Canada's Video Game Industry in 2013

Final Report

July 2013

Prepared for:

Entertainment Software Association of Canada

Prepared by:

Nordicity


Nordicity

Nordicity

Table of Contents

Executive Summary

The Size of the Video Game industry in Canada

There are 329 studios in operation across Canada in 2013, down roughly 5% from the 348 firms reported in ESAC's *Canada's Entertainment Software Industry in 2011*.[1]

The **video game industry directly employed 16,500 full-time equivalents (FTEs) in 2012**, which is 5% higher than the 15,700 jobs reported in 2011.[2] This industry employs a high percentage of people who are either technical or creative—85% of the labour fits in this category, with a roughly equal split (44% creative, 41% technical).

The video game industry generated a total of 27,000 FTEs of employment in the Canadian economy in 2012. This figure includes the 16,500 FTEs of direct employment as well as an additional 4,600 FTEs of indirect employment (in the industries that supply Canada's video game industry) in 2012 and 5,900 FTEs of induced employment (whose jobs are created by the spending of video game industry employees) in 2012.

The Canadian video game industry spent approximately **$1.6 billion** in 2012, up **12.5%** since the 2011 study, showing growth in the industry in spite of a slightly smaller number of firms. The majority of expenditures (about 93%) were spent on core game development activities.

The Structure of Canada's Video Game Industry

The video game industry in Canada is primarily made up of micro- and small-sized organizations, accounting for a total of 88% of the firms in the industry. The majority of firms in Canada are structured as private corporations (76%) and are Canadian-owned and controlled (76%).

The average age of video game firms in Canada is approximately 7.4 years. That said, almost two-thirds of firms have been in operation for less than 6 years and almost 20% are in start-up phase. It is still a young industry, but some firms have been operating for a couple of decades.

In line with the global growth trends of the video game industry towards mobility, **84% of Canadian video game companies are actively working on products or services for mobile platforms**. However, 66% of companies are actively developing products and services for the PC/Mac platform and 48% of companies are actively developing products or services for console platforms.

Canada's Video Game Industry's Output

Video game companies in Canada collectively completed roughly 910 video game projects in 2012. The largest proportion of projects completed by video game companies in Canada in 2012 were for **mobile** platforms (43%), followed by **PC/Mac** (22%) and **console** platforms (16%).

Though the number of **console game** projects completed is relatively low, this segment commands much larger budgets with longer production times and larger teams on average than projects for

---

[1] As prepared by SECOR, and accessible at: http://www.theesa.ca/wp-content/uploads/2011/08/SECOR_ESAC_report_eng_2011.pdf

[2] Because FTEs and jobs are not precisely comparable units, readers should exercise caution comparing results between reports.

other platforms. Console games require an average budget of over $8.7 million, 583 days and 65 people to produce. In contrast mobile games take an average of just over $300,000, 156 days and 7 people to produce a completed project. When examined as a percentage of all development spending in 2012, console games accounted for the lion's share (89%) of all production spending.

Casual games accounted for the largest portion (34%) of projects completed by video game companies in Canada in 2012, followed by **action and adventure games** which represent 13% of all reported completed projects.

The Geography of the Video Game Industry in Canada

Canada's current active video game firms are primarily located in Ontario (29.5%), Quebec (29.2%) and British Columbia (20.4%).

Quebec's video game industry is the largest by employment and directly created approximately 8750 FTEs in 2012. British Columbia hosts Canada's second largest provincial video game industry with 5150 FTEs (direct jobs). Ontario's video game industry is third largest with roughly 1,850 direct FTEs, although it leads in terms of number of studios). This high job rate in Quebec and BC is because a clear majority of this industry's employment is created by larger employers (500+ people). In contrast, 73% of video game employment in Ontario is created by medium-sized firms (with 100 to 499 people).

Canada's Video Game Industry Workers

Canada's video game industry workforce is generally fairly highly educated. Undergraduate university degrees were the most common in technical and business/admin positions, while college degrees were most common among creative employees.

The average age of workers in the video game industry is just above 30 years old, while **the average salary video game salary in 2012 was roughly $72,500 per annum**, across all job types and levels of seniority.

On average, **women comprised just 16% of the overall video game workforce in 2012**. Women are generally more highly represented in business and administrative positions, where they account for 25% of the workforce and are least represented in technical job categories, representing only 5% of the workforce.

The majority of the current video game industry workforce was **hired from within Canada** although a much larger proportion of employees in technical positions were hired from within Canada than creative or business/administrative positions. In addition, about 97% of new graduate hires are made from within Canada.

The demand for talent is set to increase significantly among video game companies in Canada over the next 12 to 24 months. In particular, **the demand for intermediate-level talent in creative and technical employment categories will increase significantly**.

Almost **40% of video game companies reported outsourcing** one or more of their functions in 2012. Creative functions appear to be the area in which the most outsourcing takes place. Companies indicated that on average they spend 23% of their total expenses on outsourcing creative functions

such as design, motion capture and narration, among others. By contrast, outsourcing of all other functions respectively commands less than 10% of total expenses on average.

The **bulk of outsourcing is done within Canada** across all areas of activity. For creative functions, the US, Eastern Europe and China were also common outsourcing jurisdictions. On the other hand, the UK appeared to be a relatively common jurisdiction for outsourcing technical functions and for sales and marketing, most of the work outsourced outside of Canada went to the US, reflecting its importance as a sales market. The most frequently cited reason for outsourcing is insufficient capacity in the home company.

The Economic Impact of the Video Game Industry in Canada

In total, **the video game industry generated over $2.3 billion in Gross Domestic Product (GDP) for the Canadian economy in 2012**. Of that, the direct-impact GDP in the video game industry was nearly $1.4 billion in 2012. The industry also generated $428.9 million in indirect-impact GDP and $495.0 million in induced-impact GDP.

Methodological Note

The data presented in this study is drawn principally from an online survey of Canadian-based video game companies conducted by Nordicity between March and June 2013, as well as a series of expert interviews with key members of Canada's video game industry. Information from other sources is cited accordingly.

Additional detail on the methodologies used in the creation of this report can be found in Appendix A: Methodology.

Nordicity

Glossary of Terms

Video game company: A company directly involved in the development and/or sale of video game products; and/or the provision of services directly related to the development and sale of video game products. In this context of this report, "video game company" is used interchangeably with "video game firm" and "video game studio."

N-values: The number of respondents to a survey question, which is often used in the data analysis related to that question.

Direct GDP: The economic activity generated directly by video game industry.

Indirect GDP: The increased economic activity generated by business sectors broadly associated with the video game industry in Canada—i.e. sectors that are supplying goods and services to companies in the industry.

Induced GDP: The increase in economic activity attributable to re-spending of labour income within an economy by workers at the direct and indirect levels. In other words, people employed at the direct and indirect level take home salaries and re-inject that income into the economy through their day-to-day spending.

Direct employment: Those people employed by a video game company.

Spin-off employment: Employment resulting from economic activity generated by business sectors broadly associated with the video game industry in Canada and the economic activity attributable to re-spending of labour income within an economy by workers at the direct and indirect levels. In other words, employment related to the indirect and induced economic impact of the video game industry.

FTE: Full-time equivalent is a measure of employment that can mean, for example, that three part-timers each working a third of a year make up 1 FTE.

Labour income: Salaries and benefits paid to employees of video game companies.

Business unit: A producing unit that can be a part of a larger corporation or a business in and of itself.

Project: In the context of this study, a project refers to a product or service that has been introduced into the marketplace.

Outsourcing: The practice of transferring portions of work to outside suppliers rather than completing them internally. Outside suppliers may be situated locally, domestically (i.e. elsewhere in Canada) or internationally. Suppliers can include other firms or independent freelancers and sole practitioners.

1. Size of Canada's Video Game Industry

Over the last 10 years, the global video game industry has grown significantly, and it continues to grow. According to PricewaterhouseCoopers' *Global Entertainment and Media Outlook*, global growth in consumer spending in the video game market is expected to average 7.2% CAGR, with global spending rising from US$59 billion in 2011 to US$83 billion by 2016.[3] The Asia-Pacific region is both the largest and fastest growing market for video game sales—with a predicted increase from $24 billion in 2011 to $40 billion in 2016 (representing 10.3% CAGR).[4] Consumer spending on online games constitutes the largest share of total spending in this region (also larger than any of the other regions), which, consequently, is having a much greater influence on overall growth in the sector.

In this context of global growth, the video game industry in Canada continues to hold its own. As the following section illustrates, the number of video game companies in Canada has remained fairly constant since 2011, while the overall employment level has increased over the same period.

1.1 Number of Companies

The simplest measure of the size of an industry is the number of companies operating in that industry. According to the list of companies prepared by the Entertainment Software Association of Canada (ESAC) and Nordicity, there are 329 studios in operation across Canada in 2013. This count is roughly similar to the 348 firms reported in the 2011 SECOR Report, *Canada's Entertainment Software Industry in 2011* (the 2011 report). Despite the constant change roiling the industry, however, the overall number of companies has held relatively steady.

1.2 Employment

Apart from the number of active companies, perhaps the most accessible gauge of the size of an industry is the number of people that it employs. The following sub-sections outline the direct employment (people employed by video game companies), spin-off employment (employment stimulated by the video game industry), and the average salary levels present in Canada's video game industry.

Methodological Note

The data presented in this study is drawn principally from an online survey of Canadian-based video game companies conducted by Nordicity between March and June 2013, as well as a series of expert interviews with key members of Canada's video game industry. Information from other sources is cited accordingly.

Additional detail on the methodologies used in the creation of this report can be found in Appendix A: Methodology.

[3] PwC. (2012). "Global Entertainment and Media Outlook: 2012-2016". Page 60. 13th annual edition. New York, NY: PricewaterhouseCoopers LLP.
[4] Ibid.

1.2.1 Direct Employment

Overall, the **video game industry directly employed 16,500 FTEs**, up 5% from 15,700 in 2011 SECOR report. However, we should note that whereas the employment figures reported in this report are presented as FTEs, whereas the 2011 report presented "jobs." As such, readers should exercise caution when comparing data between the two reports.

When this finding is combined with the slight reduction in the number of active game companies, it can be observed that the industry has undergone a very minor degree of consolidation. In the 2011 report, a typical video game company employed a mean average of 45.1 people, in 2012 a typical firm employed a mean average of 50.2 people (up 11.2%).

1.2.2 Spin-off Employment

The video game industry also generates significant indirect and induced employment impacts throughout the Canadian economy (i.e. spin-off employment). The increase in employment is smaller than the increase in overall expenditures. This discrepancy is likely the result of rising salary levels in Canada's video game industry, which, in turn are related to the higher skilled workers that today's video games tend to require.

The indirect employment impact arises from the video game industry's purchases of goods and services from other sectors of the Canadian economy (e.g. computer equipment, software, and accounting services). Nordicity estimates that the video game industry generated **an additional 4,600 FTEs of indirect employment in 2012**.

The video game industry also generates induced impact employment, when video game industry employees and indirect impact workers re-spend their income throughout the Canadian economy. Nordicity estimates that video game industry generated **an additional 5,900 FTEs of induced employment in 2012**.

In total, therefore, **the video game industry generated 27,000 FTEs** of employment in the Canadian economy in 2012.

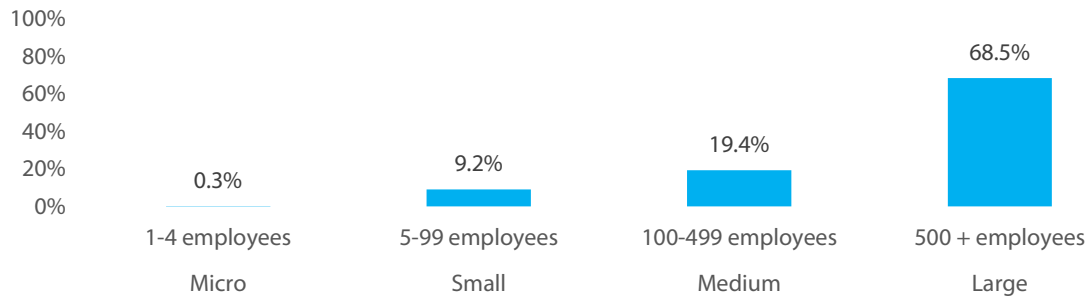
Table 1 – Employment, 2012 (FTEs)

	Video game industry*	Indirect impact	Induced impact	Total impact
Employment	16,500	4,600	5,900	**27,000**

Source: Nordicity estimates based on industry survey and Statistics Canada input-output tables
* Direct impact

Of those 16,500 direct FTEs, the **majority are employed by large firms** (which employ more than 500 people). Indeed, an estimated 11,300 people were employed by large video game companies in Canada in 2012.

Figure 1 – Employment, 2012 (by size of company)

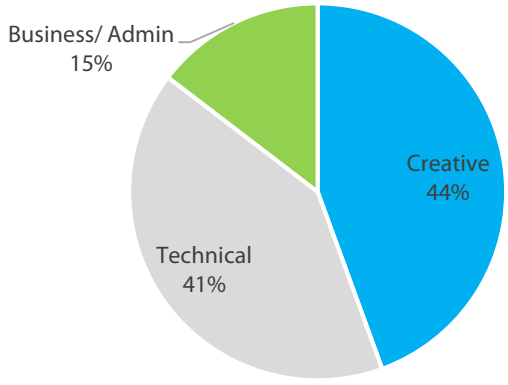


Source: ESAC Industry Survey 2013
N = 75

Survey respondents were asked to classify their employees by job type: creative, technical or administrative. The categories can be loosely defined as:

- **Creative:** Primarily involved in the generation of creative assets;
- **Technical:** Primarily involved in software and hardware engineering;
- **Business/Administrative:** Primarily involved in day-to-day operations.

Figure 2 – Employment by job type, 2012



Source: ESAC Industry Survey 2013
N = 80

Survey results indicated a slightly higher share of creative (44%) employment as compared to technical (41%) employment as depicted in the figure above. Survey results also demonstrate that nearly all (99%) of employment in the industry is full-time.

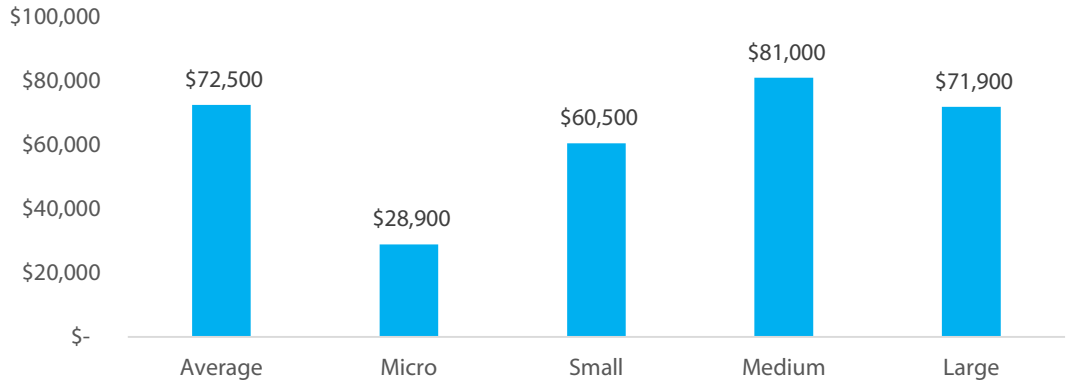
1.2.3 Average Employee Salaries

The following charts depict average salary levels overall, and broken out by size of company (based on employment), by type of position and by level of seniority. Overall, according to survey results, the average salary video game salary in 2012 was roughly $72,500 per annum, across all job types and levels of seniority.

The figure below presents overall average salary by size of company. For this analysis, size of company is based on the following categories:

- **Micro:** 1-4 employees
- **Small:** 5-99 employees
- **Medium:** 100-499 employees
- **Large:** 500+ employees

Figure 3 – Overall average salary by size of company



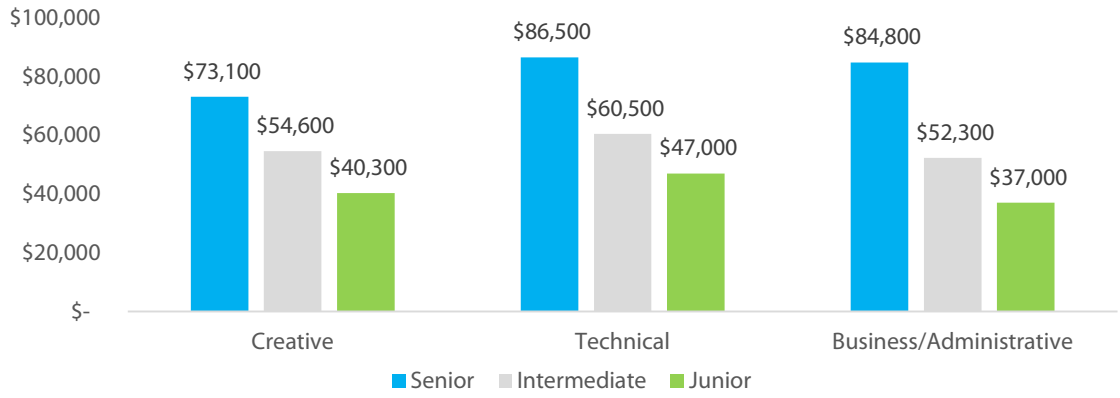
Source: ESAC Industry Survey 2013
N = 51

According to the survey results, the highest average salaries ($81,000 per annum) were earned in medium-sized firms rather than large firms ($71,900 per annum) as depicted in the figure above. There is also a striking gap between average earnings at micro-firms as compared to small, medium, and large firms. With an average annual salary of just $28,900, employees at micro-firms are earning less than half of their counterparts at larger video game companies.

The figure below presents average salary by type of position and by level of seniority:

- **Senior:** More than 6 years of experience;
- **Intermediate:** 2-6 years of experience;
- **Junior:** Less than 2 years of experience.

Figure 4 – Average salary by type of position and level of seniority



Source: ESAC Industry Survey 2013
N = 51

While we observed earlier that the share of technical and creative staff is roughly even across the video game industry, at all levels of seniority, technical staff receive a higher average wage.

Return to Table of Contents

2. The Structure, Output and Geography of Canada's Video Game Industry

The following section turns to the structure (types of company, ownership, etc.), the output (game projects), and the geography (in Ontario, Quebec, and British Columbia) of the video game industry in Canada. In so doing, it places Canada's video game industry in the context of overarching trends in video game development.

2.1 Trends in Video Game Development

Canada's world-class talent and targeted financial incentives have created a vibrant digital media and video gaming ecosystem with a healthy mix of highly innovative small and large companies. As the uptake of smartphones and tablets continue to increase in Canada and abroad, Canadian developers are increasingly taking a keen interest in mobile platforms. Although big-budget AAA console games will likely continue to be a staple in the video game industry, business models organized around mobile game development are gaining momentum in their ability to generate substantial revenue. The free-to-play business model and continued uptake of mobile screens is largely responsible for introducing a new type of gamer to the world of video games: the casual gamer. These factors have also played a crucial role in driving the increase in gamers and in-app purchases. In a study of the leading 20 countries in terms of mobile transaction (payments) growth, Canada ranks 6th, with an expected growth rate of nearly 15%.[5]

As the nature of the typical video game consumer evolves from so-called "hardcore" gamers (who typically make deliberate, pre-meditated purchases), to sporadic "casual" gamers (who typically make purchases or play on a whim), it is likely that growth will continue in the mobile gaming segment. In Canada, this shift is evident in the rising number of more agile, smaller firms. The shift is also largely facilitated by attractive tax credits that support the establishment of these smaller firms, and that also prompt the larger firms to move headquarters as they seek to position themselves in the most favourable environments.

As many interviewees indicated, this trend is ultimately resulting in a drastic shift in the structure of the industry from one that was more evenly spread across the spectrum of small, medium, and very large firms, to an industry that is more dramatically split between small firms and large firms. In other words, the new consumer trends that are splitting consumers between lower-quality, low production value mobile casual games and hardcore console gamers looking for ever-more sophisticated, high production value products, are leaving little room for the firms operating between those two ends of the spectrum to continue to succeed.

To put the output of video game industry in Canada in wider context, one can look to the overall North American market. Prior to the Game Developers Conference (GDC) 2013, organizers polled more than 2,500 North American game developers who attended GDC 2012 about their development practices.

---

[5] Global Collect (2012). "The Shifting Video Games Landscape: Payments, Intelligence and Trends." Accessed May 29, 2013, from: http://info.globalcollect.com/the-shifting-video-games-landscape-payments-intelligence-and-trends

One of the key findings from the survey revealed that independent developers and smaller teams increasingly comprise the majority of the industry:

- 53% of the respondents identified themselves as 'independent developers';
- Of that 53%, 51% have been independent developers for less than 2 years;
- A significant proportion of respondents (46%) work within companies having 10 employees or less;
- Only 24% of those surveyed worked with a publisher on their last game, while an even smaller 20% are doing so on their current projects.[6]

The rising predominance of smartphones and tablets in the consumer market was also found to have an impact on the platform preference of the game development community. The GDC survey found that respondents were developing for smartphones and tablets more than any other platform – with 38% having released their most recent game for smartphones and tablet, 55% focusing on making their current games for these platforms, and 58% are planning on releasing their next games on these platforms. Mac/PCs too beat out traditional console development in terms of respondents' platform preference – "with 34.6% of developers releasing their last games for PCs/Macs, 48% developing their current games for the platform, and 49% planning their next games on PCs/Macs."[7] At the same time a PricewaterhouseCoopers report indicated that global spending on online games are expected to overtake console and PC games in 2013, and will grow to be 36% larger than the traditional platforms by 2016.[8]

The following table summarizes the survey's findings in terms of the platform for which respondents prefer to develop games.

Table 2 – Video game developers' platform preferences (at GDC 2013)

Platform	Previous release	Currently developing	Planning to develop
Smartphones/tablets	38%	55%	58%
Mac/PC	34.6%	48%	49%
Xbox 360		13.2%	14%
PS3		13%	12.4%
Wii U		4.6%	6.4%
PlayStation Vita	<2%	4.2%	5%
Nintendo 3DS		2%	2.8%
Next Gen PlayStation/Xbox		11%	11%

Source: GDC State of the Industry

[6] Gamasutra. (February 28, 2013). "GDC State of the Industry research exposes rise of indies, smartphone games." Accessed April 5, 2013, from: http://gamasutra.com/view/news/187292/GDC_State_of_the_Industry_research_reveals_key_trends
[7] ibid.
[8] PwC. (2012). "Global Entertainment and Media Outlook: 2012-2016." Page 60. 13th annual edition. New York, NY: PricewaterhouseCoopers LLP.

As illustrated by the table above, there is a marked increase in development for mobile platforms. In terms of current mobile development platforms, iOS is the most popular with close to 90% of those surveyed working on a game for the Apple App Store. Android comes in second with 75% currently developing Android games followed by 15% of developers choosing Windows Mobile. Less than 5% of developers are currently working on a game for other mobile platforms like BlackBerry and PlayStation mobile.[9]

The growth in mobile game development can be seen as a result of five key trends that are fueling change in the global video game market:

1. **More screens:** No longer are gamers confined to the TV and PC. The proliferation of screens in the form of smartphones and tablets has not only doubled the amount of time consumers can spend on gaming, but also the amount of money potentially spent on gaming.
2. **Free games:** Gone are the days of trial/shareware. Free-to-play games have all but become the norm in mobile app ecosystems as in-game spending models have proven to be more successful than the former. Free-to-play games were found to comprise 70% of all mobile revenues across the US and EU.
3. **Games-as-service:** Monetization now takes place at a moment the gamer chooses. Realizing this, developers and publishers now take steps to ensure that their gamer is as engaged as possible. Built-in incentives and 'RPG-like' features have even been incorporated into traditional non-games, like to-do lists (*Epic Win* and *ChoreMonster* are prime examples).
4. **Balancing business models:** With a sea of similar mobile apps in the ecosystem, it is essential for the publisher to continuously strike a balance between value for the consumer and profit—being able to keep 'free' gamers happy while leaving room for spending by "the whales."
5. **Global Market Place:** Borders (geographic, linguistic or cultural) no longer separate developers from gamers across the global. Online connectivity has allowed companies to localize and launch games anywhere in the world. As a result, markets where mobile usage is emerging/growing are necessary for game companies to secure growth.[10]

Another major disruptive shift in the global video game industry is the impending end of the current console cycle and introduction of the new generation of consoles. The new consoles will likely put increasing pressure on the level of quality that consumers will expect of console games, further widening the quality, and production cost, gap between console games and mobile games on the other side of the spectrum.

As many interviewees put it, this trend will likely also widen the gap between small, agile independent developers and large AAA-producing studios. In addition, with the end of the current console cycle, as with the end of previous console generations, many companies have pulled back on

---

[9] Stark, C. (2013). "Game Developers Move Toward Mobile Self-Publishing En Masse." Accessed April 8, 2013, from: http://mashable.com/2013/02/28/indie-game-statistics/

[10] NewZoo. (2013). "Trend Report Mobile Games: placing smartphone and tablet gaming in perspective of the total games market." Accessed April 8, 2013, from: http://www.newzoo.com/trend-reports/mobile-games-trend-report-free/

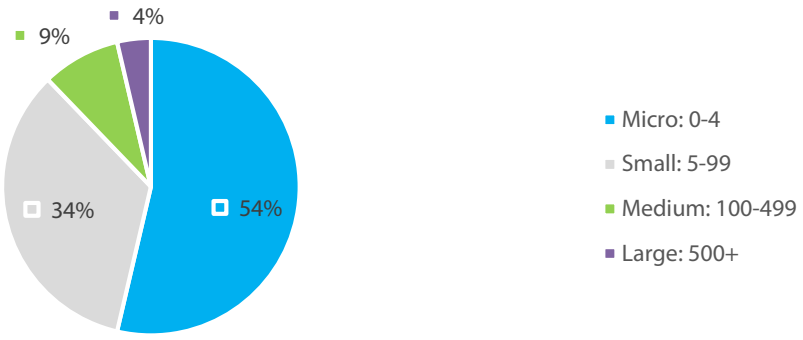
investing in new IP and new projects until the new consoles are released, slowing production over the last few years. And the new console cycle will inevitably have its casualties as some AAA games producers will fail to develop games that maximize the features offered by the new consoles and fail to meet the ever-increasing quality demands of consumers that result from the promises of those new console features.

2.2 Video Game Companies in Canada

This sub-section outlines the structure of the video game industry in Canada. It examines the size of companies that make up Canada's video game industry, and details their corporate structure ownership, and age.

According to results from the ESAC Industry Survey 2013, the video game industry in Canada is primarily made up of micro- and small-sized organizations (54% and 34%, respectively), as shown in Figure 5 below. These figures align with general observations and perceptions about the industry, indicating that Canada's video game industry is in a period of change often touted as the "rise of the indies." After successfully attracting large multi-national studios with favourable tax incentives and high-quality talent, the video game industry in Canada was primarily dominated by these firms. In recent years, however, many of these large studios have failed to survive in an increasingly diverse market as new platforms emerged and console game consumers became more demanding with regards to the quality of the games they consumed. The result has been a decrease in the number of major studios and a rise in the number of small, independent studios to fill the employment gap left by these closures. In addition, the rise of the mobile platform created a large new market that created a wealth of opportunity for existing and emerging independent developers in Canada.

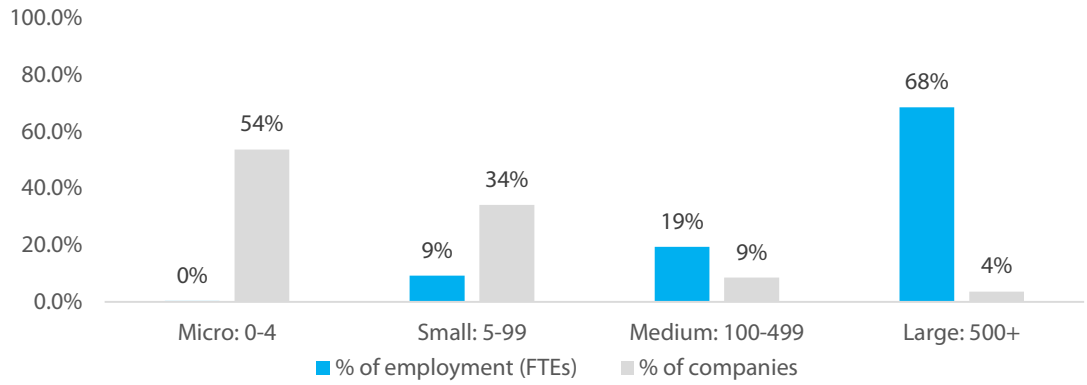
Figure 5 – Size of company (by employment)



Source: ESAC Industry Survey 2013
N= 82

That said, it should still be noted that larger companies continue to account for the bulk of employment in Canada's video game industry (as shown in Section 1.2.1). Indeed, as illustrated in Figure 1, the largest 4% of video game companies generate over two-thirds (68%) of the employment in the industry. Conversely, the 54% of video game companies in Canada that are micro-sized account for less than 1% of employment. This contrast is illustrated in the following chart (Figure 6).

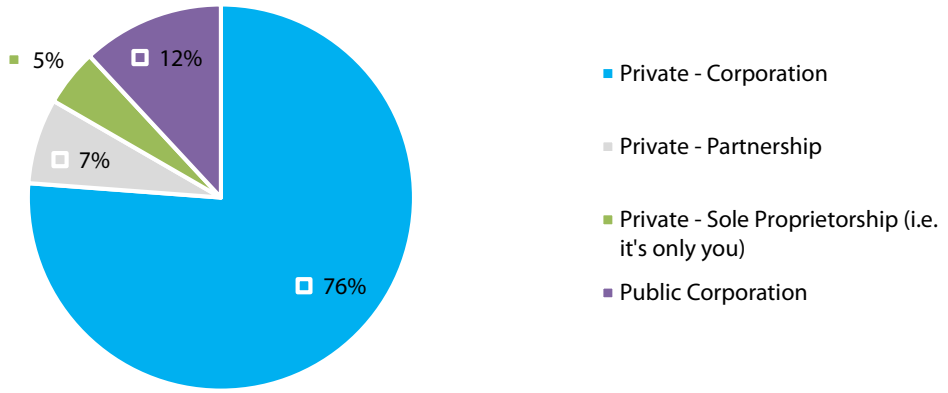
Figure 6 – Percentage of employment vs. percentage of companies



Source: ESAC Industry Survey 2013
N = 75 (% of employment); 82 (% of companies)

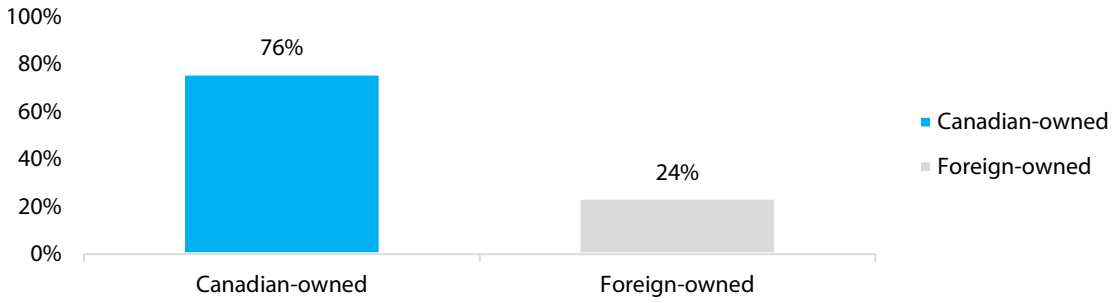
The majority of firms in Canada are structured as private corporations (76%) and are Canadian-owned and controlled (76%). Indeed, as Figure 8 illustrates, only just under a quarter of game companies in Canada are foreign-owned. Interestingly, there are a significant number (12%) of companies structured as public corporations, markedly more than the amount of companies structured as private partnerships (7%) or sole proprietorships (5%) (see Figure 7).

Figure 7 – Corporate structure



Source: ESAC Industry Survey 2013
N = 84

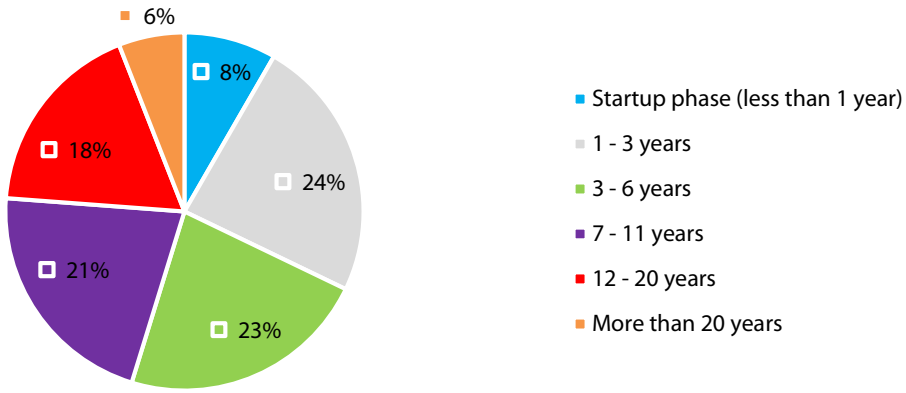
Figure 8 – Company ownership



Source: ESAC Industry Survey 2013
N = 84

The average age of video game firms in Canada is approximately 7.4 years. That said, as Figure 9 demonstrates, almost two-thirds of the firms in Canada have been in operation for less than 6 years with almost one-quarter indicating that they have been in operation for between 1-3 years and almost 20% indicating that they are still in the start-up phase.

Figure 9 – Company age



Source: ESAC Industry Survey 2013
N = 84

Such a large number of start-up and very young firms indicates that there has been a certain measure of growth in the industry in the last 2-3 years, in terms of the number of games companies that exist in Canada. This growth could be partially explained by the recent trend in Canada of the rise of the independent video game studios. As indicated by current industry literature and key informant interviews, there has been a proliferation of small independent video game studios in Canada in the last 2-3 years. This trend has been largely sustained by the emergence and mainstream success of new platforms (e.g. mobile, social media) which require smaller budgets and teams than traditional

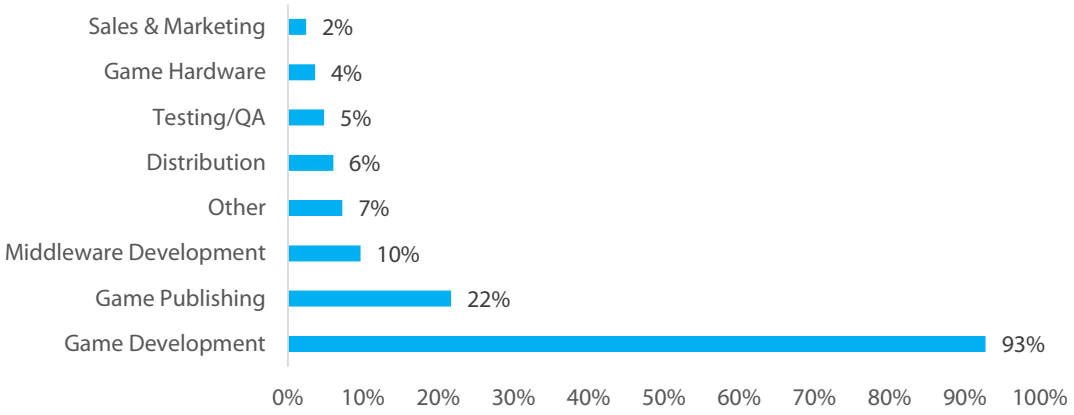
console games. In addition, the closure of several major studios in Vancouver—such as Propaganda Games, Rockstar Vancouver, and most recently PopCap Vancouver and Quicklime Games—has also spawned a number of new independent studios founded by small groups of former employees from those large studios in an effort to curb unemployment.

2.3 Video Game Development Activity

When it comes to the structure of the video game industry, the following charts illustrate in which areas Canada's video game companies are most active.

According to the results of the 2013 video game industry survey illustrated in the figure below, almost all video game firms in Canada (93%) are engaged in game development. A significant number of companies (22%) also indicated that game publishing was one of their lines of business. It is important to note that these lines of business are not necessarily mutually exclusive. For example, a firm may be engaged in both game development and game publishing at the same time such as is the case with many of the larger studios (e.g. Ubisoft, EA, etc.).

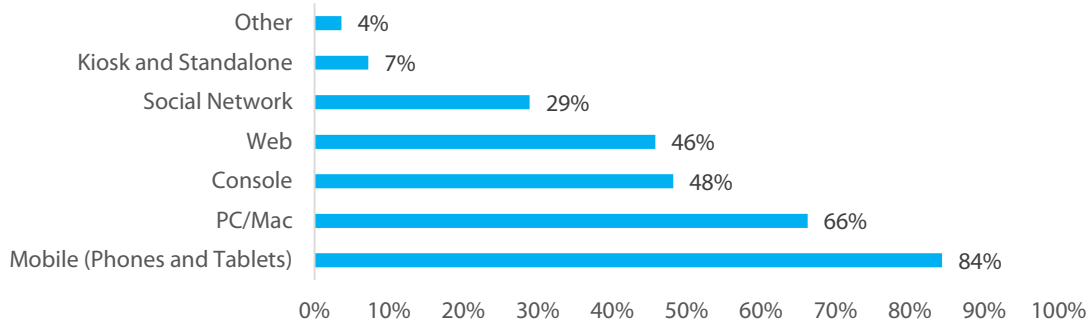
Figure 10 – Lines of business (frequency by % of respondent companies)



Source: ESAC Industry Survey 2013
N= 83

In line with the global growth trends of the video game industry towards mobile platforms, video game companies in Canada are very active on the mobile platforms. Indeed, the industry survey indicates that 84% of companies are actively working on products or services for mobile platforms (Figure 11). Interestingly, video game companies in Canada are actively developing products and services for the PC/Mac platform, with 66% percent of companies indicating that they did in the 2013 industry survey. Consoles remain an active segment of the industry, with 48% of companies indicating that they develop products or services for console platforms. Web and social networks are also significantly active platforms in the Canadian industry, with 46% and 29% of video game companies indicating they work on those platforms, respectively.

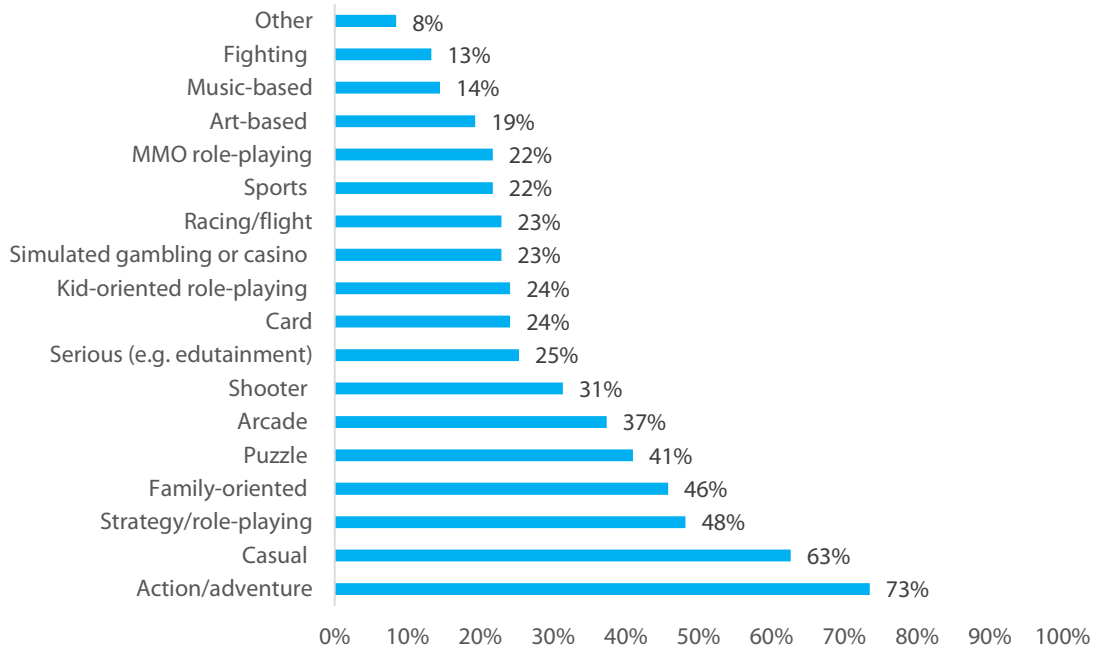
Figure 11 – Platforms (frequency by % of respondent companies)



Source: ESAC Industry Survey 2013
N= 83

When it comes to video game genres, the most active among firms in Canada is action and adventure games, with the 2013 industry survey results indicating that 73% of video game companies develop games in that genre. Casual games are also a very active area for video game companies in Canada (63% of companies indicated that they develop products or services in that genre) as well as strategy and role-playing games (48% of companies), family-oriented games (46%) and puzzle games (41%) (Figure 12).

Figure 12 – Game genres (frequency by % of respondent companies)



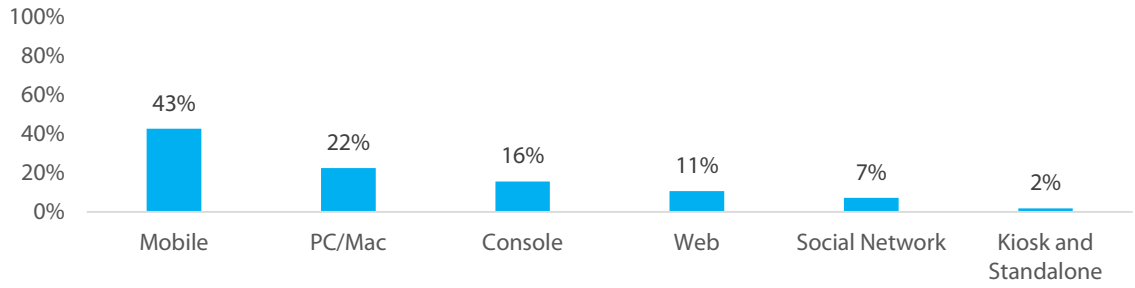
Source: ESAC Industry Survey 2013
N= 83

2.3.1 Project Output

According to the industry survey, video game companies in Canada collectively completed over 910 projects in 2012. The charts below illustrate the distribution of those projects across the various platforms and genres, according to what respondents reported in the survey.

As Figure 13 illustrates, the largest proportion of projects completed by video game companies in Canada in 2012 were for mobile platforms (43%), followed by PC/Mac (22%) and console platforms (16%).

Figure 13 – Number of projects completed in 2012 by platform

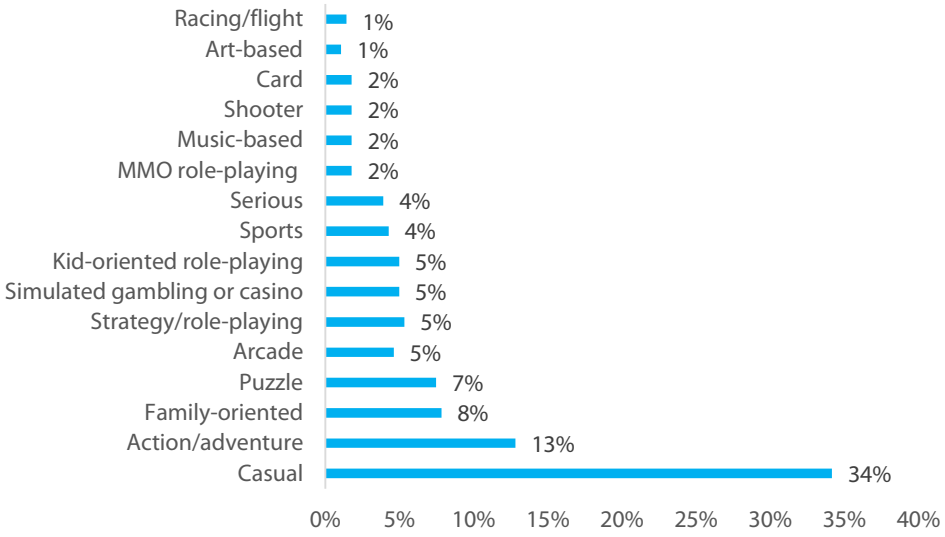


Source: ESAC Industry Survey 2013
N = 46

Interestingly, although project intended for mobile platforms represent the largest share of projects completed in 2012, they only represent just under 11% of total revenues generated by Canadian video game companies in the same year. These results help to drive home the well-known and oft-cited challenge of monetization of mobile products. By contrast, consoles remain the most lucrative platform representing only 16% of all completed projects in 2012 but over two-thirds (66.5%) of total revenues generated in the same year (see Section 4.1 for more on video game revenue).

As the following chart illustrates, casual games accounted for the largest portion (34%) of projects completed by video game companies in Canada in 2012. Action and adventure games also represented a significant portion of completed projects according to the ESAC Industry Survey 2013, representing 13% of all reported completed projects in 2012.

Figure 14 – Number of projects completed by genre



Source: ESAC Industry Survey 2013
N = 45

2.3.2 Project Resources

In a recent poll of over 2,500 North American game developers by the Game Developers Conference, the majority of respondents indicated that funding for their projects was sourced either from revenues from their existing projects (37%), or from an individual's personal funds (35%), while only 9% of respondents indicated that their projects were funded by venture capital.

The most interesting finding in terms of video game financing is that developers' interests are gradually shifting away from publisher-funded projects towards primarily crowdfunded ones. While the survey found that 10% of projects are still primarily publisher-funded, and only 4% were crowdfunded, 8% of surveyed developers have previously worked on a crowdfunded project and 44% are planning on doing so in the future.

Interviewees corroborated these findings indicating that there are increasing opportunities in Canada for small, independent firms to access financing. These include crowdfunding, as well as a number of private financing options such as incubators and accelerators, and initiatives such as the Canadian Film Centre's IdeaBOOST. These new financing options are directly supporting the rise of independent developers in Canada and a large-scale shift away from the publisher model along with the self-publishing opportunities offered by the emergence of new digital platforms.

As might be expected, console games are commanding much larger budgets with longer production times and larger teams on average than games projects for other platforms. For example, according to results from the ESAC Industry Survey 2013, a console game takes an average budget of over $8.7 million, 583 days and 65 people to produce. In contrast mobile games take an average of just over

$300,000, 156 days and 7 people to produce. Similarly, social network games take an average of just under $300,000, 69 days and 5 people to produce.

The following tables provide a summary of the average resources required to produce games for each of the key video game platforms.

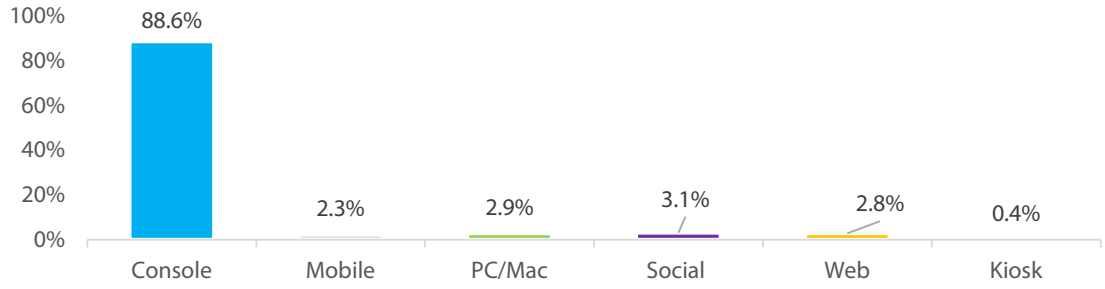
Table 3 – Average project budget, team size and # of days by platform

Platform		Budget	Team Size	# of days
Console	$	8,728,125	65	583
PC/Mac	$	995,675	10	268
MMO	$	834,000	9	259
Web	$	651,625	7	172
Mobile	$	303,500	7	156
Social Network	$	295,000	5	69
Kiosk and Standalone	$	30,000	5	65

Source: ESAC Industry Survey 2013
N = 43

When examined as a portion of all project expenditures incurred for project that were completed in 2012 (Figure 15), it is clear that the majority of money spent on video game development was allocated to console games (88.6%).

Figure 15 – Project budgets by platform, for projects completed in 2012



Source: ESAC Industry Survey 2013
N = 46

This finding is in line with the observation that console projects have the highest average budget, and require the largest teams. At the same time, however, console projects only accounted for 16% of projects in 2012 (Figure 13).

2.4 Geography of the Video Game Industry

This sub-section outlines how the video game industry is spread across Canada. To that end, Canada's active video game firms are primarily located in Ontario, Quebec, and British Columbia, as shown in the table below.

Table 4 – Geographic location of studios

Province	Studio Count 2013	Studio Count 2011
Quebec	97	87
Ontario	96	96
British Columbia	67	83
Alberta	20	30
Manitoba	20	19
Nova Scotia	18	12
PEI	5	10
New Brunswick	3	3
Newfoundland	2	8
Saskatchewan	1	-
Total	**329**	**348**

Source: List compiled by ESAC and Nordicity

As discussed in Section 1.1, the number of video game companies operating in Canada has decreased slightly since 2011. This change can be largely attributed to a drastic decrease in the number of companies operating in British Columbia.

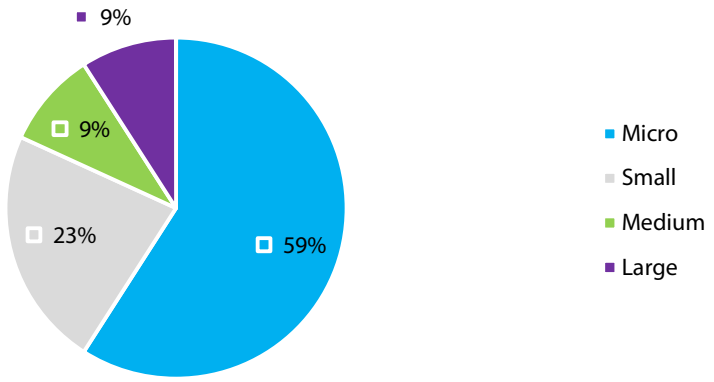
2.4.1 Quebec's Video Game Industry

The history of video game in Quebec is inextricably tied to two related factors; the much earlier introduction (in 1996) of a video game tax credit to the province, and the arrival and establishment of large studios in the province as a result of the lucrative credits on offer. Of particular note among these are France's Ubisoft, which arrived in Montreal in 1997, and Square Enix's Eidos Interactive, which opened its doors in Montreal in 2007. The presence of long-term strong tax credit assistance and industry support has also been instrumental in the formation of a thriving indie game community in Quebec.

Company Profile

The breakdown of companies by size in Quebec roughly matches the national picture, though the province appears to have relatively more large companies (9% vs. 4%) and fewer small ones (23% vs. 34%). As with the national picture, the majority (53%) of the industry (by simple company count) is comprised of micro-sized firms.

Figure 16 – Company size (Quebec)



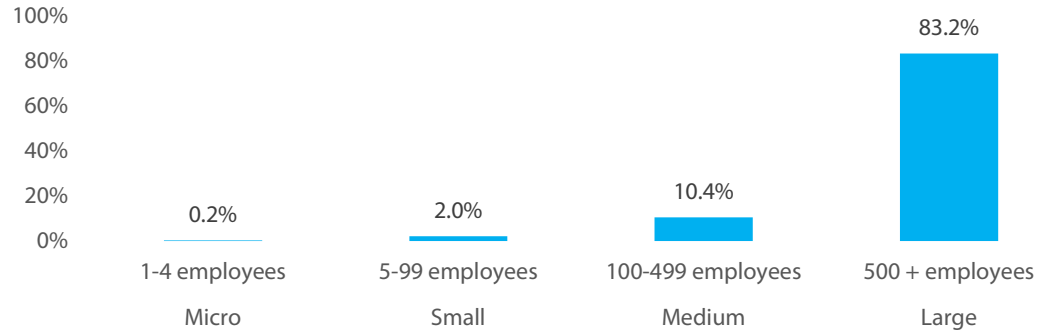
Source: ESAC Industry Survey 2013
N = 23

Quebec has a slightly larger number of firms that are foreign-controlled than the national average (30% vs. 24%). The province also has a significantly larger share of both public corporations (17% vs. 5%) and private partnerships (18% vs. 7%) than at the national level, with these increases coming at the expense of the share of private corporations (65% vs. 76%, nationally).

Companies in Quebec tend to have been in operation for 7.5 years, on average—comparable to the national figure of 7.4 years. The following chart gives the distribution of companies by age across the province. The distribution seems to be slightly flatter than at the national level—slightly more start-up (18% vs. 8%) and highly established (9% vs. 6%) companies, and slightly fewer middle-aged ones.

The video game industry in Quebec accounted for operating expenditure of $741 million in 2012 and generated direct employment of 8,750 FTEs. The average salary for full-time employees in the province was $65,500, significantly lower than the national average of $72,500. The size of the industry in Quebec is heavily influenced by large, established studios such as Ubisoft in Montreal and Quebec City. Indeed, as the following figure illustrates, the majority of employment in Quebec's video game industry occurs in large firms.

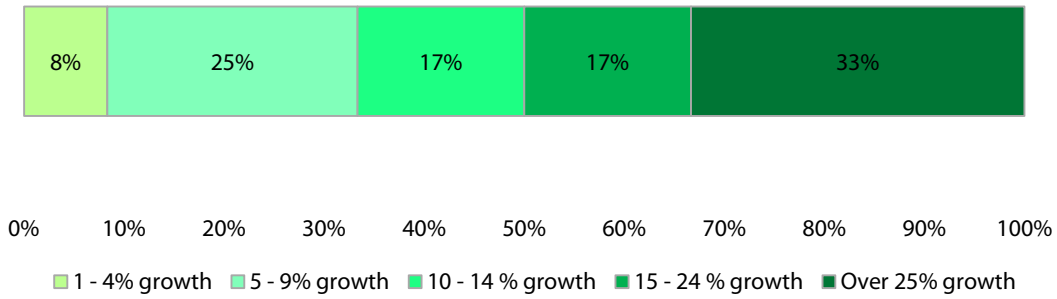
Figure 17 – Employment by size of company (Quebec)



Source: ESAC Industry Survey 2013
N = 23

Companies in the province appear to be highly sanguine about the future. As the following chart illustrates, every surveyed company had a positive growth outlook, and two-thirds expected to grow by 10% or more in the coming two-year period.

Figure 18 – Growth forecast, 24 months (Quebec)



Source: ESAC Industry Survey 2013
N = 23

2.4.2 British Columbia's Video Game Industry

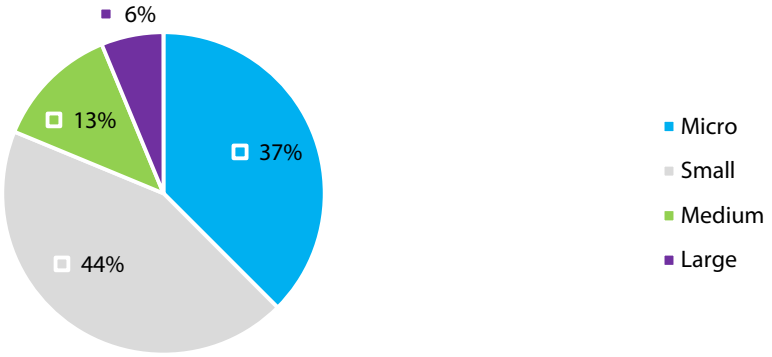
British Columbia is home to one of the oldest video game clusters in North America. In the early 80's, video game pioneer Don Mattrick founded Distinctive Software, the first in a line of video game companies in BC leading to Relic, Radical, and EA Canada, among others. This initial cluster grew organically for many years, developing strong connections to sound and video producers and a whole ecosystem of support companies for the nascent video game industry. In recent years, the industry's growth has somewhat slowed—the global financial crisis, rising Canadian dollar, and lucrative tax incentives offered by Ontario and Quebec all being contributing factors to the industry's

recent decline. At present, the province and the entertainment software industry are looking for ways to revitalize and strengthen the video game ecosystem in BC.

Company Profile

As the following chart shows, BC has a smaller number of micro-sized companies (37% vs. 54%), and a concomitantly larger number of small- (44% vs. 34%) and medium-sized (13% vs. 9%) ones.

Figure 19 – Company size (BC)



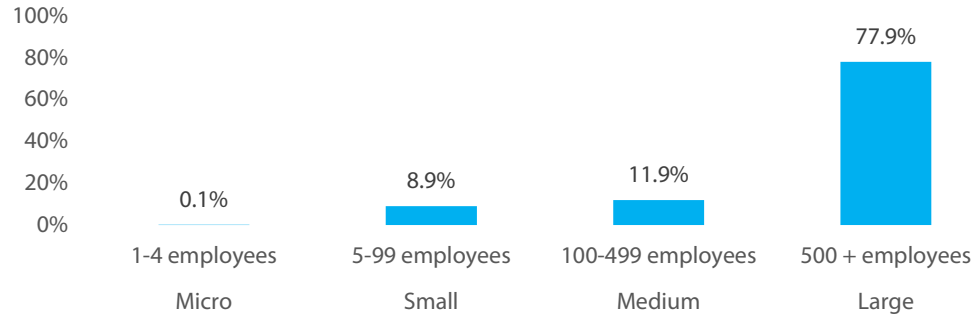
Source: ESAC Industry Survey 2013
N = 17

In terms of ownership, BC has a higher proportion of foreign-owned companies than at the national level (41% vs. 24%). The province also has more public corporations than the national average (24% vs. 7%), with this extra share coming at the expense of partnerships and sole proprietorships.

Companies in BC tend to be somewhat more established than at the national level—the average age of companies in BC is 9.4 years (up from 7.4 nationally). Two-thirds (65%) of companies indicated they had been in operation longer than 7 years, with none indicating they were in the start-up phase (less than a year old).

In 2012, the video game industry in BC was responsible for $568 million in gross expenditure, resulting in direct employment of 5,150 FTEs. BC had the highest reported average salary across the three provinces for which regional data was compiled—$80,100 compared with the national figure of $72,500. BC also seems to derive a very slightly lower share of total expenditure from wages (69% vs. 74% nationally). Like Quebec, most of the employment observed in BC's video game industry stemmed from large firms, as illustrated below.

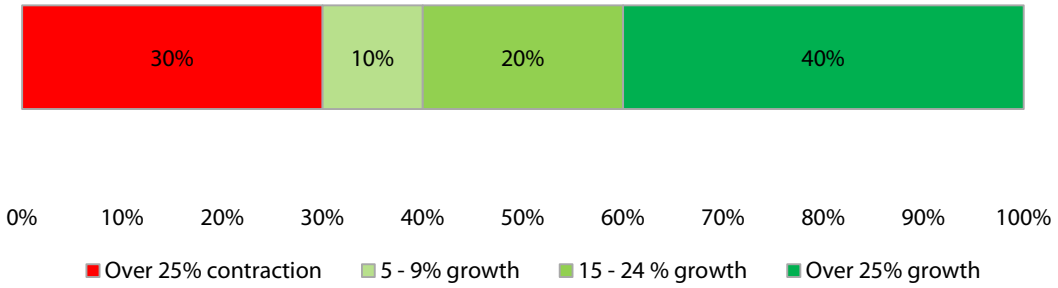
Figure 20 – Employment by size of company (BC)



Source: ESAC Industry Survey 2013
N = 17

The growth forecast for BC companies is more polarized than at the national level. Close to a third (30%) of surveyed companies in BC reported anticipating contraction of more than 25% over the coming two-year period, with the rest reporting at least some growth over the same period, and 40% of respondents indicating they anticipate growth of more than 25%.

Figure 21 – Growth Forecast, 24 months (BC)



Source: ESAC Industry Survey 2013
N = 10

2.4.3 Ontario's Video Game Industry

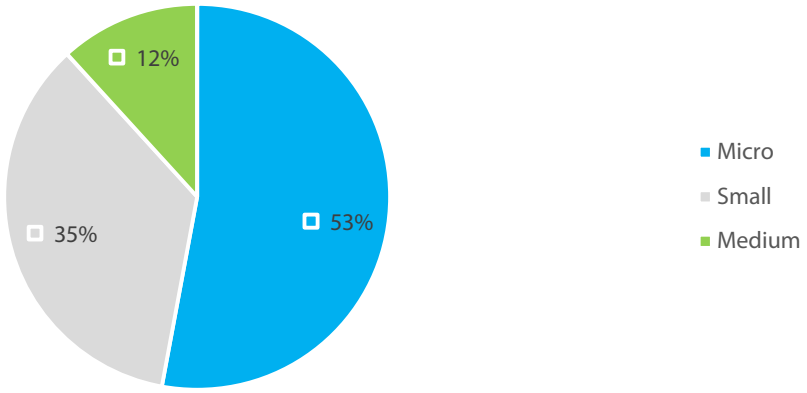
The video game industry in Ontario is mainly comprised of small- and micro-sized firms (those with less than 100 employees), almost all of which are Canadian-owned, privately held corporations. This reflects the makeup of an industry that has been historically focused on independent game developers and middleware providers. Since the introduction of the digital media tax credit (OIDMTC) in 2009, the province has sought to attract larger studios to province. One result of this has been the

opening of a division of Ubisoft in Toronto, although the tax credit is also of great benefit to smaller studios.

Company Profile

The following chart gives the breakdown of respondent companies by size. The majority of video game companies in Ontario (53%) are micro-sized, having less than four employees, with the balance being small- (5-99) and medium-sized (100-499). This distribution follows the national picture closely except for the absence of any large companies (more than 500 employees) among respondents, which is reflected in a larger number of medium-sized ones.

Figure 22 – Distribution of companies by size (Ontario)



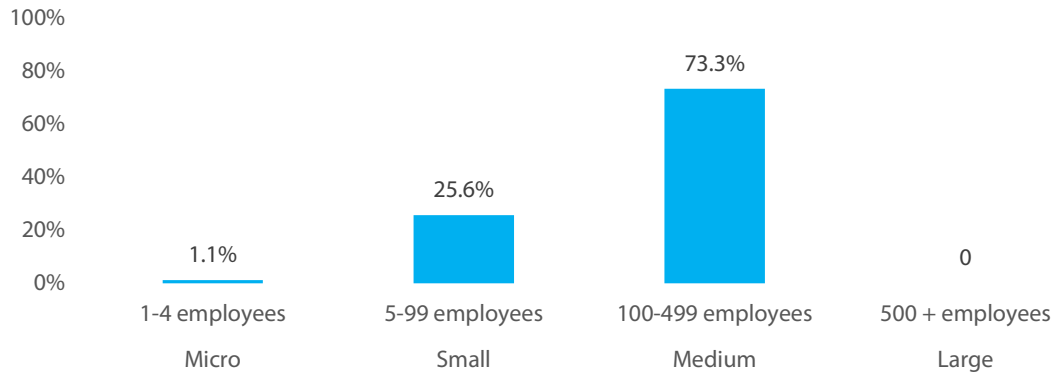
Source: ESAC Industry Survey 2013
N = 17

A significantly higher proportion (88%) of companies in Ontario are Canadian-owned, as compared to the national distribution (76%). In terms of company structure, Ontario is relatively close to the national average, with slightly more private corporations (82% vs. 76%) and slightly fewer public corporations (6% vs. 12%).

Companies in Ontario have been in operation for somewhat longer than is the case at the national level; almost two-thirds (65%) of companies indicated they were more than 7 years old, bringing the average age from 7.4 nationally to 10.2 for the Province.

The video game industry in Ontario accounted for approximately $134 million in gross expenditure in 2012, resulting in direct employment of 1,850 full-time equivalents (FTEs). It should be noted that, as Ontario firms tend to be small- and medium-sized and that such smaller firms tend to employ part-time and contract labour more than larger firms, there may be more than 1,850 *individuals* employed by the video game industry in Ontario. The average salary for full-time employees in Ontario was $76,400, slightly higher than the national average of $72,500. As the following figure illustrates, most of this employment occurred in medium-sized firms.

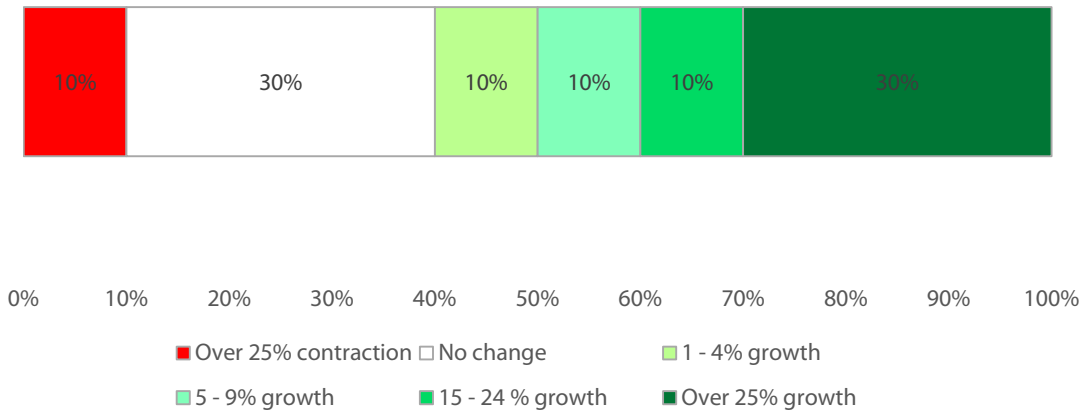
Figure 23 – Employment by size of company (Ontario)



Source: ESAC Industry Survey 2013
N = 17

As noted above, there are no larger video game firms operating in Ontario.

Figure 24 – Growth Forecast, 24 months (Ontario)

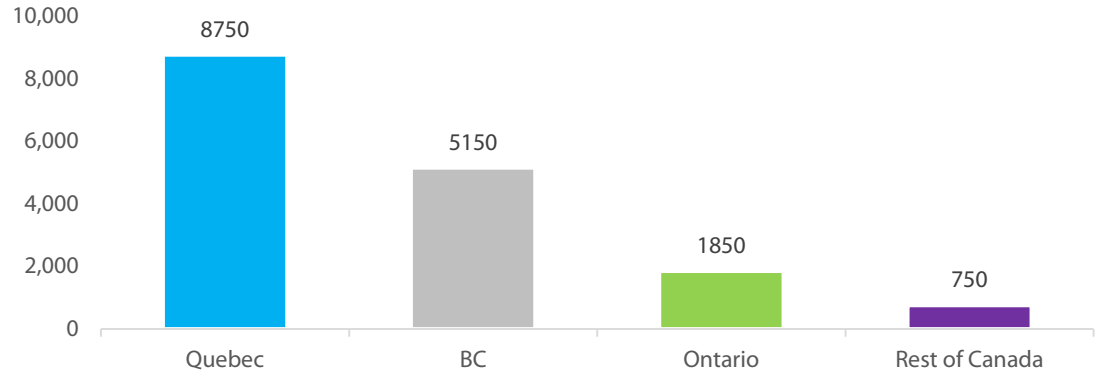


Source: ESAC Industry Survey 2013
N = 17

2.4.4 Provinces Compared

While examining the makeup of the video game industries in Ontario, Quebec, and BC, is informative, looking at them together sheds light on some structural differences. For example, as the following figure illustrates, the three provinces examined comprise the majority of the video game employment in Canada.

Figure 25 – Employment (FTEs) by province



Source: ESAC Industry Survey 2013
N = 80

As one moves across Canada, it is not only the number of FTEs that varies by province, but also the types of firms that create that employment. As the following table shows, employment in Quebec and BC is concentrated in larger firms, while medium-sized firms (between 100-499 employees) generate bulk of employment in Ontario. Ontario's small firms (5-99 employees) also account for the largest share of employment among the provinces examined.

Table 5 – Employment, by province and size of firm

	Micro	Small	Medium	Large
Ontario	1.1%	25.6%	73.3%	0%
Quebec	0.2%	2.0%	10.4%	83.2%
BC	0.1%	8.9%	11.9%	77.9%

Source: ESAC Industry Survey 2013
N = 57

Return to Table of Contents

3. Working in Canada's Video Game Industry

This section presents a profile of the labour force that drives Canada's video game industry. In so doing, it illustrates who is working in the industry, the skills they need, how they are hired, and how outsourcing activities contribute to filling gaps in the workforce.

3.1 Worker Profile

This sub-section provides detail on the individuals that comprise Canada's video game industry. The table below presents the, average level of education attained by workers in the video game industry per job type (that is to say, creative, technical or business/administrative).

Table 6 – Level of education, by job type

Level of education	Creative	Technical	Business/Admin
Graduate or Post-Graduate University Degree	2.4%	20.5%	14.6%
Undergraduate University Degree	22.0%	**43.2%**	**41.5%**
College Degree	**41.5%**	22.7%	14.6%
Some College or University	7.3%	11.4%	19.5%
Training from a Technical or Professional Institution	26.8%	2.3%	4.9%
High School (or equivalent)	0.0%	0.0%	4.9%

Source: ESAC Industry Survey 2013
N = 43

As shown in Table 6, undergraduate university degrees were the most common in technical and business/admin positions, while college degrees were most common among creative employees. Creative employees were also the most likely to have undertaken training from a technical or professional institution.

Table 7 – Average age, by job type

Job Category	Average Age
Creative/Artistic	30.3
Technical	31.6
Business/Administrative	35.3

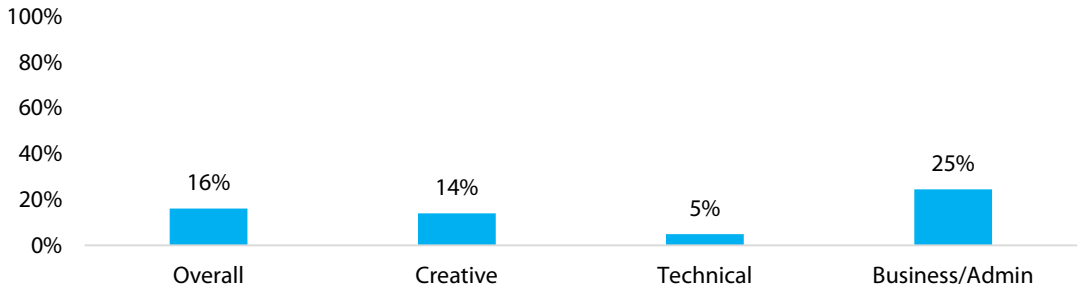
Source: ESAC Industry Survey 2013
N = 41

According to the survey results, the average age of all employees in the video game industry was above 30 years old. However, the average age of business and administrative employees tended to be slightly higher at 35 years old compared to 30 years old for creative/artistic talent and 31 years old for technical talent as presented in the table above.

The lack of representation of women in the video game industry is a global phenomenon and concern. The figure below presents the share of women as a percentage of the video game

workforce, first overall and then by job type. Overall, women comprised, on average, just 16% of the video game workforce in 2012.

Figure 26 – Women as a percentage of the video game workforce (2012)



Source: ESAC Industry Survey 2013
N = 43

The share of women in the workforce is slightly higher in business and administrative roles (25%) but considerably smaller when technical roles are isolated; just 5% of technical roles in video game workplaces were held by women. These results are echoed in the results of the April 2013 annual industry survey from *Game Developer Magazine*. Using a representative sample, the *Game Developer Magazine* survey found that males represented 96% of all programmers and engineers in the industry while females only represented 4%.[11]

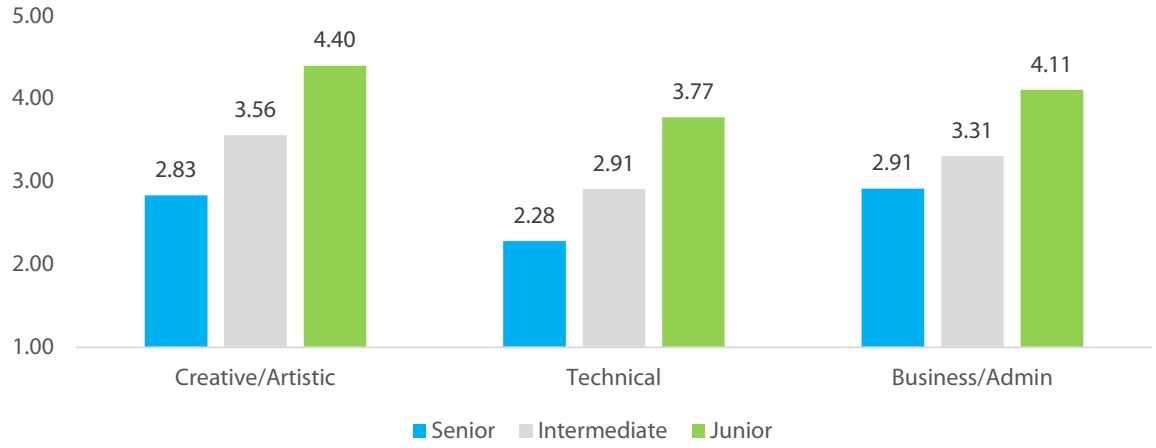
When the representation of women in video game is examined by size of company, very few reporting micro-sized companies had any women in the workforce at all (less than 3%). Among larger companies, women tend to occupy a larger share of the business administrative workforce. In fact, women represented 33% of the business/admin workforce in small companies in 2012, whereas they represented 41% of the business/admin workforce among large companies in the same year. However, women's overall share of the workforce does not increase as much as might be expected because there are proportionally fewer business/admin positions (as compared to creative and technical positions) among the larger firms.

3.2 Talent and Skills

According to results from the industry survey, junior-level talent is the most readily available (and senior talent the least available) across all job categories. In addition, talent at all levels of experience in technical positions seems to be slightly less readily available on average than in creative of business positions. Indeed, one interviewee indicated that talent with more senior-level experience and skills in the technical areas such as programming is the most challenging to access for video game companies. Digital distribution and analytics skills were also cited by interviewees as a skills area where the supply does not always meet the demand of the industry.

[11] "2012 Annual Game Career Guide." *Game Developer Magazine*. April 2012.

Figure 27 – Talent availability, by job category (average score on a 5-point scale from Not at all Available [1] to Very Available [5]).



Source: ESAC Industry Survey 2013
N = 45

Beyond simple supply and demand dynamics, another important measure of the availability of talent is to look at the skills of the available workforce. The table below summarizes the average score assigned by respondent companies in the ESAC Industry Study 2013 regarding their satisfaction with the skills of recent graduates. In general, companies appear to be generally quite satisfied with the creative and technical skills of new graduates, assigning an average score of between 3.0 (satisfied) and 4.0 (very satisfied) to skills in those general categories. On the other hand, video game companies tend to be slightly less satisfied with the financial and project management skills of new graduates assigning an average score of between 2 (somewhat satisfied) and 3 (satisfied) to skills areas such as workflow and pipeline management, project management, and financial and budget management.

Table 8 – Satisfaction with skills of recent graduates, by skills area (average score on a 5-point scale from Not at all Satisfied [1] to Extremely Satisfied [5])

Skills area	Satisfaction score
Programming skills	3.63
Graphic artist and animation skills	3.46
Audio production skills	3.44
QA and testing skills	3.32
Outreach and community management skills	3.15
Soft office skills (e.g. communication, teamwork, etc.)	3.13
Data analysis skills	3.00
Workflow and pipeline skills	2.96
Project management skills	2.96

Skills area	Satisfaction score
Sales and marketing skills	2.80
Game design skills	2.79
Financial and budget management skills	2.71
Financing and fundraising skills	2.50

Source: ESAC Industry Survey 2013
N = 42

These findings align with the thoughts expressed by interviewees who indicated that general business and project management skills were most lacking among Canada's video game talent pool.

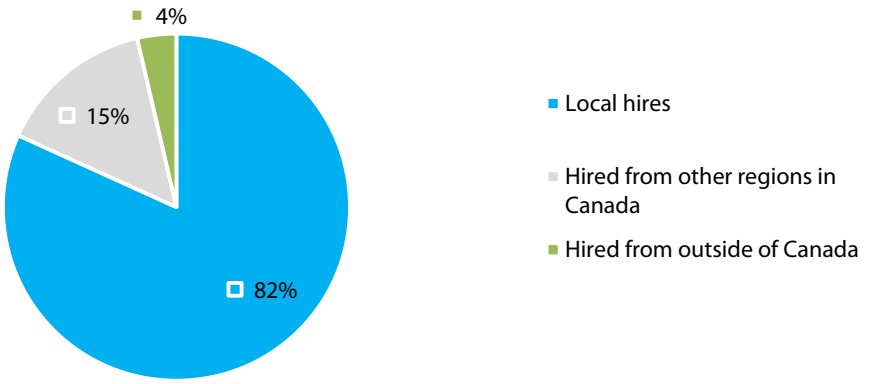
In addition, one of the main weaknesses discussed by interviews of the Canadian video game industry is its inability to self-promote—both at the individual company level and as an industry overall. PR/communications skills are often most lacking in the video game workforce, particularly among the workforce of smaller, independent firms.

3.3 Hiring

According to the figures reported by respondents to the ESAC Industry Survey 2013, the majority (83%) of new graduate hires by firms in 2012 were made locally (i.e. from within the region or province in which a firm is located). Overall, 97% of new graduate hires are made from within Canada.

These figures align with the general picture of employment in the industry as reported by key informants during interviews. The general perception in the industry is that the Canadian video game labour market has enough supply of new graduates to meet industry demand. Where Canadian firms tend to struggle is with the availability of more senior talent.

Figure 28 – Location of hires in 2012 (recent graduates)



Source: ESAC Industry Survey 2013
N = 50

When looking at the workforce overall, Figure 28 provides a picture of where the current video game industry workforce were hired from. On average, video game companies reported that the majority of hires across all categories were from within Canada. That said, Canadian hires accounted for a much

larger proportion of hires among creative positions than technical or business/administrative positions, representing 64% of employees on average.

Given that more senior-level talent is more challenging to find in Canada (as it is around the world), many companies find themselves recruiting for senior roles from outside of the country, whether through the Temporary Foreign Worker program or on a more permanent basis. That said, many interviewees indicated that long and arduous immigration processes can make it difficult for firms in Canada to recruit foreign hires in a timely manner. Indeed, respondents to the ESAC Industry Survey 2013 indicated that it can take an average of 7 weeks for immigration processing for a hire from the US, 11 weeks for a hire from the UK and 13 weeks for hires from other parts of Western Europe. In addition, processing times increase dramatically for other parts of the world such as Asia (Table 9).

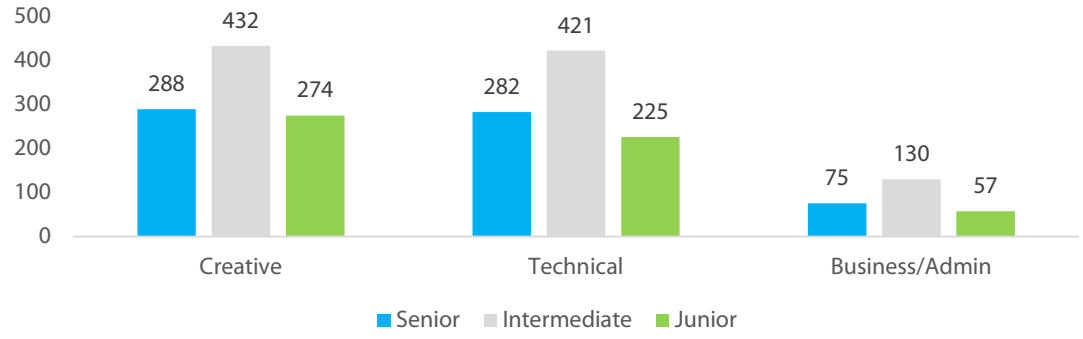
Table 9 – Immigration processing times for foreign hires

Jurisdiction	Average processing time (number of weeks)
USA	7
UK	11
Western Europe (excl. UK)	13
Eastern Europe	17
Asia: India	19
Asia: China	25
Asia: Other	19
South America	24

Source: ESAC Industry Survey 2013
N = 14

The demand for talent is set to increase significantly among video game companies in Canada over the next 12-24 months. In particular, the demand for intermediate-level talent in creative and technical employment categories will increase significantly. Indeed, the video game industry is expecting to hire a total of approximately 432 intermediate-level creative positions and 421 intermediate-level technical positions (Figure 29). When taken in aggregate, the industry is looking to fill approximately 2,184 positions within the next 12-24 months. While this figure represents roughly 13% of the existing workforce, it should be noted that not all of these expected hires will be additive. Rather, many are likely to be hired from within the existing video game industry workforce.

Figure 29 – 12-24 month projected future hires, by employment category, by level of seniority



Source: ESAC Industry Survey 2013
N = 49

3.4 Outsourcing

Almost 40% of video game companies reported outsourcing one or more of their functions in 2012.[12] Among those companies that indicated they outsource certain activities, creative functions appear to be the area in which the most outsourcing takes place. Indeed, as shown in the table below, companies indicated that on average they spend 23% of their total expenses on outsourcing creative functions such as design, motion capture and narration, among others. By contrast, outsourcing of all other functions respectively commands less than 10% of total expenses on average.

Table 10 – Average share (%) of total expenses allocated to outsourcing, by area of activity

Function/Activity	Share of total expenses (average)
Creative (art, design, motion capture, narration)	23%
Customer service	6%
Technical (programming, coding, middleware)	8%
Testing/QA	7%
Sales/marketing	3%
Other	1%

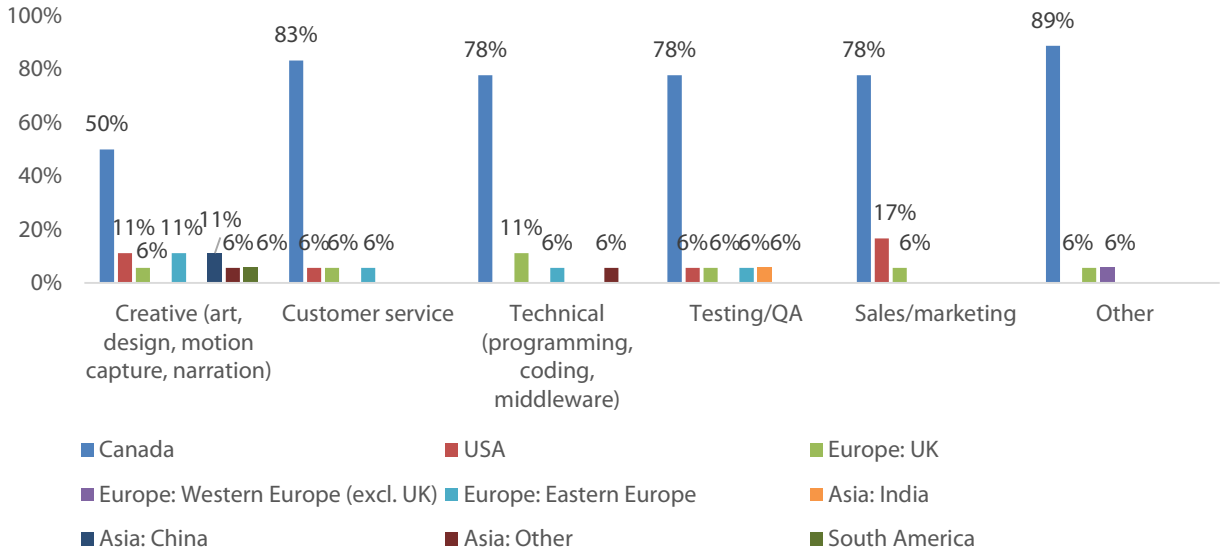
Source: ESAC Industry Survey 2013
N= 18

Interestingly, the bulk of outsourcing is actually done within Canada across all areas of activity. For creative functions, the US, Eastern Europe and China were also common outsourcing jurisdictions with 11% of respondents indicating that they had outsourced creative functions to those jurisdictions

[12] Please note that all further data on outsourcing activities relate only to those firms that responded that they outsource.

in 2012 (Figure 30). On the other hand, the UK appeared to be a relatively common jurisdiction for outsourcing technical functions (11% of respondents indicated that they had outsourced technical functions to the UK in 2012). And for sales and marketing, most of the work outsourced outside of Canada went to the US, reflecting its importance as a sales market.

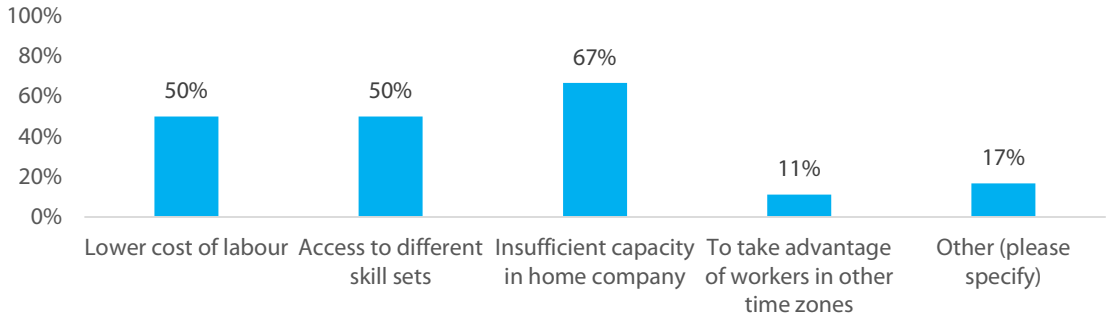
Figure 30 – Jurisdiction of outsourcing, by area of activity (frequency by % of respondent companies)



Source: ESAC Industry Survey 2013
N= 18

According to results from the ESAC Industry Survey 2013 presented in Figure 31 below, the most frequently cited reason for outsourcing was insufficient capacity in the home company with 67% of companies that indicated they outsourced one or more of their functions.

Figure 31 – Reasons for outsourcing



Source: ESAC Industry Survey 2013
N = 18

The two other most frequently cited reasons for outsourcing were access to different skills and a lower cost of labour, with 50% of respondents to the question selecting these options respectively. It should be noted that respondents to the question were able to select more than one reason among a list of options, meaning that the results are inclusive and do not necessarily sum to 100%.

Return to Table of Contents

4. Economic Impact of Canada's Video Game Industry

The following section outlines the additional impacts that the video game industry has on the Canadian economy, including its impact its short-term impacts on labour income and gross domestic product (GDP), and the longer-term impacts.

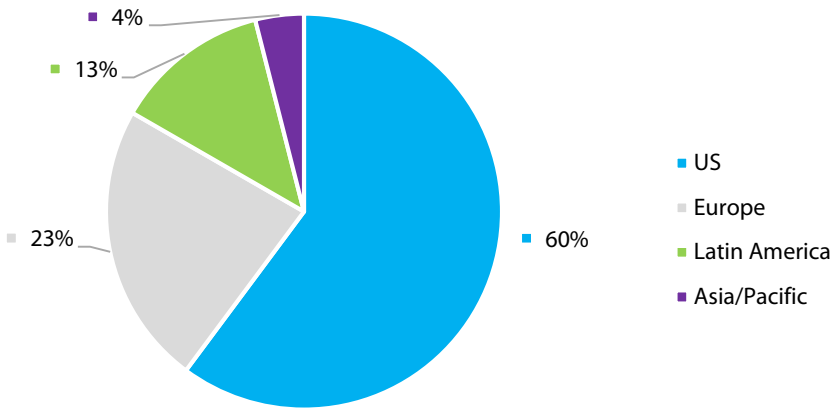
4.1 Revenue Characteristics

Because many video game companies operating in Canada are business units of larger firms (e.g. BioWare is owned by Electronic Arts, Beenox is owned by Activision), revenue is difficult for many games entities to report.[13] Consequently, it is only possible to report on the various streams of revenue for the subset of video game companies that were able to report their revenue. As a consequence, the **revenue characteristics in this section largely describe the experiences of the independent video game development community in Canada**. With these limitations in mind, below we present a series of breakdowns of revenue streams based on survey responses.

According to the survey results, video game firms reported 16.3% of 2012 revenue was derived from public sources such as provincial and federal tax credits, grants, and other support programs.

On average, firms reported that 65% of their gross revenue (not sales) was generated by export sales (i.e. video game revenue outside of Canada). Of export revenue, the majority (60%) is generated in the US market depicted in the chart below). The European market accounted for 23% of firms export revenue.

Figure 32 – Export sales revenue by jurisdiction, 2012

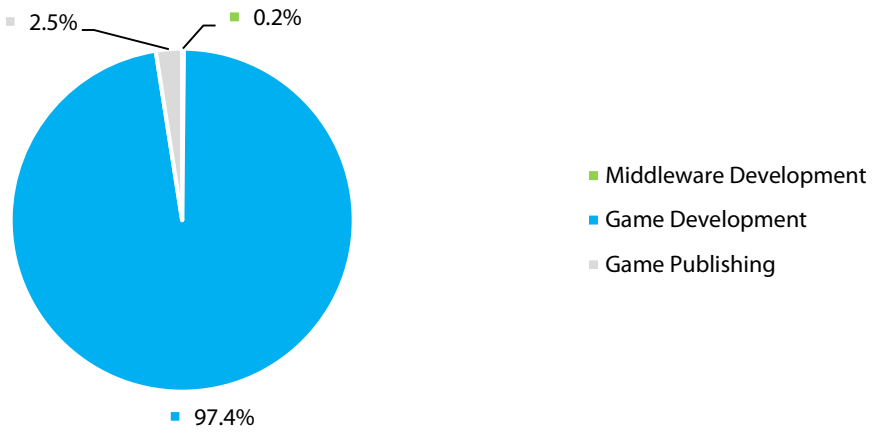


Source: ESAC Industry Survey 2013
N = 39

[13] For this reason, readers will observe that the "n-values" for revenue questions will be smaller than for expenditures.

The majority (97.4%) of video game firms' revenue in 2012 was generated by "game development" as presented in the figure below. Some 2.5% of revenue can be attributed to "game publishing" while a 0.2%, was owed to "middleware development."

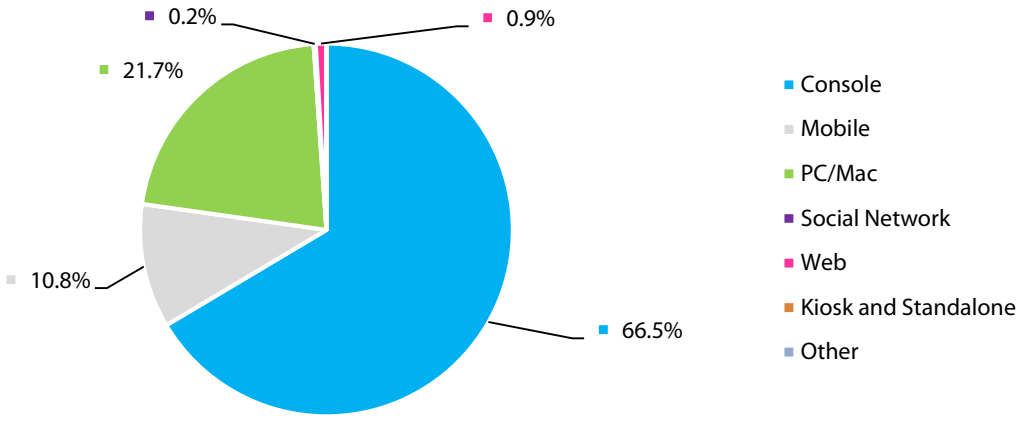
Figure 33 – Video game revenue by line of business, 2012



Source: ESAC Industry Survey 2013
N = 30

Survey results for revenue by platform indicated that console games continued to account for the majority share (66.5%) of revenue in 2012. Games for PC/Mac were the next largest platform and accounted for 21.7% of firms' 2012 revenue. In 2012, games for mobile platforms accounted for a sizeable 10.8% of total revenue.

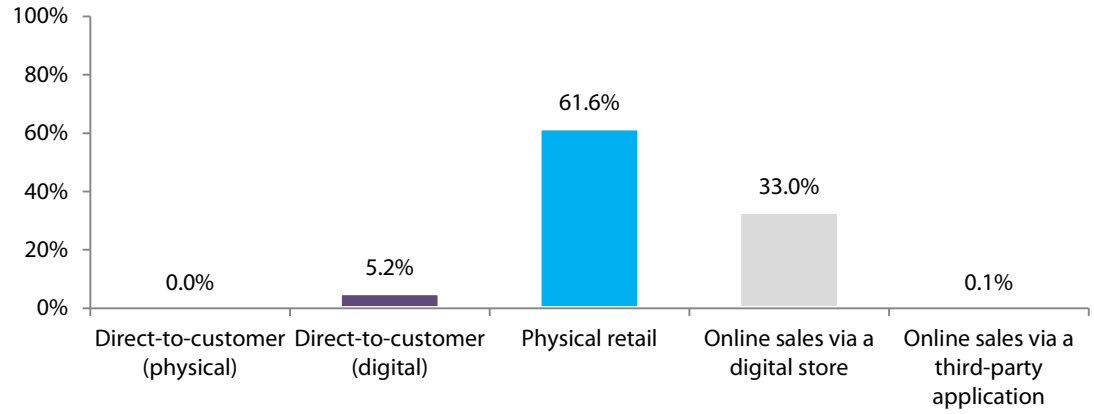
Figure 34 – Video game revenue by platform, 2012



Source: ESAC Industry Survey 2013
N = 31

In 2012, video game firms relied slightly more on physical sales channels than on digital sales channels. Survey results for revenue by sales channel demonstrate that "physical retail" channels accounted for 61.6% of revenue in 2012 (Figure 35). The next largest channel was "online sales via a digital store," which accounted for about a third of all revenue (33.0%). "Direct-to-customer sales through digital channels" captured approximately 5.2% of sales as depicted in the figure below.

Figure 35 – Video game revenue by sales channel, 2012



Source: ESAC Industry Survey 2013
N = 24

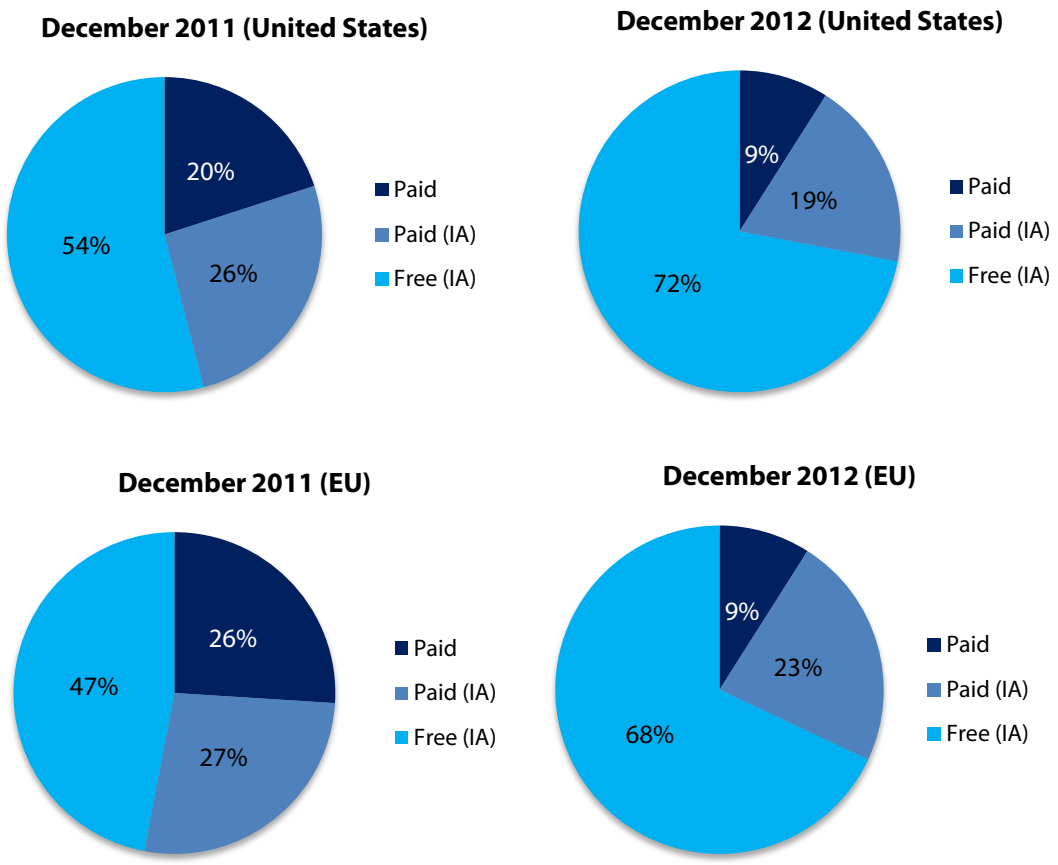
This revenue distribution should be taken in the context of the overall shift of the video game marker towards mobile platforms. In 2012, mobile platforms captured:

- $9 billion in consumer spending, up 32% from 2011;
- More than 500 million players, 175 million of whom pay for some or all of the content they consume;
- 33% of all downloads on smartphones and tablets, 66% of all revenues generated on smartphones and tablets[14].

The following charts indicate that despite the shift towards mobile platforms, the appetite for "free content" on mobile is still growing in both the North American and European markets. The portion of iOS mobile video game revenue generated by "free" mobile applications (i.e. through in-app purchases and advertising) jumped from 54% to 72% between 2011 and 2012, and from 47% to 68% in the European Union over the same period.

[14] Mobile statistics from NewZoo (2013). "Trend Report Mobile Games." Page 3.

Figure 36 – iOS revenue by business model, 2011-12

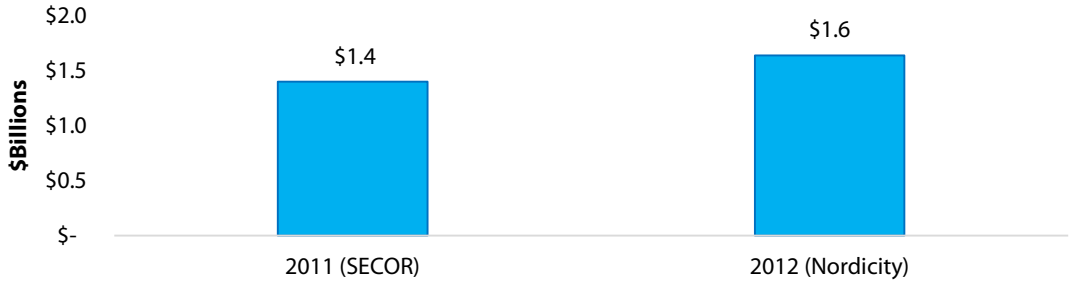


Source: NewZoo (2013). "Trend Report Mobile Games." Page 5
N.B. "IA" = "in-app purchases"

4.2 Expenditures

Due to the presence of various integrated video game studios in Canada (which cannot account for their revenue as a business unit), company expenditures are the most reliable indicator of the size of the video game industry in Canada. The Canadian video game industry spent approximately **$1.6 billion** in 2012, up **12.5%** since 2011 (as reported in the 2011 Report).

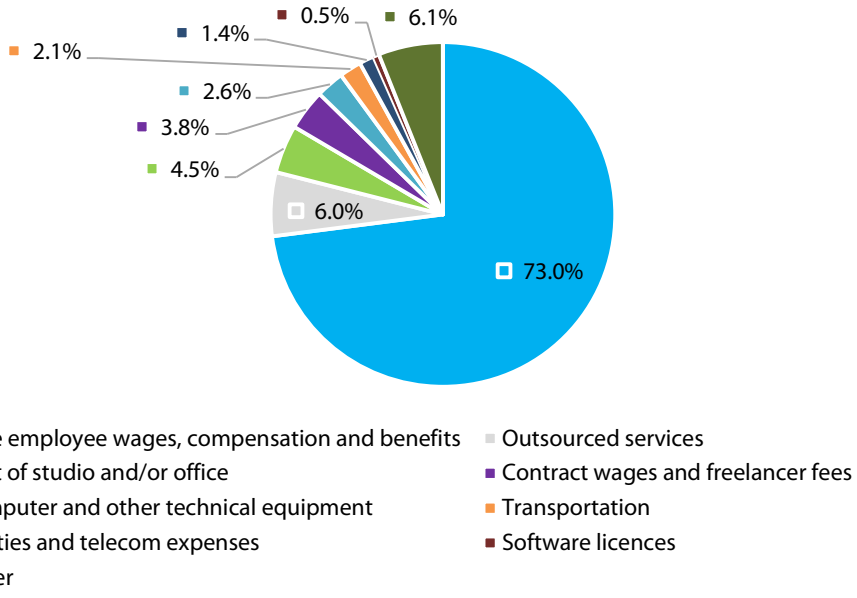
Figure 37 – Canadian video game industry expenditures, 2011-12



Source: ESAC Industry Survey 2013, SECOR 2011 Report
N = 80

Broken down by cost category, **"core employee wages, compensation and benefits" are, by far, the principal source of expenditures, accounting for roughly 73% of all video game industry spending in 2012** (Figure 38). Within that wage figure, respondents report that an average 7.6% of expenditures were spent on marketing and administrative wages. After labour costs, the next largest individual cost category (i.e. excluding "other") reported by respondents was "outsourced services" with 6.0% of total expenditures. "Rent of studio and/or office" accounted for 4.5% of video game companies' expenditures in 2012 as depicted in the figure below.

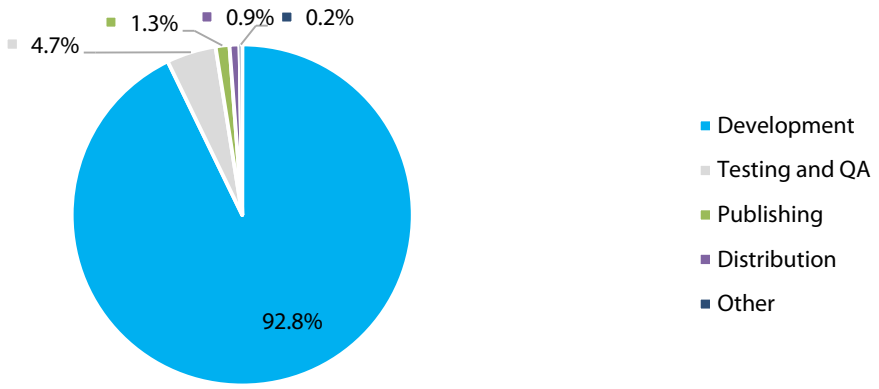
Figure 38 – Video game expenditure by cost category (2012)



Source: ESAC Industry Survey 2013
N = 68

In terms of lines of business, as presented in the figure below, the majority of expenditures (about 93%) in 2012 were spent on core game development activities. That said, QA and testing (roughly 5%) of expenditures accounted for $76.9 million in 2012 (Figure 39).

Figure 39 – Video game expenditures by line of business, 2012



Source: ESAC Industry Survey 2013
N = 57

In 2012, video game companies spent 48% of their company expenditure on generating new intellectual property (IP). In the same year, new content or IP accounted for only 21% of all video game industry expenditures. This discrepancy suggests that larger firms are spending proportionally less on new content or IP. This finding is consistent with interviewee comments regarding the risk aversion of larger developers and publishers, typical of the end of a console cycle (e.g. the proliferation of sequels).

In the same year, firms allocated an average of 21% of their production budgets on research and development (R&D) costs. When taken as a percentage of overall industry expenditures, R&D activities account for roughly 17% of industry revenue. Again, this finding suggests that firms with larger production budgets spend proportionally less than the average on R&D activities.

4.3 Labour income

The majority of the economic benefit of the video game industry arises through the labour income (i.e. salaries and benefits) earned by industry video game industry employees as well as the labour income associated with indirect and induced impact employment.

The survey results indicate that workers employed in the video game industry in Canada earned nearly $1.2 billion in labour income in 2012. Indirect impact employment generated an additional $249.4 million in labour income for Canadian residents in 2012. And induced impact employment generated a further $271.7 million in labour income in the Canadian economy in 2012. In total, **the video game industry generated over $1.7 billion in labour income for Canadian residents in 2012** (Table 11).

Table 11 – Labour income, 2012 ($M)

	Video game industry*	Indirect impact	Induced impact	Total impact
Labour income	1,199.1	249.4	271.7	**1,720.3**

Source: Nordicity estimates based on ESAC Industry Survey 2013 and Statistics Canada input-output tables
*Direct impact

4.4 GDP Impact

GDP refers to the total value added generated by a company or industry in the development and production of a good or service. In the video game industry, GDP can be estimated by summing the labour income of workers in Canada, plus an allocation of the operating surplus (i.e. operating profits earned directly from the development of video games as opposed to property of financial assets).

Nordicity estimates that GDP in the video game industry (i.e. direct GDP) was nearly $1.4 billion in 2012. The video game industry also generated $428.9 million in indirect-impact GDP and $495.0 million in induced-impact GDP. In total, **the video game industry generated over $2.3 billion in GDP for the Canadian economy in 2012**.

Table 12 – GDP impact, 2012 ($M)

	Video game industry*	Indirect impact	Induced impact	Total impact
GDP	1,381.0	428.9	495.0	**2,304.9**

Source: Nordicity estimates based on ESAC Industry Survey 2013 and Statistics Canada input-output tables
*Direct impact

4.5 Other Impact

Thus far, we have examined the contribution that the video game industry made to the Canadian economy in 2012. However, for an innovative knowledge-based industry such as video game development and publishing, which is also characterized by a large group of fast-growing small- and medium-sized enterprises (SMEs), the economic benefits also extend into future periods. In other words, the expenditures on video game development, which occur today, not only generate wages and GDP in the economy today, but also provide the foundation for higher economic growth in the future.

For the video game industry, there are two channels through which these long-term economic impacts can occur: (i) dynamic effects and (ii) spillover effects.

Dynamic effects

We use the term dynamic effects to describe the persistence that accompanies the growth of the video game industry. As the video game industry grows in Canada, its labour force becomes more skilled and productive, and thereby able to generate higher economic returns in the future than it would not have otherwise been able to achieve. Furthermore, many video game companies in

Canada are small businesses, and therefore, poised to grow into larger companies that can serve global markets in the future.

As presented in Section 2.2, approximately one-third of video game companies in Canada are under three years in age (Figure 9); and approximately one-half of companies are micro-sized, with fewer than five employees (Figure 5). While not all of these micro-sized start-up and emerging companies will survive, many will, and those surviving companies are likely to grow and generate even larger economic benefits in the future. This pattern of growth underlines the importance of policies in place today—such as tax credits—that foster the formation of micro-level enterprises in the video game industry and encourage those companies to take risks and invest in skills development.

Spillover effects

A knowledge-based industry such as video game development not only generates economic benefits through the wages and GDP realized within the industry itself and by its supplier industries; it can also generate a host of economic spillovers that benefit other sectors of the economy, such as education, health or general digital media sector.

The development of video game content often involves creative, technical or even business-model innovation. And unlike most products and services, the innovation embodied in the development of video game can benefit other sectors of the Canadian economy. For example, the innovative processes used to develop video game can be applied to the development of digital media applications for online learning, e-health or other forms of screen-based entertainment. When innovation by one company—such as a video game development company—benefits other companies or sectors, innovation spillovers occur. When these innovation spillovers occur, the private returns in terms of sales and GDP that the company or innovation-generating industry earns may understate the overall contribution to the economy, since part of the economic benefit is actually realized by other companies or sectors.

Innovation generates spillover effects through three key channels: (i) market spillover, (ii) network spillover, and (iii) knowledge spillover.[15]

Market spillover includes the benefits accrued to consumers and other downstream users of innovative products and services following the commercialization of those products and services.[16] Network spillover occurs when the economic benefits of specific communications platforms are captured by firms other than the developer of the platform.[17] Apple's iOS is an example of network spillover: part of the economic benefits of the iOS platform is captured by the apps developers, in this case.

Knowledge spillover is probably the most relevant channel through which the video game industry can affect other sectors of the Canadian economy. Knowledge spillover occurs when one firm's development of an innovative product or service facilitates further innovation at other firms or in other sectors. Knowledge can be transferred through publication or commercialization (i.e. public

[15] Adam Jaffe, *Economic Analysis of Research Spillovers: Implications for the Advanced Technology Program*, a report prepared for the Advanced Technology Program, 1996, downloaded at http://www.atp.nist.gov/eao/gcr708.htm, on November 26, 2010.
[16] Jaffe, 1996.
[17] Jaffe, 1996.

release and reverse engineering). However, for the video game industry, perhaps the primary route for spillover effects is through human capital.

Firms can impose legal and non-legal restrictions on their intellectual property; however, there is often tacit knowledge that cannot be fully restricted and is of value to other firms or sectors. When skilled workers (i.e. human capital) move from firm to firm and sector to sector, this knowledge can spillover.

Knowledge spillover through human capital can have a geographic dimension, since workers are more likely to find employment in the proximity of their existing jobs. This geographic dimension to human capital movement and knowledge spillover is often cited as one of the key factors in the development of innovation clusters such as Silicon Valley. In the context of the Canadian video game industry, the geographic dimension to human capital implies that it can also generate economic benefits for other digital media sectors, when skilled workers in the video game industry move into these other sectors.

In summary, therefore, the movement of human capital between Canada's video game industry and other digital media sectors means that part of the economic benefits associated with the video game industry—specifically those benefits derived from innovation in the video game industry—would show up in those other digital media sectors through the development of new applications that generate wages and GDP.

Return to Table of Contents

5. Government Support of Canada's Video Game Industry

Government support plays an important role in supporting the development of Canada's video game industry. This section begins with a presentation of data from the survey related to video game companies' perception of the impact that government support has on their business activities. The section then goes on to describe the tax credits that underpin government support for the video game industry in Canada—along with companies' perception of the value of those tax credits.

5.1 Satisfaction with Government Support

When asked about their satisfaction with current available government support for various business activities, respondent companies indicated that they were most satisfied with current support for R&D and Human Resources (such as support for labour costs). On the other hand, video game companies in Canada appear to be least satisfied with government support in the areas of financing and access to capital and recruiting, including foreign recruitment and immigration issues (see Table 13, below). In general, the degree of satisfaction was lower than the same scale related to the qualifications of recent graduates (see Section 3.2).

These findings align with the general perceptions expressed by interviewees who also expressed that public support, particularly in the form of tax credits, was one of the strengths of the industry and what would continue to help the industry grow as it evolves. That said, some interviewees expressed that the tax credits are not evolving quickly enough to adapt to the changing needs of the industry as its shape and structure change with the evolution of new platforms and business models. For example in Quebec the tax incentives are tied to specific HR roles and competencies which may no longer align with the current job and team structures required for emerging lines of business. Interviewees also cited immigration processing as a key issue for the industry that needs to be addressed.

Table 13 – Satisfaction with government support, by area of business activity (average score on a 5-point scale from Not at all satisfied [1] to Extremely satisfied [5]

Business activity	Average score
Research & Development	2.87
Human resources (including labour costs)	2.36
Training	2.02
Marketing	1.83
Business formation	1.83
Financing and Access to Capital	1.77
Recruiting (including international/immigration)	1.57

Source: ESAC Industry Survey 2013
N= 47

5.2 Video Game Tax Credits in Canada

5.2.1 Outline of Tax Credits

A number of provinces in Canada offer provincial tax credits applicable to video game companies. These tax incentives play a significant role in helping firms grow and innovate by lowering the costs incurred for labour and/or incentivizing innovative projects. Indeed, tax credits were also cited by interviewees as a key incentive for locating in Canada and in specific jurisdictions within Canada. In addition, a recent study by KPMG measured the corporate attractiveness of 14 leading digital media countries across the world. In this study, Canada ranked first in terms of offering the lowest effective tax rate for digital operations, primarily due to incentives that provide significant financial support to video game production and other digital media industries.[18]

Provincial tax credits in Canada provide tax refunds to qualifying corporations based on qualifying expenditures incurred in the applicable jurisdiction. Each tax credit varies slightly in who it serves and what types of expenditures it covers. However, in general tax credit programs that are applicable to games firms tend to be targeted at the broader interactive digital media (IDM) industry, although in Ontario there is a specific stream aimed at specialized digital game corporations.

The following table presents an overview of the tax credits in the three largest video game producing Canadian provinces and details their respective key features.

Table 14 – Tax-related Digital Media Tax Credits in BC, Quebec, and Ontario

Jurisdiction	Title of Intervention	Key Features
British Columbia (BC)	BC Interactive Digital Media Tax Credit	**17.5%** of qualified BC labour spend Cannot stack with BC SR&ED tax credit Applicant's principal business must be to develop IDM products
Quebec	Quebec Production of Multimedia Titles Tax Credit	Category 1 (IP-generating products intended for commercialization): **30%** of qualified labour (+7.5% if a French-language version) Category 2 (all other products): **26.25%** of qualified labour Allows for "specialized corporations" (those with 75% of business activities in QC producing Category 1 multimedia products) can claim 30% of qualified labour on an annual basis
Ontario	Ontario Interactive Digital Media Tax Credit	**40%** of qualifying Ontario labour expenditures and up to $100,000 of eligible marketing and distribution expenditures incurred by a qualifying corporation to create an eligible interactive digital media product in Ontario **35%** of qualifying Ontario labour expenditures incurred by a qualifying corporation that develops "specified products" under a fee-for-service arrangement in Ontario

[18] KPMG. (2012). "Competitive Alternatives-Special Report: Focus on Tax." Accessed May 29, 2013, from: http://www.competitivealternatives.com/reports/2012_compalt_report_tax_en.pdf

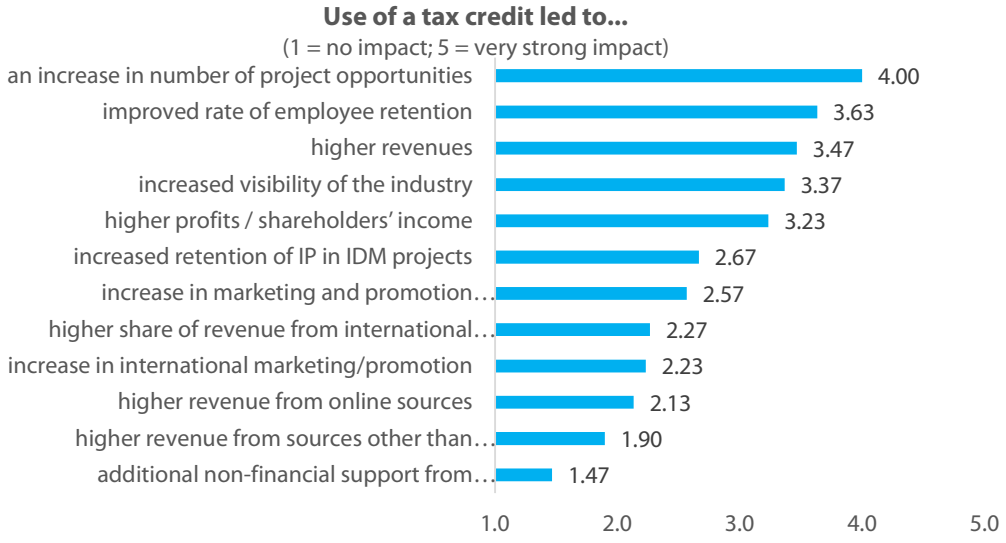
Jurisdiction	Title of Intervention	Key Features
		35% of qualifying labour expenditures incurred by a qualifying or specialized digital game corporation for the development of eligible digital games

5.2.2 Importance of the Tax Credits

The impact and importance of tax credits to the video game industry is further demonstrated by survey respondents' perception of its impact on their business activity. Companies reported that tax credits had a very high impact on their number of project opportunities. Tax credits also had relatively high impacts in employee retention, revenue and profits, and industry visibility. Tax credits also played a moderate role in helping companies retain IP and increase their marketing and promotion expenditures. The impact of tax credits was somewhat weaker when it came to increasing international marketing and sales, and revenue from new distribution platforms.

Canadian video game companies also viewed tax credits as providing very high value in relation to the application and administrative costs that they incur to obtain tax credits. On a scale of one to five (where five represented highest value-for-cost), Canadian video game companies rated tax credits a 4.4.

Figure 40 – Users' perception of the effect of tax credits (in BC, ON, and QC)



Source: ESAC Industry Survey 2013
N = 30

Return to Table of Contents

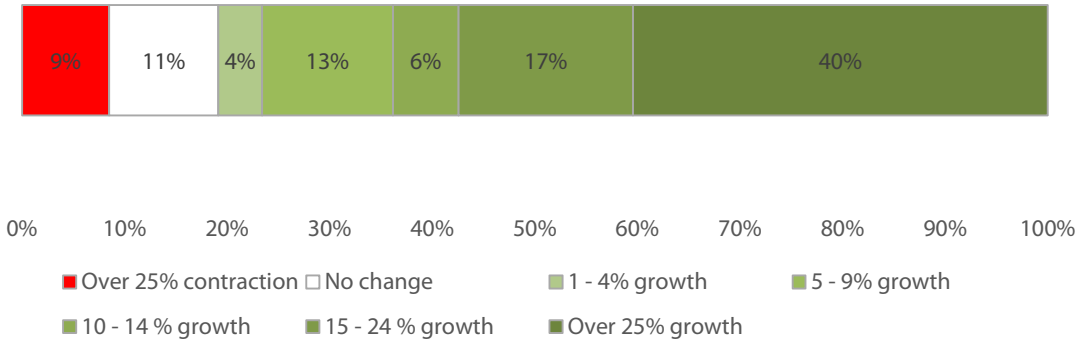
6. The Future of Canada's Video Game Industry

This final section outlines video game companies' views on the future of the video game industry in Canada. In general, this view is characterized by the anticipation of growing revenue, international expansion and video game development for mobile platforms.

In spite of the closure (or contraction) of a few major studios in Canada over the last 2 years or so, the industry has managed to exhibit growth with the emergence of several small independent developers that have risen up to not only fill the void left by closures, but also to stimulate a moderate degree of overall industry growth. According to industry experts and observers, under this new structure the video game industry in Canada is likely to continue to thrive and grow. Not only is the general business environment in Canada one that tends to foster and support small independent businesses, but the recent rise of the independent developers in Canada is happening at a time when the industry itself is moving toward platforms and business models that are well-suited to the indie (i.e. self-publishing) model.

Video game companies surveyed tend to agree with this optimistic view. For example, as shown in the figure below, 40% of video game companies predict revenue growth exceeding 25% over the next 12-24 months. In addition, 17% of companies are predicting 15-24% revenue growth over the same time period.

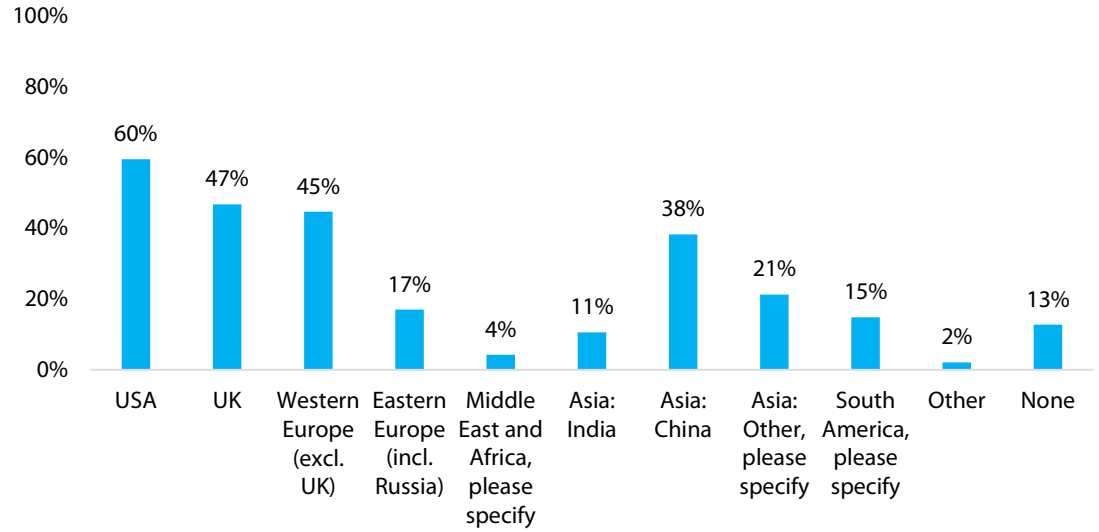
Figure 41 – 12-24 month projected revenue growth (% of respondent companies)



Source: ESAC Industry Survey 2013
N = 47

Another indication of future growth is that many Canadian video game companies are planning to expand their business activities to jurisdictions outside of Canada. For example, according to results from the ESAC Industry Survey 2013, 60% of companies are planning to expand their business activities to the US in the next 12-24 months. In addition, 47% of companies are planning on expanding to the UK, 45% are planning on expanding into Western Europe and 38% are planning expansion into China. It should be noted that these categories are non-exclusive, meaning that many companies are planning expansion into more than one jurisdiction over the next 12-24 months.

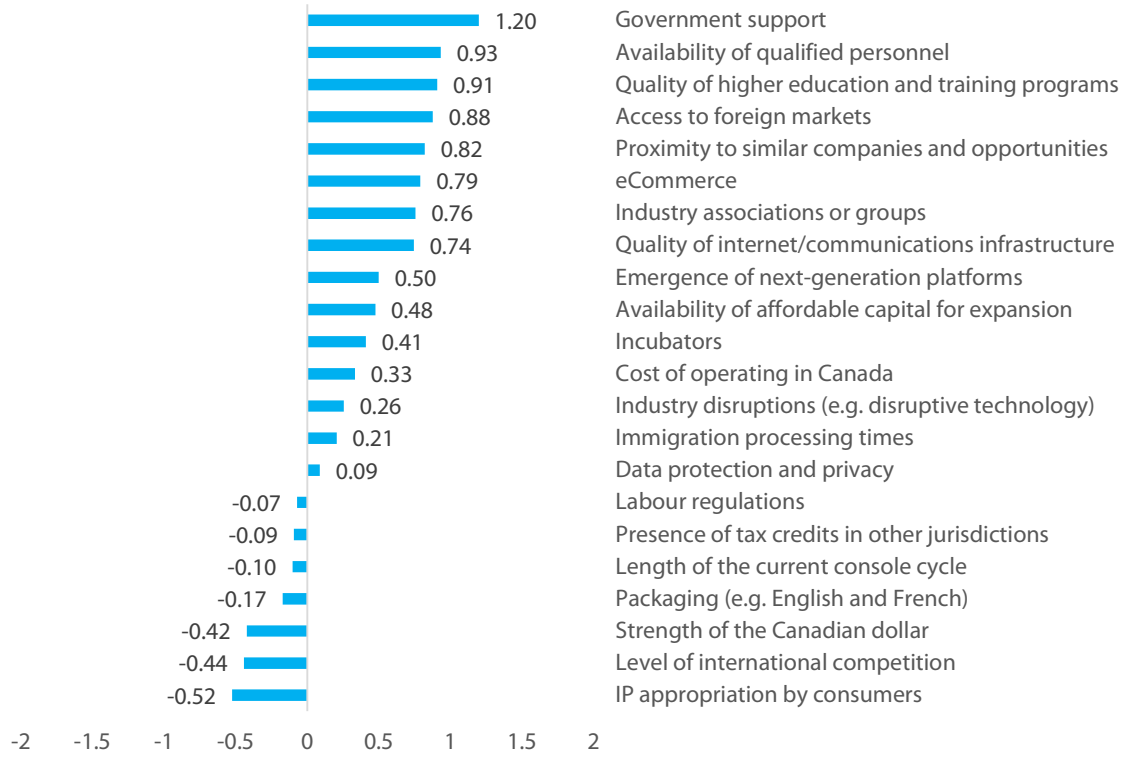
Figure 42 – Key growth jurisdictions (frequency by % of respondents)



Source: ESAC Industry Survey 2013
N = 45

According to video game companies captured by the industry survey, the factors that are most negatively impacting growth in the video game industry in Canada are IP appropriation by consumers (e.g. piracy, cloning, etc.). At the same time, government support, the availability of qualified personnel and the quality of higher education and training programs were deemed to the factors most likely to positively contribute to growth.

Figure 43 – Key factors affecting growth (average score on a 5-point scale from Very negative impact [-2] to very positive impact [+2])



Source: ESAC Industry Survey 2013
N = 48

Along the same vein, the most frequently cited factors among the top three opportunities for the video game industry in Canada over the next 3-5 years include the growth of mobile platforms and the impending launch of the next generation of consoles. Indeed, interviewees also expressed that the growth of the mobile platform has enabled a shift in the structure of Canada's industry to a more indie-dominated industry. Furthermore, this indie-led industry is thought to be poised for significant growth as smaller, independent firms can more easily respond to the rapidly evolving mobile platforms, deploying smaller team to more rapidly iterate products. This model of development is contrasted with development for other more traditional platforms (e.g. consoles) where the trend is toward increasingly high-quality products that command much larger budgets and require much longer development times (see Section 2.3.2 for a breakdown of average resource requirements across the different platforms). That said, as Section 1.2 and 2.3 illustrate, large studios and console continued to dominate the employment and project budgets of Canada's video game industry in 2012. As such, while smaller firms developing for mobile platforms may well be the future of the video game industry in Canada, console games developed by larger firms remains the present.

Canada's growing skilled talent pool was also frequently cited by survey respondents as a major opportunity. Many companies also believe that cloud gaming and free-to-play gaming models represent key opportunities for industry growth.

While Canada's talent pool is generally seen as an opportunity, many companies also indicated that access to talent could pose a risk as well. In particular, some companies indicated that lack of access to foreign talent could be a risk to company and industry growth, a sentiment that was also generally expressed by interviewees. Competition among jurisdictions in Canada was also cited as a key risk to growth in the Canadian industry, which is intimately tied to discrepancies from province to province when it comes to government support such as tax incentives. Competition from foreign markets is also perceived as a significant risk for the industry.

Return to Table of Contents

Appendix A Methodology

A.1 Data Collection

The data presented in the above report was collected through three means: a literature review, a series of one-on-one interviews, and an online survey.

Literature Review

In our review of the relevant literature for this report we began by focusing on the most recent data available in the context of the Canadian video game industry. This included extensive research of publically available data sources, as well as reports prepared by other experts in the field. Five main themes were then identified according to which we summarized our findings:

1. Software development and platform evolution;
2. End-user migration patterns;
3. Financing statistics and tax credit analysis;
4. Market size; and,
5. Labour market statistics.

Once summaries were prepared for each of these key themes, secondary data was compared against the primary data from the survey to ensure consistency. After compilation of the secondary data was complete, it was integrated into the rest of the report providing context and additional depth to the raw data and statistics that form the core of this report.

Interviews

Nordicity conducted a total of nine targeted interviews with subject matter experts, representatives from support organizations and senior representatives from leading video game firms. As much as possible Nordicity worked to ensure that the interviewees represented a good cross-section of the industry including both representatives from larger and smaller firms. The team also worked to ensure that interviewees were selected in such a way as to represent perspectives from different regions across Canada.

Through the interviews, Nordicity gathered qualitative data about the current issues in the industry, including topics such as:

- Industry change and current trends;
- The video game workforce in Canada;
- The strengths and unique value propositions of Canada's video game industry; and
- Key policy issues that impact the industry

Content from the interview was then used to provide context and/or validation to findings from the secondary research and industry survey presented throughout the report.

Online Survey

For this study, much of the data presented was derived from the results of an online survey that Nordicity conducted between March and May 2013. Prior to deploying the survey, Nordicity and ESAC developed a list of some 324 video game companies to which the survey was distributed. In this context, a "video game company" was defined as "a company directly involved in the development and/or sale of video game products; and/or the provision of services directly related to the development and sale of video game products." The survey was also distributed through industry association newsletter, at the 2013 Game Developers Conference and via social media channels. Through these efforts the known "universe" of video game companies (and this of potential survey respondents) grew to 329 firms. Upon closing the survey, Nordicity had received responses from 90 video game companies. Of those 90 responses, 81 firms were able to provide detailed data on their annual expenditures. As annual expenditures lie at the heart of this exercise (e.g. because they are the primary input into the economic impact analysis), Nordicity used the 81 responses to estimate the degree to which the sample collected reflects the universe of video game activity in Canada.

A.2 Data Analysis

A survey will only ever capture a portion of the potential respondents. Having collected the online survey data, the first step was to estimate the degree to which the sample reflects the the universe of video game activity in Canada. In effect, the survey sample needs to be "grossed-up" to the size of the universe. In this case, that meant extrapolated data from the 81 firms that supplied expenditure data to the 329 companies in the final list of potential respondents. In the video game industry firms range in size from a few employees to several hundred employees. Accordingly, Nordicity split this gross-up exercise into three parts: one for firms under 5 employees, one for firms with between 6 and 99 employees and one for firms with 100 or more employees. To do so, Nordicity first classified the 329 companies into the three groups of firms, based on a review of their websites.[19] The survey sample was then similarly segregated—and a gross-up factor was calculated for each group. The following table illustrates this process further:

Table 15 – Gross-up Methodology

Size of Firm (by employee)	Number of Firms in Universe (A)	Number of Firms in Sample (B)	Gross-up Factor (A/B)
Large (100+)*	21	14	1.50
Small (6-99)	245	53	4.43
Micro (<5)	62	14	4.62

* In this context, "large" includes both large- and medium-sized firms, as defined by Industry Canada

As the above table illustrates, the survey was most representative for larger firms. However, these firms typically account for the bulk of the economic activity in the video game industry. Accordingly, Nordicity is confident that it collected sample provides a reasonable accurate depiction of the video game industry in Canada.

[19] If no employment data was available on a company's website, it was left as a mid-sized firm.

With these gross-up factors—and a segmented survey sample—in hand, Nordicity was able to estimate the revenue generated and expenditures incurred by large, medium- and micro-sized firms. These estimates were then summed to arrive at national totals.

To create provincial estimates for Ontario, BC, and Quebec, the process was repeated using only data for that region.

The following is a list of other notable methodological considerations related to the analysis of survey data:

- All employment data is presented as "Full-Time Equivalents" (FTEs) and was derived by dividing the total amount paid to employees by the industry average salary;
- The industry average salary was estimated using a weighted average. Firms were asked to provide average salary data for three levels of seniority (junior, intermediate, senior) and three types of employee (creative, technical, business/administrative). First, average salary levels were developed for each type of employee at each size of firm (micro, small, medium, large). These averages were then weighted by the relative employment in each type to arrive at a single average salary for each size group. These company size-based averages were then combined (and weighted by the relative employment of each size group) to arrive at a final average salary.

A.3 Economic Impact Analysis

The economic impact modelling drew upon data from the online survey, secondary sources and Statistics Canada's Input-Output (I-O) tables, to derive estimates of **direct**, **indirect** and **induced** impacts of the video game industry on the Canadian economy in terms of employment (i.e. full-time equivalents [FTEs]), labour income (i.e. wages, salaries and benefits) and gross domestic product (GDP).

- The **direct impact** refers to the employment, labour income and GDP generated within the video game industry itself, and is largely in the form of wages and salaries paid to the industry's workers. It also includes operating surplus (i.e. operating profits [return to shareholders] and sole proprietors' income) earned by companies and the value of depreciation of capital assets. To estimate the direct economic impact we compiled data form the online survey on industry activity (i.e. operating revenue and expenditures, total wages and salaries, average salaries) and a representative breakdown of cost structures for the video game industry. These data were used to estimate labour income and employment. To estimate direct GDP, the ratio of operating surplus to labour income in for Canada's software publishing industry (15.17%) was obtained from Statistics Canada 's I-O and used to estimate the amount of operating surplus to add to the estimate of labour income in order to derive an estimate of GDP.
- The **indirect impact** refers to the increase in employment, labour income and GDP in the industries that supply inputs to the video game industry (e.g. utilities, real estate, telecommunications services). The conversion of data for industry activity into estimates of the indirect economic impact required an I-O model of the Canadian economy. Nordicity

used Statistics Canada's I-O tables to construct a model that could be used to estimate the indirect economic impact. This model took into account the pattern of re-spending by the video game industry's supplier industries, and the degree to which these supplier industries' purchases leaked from the Canadian economy in the form of imported inputs. This I-O model was used to derive estimates of indirect employment, labour income, and GDP.

- The **induced impact** refers to the increase in employment, labour income, and GDP that can be attributed to the re-spending of income by Canadian households that earned income at both the direct and indirect stages of the economic impact. Because Statistics Canada I-O tables only permit one to estimate the indirect impacts of an industry, sector or economic shock, Nordicity developed and applied a custom induced impact economic multiplier to derive estimates for this analysis. This multiplier was based on Nordicity's estimates of the marginal propensity to consume (MPC) and marginal propensity to import (MPM) for Canada. The derivation of the MPC and MPM were based on data for household spending and international trade available from Statistics Canada.

Return to Table of Contents