BEELD EN GELUID

GAME CHANGERS

The emergence and development of the Dutch game industry ecosystem (1990s-2000s)

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Introduction

Over the past four decades, games have become a medium of growing significance and cultural value. More recently, the physical and digital objects and practices of the game industry have been considered a form of media heritage with historical value in the Netherlands. Digital games[1] pose difficulties for cultural and heritage institutions due to the complexity of industries structure and their broader relationship to processes of social change (Kerr 2015; Nieborg and de Kloet 2016). Efforts to characterize games as a new form of media necessarily examine the game industry itself as the structure which enables the production of games. Using an approach to digital games as objects produced within a wider political-economic context, the report addresses gaps in the history of the Dutch game industry, focusing on its evolution from a group of independent companies into a business ecosystem of semi-coordinated actors.

In the Netherlands, the games industry is a unique case study due to its niche nature within a global sector traditionally dominated by a few large console manufactures. Today, the vast majority of the Dutch game industry is comprised of game developers, compared the relative insignificance of firms active in publication and distribution. In 2015, the last year in which numbers on the Dutch game industry were collected, the production and publication of games was estimated to have produced a revenue of 115-145 million euros (Game Monitor 2015). By contrast, the production of short and feature films in the Netherlands produced 136.9 million euros in revenue in 2015 (Nederlandse Filmfonds 2016).[2] In the absence of intermediaries with access to consumer markets, Dutch game developers have resorted to innovative survival strategies. The strategies used by Dutch game companies, and the interactions with the broader institutional context of the Netherlands, are the subject of this report.

[1] This report uses the phrases 'game' and 'games' to encompass media objects variously referred to as 'computer games', 'video games' and 'interactive games'. Debate over terminology for the industry at the 2003 Digital Games Research Association (DiGRA) resulted in a consensus on the phrase 'digital games' to delineate the game industry from the analog toy and board game industry which preceded it (Kerr 2009). Rather than follow this intellectual tradition, this report draws upon colloquial use of simply 'games' to refer to games produced by and for digital contexts.

[2] Note that data collection methods between these two industries vary. Revenues of the game industry are estimated in the game industry based on employment in these sectors while no method is referenced in the Filmfonds report.

The Dutch game industry in numbers

Value chain	Turnover 2015 (mln euros)	Jobs 2015	Companies 2015	Jobs per company	Jobs growth [1] 2011-2015	Company growth [1] 2011-2015
Game Producer	115 - 145 [2]	1865	352	5.3	410	107
Game producer / publisher	-	320	19	16.8	-80	8
Publisher	15 - 25	275	23	11.9	25	0
Distributor	10 - 20	185	11	16.8	30	0
Technology suppliers	10 - 20	230	10	23.0	-115	0
Service provider	5 - 15	155	40	3.9	25	19
NL Games industry	**155 - 225**	**3030**	**455**	**6.7**	**300**	**134**

Chart 1: Types of companies and revenues in the Dutch game industry 2015
source: Games Monitor 2016. Data was analyzed by the TNO/NED Observatory, based on information collected by CONTROL/Dutch Game Garden/LISA/CBS.
https://www.dutchgamegarden.nl/project/games-monitor/

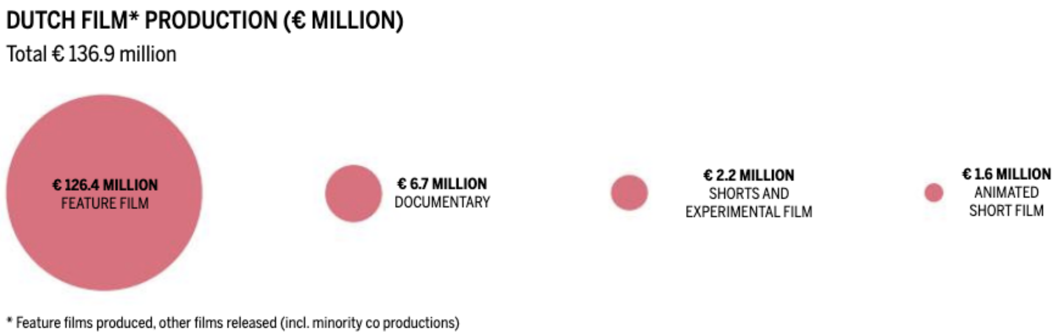


Chart 2: Dutch film production revenues 2015
source: Nederlandse Filmfond 2015. https://www.filmfonds.nl/media/inline/2016/5/11/film_facts_and_figures_2015_spread.pdf

Purpose

Despite the size and cultural significance of the Dutch game industry, limited historical research has been conducted on the emergence and development of the Dutch industry over time. Given the pressing agenda which games present for the cultural history of the Netherlands, the report presents original research into the emergence of the game ecosystem in the late 1990s and early 2000s, as a wider group of educators, institutions, and policy-makers developed interests in and around early Dutch game companies. This report presents original research, based on current academic literature and a wide range of historical sources, into the strategies used by Dutch game studios in the 1990s and early 2000s. Based on prior work by the Netherlands Institute for Sound and Vision, the report seeks to contextualize the collection of Dutch Games through the institutional context surrounding the game industry at the turn of the century (Geerts 2015; Nederlandse Games Canon 2018). By tracing the institutional response to the game industry, the research highlights the long-term impact of games and gaming on the cultural heritage of the Netherlands.

Research questions

The main question posed by the report is 'how did the series of actors composing the Dutch game industry ecosystem arise at the turn of the 20th century and what has its impact been on the strategies of Dutch game developers?'. To answer this central question, four additional sub-questions outline the content of the report.

- How has the Dutch game industry ecosystem been characterized by academic literature so far?

The literature review section of the report covers relevant theory on games as a cultural industry: its structure and the global and local factors which influence the creation of games. The local factors which have shaped the game industry in the Netherlands are highlighted and the theoretical framework of the Dutch game ecosystem introduced. Although divisions and definitions in the game industry are far from concrete, existing literature on the history of the Dutch game industry is used to identify three distinct narratives, and thus segments, of the Dutch game industry — that of high budget entertainment games (or Triple A games), indie and mobile games, and serious games.

- What was the context for the first institutional responses to the Dutch gaming industry? What can the case of the pioneering Dutch game company Davilex demonstrate about the strategies used by these early companies?

The much-publicized history of Davilex as a quintessentially Dutch game company is overviewed to demonstrate the relevant actors within the Dutch game industry ecosystem at the time. The case study covers the company's origins, its interactions with elements of the Dutch game industry ecosystem and the national and international networks which were constructed as a result. The story of Davilex focuses on the strategies used by a firm which predated policy, educational programs and the support institutions.

- What strategies were implemented by Dutch game companies in the late 1990s and 2000s? To what degree were these strategies determined by the Dutch game industry ecosystem, and how did strategies differ across segments of the Dutch game industry?

At the turn of the century, case studies of PC and console game firms, indie and mobile companies, and serious game companies then cover the various strategies of Dutch game companies following Davilex. Again, company origins, interactions with the ecosystem and the resulting national and international scope of each firm is assessed. Case studies are divided into industrial segments in order to compare and contrast the various types of developers, and the relative impact of institutions between them.

- How were the strategies of Dutch game firms shaped by the Dutch game industry ecosystem? What is the long-term impact of the development of a Dutch game industry ecosystem?

The final section of the report draws upon the strategies used by Dutch game companies across industry segments to generalize the impact and development of the Dutch game industry ecosystem at the time. Differences and similarities between segments of the industry are reviewed and used to assess the validity of these analytical categories. The final section of the report finally addresses the long-term impact of institutional development on the game industry ecosystem.

Methodology

The contents of the report represent a comprehensive review of existing primary and secondary literature on the Dutch game industry, supplemented by interviews of game companies and relevant organizations within the game industry ecosystem. For background information on the Dutch game industry, a literature review was first conducted with the keyword search terms relating to the Dutch game industry in both English and Dutch on relevant scholarly platforms. The research then supplements sources citations from existing literature on the emergence of the Dutch game industry ecosystem to reference consumer magazines, media coverage and policy documents relating to the game industry in the late 1990s and early 2000s. Information collected on the Dutch game industry is then combined with literature on the world-wide game industry to construct a history of the Dutch game industry.

The body of the report presents six case studies of Dutch game firms which were in operation from the late 1990s to the early 2000s. The case study method provides a means to characterize the relationships between gaming firms and the wider ecosystem. Semi-structured interviews with founding members of the studios are conducted with questions relating to the role which the larger Dutch game industry ecosystem played in the types of games the firm was able to produce.

The case studies are selected to reflect three different segments of the Dutch game industry: high-budget entertainment games, and indie and mobile games, and serious games. The elements of the ecosystem which are examined are educational programming, networks and industry level events and conferences, policy and institutional support, the role of the consumer and retail market, and the general economic structure of the game industry at the time. Selection processes for segments of the industry and ecosystem literature are detailed in the background section of the report.

Background

Existing scholarship on the game industry focuses on its global nature and the role of multinational conglomerates. Like other media industries, the game industry is characterized by a few multinational intermediaries which act on a global scale to dominate the market. According to industry reports, the top five game companies by revenue held 30% of game industry market share in 2016 (De Prato 2017). Although this is a smaller share than top record and film production companies, this trend has grown since 2015, with four of the five largest companies holding interests outside of the game market and significant and growing interest in digital distribution (Kerr 2016: 50). Large game companies have been traditionally located in the United States and Japan, with the exception of the French company Ubisoft, and the current largest game company in the world by revenue, Tencent in China. The structure of the game industry determines the market possibilities for the production of games and thus largely determines the types of games which are made (Caves 2000). The production of games is in particular subject to the whims of multinational media conglomerates due to the absence of public support as compared to other media industries.

Theoretical overview: digital game history, a global industry?

Despite the significance of international players in the game industry, the more recent academic focus on the impact of local conditions for the game industry presents the first steps toward conceptualizing a Dutch game industry. Localization literature on the game industry, and on cultural industries in general, is however far from comprehensive. Scholars identify a number of factors, from networks, to infrastructure and policy which affect the functioning of an industry at the local level. The ecosystems approach, outlined in the theoretical overview, considers the actions of various actors and their consequences at both an international and local level.

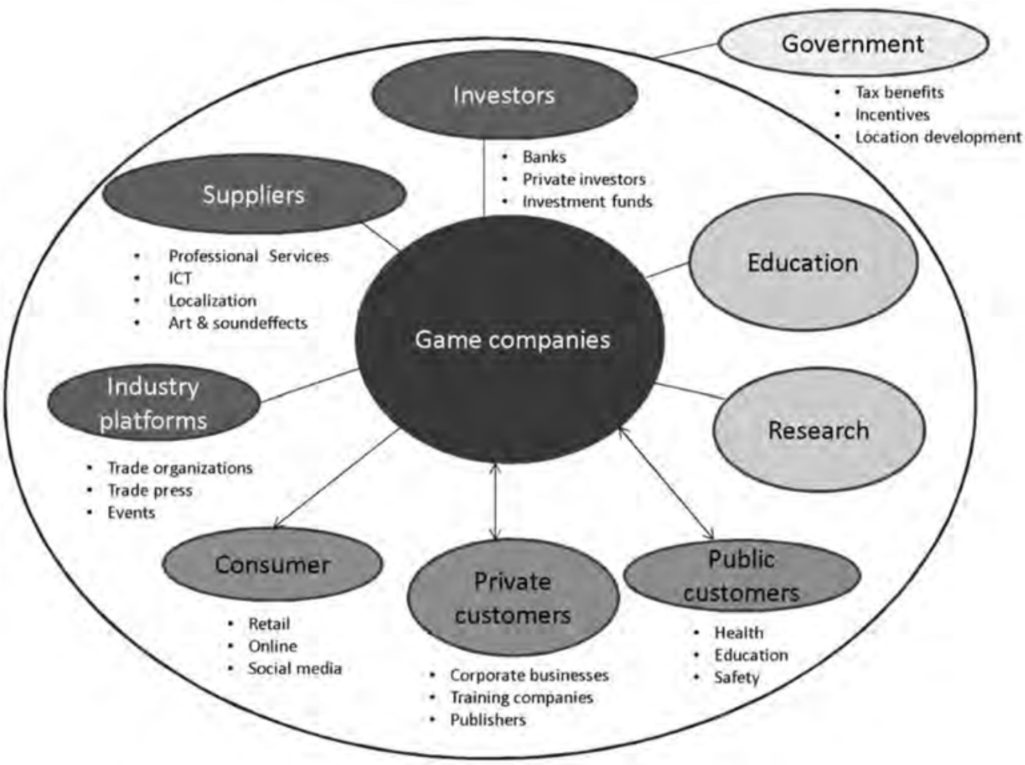
David Nieborg and Jeroen de Kloet's political-economic approach to characterizing the development of the Dutch game industry focuses on the successes, and failures, of public funding and state intervention for the game industry. The ecosystem approach goes beyond the political economic approach by characterizing a wider set of actors, such as international media conglomerates, industry organizations, and industry events such as conferences.

Business ecosystems: contextualizing national and local industries

There are a number of disciplinary approaches to the study of digital games from media theory to political economy. Though necessarily interdisciplinary, the following report draws upon a business ecosystems approach to describe the possibilities within the Dutch game industry open to game developers over the past four decades. An industry approach identifies the bottom-line for the success of a game, a company and ultimately an industry: the ability to finance the production of a game and sufficient commercial success to finance or commission the next project.

Literature on business systems has recently taken up the terminology of 'ecosystem' to reflect a variety of actors which allow an industry to flourish. Business ecosystem literature, by contrast to cluster and innovation district literature, is better adapted to open innovation systems and short lifecycles of technology-based industries (Moore 2006; DeLong 2012). The ecosystem approach allows business theorists to view the creation of an industry as the result of strategies taken by a set of independent actors. James Moore, originator of the term 'business ecosystem', defines the ecosystem as "a network of interdependent niches that in turn are occupied by organizations" (Moore 2006: 34).

Business ecosystem literature identifies the following general elements which affect the ability of a firm to thrive: the economic structure of the industry, human capital networks, industry organizations, lobbies and incubators, educational programs supporting the industry and policy contexts and innovation funding. Authors writing on the Dutch game business ecosystem additionally identify the consumer market and promotional media as two additional factors which affect the success of game companies (Raessens and Van Grinsvens 2012; Nieborg and De Kloet 2016). Additional elements outlined in literature on the Dutch game industry specifically differentiate between educational programming for the game industry and research conducted on games. The availability and role of investment is also highlighted by these authors, along with the presence of other digital industry in the form of suppliers. In order to analyze the impact of these different factors, selected game companies were interviewed with respect to these elements of the game industry ecosystem and their impact on the functioning of the firm from its foundation to the end of the 2000s.



Source: Raessens, Joost and Christel van Grinsven. 2012. "The Netherlands" in Video Games around the World, eds. Wolf, Mark.

Using this framework, the following actors within the Dutch game industry ecosystem are relevant for the scope of the research:

- Industry platforms and organizations – the Dutch Game Garden, the Dutch Game Association
- Government – Gamefonds, Mediafunds, Top Sector Policy[3]
- Universities, schools of the applied arts, and educational programs for the game industry – The Hogeschool voor de Kunsten Utrecht, NHTV in Breda, the University of Utrecht, and the many programs for the game industry which have proliferated since the late 1990s
- Research – The availability of partnerships with universities and research institutes
- Investors and the availability of private funding
- Public and Private customers – The availability of public and private projects
- Consumer promotional media & retail market – Consumer industry publications, references in news media, distributional outlets in local retail

[3] For a full discussion of policy and funding mechanisms affecting the game industry, see David Nieborg and Jereon de Kloet's political-economic history of the Dutch game industry (2013).

A brief history of the Dutch game industry

The origins of the Dutch game industry date back to the demoscene, a transnational network of hackers and gamers. There has been a recent proliferation of literature on the demoscene as a transnational European phenomenon (Polgar 2008; Reunan 2014; Geerts 2015). However, the notion of a unified Dutch game industry is contested by those who cite various segments of the industry with different origins, and differences between industries in various parts of the Netherlands. In their comprehensive and in-depth study of the Dutch game industry, Nieborg and De Kloet trace three different historical trajectories (2014): triple A games, indie and mobile games, and serious games. The following report uses these categories to analyze six different cases of game studios in the Netherlands.

Furthermore, firm case studies are divided into three segments of the game industry, based on the three 'historical narratives' of the Dutch game industry identified in the work of Nieborg and de Kloet (2016): triple A entertainment games, serious games, mobile and indie games. Although the division of the game industry into different segments, and changes in categories over time, has not found consensus among scholars, Nieborg and De Kloet's three narratives are used as analytical categories for the case studies included in this report. The validity of these divisions, and questions of their continued relevance, are addressed in the concluding section of the report.

Case studies

Davilex Games: the Dutch game industry of the 1990s

The origins of Davilex: from software for the stock market to Dutch games

Founded in 1986 by David Brons and Lex von Oorspronk, Davilex Games is a frequently cited example of an influential developer in the Dutch game industry. Davilex first developed software and later games for the Dutch domestic market. The local success of these games spawned the company's later internationalization. In terms of the Dutch game industry ecosystem, the story of Davilex demonstrates effects of the absence of key actors in the Dutch game industry ecosystem, including educational programs, policy and industry organizations in the 1990s.

Relevant actors within the Dutch game industry ecosystem

Davilex's founders met at the Hogeschool en Arnhem en Nijmegen (HAN). Although software and game development were not a focus of their study, the Dutch education system did provide David and Lex the first platform for software creation. In its early days, Davilex had already partnered with computer and technology stores in the Netherlands in order to sell its products. Through connections made through early Dutch software developers and publishers, Rudolf Wolterbeek Muller's game RedCat was picked up by the company as an educational game in 1994, later developing into an entertainment division (Mons and Johan 2018). These early connections signal the importance of existing networks of developers and broader connections between the early game and software industries.

Upon diversifying into games and entertainment, Davilex immediately faced a shortage of talent for the game industry. Competition between other game studios, namely Lost Boys Entertainment, for new talent and games produced in the Netherlands was fierce. To compensate for the absence of access to distributors and mechanisms for cooperation, Davilex's business strategy of content localization, pricing and breaking into new markets played a necessary role in the company's survival.

(Inter)national scope: the quest for publishers and distributors

From the very beginning, Davilex marketed itself as 'Dutch' software, relying upon local newspaper advertisements and low prices to reach customers (Mons and Johan 2018). David, as the company's business strategist, experimented with pricing points and how to sell the highest number of units in the Netherlands. Davilex captured the mass market segment, selling more units of software at a lower price than other developers. In order to capture the Dutch mass market, Dutch landmarks were used, such as the A2 highway as the subject of A2 Racer in 1997 and the city of Amsterdam in Amsterdoom.

After the success of the A2 Racer, and the company's subsequent expansion into international game distribution and development, decisions were made regarding partnerships with international distributors and the creation of international offices. The Game Developers Conference (GDC) in San Jose and the European Computer Trade Show (ECTS) in London, both established in 1988, were listed by the company as significant activities for international expansion. Offices in Germany and Poland were established for the purpose of localizing games for new markets. Former manager of Davilex's entertainment department shared the difficulty which Davilex faced in finding German distributors, which lead them to convince Koch Media to begin distributing games. Koch Media is now a significant player in the game distribution field (Koch Media 2019). The interaction between Davilex and Koch media demonstrates the ad-hoc nature of game industry networking and the often by-chance nature of deals which seal the fates of these companies.

Davilex closes the doors of its game department

After the unsuccessful release of a Miami Vice game, and later Knight Rider 2, the company experienced financial decline before closing its game division in 2005. The software division was acquired in 2017 by Norwegian software powerhouse Visma (Verbeek 2017).

High-budget entertainment games: Triumph Studios

The origins of Triumph studios: local and international networking through the demoscene

In the case of Triumph Studios, access to international networks early in the company's existence paved the way for the success of the company's later games. Development of the studio's first game began in 1994, marking a three-year gap between the start of development and the founding and release of the first game. In the interim, the founders of the company interned with Epic Games, then EpicMega Games, an influential American game company, where game development strategies and relationships with publishers were made.

Relevant actors within the Dutch game industry ecosystem

Indicating the importance of networks created during higher education, the founders of Triumph Studios met one another during their studies at the Hague University of Applied Science. Their shared experiences in the demoscene, then working with Epic Games, prepared them to release Age of Wonders to critical success in 1997.

"In the 90s, there was really nothing here in the Netherlands. There were no engines we could license. No books we could borrow. We had to speak to one another." – Lennart Sas

Since the founding of Triumph Studios, the term professionalization was used to describe the transformation in the Dutch game industry in reference to the educational programs and talent which are now available in the Netherlands. Co-founder Lennart Sas specifically points to the mid-2000s as a critical moment in the Netherlands for the game industry, as a moment at which the many organizations which have developed in support of the game industry, such as the Dutch Games Association, the Dutch Game Garden, Control Magazine, came into existence. These organizations served as representatives and lobbyists for the Dutch game industry, both for the national and local governments, as well as for international multinationals.

(Inter)national scope: the quest for publishers and distributors

Triumph Studios' relationship with Epic Games, briefly mentioned above, was made through Dutch game industry veteran Arjan Brussee. Triumph Studios founders had met Brussee through the demoscene. The role of local networks in forging international networks suggests that relationships and collaboration within the Dutch game industry are often driven by access to international players. In interview, Triumph Studios references technological change, specifically the crash of the CD-ROM market in 1999, as the grounds for shifting to first-person games for X-box and PlayStation. Strategy around the publication platform for a game played hugely affects the marketability and success of a game. The continued importance of international publishers for the success of Triumph Studios is reflected by their acquisition by Swedish multinational Paradox Interactive in 2017.

Indie and mobile games: Codeglue and Two Tribes

From project to project

Despite connections and partnerships between game studios Codeglue and Two Tribes, the divergent stories of these two studios are indicative of precarity experienced by developers in the Dutch game industry. Both Codeglue and Two Tribes had published a slew of games over the 2000s, a few of which met with critical success. Difficulties in sustaining relationships with publishers determined the continued successes and failures of these firms over the long-term.

Relevant actors within the Dutch game industry ecosystem

In terms of industry organizations, the two companies express different relationships to the larger network of game studios. In interview, Codeglue co-founder mentioned the importance of industry organizations in attracting international publishers. Martijn Reuvers, co-founder of Two Tribes in contrast cited the feeling of being left out by game related organizations. Although the companies were both able to apply for public funding for their games, both felt that these funds were only temporary solutions to larger problems of finance and support for game companies in in the Netherlands.

(Inter)national scope: the quest for publishers and distributors

From the start, Codeglue founders had experience working with the then CD-i console manufacturer Philips. Both founders were programmers for the Dutch Interactive Media Associates (DIMA), a subsidiary of Philips which produced games for the Philips CD-i. Two Tribes, in contrast, developed its first game through the unlicensed and informal purchase cracked Nintendo cartridges. This game developer attracted the attention of the American division of the Japanese company, Capcom, with its game Toki Tori.

From these beginnings, both game studios work from project to project, often with different publishers. Changes in the types of platforms for which the companies produced games resulted in some difficulties in growing as game companies. The two companies worked together on the Worms World II project, which would later result in publication deals for Codeglue in the

United States. Like the case of Triumph Studios, collaboration between Codeglue and Two Tribes lead to future deals for at least one of the studios.

Success and failures: continued precarity for small and medium-sized developers

Two Tribes ran over budget with the production of its last game, Rive, which forced the company to close its doors in 2016 (Eurogamer 2016). Their story demonstrates the financial pressure which game companies experience from the industry itself to continually produce hits.

"What the Dutch game industry has forgotten, is that even established game companies can fail too. Just because we had released a successful game, does not mean that we are immune." – Martijn Reuvers

Serious games: Ijsfontein and &Ranj Studios

Beginnings at the Hogeschool voor de Kunsten Utrecht in Hilversum

The term 'serious games' is already contested and can refer to a wide range of non-entertainment applications for games, as the name suggests. The category of serious games is also contested as a valid category of cultural heritage in the Netherlands. In recent years, the importance of serious games to the game industry has grown in size and in references to its potential for growth.

Relevant actors in the Dutch game industry ecosystem

The two serious games companies examined have their origins in the late 1990s and demonstrate, to varying degrees, a much clearer connection with a Dutch game industry ecosystem. Ijsfontein and &Ranj Studios both had their origins in the Dutch education system, at the same program for interaction design at the Hogeschool voor de Kunsten Utrecht (HKU) in Hilversum. The two companies cite a different degree of activity within networks of the Dutch game industry. While &Ranj Studios co-founder Michaël Bas cited frequent interaction with other game companies and served a board member for the Dutch Games Association, Ijsfontein cites limited interaction with other Dutch game studios. Both companies are members of a G4 alliance between four serious game studios. However, meetings and interactions between the members are infrequent and often characterized by competition for projects.

(Inter)national scope

While Ijsfontein found international acclaim early in its career, &Ranj Studios actively networked with Dutch companies and worked with other foundational members of the Dutch game industry to cultivate organizations such as the Dutch Game Association. The importance of networks early in the career of &Ranj Studios is evident in their early collaborations. Dutch game pioneer Arjan Brussee, founder of Orange Games and later Guerrilla Games, had built a game engine for the game Jazz Jackrabbit, in partnership with Epic Games. This engine was shared with &Ranj Studios for their first serious game, Battery Check.

In addition, both companies developed early relationships with other Dutch media industries. &Ranj Studios founders created cartoons for Dutch television and were some of the first to use digital production methods (with the Amiga 2000) to do so. Ijsfontein created the game elements for an interactive television show for children first under the name TypoToons, then renewed under the name TattleToons, for Dutch public television. Game publications and consumer journals have been, in contrast, less important to the success of these companies than for entertainment companies.

Both companies have diversified into an array of different types of games and gamification services and products. Ijsfontein diversified its activities away from game development after a sudden drop in prices for games on CD-rom in the late 90s. &Ranj Studios continue to work in games for marketing, health and education. The importance of ancillary industries for the serious game industry: Both companies referenced the importance of industries which support the production of serious games. In the case of &Ranj Studios, the marketing and communications industry in building partnerships between game developers and separate industries. In the case of Ijsfontein, the medical and research industries are important partners for the games which they produce. In 2016, &Ranj was acquired by company &Samhoud Media while Ijsfontein remains independent.

Analysis: development and impact of a Dutch game industry ecosystem

The impact of the Dutch game industry ecosystem

The six case studies of game firms demonstrate the impact of various elements of the Dutch game industry ecosystem in the early 2000s. While educational programs affected nearly every game company included in this study, their impact varied in role and in significance. Educational programs often served as meeting place for members of potential game companies. School projects and internships produced programs which served as an entry to the industry. In the case of the serious game industry, universities and research institutions, often in the medical sector, are a continued source of partnership in the production of training and therapy games.

Networks within the game industry, and their manifestation as industry level ancillary organizations such as the Dutch Game Garden and the Dutch Games Association, play a crucial role in connecting game developers with clients and distributors on a national and international level. Connections within the industry, in addition, facilitate the contracting of projects which another party may not have the expertise to fulfil alone, as in the case of Codeglue and TwoTribes. In the case of &Ranj Studios, networks enabled the diffusion of new technologies between companies, with the sharing of the Jazz Jack Rabbit engine from Arjan Brussee. As a key actor in the Dutch game industry, Arjan Brussee again appears in making connections between Triumph Studios and Epic Games.

Game industry networks in the Netherlands took a number of forms. Beyond one-off personal connections, the demoscene provided a space for early members of the game industry to meet and showcase their programming skills. Educational institutions, as mentioned above, brought together individuals with interests ranging from computer engineering and programming to interaction design. The importance of international conferences in the 90s and early 2000s, mentioned by four of the six companies interviewed, signals the importance of access to international networks as well as the relative absence of effective conference networking in the Netherlands at the time. While three of the six companies reference policy and public funding as a means to access startup funding, these mechanisms had little impact on the connections, human capital and skills necessary for the survival of Dutch game companies.

Dutch games: agency and dependency in a global industry

In addition to the localized aspects of the Dutch game industry ecosystem, macro-scale changes in the game industry relating to shifts in platforms and game technology impact the success, and often survival, of game companies. The dependence of Dutch game companies, while not unusual, is perhaps particularly acute due to the lack of multi-national game publishers based in the Netherlands in the 1990s and 2000s.[4] Of course, not all Dutch game companies will be acquired or face direct control by international conglomerates. Of the four entertainment game companies in this study two are defunct, one has been acquired by a larger, international publisher and one remains in its same form.

The appearance of console manufacturers and publishers in the Netherlands in the form of the Philips CD-I, and later Playlogic Entertainment, symbolized stability, even if these projects were short-lived. This lack of proximity made it difficult for start-up game companies to read the entertainment market and produce viable games. In general, three of the four entertainment game studios report experiencing financial hardship or brief exits from the game industry at some point in the history of their company.

Changes in industry platforms are less important for serious game companies, who are in general, less dependent upon releasing for the latest console or with a large publisher, than entertainment game companies. The serious games industry in the Netherlands is an anomaly in this respect in that it maintains close connections with and Dutch businesses and the university system, receiving support from research funding. &Ranj company has been acquired by a Dutch multi-industry conglomerate, while Ijsfontein remains independent.

The significant role of international actors and networks indicates a highly international industry. Indeed, based on the company case studies in this report, the Dutch game industry of the 1990s and 2000s appears to be a result of the complex interplay between international, national, and highly local actors.

[4] The case of the Philips CD-i is a short-lived example of the impact of a local console manufacturer and publisher. The ratio of Dutch game developers compared to publishers demonstrates the continued scarcity of local publishing opportunities faced by developers today.

Collaboration across media, marketing and communication industries

The role of other Dutch media systems was also listed by three of the six firms as playing some role in the marketing or even production of new games. Particularly in the case of serious games studios, there was an openness to working with multimedia from television to radio and music which, in the case of &Ranj Studios, contributed to the visual effects used in these industries. Ijsfontein had also produced games for radio and television websites. Consumer magazines and media have also provided a means for studios to promote their games. The importance of the marketing and communications industry was also mentioned as a source of collaboration between businesses and game companies. The broader impact of the game industry on related industries, historically and in the present day, represent an area of research which is understudied in the Dutch context.

Within the Dutch game industry business ecosystem, collaborative methods used by serious game companies can be viewed as a niche occupying strategy. Collaborations across media industries and into research domains have resulted in a specialized domain of game production in the Netherlands. Continued growth of the serious game sphere was, and is, dependent on maintained partnerships and the availability of new collaborations across industries.

Conclusion – updating the Dutch game industry ecosystem

Although each game company reports a different relationship to elements of the ecosystem over the 90s and 2000s, the impact of educational programs, training, policy and organizations around and networks for the game industry highlight the historical importance of the Dutch game industry ecosystem in shaping the opportunities open to game developers. The types of games and indeed the survival of Dutch game companies during this time was largely determined by networks and personal connections established through educational institutions, industry groups and organizations for the game industry.

The Dutch game industry has grown since the first decade of the 2000s and will likely continue to grow according to figures reflected in the 2015 Dutch Games Monitor. Despite the proliferation of new types of games and the technological innovations which support them, the business strategies used by Dutch game developers at the turn of the 20th century reflect both the dependence on larger international studios and the agency which game studios have in developing innovative solutions. The research highlights the dependent nature of entertainment game companies on larger, often international, studios. Like other creative industries, the case studies included in the report reflects the precarious nature of games as complex cultural goods.

Despite significant changes in technology experienced by the game industry over the past ten years, the challenges faced by game companies are not that different today. High budget, indie and mobile developers alike must be attuned to console and platform changes in the industry. Changes in technology, notably the move to streaming and online gaming, bring new intermediaries to the industry, such as Steam, already a major player in 2010. Issues of financing, finding human capital, publishing, remain relevant to for the development a successful game.

As the Dutch game industry continues to grow in size, policies and institutions which continue to foster collaboration within the game industry and between adjacent industries are urgently needed. Division within the game industry, and the different needs experienced by some segments of the industry, detract from the commonalities which game studios face, including the need for talent, business acumen, external networks and targeted research and policy support. The case studies demonstrate unique interactions with the large game industry ecosystem in the case of each company. The impact of the Dutch game industry ecosystem varies per segment of the industry and often on at the level of individual companies. This presents limits to generalizing the nature of interactions in the Dutch game industry ecosystem. A focus on building competencies, networks, collaboration and research opportunities may be a helpful contribution to current policy across segments of the industry.

Limitations and further research

Despite the contributions of this report to research surrounding the development of the Dutch game industry ecosystem, there is substantial work to be done on the collection and preservation of Dutch game industry history. The relative impact of educational institutions and networking organization within the Dutch game industry necessitates in-depth research and interview work. Furthermore, the larger impact of the Dutch game industry on other media industries is another area in need of further investigation. Studies relating to these topics on the contemporary Dutch industry should take into account stakeholder dynamics and the development of interests in the game industry overtime. In accordance, the wide range of historical sources from the Dutch game industry, including consumer publications dating to the early 1980s, remain in need of preservation and academic analysis.

Finally, the author acknowledges the limits of a national analysis despite the international nature of the game industry as a whole. The significant impact of international actors in the Dutch game industry suggest a full-scale research study at the level of transnational networks, perhaps focused on key conferences and events.

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