer. Studios are mostly local companies with staffs from a handful of persons up to several hundred, depending on the types of games developed and progress of the company. Being a comparatively young industry, game developers have reputations of being creative, primarily male and working in chaotic environments (Herz 1997; Kent 2002; King and Borland 2003; Kushner 2003; Poole 2000). Although this demographic might still be true in some cases,² a majority of game developers seem to be moving toward professions companies with established work routines and professional organizations.

Because game developers tend to lack financial capabilities to fund and promote their games, publishers are essential participants in bringing games to consumers. Publishers work with different developers (third party, in-house and independent) in order to build portfolios of games they consider have a possibility of attracting customers’ attention and creating sales. While doing this, publishers also try to adapt the development to market trends and establish promotion strategies that create exposure for their games. Presently the most successful publishers are international companies, with headquarters located in North America (e.g. Electronic Arts, Activision/Blizzard, Take Two, Sony) and Japan (e.g. Nintendo and Sony), and only one located in

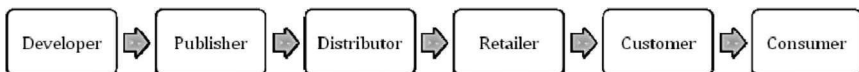


Figure 1.1 Traditional value chain in the video game industry.

Europe (Ubisoft in France). Major publishers located outside of these areas are close to non-existent on the international market, with South Korea being an exception. Publishers are the industry actors who tend to take the financial risk in development—the budget for an AAA game (high quality and expected high sales) is estimated at US\$15 to 20 million for most games. It is not uncommon, however, to spend more on the development for sequels in a successful series, as was the case for *Halo 3*. In that regard, Microsoft spent an estimated US\$30 million developing the game. The budgets for AAA titles thus seem to be on the increase, depending on technical platform and genre. On top of this, there are also the costs for marketing and sales. It is said that Microsoft spent about US\$40 million on the marketing and sales of *Halo 3*. Publishers, besides funding game development, could be considered the link between developers and consumer.

Although games are digital products (programs of ones and zeroes), they are still to a large extent sold as physical products. With the introduction of the Internet, and the possibility of purchasing games digitally, there has developed an alternative way of distribution today are taking over most distribution. But, how a game is packaged does still matter: its cover, instructional folders and additional content. As a physical product, this combination is what meets the customer's eye at a retailer. The importance of shelf space thus continues to be important because of the visibility importance to the consumer and its attraction power.

Distributors are the middlemen between the retailer and publisher. On occasions distributors have also acted as an extension of publishers, dealing with promotion and advertising of games. At the next step in the chain, because of the popularity of video games, it is possible to purchase the major titles at a large number of retailers. Because of the specialty nature of the product, most retailers that sell games are established as both physical stores and online stores (e.g. GameStop and EB Games). Nevertheless, games are also sold at other places, for example, general media stores, toy stores and grocery stores.

Using online distribution of games has been increasing as there now is technology that facilitates this option, as well as a general trend of embracing media consumption as is common with music and books. Two of the major platform manufacturers, Sony and Microsoft, have established the possibility of purchasing games through their online stores, accessible from the gaming consoles PlayStation and Xbox. Third-party companies are also providing the possibilities of buying games online. The company Valve, for example, has developed a software package called Steam where customers can download games directly to their PC, or PlayStation. For mobile games there are also sources for downloading games directly to one's unit, e.g. Apple's App Store is a huge distribution channel for a large numbers of games. There are also developers that have set up online distribution of their own games, using a web page and possibilities for online payments. As more technologically savvy generations

expand, it seems inevitable that online distribution of games will be the major channel from a publisher to a customer.

WHAT IS A VIDEO GAME?

When the video game industry is discussed, or written about, it is the building of games that tends to be addressed. This bias is understandable as it is assumed that this function is the core of the industry. This focus could potentially limit our understanding of the industry, however, as the actual building is only one part of a process that starts with an idea about a game and ends at a consumer playing the game. Although knowing what a video game is, and how it is built, surely increases the possibilities of creating a greater understanding of this industry. Thus, we will give the major pieces of the building of a game here.

What, then, is a video game? In order to provide a basic level of knowledge for the chapters ahead the answer to this question could be important. The short answer to this query could be that it is a specific kind of digital entertainment in which the gamer interacts with a digital interface and is faced with challenges of various kinds, depending on the plot of the game. Juul (2005, 36) proposes that a definition of a game consists of the following six features:

1. *Rules*: Games are rule-based.
2. *Variable, quantifiable outcome*: Games have variable, quantifiable outcomes.
3. *Valorization of outcome*: The different potential outcomes of the game are assigned different values, some positive and some negative.
4. *Player effort*: The player exerts effort in order to influence the outcome. (Games are challenging.)
5. *Player attached outcome*: The player is emotionally attached to the outcome of the game in the sense that a player will be [a] winner and “happy” in [the] case of a positive outcome, but a loser and “unhappy” in [the] case of a negative outcome.
6. *Negotiable consequences*: The same game [set of rules] can be played with or without real-life consequences.

These features are general and could, according to Juul, be applied to all types of games. Video games could thus be included under this definition of “games” and the preceding features work in discussions of what a video game is. Developers face the challenge of making these parts work well together and providing balance in the game. If they succeed, the gamers will not notice any irregularities in the representation of the game they are playing. They will, in a sense, be one with the game and feel immersed into its world.

Video games could also be defined as consisting of three essential parts: *setting*, *sensory stimuli* and *rules*. The *setting* consists of the genre and the plot of the game—its overarching situational placement. Today there are several different genres of video games, the most common being adventure, fighting, first-person shooter (FPS), massively multiplayer online (role-playing) games (MMOGs or MMORPGs), platform, puzzle, racing, retro, role-playing (RP), shoot 'em up, simulation, sports, strategy and survival horror. The video game genre can be compared to book genres and, as with books, the different genres can have thinner or thicker plots. Depending on the genre, the plot usually drives the game forward. Adventure games (e.g. *The Longest Journey* by Funcom) have thick plots; as the game unfolds, the gamer is engaged in the story, which forms the backbone of the game. The opposite would hold true for FPS games (e.g. *Half-Life 2* by Valve Software) in which the plot does not really matter most of the time (this also seems to be the case with the games in the *Doom* series by id Software). This type of game depends on action and constant hiding, chasing and killing—a mix of activities that have come to be known as “hack n’ slash”.

As gamers interact with the video game, they experience *sensory stimuli*. Of our five sensory stimuli (sight, hearing, touch, smell and taste), today’s gamers can sense only sight, hearing and touch. The first two are the most common and are present in almost every game. As for the visual sense, there are graphical representations on the screen, either fantasy settings or settings that mirror real life. The gamer reacts to the graphics, and the gamer’s actions are presented graphically in return. There are two dimensions of sound in these games: the diegetic and the non-diegetic, both imported from film studies. *Diegetic sound* is action specific—the sound made when a gamer honks a car horn, for instance, or fires a gun. *Non-diegetic sound* is the background noise that creates an atmosphere: sounds from cars and people in the city, for example. A sense of touch can be simulated by using force-feedback technology applications that are used to navigate in the game or to vibrate. For a PC, this technology exists only as an add-on hardware device such as joystick, mouse or steering wheel for racing games. Most consoles today employ this technology in the form of vibrating, handheld units. This sensory experience is also common in arcade machines/simulators, where the gamer sits in a model of a car or plane and is offered a greater range of possible movements than would be possible with a PC and a joystick.

Video games have *rules*, as well; it is here that Juul’s six features contribute. Rules form the basic mechanisms of the game and comprise code and engine. All games rely on rules. Most of them follow a simple diagram of “IF” and “THEN”, and guide the workings of the game and the gamer’s interaction with the game. Consequences have been coded into the game for every interaction. IF the gamer presses “space”, for example, THEN the car in the game will accelerate. The game engine is even more fundamental.

This is the core technology that primarily handles the rendering of graphics: how the graphics are presented on the screen. But it also handles other features, including artificial intelligence (AI): how the computer-generated forces in the game move and react and collision detection occurs between units, for example. Successful game engines are products in themselves, as they can be leased to other game developers constructing new games on these platforms. This was the case with the engines developed for, among others, *Doom*, *Quake* and *Half-Life*.

BUILDING A GAME

When building video games this process is most times organized as a project. The project work form modifies the relationships among the actors in the industry. Although traditional project work is built on the milestone model (e.g. Meredith and Mantel Jr. 2000), these milestones usually occur where exchanges are made—between developer and publisher, for example. Sometimes a payment is transferred when the project reaches its milestone. In traditional projects, milestones measure progress and ensure that the budget is being followed. Despite the fact that the model is used frequently, and not only in game development, it has some flaws, primary among them the rigidity of the model, which leaves no room for creativity. It has been argued that it is impossible to define all the content of the game in the pre-project phase; rather, it should be defined in general, and the specific content should be left to evolve in cyclical iterations during the development using agile project models (Walfisz, Zackariasson and Wilson 2006).

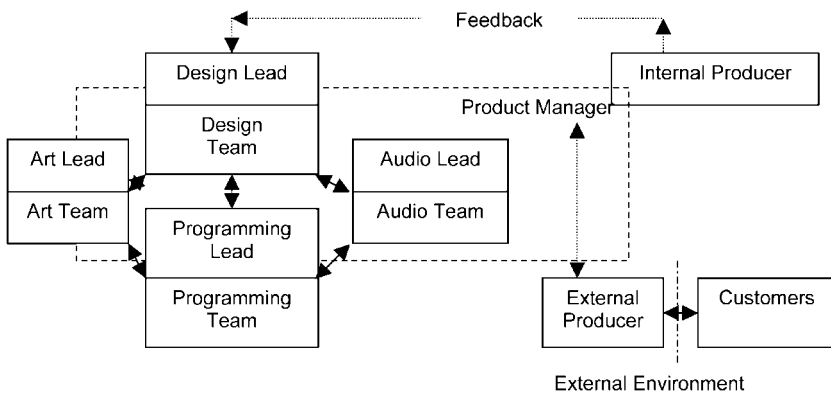


Figure I.2 Example on the structure of a video game developer, Massive Entertainment.

As mentioned previously, there are a number of skills required from the staff involved in the building of video games. Developers vary, of course, but in general there is a need for programmers (coders), artists, sound technicians, designers and producer/s (or project manager/s; see Figure I.2).

A programmer is the person creating the software code that guides the game. A game is generally not one program, but several programs interacting with each other. The programmer is also the person who integrates all other parts in the game, like sounds and graphics, as these are directed by the game code.

Artists create the graphical expression of a game, which usually begins with conceptual artwork. This work is done by hand and is used to orient the style of the game and the appearance of the scenery, characters and items. The three-dimensional models are created from this conceptual art, modelled within a program into a mesh of polygons. Each polygon comprises three points and presents a flat surface. In order to make shaped surfaces, the model consists of a large number of polygons—although the number of polygons must be limited or they will slow down the game. When this work is completed, a surface is projected onto the mesh. This surface is basically a two-dimensional picture that is wrapped around the mesh to present colours and shadings.

As mentioned previously, there are two types of sounds in video games: *diegetic*, action sounds and *non-diegetic*, background sounds. Diegetic sounds can either be created digitally or sampled from real-world environments. The person creating and recording non-diegetic sounds may be part of the development studio, or may work as a freelancer, depending on the size of the studio and the importance of sounds in the games. But even when the sound artist is working in-house, there are times when external musicians are contracted—an orchestra to record the game music themes, for instance.

Game designers create the overall setting and plot of the game and undertake the detailed planning in later stages of development. The design of a game often begins with a game concept. In this document, all features of the game are specified and the development of the game is mapped out in its entirety, thereby guiding later development. During the development stage, designers are also responsible for mapping the landscape or levels in the game, depending on genre. Designers are thus the scripters and storytellers in game development.

The producer, or project manager, in game development is responsible for an overall perspective of the game and the process of developing it. The producer's role is a general one of maintaining the coherence of the entire game and ensuring that each of the pieces fit together well. In some cases the producer also fills the role of project manager, keeping track of time and resources in the development. A game can be successful for separate pieces of the content; but it is often the complete impression of a game that is appreciated by the gamer. Thus the producer's responsibility of making these pieces work together is vital.

OUTLINE

For this edited book we have collected contributions from leading research individuals studying the video game industry from different aspects. The book is divided into four parts: “The Nature of the Industry” (Chapters 1 to 4), some “Geographical Comparisons” (Chapters 5 to 7), “Effects of the Industry” (Chapters 9 to 10) and “The Future” (Chapters 11 and 12). Short summaries follow:

The Nature of the Industry

Chapter 1, Casey O’Donnell’s “This Is Not a Software Industry”, examines why understanding the video game industry and video game production simply as project “software”, from an industry, production or cultural perspective, neglects numerous important aspects of each. The chapter draws on significant and sustained ethnographic research amongst game developers. The chapter interrogates the historical foundations that likely led to such a classification and how those perspectives have changed as the game industry has matured. The work, industry and play of video games all point to the unique aspects of the video game industry and the importance of understanding the phenomenon on its own terms.

Chapter 2, Mikolaj Dymek’s “Video Games—A Subcultural Industry”, points out that many claim that the game industry and medium have already reinterpreted and reinvented itself from its hardcore subcultural roots into a truly mass-cultural “casual revolution” with “flexible games [that] make it possible for everyone to be a video game player”. According to its proponents, the explosive popularity of *social gaming* and *smartphone games* has vindicated the accuracy of its description. There are, however, a number of problematic assumptions behind this perspective, which in many cases contains the very same arguments as the conventional industry narrative of infinite expansion.

Chapter 3 is Peter Zackariasson and Timothy L. Wilson’s “The Marketing of Video Games”. In a previous paper we wrote that the approach to marketing video games has been made with an imagination hardly surpassing that of a used car dealer. That statement of course was an exaggeration, and in this chapter we attempt to position marketing within the framework of the video game industry. It is a complex and evolving relationship that extends from the ideation stage of game development through the final marketing to the consumer. Although rather prosaic to date, we are starting to see some of the creativity that initially went into game development now going into marketing. We sense that we are seeing the initial stages of marketing being adapted to the specific offerings of video games to specific segments.

Chapter 4 is Claudio Feijó’s “An Exploration of the Mobile Gaming Ecosystem from Developers’ Perspective”. Mobile games are a prime example of a successful mobile application and demonstrate the increasing range

of relevant platforms for the media and entertainment industries. Against this convergent background, the chapter introduces the basic features of the mobile gaming market and its industrial ecosystem together with its main players and activities. The focus of the chapter lies in the challenges ahead for the evolution of mobile into a potentially dominant game platform, the role of the different software platforms, and the opportunities for game developers in a new scenario dominated by smartphones, new portable devices, broadband ubiquity, increasingly mobile social networks and emerging context awareness.

Geographical Comparisons

Chapter 5 is Casey O'Donnell's "The North American Game Industry". The North American game industry produces a majority of the games that appear on the international marketplace. North America is home to several of the major publishing companies in the world, and it is for this reason that North America remains one of the largest producers of game titles throughout the world. In this chapter, Casey O'Donnell breaks down the structure of the North American game industry and its relationships with the broader global game industry. It begins by examining the historical roots of the game industry, leading to the different categories of game companies in the U.S. and Canada, ranging from manufacturers to publishers to studios to middleware companies. Game consoles are the foundation from which games grow. The manufacturer is the most visible brand for most games, especially at the retail level. Yet, it is the game studio where the heart of game development beats.

Chapter 6, Aphra Kerr's "The UK and Irish Game Industries", looks at the origins, present state and key policy issues facing the games industry in the UK, including Scotland, Wales, England, Northern Ireland and the Republic of Ireland (R. of Ireland)—home to memorable titles like *Grand Theft Auto*, *Tomb Raider*, *SingStar*, *Little Big Planet* and middleware technology by companies like Havok. This chapter explores the origins of the industry in the 1970s and 1980s, the impact of globalization in the late 1990s and the emergence of an industry discourse focused on international competition, upskilling and labour shortages over the last decade.

Chapter 7, Ulf Sandqvist's "The Development of the Swedish Game Industry: A Wonderful Success Story?", describes and discusses the history and development of the Swedish digital game industry, from the very first computer games in the 1950s until today. The focus is on the structure and formation of the Swedish game development industry predominantly from the 1980s to the present. Sweden has had a relatively large game developing community, but very few publishing companies, so the focus will be entirely on game developers. The material used in the chapter was collected mainly through annual reports of all game developing companies that have been active in Sweden.

Effects of the Industry

Chapter 8 is Mirko Ernkvist's "Console Hardware: The Development of Nintendo Wii". When Nintendo released its Nintendo Wii at the end of 2006, it represented a discontinuous break with several of the experience-based design heuristics of how a video game console should be designed in terms of technological performance, controller interface, game software and users. The technological functionality of Wii did not provide the leap in processing and graphic power that had characterized earlier video game console generation shifts. The Wii remote controller was a discontinuous shift with traditional complex controller interfaces. With its intuitive motion-sensing capability it enabled players to interact with the game through gesture recognition and pointing with the use of accelerometer and optical sensor. In terms of game software, Wii enabled a broadening of the definition of what traditionally had been considered video games and introducing new game genres. In term of users, the effort to expand the market to reach new user groups and lapsed players was the focus at the onset, despite that some of the company's most dedicated user base perceived it as an effort of the company to abandon focus and resources with its traditional core fan base.

Chapter 9, Toby Miller and Rick Maxwell's "Warm and Stuff: The Ecological Impact of Electronic Games", focuses on the materiality of games as objects and processes of physical, biological and environmental history. The authors reconsider games in the light of their ecological context, rewiring the historiography of innovations to indicate how games have deepened the world's environmental burden in the same way as middle-aged and elderly media have. Their analysis sidesteps norms and orthodoxies of the field in order to examine the contribution of games to environmental despoliation and philosophical and activist possibilities for game studies to change, via the prism of green citizenship.

Chapter 10 is Flavio Escribano's "Gamification as The Post-Modern Phalanstère: Is the Gamification Playing with Us or Are We Playing with Gamification?" The term *gamification* spread like wildfire after Jane McGonigal's lecture at TED in February 2010. The main postulate is that gamification could alter positively certain human behaviours through the transformation of their activities through the use of language elements of the games and, especially, the technology of video games. On the labour of human effort, we must do an overview of labour studies from the past and how it has evolved work-leisure-power-happiness relationships for critical and honest analysis about the benefits and interests underlying gamification. This chapter aims to analyse how this relationship has evolved during the twentieth and twenty-first centuries, identifying elements of the game which always have been present in other human disciplines and the three ways games and video games are taking new positions in our lives and how it affects our personal satisfaction.

The Future

Chapter 11 is Giuditta de Prato, Sven Lindmark and Jean-Paul Simon's "The Evolving Video Game Software Ecosystem". The video game industry, especially its software segment, is one of the more rapidly growing industries in the economy. At the same time, the industry is undergoing rapid and potentially disruptive changes, with revamping value networks and new types of firms entering. Already a sizeable industry, it clearly provides economic growth opportunities for companies and regions. Against this background, the purpose of this chapter is to overview and analyse the state and trends of the video game software industry, with an eye on the position of and opportunities for Europe. The chapter starts with a description of the structure and trends of the global video game market, followed by a review of its traditional value network, or ecosystem, highlighting the key positions held by console manufacturers and publishers. Then, recent trends and their implications for the video game ecosystem are analysed. The chapter concludes with implications from a European perspective.

Chapter 12, Peter Zackariasson and Timothy L. Wilson's "Through the Looking Glass Sharply", looks to the future of gaming. In so doing, we asked each of our contributors to present their views of things to come, and we attempt to put these contributions in perspective. That task, however, is not an easy one because the industry is moving so quickly. Our own thoughts are added to this list, and then we look at things from another angle, so this chapter additionally offers a conceptualization on the nature of games as a customer offering through classical media considerations. That is, in his seminal treatise on the media, Marshall McLuhan asserted, "The medium is the message." We have at hand new technology and a new medium—video games. To get some feeling of how gamers extend themselves, we turn to two classics, James Thurber's *Secret Life of Walter Mitty* and Neal Stephenson's *Snow Crash*, for some insight. There is an indication that life may indeed be imitating art. In other words, video games provide a significant advancement from a pre-existing situation in a manner analogous to the way Gutenberg's printing press changed lives through books. Literature has long presented possibilities in which one can be immersed. Through video games, and virtual worlds, this potential has been taken to new heights. According to McLuhan's treatise, they may be providing even greater advances in the way we adapt in the future.

NOTES

1. We appreciate that we are overlooking contributors. There are many interested in the field, and we apologize for any oversight.
2. This is what many game developers like to perceive themselves as, at least the younger male ones.

REFERENCES

- Beck, J. C. and Wade, M. (2004). *Got Game: How the Gamers Generation Is Reshaping Business Forever*. Boston, MA: Harvard Business School Press.
- Caves, Richard E. (2000). *Creative Industries: Contracts Between Art and Commerce*. Cambridge, MA: Harvard University Press.
- Chatfield, T. (2010). *Fun Inc.—Why Games Are the 21st Century’s Most Serious Business*. Virgin Books.
- Deuze, M. (2010). *Managing Media Work*. London: Sage publications.
- . (2007). *Media Work*. Boston: Polity Press.
- Donovan, T. (2010). *Replay: The History of Video Games*. Lewes: Yello Ant.
- Edery, D. and Mollick, E. (2009). *Changing the Game: How Video Games Are Transforming the Future of Business*. Upper Saddle River, NJ: FT Press.
- Halter, E. (2006). *From Sun Tzu to Xbox: War and Video Games*. New York: Thunder’s Mouth Press.
- Hesmondhalgh, D. (2007). *The Cultural Industries*. London: Sage.
- Herz, J. C. (1997). *Joystick Nation: How Videogames Ate Our Quarters, Won Our Hearts, and Rewired Our Minds*. Boston: Little, Brown and Company.
- Juul, J. (2005). *Half Real: Video Games between Real Rules and Fictional Worlds*. Cambridge, MA: The MIT Press.
- Kent, S. L. (2002). *The Ultimate History of Video Games*. Rocklin, CA: Prima Life.
- Kerr, A. (2006). *The Business and Culture of Digital Games: Gamework/Gameplay*. Thousand Oaks, CA: Sage Publications.
- King, B. and Borland, J. (2003). *Dungeon and Dreamers: The Rise of Computer Game Culture*. New York: McGraw-Hill/Osborne.
- Kline, S.; Dyer-Witheford, N. and de Peuter, G. (2003). *Digital Play: The Interaction of Technology, Culture and Marketing*. London: McGill-Queen’s University Press.
- Kushner, D. (2003). *Masters of Doom: How Two Guys Created an Empire and Transformed Pop Culture*. New York: Random House.
- McLuhan, M. (1964). *Understanding Media: The Extension of Man*. New York: New American Library.
- Meredith, Jack R. and Mantel Jr., Samuel J. (2000). *Project Management: A Managerial Approach*. Indianapolis, IN: John Wiley and Sons.
- Perron, B. and Wolf, J. P., eds. (2008). *The Video Game Theory Reader 1*. New York: Routledge.
- Poole, S. (2000). *Trigger Happy*. London: Forth Estate.
- Readman, J. and Grantham, A. (2006). “Shopping for Buyers of Product Development Expertise: How Video Games Developers Stay Ahead”. *European Management Journal* 24 (4): 256–269.
- Takahashi, D. (2002). *Opening the Xbox: Inside Microsoft’s Plan to Unleash an Entertainment Revolution*. Roseville, CA: Prima Publishing.
- Walfisz, M., Zackariasson, P. and Wilson, T. L. (2006). “Real-Time Strategy: Evolutionary Game Development”. *Business Horizons* 49 (6): 487–496.
- Wolf, J. P. and Perron, Bernard, eds. (2003). *The Video Game Theory Reader*. New York: Routledge.
- Zackariasson, P. (2003). “Cyborg Leadership: Including Nonhuman Actors in Leadership”. Licentiate thesis at Umeå School of Business, Umeå University.
- . (2007). “World Builders: A Study on the Development of a Massively Multiplayer Online Role-Playing Game”. Doctoral thesis at Umeå School of Business, Umeå University.

- Zackariasson, P., Styhre, A. and Wilson, T. L. (2006). "Phronesis and Creativity: Knowledge Work in Video Game Development". *Creativity and Innovation Management* 15 (4): 419–429.
- Zackariasson, P., Wählin, N. and Wilson, T. L. (2010). "Virtual Identities and Market Segmentation in Marketing in and through Massively Multiplayer Online Games (MMOGs)". *Services Marketing Quarterly* 31 (3): 275–295.
- Zackariasson, P., Walfisz, M. and Wilson, T. L. (2006). "Management of Creativity in Video Game Development: A Case Study". *Services Marketing Quarterly* 27 (4): 73–97.
- Zackariasson, P. and Wilson, T. L. (2004). "MMOG—A 21st Century Service". Presented at "Other Players—A Conference on Multiplayer Issues". December 6–8, IT University of Copenhagen. .
- . (2010). "Paradigm Shifts in the Video Game Industry". *Competitiveness Review* 20 (2): 139–151.

Part I

The Nature of the Industry

1 This is Not a Software Industry

Casey O'Donnell

This chapter examines why understanding the video game industry and video game production simply as “software,” from an industry, production or cultural perspective, neglects numerous important aspects of each. The chapter draws on significant and sustained ethnographic research amongst game developers. The chapter interrogates the historical foundations that likely led to such a classification and how those perspectives have changed as the game industry has matured. The work, industry and play of video games all point to the unique aspects of the video game industry and the importance of understanding the phenomenon on its own terms.

INTRODUCTION

Video games, or electronic games, are often referred to as software. Even the trade organization that represents the video game industry, the Electronic Software Association (ESA) named itself “entertainment software.” In part, this is a remnant of history. Indeed, most early games were written entirely by a single software engineer or as side projects of students of computer science (Kent 2001, 185–195). Early games were often programmed like any other software package and did not require significant collaboration between individuals to produce a game.

Modern game development, although still a practice rooted in software development practices and indeed “code,” cannot be understood simply as “software.” By simply visiting a video game development studio one can begin to understand that there are numerous differences between software and video games. This chapter examines the foundations of the assumption that video games are software and posits that continued understanding of video games as “just” software misrepresents both games and the process of game development.

The argument is made that game development is not “just” software development, video games are not just games and the video game industry is not the software industry. Attempting to collapse one into the other neglects a broader social, cultural, technological and political-economic

system within which the world of game development is rooted. Yet, time and again as a social analyst, the very question, “isn’t it ‘just’ software?” has been levelled at my work studying game development. Thus, in this chapter, I make the argument, “No, clearly it isn’t just software.” Game development is a creative collaborative process involving numerous disciplines rooted in a particular culture producing creative, artistic and culturally important works. Software is a part of this process and part of the very thing created, but it is not the sum of the parts. This is the video game industry.

The chapter draws upon ethnographic participant observation with “AAA” and independent game developers over more than seven years. The assertions draw on these observations to provide a description of the broader world that contextualizes the creative collaborative work of video game developers. My dissertation work was based on more than three years of ethnographic work with game studios in the U.S. and India (O'Donnell 2008). That work has been further expanded upon and developed into a full-length monograph (O'Donnell 2012). I continue to perform ethnographic work amongst educational game developers and independent and hobbyist game developers.

It is ironic that as I write this chapter I return to my early writing about the dissertation project I proposed in 2003. That project was focused more on the work and globalization of software production. Pilot research took me into the halls of Vicarious Visions, which was subsequently acquired by Activision. That provided new connections that led to other game studios, where my project morphed into attempting to better understand collaborative practice in the context of a global game industry. In less than nine months, I had reframed my entire research project precisely because of the numerous interesting and unique factors of the video game industry. At the time, Game Studies was an emerging field of inquiry in its own right, and I wondered what an empirical study of game development would offer more broadly. I now understand that game development work is poorly understood, both at a popular level and by many researchers unfamiliar with the field. My work aims to rectify these misunderstandings and misconceptions, while simultaneously helping developers understand their contextual position in the broader video game industry.

This chapter begins by examining the historical foundations of game development and how those early foundations of game development enable the misconception that video games are simply software. The second section of the chapter lays out how the process of game development and the interdisciplinary methods of the practice distinguish it clearly from software development practice. Third, the chapter examines differences between the structure of the video game industry and that of the software industry. The chapter then turns toward the audience and how video games intersect with broad social and political cultures in ways that further distance games from software. Finally, the chapter examines the implications of treating