

The Political Economy of Canada's Video and Computer Game Industry

Nick Dyer-Witthford
University of Western Ontario

Zena Sharman
University of British Columbia

Abstract: Video and computer games are a burgeoning new media industry with global revenues rivaling those of film and music. This article, reporting on a three-year SSHRC-funded research project, analyzes the political economy of Canadian involvement in the interactive game business. After an overview of companies, ownership, markets and regional distribution, it discusses the developmental dynamics and contradictions of the Canadian industry in terms of capital, state, and labour. It concludes by reviewing different ways these interweaving forces may 'play out' and their implications for policy decisions affecting the Canadian video and computer game industry.

Résumé : Les jeux électroniques sont une nouvelle industrie médiatique en plein essor dont les revenus mondiaux rivalisent avec ceux des industries du film et de la musique. Cet article, qui rend compte d'un projet de recherche de trois ans financé par le CRHS, analyse l'économie politique de la participation canadienne à l'industrie du jeu interactif. L'article – suivant une vue d'ensemble des compagnies, de leurs propriétaires, des marchés, et de la distribution régionale – traite des dynamiques du développement ainsi que des contradictions de l'industrie canadienne en fonction de capital, état et travail. En guise de conclusion, l'article passe en revue les diverses manières dont ces trois forces interreliées pourront évoluer et l'impact de celles-ci sur les décisions politiques portant sur l'industrie des jeux électroniques au Canada.

Keywords: New media, Industry development, Ownership, Computer games

Introduction

After decades of relative neglect, video and computer games are finally winning some academic respect. Since 2000, a spate of scholarly studies has affirmed the importance of a new media whose creations, from *Grand Theft Auto* to *Halo* and *The Sims*, now rank amongst the cultural icons of our era. Nonetheless, digital

Nick Dyer-Witthford is an Associate Professor in the Faculty of Information and Media Studies at the University of Western Ontario, London, ON N6A 5B7. E-mail: ncdyerwi@uwo.ca. Zena Sharman is a Researcher in the Division of Continuing Medical Education at the University of British Columbia, Vancouver, BC, V6T 1Z3, E-mail: zena@cme.ubc.ca.

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play has still received scant attention from critical political economists. An exception is the work of Stephen Kline, Nick Dyer-Witheford, and Greig de Peuter, who argue that video and computer games can be seen as the 'ideal commodities' of global information capitalism (2003, p. 60). Building on this analysis, and supplementing it with interviews conducted in 2002-03 with representatives of games companies throughout Canada, as well as by government publications and press reports, this article analyses the political economy of the Canadian interactive game industry.¹

We give a short overview of the industry's ownership patterns, regional distribution, revenues, and markets and then examine the forces driving its development under three headings: capital, the state, and labour. Under the head of capital, we focus on the investment by multinational games publishers, and the mix of vitality and fragility this brings Canadian game development. Considering the role of the state, we show that while government support assists Canadian game production, the industry clashes with regulatory agencies around issues of ratings and censorship. Turning to labour, we argue that an educated, technologically competent labour force is the basis of the Canadian industry's growth, but that this creativity is now constrained by sexist hiring patterns and intensifying labour-management tensions. Our conclusion suggests different ways these contradictory, interwoven dynamics may "play out" in the future of Canadian game making.

The new media leviathan: From Pentagon to PS2

Since spinning-off from the playful experiments of U.S. military researchers in the 1970s, virtual games have become one of the fastest growing sectors of the entertainment complex. Global revenues from interactive games are estimated at around U.S.\$23 billion (DFC, 2004), rivalling Hollywood's box-office receipts. In its brief, turbulent history, the industry has developed a complex structure. There are two major wings: video games and computer games. Video games are played either on a dedicated console, like Sony's PlayStation 2 or Microsoft's Xbox, connected to a television. Computer games are played on a personal computer (PC). Typically, a game software title is designed for either a PC or a particular console (i.e., Xbox or PS2); a successful game is often available on multiple "platforms." There are also other branches to the industry. Hand-held devices—whether mini-consoles like Nintendo's GameBoy Advance or game capable cell phones like Nokia's—are burgeoning, and might be considered a third, distinct sector. Arcades, once so important, are in decline, even though public gaming spaces have been renewed in game oriented theme parks such as Sega's Playdium. Online gaming, either via Internet-linked PCs or modem-equipped consoles, is an increasingly popular form of digital play, with "massively multiplayer" online games like Sony's *EverQuest* attracting half a million fee-paying subscribers worldwide.

Historically, only two or three console manufacturers have proved viable in the battle over the home video gaming market. Today's oligopolistic contest is between Sony's PlayStation 2, Microsoft's Xbox, and Nintendo's GameCube.

These mammoth game entities operate on a “razor and blades” business model: profits come from games software but pre-eminence depends on sales of consoles, which are sold at a loss to build a “base” for the manufacturer’s games. Console gaming is a “perpetual innovation” business (Morris-Suzuki, 1988). Every five years or so, the interacting forces of consumer demand, technological innovation, and marketing prowess drive the introduction of an updated generation of consoles, galvanizing a new sales cycle. Loss in the ensuing “standards war” can destroy one of these console manufacturers, as Sega learned in the late 90s (Shapiro & Varian, 1999). An important but commercially subsidiary part of the digital play business, the computer game side has no equivalent to the big three console companies; there is no corporate troika vetting what software can be made for a PC because it is a multipurpose device and thus the computer game sector is more disparately organized. Yet Microsoft is advantageously positioned due to its operating system monopoly and its proprietary control of authoring software used for creating PC games (Takahashi, 2002).

Four core activities organize the business of digital game production, irrespective of platform: (1) “development” entails the design of a piece of game software; (2) “publishing” involves the financing, manufacture, and promotion of a game; (3) “licensing” enters the mix if a game integrates “intellectual property” owned by an external corporation, like a sports brand; and (4) “distribution” refers to the shipping of game hardware and software to retail stores. A single company can perform just one or a combination of these four activities.

Of these activities, game development is the industry’s wellspring. Without sufficient variety of high-quality games, digital play would fizzle out. Some independent developers create games exclusively for consoles or PC, while others cater to both platforms. Game development is, in any case, a lengthy, costly, and cooperative venture; the development process lasts twelve months to three years, costs \$2 to \$10 million, and requires 20 to 100 people—depending on the scope of the game and its production timeline. Game studios range in size from *micro-enterprises*, with less than 10 employees, often attempting to prototype a game; *small studios* employing 10 to 50 people, typically with one or more games published or under contract, but still scrambling to survive; *mid-size studios* with 50 and 150 staff, capable of launching two or three games annually, and the rare independent *major studios* employing between 150 and 250 people capable of working on four to eight titles in parallel (Alliance numériQC, 2003).

The crucial arena for strategic control in the games industry, however, is publishing. Each of the console companies also operates as a publisher. A number of “third-party” publishers also operate in-house development studios and contract independents. Publishers’ own development operations can be gigantic, constituting a whole additional class of *multinational studios*, often employing 250-1,000 people (Alliance numériQC, 2003). But in addition, publishers exert tremendous influence over what games get made by contracting and financing game development. Independent developers tend to be significantly disadvantaged in relation to publishers, to whom they surrender creative control and intellectual

property rights in return for payments that often cover only expenses. Developers with a hit game in their catalogue enjoy some autonomy, but “indentured servitude” is how one small studio representative described the relationship.²

Publishers face the “90:10” dilemma: 10% of the games make 90% of the money. They know that most games sink without a trace, and that delays or problems in development can be fatally costly, so they keep the power to pull the plug on the project at any time. Major publishers prefer clones of proven hits to experimentation, as revealed in the “franchises” that dominate the best-seller lists. Risk aversion is further revealed in the integration of licensed characters and storylines from blockbuster films (*Enter the Matrix*), books (*Harry Potter*), and television programs (*The Simpsons Road Rage*). Games are increasingly knit into the synergistic webs of promotional culture.

Escalating development, license acquisition, and marketing costs have contributed to a consolidation of ownership in the games industry. Currently, a handful of multinational super-publishers—EA, Sony, Nintendo, Activision, Vivendi, THQ, and Take-Two Interactive—control the levers of the majority of the world games supply (Gaudio, 2003). Their conservatism is offset, however, by a need to hedge against the possibility of a surprise experimental hit emerging from an obscure, impecunious developer. Moreover, as Hayes, Dinsey, & Parker (1995) argue, “[n]o one company has the resources to monopolize software creation” (p. 43). The consequence is that the industry still has considerable diversity in the scale and size of corporate players, with an ever-shifting set of arrangements. A vibrant field of small developers plays into the pockets of the mega-publishers, though. For in games, as in other cultural sectors, “[a]lthough the number of ‘independent’ production companies grow, these absorb high product risks and labour costs for the giants, which maintain their control over the critical areas of finance and distribution” (Mosco, 1996, p. 109).

These dynamics are set in motion on an international scale. Several years ago Nicholas Garnham (1996) suggested games companies were “the first...to have created a successful and global multimedia product market” (p. 115). North America accounts for about 40% of the global games, Europe for nearly as much again, with the remainder divided between Japan and the rest of Asia. (DFC, 2004). Latin America, Eastern Europe, and especially China are potentially lucrative “emerging markets.” It is on this global terrain that Canada’s digital play business is situated.

Canada Games

The top game-producing nations are the U.S., Japan, Britain, Germany, and France, followed by Canada (DTI, 2002, p. 18). In 2004, some 40 of the 200 best selling games in North America were reportedly made or worked on in Canada (Colbourne, 2004). For our purposes, the *Canadian video and computer games industry* encompasses all Canadian-located companies engaged in developing, publishing, or distributing virtual game hardware and software: the distinction between *foreign* and *domestic* owned companies is one we will make as necessary in the course of analysis.

Because of the fast changing nature of the industry, it is difficult to enumerate. But the overall category encompasses approximately 170 enterprises from satellite offices of the big three console-manufacturers to studios of the planet's largest multinational publisher to an array of bootstrapped micro-enterprises. Of these, 20 are involved in publishing or distribution (although they may also develop games). About 90 develop games as an exclusive or major line of business; another 30 as an ancillary activity, a small-scale involvement favoured by the recent explosion of games for cell phones and other mobile devices. There are also about 30 companies offering post or pre-production services, such as contracted out testing, music and audio services, or specialized graphics.

Around this core cluster of game businesses are arrayed many associated industries. Perhaps most important are "middleware" producers; animation software and authoring tools made by Montréal's Softimage, for example, are used internationally to produce digital visual effects, characters, and graphics in games, as are the authoring tools of Toronto-based but U.S.-owned Alias Wavefront (Wahl, 2003). Chip design and manufacture are also significant; Toronto's ATI Technologies makes high-end graphics chips for both Nintendo's GameCube and Microsoft's Xbox, earning a royalty on every machine sold (Hodgson, 2003). Linked cultural industries include "adver-gaming," which is the exclusive focus of companies like Toronto's SplashWorks, though the design of interactive online games organized around corporate logos is a service now offered by numerous marketing agencies.

In regard to location, roughly 150 of the 170 core companies are divided more or less evenly between Québec, Ontario, and British Columbia. With surprising even-handedness, Toronto, Montréal and Vancouver each have about 33, although, for reasons we will discuss later, it is the latter two cities that are the acknowledged hubs of Canadian game development and centres of an international stature. The remaining 20 companies are dispersed between Nova Scotia, Manitoba, Saskatchewan, and Alberta. 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.

The majority of game developers in Canada are financially insecure, relatively unknown micro-enterprises. Many are unpublished game-makers, working in makeshift offices to create prototypes that are financed by personal savings, supplementary employment, bank loans, or, in rare instances, venture capitalists. Included in this category are developers that wish to bypass the constraints of publishers by self-publishing games, sometimes as online freeware. Names like Battle Goat Studios, Firetoad Software, Xfunc, Furious Entertainment, Golem Labs, and

Photon Soup express something of the unique ambience of gaming culture. Many such ventures are fated to disappear into the churn-and-burn of game development. The lure, however, is that any one of them might become the makers of a global hit, and thereby achieve financial stability and creative autonomy. There is nothing uniquely Canadian in this imbalance between stable and precarious companies, which is characteristic of the games industry globally, but Canadian micro-developers probably labour at a disadvantage relative to their counterparts in the U.S. and Europe, in terms of access to large publishers, strategic licensees, and venture capital.

There are 30 small and 10 mid-size Canadian-owned developers, and two major independent studios—Vancouver's Radical Entertainment and Edmonton's BioWare (see Table 1). Some of these have international renown. BioWare is widely regarded as one of the world's best developers in the genre of "role playing fantasy games," with the *Baldur's Gate* series, its award-winning *Neverwinter Nights* (2001) and, based on the George Lucas franchise, *Star Wars: Knights of the Old Republic* (2003). Founded by two Alberta doctors in a province not immediately thought of as a bustling high-tech centre, it employs some 150 people, and had revenues of over \$15 million in 2002, with 98% of its sales from outside of Canada (Profit Guide, 2002). Vancouver's Relic Entertainment created *Homeworld* (1999), an original PC title viewed as a benchmark in game aesthetics, before being recently taken over by a U.S. publisher. London's Digital Extremes produces the successful *Unreal* first-person shooter series. Other Canadian developers, while not having created any single hit game, have extensive portfolios of commercially successful licence-based titles. That is the case with Radical, a major studio whose *The Simpsons Road Rage* (2001) was a million-selling title, and also of Ottawa's Artech, a studio controlled by Canadian conglomerate, Astral Media.

There are few Canadian owned game publishers, and they are small. Companies such as Toronto's DreamCatcher Interactive, specializing in adventure and strategy games, Montréal's Strategy First, which publishes for European developers attempting to access the North American market, and Hip Interactive of Toronto, a major national distributor of game software that recently branched into publishing, are correctly regarded as Canadian breakthroughs in the global games business. But they are not remotely in the league of internationally organized publishers based in the U.S., Japan, or France. The decision-making heights of the business are in markets and in companies outside of Canada.

Foreign-owned publishers, however, have a massive presence in the Canadian games industry. We focus on this process in the next section. For the moment it is sufficient to note that foreign publishers such as French-owned UbiSoft and Microïds in Montréal, Swedish-owned Digital Illusions in London, and U.S.-owned Rockstar, THQ and, above all, Electronic Arts (EA) in Vancouver have had a decisive influence on the trajectory of the Canadian industry. They own most of the mid sized or major development studios in Canada, play a critical role in the

Table 1: Sample of corporations in the Canadian computer and video game industry, 2000-2005

Company	Category	Employees	Location	Ownership	Revenues
Publishers					
DreamCatcher	Publisher	70	Toronto	Canada	\$30M (2000-01)
NewKidCo	Publisher	30	Toronto	Canada	\$18M (2002-03)
Strategy First	Publisher/ Developer	100	Montréal	Canada	\$20M (2002-03)
Distributors					
Hip Interactive	Distributor/ Publisher	255	Toronto	Canada	\$280M (2002-03)
Nintendo of Canada	Distributor/ Marketing	40 9	Vancouver Toronto	Japan	
Developers					
Electronic Arts Canada	Multinational	1300	Vancouver	U.S.	U.S.\$1B (2002-03)
Microids Canada	Multinational	90	Montréal	France*	\$15M (2002-03)
Ubisoft Canada	Multinational	1000	Montréal	France	\$60M (2002-03)
Digital Illusions	Multinational	50	London	Sweden**	
Rockstar	Multinational	50	Vancouver Toronto	U.S.	
Radical Ent.	Major	200	Vancouver	Canada***	\$18.9M (2001-02)
A2M	Midsized	100	Montréal	Canada	\$7M (2001-02)
Bioware Corp.	Midsized	135	Edmonton	Canada	\$15.4M (2001-02)
Digital Extremes	Midsized	60	Toronto/ London	Canada	
Relic Ent.	Midsized	60	Vancouver	Canada****	
Silicon Knights	Midsized	60	St. Catherines	Canada	
Alt-Software	Small	30	Waterloo	Canada	
Arc Media	Small		Toronto	Canada	\$4M (1999)
Digital Fiction	Small	35	Montréal	Canada	
Hexacto	Small	35	Montréal	Canada	
HB Studios	Small	20	Lunenburg	Canada	
Ingenio	Small	35	Montréal	Canada	
Kutoka	Small	30	Montréal	Canada	
Pseudo Interactive	Small	25	Toronto	Canada	
Sarbarkan	Small	35	Montréal	Canada	
40 additional corporations	Small	Av. >20		Canada	
60 additional corporations	Micro	Av. > 5		Canada	

Note: * purchase by Ubisoft, 2005; ** U.S. purchase by EA in process, 2005; *** U.S. purchase by Vivendi 2005; **** U.S. purchase by THQ, 2004.

formation of “clusters” of game production, spawn numerous new developers, and take over many others.

Their importance is apparent as soon as we consider industry revenues. We estimate that the annual revenues the Canadian computer and video games industry now total nearly \$2 billion (Canadian).³ More than half of this figure, however, is attributable to a single company—California-based EA. If this behemoth is removed from the picture, the Canadian games industry has revenues of about \$600 million. Foreign-owned studios other than EA account for about \$125 million. Nearly \$300 million is accounted for by Hip Interactive’s distribution activities (Guzik 2003). The next \$150 million or so is accounted for by a handful of Canadian-owned developers and publishers, including, but not limited to, Vancouver’s Radical Entertainment (\$18.9 million in 2001-02), Edmonton’s BioWare Corp. (\$15.4 million in 2002-03), Montréal’s Strategy First (\$15.4 million in 2001-02) and A2M (\$7 million in 2001-02), and Toronto’s DreamCatcher Interactive (\$34.6 million in 2001-02).⁴ The final \$25 million or less is split unevenly amongst the remaining 100 or so companies, from cash-strapped micro-enterprises to more stable small studios.

One of the most striking features of the Canadian video and computer games industry is its disassociation from the *Canadian video and computer games market*—i.e. total sales of games software and hardware in Canada, regardless of country of origin. Gaming is very popular in Canada, which possesses one of the world’s strongest technical infrastructures for this activity: 40% of all households own a video game console (ACNielsen Canada, 2003); 60% own a personal computer (Statistics Canada, 2003); and broadband penetration, so crucial to the enjoyment of online gaming, is second only to Korea (OECD, 2001). Hardware and software sales are valued between \$825 million and \$1 billion, lagging only slightly behind the \$1.2 billion sales of recorded music in Canada (Canadian Heritage, 2003). Canadians thus account for 3-4% of global video and computer game sales.

But although Canadians like to play games, the games they play are overwhelmingly *non-Canadian* in origin. The largest single point of origin is the U.S., followed by Europe and then Japan (DTI, 2002). This reflects the highly internationalized circuits of production and consumption in interactive entertainment: in the U.S., 65% of the games sold in the domestic market are American-made; in Great Britain, the domestic proportion falls to 35%; and in France 10% (Alliance numériQC, 2003). Canadian developers estimate that domestic sales account for only 5% of their market (Muzyka & Zeschuk Interview, 2002). 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 U.S. market, with differences in sales patterns between the two countries “not of a serious magnitude” (Bertram Interview, 2002). The games titles and genres that dominate the Canadian market over the past five years were roughly the same titles that topped the U.S. and European charts: Nintendo’s *Pokemon* and *Mario* franchises, EA’s *The Sims*, Sony’s *Gran Turismo*, and Rock-

star's *Grand Theft Auto 3: Vice City*—all titles developed and published by a foreign owned multinational.

The games Canadian's make, then, are exports; the games Canadian play, imports. The transnational flow of game commodities is arguably what enables a development sector to thrive in a country like Canada. But the absence of a virtuous circle between nationally produced and nationally consumed games also constrains the economic and cultural autonomy of Canadian game developers. Asked if made in Canada games had any distinctive traits, Canadian developers, were usually ruefully nonplussed; a spaceship in a sci-fiction game might be decorated in the colours of the local hockey team; one the dozen or mercenary warriors in a shooter is described as French-Canadian and grunts his few lines in a québécois accent; one developer came up with a game involving "a Mountie and a grizzly bear" but "it isn't likely to get off the page" (Marotte, 2000).

Multinational capital and the cartography of game creation

A number of factors attract foreign publishers to invest in Canada. The combination of a highly skilled workforce and government tax incentives (both discussed in later sections) with a relatively weak Canadian dollar and proximity to the U.S. market draws both American and European publishers (Snow Interview, 2002). For U.S. publishers, British Columbia is a convenient extension of a West Coast digital milieu running from Los Angeles to Silicon Valley and Seattle. For French enterprises, Québec offers a francophone-friendly bridgehead to North America. Indeed, Canada is so appealing a location that the studios of Electronic Arts Canada (EAC) in Vancouver and Ubisoft in Montréal are probably respectively the first and second largest game development studios in the world (Colbourne, 2004).

To understand how completely these studios shape the cartography of Canadian game creation, it is necessary to explore the dynamic of "clustering." The presence in a city of at least one major games studio is, alongside a local workforce of programmers, designers, and artists, and nearby institutions of higher education with programs in computer engineering and graphic design, one of the elements vital to an innovation milieu favourable to game creation. A key dynamic is the tendency for new studios to "hatch" from the majors: entrepreneurial exodus is always a possibility because an employee of a major studio is not only accruing game know-how but is also exposed to publishing contacts—and other willing deserters—vital for launching a new studio. The resultant "cluster" of developers in a metropolis can provide something of a cushion to the volatility of the industry. Employees can be somewhat assured that the expiry of a contract will not end their career in their city of choice, while employers can be reasonably confident that they will find the labour they need locally.

The rise of Vancouver to game fame can be traced to enterprising teenaged computer hobbyists who in the early 80s launched a company, Distinctive Software, which evolved into an 85-person studio. Distinctive was bought in 1991 for \$13 million by the rising giant Electronic Arts (Chang, 1999). Employing 4,400 people in 15 studios world wide, and releasing about 60 titles annually, the parent

company is today “worth more than all the independent game publishers combined” (Takahashi, 2003). EAC, located on the Vancouver waterfront and at other sites through the city, boasts a \$54 million “campus” featuring a motion-capture studio, 14 video editing suites, three production studios, a recording studio, and an office environment (Taylor, 1999). It employs about 1,000 people, and concentrates on producing the company’s extraordinarily lucrative sport titles, such as *NHL 2005* and *FIFA Soccer*, which, with 20 million copies sold, is the world’s best-selling video game franchise. Of the \$2.5 billion revenues posted by this undisputed industry giant in 2003 (EA, 2003a), the British Columbian operations contributed U.S.\$1 billion—or about CDN\$1.3 billion (Restivo, 2003).

Most Vancouver games studios contain some link back to EAC. When EA bought Distinctive, a couple of the latter’s founders, preferring to remain independent, started Radical Entertainment. Today Canada’s most prolific domestically-owned major, Radical experienced rapid growth (National Post Business, 2002), organizational change, and a failed foray into publishing in the 1990s; some discouraged employees left to start their own ventures, like Barking Dog Studios, and Black Box Games, which swiftly grew into an 80-person studio (Vikhman, 2002; Thalken Interview, 2002). Alex Gardener, a wunderkind of Canadian game development, worked at EA as a game tester before founding his company, Relic. Game making in Vancouver is a close-knit world, with EA at the centre of the web.

Ubisoft plays a similar role in Montréal. Games companies such as Strategy First and A2M operated in the city since the early 90s. But the emergence of a proper metropolitan cluster can be traced to the provincial government’s successful courting of this France-based multinational (Dumais, 2003). Ubisoft Entertainment has operations in 22 countries and, like EA, is actively expanding its ownership interests in the games industry through acquisitions and licensing. Attracted by a francophone location close to North American markets, this publisher already had an office in Montréal but in 1997 expanded their operations to include a major studio. Today this studio—Canada’s second largest—employs 1,000 people and contributed \$30 million to the parent company’s 2002-03 revenues of about half a billion dollars (Alliance numériQC, 2003; Ubisoft, 2003; Colborne, 2004) largely from the game versions of Tom Clancy novels, such as the hits *Splinter Cell* and *Pandora Tomorrow*. The arrival of this multi-national, combined with the province’s incentive programs, galvanized a local games cluster. Another large France-based publisher, Microïds, soon set up a satellite studio, and a spate of other developers—Sarbakan, Digital Fictions, Beenox—have since emerged.

The importance of multinationals can be assessed by contrasting the game business of Montréal and Vancouver with that of Toronto. Toronto is home to as many game developers as the other cities, and Ontario actually has slightly more than British Columbia or Québec. But, despite a small satellite of the U.S. publisher Take Two and marketing offices for the big console makers, Toronto lacks any major studio to “anchor” the industry. Game companies have spread out through Southern Ontario to take advantage of cheaper rents. Here, too, multina-

tional investment is often present: Digital Illusions, of London, Ontario, is a subsidiary of a major Swedish developer, Dice, which in turn has an alliance with EA to produce the online shooter *Battlefield Vietnam*, while Nintendo has an equity investment in Silicon Knights. But game professionals in Ontario often say that the sector lacks the dynamism and integration of Montréal and Vancouver.

Although multinational investment stimulates domestic Canadian development, there is another side to the picture; Canadian owned companies are taken over by multinationals, and urban hubs become vulnerable to the mobility of multinational anchors. In recent years, foreign-owned companies have moved energetically to acquire successful small and mid-size domestic developers. As we saw, EA's investment in Vancouver began with the acquisition of a Canadian owned company, Distinctive Software, and then spun-off Canadian owned companies, such as Radical, Black Box, and Barking Dog. But recently this process went into reverse. EA purchased Black Box in 2002. The same year Barking Dog Studios was purchased by Take-Two Interactive of New York. And in 2004 U.S. publisher THQ purchased an icon of independent Canadian game success, Relic Software, for \$10 million dollars (Feldman, 2004). The multinational's progeny are thus returned to the nest.

There are also other mechanisms by which foreign investment roots itself in Canadian companies, such as Nintendo's equity investment in St. Catherine's Ontario game developer Silicon Knights. Global media capital also penetrates Canadian game production through licensing. Acquiring a well-known media property and then designing a game around it has become a central strategy of studios like Vancouver's Radical Entertainment or Ottawa's Artech—one which, however, makes them largely dependent on multinational film or television conglomerates. The galvanizing effect of foreign investment on domestic game companies thus has to be balanced against direct and indirect re-assimilation.⁵

Foreign ownership and control in Canadian game development is problematic if only because transnational mobility is a two-edged sword. Like other sectors of the information technology industry, multinational game publishers are increasingly following a cost-reduction strategy that looks toward Asia, Eastern Europe, and Latin America. EA, for example, now out-sources development work to India and Vietnam; Ubisoft has development divisions in Bucharest, Rumania, and Shanghai, China. Although Canada still has many compelling attractions for foreign game investment, the same transborder mobility that brought EA, THQ, and Take-Two Vancouver, and Ubisoft and Microids to Montréal could also shift them beyond Canada's borders. Referring to Vancouver's game sector, for instance, Adam Bullied (Interview, 2002) of Photon Soup warns:

In my opinion, it's always been just a matter of time before, say, you get a place like Prague that has the same set of circumstances with a highly skilled workforce—and their discrepancy between the currencies is even greater. The other one that kind of scares everybody is Bombay—this big high-tech scene in India. It's the same thing: you've got a lot of talented people and they can undercut us...you know, it's only a matter of time.

The possibility of such an exodus can, however, only be evaluated by considering other forces in the Canadian game industry, such as government and labour.

State of play: Subsidies and slaughter

The influence of the Canadian state on the video and computer industry obviously spans innumerable institutions, from educational facilities to Internet access programs and intellectual property laws. Of most direct interest to game developers, however, are a patchwork of financial subsidies and incentives provided by federal and provincial agencies to support the growth of high technology industry. Yet while the digital play industry benefits from state financial support, it also collides with the regulatory face of government, as the rating of violent game content embroils it in public controversy and political conflict.

Many game development studios have received government assistance, either from federal and provincial tax credits for high-tech business and research activity or, to a lesser extent, from cultural funding agencies. The two most cited supports are the National Research Council's Industrial Research Assistance Program (NRC-IRAP)—whose mechanisms include grants and loans for novel research and development by mid-size high-tech companies (NRC-IRAP, 2002); and the Scientific Research and Experimental Development Program (SR&ED)—“the largest single source of federal government support for industrial research and development,” which offers tax incentives of 20%-35% on wages, contracting, and other costs of research and development (CCRA, 2003). EAC's financial director claims, “[w]ithout the SR&ED program, our growth would likely have been substantially less than it was, and our very survival could have been in question” (CCRA, 2002; Research Money, 2002).

A handful of micro-enterprises have accessed federal dollars through Telefilm Canada's New Media Fund—a five-year \$147 million purse. Offering “conditionally repayable advances” that cover up to 50% of expenses (up to \$550,000), New Media Fund awards appear to be something of a shell for government support of risky start-up developers (Telefilm Canada, 2003a). In 2003 Telefilm increased the number of awards granted to game projects, which received 6 of 44 available advances (Telefilm Canada, 2003b). Telefilm has also promoted national developers at Electronic Entertainment Expo, or “E3,” the industry's major annual trade show in the U.S. (Telefilm Canada, 2002).

At the provincial level, by far the most favourable economic climate for games companies is in Québec, which offers financial incentives exceptional even on a global scale. According to one estimate, the province subsidizes nearly one quarter of the average costs of game production (Alliance numériQC, 2003). Spurred by the New Economy hopes of the late 90s, Québec initiated an urban economic development project, Cité du Multimédia, in an attempt to nest a cluster of high-tech production activity in a previously desolate quarter of Montréal (Telefilm Canada, 2002). Multimedia companies that set up operations there could enjoy “tax credits equivalent to 40% of the salaries of eligible full-time employees, up to a maximum of \$15,000 per employee per annum” (Alliance numériQC, 2002, p. 65). This job creation scheme included additional incentives

such as a five-year exemption from provincial income tax for newcomer foreign companies, tax credits on technology research, and a low cost of living relative to other Canadian cities (Calleja, 2003).

The major achievement of the program was luring Ubisoft to Montréal, but its influence was widespread. Between 1998 and 2001, Québec developers released over 50 digital games (Telefilm Canada, 2002) and had estimated revenues of \$100 million in 2002-3 (Alliance numériQC, 2003). Many of the tax incentives have recently been clawed back by Québec's Liberal government (Noel, 2003), but incentives appear to have been efficacious nonetheless: attracted by the critical mass of "talent and creativity" that now exists in the city, EA announced in 2003 that it too has opened a studio in Montréal that will eventually employ 500 people (Calleja, 2003).

While game developers are pleased by state financial support, they are often much less happy about attempts to regulate the content of their industry. Conflict has focused around the issue of "violent games." Controversial representations of violence have been an enduring feature of digital play. The origins of virtual games in the military-industrial complex, the industry's early orientation towards a young-male audience, and the hesitance of publishers to digress from proven design formula have meant that games involving violence, particularly "first-person shooters" and fighting games, have always been important in gaming culture. Industry apologists claim that such genres only account for a small percentage of total production and, anyway, are harmless. But critics argue that ultra-violent games are only the most acute symptoms of a more general and pervasive ethos of "militarized masculinity" (Kline, Dyer-Witthford & de Peuter, 2003). Children's advocacy groups regularly denounce the emphasis on violence in digital play and some assert that games are "teaching our kids to kill" (Grossman & DeGaetano, 1999).

In a pre-emptive move against the possibility of state regulation, U.S.-based games companies in 1994 formed the Entertainment Software Rating Board (ESRB) whose rating scheme is the "self-regulatory" system adopted by games marketers (ESRB, 2004), and used in Canada. However, critics often cast doubt on the accuracy and adequacy of the ESRB ratings. They also point out that game companies often market their products to consumers much younger than those deemed appropriate by such ratings, and point to a lack of enforcement at retail stores. Internationally, regulatory standards vary widely: Germany requires virtual "blood" be coloured green, and countries from Brazil to Australia have from time to time banned or censored hyper-violent games.

In 2000 controversy flared in Canada when advocacy groups in British Columbia protested against *Soldier of Fortune*—an ultra-violent "first-person shooter" game. The NDP government, late in its term in office, proposed the 2001 Video Game Act, which would have granted the provincial Film Classification Board the power to slap ratings on computer and video games and thus override the industry's voluntary rating system (Canadian Press Newswire, 2001a).

As British Columbia went into a hotly fought election, the Vancouver video and computer game industry, lead by EAC, mobilized against this proposal positioning themselves as active supporters of the aspiring BC Liberal's. During the election campaign, BC Liberal leader Gordon Campbell gave a talk to EAC employees (Canadian Press Newswire, 2001b); and two of EA's top executives, Paul Lee and Don Mattrick, "personally donated \$5,000 to the Liberals" (Tieleman, 2003; Elections BC, 2001). After they won, the BC Liberals satisfied the games industry by not enacting the Video Game Act, and Lee was appointed "co-chair," with Campbell, of the Premier's Technology Council (Canadian Press Newswire, 2001c).

But despite the abandonment of the BC Video Game Act, reverberations of the episode continue to be felt. In the wake of the *Soldier of Fortune* controversy, the BC NDP government had initiated discussions with other provinces about video game violence. And spurred by new public outcries provoked by games such as *Grand Theft Auto 3: Vice City* (Mansfield, 2003), Ontario, Manitoba, and Nova Scotia all announced legislation that would establish mandatory rating systems and require retailers to check ID before selling games rated as mature or adult to minors. Ontario also took the exceptional step of using the Ontario Theatres Act, usually applied only to films, to give the murder game *Manhunt* an "R" rating (Levitz, 2004). It remains to be seen what response the video and computer game industry will make to these measures.

Subsidies and ratings appear disparate issues, but both bear on the political economy of the games business. Industry representatives are opposed to government ratings not merely because of the stigma it places on the games business, but because it potentially limits sales for some reliable best-selling genres, and interposes layers of time consuming regulatory requirement between publication and market. The same representatives often express a desire that Canadian government support, at least outside of Québec, be more substantial and better organized. And it is true that, important as tax incentives have been to game developers, the total amounts are probably small compared to those devoted to other cultural industries, and come rather haphazardly from programs designed primarily for other purposes. In part, this is simply due to Canadian cultural policymakers' lack of awareness about the scale and importance of the video and computer game industry. But ongoing controversies about violent games, and the ease with which minors access them, also constitute a barrier to more enthusiastic support and respect for the industry.

Work as fun?

The greatest asset of the Canadian digital play industry is its highly skilled workforce. "[T]he mind of all these people who have come up with these great ideas," says Radical's CFO, is this sector's "machinery" (Snow Interview, 2002). Nationally, the industry employs about 5,000 people, with 70% of these jobs concentrated in British Columbia and Québec. Roughly 85–90% of the employees are men and most are between their late teens and late thirties.

Average salary in the U.S. game industry is U.S.\$61,403 (Olsen & Zinner, 2001). Depending on experience, programmers earn between U.S.\$55,000 and \$88,000, and a “celebrity” designer can command over U.S.\$200,000 (Olsen & Zinner, 2001; Thuresson, 2003). What makes Canadian game labour so attractive to multinational game capital is its relative cheapness. Currency exchange rates are a major factor: employees at EAC in Vancouver make about the same rate as their Californian counterparts—but in Canadian, not U.S., dollars. And rates in smaller companies, and other regions, can be lower yet. Telefilm Canada (2002) notes that American and European games companies are attracted to provinces like Québec because “[l]abour expenses can be up to 38% less expensive... than in the United States” (p. 7). Rockstar Vancouver’s Brian Thalken (Interview, 2002) says U.S. publishers “like [contracting Canadian developers] because they don’t have to pay as much for a product. Our wages are generally a little bit lower than what people get paid [in the U.S.]”

The Canadian games workforce is, moreover, highly educated. In British Columbia, for example, nearly every employee in the multimedia content creation sector has post-secondary education (New Media BC, 2003). Although it does not provide much game-specific training, Canada’s public higher education system, according to BioWare’s CEOs, provides precisely the foundational knowledge and skills that are required to work in game development (Muzyka & Zeschuk Interview, 2002). Industry representatives comment on the strength of multimedia design education in Canada, and the role of institutions such as Ontario’s Sheridan College and British Columbia’s Emily Carr Institute of Art and Design in ushering the graphics arts tradition into the digital age. Computer science departments are another training ground for games-workers. University of Waterloo, University of Alberta, and Simon Fraser University were among the schools cited as offering strong programming training, though some people we interviewed lamented the lack of game-specific classes.

There are recent initiatives in game-specific education, however. Ottawa’s Algonquin College offers a Game Animation certificate within its recently created “new media” stream. But generally, private education institutions seem to be filling the games gap left open by the public sector (Forbes Interview, 2002). Québec’s National Animation and Design Centre and Vancouver Film School, for example, have both initiated game “streams” into their curriculum, feeding graduates into local studios. Several studios operate in-house training programs, ranging from occasional seminars and informal work-groups to EAC’s extensive “EA University” which offers in-house training, sends employees to external courses, runs internship programs, and hosts on-site lectures (EA, 2003b; Rueff, n.d.).

The obverse of relatively low wage rates and high skills is, of course, the risk of “brain drain.” With high paying and prestigious game firms just across the border, developers in Canada have to worry about losing talent to the U.S.. Industry executives complain regularly about allegedly punitive Canadian tax rates: EAC has lobbied the BC government to lower personal income taxes, which, of course, would offset pressures on the multinational to increase its wages (Jan-

igan, 1999; Willcocks, 2003). There are high profile instances of Canadian developers leaving home: Colbourne (2004) highlights the six Canadian animators, the "Animators", who played a pivotal role in designing Microsoft's *Halo 2* hit game at Bungie Studio in Washington. However, although nearly every game studio we visited had a story about a programmer or artist lost to California, nowhere was this seen as an acute crisis. There are clearly many Canadian game workers happy to stay in what they often describe as a safe and pleasant country, and some mid-size Canadian developers are recruiting successfully from Europe and Asia.

Established studios receive a steady stream of resumes. BioWare gets as many as 1,000 a month (Muzyka & Zeschuk Interview, 2002). The suitability of these applicants for the specific needs of game developers is something that has received contradictory reports. Some studio executives seem content with applicants and to provide in-house training. Others, such as EAC, despite receiving 500 resumes a week, pursue aggressive recruitment drives and claim that the West Coast cannot supply the labour required to sustain their growth. Campus recruitment, open houses, internship programs (in some cases paying tuition and books), and commission to employees who recommend someone who gets hired are some of the recruitment mechanisms used by EAC (EA, 2003b).

An incident in 2003 highlighted the anxieties of studios about the capacities of mobility and independence among their virtual game labourers. Five "star" designers at Ubisoft's Montréal studio left in 2003 to work at EA's new studio in the city (Feldman, 2003). Ubisoft took its ex-employees—and EA—to court. The five had signed "non-compete" agreements with the French multinational and this legally blocked them from working for another North American games company for one year after terminating their employment. The Québec Court of Appeal judged in favour of Ubisoft, and a "larger case" is reportedly in the works (Jenkins, 2003; National Post, 2003). Although EA's motivations are transparent enough, one spokesperson for the company aptly remarked: "It seems that Ubisoft thinks of Montréal as a plantation—any worker who dares to escape... will be hunted down by lawyers and forced out of business" (Feldman, 2003, p 1).

Games workers we interviewed generally said their jobs are satisfying, challenging, and fun. Cooperation, communication, and adaptability to new technologies are central skills of the digital play workforce. The rapid pace of innovation in game development tools means that training is ongoing in game development studios. Workplaces often allow considerable freedom for self-expression. These, of course, are enabling factors of creative game production. As Radical's CEO Ian Wilkinson explains: "we invest the time and money in building an environment that rewards creativity and individuality, and encourages the free flow of ideas" (Cambron, 2003). To maintain that creative flow—and employee loyalty—"corporate culture" has become something of a "maniacal focus" of games companies, one games entrepreneur told us. Trendy office design, a professed laid back ethos, slick work parties, and "openness" are all aspects emphasized in gaming's corporate culture. "Our employees aren't clock-punchers," says Wilkinson, "They're creative, talented people who want to enjoy full, rich lives and work is only one

part of that equation—albeit a big part. If we didn't respect that reality, we'd be out of business" (Cambron, 2003).

There are, however, troubles within the game industry labour scene. One has to do with the place—or absence—of women. Although there is evidence that the demographics of digital play are broadening—the ESA claims some 40% of gamers are now female—the core gaming audience appears to remain preponderantly male. And in work as in play, women are marginalized in the games industry. Women we interviewed called the gender imbalance in their workplaces “horrible,” and described the industry as an “old boys club.” Merely 10%–15% of Canada's games-workforce is female and very few women have positions at the executive level. While there are some women in art and in producer roles, women are disproportionately represented in reception, marketing, and human resources. When we raised the topic, men we interviewed typically bemoaned the lack of women in the industry and expressed a desire for greater balance, but admitted to the great obstacle set up by the “feedback loop” between the gender of those who primarily play games and those who go on to make them. Other men offered a clearer window into the sexism of the digital play industry, explaining, for example, that “girls” often don't have “the right ideas” when it comes to games but that it “looks good” for a developer to employ “some girls.”

Although there is disagreement among female games workers on how to design games that might appeal to women, there is consensus that the male bias sets a limit on the size of the games market. While developers are, for the most part, oriented to traditionally male genres (c.f. Kline et al., 2003), there has been some experimenting in “entrepreneurial feminism” in the games sector (c.f. Cassell & Jenkins, 1998; Laurel, 2001). But in Canada we found only one such experiment in Women Wise, a Toronto-based micro enterprise whose creations include e-novels and adventure games that are produced with female audiences in mind (Hurre Interview, 2002). Whether the degree to which the “gender barrier” to industry expansion, or the slow take up of games by female players, will lead to greater diversity in the content of games is uncertain. Gaming's continuing male bias is not only a limit to market expansion and an obstacle to girls and women learning digital skills, it is also a potential source of workplace turbulence inside games companies.

There are other workplace disturbances beginning to emerge. Despite the generally positive reviews virtual games workers gave their jobs, in our interviews we encountered allusions to undercurrents of discontent. Disgruntlement is disproportionately felt in “quality assurance” departments. Widely perceived as occupying the bottom rung on the virtual game labour hierarchy these employees “test” games in process: These are the people who, according to the cliché, play games for a living. However, several of these testers, especially those at the large multinational studios, complain of excessive hours, low pay, and precarious short-term contracts. Many endure the work for the uncertain possibility of promotion.

Even employees higher up the workplace hierarchy—designers, artists, programmers—identified some serious problems: excessive hours, high stress,

cutthroat competition, anxiety-inducing expectations, the lack of creative experimentation, and corporate cultures that are “almost mercenary” in their expectation of employee loyalty. Games development studios such as Vancouver’s campus-like EAC have been described as “the Valhalla of workplace environments” (Taylor, 1999). But in 2004 controversy about such work places exploded with a blog posting by a self-described “EA spouse.” The author (who did not identify for what division of EA their partner worked) told of “eighty-five hour” work weeks; the normalization of hyper-extended “crunch” time; of the absence of compensation in the form of either “overtime” pay or “compensation time”; of the “put up or shut up and leave”...human resources policy of EA. These grievances echoed those reported some months earlier by the International Game Developers Association in a well-researched, impassioned critical view of the “horrible conditions of work within much of the industry” (IGDA, 2004b). In the same year, both a developer at a Vivendi studio in Los Angeles and a group of current and former EA employees filed lawsuits over unpaid overtime issues.

There are, therefore, signs that the game industry’s long honeymoon with its cyborg workforce is coming to an end, and that its ethos of work as play is wearing thin. One outcome of recent outbursts of discontent may be concessions around crucial issues such as work hours—good news for Canadian workers, and those elsewhere. But another possibility is that these pressures will increase the interest of multinationals in relocating or outsourcing to global zones where such issues are unlikely to be raised—a prospect that could highlight some of the underlying fragilities of the Canadian industry.

Conclusion

Over the last decade the Canadian video and computer game industry has grown rapidly, provided interesting, relatively well-rewarded work for thousands of men (and a few women), seen the emergence of several profitable and innovative companies, and made numerous internationally acclaimed games. This success arises from Canada’s participation in a fast growing North American high-technology sector, its well-educated digital workforce, and some instances of audacious entrepreneurship. Canada’s strategic position as a beachhead for European publishers aiming to break into the North American market, and for U.S. publishers seeking to cut production costs, has been important. So too have some programs of government subsidization and support, especially in Québec. Unlike many branches of high technology capitalism, the Canadian video and computer game sector survived the bursting of the Internet bubble in 2000 relatively unscathed. In economic terms, its revenues now bear comparison with those of other Canadian cultural industries such as film or book publishing; it is understandable that many who work in the industry feel that recognition of its achievements are overdue.

There are, however, cautionary notes to this upbeat story. Our analysis suggests that the apparent flourishing of video and computer game capital in Canada is precarious. In part this reflects the general conditions of the interactive play business, which, viewed historically has been rife with uncertainty and crisis (Kline et al., 2003). Despite dramatic growth over the last three decades, some

commentators see the industry entering a phase of stagnation associated with increasing concentration of ownership in the hands of a handful of risk-averse super-publishers. Whether or not expansion can be maintained on the basis of formulaic game sequels and clones, predominantly aimed at a male dominated market niche, but on an increasingly “globalized” basis, remains unclear. There are also indications, as explained, that previously repressed workplace tensions are beginning to erupt.

These problems are common across the North American game business. Canadian video and computer game developers also face specific hazards related to forces in global game capital. Growth in Vancouver, Montréal, and elsewhere has been extraordinarily dependent on the studios of these publishers who are rapidly buying up successful small and mid-size domestically owned developers. Impressive as the investments of anchors EA, Ubisoft, and Take-Two are, in the mid- to long-term they are subject to many vagaries in the world market. Changes ranging from a Canadian dollar that may reach par with that of the U.S. to the increasing attractions of outsourcing to India, China, and Eastern Europe could undo much of the basis of Canadian game industry growth.

To date, an erratic patchwork of federal and provincial subsidies and incentives, while supporting domestic developers, has also acted to attract foreign investment. The problems of such a cultural strategy have, however, been made apparent by the debate over the tax credit program in the film sector; the oscillating fortunes of “Hollywood North” hardly make it an attractive model for the games industry. Other countries offer more direct and targeted support for their national games industry. South Korea, which has a booming online gaming market, established the Korean Game Development and Promotion Institute in 1999 to develop the domestic game sector into a strategic export-oriented cultural industry (KGDI, 2003). Australia both hosts multinational publishers and offers a range of supports aimed at cultivating a national games industry; including funding to upstart studios to purchase the “development kits” required by major game publishers (State of Victoria, 2003). Most strikingly, in 2003 France’s Ministry of Culture, alarmed at bankruptcies and foreign takeovers in its development sector, established a modest fund of four million euros to assist aspiring developers. If certain conditions are met—the game must not be violent and must be developed by French companies in France—“the French government will pay up to 40% of the cost of turning a concept into a working version of a game” (Hermida, 2003).

In the light of these examples, it is tempting to consider possibilities for more focused cultural policy initiatives to sustain the growth of Canada’s small and mid-size independent video and computer game developers who are willing to explore new genres and new player demographics. In economic terms, such a program could stabilize the Canadian industry by counterbalancing its dependence on multinational conglomerates. If this project could be inflected to encourage departures from an increasingly formulaic (and too often sexist and violent) digital game culture, it would be a modest Canadian contribution to reshaping the trajectory of one of the most powerful of contemporary media. Such

an initiative would, however, face serious obstacles. It would fly in the face of a manifest reluctance, at many levels of Canadian government, with regard to spending on cultural development. And, insofar as it was directed towards domestic game developers, it would require testing the limits and latitudes of Canada's GATT and WTO treaties, with their obligation to provide "national" treatment for international capital. Nonetheless, we suggest the question of how to promote such game development should be on the agenda of Canada's cultural and technological policymakers.

Notes

1. This article offers a preliminary overview of a SSHRC research study of the Canadian Video and Computer Games Industry.
2. Where no source is identified the statement is from an interviewee who requested anonymity.
3. There are numerous difficulties involved in estimating the economic value of the Canadian computer and video games industry. The Government of Canada (2002), for example, groups interactive games in with "multimedia" in its economic evaluations. Market research companies like NDP Canada and ACNielsen Canada have provided us with data from the recent past but such enterprises proprietarily protect current information for sale to corporate clients. Our estimate of the value of the Canadian games industry is therefore based on, or extrapolated from, articles in the business and gaming press, company reports, and interviews with industry executives.
4. Sources for these revenues are as follows: for Radical see Vikhman, 2002; for BioWare and DreamCatcher see Canadian Press Newswire, 2003; for Strategy First and A2M see Alliance numériQC, 2003.
5. As this article went to print, it was announced that Radical Entertainment had been purchased by the multinational media conglomerate Vivendi, dramatically confirming our argument about the vulnerability of domestic Canadian game studios to foreign takeover.

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