The Market Game

developing video games, creating gamers

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WIP Paper

In this paper I explore the development of technology in order to play video games. The different technologies that has been developed since games were first introduced has enabled different ways to interact: video game – gamer. The market of games thus have a strong influence from how games are played, what kind of technology that are used for playing. This also have effect who play, and how. In general there has been a shift from games as a way to play with computers, to use games in tinkering with a technology that were new and fascinating. As the technology reached more spaces and access increased, games were separated from technological fascination.

Today we are witnessing a gaming industry that is on par with the Hollywood video game industry. Games are accessed from most digital platforms, and accessed from most places. There has also been a change in who are playing games, from a few to a large part of those that interact with technology.

In addition, one question that is interesting in this paper is how this study could be improved in order to become closer to the performance of a market. What kind of material is needed for this and how could this be communicated.

Keywords: video game, technology, market innovation, popular culture

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Introduction

Cultural industries are those that create, produce, distribute and facilitate consumption of cultural goods and services: music, theatre, dance, art, movie, literature, videogames etc. Although it is often treated as one industry, its different parts have distinct characteristics. Some of these are gathered under a nomination of "popular culture", as their production aims at large numbers of people, while others are defined as fine arts, on the assumption that they are offered to a few connoisseurs. What is common to all these different fields, however, is the production of symbols (Caves, 2000); cultural goods and services, aiming to represent aspects of our life and the world we live in. In a sense, they both reproduce societies as they are and they challenge what is taken for granted. What is also common to all the subfields of cultural industries is that it is hard to predict success or failure of any cultural good, or service. This results in a market that is central to contemporary societies, but also extremely volatile and unpredictable.

The cultural industries can be defined as acting on, and co-constructing a marketplace, where transactions between producers and consumer are enabled; a meeting place between those that create art and those that experience art. The construction of such a cultural marketplace could be compared to construction, and reproduction, of other marketplaces: financial, housing, labour, fish, potatoes etc. (see for example Callon, 1998;MacKenzie, 2009;MacKenzie et al., 2007). Parts of the cultural industries have been commercialised to form regular business ventures, with the aim of making profit, while others are dependent of governmental and private subsidies, as well as of various patronage relationships. Commercialisation as such are sometimes considered negative in these industries, partly because it is thought to transform true art to a commodity, and the market as a place where the beauty of arts and culture will be played down. It could be so, or not; the fact is, that marketplaces, where providers are able to meet consumers and perform transactions concerning cultural goods and services do exist.

The aim of this paper is to explore how one part of these industries, the video game industry, construct their consumers, through the configurations of technological

artefacts that are used to deliver the cultural product.Video games has been around since the middle of the 20th century. In the summer of 1961 an MIT student by the name of Steve 'Slug' Russell was tinkering with the campus computer. It was not a very complex computer by today's standards, but by the standard of that time it was highly complex, not to mention expensive. Steve was exploring the possibilities of that machine - more precisely, trying to demonstrate with an engaging and fun program the capabilities of this machine. And making a game was, in his eyes, the best way to go about it. This creative achievement would not only be the start of Steve's career, but also of an industry that, just as in this first game, thrives on creativity and tinkering with computers.

The impact the video game industry has had on popular culture on a global level is a case of both digital development and of a new techno savvy generation coming into age, a Generation G (Beck and Wade 2004), the gaming generation that grew up embodying digital technology and its outputs that reach into both work and leisure. Video games has have been sold internationally since the mid-1980s, from arcade play to handheld consoles to online subscriptions; from imaginary spheres to self-absorption to violent recruitment devices for the military. The overall market of US$30 billion grew 16 per cent annually between 2006 and 2009. The visibility of video games pervades all aspects of popular culture. As technology converge games find new ways to interact with us, the gamers, and taking advantage of digital evolution and techno savvy generations is at the heart of this global industry.

All digital games are dependent on technological artefacts in order for the consumer to interact with the game. At the start, when digital games were first developed, there were built on bulky computers at universities and state agencies – the only places that, at that time, could afford the technology needed. The users, consumers of games, were students and faculties at universities – those with access to the bulky computers, and employers that had access to the computers at state agencies. But the technology has since then changed, there have been numerous of technological innovations that has made faster, smaller, and cheaper technology possible. In making use of this technology, developers of video games have found a wide array of different platforms for consumers to interact with games on: arcade machines, handheld devices, home computers, portable devices, consoles and mobile phones. Each of these technological artefacts prescribe its usage by

a consumer. Therefore, with each new technological artefact used for playing games, consumers are also created – the gamer/game configuration is changed through the actors included in the interactions.

In reframing the history of video game development in an Actor-Network framework I have the possibility to contribute to the understanding of how markets are constructed, but also make an contribution to the understanding of the video game industry itself. Following previous studies on market construction and innovation it is important to add this market as it is assumed that the cultural markets follows a different logic then markets of traditional services and goods. It is my experience, from studying this industry more then ten years, that this marketplace presents some very interesting aspects of market innovation. It is comparatively a young market where the actors involved in the construction span from idealist artists to state of the art technology, and 'traditional' media actors trying to create an understanding of the video game market. Secondly, as the video game industry belong to what is known as the creative industries, it is assumed that creating video games is a creative endeavour. In this paper I will show that this indeed is creative process, but the creativity is to be found where most would not expect – in the construction of a marketplace, and not in the actual development of game content.

Background

Together with Timothy L. Wilson I have been studying the video game industry since 2001. We have engaged with both develops and publishers of games, as well as with consumers.We are not the only one interested in this industry that since the turn of the century are gaining more and more attention from academia – the industry (Deuze 2007, 2010; Kerr 2006; 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). At the time of writing this paper Timothy L. Wilson and I are also publishing an edited book on the industry (Zackariasson and Wilson, 2012).

At the same time as I have engaged in this industry I have also participated in an on-going series of seminar and activities in the research group Organizing in Action Nets – started by Barbara Czarniawska. The frame of understanding any field using STS is thus

an interest that I share with the rest of the participants in this track. My humble contribution at this point is a study on how the arts are made objects of risk and threat (Zackariasson, 2009). This paper is thus a possibility for me to make use of the knowledge I have from the video game industry, applying an STS frame of understanding in order to create an understanding on how consumers are defined through different technology.

The history of video games, and the development of these, has been the topic of a large number of books (Demaria and Wilson, 2004; Herz, 1997; Kent, 2001; King and Borland, 2003; Kline et al., 2003; Kushner, 2003; Poole, 2000). Throughout these books the history of this industry is carved out as part of culture, technology and efforts of the undertaking of passionate persons. When creating an understanding of market innovations in this paper I will use this literature as information on the industry. Conceptual framework of market innovation will be constructed from an Actor-Network perspective (Akrich 1992, Akrich and Latour 1992, Latour 1996, 1999, 2005) and studies on markets building on this perspective (Araujo 2010, Callon 1998, MacKenzie 2009, MacKenzie et al. 2007).

In studying photos of game technology from different time periods I will present the changed physical setting where a consumer (called gamer in game studies and lay man terminology) interacts with a game (cf. Cochoy, 2010). The material I will use in mapping out the different technologies that have been employed for gaming, and how these have been presented to consumers, are mainly advertising. It is my understanding that the contribution of STS studies, ANT and action nets, are placed in bringing science back to 'reality' (although, something it was never separated from in the first place) (Latour, 1999).

Developing games

Video games consisting of ones and zeroes and are very susceptible to technological innovations. This makes the game market very volatile, constant presenting new possibilities as new technology are enrolled: how games are produces, distributed and consumed. From early 1970s until today developers and publishers of video games have showed an extraordinary capacity to use technology to innovate a market of games: coin operated machines – gaming consoles – home computers – handheld devices – online

technology – mobile technology – micro payment. The core gaming idea seems to be preserved: there are no major differences between gaming concepts between a game from 1970 and 2011, the difference if how this has been packaged and communicated to gamers.

The introduction of video games are today beginning to become a rather distant moment in our history. Although it is, amongst historians and passionate patronages of video games, not agreed on exactly when this development began, it is quite safe to say that the prerequisite for any of these games to exist at all were computers with enough processing speed and a graphical interface to allow for a game. This puts us somewhere in the vicinity of 1950-1970 when bulky mini-computers made their entrance onto university campuses and state facilities. Therefore, no matter the exact point of introduction, it is rather astonishing that something that started 50-60 years ago today has developed into an industry on par with the Hollywood film industry and building a market that involves a major part of us – young and old.

Minicomputers

Although there had been other, earlier, possibilities to play games,such as the game *Tennis for two*, developed by Willy Higinbotham in the 1950s. The video game that introduced the media to a broader audience was *Spacewar!*, a two-player game constructed in 1962 by the MIT student Steve Russell and his friends. The task given to the students was to find a way to demonstrate the capabilities of the, at that time, brand new PDP-1 computer at MIT. And for these young men, a video game seemed to be the answer. *Spacewar!* was played by two persons on a circular screen, each of the player controlled a spaceship that orbited around a moon placed in the middle of the screen (see photo 1). The goal of the game war to shoot down the opponents spaceship, using missiles – without crashing into each other, or into the moon.

Photo 1: Martin Graetz, Steve Russell, and Wayne Witaenem in front of the video game spacewar! as played on the PDP-1 computer at MIT in 1962. (source: http://www.spacegamejunkie.com/255/spacewar-the-oldest-of-old-school-space-games)

Although this game never had any commercial breakthrough, in that early version, it was still played by thousand of students on computer throughout the US campuses. In an interview with Kent (2002) Steve Russell said about building a business on *Spacewar!* at that time 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". Instead they made the game available for free to anyone that wanted to copy it into their computer.

The result of Steve's tinkering was the video game Spacewar. This game is credited as the first 'real' video game (Demaria and Wilson 2004, Kent 2001). Despite its crude setup, consisting of two spaceships duelling on a round monitor, it quickly achieved immense popularity. It is said that the game was copied onto most university computers in the USA at that time. The impact of this game grew as more, and more, people saw it, and played it. Nolan Bushnell, for example, was an avid gamer of Spacewar, he would later establish the Atari Company. This was one of the first large company developing video games, and it was highly successful in the early days of the video game industry.

As seen in photo 1, the technology that enabled gamers to interact with the game were both stationary and had restricted access to those who studied, or worked, at a university; or those working in an governmental agency. Playing video games thus became part of tinkering with computers, of taking a break from university work or tedious work. Building and playing video games are framed as a way to play with the computer, what it can do. The fascination is thus in the performance of technology.

Arcade machines

In the 1970s anew innovationthatmade it possiblefor people to interact with video game outside of the former secluded areas was introduced, through the construction of arcade machines: coin operated bulky wooden boxes with a TV-screen and hard-wired setup for one game only.Playing games were transported from universities and state agencies, that could afford the computers, to bars and game parlours (see photo 2 and 3 below). The persons playing video games changed, from university students and faculty to kids looking for a good time with a few dimes in their pockets and visitors in pubs. Because of the lower price of the technology used, compared to minicomputers, games are spread to bigger audience as access increased.

Game parlours at this time are turned into spaces where young men spend their leisure time: interacting with each other and spending their money on gaming. The games are still hard wired, meaning that there are a limited selection of games available. But, with the introduction of games to spaces outside of the previous sheltered, and 'technological safe' environment game technology are packaged in wooden boxes with robust interfaces that can sustain the frustration of defeat – turned into physical outbursts.

Photo 2& 3: Photos from the exhibition 'More then a craze: photographs of New Zealand's early digital game scene'. (Source: http://www.maharagallery.org.nz/MoreThanACraze/exhibition.php)

When enabling games to be played at public spaces the consumer were transformed from staff and students at universities, and employees at state agencies, to younger men gathering at gaming parlours or in bars. In some sense the closeness to technology, its inner workings, also disappeared. The fascination of games were still there, but now only as a medium to enjoy, not to tinker with.

Today the traditional gaming parlours have all but disappeared. There are still some machines available, but they have long since lost their place as preferred technology when playing video games.

Home entertainment

In the middle of the 1970s the Fairchild Video Entertainment System (VES) were launched (see photo 4). This was one of the first gaming consoles that enabled games to be played in the home by connecting it to a TV set. The consoles meant a move from

Photo 4:Advertising for Fairchild Video Entertainment System (VES) launched in 1976. (Source: http://www.pong-picture-page.de).

video games from public areas to private – from gaming parlour to the living room.The gaming consoles at this time were still hard wired, meaning that games were created in analogue circuits. In order to load different games the gamer loaded a new cartridges into the gaming console. Around this time there were also sold gaming consoles for one game only, like the very popular Pong. Just as the VES these were hard wired games, but without the possibility to use cartridges.

As photo 4 show, moving game technology into the home, most times meaning the living room, meant the possibility to attract persons then previously were shunned by dodgy gaming parlours or bars. The gamer were now pictured to be the whole family, from the young to the old. Being inside the home there were also the idea that it could be included in family activities, just like watching TV. Although the effect the introduction of gaming consoles had in homes were that the gaming technology instead competed with watching programs on the TV. The dependence of availability to the TV instead resulted in conflict between younger persons, who still remained the main gamer, and adults. But, it also had the effect that it created the need for buying another TV.

The consumer that were created with the gaming console were in large the same as with the arcade games. Still video games were understood as a medium for kids, but the easy access now meant that games could be played at home. Once the technology were purchased this also meant a constant access, unlike the coin-operated machines.

Mobile technology

In early 1980s the game technology Game & Watch were introduced. This gaming technology enabled gaming to be portable. Instead of playing games in hour home, in front of the TV, it was now possible to bring the technology with you and play whenever – wherever. Because of the technological limitation these games were still hard wired. Playing a different games meant buying another game device.

Photo 3: Game & Watch developed by Nintendo from the early 1980s and onward. (Source: www. kotaku.com).

The home computer that's ready to work, play and grow with you.

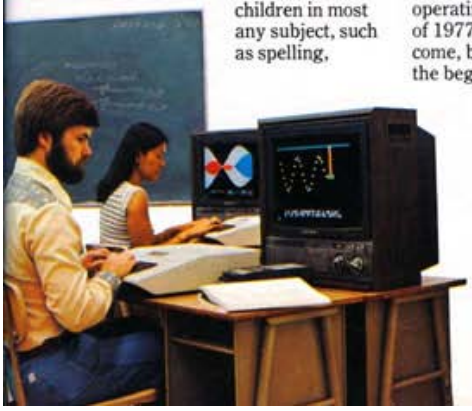
Clear the kitchen table. Bring in the color T.V. Plug in your new Apple II,* and connect any standard cassette recorder/player. Now you're ready for an evening of discovery in the new world of personal computers.

Only Apple II makes it that easy. It's a complete, ready to use computer—not a kit. At $1298, it includes features you won't find on other personal computers costing twice as much.

Features such as video graphics in 15 colors. And a built-in memory capacity of 8K bytes ROM and 4K bytes RAM—with room for lots more. But you don't even need to know a RAM from a ROM to use and enjoy Apple II. It's the first personal computer with a fast version of BASIC—the English-like programming language—permanently built in. That means you can begin running your Apple II the first evening, entering your own instructions and watching them work, even if you've had no previous computer experience.

The familiar typewriter-style keyboard makes communication easy. And your programs and data can be stored on (and retrieved from) audio cassettes, using the built-in cassette interface, so you can swap with other Apple II users. This and other peripherals—optional equipment on most personal computers, at hundreds of dollars extra cost—are *built into* Apple II. And it's designed to keep up with changing technology, to expand easily whenever you need it to.

As an educational tool, Apple II is a sound investment. You can program it to tutor your children in most any subject, such as spelling, history or math. But the biggest benefit—no matter *how* you use Apple II—is that you and your family increase your familiarity with the computer itself. The more you experiment with it, the more you discover about its potential.



Start by playing PONG. Then invent your own games using the input keyboard, game paddles and built-in speaker. As you experiment you'll acquire new programming skills which will open up new ways to use your Apple II. You'll learn to "paint" dazzling color displays using the unique color graphics commands in Apple BASIC, and write programs to create beautiful kaleidoscopic designs.

As you master Apple BASIC, you'll be able to organize, index and store data on household finances, income tax, recipes, and record collections. You can learn to chart your biorhythms, balance your checking account, even control your home environment. Apple II will go as far as your imagination can take it.

Best of all, Apple II is designed to grow with you. As your skill and experience with computing increase, you may want to add new Apple peripherals. For example, a refined, more sophisticated BASIC language is being developed for advanced scientific and mathematical applications. And in addition to the built-in audio, video and game interfaces, there's room for eight plug-in options such as a prototyping board for experimenting with interfaces to other equipment; a serial board for connecting teletype, printer and other terminals; a parallel interface for communicating with a printer or another computer; an EPROM board for storing programs permanently; and a modem board communications interface. A floppy disk interface with software and complete operating systems will be available at the end of 1977. And there are many more options to come, because Apple II was designed from the beginning to accommodate increased power and capability as your requirements change.

If you'd like to see for yourself how easy it is to use and enjoy Apple II, visit your local dealer for a demonstration and a copy of our detailed brochure. Or write Apple Computer Inc., 20863 Stevens Creek Blvd., Cupertino, California 95014.

Apple II™ is a completely self-contained computer system with BASIC in ROM, color graphics, ASCII keyboard, lightweight, efficient switching power supply and molded case. It is supplied with BASIC in ROM, up to 48K bytes of RAM, and with cassette tape, video and game I/O interfaces built-in. Also included are two game paddles and a demonstration cassette.

SPECIFICATIONS

- **Microprocessor:** 6502 (1 MHz).
- **Video Display:** Memory mapped, 5 modes—all Software-selectable:
  - Text—40 characters/line, 24 lines upper case.
  - Color graphics—40h x 48v, 15 colors
  - High-resolution graphics—280h x 192v; black, white, violet, green (16K RAM minimum required)
  - Both graphics modes can be selected to include 4 lines of text at the bottom of the display area.
  - Completely transparent memory access. All color generation done digitally.
- **Memory:** up to 48K bytes on-board RAM (4K supplied)
  - Uses either 4K or new 16K dynamic memory chips
  - Up to 12K ROM (8K supplied)
- **Software**
  - Fast extended Integer BASIC in ROM with color graphics commands
  - Extensive monitor in ROM
- **I/O**
  - 1500 bps cassette interface
  - 8-slot motherboard
  - Apple game I/O connector
  - ASCII keyboard port
  - Speaker
  - Composite video output

Apple II is also available in board-only form for the do-it-yourself hobbyist. Has all of the features of the Apple II system, but does not include case, keyboard, power supply or game paddles. $598.

PONG is a trademark of Atari Inc.

*Apple II plugs into any standard TV using an inexpensive modulator (not supplied).

apple computer inc.™

Photo4: Advertise for Apple II (Source: http://www.macmothership.com/gallery/gallery1.html).

The personal computer

The computer enters the homes (photo 6). For this device it is now possible to load different programs.

The mobile phone

The mobile phone (photo 7)

Photo 7: Apples mobile phoneiPhone.

Discussion

Throughout the description of the different gaming technologies it is quite evident that these have enabled different possibilities for playing and different opportunities for interacting with games. When games were first introduced they were only possible for those that had access to these limited areas, and the computers in these areas. Gaming were an activity that became part of an tinkering with computers, of learning this technology and its workings.

As technology became cheaper there were possibilities of building technology that enables other types of interaction. From public spaces to private spaces. As these changes took place the closeness to computers were somewhat lost, as gaming became an end in itself.

Coming to a close on this paper there is one question that needs to be asked: How is it possible to construct this type of study and make it closer to the usage of technology when playing video games? At this point this text need to be closer to the empirical material, the question is how this could be accomplished.

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