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Public Game Funding in the Nordic Region (*Word length: 7557*)

Olli Sotamaa^a, Kristine Jørgensen^b and Ulf Sandqvist^c

^a *Game Research Lab, Tampere University, Finland*

^b *Department of Information Science and Media Studies, University of Bergen, Norway*

^c *Department of Geography and Economic History, Umeå University, Sweden*

Biographical note:

Olli Sotamaa is an Associate Professor of Game Culture Studies at Tampere University, Finland. His work has been published in several scholarly journals including e.g. *Convergence*, *Fibreculture*, *First Monday*, *Games and Culture*, *Game Studies*, *International Journal of Arts and Technology*, and *Simulation and Gaming*. He is also a team leader at the Centre of Excellence in Game Culture Studies (2018-2025).

Kristine Jørgensen is Professor of Media Studies and the author of *Gameworld Interfaces* (MIT Press 2013) and *A Comprehensive Study of Sound in Games* (Mellen Press 2009), and the co-editor of *Transgression in Games and Play* (MIT Press 2019).

Ulf Sandqvist has a Ph.D. in Economic History from Umeå University. His main research area relates to the development of the computer culture and game industry, particularly in Sweden and the Nordic region.

Public Game Funding in the Nordic Region

In this paper, we explore the policies related to support structures surrounding national game industries, with focus on the three Nordic countries Finland, Norway and Sweden, and investigate what kind of context the Nordic welfare state model has provided for game development. The three cases illustrate how Nordic welfare state measures have interacted with the games industry over time. While the political ideals have been fairly similar, our study demonstrates how the objectives and practical means of state engagement have differed significantly. We argue that although the three countries all have support schemes of which game companies can take advantage, there are significant differences in the degree to which each individual country has organized government interventions and support.

Keywords: games industry, innovation policy; cultural policy; welfare state; Nordic countries

Introduction

Although the logic of globalization continues to erode cultural differences, regional aspects still importantly contribute to the forms of game development (Liboriussen & Martin 2016). Issues such as labour laws, tax regulations, wage levels, and different support structures shape the production of games in many different ways. In this paper, we explore the policies related to support structures around national game industries, with focus on the three Nordic countries Finland, Norway and Sweden. While most governments worldwide strive to develop policies that contribute to societal development and find ways to support economic activities, our specific aim is to understand what kind of context the Nordic welfare state model has provided for game development.

Kerr & Cawley (2012) argue that the spatial distribution of the games industry is importantly connected to the local histories and networks, as well as financial, cultural, and labour markets. Nieborg & de Kloet (2016) point out significant differences in

national game related policy initiatives (e.g. tax incentives, subsidies, industry regulations) within Europe and indicate that the different levels of maturity that the national game industries demonstrate are closely tied to these creative industry policies. They also argue that Northern European countries are leading in research and development expenditures and game-related public research investments.

In this paper we utilize a multiple case method (Gerring 2007, 20) and try to approach the complexity surrounding national culture and innovations policies connected to the games industry. By looking at the contemporary discussion and development of programs in Finland, Norway, and Sweden over the last decades we try to shed light on the phenomenon in the Nordic region. The cases are selected because they represent three different political strategies within the Nordic welfare state. A case method approach can also handle different complex contexts, like different national policies and systems, by allowing for the inclusions of different types of material (Gerring 2007, 33; Yin 1993, 3). This paper is based on a diverse selection of materials, including public policy reports, funding institution documents, funding related media discussions, and related academic literature from the last 20 years. The paper outlines an overview of each country and examines the discourses around the different domestic approaches. The primary aim of this kind of contextualizing analysis is to place the individual policy decisions and funding schemes in their larger cultural frame. While our earlier work (Anonymized) has shed light on the early days of the Nordic games industry, the main focus of this article is the time period between the turn of the millennium and the time of writing.

The paper will first outline the societal context and briefly discuss the development of the Nordic games industry. By positioning the smallness and the welfare politics as a background, we believe that we can better understand the specific

conditions for game development and related policies within the Nordic region. The three case studies describe the national funding policies and highlight several differences that have affected the development of national game making scenes. We will also show how the policy-level labelling of games as cultural artifacts/technology projects/business proposals can have significant implications for their regulation and funding (de Prato et al. 2010).

Nordic society and the welfare state

A key assumption in this article is that the socio-economic context of the Nordic countries has shaped the political discourse and ultimately the funding policies related to the games industry. The Nordic countries are Sweden, Denmark, Finland, Norway, and Iceland; five countries with low population and historically ethnic homogeneity. Sweden is the largest country with just above 10 million inhabitants, while Finland, Denmark, and Norway all have around 5.5 million inhabitants. Iceland is the outlier with less than 350,000 inhabitants (European Commission 2019). The Nordic countries are small open democracies known for a welfare state system that not only provides tax-financed educational systems and wage synchronization but also active political incentives towards the media and cultural sphere (Syvertsen et al. 2014).

All Nordic countries have witnessed strong economic development from the 1950s onwards. Today they are among the countries with the highest gross domestic product per capita and are continuously found at the very top of the Human Development Index (UNDP 2013, 144). This is related to the internal unity and adaptability that small countries often exhibit, especially when they have well functioning social and institutional frameworks (Krantz 2006, 8). Also, small countries face particular challenges. These are related to the effects of diseconomies of scale and strict limitations to the domestic industry structure (Krantz 2006, 5-6). Historically, the

economic structure in Finland, Norway, and Sweden has been concentrated to a few natural resources and basic industries. Even when diversification has occurred, it is limited e.g. by small domestic markets, limited financing opportunities, and a small labour market. Subsequently, small states cannot support a large and diverse ecosystem of industries, which makes them dependent on the international market as an outlet for goods and services.

Historically, the politics surrounding the Nordic welfare state were rooted in the idea of reforming capitalism. The model was connected to Keynesian macroeconomic ideas and policies. A goal was to create more efficient capitalist markets through wide-ranging state interventions and large state investments (Schön & Schubert 2010, 312). The system was also based on democratic corporatism and the state was heavily involved in developing different industries, often through large investments in research and development. The state also owned companies in certain key industries but had in general an active role in supporting industries and innovation. The state had a prominent role in the media and cultural sector, through e.g. large film subsidies and long-lasting broadcasting monopolies (Syvertsen et al. 2014, 5–6).

The Nordic welfare state regime expanded and retracted during the 20th century. The expansion of the welfare state and public institutions was most rapid during the 1970s and early 1980s. However, the welfare model came under pressure during the 1980s and the most generously funded social programs were scaled back (Hicks 1999, 194; Huber & Stephens 2001, 222). The incumbent Nordic social democratic parties were challenged from right wing and populist parties. The Keynesian economic theory that had favored the extensive state intervention was also challenged by neo-liberalist ideas and globalization. With the growing international competition Finland, Norway,

and Sweden chose to harmonize their policies and economies with the European Union. Finland and Sweden joined the union in 1995.

Although the political discourse and economic structures have changed, state influence has not disappeared. The Nordic countries maintain the highest tax burdens in the world and the highest state spending per capita. The Nordic income taxes are higher than other open economies. While the world average is 31 percent and the OECD average 42 percent, the tax rate in Norway is over 47 percent, Finland 51 percent and Sweden 57 percent (Iqbal & Todi 2015, 339). Finland also had the highest state spending in the world at 57,1 percent of GDP in 2015, but Denmark, Norway, and Sweden were all also among the OECD top ten (OECD 2017). Even if many policies have changed, public support for domestic local enterprises and innovations has remained important. The Nordic countries and especially Sweden and Finland have for a long period been among the countries with the highest relative degrees of investments in research and development (Henrekson 2002, 160). In 2016 about 3.3 percent of the Swedish GDP was allocated to R&D. Only Israel and South Korea spend more (OECD 2018).

Over the last decades, the Nordic countries have also been successful in the transition into information societies and the subsequent adoption of new technologies. Finland, for example, adopted a national innovation system as a basic category of its science and technology policy already in the early 1990s. Castells and Himanen (2002) underline the importance of the “virtuous cycle” between strong education, welfare society, and economic development. Miettinen (2013, 2) summarises: “The success of the information society makes the continuous financing of welfare society possible, which in turn is able to generate well-educated people capable of developing the information society further.” This close-knit connection between welfare and economic

efficiency has been central to social democratic welfare state policies, and Castells and Himanen suggest that a renewed version of this model is not incompatible with advanced technological innovation. While the large public sector and high level of taxation have been criticised for hindering companies' opportunities in global competition, international comparisons show that the Nordic model has been relatively successful in providing both equity and efficiency and in combining collective mechanisms of risk sharing and openness to globalization (Miettinen 2013).

As discussed in our prior study (removed for review), it is reasonable to assume that the Nordic model, characterized by relatively high average income, open economy, well developed ICT infrastructures, and highly ranked work-life balance, has affected the evolution of the Nordic games industry. Sweden, for example, made large investments in school computers in the 1980s and heavily subsidized home computers in the 1990s (Kaiserfeld 1996; Steen 2002; Fogelberg, 2011), meaning that they were obtainable even for the working class. Also other potential connections between the welfare model and the games industry can be found, including state investments in information infrastructures, tax reductions for computers purchases, access to free education, and cheap student loans (Jørgensen, Sandqvist & Sotamaa 2017).

The history of the games industry in the Nordic region

Computer game development in Finland, Norway, and Sweden go back to the very first computers in the 1950s. The Nordic countries were well connected to UK and USA and had access to the knowledge to build a domestic computer capacity in particularly related to research institutions, which demonstrated the power of the new technology by showcasing adaptations of tic-tac-toe games (Saarikoski & Suominen 2009, 21; Haraldsen 1999, 74–75; Hallberg 2007, 172).

In the 1980s, early commercial game production in the Nordic region emerged alongside the introduction of the personal computers. In the early phase, game development was largely a hobbyist endeavour, and to some extent connected to the computer subculture and the demoscene, either as a recruitment ground or as game companies emerged out of demo groups (Jørgensen, Sandqvist & Sotamaa 2017). Without the necessary local infrastructure, many ventures sought success abroad, and while certain games were published, there were no stable companies until the mid-1990s.

During the end of the 1990s and early 2000, Nordic companies such as Remedy (FIN), Funcom (NOR), DICE (SWE), CCCP (IS), and IO Interactive (DK) became economically successful but the turnover of firms were high and it was difficult finding lasting sustainable strategies (Sandqvist 2012). Finland witnessed an emergence of mobile companies surrounding the mobile telephone company Nokia, but the first generation of mobile gaming initiatives rarely provided sustainable successes. While the growth of the games industry can be seen in context with the strong information technology sectors in Finland and Sweden during the 90s, a similar relationship cannot be traced in Norway (Oslo Economics & Vasa Marketing 2018, 57).

The turning point for the Nordic game industries came around 2010 and follows the breakthrough of a new global techno-economic paradigm linked to miniaturisation and advances in network technology. This meant portable technologies like smartphones and tablets, and digital distribution with platforms like Steam, App Store, and Google Marketplace (Sandqvist 2015; White and Searle 2013; Hotho 2013; McGregor 2013; Jørgensen 2019). The global game market expanded rapidly with platforms and formats that attracted new market segments; most notably the penetration of smartphones reached out both to a younger and a more casual gaming audience. The

new paradigm also gave opportunities for game developers when the incumbent publisher structure changed and new digital platforms offered easy access for game developers (Sotamaa and Karppi 2010). While the traditional game publishing system caters for established companies with a certain turnover and is partly locked to proprietary systems, more open systems relating to the new digital distribution platforms provided a new venue for startup game developers, where the development of smaller games became more economically feasible. This allowed Nordic companies easy access to the expanding global market and to circumvent the predominantly American, French, and Japanese publishers. Numerous new companies were founded and often targeted the new mobile platforms. Many Nordic companies were particularly innovative in the free-to-play genre, and had some spectacular financial successes and their games became global phenomena. Examples include Supercell's *Clash of Clans* (2012), King's *Candy Crush* (2012), and DirtyBit's *FunRun* (2012).

The turning point also coincided with an increasing attention towards game development on a governmental level. In 2001, there was a trans-national proposal to evaluate the cultural and economic basis for establishing a Nordic funding scheme for digital content production. This resulted in the Nordic Game Program, a cultural policy measure under the Nordic Council of Ministers that operated from 2006-2012 and aimed to secure access to Nordic quality games for young people in the Nordic region (Robertson 2011, 61). While the Nordic Game Program was officially framed as a cultural policy with a protectionist backdrop, it also involved measures relating to innovation and trade based on the idea that games are a form of entertainment with the potential for commercial success. This is reflected in the idea that the game program should help foster an environment out of which internationally successful companies could spring (Robertson 2011, 61). Although one could expect that a trans-national

policy would also be reflected in the individual national policy schemes, what we will see in the following analysis is that this is not case. Only Norway has followed the line of the Nordic Game Program in establishing a cultural support program for game development, while Finland and Sweden have largely focused on measures for trade and innovation.

In the past decade, the game industries in the Nordic countries have developed from a handful of game companies into a more important node in the global market. While this can be attributed to technological advancements such as digitalization and mobilization, it is also connected to social factors such as increasing political attention towards the potentials for game development to become a new profitable industry.

Norway: Culture or Innovation?

‘I understand that [the policy makers] want a focus on (...) Norwegian culture, (...) a young target group, and [games] in the Norwegian language. I understand that from a political standpoint. But for us who develop games - I can’t imagine that anyone will be able to develop a big company (...) that markets their games in Norway only. We are five million Norwegians and the market is just too small.’
(Norwegian game developer, quoted in Jørgensen 2011, 18)

In this case study we are scrutinizing the Norwegian government’s approach to game development. It originated and continues to be framed as a cultural policy in line with the Nordic Game Program, but has developed into a scheme that taps into trade and innovation measures as well as cultural measures.

Until around 2007, game development in Norway centered on one international AAA developer and a handful of smaller companies focusing on serious games for a domestic market, such as advergames, children’s games, educational games, and games for training in the petroleum industry (Jørgensen 2009, 321-325; 2019, 661). Today, the Norwegian games industry is rapidly growing, with many companies established every

year and many discontinuations (Jørgensen 2013b; Ryssevik & Vaage 2012), although there is a growing number of companies that have been able to gain a certain stability (Oslo Economics & Vasa Marketing 2018). The games industry is estimated to count around 100 small and medium-sized companies (Straumann 2015; Oslo Economics & Vasa Marketing 2018, 17). While many Norwegian game companies search for investor money or support from private and semi-private funds, as of today most companies are independent of external ownership and constraining publisher agreements. Some do however develop games on contract, and the practice of having parallel activities to help finance game development is not uncommon (Jørgensen 2013b, 21).

The growth of a Norwegian games industry corresponds with the establishment of a public cultural support scheme for game development, reflecting traditional welfare measures intended to positively influence national media by weakening the impact of market forces and the influx of global mass culture (Syvertsen et al. 2014, 19-20). In 2003, the Christian Party Minister of Children and Family Affairs and Minister of Culture and Church Affairs responded to the violent content of *Grand Theft Auto 3* (Sandvik 2007, 71) by proposing a cultural policy that would secure children 'access to non-violent video games with Norwegian language and content' (Ministry of Culture and Church Affairs 2003). With the following Labor government, the paternalist focus weakened and the new Minister of Culture initiated a White Paper on video games. The White Paper emphasizes the cultural importance of securing children's access to diverse productions with high quality Norwegian language and content (Ministry of Culture and Church Affairs 2008, 6), but it also stressed the importance of trade measures to create jobs and foster higher innovation rate (Ministry of Culture and Church Affairs 2008, 54).

Today Norway's dedicated funding scheme for game development is administered by the Norwegian Film Institute (NFI), which historically has been the state agency for film funds. Game developers can apply for support for game production and launch for games that foster Norwegian cultural heritage (Jørgensen 2019, 675). While the funding can cover a maximum of 75% of the development costs, or 50% of marketing costs of a single project; so far, no single project has received more than a total of NOK 5.6 million (USD 640.000), indicating that Norwegian game productions tend to be significantly smaller than traditional productions, which average USD 18-28 million for the last generation of consoles (Crossley 2010). Game developers can also receive manuscript development support and travel grants (Jørgensen 2009, 8). Norwegian game developers have also benefited from support from other regional and national cultural funding agencies (Jørgensen & Tharaldsen 2012, 14).

The cultural support is welcomed by game developers, but has been criticized for not being extensive enough to support the growth of a sustainable games industry. For this reason, there has been a call for trade policies that can support game development. However, Norwegian game companies have in no way been excluded from general programs aiming at supporting national trade and innovation. Although it has been criticized for having little knowledge of the games industry (Jørgensen 2011, 17), Innovation Norway, the state agency for supporting innovation in Norwegian enterprises, has granted Norwegian game companies economical and administrative support through different startups programs (Ministry of Culture and Church Affairs 2008, 51; Innovation Norway n.d.a; Oslo Economics and Vasa Marketing 2018, 27). Since 2011 Innovation Norway's attention to game development has increased, and cross-policy programs that combine cultural and innovation measures have been established, such as a joint pilot program that aimed to support the international launch

of Norwegian games (Innovation Norway n.d.b). Another innovation measure that game companies actively have sought is the program for tax reliefs on R&D activities (Research Council of Norway 2017; Jørgensen and Tharaldsen 2012, 14; Oslo Economics and Vasa Marketing 2018, 28).

Although Norway's only dedicated game development funding scheme formally speaking is a cultural scheme, this does not mean that the games industry policy is a cultural policy only. On the contrary, the cultural policies do not concern the cultural qualities of games alone but are sensitive towards the idea that Norwegian game developers need support in becoming a sustainable industry. This is demonstrated by the fact that NFI's programs include marketing and travel support, but also by the fact that game projects that do get funding through NFI are indeed evaluated on the basis of market potential, both nationally and abroad. Also, Innovation Norway's growing attention towards game development is another indication that the game policies indeed aim at industry development. As we will discuss later, the reason why the policies are framed as a cultural policy is related to international trade agreements. While trade measures that favour certain industries (Pratt 2005, 31-32) are restricted, cultural products may be exempt from this under EU regulations as long as such products are related to creativity and the conservation of European cultural heritage (Graber 2010, 199–201).

Finland: From small-scale technology projects to “creating global success stories”

‘Over the last 15 or 20 years, a kind of game culture has been created, and our role has been significant in enabling the gaming industry to develop and helping a number of companies. We have invested around 70 million euros in this area over the last 10 years, and Supercell alone has returned that investment in their corporate taxes’. (Pekka Soini, Director General of Tekes, quoted in Chen 2017)

In the past few years, digital games have often found their way to the PR materials of Finnish public funding and internationalizing agencies. With over 200 studios, close to 3000 employees, and a total annual turnover of over EUR 2 Billion, the games industry has become a key node of the vibrant start-up scene (Neogames 2018). The public investments made in local game studios are repeatedly used by politicians to provide a tangible example of how taxpayers' money has not been wasted but extensively multiplied. Although Business Finland, the public agency responsible for innovation funding and internationalization of Finnish businesses, claims that they have been funding the Finnish games industry since 1995 (Business Finland 2018), it is clear that operational principles of games-related funding have changed significantly over time.

Until the 1980s, Finland remained a relatively closed economy focused mostly on metal and lumber industries. In this respect, the founding of Tekes, a publicly owned R&D funding organization, that focused on coordinating the government support for technology development was a breath of fresh air (Korhonen 2008). From its early days, Tekes focused on supporting development of new technologies in various fields and helping companies cultivate their technology-based ideas into viable businesses. The idea was that increasing international competitiveness of local industries would contribute to overall well-being by increasing productivity and export and by creating new employment opportunities.

With the rise of the mobile phone giant Nokia, electronics grew into the most important industrial sector of Finland during the 1990s and Tekes increasingly directed its funding towards companies in the information and communication technology industry (Ali-Yrkkö & Hermans 2002). Tekes did not yet explicitly support game development, but the pioneering game studios like Housemarque and Remedy were able

to acquire funding for technology-oriented projects like development tools or game engines (Kuorikoski 2014, 397).

At the turn of the millennium, there were around ten Finnish game companies with a total of 200 employees (Kuorikoski 2014, 125). Already at this phase, a few of them were developing mobile games. Nokia had been putting Snake on their phones since 1997 and now they were advocating gaming over the mobile internet. Some of the first generation mobile game companies like Riot Entertainment and Springtoys were able to attract significant private investments. The closely followed burst of the dot-com bubble, however, meant the end of this short-lived hype (Kuorikoski 2014, 129). As companies went bankrupt, venture capitalists became cautious and it took several years for them to regain an interest in the Finnish games industry (Sotamaa et al. 2011). A lifeline to several Finnish studios of the time was that Tekes and Nokia kept investing in games. While Nokia's adventures in the realm of games were far from a success story, the Nokia projects were well-resourced and helped create an environment in which mobile games were seen as a viable alternative. Although it still took a few years for the accessible technologies, high-speed mobile networks, and advanced distribution channels to emerge, for many up-and-coming mobile game companies, Tekes-funded projects and collaborations with Nokia operated as local co-operation platforms that provided a chance to learn new skills and find new orientation.

In 2006, the official name of Tekes was changed to The Finnish Funding Agency for Technology and Innovation. Coming to the new millennium, and driven especially by the increased significance of information and communication technologies, single inventors and pure technology funding had made room for innovations and services in the Tekes funding portfolio (Korhonen 2008, 29). At the same time – as Tekes actively recruited people with industry background – a particular

entrepreneurial mindset, pitching skills, and credible business plan became increasingly central. While Tekes support structures were never limited to R&D grants and loans, now even more focus was put on industry foresights and studies, hands-on sparring and international networking (Tekes 2015).

When Tekes in 2012 announced Skene – Games Refueled, their first specific program directed to game companies (2012-2015), the aim was to improve “gaming industry business skills and competence” (Korhonen 2012). During this programme, Tekes used altogether EUR 33 million of public money and over 50 companies received their share of the funding. The clearly expressed public motivation from the outset was to professionalize the Finnish games industry, enable greater economic impact for the sector, and to create a successful game production cluster (Venäläinen et al. 2019). In some ways, the agenda is not much different from the early days of Tekes. What is interesting from the welfare state perspective is that the Tekes money has been openly utilized to leverage around EUR 70 million of additional VC investments (ibid.), creating active collaborative relationships between the government organization, individual companies, and private investors.

In January 2018, Tekes merged with Finpro, which previously provided services for internationalization, investments, and tourism promotion. The fresh organization called Business Finland promises to be an “accelerator of global growth”, especially helping Finnish businesses go global. While the Business Finland’s funding FAQ mentions that “in some cases the development of content may be funded as part of the project”, focus is mostly on the commercial potential of a project and the viable business plan of the company (Business Finland 2018). All in all, in the Finnish context, most public money coming towards game development has been guided through R&D investments and internationalization funding. General evaluation reports show that

Tekes support has allowed companies to increase the risk level and productivity of R&D projects and importantly promoted the construction of co-operational networks between companies (Hyvärinen & Rautiainen 2007).

The original idea of Tekes was that in the long run technology projects and support structures would improve employment and the overall well-being of Finnish citizens (Korhonen 2008). When looking at the recent evaluation report of the Skene program (Venäläinen et al 2019), it is clear that only economic measures are used when assessing the impact and success of the program. At the same time, cultural funding for games has over the years been mostly limited to small starting phase grants for concept development and demos provided by AVEK, The Promotional Center for Audiovisual Culture. All this shows how the potential to generate economic growth and to succeed in global markets have been the key measures for gaining public support for games in Finland.

Sweden: The large state and large investments

‘The computer game industry has managed to make itself a successful export industry, and Sweden to a significant net exporter. No targeted efforts have been made, no overall strategies for stimulation exist. One or two start-up grants has of course been paid out, but the entrepreneur who does not want to collect such a grant on the way, is an entrepreneur who cannot count. Hence it would probably be possible to make achievements in exports with targeted efforts to the industry’
(Robertson 2004, 65)

In contrast to Finland and Norway there has not been a dedicated policy or funding scheme related to the support of the Swedish games industry. However, there have been discussions in Sweden about the need for public funding since the early 2000s. Together with industry representatives, the state research support agency The Knowledge Foundation (KK-stiftelsen), presented the first distinct public proposal for several

reforms and funding schemes in 2004 (Robertson 2004). The proposal particularly discusses the economic importance of the Swedish games industry as well as the need to protect the industry on the global arena. This line of argument is characteristic for much of the later reasoning regarding public funding for the industry in Sweden. The success of the Swedish industry is often used as a somewhat paradoxical argument for the supposed need for a directed state financed support scheme. The quote above also indicates that there already are schemes utilized by entrepreneurs in the industry.

Sweden has the largest economy and population in the Nordic region. A game development industry grew from the 1980s and consists today of a couple of hundred companies with over five thousand employees (Spelutvecklarindex 2018). The industry is dominated by smaller firms and a few large internationally successful companies. The largest game developers are often part of international publisher conglomerates; for example, Mojang is owned by Microsoft, King by Activision, DICE by EA and Massive Entertainment by Ubisoft.

Historically, Sweden has had many far-reaching state-run initiatives and the state has been extensively active in many industries (Petersson 2010, 129; Lundin 2012, 6). Even though the political landscape has changed the state remains active and there are today many support systems on different administrative levels involved in supporting culture and innovation, which makes the situation in Sweden difficult to overview. However, even though there has not been a dedicated funding scheme there has not been a void in the public support for the games industry. On the contrary, public subsidies have been utilized and even to some extent aimed at the industry.

In particular Swedish universities have indirectly supported the industry. Several universities and colleges have established game specific programs. This supplies the industry with a qualified and specialized labour force, and is likely to keep down

recruitment costs and wages. Universities are generally of growing importance for economic development (Henrekson 2002, 159).

A more direct source of support has been business incubators and science parks. Many universities own incubators or cooperates with local or municipal institutions to commercialize research and help students and faculty form new companies. This development may be connected to a larger international trend and a discussion in Sweden and EU about the relative lack of commercialization relative to the large spending on R&D in Europe (Monaco et al. 2016; Lamy 2017). A few incubators also focus entirely on game companies, such as the The Game Incubator connected to the University in Skövde and The Gameport in Karlshamn (Berg-Marklund 2012, 12). Vinnova, the agency that administers state funding for R&D, has funded game incubators via a grant programs for incubators (Hoffman 2012; Vinnova 2011). Several Swedish game companies have emerged from these incubators, suggesting that it is likely that these incubators have positively influenced the industry (Sandqvist 2010, 112). Typically, incubators offer many services from office spaces to sales support and legal aid. Another area is the connection to direct financial support. Incubators are often connected to different publicly funded organizations working with financial aid and venture capital. This is organized directly via university owned enterprises or through investment funds. The state is involved through Almi, a state-owned corporation that aims to develop companies and businesses. In 2017 Almi granted loans to 4681 companies at a total sum of SEK 3.3 billion (Almi 2017). Many game companies in Sweden have secured initial funding through such public financiers. Further, Vinnova distributed about SEK 2.7 billion to different projects in 2016. Although there is no separate program, many game development projects have received funding, ranging from regional game projects related to tourism, gamification, serious games for

education, gender relations in game development, and more direct development support for different projects at individual companies. The projects received between a few hundred thousand SEK to several million SEK (Vinnova n.d.).

One of the latest failed games industry funding campaigns aimed at introducing a game specific funding program as a major strategic area for Vinnova, the national agency for innovation corresponding to Tekes in Finland. One of the larger Swedish R&D efforts in recent years has been the establishment of major strategic innovation programs. Seventeen programs were established via Vinnova and are related to many of the major challenges facing modern society and have been aimed at boosting Swedish competitiveness on the global arena (Sweco 2017). A game program was presented as a potential innovation program. The initiative was headed by RISE Interactive, a government owned company geared towards ICT research and innovation, together with several game companies, the Swedish games industry organization, several scholars and their universities, incubators and other institutions, such as technical museums and the Royal Library (Agenda: Game 2014; Lindström 2013; Larsson, 2013). Even though the proposed program was excluded it is relevant because it contained clear political statement regarding the games industry. The actors push for sustained programs based on more public funding, but they also call for investments into copy protection, programming as a subject in primary school, and the establishment of game studies as a new research field, among other things. One central argument is the possibility of increased exports and competitiveness. Tekes in Finland is used as an example that Sweden should follow to promote the industry, which in turn would generate more export and tax revenues (Agenda: Game 2014, 16). Growing international competition and the existence of public funding schemes in other countries are often used as arguments in the debate. Sweden is often compared to other regions with tax breaks for

game development such as Québec in Canada, or countries with more dedicated support programs like Finland or Norway (Agenda: Game 2014; 7, 15; Gothia Science Park 2014; Karlsson et al. 2014; Arnroth 2011; Glevén 2016). However, regarding dedicated games industry support, the former Secretary of State at the Industry Ministry said: ‘We have an industry and trade policy in Sweden where we choose not to support separate industries, but we generally work to create a good entrepreneurial climate’ (Hielle 2014). This summarizes the Swedish government policy and strategy as one that which has diverged from Norwegian NFI and Finnish Tekes policies and has not institutionalized direct support to specific industries (see Wendle 2014). The Swedish state has been very active in supporting businesses and innovation but in a very broad sense and in later years partly directed towards a number of larger societal challenges.

Discussion

The three cases from Norway, Finland, and Sweden illustrate how Nordic welfare state measures have interacted with the games industry over time. All the three countries are small and neither hosts a complete games industry value chain. Historically, an active state policy has been seen as a way to counterweight effects of not being a central node in the international circuits of game production, both from a cultural and market standpoint. For example, in Sweden and Norway it is argued that a lack of venture capital interested in the games industry can be compensated by state intervention. The environment has also quickly transformed in the past years, and the success of studios like Rovio and Supercell has attracted significant venture funding also for other Finnish game studios.

While the political ideals have been fairly similar in the three countries, our study demonstrates how the objectives and practical means of state engagement have differed significantly. While the state is very actively involved in supporting national

industries in each of the three Nordic countries, a main difference between the three in terms of game support is the fact that Norway also activates a cultural policy based on protectionist arguments. One of the reasons for the different paths is that the national game industries remain at a different stage of maturity. While Sweden and Finland have mature industries with self-sufficient companies, Norway has a younger and thus comparatively weaker games industry (Oslo Economics & Vasa Marketing 2018, 57). For this reason, the Norwegian industry is dominated by less experienced companies that often struggle with basic competence in project management, game development, and marketing. Although there are numerous of small start-ups in Sweden and Finland that have the same needs, game developers in Finland and Sweden have to a larger degree a local scene of experienced developers out of which the smaller companies either spring, or with which they can network and learn. It is likely that these differences create dissimilar needs within the industries.

Norway's preference towards cultural policies is closely connected to international trade agreements. These agreements specify that a state cannot provide discriminatory support that creates imbalance in the marketplace (Graber 2010, 173). Considering this, a dedicated cultural policy for game development might be a manipulation of the marketplace (Pratt 2005, 31-32). However, EU regulations allow discriminatory trade policies only if such measures help creativity and the conservation of cultural heritage (Graber 2010, 200–201). Thus, it could be argued that cultural support for game development is an example of trade policies disguised as cultural policies in order to gain an unfair advantage. However, we consider the reasons for establishing the Nordic Game Program as well as for Norway's cultural measures were legit. For Norway, the focus on a cultural policy is connected to the specific situation that the national games industry found itself in ten years ago, and still struggles to get

out of. When the cultural policy was proposed, there was virtually no developers creating Norwegian digital media content for children and youth. Since the national games industry is less mature than those of Sweden and Finland, Norwegian policy makers have good reasons for executing certain cultural measures in order to ensure the existence of a Norwegian game corpus. Of course, there are also economic reasons such as becoming able to move fast forward to reach a level where the industry can compete internationally. Until a critical number of companies have reached that level, direct support from the cultural policy scheme may work as a catalyst for helping companies become sustainable (Oslo Economics & Vasa Marketing 2018, 30). Comparatively, when Swedish and Finnish policy makers have not established a dedicated cultural program, the Nordic Game Program has provided an opportunity to acquire more content-oriented funding.

In the light of the Nordic interventionist policies, it is also relevant to discuss the Nordic focus on direct financial support such as grants over other economic support measures. A common measure in many other countries with cultural exemptions is tax reliefs and expenditures. Examples of states with different kinds of tax expenditures directed towards the games industry are France (Graber 2010, 185; Dauncey 2012), Quebec, Ontario, and Manitoba in Canada, and Michigan and Georgia in the US (Graber 2010, 171; Kerr 2017, 149). One possible explanation for why these measures have had much lesser significance in the Nordic region is that for the Nordic countries the grants support solution fits ideologically very well with the welfare model and the trust in a large and active state.

With the active state in mind, one could also ask whether the bonds between state and industry can become too tight. If the state becomes too interventionist, the companies may risk their independence; either financially, creatively, or in terms of

publishing (Garda & Garbarczyk 2016). For example, in order to be eligible for the Norwegian cultural support, a project must meet three out of four requirements with regards to language, topic and setting, and the localization of the team (Norwegian Film Institute 2015), arguably on expense of the team's creative independence (Jørgensen 2013a, 13-14). Of course, the closeness of the relationship is also dependent upon the actual specificities of the regulations. Since the Norwegian state grants are small, government support is not enough to fully fund even smaller game projects, companies need to find additional sources. Thus, the industry's financial dependency on the state is relatively weak and creates instead a situation in which government support becomes a seal of approval and reference when seeking out investors (Jørgensen 2013a, 12). Further, with its history of investing in the games industry, Finland's policies are also fairly interventionist on the financial level. The relationship between the government and the industry is thus close, but this does not appear to have restricted the games industry. On the contrary, the high return of investment that Tekes has seen, may even suggest that it is the Finnish national state accounts that benefit from this relationship at least as much as the industry itself (Oslo Economics & Vasa Marketing 2018, 10).

In the Swedish case we see a somewhat different relationship between state and industry. While Sweden does have fairly far-reaching policies relevant for the study, the arrangement is rather indirect. The state investment into R&D is among the largest in the world and so all-inclusive that a dedicated game program has not been a political priority. Also universities have indirectly supported the games industry. The establishment of university programs and incubators can be considered an establishment of a state infrastructure to support the games industry. Although we cannot speak of a direct dependency on the government, these measures still visibly support the industry.

Scholars and different state agencies have also worked closely with the industry, trying to influence the Swedish government to expand substitutions to the industry.

Conclusion

In this paper we have explored the policies and support structures surrounding the national game industries in Norway, Sweden, and Finland, and discussed the policy measures in terms of the Nordic welfare model. Based on our analysis, there seem to be two general ideals: An innovation perspective connected to the willingness to support domestic companies on the global market, and a cultural perspective associated with the promotion of national heritage. When comparing the three countries, we see that although they have support schemes of which game companies can take advantage, there are significant differences in the degree to which each individual country has organized governmental interventions and support.

Although it is reasonable to state that Finland and Sweden in large has executed a more neo-liberal approach while Norway, and the Nordic Game Program, have taken a more traditional protectionist approach, all have used support systems to mitigate risks and failures. While the Finnish state has primarily treated game development as an endeavour in innovation and business development, the regional Nordic game program as well as the Norwegian state has primarily developed a cultural policy for game development that aims to protect local cultural heritage. The Swedish state has not established tailormade policies directed towards game development but relied primarily on the broad spectrum of general policies for supporting research and innovation. At the same time, we believe that an investigation into the support systems also needs to address the overlapping tendencies of innovation-focused and more culturally oriented means. In Sweden, several state-funded universities and colleges have established high-profile game development programs, whereas Norway's cultural policy has included a

sensitivity towards innovation and trade. The Finnish case shows that long-term state investments have been an effective way to attract private investments, although this has only happened after the local studios have provided well-known success stories.

Based on our analysis, it seems that none of the countries really had a long-lasting systematic plan to build a globally competitive games industry. Company-led initiatives based on cumulative industry experience, changing funding opportunities of both a public and a private nature, and policy measures have been working simultaneously. When a regional economy or a particular sector grows very fast, as the Nordic games industry has done in the past decade, it is tempting to think that the related policies and economic initiatives constitute a model that can be benchmarked and replicated. There are some problems associated with this rationale. As we have shown, the practical measures between the countries have sometimes been very different from each other. It is also plausible that contingent historical factors or unique developmental circumstances sometimes explain the success better than the actions of the policy-making institutions: The factors that provided success under one set of circumstances will not automatically work in the future. All in all, the hunt for exemplary models often highlights relatively recent decisions and practices and at the same time possibly underestimates the impact of long-lasting historical models and other societal continuities and transformations (Miettinen 2013, 80).

Although this paper has focused on the impact of state intervention on companies involved in game development, there is little doubt that these policies also have had an impact upon the individual workers. Jørgensen (2019, 674) has shown that the Norwegian game policies are closely related to the strong Working Environment Act in the country, which also resonates with the Nordic welfare model in general. Due

to issues relating to space and focus we have however not been able to discuss this relationship in detail.

Future research should look deeper in to how public funding is structured and how the discourses are formulated around the appeals for more public funding for the games industry. We are also aware that focusing on national policies leaves some other avenues uncovered. Thus, we entirely agree with Kerr (2013, 220) that the varying local cultures of game production also need to be explored in the larger European economic, political, and cultural context. However, before we can move to a broader analysis of the interplay between national policy measures and larger regional and global regulations we still need a better overview of the differences between national level funding policies. Not least, while it has been beyond the scope of this paper, looking at what consequences EU and EEC membership may have had on policies relevant for game development would also be of interest.

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References

- AGENDA: GAME. 2014. *RISE Interactive*. www.tii.se/projects/agenda-game.
- Ali-Yrkkö, Jyrki and Raine Hermans. 2002. *Nokia in the Finnish innovation system*. ETLA Discussion Papers, The Research Institute of the Finnish Economy (ETLA), No. 811.
- Almi. 2017. *Årsredovisning 2016: Hög efterfrågan - en positiv utmaning*. <http://sthlmkom.se/wp-content/uploads/2017/05/Almi-ÅR-2016-1.pdf>.
- Arnroth, Thomas. 2011. "Spelutvecklare Kräver Statligt Stöd." *Computer Sweden*, February 28, 2011.
- Business Finland. 2018. *Frequently asked questions on Business Finland's game business funding*. <https://www.businessfinland.fi/contentassets/f6d0fa1dd2e0480f97b07c8b978a97ea/faq-game-business-development-funding.pdf>.
- Castells, Manuel and Pekka Himanen. 2002. *The Information Society and the Welfare State: The Finnish Model*. Oxford & New York: Oxford University Press.
- Chen, Liang-rong. 2017. Government Funding Encourages Companies to Take Risks. *CommonWealth Magazine* 614. <https://english.cw.com.tw/article/article.action?id=596>.
- Crossley, Rob. 2010. "Study: Average dev costs as high as \$28m". *Develop*, Jan 2010. <http://www.develop-online.net/news/33625/Study-Average-dev-cost-as-high-as-28-m>.
- Dauncey, Hugh. 2012. "French videogaming: What kind of culture and what support?" *Convergence* Vol 18, No 4. <https://doi.org/10.1177%2F1354856512439509>.
- De Prato, G., C. Feijóo, D. Nepelski, M. Bogdanowicz and J.P. Simon. 2010. *Born Digital / Grown Digital: Assessing The Future Competitiveness of The EU Video Games Software Industry*. Seville: European Union. http://publications.jrc.ec.europa.eu/repository/bitstream/JRC60711/reqno_jrc60711_jrc60711.pdf.pdf.
- European Commission. 2019. "Population (Demography, Migration and Projections)". *Eurostat*. <https://ec.europa.eu/eurostat/en/web/population-demography-migration-projections/statistics-illustrated>

- Fogelberg, Hans. 2011. "Research on IT Use and Users in Sweden, with Particular Focus on 1990–2010." Dataföreningen. <http://kth.diva-portal.org/smash/record.jsf?pid=diva2%3A438396&dswid=112>.
- Garda, Maria B. and Pawel Grabarczyk. 2016. "Is every indie game independent? Towards the concept of independent game". *Game Studies: The International Journal of Game Research* 16 (1).
<http://gamestudies.org/1601/articles/gardagrabarczyk>.
- Gerring, John. 2007. *Case study research : principles and practices*. Cambridge University Press, New York.
- Glevén, Jan. 2016. "Fokus På Spel Ökar Vinstchansen." *Dagens Industri*, April 7.
<https://www.di.se/artiklar/2016/4/7/jan-gleven-fokus-pa-spel-okar-vinstchansen/>
- Gothia Science Park (2014). "Statssekreterare skeptisk till utvecklingsmedel för dataspelsbranschen." *Mynewsdesk*, Jul 4.
http://www.mynewsdesk.com/se/gothia_science_park/news/statssekreterare-skeptisk-till-utvecklingsmedel-foer-dataspelsbranschen-88659.
- Graber, Christoph Beat. 2010. "State aid for digital games and cultural diversity: a critical reflection in the light of EU and WTO law". In *Governance of Digital Game Environments and Cultural Diversity. Trans-disciplinary Enquiries*, edited by Christoph Beat Graber and Mira Burri-Nenova, 170-201. Cheltenham, UK, Northampton, MA: Edward Elgar.
- Hallberg Tord Jöran. 2007. *IT-gryning: svensk Datahistoria Från 1840- Till 1960-Talet*. Lund: Studentlitteratur.
- Haraldsen Arild. 1999. *Den Forunderlige Reisen Gjennom Datahistorien*. Oslo: Tano Aschehoug.
- Hielle, Lars-Peter. 2014. «Dataspelsbranschen vill att staten ska satsa på nya spel». *Sveriges Radio*. July 3.
<https://sverigesradio.se/sida/artikel.aspx?programid=1646&artikel=5904786>.
- Hicks, Alexander. 1999. *Social Democracy and Welfare Capitalism: A Century of Income Security Politics*. Ithaca, NY: Cornell University Press.
- Henrekson, Magnus. 2002. "Strategier för en framgångsrikare kommersialisering av svensk universitetsforskning." *Ekonomisk Debatt* 30 (2): 159-180.
- Hoffman, Johan. "The Game Incubator Network Bringing Sweden's Best Developers To Light." *Gothia Science Park* (blog), May 10, 2012. www.gsp.se/sv/press/the-game-incubator-network-bringing-swedens-best-developers-to-light

- Hotho, Sabine. 2013. "Some Companies Are Fine. One Day and Gone the Next". In *Changing the Rules of the Game*, edited by Sabine Hotho and Neil McGregor, 82-104. Palgrave Macmillan
- Huber, Evelyne and John D. Stephens. 2001. *Development and Crisis of the Welfare State: Parties and Policies in Global Markets*. Chicago: University of Chicago Press.
- Hyvärinen, Jari and Anna-Maija Rautiainen. 2007. "Measuring additionality and systemic impacts of public research and development funding – the case of TEKES, Finland". *Research Evaluation* 16 (3), 205–215.
- Iqbal, Razi and Padma Todi. 2015. "The Nordic Model: Existence, Emergence and Sustainability." *Procedia Economics and Finance* 30, 336–51.
<https://www.sciencedirect.com/science/article/pii/S2212567115013015>.
- Innovation Norway. n.d.a. "Om Innovasjon Norge". *Innovasjon Norway*.
<http://www.innovasjon norge.no/no/om-innovasjon-norge/om-oss/omoss/>.
- Innovation Norway. n.d.b. "Spill ut i verden". *Innovasjon Norway*.
<http://www.innovasjon norge.no/no/finansiering/spill-ut-i-verden/>.
- Jørgensen, Kristine. 2009. "Conan eller Josefine? Politikk og økonomi i norsk spillbransje". *Norsk Medietidsskrift* 16, 317–344.
<https://www.idunn.no/nmt/2009/04/art01>.
- Jørgensen, Kristine. 2013a. "Mellom næring og kultur: en studie av norsk spillpolitikk". *Norsk Medietidsskrift* 20, 5–28.
https://www.idunn.no/nmt/2013/01/mellom_nring_og_kultur_en_studie_av_norsk_spillpolitikk.
- Jørgensen, Kristine. 2013b. *Den norske spillundersøkelsen 2.0*. Norwegian Film and TV Producers' Association.
http://medienorge.uib.no/files/Eksterne_pub/Spillbransjen-rapport-2013.pdf.
- Jørgensen, Kristine. 2019. "Newcomers in a Global Industry: Challenges of a Norwegian Game Company". *Games and Culture* 14(6), 660-679.
<http://journals.sagepub.com/eprint/9nnwEKpGG2Q5jRaW3XKU/full>.
- Jørgensen, Kristine, Ulf Sandqvist and Olli Sotamaa. 2017. "From Hobbyists to Entrepreneurs: On the Formation of the Nordic Game Industry". *Convergence: The International Journal of Research Into New Media Technologies* 23(5), 457-476. <https://journals.sagepub.com/doi/abs/10.1177/1354856515617853>.

- Jørgensen, Kristine and Jørgen Tharaldsen. 2012. *Den norske spillundersøkelsen 1.0*. Norwegian Film and TV Producers' Association.
<http://folk.uib.no/st01206/Spillundersokelse1.pdf>.
- Kaiserfeld, Thomas. 1996. "Computerizing the Swedish Welfare State: The Middle Way of Technological Success and Failure". *Technology and Culture* 37 (2): 249–79.
- Karlsson, Sigbritt, Per-Arne Lundberg, Per Strömbäck and Ulf Wilhelmsson. 2014. "Missa Inte Chansen till Nya Jobb i Dataspelebranschen." *Dagens Nyheter*, July 14.
- Krantz, Olle. 2006. "Small European Countries in Economic Internationalisation: An Economic Historical Perspective", Umeå papers in economic history 26, Umeå: Umeå University.
- Kerr, Aphra. 2017. *Global Games. Production, Circulation and Policy in the Networked Era*. New York: Routledge.
- Kerr, Aphra. 2013. "Space Wars: The Politics of Games Production in Europe". In *Gaming Globally: Production, Play, and Place*, edited by Nina B. Huntemann and Ben Aslinger, 215-232. New York: Palgrave Macmillan.
- Kerr, Aphra and Anthony Cawley. 2012. "The Spatialisation of The Digital Games Industry: Lessons From Ireland". *International Journal of Cultural Policy* 18 (4), 398-418.
<https://www.tandfonline.com/doi/abs/10.1080/10286632.2011.598515>.
- Korhonen, Johanna. 2008. *Toivoa, Tahtoa, Tarmoa: TEKES 25 vuotta*. Helsinki: TEKES.
- Korhonen, Kari. 2012. *Skene – Games Refueled: Roadshow slide set*.
http://web02.TEKES.episerverhosting.com/globalassets/global/ohjelmat-jalpalvelut/ohjelmat/skene/aineistot/kari_korhonen_skene_launch_and_outlines.pdf.
- Kuorikoski, Juho. 2014. *Play Finland: History of the Finnish Video Games Industry*. Helsinki: Neogames.
- Lamy, Pascal, Martin Bruder Müller, Mark Ferguson, Lykke Friis, Cristina Garmendia, Iain Gray, Jan Gulliksen, Harri Kulmala, Nevenka Maher, Maya Plentz Fagundes, Lucyna A. Wozniak and Milena Zic Fuchs. 2017. "LAB – FAB – APP: Investing in the European future we want". Brussels: European Commission: Report of the independent High Level Group on

- maximising the impact of EU Research & Innovation Programmes.
http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/hlg_2017_report.pdf
- Larsson, Peter. 2013. "Staffan Björk Deltar i Grupp Som Ska Positionera Spel Som Eget Forskningsområde." *Tillämpad Informationsteknologi*. Dec 16. Available at: <https://ait.gu.se/aktuellt/nyheter/fulltext//staffan-bjork-deltar-i-grupp-som-ska-positionera-spel-som-eget-forskningsomrade.cid1197640>.
- Liboriussen, Bjarke and Paul Martin. 2016. "Regional Game Studies". *Game Studies: The International Journal of Game Research* 16 (1).
<http://gamestudies.org/1601/articles/liboriussen>
- Lindström, Karin. 2013. "De Ska Sätta Sveriges Spelagenda." *Computer Sweden*, December 19. <https://computersweden.idg.se/2.2683/1.538360/de-ska-satta-sveriges-spelagenda>
- Lundin, Per. 2012. *Computers in Swedish Society: Documenting Early Use and Trends*. New York: Springer.
- McGregor, Neil. 2013. "Business Growth, the Internet and Risk Management in the Computer Games Industry". In *Changing the Rules of the Game*, edited by Sabine Hotho and Neil McGregor, 65-81. Palgrave MacMillan: London.
- Miettinen, Reijo. 2013. *Innovation, Human Capabilities, and Democracy: Towards an Enabling Welfare State*. Oxford: Oxford University Press.
- Ministry of Culture and Church Affairs. 2003. *Tiltak mot voldelige spill*. Pressemelding 72/03. http://www.regjeringen.no/nb/dokumentarkiv/Regjeringen-Bondevik-II/kkd/Nyheter-og-pressemeldinger/2003/tiltak_mot_voldelige_spill.html?id=249576.
- Ministry of Culture and Church Affairs. 2008. *Report No. 14 to the Storting (2007–2008). Video Games*. <https://www.regjeringen.no/en/dokumenter/report-no.-14-to-the-storting-2007-2008/id502808/?ch1/41&q1/4>.
- Monaco, Sara, Marianne Wikgren, Stina Gerdes Barriere, Jonas Gurell, Staffan Karlsson and Henrik Aldberg. 2016. *Forskningsbarometern 2016: En Överblick Av Det Svenska Forskningsystemet i Internationell Jämförelse*. Stockholm: Vetenskapsrådet.
https://www.vr.se/download/18.2412c5311624176023d25ad9/1529480530992/Forskningsbarometern-2016_VR.pdf

- Neogames. 2018. *Finnish Games Industry in 2017*. <https://www.neogames.fi/2017-finnish-games-industry-in-2017/>.
- Nieborg, David B. and Jeroen de Kloet. 2016. "A Patchwork of Potential: A Survey of the European Game Industry". In *Global Game Industries and Cultural Policy*, edited by Anthony Fung, 201-226. London: Palgrave Macmillan, pp. 201-226.
- OECD. 2017. *Government at a Glance 2017*. Government at a Glance. OECD.
- OECD. 2018. *Main Science and Technology Indicators 2018/1*.
- Oslo Economics and Vasa Marketing. 2018. *Den norske spillbransjen. Utredning for Kulturdepartementet, 2018-3*. Oslo Economics.
<http://osloeconomics.no/publication/den-norske-spillbransjen/>.
- Petersson, Tom. 2010. "Private and Public Interests in the Development of the Early Swedish Computer Industry." In *Science for Welfare and Warfare: Technology and State Initiative in Cold War Sweden*, edited by Per Lundin, Niklas Stenlås, and Johan Gribbe, 109–30. Sagamore Beach, MA: Science History Publications.
- Pratt, Andy C. 2005. "Cultural industries and public policy". *International Journal of Cultural Policy* 11 (1).
<https://www.tandfonline.com/doi/abs/10.1080/10286630500067739>.
- Research Council of Norway. 2017. "Hva er Skattefunn?" *Skattefunn.no*, Nov 24.
https://www.skattefunn.no/prognett-skattefunn/Hva_er_SkatteFUNN/1253987672438?lang=no.
- Robertson, Erik. 2004. *Datorspelsindustrin 2003*. Mötesplats för upplevelseindustrin, IGDA and Spelplan.
- Robertson, Erik. 2011. "Nordiska datorspelprogrammet". *Nordicom Information* 33 (3): 61-69. <http://www.nordicom.gu.se/sv/tidskrifter/nordicom-information-32011/nordiska-datorspelprogrammet>.
- Ryssevik, Jostein and Turid Vaage. 2012. *Spill levende? En kartlegging av norsk dataspillbransje. Ideas2Evidence Rapport 3/2012*.
<https://www.ideas2evidence.com/sites/default/files/Kartlegging%20norsk%20dataspillbransje%202012-ny.pdf>.
- Saarikoski Petri and Jaakko Suominen. 2009. «Computer hobbyists and the gaming industry in Finland". *IEEE Annals of the History of Computing* 31 (3): 22–33.
<https://ieeexplore.ieee.org/document/5223983>.

- Sandqvist, Ulf. 2010. *Digitala dro drömmar och industriell utveckling: en studie av den svenska dator- och tv-spelsindustrin 1980-2010*. Umeå studies in economic history. Doctoral Thesis, Umeå University, Sweden.
- Sandqvist, Ulf. 2012. "The development of the Swedish game industry". In *The Video Game Industry: Formation, Present State, and Future*, edited by Peter Zackariasson and Timothy Wilson, 134-153. London & New York: Routledge.
- Sandqvist, Ulf. 2015. "The Games They are a Changin': New Business Models and Transformation within the Video Game Industry". *Humanities and Social Sciences Latvia* 23 (2): 4-20.
- Sandvik, Kjetil. 2007. "Støtte til computerspil? En kulturpolitisk strategi i de nordiske lande". *Nordicom* 29 (1). http://www.nordicom.gu.se/sites/default/files/kapitel-pdf/245_sandvik.pdf.
- Schön, Lennart and Ken Schubert. 2010. *Sweden's Road to Modernity: An Economic History*. Stockholm: SNS förlag.
- Sotamaa, Olli, Heikki Tyni, Saara Toivonen, Tiina Malinen and Erkkka Rautio. 2011. *New Paradigms for Digital Games: The Finnish Perspective*. TRIM Research Reports 3. Tampere: University of Tampere. <http://tampub.uta.fi/handle/10024/65442>.
- Sotamaa, Olli and Tero Karppi (eds.). 2010. *Games as Services: Final Report*. TRIM research reports 2. Tampere: University of Tampere. <http://urn.fi/urn:isbn:978-951-44-8167-3>.
- Statistics Norway. 2018. "Approaching 5.3 million". *SSB.no*, Feb 23. <https://www.ssb.no/en/befolkning/artikler-og-publikasjoner/approaching-5.3-million>.
- Steen, Roland. 2002. *Personaldatorer : En Utvärdering Av Arbetsmarknadseffekter*. Rapport: Observatoriet För IT Och Tillväxt 50. Stockholm: IT-kommissionen.
- Straumann, Robert Hval. 2015. *Spillbransjen 2015*. Virke Produsentforeningen. http://www.virke.no/bransjer/Documents/Virke_Spillbransjen2015.pdf.
- SWECO. 2017. "Strategiska Innovationsagendor: En Kartläggning Av Finansierade Agendor." www.vinnova.se/contentassets/689146a8bd274c52b3f177a8a125827a/swecos-kartlaggning-av-strategiska-innovationsagendor_20170601pdf.pdf.

- Syvvertsen, Tanja, Gunn Enli, Ole J. Mjøs and Hallvard Moe. 2014. *The Media Welfare State: Nordic Media in the Digital Era*. Ann Arbor: University of Michigan Press.
- TEKES. 2015. *10 Years of Funding and Networks for The Finnish Game Industry*. <https://www.neogames.fi/2015-TEKES-10-years-of-funding-and-networks/>.
- UNDP. 2013. *Human Development Report. 2013, The Rise of the South: Human Progress in a Diverse World*. New York: United Nations Development Programme.
- Vinnova. 2011. "The Game Incubator | Vinnova." *Vinnova.se*. <https://www.vinnova.se/p/the-game-incubator/>.
- Vinnova. n.d. "Sök efter ett projekt som fått finansiering från Vinnova | Vinnova." *Vinnova.se*. <https://www.vinnova.se/sa-framjar-vi-innovation/projekt/>.
- Wendle, Joel. 2014. "Spelbranschen Växer – Men Konkurrensen Ökar." *Sveriges Radio*, Dec 22. <https://sverigesradio.se/sida/artikel.aspx?programid=83&artikel=6050568>.
- Venäläinen, Raisa; Kato, Pamela; Della Rocca, Jason & Lähde, Kristiina (2019). *Programmes for Education and Gaming. Evaluation Report*. Helsinki: Business Finland.
- White, Gregor and Nicola Searle. 2013. "Commercial Business Models for a Fast Changing Industry". In *Changing the Rules of the Game*, edited by Sabine Hotho and Neil McGregor, 28-47. Palgrave Macmillan.
- Yin, Robert K. 1993. *Applications of case study research*. Sage. Newbury Park.