Dominic Arsenault and Louis-Martin Guay

Canada

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To understand the development and importance of video games in Canada, a few geographical and sociological facts must first be pointed out. Canada occupies the northern part of North America and is surrounded by three oceans and its only neighbor, the United States. While Canada is the second-largest country in the world by total area (9,984,670 square kilometers, which is approximately 5 percent larger than the United States' 9,526,468 square kilometers), it has a relatively small population of approximately 34 million (Statistics Canada 2012). When compared to the United States' 2010 population of 308 million (US Census Bureau 2010), it is easy to understand why Canada has historically been treated simply as an extension of the US games market.

Asked whether the Canadian games market had any distinctive traits, industry executives typically responded "borders don't matter" and this is a "global business." Canada is widely regarded as a subset of the US market, with differences in sales patterns between the two countries "not of a serious magnitude" (Bertram interview, 2002). The games titles and genres that have dominated the Canadian market over the past five years were roughly the same titles that topped the US and European charts (Dyer-Witheford and Sharman 2005, 194).

Canada's relatively small population, together with the continental proximity, permissive trade agreements, and close cultural exchanges between the two English-speaking countries,

have all contributed in minimizing Canada as a distinct territory. The most apparent difference lies in the requirement by law for all products sold in Canada to feature labeling in both English and French. But this difference is not so substantial when considering Canada as a whole because bilingualism, just like the apparent sparseness of the population, is somewhat misleading.

For all its land area, Canada's population is densely situated along the southern border, and even then, in very definite urban centers: 50 percent of Canadians live in the Quebec City-Windsor Corridor, a narrow 1,200 kilometer-long strip of land along the Saint Lawrence River, and more than one-third of all Canadians live in either Toronto (Ontario), Montreal (Québec), Vancouver (British Columbia), or Calgary (Alberta). This is indicative as well of the population density and uneven economic importance of the ten provinces and three territories that together make up Canada, as these four provinces account for 86 percent of the total Canadian population. While bilingualism plays an important role in the international perception of Canada, the country is predominantly English-speaking. In eight provinces, francophone minorities represent at most 2.5 percent (in Ontario) of their population. The provincially bilingual province of New Brunswick has a 30 percent French-speaking minority, and the provincially unilingual French province of Québec has an 80 percent francophone majority and 10 percent Anglophone minority, in stark contrast with the rest of the country.

If there is a sort of leitmotif to be identified regarding the Canadian population, it could be said to be, by location and language, a tendency toward "clustering." "*Qui se ressemble s'assemble*"; "birds of a feather flock together." This is reflected in Canada's very political structure. As a federation, Canada is headed by a federal government that shares powers and responsibilities with the provinces, which are free to develop unique economic, social, and cultural policies. If we are to understand the gaming culture and industry of the country, we must

realize that while some aspects are shared and apply to all cases, every province is unique in other respects, and there are complex interprovincial and provincial-federal relationships at work. Nevertheless, some initiatives have recently appeared in an attempt to bring under one flag all actors across the 5,500 kilometers of Canadian space, such as the Canadian Video Game Awards, established in 2009 to celebrate Canadian-made video games and talent.

An Overview of the Industry

Like almost every other country on the planet, video games entered the Canadian cultural space from the outside before any local industry was set up. The fact that Canada had the United States as its neighbor, though, combined with the absence of linguistic barriers between the two, meant that many home games, consoles, and arcade games were released simultaneously in both countries. Hence, Canada never really had to rely on a private import industry except for Japanese games, which, as in the United States, could appeal to a niche audience. Interestingly, despite the bilingual labeling and instruction manuals, games sold in Canada had their contents only available in English, as the software itself was the same version as for the US market; an import market for French games might have been a possibility in Québec, but it never materialized for two reasons: the games translated for France were produced for the PAL video standard and so would not be compatible with Canadian NTSC televisions; and the games took months or years before being released in Europe and thus would be both outdated and more expensive if they relied on private importation. As this shows, there is good historical reason to consider Canada a subset or auxiliary part of the American market, at least until an indigenous games industry started to emerge.

It is very difficult to obtain valid data on the games industry in Canada, perhaps owing to the relative youth and secretive corporate culture of this sector. A 2009 study prepared for the Entertainment Software Association of Canada (ESAC) best described this reality:

> In November 2007, when ESAC published its first white paper, "Entertainment Software: The Industry in Canada," Canada's entertainment software industry was basically an unknown quantity. There was no aggregate data on the size of the industry in this country, no overall job numbers or economic impact statistics to provide a snapshot of just how significant the industry was to Canada's economy. The best information that was available either lumped entertainment software in with other forms of content or with other forms of technology. (Hickling Arthurs Low 2009, i)

The same study identified "three primary and seven secondary clusters across eight provinces in Canada. Together, these clusters represent 94% of total employment" (Hickling Arthurs Low 2009, iii). In 2008, the two initial historical hubs around which the Canadian game industry has articulated itself, Vancouver and Montréal, respectively housed 42 percent and 32 percent of the total game industry employment. The bulk of the remainder was split among the third primary cluster, the Greater Toronto Area (9 percent), and the largest secondary clusters, Québec City (4 percent) and Ottawa-Gatineau (2 percent). The remaining 11 percent of total employment was spread across the other secondary clusters, such as London (Ontario), home to Digital Extremes and a handful of small to midsize game developers, and Edmonton (Alberta), with BioWare and a few surrounding game studios. Very few companies happen to operate outside the clustering approach; Silicon Knights's 120 employees form such an exception, which denies them the advantages of clustering as summarized in the Hickling Arthurs Low (2009) report:

The reasons why firms cluster are now widely documented: innovation performance among clustering firms can be enhanced as a result of benefits that stem from being in close proximity to market leaders, from being able to access a pool of highly skilled and talented employees, and from the learning and knowledge sharing that comes from being in a community where social interactions can take place inside and outside of office hours. (Hickling Arthurs Low 2009, 7)

The Canadian games industry has seen substantial annual expansions throughout the 1990s and 2000s. Ranked sixth in importance among game-producing nations in 2005 after the United States, Japan, Britain, Germany, and France (Dyer-Witheford and Sharman 2005, 190), it has risen to occupy the third rank (behind the US and Japan) in 2011, with an estimated economic impact of C$1.7 billion on the country's economy. With 348 video game companies and 16,000 employees, Canada is the largest nation of game developers on a per-capita basis (SECOR Consulting Inc. 2011, 2).

The strength of the game industry in Canada is attributed to four factors:

1. cheaper cost of living, hence lower average salaries and sometimes operating costs, than its neighbor, the United States

2. the presence and synergistic development of broader high-technology and visual media sectors ("industry clustering")

3. strong government policies and fiscal incentives to favor development of that specific sector

4. the availability of a highly skilled and creative workforce, through long-standing governmental investment in postsecondary education.

The first point, while certainly a valid consideration for multinational studios, hinges on multiple factors that are beyond the control of the games industry itself, such as the exchange rate between the American dollar and Canadian dollar, the presence in Canada of free universal health care and social security measures, labor laws, free trade agreements, and taxation levels and regulations on corporations, among other things. Individual provinces can work out special arrangements or differently implement some of these features, which we cover as a separate point. But first, we will examine the historical clustering and development dynamics of the games sector and larger related industries across the main hubs of game development in Canada.

The Emergence of Entrepreneurs: The Local Players

The first historical artifact of Canadian video game production is the subject of debate. Two games and companies share the claim for the creation of the country's first video game. In 1982, two Vancouver teenagers, Don Mattrick and Jeff Sember, designed a game called *Evolution*, in which the player experienced natural evolution from the first life forms to the appearance of the human race. Published by the Sydney Development Corporation for the personal computer in 1983, the game sold more than four hundred thousand copies—a striking success when put in proper perspective: it matched Infocom's original *Zork: The Great Underground Empire—Part I* (1980) and exceeds Interplay's three hundred thousand copies of the smash hit *The Bard's Tale* (1985). Proud of their success, the two creators founded a company in British Columbia called Distinctive Software, with a then unheard of size of sixty employees. All in all, Distinctive Software's development was a relative success story from 1983 to 1991. This came in no small part from their Commodore 64 games. Working closely with Accolade, a well-known publisher at the time, they achieved a good rhythm of production and sales for the rest of the decade thanks

to the Commodore 64's high market penetration rate, with sports titles such as *Hardball! (*1985),

Test Drive (1987), and *Grand Prix Circuit* (1989).

Also in 1983 but 3,500 kilometers away beyond the Canadian Prairies and on the eastern

frontier of Ontario in Ottawa, Rick Banks and Paul Butler's Artech Studios created *B.C.'s Quest*

for Tires (1983), also published by Sydney, a game in which the caveman player-character must

rescue his girlfriend who has been kidnapped by a dinosaur. The next year, the sequel, *Grog's*

Revenge (1984), was released. Artech Studios had a diverse production history by making games

for practically every platform available in the games industry. This ranged from the early-days

multi-platform ports of successful games developed by DSI in Vancouver and Accolade in the

United States to a slew of licensed game adaptations such as *Jeopardy* (1998), *Monopoly* (1999),

and *Trivial Pursuit Unhinged!* (2004) in the late 1990s and early 2000s. Artech's last original

work was *The UnderGarden* (2010), and the studio closed its doors in 2011.

The Beginnings

In 1991, the US developer and publisher Electronic Arts (EA) bought Distinctive Software and

renamed the studio EA Canada. The industry grew significantly in the 1990s as employees left

the company to start third-party studios such as Radical Entertainment (1991), Relic

Entertainment (1997), Barking Dog Studios (1998), and Black Box Games (1998). In the same

period of time, other independent game studios led by passionate creators opened their doors. In

St. Catharines (Ontario), Denis Dyack founded Silicon Knights in 1992, just after he produced

Cyber Empires (1991), a DOS-based strategy fighting game. In 1996, the company created the

Legacy of Kain series, and in 2002 they achieved critical acclaim with *Eternal Darkness:*

Sanity's Requiem, one of the most highly acclaimed titles in the survival horror genre.

In addition to Dyack's business, 1992 also saw Québec City entrepreneur Rémi Racine founding Megatoon, which eventually became Artificial Mind and Movement (A2M) and Behavior Interactive. Specializing in the adaptation of popular licenses, the company accumulated numerous sales to become in 2011 the largest independent game studio in Canada. After relocating in Montréal in 2000, they worked on high-profile franchises such as Scooby Doo, Monsters Inc., Ice Age, and Kung Fu Panda. In 2009, they had moderate success with their first original intellectual property, a third-person shooter game called *Wet*.

The year 1993 marked the creation of another Canadian studio, Digital Extremes, by James Schmalz in London (Ontario). Together with American developer Epic Games, they created one of the milestones in the first-person shooter game history, *Unreal* (1998), which received a multitude of awards from the industry and specialized press. The *Unreal* series sold more than fifteen million units worldwide. Following that success, Schmalz and his team have since worked on *Dark Sector* (2008), an original intellectual property (IP), on the PlayStation 3 version of *BioShock* (2008), and on *The Darkness 2* (2012), among others.

In 1995, Alberta made its entrance on the Canadian game development scene through the creation of BioWare. Founded by doctors Ray Muzyka, Greg Zeschuk, and Augustine Yip, and specializing in role-playing games (RPGs) for the PC market, BioWare became one of the most praised companies in the Western world in the early 2000s. At first successful with the Baldur's Gate, Neverwinter Nights, and Knights of the Old Republic franchises, they developed their own intellectual properties with *Jade Empire* (2005), *Mass Effect* (2007), and *Dragon Age* (2009), celebrated RPGs and action-RPGs that have become a reference point for many creators around the world.

The Consolidation of an Industry: The Foreign Giants

In addition to the creation of domestic studios, the 1990s have also seen the establishment of two foreign giants: Electronic Arts Canada and Ubisoft Montréal. From coast to coast, they changed and dictated the business and production of AAA games in the country, and to an extent, in the Western world. With approximately three thousand employees in 2011, EA Canada became the biggest video game production studio in the world. Their franchises published under the EA Sports and EA Sports Big labels, such as FIFA, NBA, and the Need for Speed series, have sold millions of copies. While EA's Vancouver Studio is the largest center of production in Canada, the firm now spans almost the entire country thanks to the founding and acquisition of satellite studios in Montréal and Edmonton.

In 1997, the Québec government's subsidies convinced the French company Ubisoft to open a sizable studio in the province. After a slow start, Ubisoft Montréal became, fewer than five years later, the second-biggest studio in the country (behind EA Vancouver) and one of the most productive in the world. Thanks to franchises such as Tom Clancy's Splinter Cell and Prince of Persia (particularly the game *Prince of Persia: The Sands of Time* [2003]), the studio acquired both revenue and credibility. Since then, Ubisoft Montréal has grown to become one of the largest development studios in the world, with more than 2,500 employees. In 2007, it launched a new intellectual property called *Assassin's Creed*, designed by the now renowned creative director Patrice Désilets. In the span of a few weeks, it became the company's biggest seller and one of the well-known games of the 2010s. Followed by *Assassin's Creed II* (2009), *Assassin's Creed: Brotherhood* (2010), and *Assassin's Creed: Revelations* (2011), the franchise

sold twenty-nine million units in only four years. From 2005 to 2010, Ubisoft also expanded to open other studios in Québec City and Toronto.

During the first decade of the twenty-first century, more foreign companies entered the Canadian industry, and the already-established firms proceeded with multiple acquisitions to consolidate their presence. The first one to follow was *Grand Theft Auto* creator Rockstar, a subsidiary of Take-Two Interactive that established a Rockstar Canada in Toronto in 1999. The firm then acquired Vancouver studio Barking Dog in 2002, which became Rockstar Vancouver. Some of the important titles that Rockstar Toronto worked on include *Max Payne* (1, 2 and 3), *The Warriors* (2005), *Bully* (2008), and *Grand Theft Auto IV* (2008). Another Vancouver studio, sports game developer Black Box Games, was also acquired in 2002, this time by EA Canada. THQ crossed the border from the US in 2004 with the acquisition of yet another Vancouver developer, Relic Entertainment, whose respectable pedigree of computer games such as *Homeworld* (1999) and *Homeworld 2* (2003), was subsequently improved by *Warhammer 40,000: Dawn of War* (2004) and *Company of Heroes* (2006). Not wanting to be left behind, the American publishing giant Activision grabbed two good independent studios up north as well: Québec City studio Beenox in 2005, a porting house for the PC platform that became a more versatile studio under that new parent company, and Radical Entertainment in 2008 (through a merger with Vivendi Universal). Radical then started work on a new IP, which led to the release of *Prototype* (2009) and *Prototype 2* (2012), the latter being the studio's last game before Activision shut down production there in June 2012.

The influx of new players and increasing concentration of studio ownership also hit Montréal in the 2000s. Electronic Arts settled in with a new studio, EA Montréal, in 2004. The studio worked on some EA franchises such as SSX and NHL, and developed two original IPs,

Boogie (2007) and *Army of Two* (2008). In 2007, the British publisher Eidos followed suit, with Eidos Montréal developing the next games in the Deus Ex and Thief franchises. THQ then set up a two-team studio in 2010 with a focus on the development of new intellectual properties. It was announced that one of those teams would be headed by Patrice Désilets, who had left Ubisoft Montréal and whose recruitment by THQ led to Ubisoft filing a lawsuit, as it had done against Electronic Arts in 2004, on the grounds that Ubisoft employees had contractual noncompete agreements prohibiting them from working for a competitor for a time following their resignation (Carless 2006). The year 2010 saw yet another studio opening in Montréal, this time by Warner Bros. Games, with a focus on DC Comics properties. The list seems to keep growing, with Square Enix announcing the creation of a Montréal studio in 2012 after acquiring Eidos in 2009.

These developments showcase one thing: how the internal dynamics of the Canadian games industry have also changed over the first decade of the third millennium. At the time of the 2007 Hickling Arthurs Low report, "British Columbia account[ed] for over half of the industry's total employment, followed by Quebec (26%) and Ontario (16%)" (Game Developer Research 2007). But the balance has since shifted, with Québec's video game industry experiencing a 562 percent growth from 2002 to 2011 (TechnoCompétences 2012), an annual average of 23.4 percent that resulted in the province being responsible for more than 50 percent of all video game jobs in Canada (SECOR Consulting Inc. 2011, 8). As the Vancouver cluster in large part evolved out of Electronic Arts, David Godsall's 2011 summary of the situation provides valuable insight.

> EA employed 1,800 people in B.C. at its height in 2007; now only 1,200 remain.
>   … But at the same time EA was laying people off in Vancouver, it was building

> an 850-person Montreal studio, with 400 working on mobile games. While EA is
> investing in the burgeoning non-console market, it is not doing it in Vancouver.
> (Godsall 2011)

To identify the causes of this eastward shift, we must trace a comparative historical analysis of the clustering dynamics that shaped the Vancouver and Montréal clusters.

Nesting in the Country: Gaming on the Shoulders of Giants

The Canadian game industry's appearance and rise is tied to the presence of various computer graphics, film and television, and visual effects firms. As a high-technology industry that requires specialized workers with a unique combination of technical skills (namely in video game programming, but also in advanced software, hardware and infrastructures) and creativity, the video game industry typically has to emerge out of a milieu that is conducive to this type of mixing through the preexisting presence of related industries. In Toronto, these include ATI Technologies, a firm specialized in graphics processing chips and acquired by AMD in 2006, and Alias Systems Corporation, which was acquired by Silicon Graphics in 1995, merged with Wavefront Technologies, which then released the 3-D modeling and animation software Maya, extensively used by the Hollywood film industry (Townsend 1999). The Vancouver cluster consists of a high number of game development studios created through a process of "firm fission" originating from Distinctive Software Incorporated (DSI). While the area is also home to strong film and TV production traditions (it is referred to as "Hollywood North"), the convergence of these two sectors is only beginning (Barnes and Coe 2011, 270–275): it seems that by having very early successful video game development (through DSI's first game

Evolution), this sector "evolved" independently from the film and TV industry, spurred by strong internal growth through a sudden and unexpectedly profitable hit title.

In Montreal, the presence of computer-generated imagery (CGI) goes back to the Université de Montréal CGI short films *Tony de Peltrie* (1982, Pierre Lachapelle, Philippe Bergeron, Daniel Langlois et Pierre Robidoux) and *Vol de rêve* (1985, Philippe Bergeron, Nadia Magnenat Thalmann, and Daniel Thalmann), the former leading to the creation of the Softimage firm and its corresponding 3-D modeling and animation software suite that also enjoys widespread usage in the Hollywood film industry. Montréal also saw the creation of two visual effects companies in 1991: Discreet Logic (acquired by Autodesk in 1999, along with Softimage in 2008), and Hybride Technologies, now a division of Ubisoft since 2008. This latter acquisition shows both the vitality of the games industry and how the technological convergence between film and games has taken on a very concrete economic dimension as well. As journalist Charles Prémont writes, even though the Québec video game industry kicked off in Québec City and through a certain number of small firms such as Strategy First, Megatoon/Artificial Mind and Movement (now Behavior Interactive), and Kutoka Interactive, Ubisoft's establishment in Montréal is what really got the ball rolling:

> According to many key figures of the video game scene, this arrival channeled the expansion and internationalization of the Québec interactive entertainment industry. The creation of a large studio (Ubisoft counted 200 employees in 1997, 700 in 2003, and 1400 in 2005) stimulates the job market, which allows the development of education and training centers. … Above all, Ubisoft allows Montréal to shine on the international stage and to attract other large game development studios. (Prémont, 16, freely translated)

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The Toronto and Montréal clusters illustrate how a video game sector can emerge by tapping qualified personnel from the local talent pool of already-existing film and computer graphics industries. That said, the three clusters differ in many other aspects; 70 percent of large firms (151+ employees) operate in Québec, while British Columbia is home to around 30 percent of all Canadian small (6–50) and medium-size (51–150) companies (SECOR Consulting Inc. 2011, 8–9). These numbers reflect the "firm fission" nature of the Vancouver cluster, where a lot of EA employees quit to open their own studios, and the "big business" approach that was favored by Québec's tax incentives and Ubisoft's initial push. In Québec, 90 percent of industry workers are employed at firms of more than one hundred people, and 72 percent of the total workforce is concentrated in a handful of studios with more than three hundred employees (SECOR Consulting Inc. 2011). As it turns out, government support may be the one key reason that explains Québec's meteoric rise at the expense of British Columbia and Ontario.

Live or Die by the Grants

The French company Ubisoft may have had many reasons for choosing Montréal as the site of its North American expansion in 1997: the Québec province's unique positioning as a crossroads between North American and European cultures; Montréal's reputation as a hub for film production, visual effects, and computer-generated imagery; and the Québec metropolis's status as the third-largest French-speaking city in the world; but the key reason may have been a lot more down-to-earth and monetary. The Québec provincial government at the time saw in the video game industry a vast potential for the attraction of foreign capital and investments, along with the creation of high-salaried jobs with particular skill sets and expertise, especially for the younger generation. Ubisoft was awarded a record $25,000-per-job subsidy in exchange for a

promise to hire five hundred people over five years; the headcount has since risen beyond two thousand.

This initial offer was met with a mixture of criticism and disbelief by the already-present multimedia and game software firms, none of whom had received such royal treatment (Tremblay and Rousseau 2005, 308–315). Eventually a policy for the development of the multimedia sector that applied to everyone and covered all the bases necessary for industry growth saw the light of day in under two years, based on multiple incentives that notably included a 37.5 percent tax credit on employee salaries. The Québec government's involvement provided a key reason for many external firms to set up shop in *La Belle Province*:

> The policy response from the Quebec government, which early-on had identified the growth potential of entertainment software industry, was pivotal to creating a critical mass outside of the Vancouver cluster and gave Canada an international reputation in the industry. The lesson is as much about timing as it is about offering strategic support. Though several other provinces in Canada have since introduced policies targeting the entertainment software industry, they have done so at a different stage of the industry's global development when a far greater number of regions are vying for a position in the global production network of entertainment software. (Hickling Arthurs Low 2009, 25)

These incentives managed to attract foreign investors for years down the road but were routinely complemented by direct subsidies for large-scale projects. In 2010, the Québec government invested $7.5 million for a Warner Bros. operation of three hundred employees by 2015, and $3.1 million for a four hundred-person THQ studio; in 2011, $2 million was given to Square Enix for an Eidos Montréal expansion and the creation of a second Square Enix studio

(Brousseau-Pouliot 2011). Square Enix's press release duly acknowledged the importance of these subsidies: "All of this has been made possible by our fantastic partners in Invest Quebec and Montréal International and we look forward to continuing our excellent working relationship with them" (Square Enix 2011). And yet, as important as these government investments are, they can only work if local talent is there as well, something THQ addressed when explaining its 2010 decision:

> Montréal is recognized for a high concentration of media talent and will serve as a hub for the latest location in THQ's expanding studio system. Its selection reflects THQ's strategy to grow development talent in highly skilled locations. (THQ Inc. 2010)

A Challenging Future: Canada's Quest for IPs

As of 2012, future industry growth is expected to rest on the shoulders of the Québec City and Greater Toronto Area clusters. The fate of the Vancouver and Montréal clusters is indeterminate; assuming no changes in government policy and general industry orientations, if the "casual revolution" (Juul 2009) and the rise of mobile and social gaming settles into a long-term market shift, the Montréal cluster's "big business" focus on large firms and AAA traditional console titles might result in an industrial downturn to the profit of other regions where micro- (one to five workers) and small-size developers appear more easily—namely, the Vancouver and Greater Toronto Area clusters. The development of IT and communications as well as the expanding focus on the casual games and nontraditional platforms may lead to a shift away from the clustering dynamic and toward a second type of industrial development identified by Dyer-Witheford and Sharman:

This geography demonstrates two contradictory spatial dynamics associated with high-tech industry. The supremacy of Vancouver and Montréal shows the importance of "regional innovation milieu," or "clustering" where mutually reinforcing production activity takes shape in one urban locale (Holbrook & Wolfe, 2000). But the success of some small and mid-size developers in the Prairie and Atlantic provinces also demonstrates "the death of distance" effect (Cairncross, 1997), where the Internet allows businesses to escape established urban centres and to take advantage of lower costs in more remote areas. (Dyer-Witheford and Sharman 2005, 191)

The "death of distance" effect might very well lead to a dissemination of game production in small and micro-enterprises more evenly spaced out, and into a shift away from the clustering dynamics that marked the "big business" AAA game production model. One of the greatest challenges that the Canadian game industry continually faces is the development of original IPs, controlled by Canadian interests. This is a result of the country's massive reliance on foreign investors:

Most of the video game revenue generated in Canada originates from foreign-owned game publishers like Electronic Arts (U.S.), Ubisoft (France), THQ (U.S.), and Eidos/Square-Enix (Japan). Canada has become an attractive location for foreign publishers, in part, because of generous tax incentives but also because of the clustering of talent and expertise in Vancouver, Toronto, and Montreal. Foreign-owned studios are a significant source of employment for Canadians trained in advanced skills for interactive media, entertainment programming, and new media design but the decisions and controls over content creation and ownership are not Canadian. (Gouglas et. al 2010, 2)

Indeed, there have been relatively few original Canadian intellectual properties. Increasingly, the large firms are investing in this practice in Canada with high-profile game series: Electronic Arts' *Skate* and *Army of Two*, Ubisoft's *Assassin's Creed*, BioWare's *Mass Effect* and *Dragon Age*, and Rockstar Toronto's *Bully* (2006) are testaments to this, but none of them were released before 2006. Historically, original franchises have more often come out of the small and mid-size developers rather than large companies, as the Eternal Darkness, Homeworld, and Unreal franchises illustrate.

The Northern Indies

In this sense, establishing supportive conditions for the successful development and operation of smaller independent studios might be a good way of ensuring a greater appearance of Canadian intellectual properties, given that many good projects have already been developed without established programs to favor them. The new millennium has seen the rise of the independent scene all around the world, and the Canadian creators are no exception. These include Jonathan Mak and his one-man project *Everyday Shooter* (2007), which won the Design Innovation award at that year's Independent Games Festival (IGF). At the same event, the Seumas McNally Grand Prize was awarded to Alec Holowka from Winnipeg (Manitoba) and Derek Yu for their game *Aquaria* (2007). Later on, another independent game designer from Montréal, Phil Fish, won the same award at the 2012 IGF for his game *Fez*, released in 2012 after five years of development chronicled in the Canadian documentary film *Indie Game: The Movie* (2012).. In fact, the Grand Prize was named thus to honor Seumas McNally, the programmer and president of Toronto-based independent studio Longbow Digital Arts, who won that prize in 2000 with *Tread Marks* (2000) before dying shortly after. It may be that Vancouver's entrepreneurship and Québec's

"big studio" approaches can be contrasted with a "cultural" concern in Toronto. The high numbers of micro and small independent studios that have elected to make their home in this cluster are also complemented by related initiatives, such as Syd Bolton's 2005 opening of the Personal Computer Museum in Branford (Ontario). This venue is meant to preserve the history and present state of the video game industry in the world, with a special emphasis on Canadian content. As of late 2010, more than eleven thousand software pieces are exhibited in the museum, a number that will only increase as the industry continues to prosper in Canada.

As this brief and incomplete tour shows, independent game developers are active in Canada. It would make sense for the various levels of government to diversify and invest more in this type of production for an important reason: keeping the revenue stream domestic, thus giving the province and country its due share of revenues through the taxation of profits. As foreign investors typically set up development shops to work on the games but still retain control of publishing in their home country or in other places abroad, publishing revenues escape the local governments. Because the advances in digital distribution lower the barrier of entry for smaller developers, independent game designers typically eschew the traditional industry's revenue-splitting mechanics, which often leave most of the profits to the publisher. Those clear advantages, though, are offset by very practical problems. One of Canada's weaknesses lies in the difficulty for companies to access venture capital (Canadian Chamber of Commerce 2012). In these situations, it is typically local governments that are called upon to invest first so as to spur a new type of economic activity, but the highly risky nature of computer game financing makes such targeted investments difficult to implement properly. One key type of partner in this undertaking may be universities and colleges that train students seeking a career in the game industry.

The Research Pipeline

In 2010, a group of researchers led by Sean Gouglas produced a report for the Social Sciences and Humanities Research Council of Canada on the role of universities in promoting innovation in the computer game domain. In the introduction, they set the tone for what could be the biggest challenge for the future:

> The key to Canada's digital economy, therefore, is to sustain economic growth while encouraging cultural innovation in the video game industry. The diversity of video game and video game technology producers is remarkable, ranging from studios that produce multi-million dollar titles to individual companies that produce distinct game assets to sole proprietorships that create simple (yet often addictive) casual games. (Gouglas et al. 2010, 2)

The development of a stronger economy will come through collaboration between companies, the government, and the higher education sector. Some bridging efforts have already been made in recent history, with universities and game developers partnering for the development of knowledge, training, and research. Brock University in St. Catharines (Ontario) had an informal partnership with the now-defunct Silicon Knights, notably through the biannual Interacting with Immersive Worlds conference series that began in 2007. The University of Alberta's GAMES Group similarly uses BioWare's game engines to develop path-finding algorithms and scripting languages, and invites industry contacts to provide feedback in game-related courses. In Québec, Ubisoft launched a Ubisoft Campus project from 2005 to 2010, bringing together different universities, colleges, and video game development programs in complementary disciplines in a single location. In this particular case, the government's financial participation in the project was

decried both by the opposition political parties and Ubisoft's competitors, who felt it was not the government's role, through taxpayers' money, to invest in the training of employees for a specific company.

According to Gouglas et al.'s report, one of the biggest problems in university-industry collaboration is the conflict in terms of the needs and wants of both groups. University instructors teach abstracts and fundamentals, reasoning that the tools may change and that attaining comprehension of the underlying principles will ensure a long-term capacity of adaptation; in contrast, the game industry needs employees with very definite, narrow, but in-depth skills in certain tools (particularly in large firms where worker specialization is more valued), who are able to efficiently carry out plans by respecting the tight deadlines and immediate needs on which the industry is built. As the report said, "Many of the people we interviewed suggested that formal programs at colleges and universities would not, and in fact, could not, prepare most for a career in the gaming industry" (Gouglas et al. 2010, 39). The feeling may even appear to be mutual: there is a growing number of universities that offers courses, programs, and research projects revolving around video game studies or experimental development, but these initiatives do not necessarily mesh together with the industry. For instance, the Canadian Game Studies Association has had very few speakers or attendees from the industry at its yearly conferences since it started operating in 2007. While the four provinces that lead the games industry have more than a dozen universities offering some measure of game-related education, these do not necessarily offer practical, hands-on game development programs, and many of them are not partnering with studios to the extent that internships or conferences by game professionals have become the norm. While it may appear to be something of a Canadian cliché, academia and industry may be said to act as two solitary entities. The

forging of a deeper relationship between the two might spur a second wave of game

entrepreneurship but also a larger cultural take on games that would complement the industry's

large-scale industrial production and provide a more diverse future for video games in Canada.

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