

Canada's Video Game Industry in 2015

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Executive Summary

The Size of the Video Game industry in Canada

In 2015, we identified 472 active studios in operation across Canada, a significant increase since 2013 when 329 studios were identified.

Canada's video game industry generated a total of 36,500 Full-time Equivalents (FTEs) of employment in the Canadian economy in 2015, an increase of 26% over the employment generated by the industry in 2013. Of those jobs, the industry directly employed approximately 20,400 FTEs, which represents a 24% increase over the 16,500 FTEs of direct employment reported in 2013. Large firms account for the vast majority (89%) of industry employment and it remains concentrated in technical and creative positions.

The overall average salary for a full-time worker in the video game industry in Canada was \$71,300 in 2015 (not significantly different than in 2013).

The Structure of Canada's Video Game Industry

The video game industry in Canada is primarily made up of standard sized companies (those employing between 5 and 99 people), accounting for 56% of active companies in the industry. By comparison, in 2013 the industry was primarily made up of micro-sized firms (54%) and standard size firms only represented about a third of all active companies. The majority of firms in Canada are structured as private corporations (76%) as was the case in 2013. Likewise, the majority of companies are Canadian-owned and controlled (85%), though that proportion has increased from 76% in 2013.

The industry is made up of a greater number of younger companies than it was in 2013, as evidenced by the fact that active firms in 2015 had been in operation for an average of 6 years, compared to 7.4 years in 2013. About two thirds of firms have been in operation for less than 6 years and 38% have been in operation for less than 3 years.

As the mobile market has become crowded and more competitive, the flurry of mobile development over the last few years appears to be slowing. Indeed, only 70% of video game companies indicated that they are actively working on products or services for mobile platforms compared to 85% as reported in the 2013 report. Conversely, 70% of companies are developing products and services for the PC/Mac platform (compared to 66% as reported in 2013) and 50% of companies are actively developing products or services for console platforms (compared to 48% as reported in 2013).

Canada's Video Game Industry's Output

Video game companies in Canada collectively completed about 1,280 video game projects in 2015. The largest proportion of projects completed by video game companies in Canada in 2015 were for mobile platforms (66%), which represents a significant increase over 2013 when 43% of completed projects were for mobile platforms. This change is indicative of the period of growth in mobile development leading up to 2015, which is now being followed by a period of decline. Consoles (13%) and web platforms (8%) represent the second and third largest proportion of video game projects completed in 2015, respectively.

Action and adventure games accounted for the largest portion (21%) of projects completed by video game companies in Canada in 2015, followed by Family-oriented games, which represent 13% of all reported completed projects.

Though the number of console game projects completed is relatively low, this segment commands much larger budgets than projects on any other platform. These larger budgets notwithstanding, the average team size and length of the production cycle for console projects has decreased significantly over the last two years. Console games require an average budget of over \$17 million, 485 days and 54 people to produce.

In contrast, mobile projects are commanding larger budgets and teams and more time to produce than two years ago. In 2015, it took an average of just over \$500,000, 190 days and 10 people to produce a completed project. It took companies \$300,000, 7 people and 154 days to complete a mobile project in 2013.

When examined as a portion of all project expenditures incurred in 2015, console games still command the lion's share (84%) of total production spending despite representing such a relatively small portion of completed projects. That being said, console games represent a slightly smaller proportion of total project spending in 2015 than in 2013 (when consoles represented an average of 89% of total spending) despite average console project budgets increasing.

The Geography of the Video Game Industry in Canada

Canada's current active video game firms are still primarily located in Quebec (29.4%), British Columbia (27.1%), and Ontario (22.9%). Industry growth appears to have been the greatest (in terms of number of studios) in BC where the number of operating studios increased by roughly 91%. On the other hand, Ontario appears to have seen the least amount of growth (in terms of number of studios), where the number of studios operating in the province increased by 12.5%. As a result, Ontario has shifted to become the third-largest provincial industry (by number of companies), from second-largest in 2013, though it was always smaller than BC and Quebec in terms of total employment and expenditure.

The video game industry in Quebec is not only the largest in terms of the number of studios operating there, but it is also the largest jurisdiction in terms of employment, accounting for 10,850 FTEs in direct employment in 2015. BC hosts Canada's second largest video game industry by number of jobs. BC accounted for 5,500 FTEs in direct employment in 2015. The third largest jurisdiction in Canada for video game employment is Ontario, which accounted for roughly 2,500 FTEs in direct employment in 2015.

Quebec also ranks highest in terms of expenditure, accounting for \$1.14 billion in expenditures in 2015, followed by BC (\$576 million) and Ontario (\$265 million). All regions saw fairly strong growth from 2013. With respect to total growth in industry expenditures, Ontario had the largest increase, from \$134 million in 2013 to \$265 million in 2015.

The significantly higher employment rate in Quebec is caused by the fact that the vast majority (96%) of the industry's employment in that province is generated by large companies (100+ employees). In contrast, BC's employment is driven fairly evenly by both standard size (5-99 employees) and large firms (100+), each accounting for almost 50% of industry employment in the province. A greater portion of industry employment in Ontario comes from micro (0-4) and standard size (5-99) firms than

in other jurisdictions – Ontario is the only jurisdiction where standard firms account for more employment than large ones.

Working in Canada's Video Game Industry

Canada's video game industry workforce is generally highly educated. Undergraduate university degrees were the most common in technical, marketing and communications, and operations and administration job categories. In addition, almost a quarter of companies reported that the average level of education for employees in the Operations and Administration job category was a graduate or post-graduate university degree. For jobs in the creative category, the most commonly reported average level of education attained by employees was split between "college degree", "undergraduate university degree" and "some college or university" (23% of responding companies selected each, respectively). The average age of workers in the video game industry remains about 30 years old.

The representation of women in the industry workforce has not changed over the last two years. Women still represent only 16% of the overall video game workforce. Women are generally more highly represented in jobs in the marketing and communications (51%), and operations and administration (32%) job categories. However, these job categories only account for about 21% of the industry's total workforce. Women are the least represented in technical job categories where they account for only 6% of the workforce.

The majority of the current video game industry workforce was hired from within Canada, although the industry does regularly recruit internationally, particularly from the US, UK and Western Europe. Canadian video game companies frequently recruit talent from outside of Canada to fill more senior and/or specialized technical roles.

Given the industry's demand for foreign talent, companies rely heavily on programs such as the Temporary Foreign Worker (TFW) program to help them access and recruit the foreign talent. Indeed, 13% of the total industry workforce is made up of talent recruited as TFWs.

Companies reported that on average, over one third (34%) of TFW hires go on to become permanent residents, based on data collected regarding the status of TFW hires recruited over the last 5 years. In addition, an average of approximately 8% of TFWs go on to apply for and receive Canadian Citizenship.

Canadian video game companies report that talent for technical job categories and senior positions are the least available globally (as there is significant global competition for top talent), but in particular there is a dearth of experienced talent in these areas in Canada. In addition companies reported that it is most difficult to find talent in Canada with adequate programming, game design and data analysis skills. Furthermore, among the available domestic talent (particularly recent graduates), Canadian video game companies reported that they were least satisfied with workers' existing skills in data analysis and outreach & community management.

The demand for talent is set to increase across all job categories and levels of seniority over the next 12-24 months. In particular, the industry predicts that it will need to hire about 889 individuals in technical job categories at the intermediate and senior level as well as 569 employees for intermediate and senior creative positions. In particular, video game companies indicated that the

top three in-demand skills for the future will be: programming, game design and artist and animation skills.

The Economic Impact of the Video Game Industry in Canada

The Canadian video game industry spent approximately \$2.36 billion in 2015, an increase of almost 50% over 2013. As with the previous report, the majority of expenditures (about 74%) were spent on fees, wages and benefits paid to permanent, temporary and freelance labour.

The video game industry's direct contribution to GDP in Canada in 2015 was just under \$1.6 billion. The industry also generated roughly \$550 million in indirect-impact GDP and \$897.5 million in induced-impact GDP. The total GDP generated by the video game industry in 2015 was just over \$3.0 billion (including direct, indirect and induced impacts), a 31% increase over 2013.

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 May and June 2015, as well as a series of expert interviews with key members of Canada's video game industry. Information from other sources is cited accordingly.

Regarding references to dates, any reference to data from 2015 is from the 2015 Industry Survey and could refer to data related to the 2014 fiscal year or the current state of business in 2015. Similarly, any reference to data from 2013 refers to data reported in the *Canada's Video Game Industry In 2013* report, published in 2013. Data from the 2013 report may refer to data related to the 2012 fiscal year or the current state of business in 2013.

Additional detail on the methodologies used in the creation of this report can be found in [Appendix A: Methodology](#).

Glossary of Terms

Video game company: A company directly involved in the development, publishing, and/or sale of video game products; and/or the provision of services directly related to the development, publishing or sale of video game products. In the 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. A project can be anything from a full game to a significant DLC add-on, or service projects such as developing a game engine or a quality assurance engagement. In addition, it should be noted that one product (i.e. one game) could be counted as two (or more) projects if multiple firms developed and/or provided services toward the development of that product.

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

The video game industry is both large and global in scale. Indeed, a 2014 estimate of the global video game industry suggested that total revenues exceeded US\$83 billion in that year, and were estimated to grow at a rate of over 9% through 2017 – to reach US\$107 billion.¹ While Europe and North America continue to be significant markets for video game content (accounting for US\$21 billion and \$24 billion of the global market respectively), the fastest growing markets for the consumption of video games are in the Asia-Pacific and Latin America regions.² As such, Canada's video game companies are competing with international rivals for an ever-more global audience.

It is in the context of this globally competitive, growing industry that the companies that make up the Canadian video game industry find themselves.

Methodological Note

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Additional detail on the methodologies used in the creation of this report can be found in [Appendix A: Methodology](#).

¹ Newzoo (2015), "Global games market will grow 9.4% to \$91.5 billion in 2015," 22 April 2015, <http://www.newzoo.com/insights/global-games-market-will-grow-9-4-to-91-5bn-in-2015/>

² Ibid.

1.1 Number of Companies

One measure of the size of an industry is the number of active companies operating in it. In 2013, Nordicity and the ESAC compiled a list of 329 active companies, based on secondary research. Over the following two years, the industry appears to have undergone significant growth with respect to the number of active companies. Similar research and outreach to that done in 2013 produced a total list of 472 active companies, with much of the growth driven by an increase in micro-sized firms.³

Table 1 – Total number of companies, 2013 to 2015

Firm size	2012	2014	% change
Micro (less than 4 employees)	62	183	195%
Standard (5 to 99 employees)	245	265	8%
Large (more than 99 employees)	21	24	14%
Total	328	472	38%

Source: ESAC Industry Survey 2015, Nordicity and ESAC research outreach

Despite the overall growth in the number of active companies, it should be pointed out that most of that growth comes from a drastic increase in the number of active micro-sized firms (as shown in [Table 1](#), above). There has been significantly less growth in terms of the number of active standard and large video game companies over the past two years.

³ More detail on the process used to identify video game companies can be found in the methodological appendix.

1.2 Employment

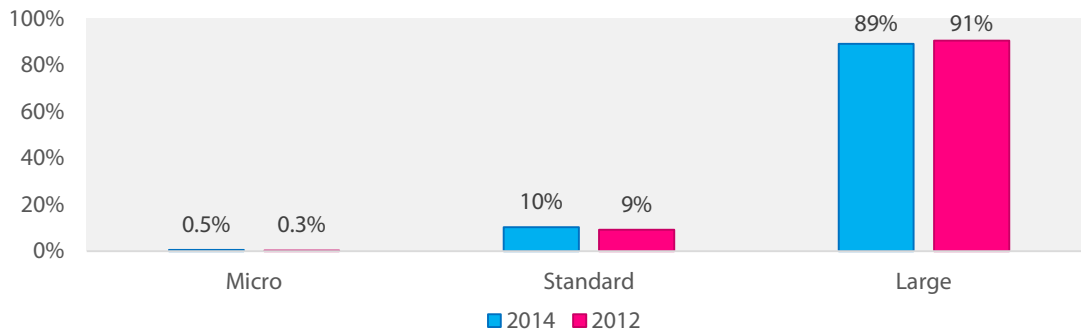
Apart from the number of active companies, perhaps the most accessible gauge of the size of an industry is the number of people that it employs. The following sub-sections outline the direct employment (people employed by video game companies), spin-off employment (employment stimulated by the video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

1.2.1 Direct Employment

In total, the video game industry directly employed approximately 20,400 Full-time Equivalents (FTEs) in 2014. This figure is up 24% from the 16,500 FTEs of direct employment reported in 2013. Given that most of the growth in the number of companies (as illustrated in [Section 1.1](#)) came from micro-sized companies, one can conclude that the bulk of the employment growth is caused by companies growing (rather than there being more companies).

Of those 20,400 direct FTEs, **the vast majority are employed by large firms** (that employ more than 100 people). As the following figure ([Figure 1](#)) shows, around 90% of all employment in the video game industry in Canada is at such large firms.

Figure 1 – Employment by company size, 2013 to 2015



Source: ESAC Industry Survey 2015
N = 68

Survey respondents were asked to classify their employees by job type:

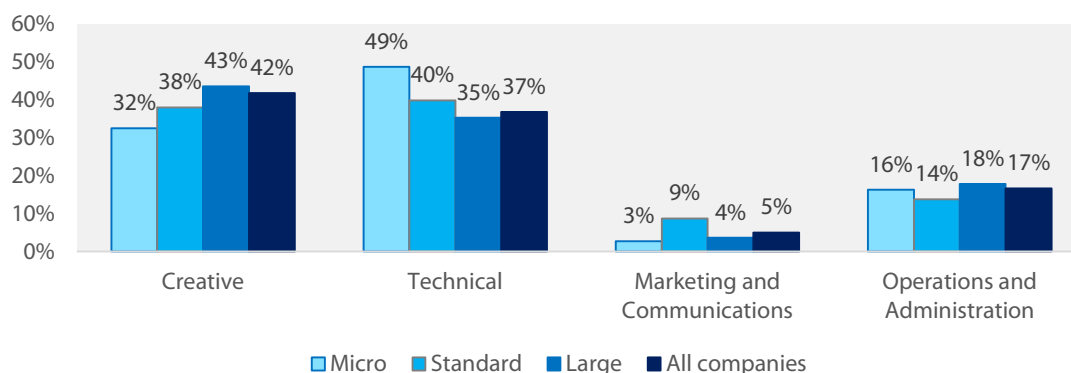
- **Creative:** Primarily involved in the generation of creative assets;
- **Technical:** Primarily involved in software and hardware engineering;
- **Marketing and Communications:** Primarily involved in outreach and business development; and
- **Operations and Administration:** Primarily involved in day-to-day operations.

This breakdown is slightly different than the one used in Nordicity’s 2013 report which segmented job type by Creative, Technical, and Business/Administrative positions. Splitting Business/Administrative

into Marketing and Communications and Operations and Administration allows for a more nuanced picture of operational roles in the video game industry.

The distribution of these types of jobs varies, to some degree, by the size of the company, as illustrated by the following figure (Figure 2).

Figure 2 – Employment, 2015 (by job type and size of company)



Source: ESAC Industry Survey 2015
N = 68

Across all company sizes, the share of creative and technical workers in the video game industry has not changed much since 2013. In the 2013 report, the stated average for creative positions was 44% while for technical positions it was 41% of total employment. The slight decrease in the share of creative and technical positions can perhaps best be seen as a slight increase in the share of workers in administrative and marketing positions. This increase may, in turn, be the result of an increased prominence and importance attached to this type of activity, especially with respect to social media, analytics, and QA.

When examined by the mode of employment (e.g., full- vs. part-time), there are clear differences between job types, as illustrated by the following table (Table 2).

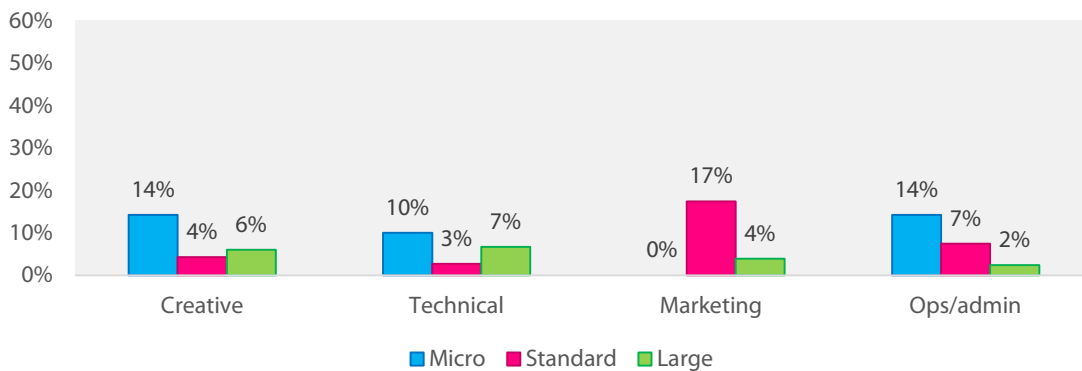
Table 2 – Mode of employment by job type

	Full-time	Part-time	Temporary	Contract/ freelance
Creative	42%	25%	47%	74%
Technical	36%	22%	43%	16%
Marketing and Communications	4%	22%	3%	2%
Operations and Administration	18%	31%	7%	9%
All Job Types	100%	100%	100%	100%

Source: ESAC Industry Survey 2015
N = 63

Indeed, most contract/freelance positions in the video game industry are in creative job categories. Full-time positions are most likely to be in either creative or technical. This latter finding is consistent with the observation (shown in Figure 2, above) that most employment in Canada’s video game industry (roughly 80%) is in creative or technical positions. Finally, operations and administrative positions appear to be the most likely to be part-time, likely reflecting the need for accountants, clerical workers and other employees whose roles are crucial, but not needed on a full-time basis.

Figure 3 – Part-time employment as a share of total employment



Source: ESAC Industry Survey 2015
N = 63

The chart above compares part-time employment across job categories and sizes of firm. The percentages given are part-time over total employment in that job category; i.e., the first cluster indicates that among creative jobs, part-time employment accounts for 14% of total creative employment at micro-sized firms, 4% of total creative employment at standard-sized firms, and 6% of total creative employment at large firms.

Micro-sized companies use part-time labour at higher rates than other sizes of company in creative, technical and operations positions, but do not employ any for marketing positions, perhaps because the budgets at such companies do not support much paid marketing activity. Standard firms do employ substantive part-time marketing labour, possibly because they have a solid technical and creative base, and have moved into a more growth-oriented phase of business development. Large firms use relatively little part-time labour of any kind – they have more resources to deploy on labour, and may find it easier to keep full-time people on staff for that reason, and because the particular needs of large firms are more specialized and demanding.

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).⁴ The following table (Table 3) presents the direct employment, indirect employment (i.e., in industries that supply Canada’s video game

⁴ A definition of “spin-off employment” can be found in the Glossary of Terms.

industry), and induced employment (i.e., whose jobs are created by the spending of video game industry workers). It also notes how those impacts have changed since 2013.

Table 3 – Employment, 2013 to 2015 (FTEs)

	Video game industry*	Indirect impact	Induced impact	Total impact
Employment 2015	20,400	6,900	9,200	36,500
Employment 2013	16,500	4,600	5,900	27,000
% change	24%	50%	51%	26%

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

* Direct impact

As illustrated above, the total number of employees has increased significantly more than direct employment. This discrepancy is largely accounted for by the rising cost of video game production (which increases spending in other sectors of the economy, and thus the indirect impact) and higher average compensation packages for video game industry workers (which increase the amount spent in the wider Canadian economy, and thus the induced impact).

1.2.3 Average Employee Salaries

According to the survey results, the overall average salary for a full-time worker in the video game industry in Canada in 2015 was approximately **\$71,300**.⁵ This salary figure is almost unchanged from the \$72,500 reported in the 2013 report. However, given that the industry has 3,900 FTEs more employment than reported in 2013 – and that much of that additional employment was likely from junior employees – a growth in employee base salary was not expected.

As always, salary levels vary noticeably by the size of a video game company. For this analysis, size of company is based on the number of employees, as follows:⁶

- **Micro:** 1-4 employees
- **Standard:** 5-99 employees
- **Large** 100 or more employees

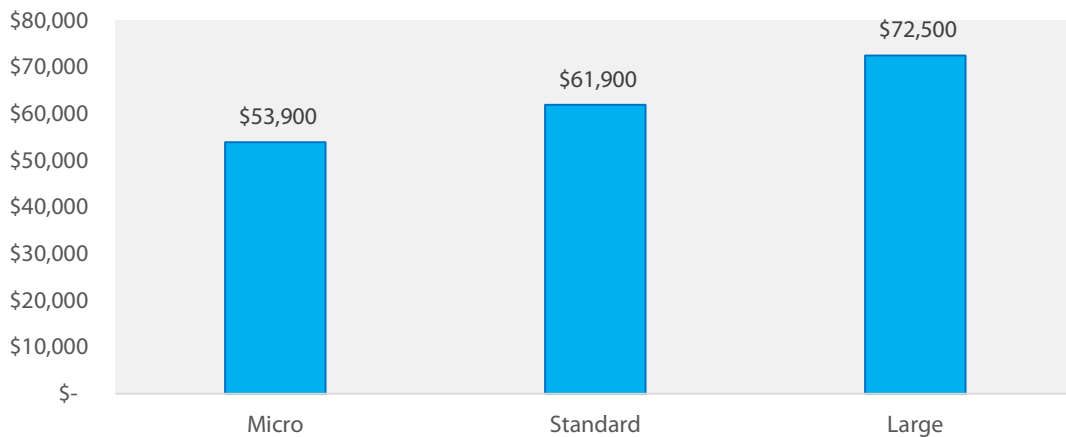
The chart [below](#) shows the average salaries for video game companies in Canada, broken down by company size. However, as Figure 2 (above) shows, micro and standard sized firms account for a very

⁵ This average is weighted by overall contribution to total employment, meaning that large firms (who employ almost all workers in the industry) contribute more to the average than standard or micro firms.

⁶ In the 2013 study, companies were divided into 4 size categories: Micro (0-4 employees), Small (5-99 employees), Medium (100-499 employees) and Large (500+ employees). In 2015 it was changed to only three categories in order to better reflect the structure of the industry in Canada: Micro (0-4 employees), Standard (5-99 employees), Large (100+ employees). For ease of comparison, the 2013 data was re-cast in the new size categories (where needed).

small percentage of total video game industry employment. As such, their contribution to the overall average salary is limited.

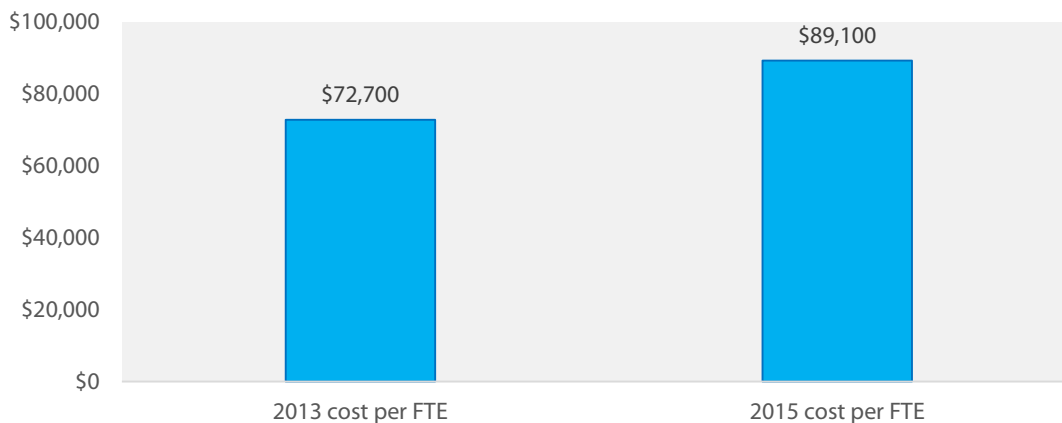
Figure 4 – Overall average salary by size of company



Source: ESAC Industry Survey 2015
N = 53

In addition to average salaries, it is also informative to look at the overall compensation provided to each employee (including bonuses, cash incentives, health insurance policies, and other benefits). To that end, the following chart (Figure 5) shows that the overall compensation packages (or the total cost per employee) has risen sharply since 2013.

Figure 5 – Change in total cost per employee 2013 to 2015



Source: ESAC Industry Survey 2015
N = 68

This upward trend notwithstanding, average salaries vary significantly between job types and size of firm. The tables below (Table 4 and [below](#) Table 5) present average salary; first by type of position and size of firm (as defined above), and second by level of seniority:

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

Table 4 – Average salary by job type and size of firm

	Micro	Standard	Large	All Sizes
Creative	\$ 46,800	\$ 56,300	\$ 69,100	\$ 67,700
Technical	\$ 62,100	\$ 66,600	\$ 79,400	\$ 78,000
Marketing and Communications	\$ 51,700	\$ 53,800	\$ 66,700	\$ 65,300
Operations and Administration	\$ 43,600	\$ 61,900	\$ 68,600	\$ 68,300

Source: ESAC Industry Survey 2015
N = 53

Table 5 – Average Salary by job type and level of seniority

	Junior	Intermediate	Senior	All Levels
Creative	\$ 42,400	\$ 57,000	\$ 76,100	\$ 67,700
Technical	\$ 46,500	\$ 66,800	\$ 91,700	\$ 78,000
Marketing and Communications	\$ 40,900	\$ 53,400	\$ 82,800	\$ 65,300
Operations and Administration	\$ 40,900	\$ 59,700	\$ 93,800	\$ 68,300

Source: ESAC Industry Survey 2015
N = 53

From the above tables, it is clear that across all sizes of firms and levels of seniority that technical positions command relatively high average salaries.

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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 (completed 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.

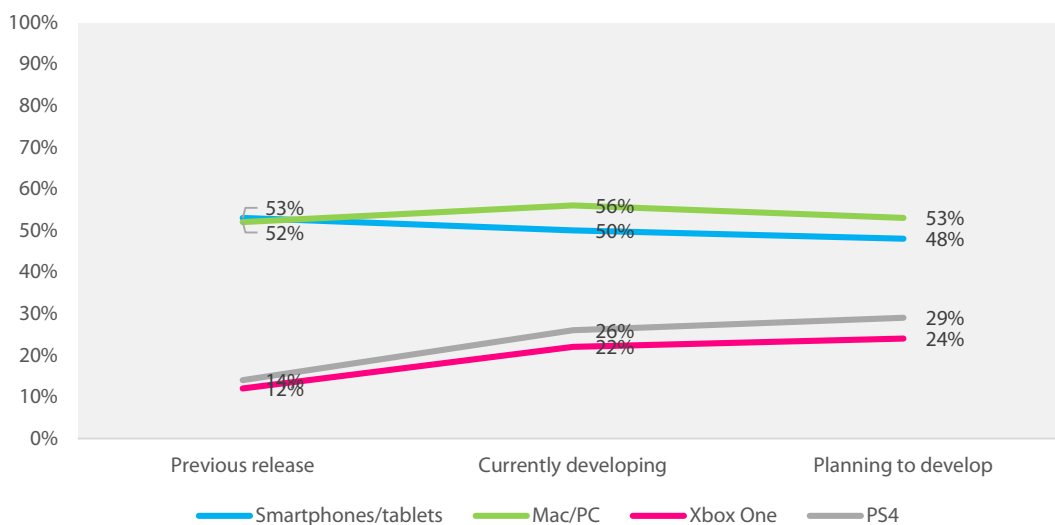
2.1 Trends in Video Game Development

Canada’s world-class talent and targeted financial incentives have helped to create a vibrant digital media and video gaming ecosystem, with a healthy mix of highly innovative small and large companies. While trends in the industry over the last few years have largely been driven by the growing mobile games market, that segment of the market seems to have reached a certain maturity level and is actually showing signs of decline. This phenomenon along with the higher-than-expected success of the new console generation released at the end of 2013 has led to the following key trends shaping the current direction of the video game industry.

Overcrowding in the mobile market

Results from the Game Developers Conference (GDC) annual poll in 2015 indicate that mobile development has been in a slight but steady decline over the last two years globally (see Figure 6, below); a trend that many companies consulted for this study think is going to continue at least for the next few years as the mobile market matures and stabilizes.

Figure 6 – Video game developers’ platform preferences (at GDC 2015)



Source: GDC [State of the Industry Report](#) (2015)

This trend follows close on the heels of a period of rapid and steady growth in mobile development leading up to 2013, which was driving a number of changes and trends in the industry. Indeed, many interviewees attribute the decline in mobile development to over-crowding in the mobile market which has led to increased competition – and ever-increasing average user acquisition costs.

As competition has increased in the mobile development space, it has become more difficult for mobile developers to be successful. One interviewee compared what is happening in the mobile market to what has happened in the console market where only a few high-quality, higher budget games are successful and there is little room in the market for anything else. Indeed, a recent article published by GamesIndustry.biz reported that mobile development companies developing for the iOS platform are likely not profitable unless they are in the top 100 games in the Apple App Store.⁷

As a result, developers are investing more money, time and resources to create ever better, higher-quality mobile games (and approaches to user acquisition) in an attempt to rise above the fray and create one of the next top 100 mobile games. Nevertheless, as these challenges are likely to continue to increase in severity, overall mobile development will likely continue to decrease as developers diversify and shift their focus to other platforms.

Consoles are alive and well

In 2013, the rapid growth of the mobile game market seemed to portend the demise of big-budget AAA console games produced by large studios. At the time, it seemed to be less and less viable for smaller studios to invest in console game development due to the existing challenges related to making those projects profitable. Instead, there was a rush toward mobile development which held a great deal of promise due to lower development costs and plenty of opportunities for sustainable revenue generation.

In addition, the industry was anticipating the release of the new generation of consoles at the end of 2013, which came with a certain amount of apprehension due to uncertain market conditions. In part, the industry was skeptical about how successful the new console generation would be, considering consumers' shift toward mobile games. As a result, many developers held off on launching new console projects until there was more certainty around market conditions. On the one hand, developers were reluctant to invest in a new generation of consoles that might not be successful. On the other hand, developers were hesitant to invest in new projects for the existing consoles, unsure of whether or not they would become obsolete.

However, as the results of the GDC poll show (see Figure 6) Figure 6 – Video game developers' platform preferences (at GDC 2015), development for the new generation of consoles is on the rise. Indeed, video game development for consoles in Canada (though lower than it was in 2013) continued to account for the largest share of reported revenue in 2015 (see Figure 42).

Games as a service

In 2013, games as a service was already an important growing trend, largely driven by the mobile gaming market. In 2015, games as a service is a well-established content delivery model and has become the new normal across all platforms. Traditional content generation cycles that were based

⁷ [iOS game revenues show top 20 dominate – Newzoo](#), GamesIndustry.biz, July 2015.

on the release of updated versions of popular game IP every few years (e.g., *Uncharted*, *Gears of War*, *Mario Kart*, etc.).

Consumer expectations have evolved over the past few years; they now want instant gratification and instant responses to feedback. Consumers no longer want to wait for a new production cycle to get new, enhanced, updated, and better content. Similarly, there seems to be a growing demand for customized content. Audiences have also developed a taste for active participation in developing the content they consume, fuelled by the growth of other trends such as crowdfunding and crowdsourcing. In addition, it has become easier to track user behaviour through ever more sophisticated analytics. As a result, developers and publishers are finding themselves in demand for a new set of skills related to community development and monitoring and evaluating game analytics.

Electronic Sports

A related and growing trend is game watching, which is also beginning to influence how games are being developed. This trend is largely driven by the rise of electronic sports (or e-sports), a term used to describe competitive video game playing by professional players which audiences watch on video streaming platforms such as Twitch.tv (now owned by Amazon). Popular game genres associated with e-sports are strategy, first-person shooter (e.g. *Call of Duty*) and battle arena (e.g. *League of Legends*) games. E-sports have existed in a nascent form for almost as long as there have been video games; professional video game competition initially arose in South Korea, with leagues forming as early as 1997⁸. Initially, these competitions took the form of high-score competitions, without financial rewards attached but have evolved to include large-scale tournaments where professional video game players compete in leagues for prize pools that can reach the millions of dollars⁹. In recent years e-sports have gained major international traction, with leagues gaining popularity in Europe and North America.

Game watching also includes live streaming (on platforms such as Twitch.tv) and video uploads (on platforms such as YouTube) of non-professional players playing games. This form of game watching is also gaining popularity as a way for gamers to inform purchase decisions or learn new gameplay tricks and skills.

The upshot of the growing game watching trend in whatever form is that developers and publishers now need to consider the entertainment value of watching the game being played, not just the quality of the game play itself. This is just another way that consumers are directly influencing how games are being developed.

Augmented and Virtual Reality Games

Augmented and Virtual reality (AR/VR) are still very much an emerging trend and are not yet fully-commercialized technologies. In 2013, AR/VR were still on the fringes and had not registered on the industry's radar. However, by 2015, 1% of Canadian firms had indicated that they are working on AR/VR projects (Figure 15). Many in the industry believe that with the growing competition in the

⁸ CPL and ESL were both formed in 1997. MLG (the first league with North American and European divisions) was formed in 2002. <http://blog.zengaming.co/article/history-of-esports/>

⁹ Valve's annual DOTA2 tournament in 2014 had a total prize pool of \$10.9 million US. <http://www.mcvuk.com/news/read/understanding-esports-a-brief-history-of-esports/0143925>

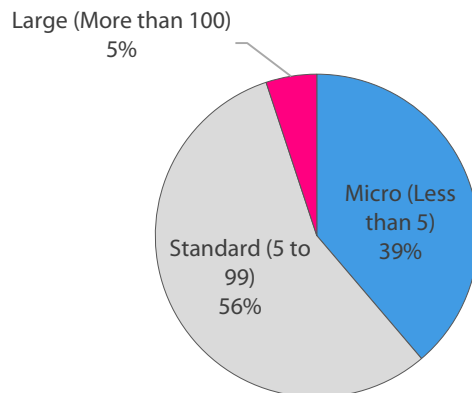
mobile market and many small studios looking for new areas in which to invest, AV/AR technologies present a well-timed opportunity. Several interviewees predicted that small studios in Canada that are currently focused on mobile game development may start to pivot toward AR/VR development. Alternatively, they may be replaced by new AR/VR studios as mobile becomes a less viable market and AR/VR begins to grow. AR/VR will only continue to grow and could have lasting effect on consumers and video game development.

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 longevity.

According to results from the ESAC Industry Survey 2015, the video game industry in Canada is primarily made up of standard size companies (those employing between 5 and 99 people), as shown in the chart below. These results differ markedly from the structure of the industry in 2013 when micro-sized (0-4 employees) firms made up the majority (54%) of the industry and standard size companies only accounted for about one third (34%) of the industry. These changes could indicate that many of the micro-sized firms identified in 2013 were likely start-ups that have since begun to mature and grow over the last two years.

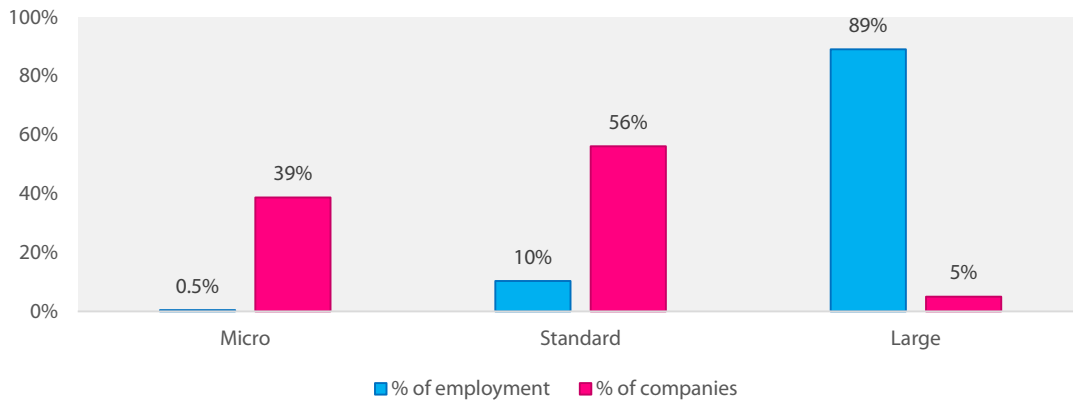
Figure 7 – Video game companies, by size (universe)



Source: ESAC Industry Survey 2015
N= 123

As shown in Figure 8 below, while large companies only account for 5% of video game companies in Canada, they account for almost 90% of industry employment, which is virtually unchanged from the situation in 2013 (see Figure 1).

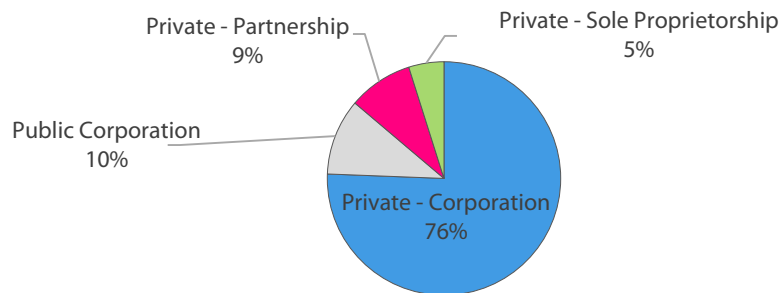
Figure 8 – Percentage of employment vs. percentage of companies



Source: ESAC Industry Survey 2015
N = 68

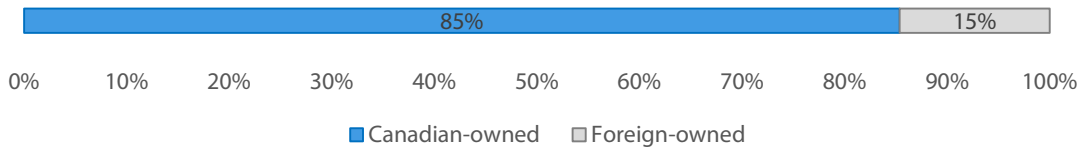
As shown in Figure 9 and Figure 10 below, the vast majority of firms in Canada are Canadian-owned and private corporations. Indeed, 85% of video game companies are Canadian-owned and 76% are structured as private corporations. A greater portion of companies are Canadian-owned than reported in 2013 when 76% of companies were Canadian-owned. This change seems to indicate that the overall growth in the total number of companies in the Canadian industry is primarily driven by the emergence of a significant number of homegrown start-ups (micro-sized firms) over the last two years, rather than an influx of foreign companies. Indeed, since the 2013 report, the number of micro-sized firms has increased at a greater pace than that of larger firms (see Table 1).

Figure 9 – Corporate structure



Source: ESAC Industry Survey 2015
N = 123

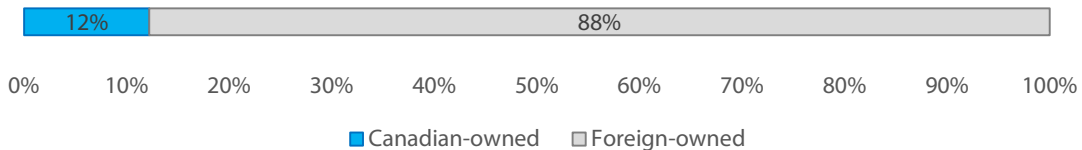
Figure 10 – Company ownership (by number of companies)



Source: ESAC Industry Survey 2015
N = 123

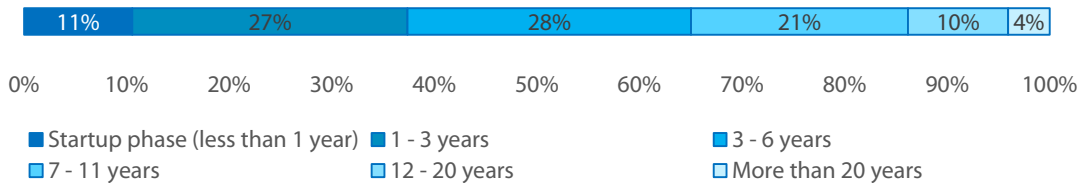
The chart below gives the share of total full-time employment by company ownership. When compared with Figure 10, it is clear that though the majority of companies operating in the video game industry are Canadian-owned, the majority of full-time workers in the video game industry in Canada work for foreign-owned companies. This distribution closely parallels the distribution of total number of companies versus the total share of employment for large firms, as shown in Figure 8, above.

Figure 11 – Company ownership (full-time workers, by share of total full-time employment)



Source: ESAC Industry Survey 2015
N = 65

Figure 12 – Company Age



Source: ESAC Industry Survey 2015
N = 123

On average, video game firms in Canada have been in operation for approximately 6.1 years, which is lower than the average age of companies in 2013 (7.4 years). In addition, about two thirds of active firms have been in operation for less than six years and over a third (38%) have been in operation for less than three years, as shown in the figure above. This finding is consistent with the growth in the

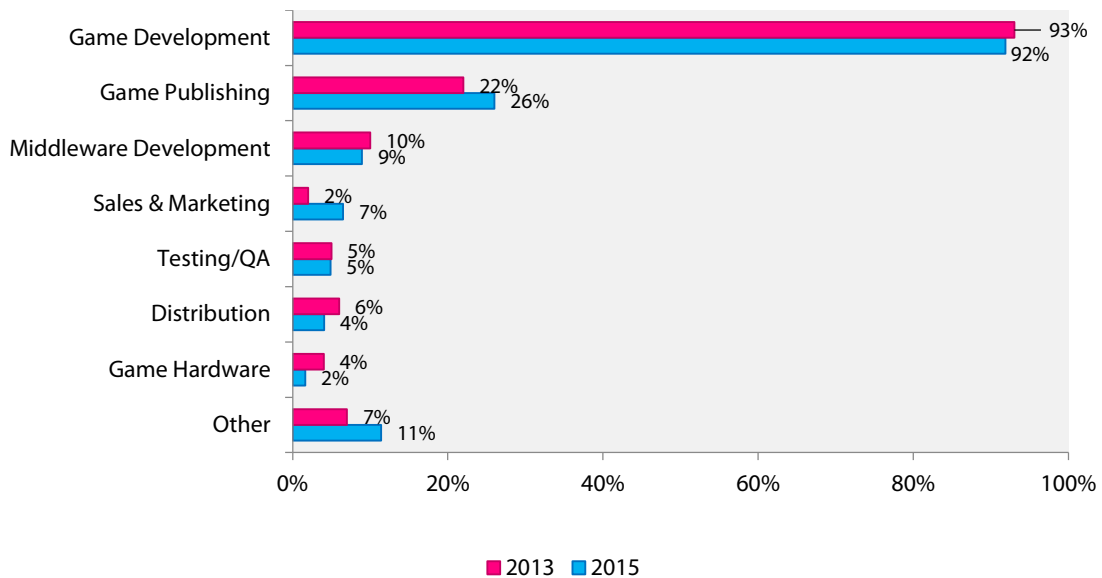
number of active companies in Canada’s video game industry, which is driven by growth in the number of micro-sized firms (see [Table 1](#)).

2.3 Video Game Development Activity

When it comes to the structure of the video game industry, the following charts (Figure 13 and Figure 14) illustrate in which areas Canada’s video game companies are most active.

According to the survey data, almost all Canadian video game firms (92%) are involved in game development, which is unchanged from 2013. In addition, just over a quarter of companies are involved in game publishing (26%) a slight increase from 2013 when 22% of companies reported being involved in publishing.

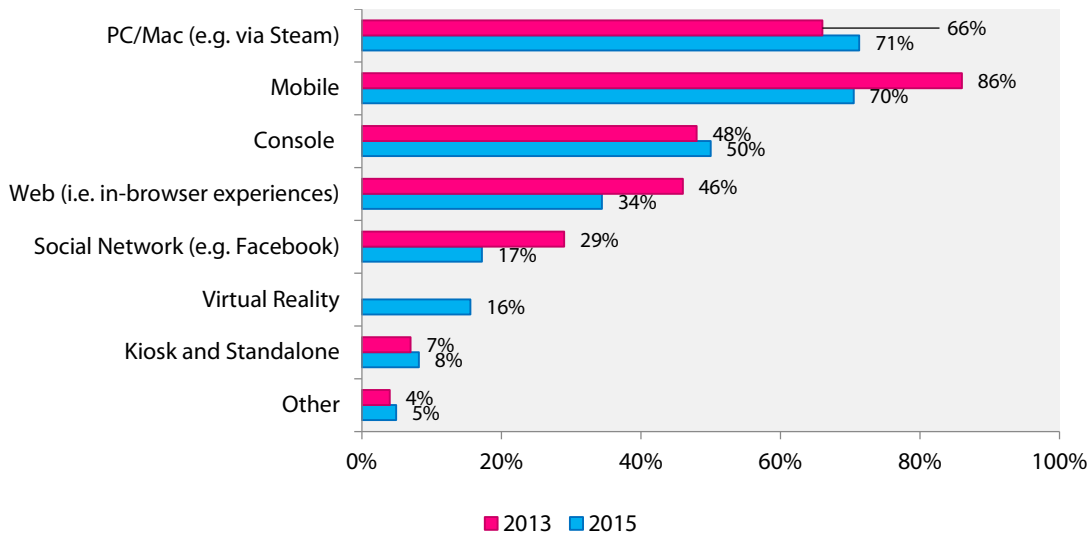
Figure 13 – Lines of business (frequency by % of respondent companies)



Source: ESAC Industry Survey 2015
N= 123

In terms of platforms, there have been some changes since 2013 (see Figure 14, below).

Figure 14 – Platforms (frequency by % of respondent companies)



Source: ESAC Industry Survey 2015

N= 122

Note: Virtual Reality was not an available option in the 2013 survey.

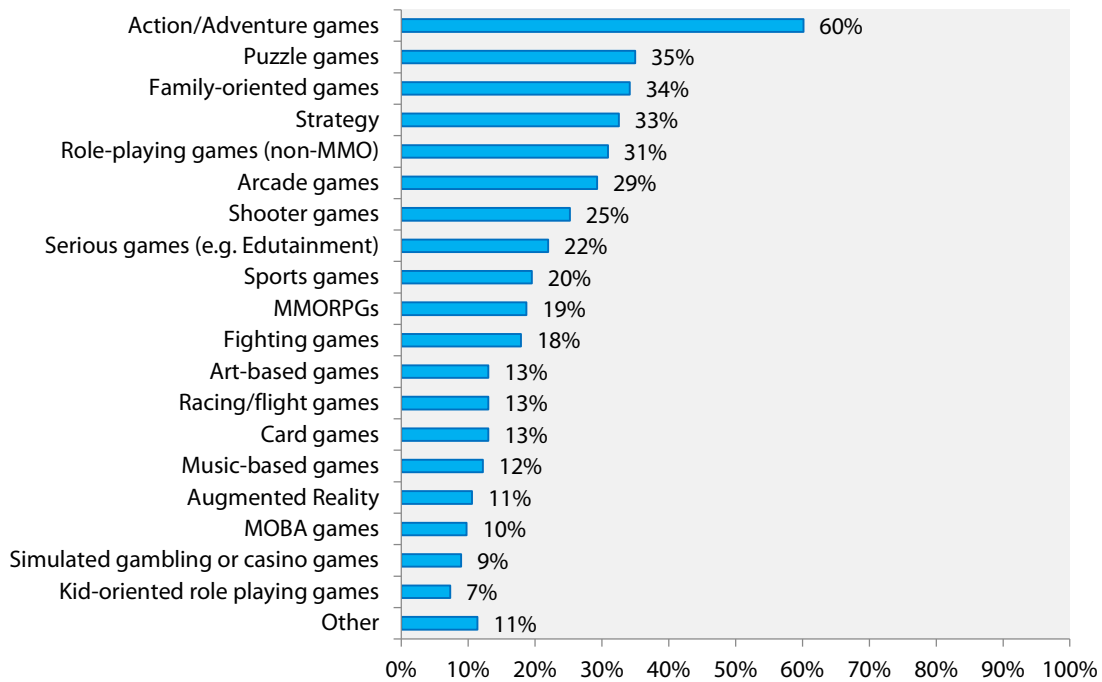
As illustrated [above](#), the frequency of game development on the PC/Mac platform has gone up since 2013. Indeed, in the 2015 industry survey 70% of video game companies indicated that they worked on the PC/Mac platform whereas only 66% indicated they did two years previously. On the other hand, fewer firms are engaged in mobile development with only 70% of companies indicating they were working on the platform in 2015 -- compared to 84% in 2013. Reflecting their continued longevity, consoles have remained fairly stable over the last two years, with 50% of respondents developing console video game content – a slight increase from 48% in 2013. The marked decline in activity on the mobile platform could be a result of overcrowding in the mobile market after several years of rapid growth.

As discussed in [Section 2.1](#) above, overcrowding in the mobile market is leading to increased competition which is likely causing many companies to move away from the platform and shift their focus to some of the other platforms. This phenomenon could also explain the slight increases in activity we are seeing on the PC/Mac and console platforms in 2015 where newer mobile-focused studios that emerged over the last five years are expanding or pivoting into new areas now that the mobile market is becoming increasingly crowded and competitive. However, it is more likely that the majority of the decrease in activity on the mobile platform comes from firms that explored and invested in the mobile projects during mobile’s rapid growth while also maintaining their other lines of business on other platforms. And as the mobile market has matured, many companies have chosen to jump off the mobile band wagon and redirect their focus onto their original lines of business again.

When it comes to video game genres (Figure 15, below), Canadian firms are by far most active in the Action & Adventure genre, with 66% of companies indicating that they are working in the genre in

the 2015 industry survey (see figure below).¹⁰ Puzzle (35%), Family-oriented (34%), Strategy (33%) and Role-playing (31%) games follow as the next most common game genres in the Canadian industry.

Figure 15 – Game genres (frequency by % of respondent companies)¹¹

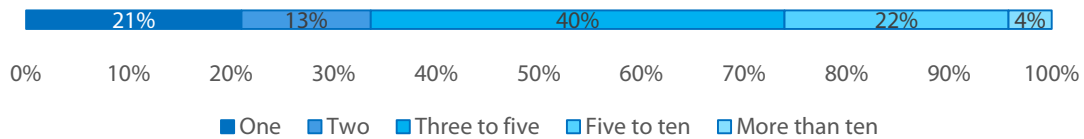


Source: ESAC Industry Survey 2015
N= 119

¹⁰ Results for this question cannot be compared to the 2013 results due to the fact that many of the options in the question were updated from the 2013 version. For example, the 2013 survey included a “casual games” option which was eliminated due to its ubiquity and the fact that casual games now intersect with the majority of gameplay genres. In addition, some categories were disaggregated for greater precision (e.g., strategy and non-MMO role-playing games now form two separate options whereas they were combined into one in the 2013 survey).

¹¹ Please note: Percentages may not add to 100% because companies were able to select more than one option from the list.

Figure 16 – Game genres (number of genres produced per company)



Source: ESAC Industry Survey 2015
N= 119

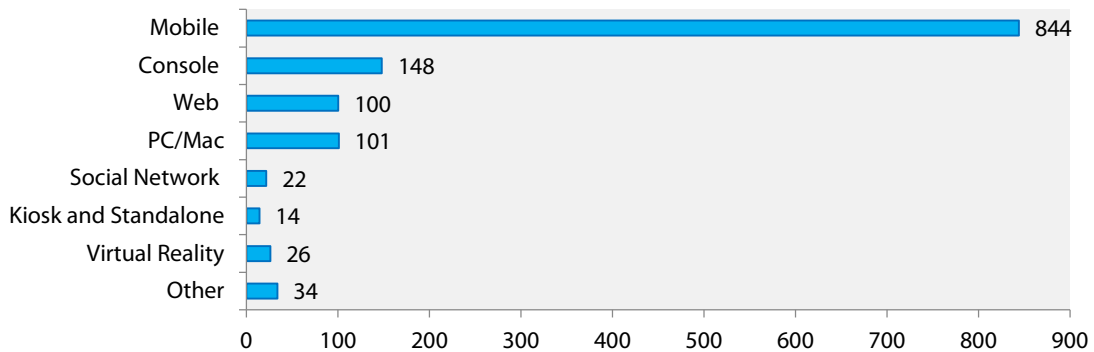
Most video game companies in Canada work in multiple genres. Indeed, as shown in the figure [above](#), two thirds of companies indicated that they work in three or more genres, with 40% indicating that they work with 3-5 genres.

2.3.1 Project Output

According to the industry survey, video game companies in Canada collectively completed about 1,280 projects in the past year (see Figure 17, below), a significant increase over 2013 when companies reported that they had collectively completed roughly 910 projects. The charts below illustrate the distribution of those projects across the various platforms and genres, according to what respondents reported in the survey. It should be noted that while data was collected in 2015, respondents were asked to report on the number of projects they completed in 2014. As such, while the charts show 2015 and 2013, the data actually reflects the number of projects completed in 2012 and 2014.

As [Figure 17](#) and [Figure 18](#) illustrate, companies reported in 2015 that the majority of projects completed in 2014 were mobile projects, accounting for about 65% of all completed projects. This finding represents a significant increase over what was reported in 2013 when less than half of all completed projects (43%) were mobile. While these figures may seem to contradict the current trend toward a decline in mobile development, it is important to remember that these figures refer to projects that were *completed* in 2014 and many of them would have been started in 2013 and early 2014 when the mobile games market was still growing. As a result, these figures do not necessarily reflect the industry’s current mindset and may lag behind recent industry trends. Indeed, as shown in [Section 2.3](#) above, there is a clear decline in mobile activity among video game companies since 2013 (see Figure 14) which will likely result in a marked decrease in the number of mobile projects being completed in 2015 and the next couple of years.

Figure 17 – Number of projects completed in 2015 (by platform)

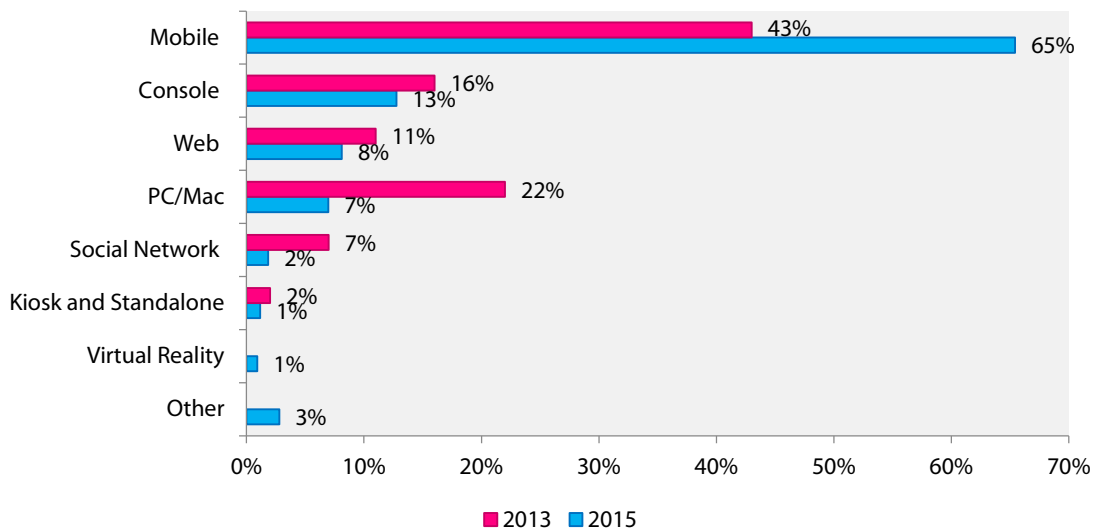


Source: ESAC Industry Survey 2015

N = 60

Notes: Virtual Reality was not an available option in the 2013 survey; While the chart is dated 2015, the data actually reflects projects completed in 2014 (as reported 2015).

Figure 18 – Percentage of total projects completed (by platform, 2013 and 2015 compared)



Source: ESAC Industry Survey 2015

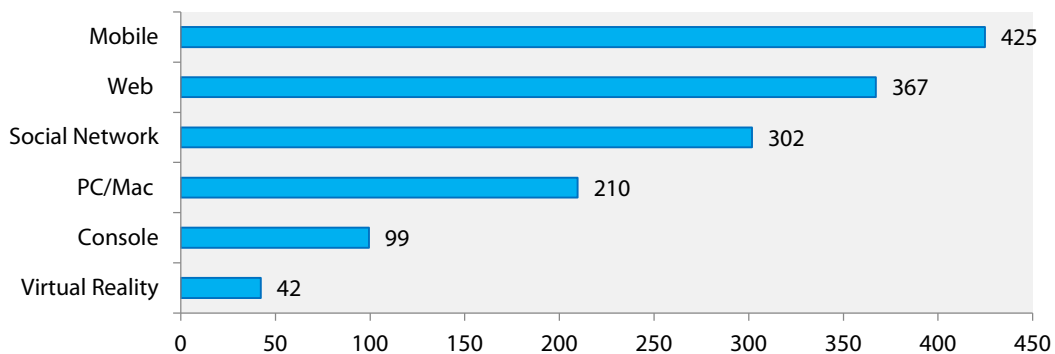
N = 55

Notes: Virtual Reality was not an available option in the 2013 survey; While the dates in the chart read 2013 and 2015, the data actually reflects projects completed in 2012 and 2014 respectively (as reported in 2013 and 2015).

Projects for consoles (13%) and web platforms (8%) accounted for the second and third greatest proportion of video game projects completed in 2014. There were significantly fewer projects completed in 2014 on PC/Mac platforms declining from 22% of completed projects in 2012 to only 7% of completed projects in 2014.

As suggested in reviewing industry trends ([Section 2.1](#)), video games are becoming more of an on-going service than a packaged good. The following chart (Figure 19) illustrates how the roughly 1445 product updates issued by companies in Canada’s video game industry in 2014 were distributed across platforms.¹²

Figure 19 – Total product updates

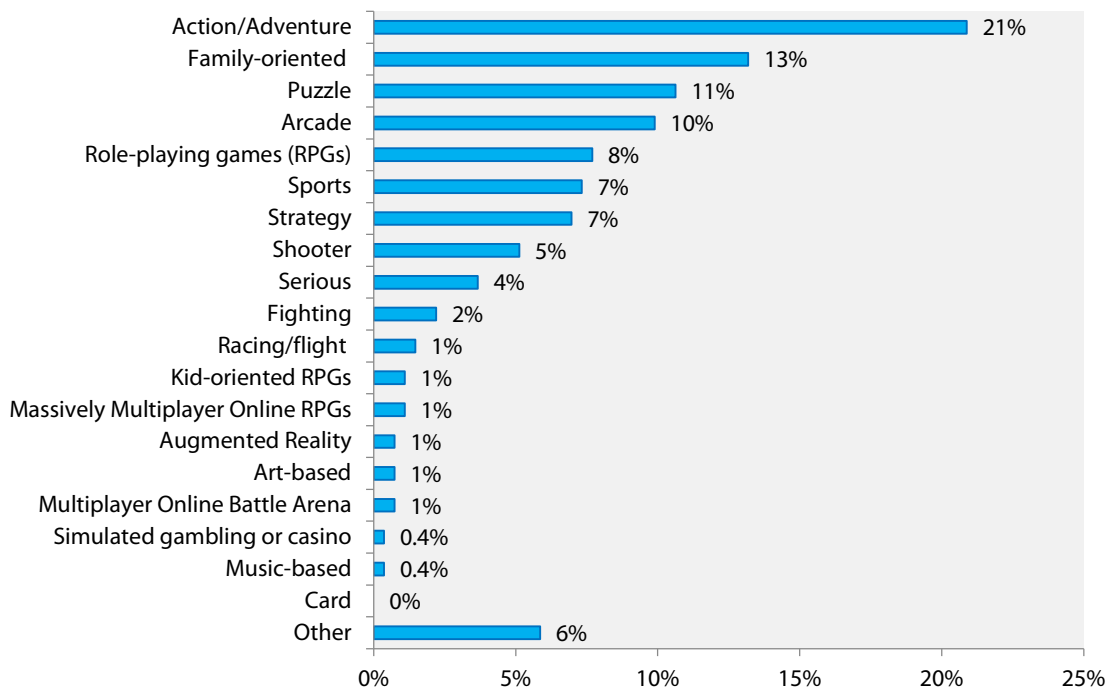


Source: ESAC Industry Survey 2015
N = 78

As the following chart (Figure 19) illustrates, most of the completed video game projects in 2014 were in the Action & Adventure genre, representing 21% of all completed projects. Family-oriented games represented the second most common genre, accounting for roughly 13% of all completed projects in 2014.

¹² For the purposes of this study, a “product update” was described as those “that add or significantly alter game content, gameplay and/or material to existing products.” Minor patches and hotfixes should not be included.

Figure 20 – Number of projects completed by genre



Source: ESAC Industry Survey 2015
N = 55

2.3.2 Project Resources

As a general rule, video games have continued to become more expensive to create, distribute, publish and (increasingly) support. Since the 2013 report the environment to raise the necessary funds to make games has not changed dramatically. The main sources of financing (e.g., tax credits, publisher underwriting, public sector grants) remain in place, and remain crucial to the success of the industry. However, the role of private finance and crowdfunding have changed to some extent.

In 2013, informed investors were keen on the potential of mobile titles with free-2-play (F2P) revenue models to deliver significant returns. In some respects, that enthusiasm is reflected in the number of mobile projects completed in 2014. The idea was that a small, focused team could make a scalable game in a short period of time with a limited budget. While most would fail, some wildly successful games would cover the shortfalls – and ultimately generate a handsome profit. In reality, the competitiveness of the mobile marketplace meant that firms had to invest more than expected in the “back-ends” of their games to handle the analytics, pricing strategies, and other aspects of managing a live service. As a result, while some institutional investors (e.g., venture capital funds) continue to see F2P mobile games as a valid service model, other investors have moved to other platforms.

Since 2013, the crowdfunding environment has also changed. Whereas in 2013, platforms like Kickstarter were hailed as a great boon to the industry, it seems that their peak may have passed. Indeed, recent analyses of Kickstarter suggest that most of the successful campaigns are either very large (and by well-known developers) or very small (and insufficient to actually produce a game).¹³ At the same time, it may be the case that some genres have reached a saturation point.¹⁴ As such, while crowdfunding is not likely to disappear, it is also not likely to have the transformative effect promised in 2013.

As suggested above, video games are, in general, becoming more costly to make. The following table provides a summary of the average resources required to produce games for each key video game platforms.

Table 6 – Average team size, project length and project budget by platform

Platform	Budget	% change from 2013	Team Size	% change from 2013	# of Days	% change from 2013
Console	\$17,043,833	+95%	54	-17%	485	-17%
Mobile	\$504,402	+66%	10	+43%	190	+22%
PC/Mac	\$3,161,875	+218%	16	+60%	337	+25%
Web	\$664,000	+2%	6	-14%	172	--

Source: ESAC Industry Survey 2015
N = 71

As Table 6 indicates, production budgets have increased across all platforms. Remarkably, console games are commanding much larger budgets (\$17 million in 2015, compared to \$8.7 million in 2013), despite using smaller teams (54 people in 2015, compared to 65 in 2013) and having shorter production cycles (485 days in 2015, compared to 583 days in 2013) than reported in 2013.

This phenomenon could be related to the sharp increase seen in the average total compensation paid to employees (see Figure 5). As smaller teams are completing projects under tighter timelines, employees are working harder and longer than previously. As a result, companies are likely relying on greater financial incentives. It should be noted that while team sizes for console projects decreased, team sizes increased for mobile and PC/Mac projects. And given that there are a greater number of projects being completed by firms than two years ago and consoles only account for 13% of all completed projects reported in 2015, it is easy to see where the growth in total FTEs employed in the industry is coming from.

Reflecting the increasingly competitive marketplace, mobile games, most significantly have shown a marked increase in resource requirements across the board, commanding larger budgets (\$500,000 in 2015, compared to \$300,000 in 2013), larger teams (10 people in 2015, compared to 7 in 2013) and

¹³ See, for example:

http://www.gamasutra.com/blogs/ThomasBidaux/20150729/249796/The_giants_hiding_a_growing_problem_Video_games_on_Kickstarter_on_the_first_half_of_2015.php

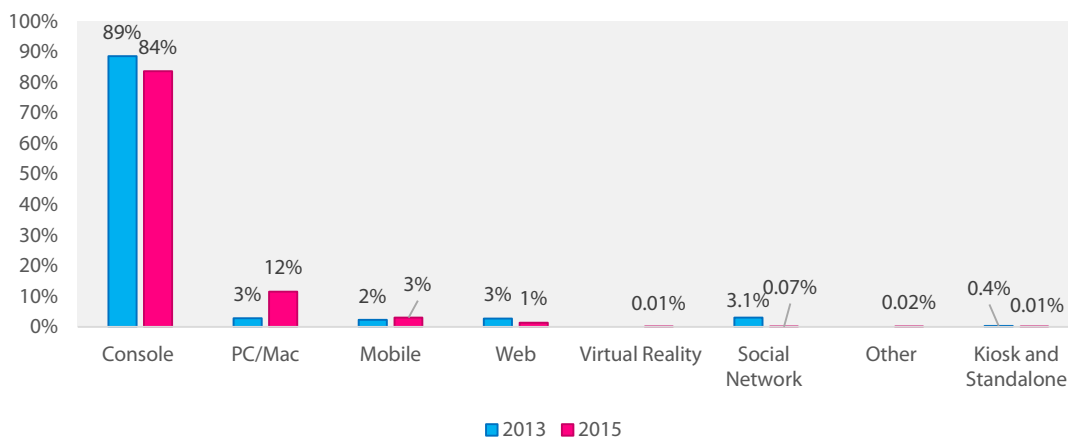
¹⁴ See, as an example of one such analysis: <http://www.the-great-whale-road.com/blog/2015/7/9/kickstarter-data-analysis>

longer production times (190 days in 2015, compared to 154 days in 2013). This change is likely driven by the relative maturation of the mobile market since 2013 and the resulting increased competition, as discussed in [Section 2.1](#). Firms looking to compete in the mobile market are finding that they need to invest more in mobile projects than before in order to produce higher-quality products that will be competitive in what has now become a highly crowded market.

Projects for the PC/Mac platform also seem to be commanding higher budgets, larger teams and longer production times than they were in 2013.

When examined as a portion of all project expenditures reported in 2015 (see Figure 21), it is clear that the majority (84%) of game development expenditures are incurred from console projects. This figure is unsurprising given how much larger console budgets are compared to other platforms. The average console game budget is about 5 times larger than the average PC/Mac budget and almost 34 times larger than the average mobile development budget. That being said, console games represent a slightly smaller portion of total project spending in 2015 than in 2013 (when consoles represented an average of 89% of total spending) despite average console project budgets increasing. This change could indicate that while those companies working on console platforms invested more per project, companies were also investing in projects on other platforms and/or producing relatively fewer console games on average. Indeed, as was shown in Figure 18 in the section above, video game firms reported having completed relatively fewer console games in 2015 than 2 years prior.

Figure 21 – Share of project expenditures by platform, for projects completed in 2015



Source: ESAC Industry Survey 2015
N = 46

Many game development projects include the development of new processes and technologies and/or new IP or content. In 2015, video game companies in Canada spent an average of 28% of their total production budget on the development of new IP or content and 13% on developing new processes and technologies.

As one might expect, the smaller the company, the more time and energy they must devote to producing new content/IP. For example, for micro-sized firms the average IP-related share of total

production budgets was 80% in 2015 whereas that number was 58% for standard size companies. Large firms, given they account for nearly all (96%) of the total production value, rest right on the average of 28% of total production budget.

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 Quebec, British Columbia and Ontario, as shown in the table [below](#).

Table 7 – Geographic location of studios

Province	Studio Count 2015	Studio Count 2013
Quebec	139	97
Ontario	108	96
British Columbia	128	67
Rest of Canada	97	69
Total	472	329

Source: List compiled by ESAC and Nordicity

As discussed in [Section 1.1](#), the number of video game companies operating in Canada has increased by 38% since 2013. This change can be largely attributed to an increase in the number of micro-sized firms, which increased from 63 in 2013 to an estimated 183 firms in 2015, though it should be noted that every size category experienced significant growth. Much of the increase in micro-sized firms was in British Columbia and Quebec. However, it remains the case that the majority of firms in every region are standard-sized (i.e., they employ between 5 and 99 people).

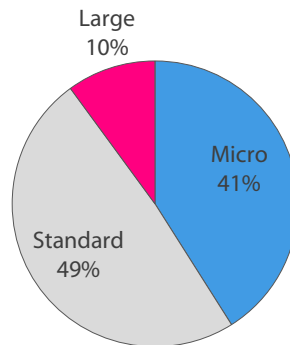
2.4.1 Quebec's Video Game Industry

Quebec has the largest video game sector of any region in Canada, both by number of companies and by employment. Sustained by a strong tax credit, and the presence of industry giants like Ubisoft and Eidos Interactive, Quebec remains a primary engine of video game industry activity in Canada.

Company Profile

The shape of the games sector in Quebec is dominated by a couple of very large players such as Eidos and Ubisoft in Montreal and Quebec City. However, there appears to have been some shift in the landscape of smaller firms since 2013. In the previous ESAC report, 59% of respondent companies were micro-sized, with standard firms accounting for 23%, and the balance (18%) large companies. As the chart [below](#) shows, there has been some growth or consolidation among micro firms – many of them have moved up into the standard category. By number of companies, standard firms now account for around half of firms in Quebec, and the share of micro-sized firms has declined to 41%.

Figure 22 – Company size (Quebec, universe)

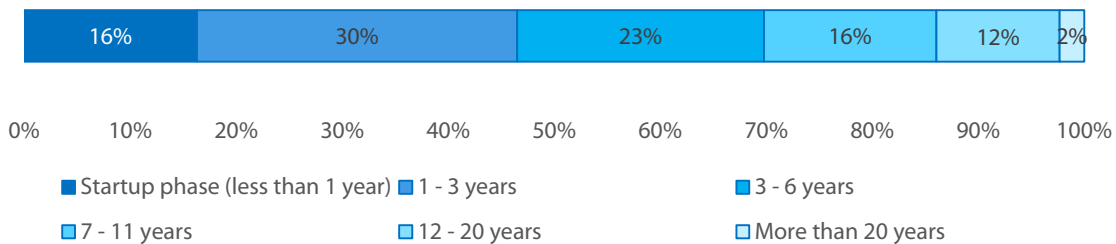


Source: ESAC Industry Survey 2015
N =43

Quebec has a very slightly larger number of firms that are foreign-controlled than the national average (16% vs. 15%). The share of companies under Canadian control has increased significantly since 2013, however, up to 86% in 2015, from 76%. The province also has a significantly larger share of private partnerships (21% vs. 9%) than at the national level, with these increases coming at the expense of the share of private corporations (63% vs. 76%, nationally). These differences in structure are aligned with similar variances from the national picture in 2013.

Companies in Quebec tend to have been in operation for 5.6 years, on average—comparable to the national figure of 6.1 years. The following chart (Figure 23) gives the distribution of companies by age across the province. There are slightly more start-ups (16% vs. 11%) and slightly fewer highly well established (2% vs. 4%) companies than at the national level.

Figure 23 – Age of companies (Quebec)



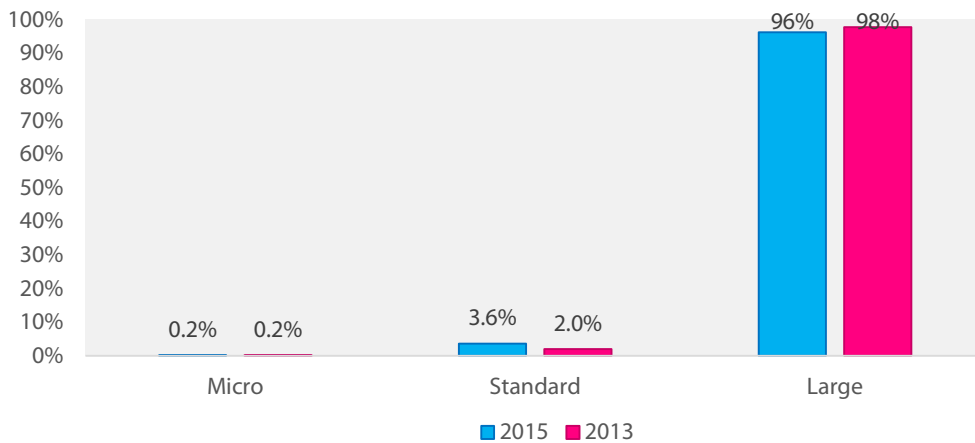
Source: ESAC Industry Survey 2015
N =43

The video game industry in Quebec accounted for an operating expenditure of \$1.14 billion in 2015 and generated direct employment of 10,850 FTEs, or roughly 53% of all direct employment. This employment figure compares to the 8,750 FTEs reported in 2013. As the following figure ([below](#)) illustrates, the majority of employment in Quebec’s video game industry occurs in large firms, though

there seems to have been a slight expansion of the standard-sized firm sector's share of employment since the 2013 study.

The average salary for full-time employees in the province was \$66,200 (up from \$65,500 in 2013) - significantly lower than the national average of \$73,300.

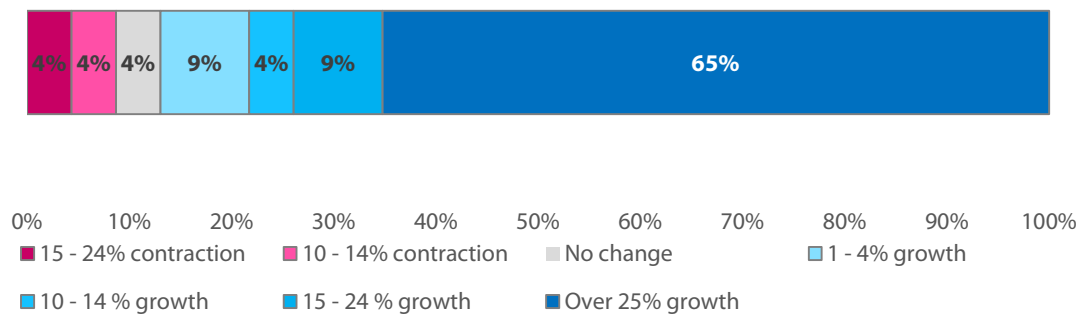
Figure 24 – Employment by size of company (Quebec, 2014 and 2012 compared)



Source: ESAC Industry Survey 2015
N = 43

Companies' outlook for growth over the coming two year period is slightly more optimistic than the national average; 65% of companies expect growth above 25%, compared with 59% nationally. However, the proportion of companies that expect any growth (rather than contraction) is about the same as the national picture – 87% in Quebec vs. 86% nationally, as shown [below](#).

Figure 25 – Growth forecast, 24 months (Quebec)



Source: ESAC Industry Survey 2015
N = 23

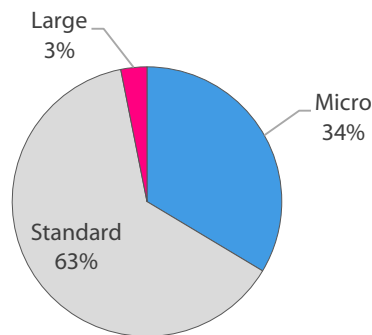
2.4.2 British Columbia’s Video Game Industry

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 (DS), the first in a long line of video game companies in BC. In 1991, EA acquired DS and rebranded it EA Canada (with Mattrick still at the head of the new company). This acquisition sparked a wave of spinoffs including Radical Entertainment, Relic Entertainment, and others¹⁵. 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. Based on the data from the 2015 industry survey, it appears that BC is well on its way to recovery – total employment and expenditures are up from what was reported in 2013, and BC has overtaken Ontario as the second-largest video game cluster, after Quebec (by total number of companies – BC already led Ontario in terms of employment and industry expenditures in 2013, and continues to do so in 2015).

Company Profile

As the following chart shows, BC has a smaller number of micro sized companies (34% vs. 39%), and large firms (3% vs. 5%). The majority of companies fall into the standard category, which accounts for a much larger share of total companies since 2013, when it accounted for only 44% of firms (now 63%).

Figure 26 – Company size (BC, universe)



Source: ESAC Industry Survey 2015
N = 33

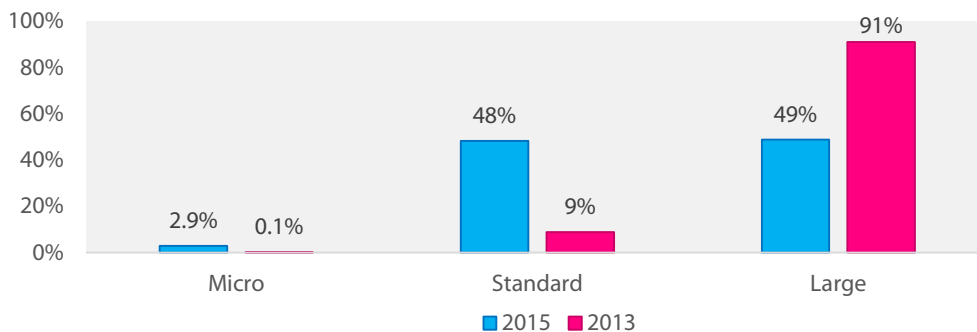
In terms of ownership, BC has a slightly higher proportion of foreign-owned companies than at the national level (21% vs. 15%), though this is still substantively down from 2013, where the proportion of foreign-owned companies reached 41%. The province also has more public corporations than the national average (18% vs. 8%), with this extra share coming at the expense of partnerships and sole proprietorships.

¹⁵ <http://www.cbc.ca/news/technology/the-evolution-of-video-games-in-canada-1.914304>

Companies in BC tend to be somewhat more established than at the national level—the average age of companies in BC is 7.4 years (up from 6.1, nationally). 45% of companies indicated they had been in operation longer than 7 years (compared with 35% nationally), though the average age of companies has dropped considerably since 2012, when it was 9.4 years. Only a single company indicated they were in the start-up phase (less than a year old), up from zero in 2013.

In 2015, the video game industry in BC was responsible for \$576 million in gross expenditure (up from \$568 million in 2013), resulting in direct employment of 5,500 FTEs, or 27% of the national total – up from 5,150 FTEs in 2013. BC had the highest reported average salary across the three provinces for which regional data was compiled—\$84,400 (up from \$80,100 in 2013) compared with the national figure of \$71,300. The substantive increase in the number of standard firms is reflected in the share of employment below; BC standard-sized firms account for approximately the same share of total employment as large ones, as shown in the chart below.

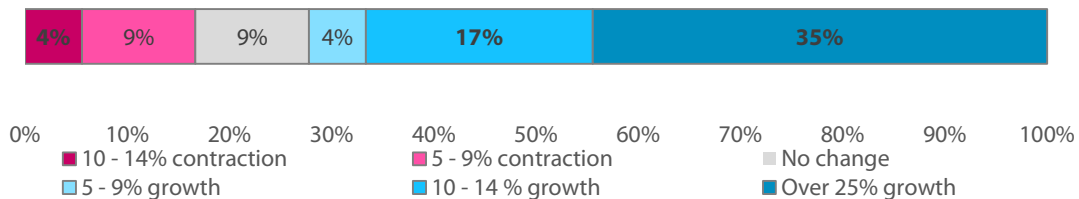
Figure 27 – Employment by size of company (BC)



Source: ESAC Industry Survey 2015
N = 33

British Columbia has a somewhat less optimistic view of growth over the coming two year period than the national average; 16% of surveyed firms expect some contraction over the next two years, vs. 8% nationally, and the proportion of those who expect more than 25% growth is significantly lower (44% vs. 59%). When compared with 2013, however, BC firms appear more optimistic than two years ago, when 30% of surveyed companies reported expected contraction of more than 25%.

Figure 28 – Growth Forecast, 24 months (BC)



Source: ESAC Industry Survey 2015
N = 18

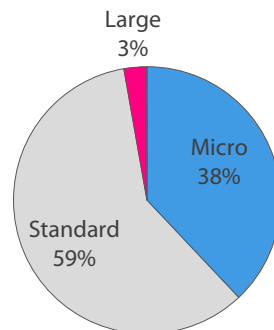
2.4.3 Ontario's Video Game Industry

Ontario's video game industry has traditionally been focussed on independent game developers and middleware providers, which is reflected in the composition of companies – there are very few large players operating in the province. In 2013 Ontario was the second-largest video game cluster in Canada (by number of firms), but in the intervening two years, it has slipped into third place behind BC. Nevertheless, it has experienced strong expenditure growth since 2013, likely owing to the innovative and dynamic nature of the industry in Ontario, and the presence of a strong tax credit.

Company Profile

The following chart gives the breakdown of respondent companies by size. The majority of video game companies in Ontario (59%) are standard sized firms, roughly in line with the national average (56%). The distribution of companies by size as a whole is quite close to the national average – Ontario appears to be a microcosm of the larger Canadian industry.

Figure 29 – Distribution of companies by size (Ontario, universe)



Source: ESAC Industry Survey 2015
N = 22

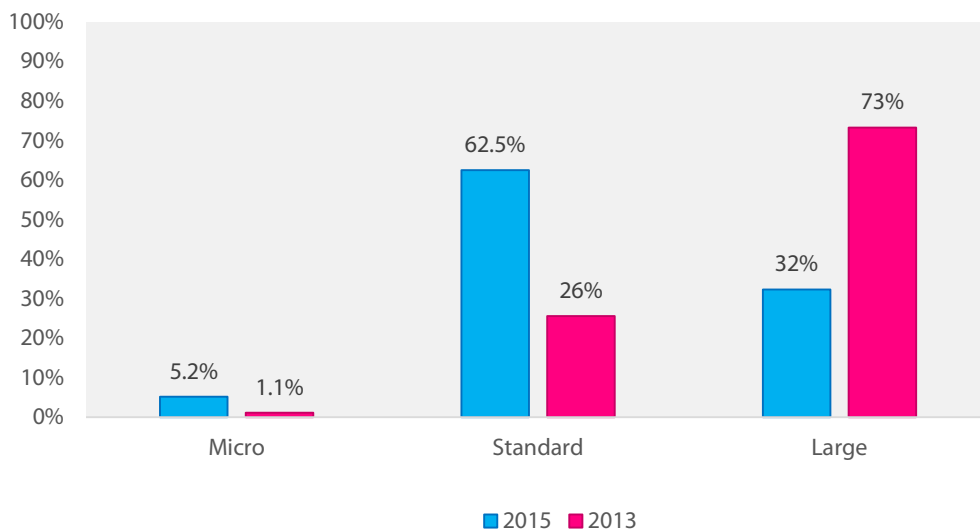
A slightly higher proportion (91%) of companies in Ontario are Canadian-owned, as compared to the national distribution (85%). Compared with 2013, Canadian ownership of Ontario companies remains high, having increased from 88% to 91% in 2015. In terms of company structure, Ontario has substantively more private corporations (91% vs. 76%) with the balance being public corporations. No partnerships or sole proprietorships were captured by the survey in 2015.

Companies in Ontario have been in operation for somewhat longer than is the case at the national level; the average age is up from 6.1 nationally to 6.8 for the Province; 59% of companies indicated they were between one and seven years old.

The video game industry in Ontario accounted for approximately \$265 million in gross expenditure in 2015 (up from \$134 million in 2013), resulting in direct employment of 2,500 full-time equivalents (FTEs), or 12% of the national total-- up from 1,850 in 2013. It should be noted that as there are fewer large-sized Ontario firms than the national average, – and that smaller firms tend to employ part-time and contract labour more than larger firms – there are likely more than 2,500 *individuals* employed by the video game industry in Ontario.

The average salary for full-time employees in Ontario was \$70,100 (down from \$76,400 in 2013), slightly lower than the national average of \$71,300. The largest proportion of employment in the province comes from standard firms (63%, see Figure 30 below). Smaller firms tend to have lower average salaries than large ones, which could explain why the average salary in Ontario is lower than the national average.

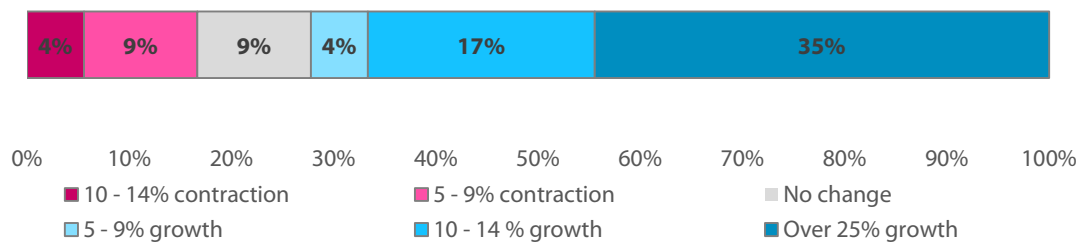
Figure 30 – Employment by size of company (Ontario)



Source: ESAC Industry Survey 2015
N = 22

Companies in Ontario are somewhat less optimistic than the national average – slightly less than half (44%) expect growth of more than 25% over the next two years, compared with almost 60% at the national level. The proportion of companies that expect some contraction is also higher; 17% of Ontario companies versus 8% nationally, as shown in the chart below.

Figure 31 – Growth Forecast, 24 months (Ontario)

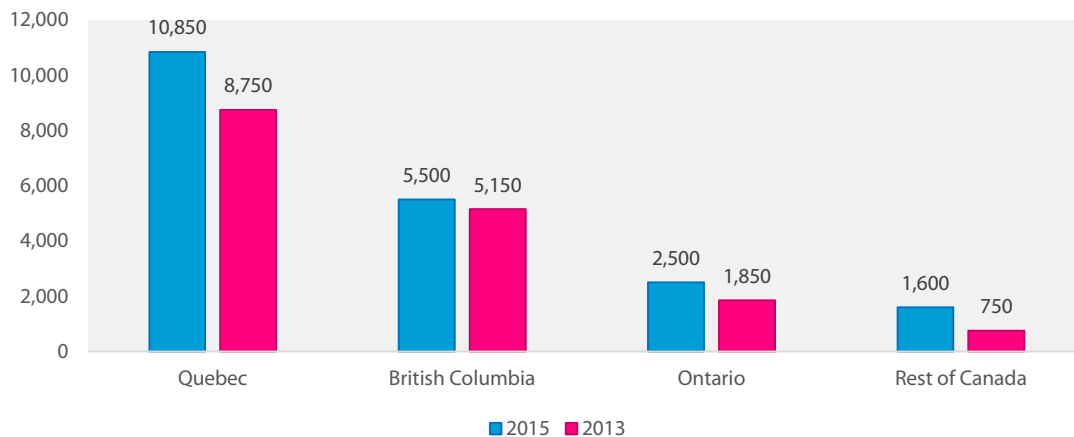


Source: ESAC Industry Survey 2015
N = 18

2.4.4 Provinces Compared

As the following Figure 32 shows, each major video game jurisdiction examined has seen their video game workforce grow since 2013.

Figure 32 – Employment (FTEs) by province



Source: ESAC Industry Survey 2015
N =68

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 (Table 8) shows, employment in Ontario is largely driven by standard companies, whereas large companies dominate the workforce in Quebec (and to a lesser extent in BC).

Table 8 – Employment, by province and size of firm

	Micro	Standard	Large
Ontario	5.2%	63%	32%
Quebec	0.2%	3.6%	96%
BC	2.1%	48%	49%

Source: ESAC Industry Survey 2015
N =22(ON), 33(BC), 43(QC)

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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 and how they are hired. The section also discusses current immigration policies in Canada and how they are affecting the development of the video game industry.

3.1 Worker Profile

This sub-section provides a demographic profile of the video game industry labour force in Canada, including the average age, gender and level of education of the typical video game industry worker in the four core job categories in the industry (i.e., Creative, Technical, Marketing and Communications, and Operations and Administration).

Education

The table below presents the average level of education attained by workers in the video game industry in each job category.

Table 9 – Level of education, by job type

	Creative	Technical	Marketing and Communications	Operations and Administration
High School (or equivalent)	2%	3%	5%	4%
Training from a Technical or Professional Institution	18%	2%	0%	0%
Some College or University	23%	16%	8%	20%
College Degree	23%	7%	18%	6%
Undergraduate University Degree	23%	51%	54%	46%
Graduate or Post-Graduate University Degree	11%	21%	15%	24%
All employees	100%	100%	100%	100%

Source: ESAC Industry Survey 2015
N = 39, 50, 61

As shown in Table 9 "undergraduate university degree" is the most commonly reported level of education attained for employees in the Technical, Marketing and Communications, and Operations and Administration job types. In addition, almost a quarter of companies reported that the average level of education for employees in the Operations and Administration job category was a graduate or post-graduate university degree. These results indicate that there is a greater number of jobs in this category that require higher education, which is then reflected in the high average salary for such positions (see Table 4 and Table 5).

For jobs in the Creative category, the most commonly reported average level of education attained by employees was split between "college degree," "undergraduate university degree," and "some college or university" (23% of responding companies selected each respectively). These figures likely

indicate that there are a greater variety of programs at both the college and university level that provide graduates with relevant skills for working on the creative side of the video game industry. By contrast, only 7% of firms reported that the average level of education for employees in the technical job category is a college degree, indicating that college-level programs are less relevant than university programs in terms of the technical skills required for working in the video game industry in technical job categories.

Age

The table [below](#) shows the average age of video game industry employees in the four core job categories (i.e., Creative, Technical, Marketing and Communications, and Operations and Administration).

Table 10 – Average age, by job category

Job Category	Average Age
Creative	30.6
Technical	32.0
Marketing and Communications	27.2
Operations and Administration	33.4

Source: ESAC Industry Survey 2015
N = 63

The video game industry workforce remains a relatively young one. According to the survey results, the average age of employees in the video game industry is 30.8 years, which is roughly the same as it was in 2013. By contrast, the average age of the Canadian workforce overall is 41 years.¹⁶ As such, the average video game worker is about 10 years younger than the average Canadian worker.

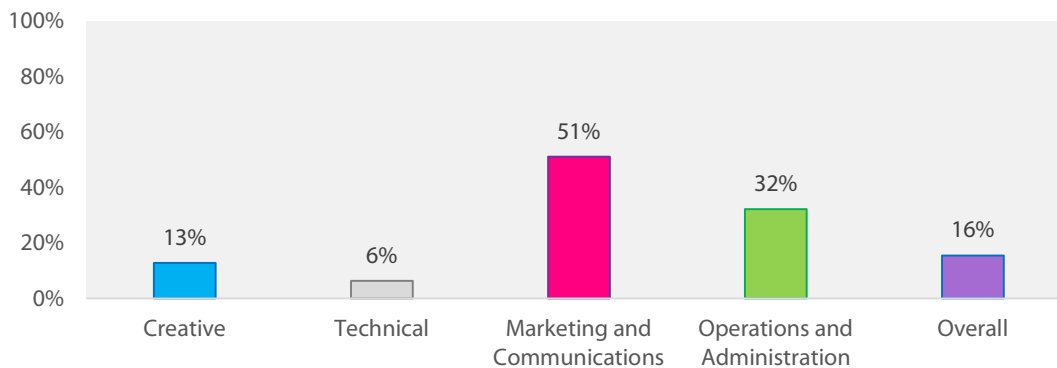
Gender

Gender diversity in the workforce is something that many video game businesses in Canada are consciously striving to improve. The low representation of women in the video game industry is a global phenomenon and concern.

Overall, women comprised on average 16% of the total video game workforce in Canada, which is unchanged from the representation in the 2013 report. The following figure (Figure 33) presents the representation of women as a percentage of the video game workforce, by job category.

¹⁶ Estimate based on calculations using data from Statistics Canada's Labour Force Survey, Cansim table # 282-0001 – Labour Force Survey estimates, by sex and detailed age group (June 2015).

Figure 33 – Women as a percentage of the video game workforce, by job category (2015)



Source: ESAC Industry Survey 2015
N = 51

As shown in the chart above, women are much more highly represented in jobs in the Marketing and Communications (51%), and operations and Administration (32%) job types. However, as indicated in [Section 1.2](#), these job types account for only 21% of total employment in the industry. That fact explains why, despite the relatively higher representation of women in those job categories, the overall representation of women remains low. By contrast, women only represent about 6% of the workforce in Technical positions. This observation aligns with the comments made by interviewees regarding the challenge of recruiting women in technical job categories. According to interviewees, the gender split among job applicants generally maps to employment levels, across all job categories. As such, the low representation of women, particularly in the technical and creative positions, is attributed to a low supply of applicants. According to interviewees, the supply issue results from two key phenomena.

First, there is a low supply of women with the adequate skills and training in the labour force as a result of low enrollment in disciplines related to video game development. As many of the interviewees indicated, the job types in the video game industry with the lowest representation of women and where female recruitment is most challenging are related to disciplines that have low female enrollment at the post-secondary level. For example, women represented roughly 56% of total enrollment in colleges and universities in Canada in the 2012/2013 academic year, but they only represent about 26% of enrolled students in mathematics, computer and information sciences programs (see Table 11).¹⁷ Indeed, the low supply of skilled women with training in technology-related disciplines is an HR challenge that reaches beyond the video game industry and affects all science and technology industries. Only 22% of Canadians working in Science, Technology, Engineering and Mathematics fields are women.¹⁸

¹⁷ Postsecondary Student Information System, Statistics Canada (2014)

¹⁸ [Gender inequality in the sciences? It's still very present in Canada](#), MacLean's, accessed September 2015.

Table 11 – Post-secondary student enrollment, by gender, instructional program and type of institution (2012/2013 academic year)

	College		University		All post-secondary	
	Male	Female	Male	Female	Male	Female
Mathematics, computer and information sciences	78%	21%	72%	28%	74%	26%
Total for all instructional programs	44%	54%	43%	57%	43%	56%

Source: Nordicity estimates based on data from Statistics Canada

That being said, post-secondary education institutions and science and technology industry leaders assert that the issue is rooted in a drop in interest, and participation, in maths and sciences among girls during the early years of high school.¹⁹ The key to solving the supply issue lies in encouraging young girls to explore opportunities and foster their interest in STEM disciplines starting in elementary school and ensuring they continue to receive that support throughout high school. A recent study by Mount St. Vincent University in Halifax found that girls who engaged in STEM activities such as specialized camps or workshops were more highly engaged in maths and sciences and more likely to consider STEM careers.²⁰

The other, though lesser, factor influencing the supply of women in the video game industry labour force is related to perceptions about the prevailing culture in the industry. Several companies that were interviewed explained that a major challenge in recruiting women to the industry is overcoming a lingering perception that the industry is male-dominated and male-oriented. Many interviewees explained that they struggle to overcome the perception that the video game industry is a “boys club” with a male-dominated culture.

Similarly, one interviewee indicated that there is perhaps a vicious cycle at play where the content being created in the industry, particularly in certain game genres, is largely being created by men. In turn, many women may not be interested in contributing to content that may not always present a very gender-balanced perspective. In the end, the cycle perpetuates itself as female representation in the workforce continues to be low, particularly in key content-creation job categories. This idea is interesting when juxtaposed with the fact that women now represent nearly 50% of gamers in Canada.²¹ Indeed, the industry seems hopeful that with a more gender-balanced audience for games, the workforce will also begin to reflect better gender representation.

Several interviewees also indicated that the industry’s reputation as one with poor work-life balance may deter working parents or those looking to start families. Given the current social norms that see

¹⁹ [Educators still trying to attract more women to technology, science fields](#), Globe and Mail, accessed September 2015.

²⁰ [Career Choices and Influencers in Science, Technology, Engineering and Math: An Analysis of the Maritime Provinces \(Executive Report\)](#), The WISEatlantic Research Group (2014).

²¹ [2014 Essential Facts about the Canadian Video Game Industry](#), ESAC.

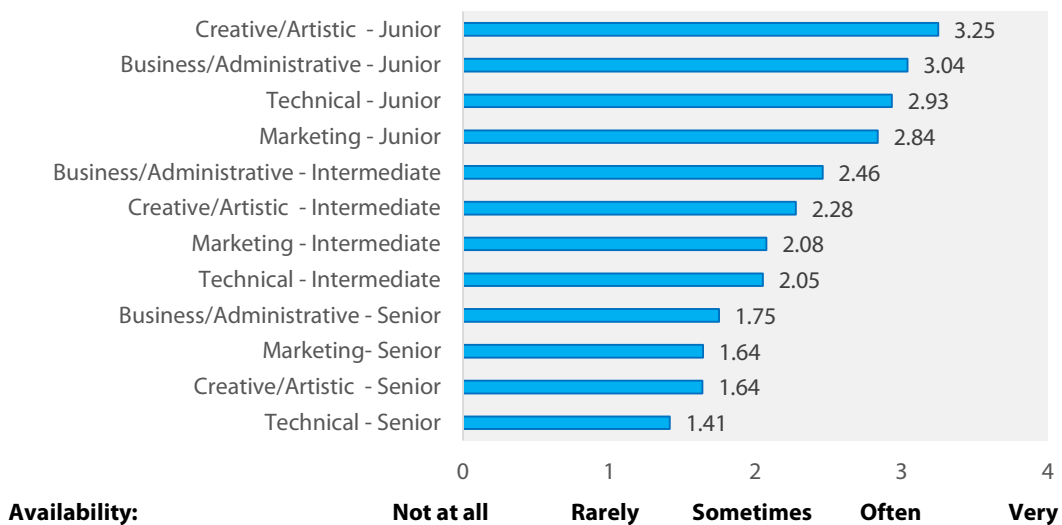
women more frequently taking on a greater share of household and family responsibilities, it could be that many women are less attracted to an industry that they perceive will not be accommodating to family life.

While the industry continues to struggle with gender diversity in the workforce, video game companies are actively making efforts to address the issue including advocating for increased participation in STEM disciplines for girls at local schools and working with post-secondary institutions to improve the gender diversity among students enrolled in STEM disciplines.

3.2 Talent and Skills

According to the industry survey, the most challenging talent to access from a recruitment perspective tends to be more senior, and therefore more experienced, talent. In addition, talent for technical job types appears to be among the least available for video game companies across all levels of seniority. The relative availability of various job types and levels of seniority are displayed in Figure 34.

Figure 34 – Talent availability, by job type and level of seniority (average score on a 5-point scale from Not at all Available [0] to Very Available [4])



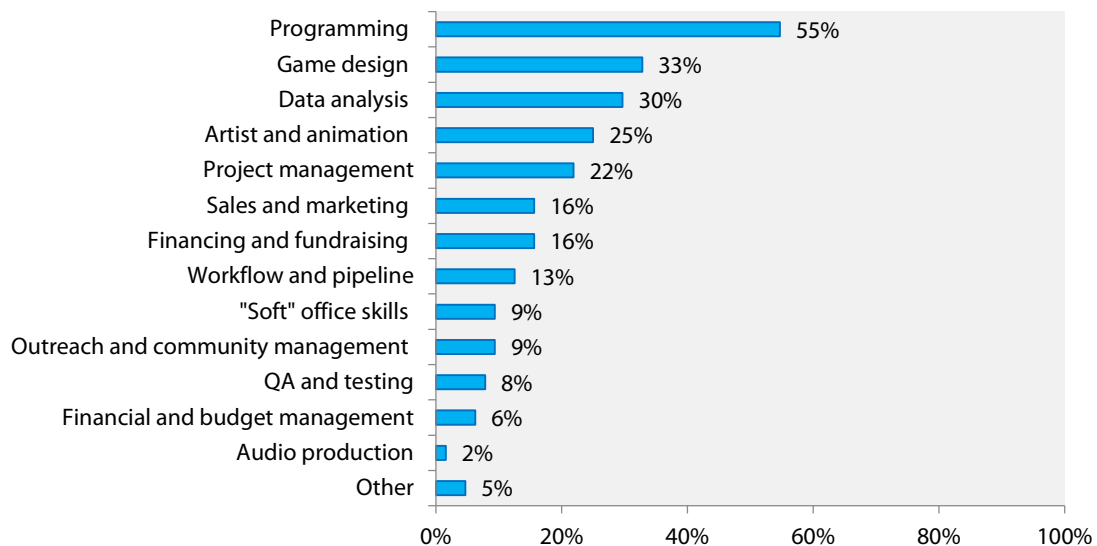
Source: ESAC Industry Survey 2015
N = 54

These results align with the comments received during interview consultations with key industry stakeholders. According to interviewees the most difficult talent to find, particularly here in Canada, is senior technical talent. In addition, because there is a general shortage of experienced talent in technical job categories, that segment of the video game industry labour market is especially competitive which poses an extra challenge for smaller firms that have trouble competing with the compensation packages offered by their competitors. Interviewees also indicated that video game companies need to compete for skilled technical talent, such as programmers, with other industries

(e.g., banking) who often offer more competitive compensation and benefit packages along with the perception of a more consistent work flow and better work/life balance.

Not surprisingly, the majority (55%) of Canadian video game companies indicated in the survey that programming skills are the most lacking in the *existing* Canadian talent pool, as shown in Figure 35

Figure 35 – Skills areas most lacking from the Canadian talent pool



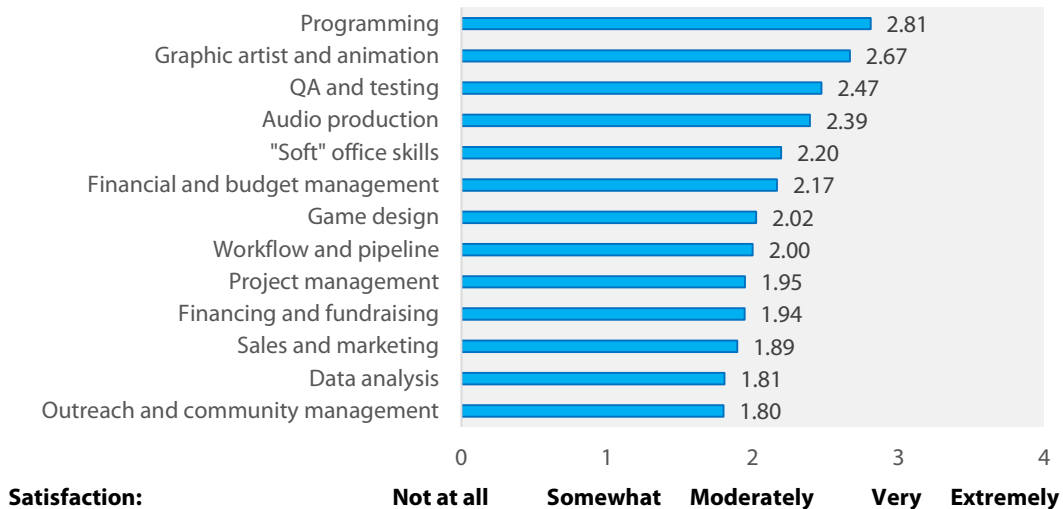
Source: ESAC Industry Survey 2015
N = 64

Game design and data analysis follow as the second and third most lacking skills areas. A third of respondent companies also indicated that graphic design was among the skills areas that were the most lacking in the domestic talent pool. In accordance with these results, survey respondents also ranked the expected top three most in-demand skills areas for the *next 3-5 years* which are:

1. Programming (selected by 124 companies as in the top three)
2. Game design (selected by 72 respondents)
3. Artist and animation skills (selected by 44 respondents)

Beyond supply and demand dynamics, another important measure of the availability of talent is companies' *satisfaction* with the skills of the available workforce. To that end, Figure 36 summarizes the average score assigned by respondent companies in the 2015 ESAC Industry Survey regarding their satisfaction with the skills of recent graduates.

Figure 36 – Satisfaction with skills of recent graduates, by skills area (average score on a 5-point scale from Not at all Satisfied [0] to Extremely Satisfied [4])



Source: ESAC Industry Survey 2015
N = 64

In general, companies indicate that they are reasonably satisfied with the skills of ‘Programming’ and ‘Graphic artist and animation’ recent graduates. On the other hand, video game companies tend to be less satisfied with the skills of graduates in areas such as ‘Data analysis’ and ‘Outreach & community management’.

These results could reflect the changes happening in the industry with regards to games as a service where ‘Data analysis’ and ‘Outreach and community management’ are becoming an ever more central part of the video game business model. Given that these skills areas are fairly new, particularly as they apply to the video game industry, new graduates may not be receiving training related to those skill sets. Indeed, one of the challenges raised in interviews is that the industry changes so rapidly that post-secondary institutions struggle to provide training that reflects current trends in the industry. As a result, students may graduate with skills that are already be out-of-date once they enter the job market.

3.3 Hiring

The following section discusses the current and future hiring practices of Canadian video game companies, including the split between local and international recruitment and projected future employment growth.

Foreign and Domestic recruitment

In line with the overall employment growth illustrated in [Section 1.2](#), 78% of respondents engaged in some new hires in 2015. While the vast majority of recruitment at Canadian video game companies occurs locally or domestically, (about 72% of total new hires were recruited in Canada) the industry does rely on foreign recruitment to meet its human resource needs, as illustrated by Table 12.

Table 12 -- Percent of current staff by hiring jurisdiction

	Creative	Technical	Marketing	Business/Admin
Canada	80%	83%	71%	80%
USA	11%	7%	13%	8%
UK	8%	1%	0%	1%
Western Europe	6%	9%	12%	3%
Eastern Europe	0%	0%	0%	1%
India	1%	1%	3%	0%
China	0%	0%	0%	0%
Rest of Asia	1%	2%	3%	1%
South America	3%	3%	0%	0%
Other	2%	1%	0%	3%

Source: ESAC Industry Survey 2015
N =59

As one interviewee explained it, the Canadian industry is still relatively young and lacks the maturity of other jurisdictions, meaning that the local talent pool sometimes lacks the depth of experience and expertise required to stay competitive in a global industry.²² Indeed, as shown in Table 12 Canadian video game companies hired a significant portion of their current workforce from other jurisdictions, particularly the US, UK and Western Europe. Similarly, survey results indicated that 9% of new hires in reported in 2015 originated from outside of Canada, as shown in Table 13 below.

Table 13 – Total new hires in 2014 (all employment categories)

	Number of hires	% of new hires
Hired locally	1790	72%
Hired from other parts of Canada	481	19%
Hired from outside of Canada	230	9%
All hires	2501	100%

Source: ESAC Industry Survey 2015
N =43

²² ESAC Industry Study interviews, conducted by Nordicity spring 2015.

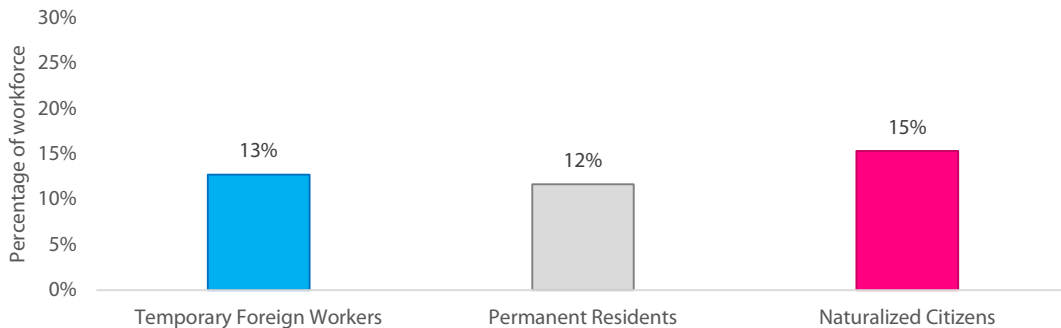
International recruitment appears to be highest for Creative and Technical job types (see Table 12), which aligns with what interviewees reported. Consultations with key stakeholders in the industry confirmed that sourcing local, experienced, senior talent poses a significant challenge (as discussed in [Section 3.2](#) above). Therefore, international recruitment is primarily targeted at more senior roles, especially on the creative and technical side of the industry (e.g., art directors, senior/experienced programmers).

In addition, high-quality talent with specialized technical skills (e.g., motion design, specialized mobile technology skills, game economy designers) or a specialized mix of technical and artistic skills (e.g., user interface artists) are hardest to find in Canada simply because they are often rare skillsets, for which there is a great deal of global competition. There is also a lack of experienced talent in the Canadian labour pool that would have the required experience and expertise to meet specialized technical demands.

Temporary Foreign Workers in the workforce

Given the industry’s demand for foreign talent, companies rely heavily on programs such as the Temporary Foreign Worker (TFW) program to help them access and recruit the foreign talent they require to be successful. Many of those TFWs go on to become permanent residents and Canadian citizens. The chart below provides a snapshot of the current video game industry workforce by immigration status (i.e., TFW, permanent resident, or naturalized Canadian citizen). As the chart indicates, 13% of the total current video game industry workforce are TFWs.

Figure 37 -- Percentage of total current workforce by citizenship/immigration status



Source: ESAC Industry Survey 2015
N=46

As previously mentioned many TFWs go on to become permanent residents or naturalized Canadian Citizens. As shown in Table 14, over one third (34%) of TFW hires in the video game industry go on to

become permanent residents and approximately 8% eventually receive Canadian Citizenship²³ (based on averages from data collected regarding the status of TFW hires recruited over the last 5 years).

Table 14 – Number of temporary foreign workers (TFWs) who immigrate (averaged over five years)

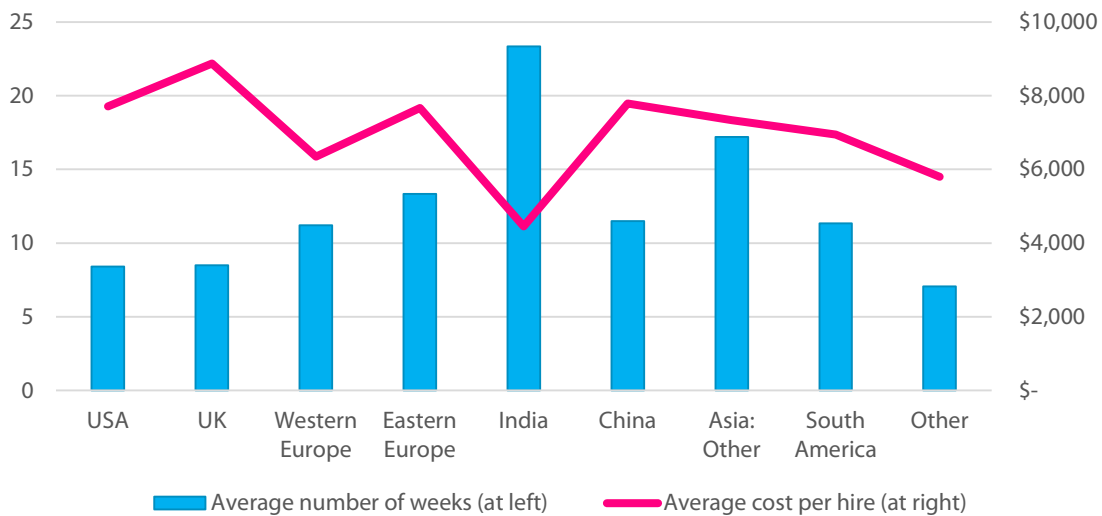
# of TFWs	# TFWs → Permanent Residents	%	#TFWs → Naturalized Citizens	%
2249	775	34%	178	8%

Source: ESAC Industry Survey 2015
N = 46

Hiring foreign workers

As shown in the chart below, foreign hires (whether as TFWs or on a more permanent basis) from the UK and US are among the fastest but most expensive to process.

Figure 38 – Average length of hiring process versus cost, by jurisdiction of hire (includes TFWs)



Source: ESAC Industry Survey 2015
N = 26

Stakeholder consultations revealed that the TFW application process can be extremely challenging, and seems to be increasingly so. On the one hand, it was reported that the length of the process seems to have increased significantly in recent years, likely due to an overall increase in demand for TFWs in Canada. For the video game industry, delays can be a significant issue because longer than expected processing times could mean that the hiring process will not align with planned project life

²³ It should be noted that the actual proportion of TFWs that go on to become Canadian Citizens may actually be slightly higher than this. Because the data used to arrive at this estimate was collected for the last 5 years only and the naturalization process can take several years, there may be some TFWs hired in the last five years who will go on to become citizens but have not yet been naturalized.

cycles and development plans. In turn, significant project delays can have implications for the overall success of a business in a project driven industry. Not to mention the additional administrative costs associated with monitoring and navigating processing delays for evaluating Labour Market Impact Assessments (LMIA) and issuing work permits, or (on rare occasions) approving LMIA exemptions.

At the same time, some companies reported that the LMIA requirements have undergone several changes over the last few years without adequate communication to companies, meaning that they have experienced higher rates of rejection in recent years. Interviewees also observed that they experienced inconsistency in the interpretation of LMIA requirements among different permit issuing officers. Companies also reported that they are finding it more difficult to get a LMIA exemption than previously. The increase in denied work permits also creates a significant cost burden for video game companies who find themselves having to undergo the entire recruitment process over again every time a permit is denied.

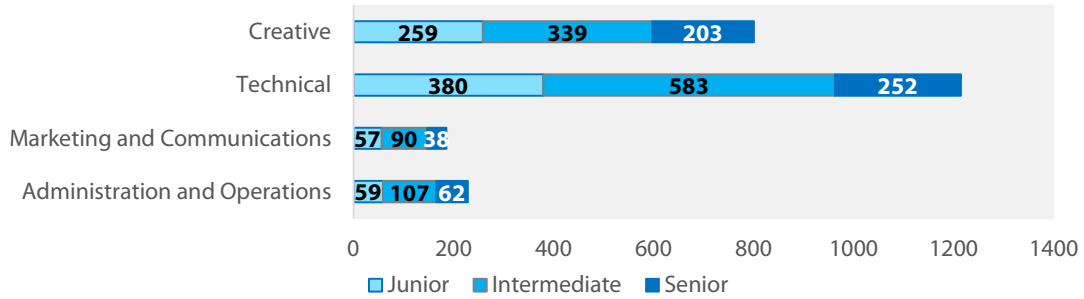
Stakeholders also pointed to some systemic challenges in the LMIA requirements that make it particularly difficult for video game companies to have their TFW hires approved or exempted, including:

- **The use of National Occupational Classification (NOC) codes for the LMIA.** NOC codes are out of date (they have not been updated since 2011) and too broad to provide an accurate evaluation of the labour market for the video game industry. They do not account for the highly specific and specialized skills required by the industry. Many of the skills related to other industries that would be captured under the same NOC code as jobs in the video game industry are not transferable to video games. In addition, since video game companies typically rely on TFW hires for more senior positions, they are looking for individuals with several years of experience in the games industry specifically. Experienced workers from other industries would not have the industry-specific experience that is required to take on a more senior role in the video game industry.
- **The ‘prevailing wage’ requirement.** Because the prevailing wage is calculated based on NOC codes and job titles, it can mean that companies are forced to pay salaries that are slightly higher than the average for the industry, based on wages being paid in other industries under the same NOC codes. In addition, sometimes it forces companies to pay the same salary to a TFW with fewer years of experience who is being hired based on specialized skills than a local hire with more experience who falls under the same general job category. As a result, average salaries might be driven up across the industry, which can have implications for talent retention, competitiveness and profitability.

Future demand for talent

Based on results from the industry survey, the industry is set to continue to grow from an employment perspective. Indeed, as shown in the chart [below](#), video game companies predict that demand for talent will increase across all job categories and levels of seniority over the next 12-24 months. In particular, the industry predicts that it will need to hire about 835 individuals in technical jobs at the intermediate and senior level, as well as roughly 540 employees for intermediate and senior creative positions.

Figure 39 – 12-24 month projected future hires, by employment category, by level of seniority



Source: ESAC Industry Survey 2015
N = 49

4. Economic Impact of Canada’s Video Game Industry

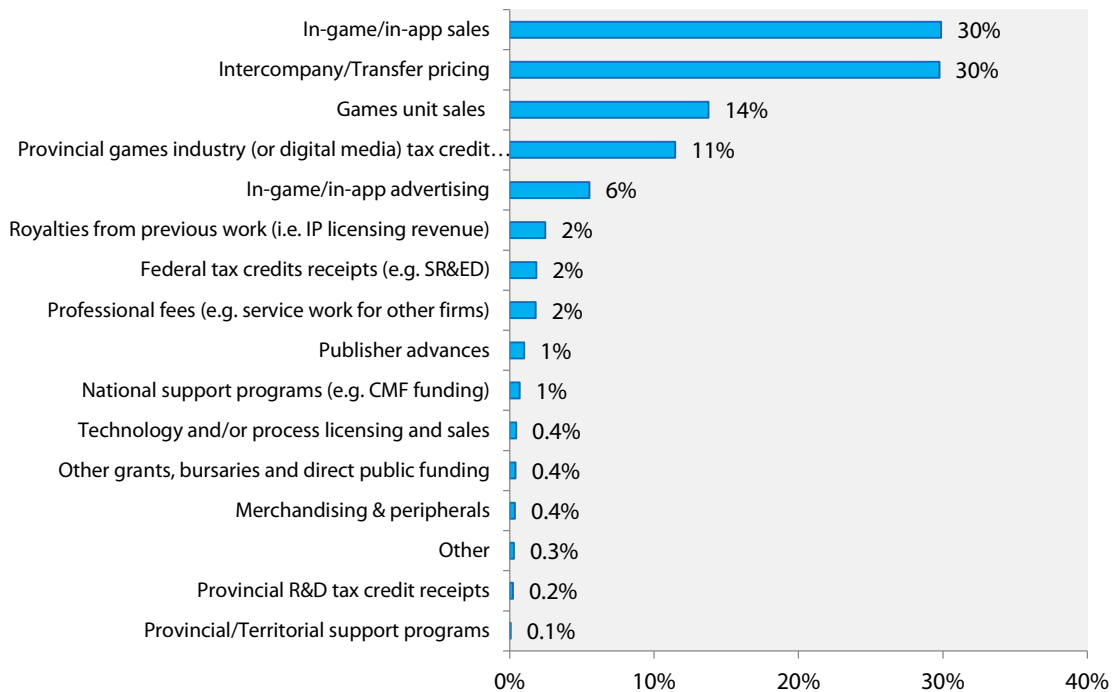
The following section outlines the additional impacts that the video game industry has on the Canadian economy, including short-term impacts on labour income and gross domestic product (GDP), and longer-term impacts.

4.1 Revenue Characteristics

The survey is designed to collect data from individual video game firms. However, because many video game firms operating in Canada are actually business units of larger firms (e.g., BioWare is owned by Electronic Arts, Beenox is owned by Activision) it can be challenging for them to report on their revenues as separate business units. As a result, only a subset of survey respondents were able to provide revenue information and so be included in the analysis thereof. Consequently, **the revenue characteristics described in this section largely describe the experiences of smaller, independent firms in the Canadian video game industry.**

According to the results of the 2015 Industry Survey, in-game sales and intercompany/transfer pricing accounted for the greatest share of video game companies’ total reported revenue in 2015, representing an average of 30% of revenue respectively (see Figure 40). Games unit sales and provincial tax credits were also significant revenue sources in 2015.

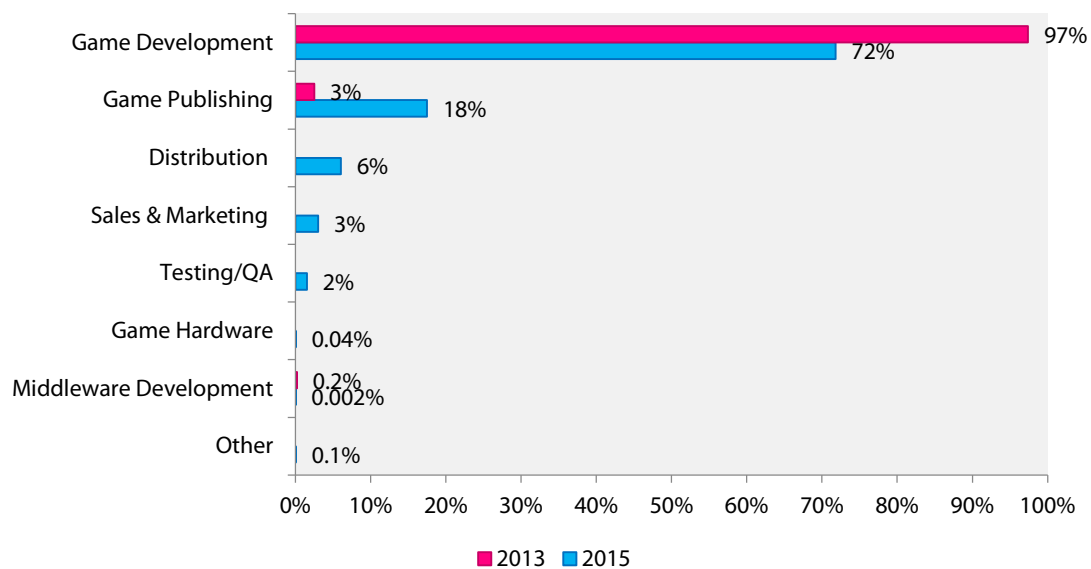
Figure 40 – Total revenue by source



Source: ESAC Industry Survey 2015
N = 58

As shown in the chart below, game development remains the primary source of revenue (when looked at by line of business), representing 72% of sales revenue earned by Canadian video game companies in 2015. That being said, it represents a significantly smaller share of sales revenue than in 2013 when it accounted for almost all sales (97%). Game publishing appears to be making up the difference, accounting for 18% of revenue in 2015, compared to just 3% in 2013.

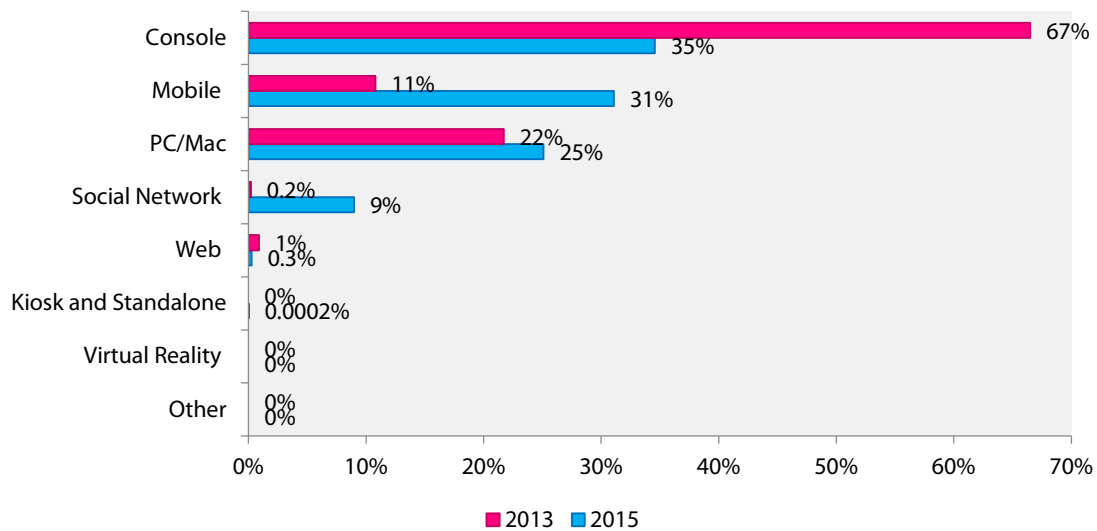
Figure 41 – Video game sales revenue by line of business, 2013 and 2015 compared



Source: ESAC Industry Survey 2015
N = 51

The following charts present a breakdown of revenue by platform and genre. As shown in Figure 42, console games accounted for a significantly smaller share of reported revenue in 2015 than was reported in 2013.

Figure 42 – Video game sales revenue by platform, 2013 and 2015 compared

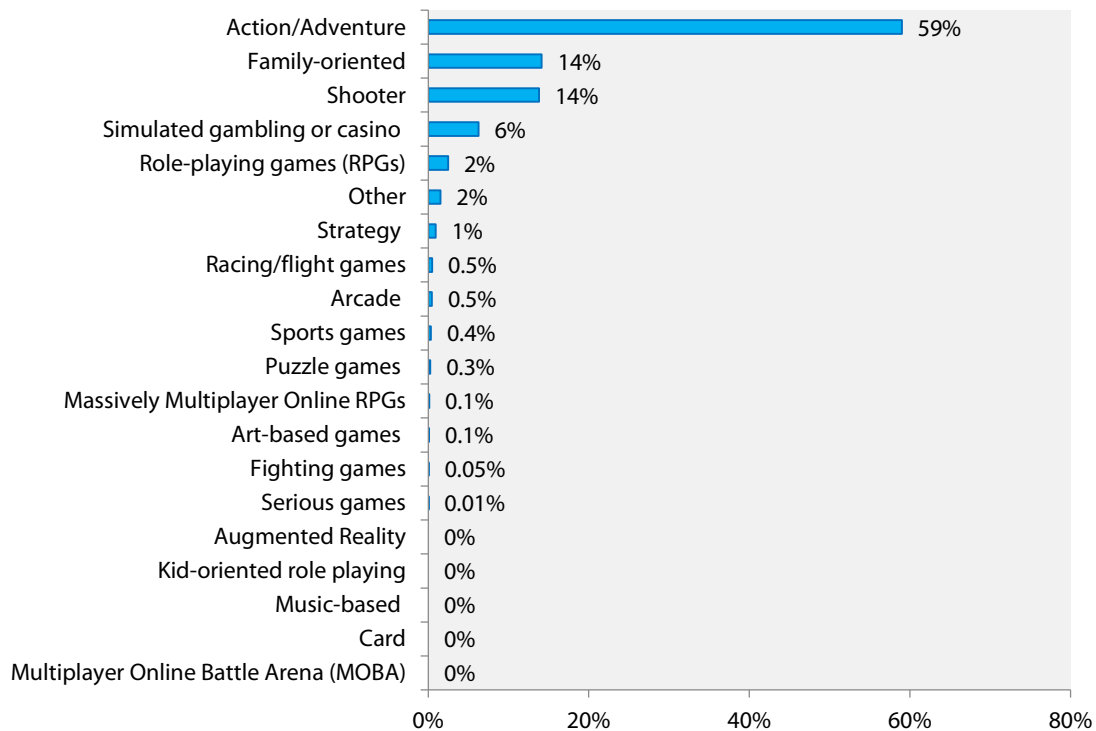


Source: ESAC Industry Survey 2015
N = 51

Indeed, in the 2015 Industry Survey, Canadian video game firms reported that consoles accounted for 35% of revenue, compared to 67% as reported in 2013. On the other hand companies reported in the 2015 industry survey that mobile games accounted for 31% of their revenue. This figure represents an increase of 20 percentage points over what Canadian video game firms indicated in 2013, reporting that mobile games accounted for only 11% of their revenue, on average.

As could be predicted given that they represent the largest share of projects completed in 2015 (see Figure 20), action and adventure games also accounted for the greatest share (59%) of video game revenue in 2015, as illustrated [below](#).

Figure 43 - Video game revenue by genre



Source: ESAC Industry Survey 2015
N = 51

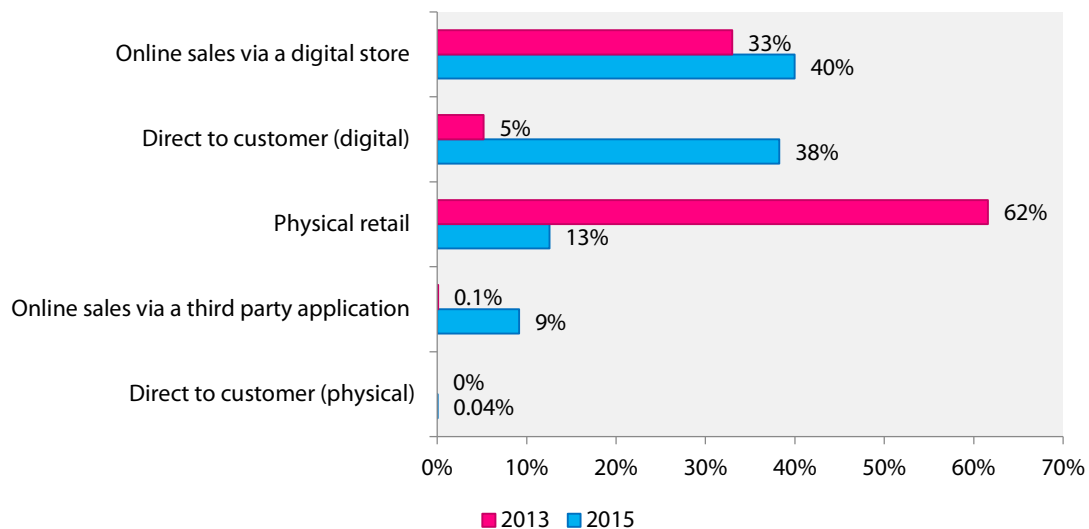
That being said, the vast majority of reported video game revenue appears to come from three game genres - Action/Adventure, Family-oriented and Shooter games (87% in total) - whereas the breakdown of projects completed in 2015 is much more evenly distributed across a wider variety of game genres (as discussed in [Section 2.3.1](#)). In particular, Shooter games only accounted for 5% of all completed projects in 2015 but they accounted for 14% of reported revenue for the same year. This discrepancy could indicate that Action/Adventure, Family-Oriented and Shooter games yield significantly greater revenue per game than other genres.²⁴

When reported revenues are examined by sales channel, the most significant change from two years ago is that digital sales have become the primary sales channel for video game companies. In 2013, companies reported that 38% of their total revenue was attributable to digital sales whereas 62% came from physical sales. The 2015 Industry Survey results indicate that physical sales accounted for

²⁴ Given that reported revenues come from a limited sample of firms, the analytical comparison between the breakdown of completed projects and reported revenue by genre should be read bearing in mind that the two sets of data may not necessarily be perfectly comparable. As such, this comparison should be taken purely as speculation and not read as a factual conclusion.

only about 13% of reported revenue and digital sales—whether direct to customer or via an online digital retailer—accounted for 78% of reported revenue, as shown in the figure below. These results are unsurprising given the broad digitization of content across the screen-based industries in recent years. The shift to digital sales is also likely linked to the increased role of games as a service, which leverages digital sales channels to provide enriched and updated content which users can often purchase “in-game”. Indeed, as previously discussed, in-game purchases represent one of the primary sources of total reported revenue for 2015 (refer to Figure 40 above). In addition, the growth of mobile development, as evidenced by the reported increase in the number of mobile projects completed between 2013 and 2015 (as discussed in [Section 2.3.1](#)) is also likely contributing to the increase in the share of reported revenue attributed to digital sales.

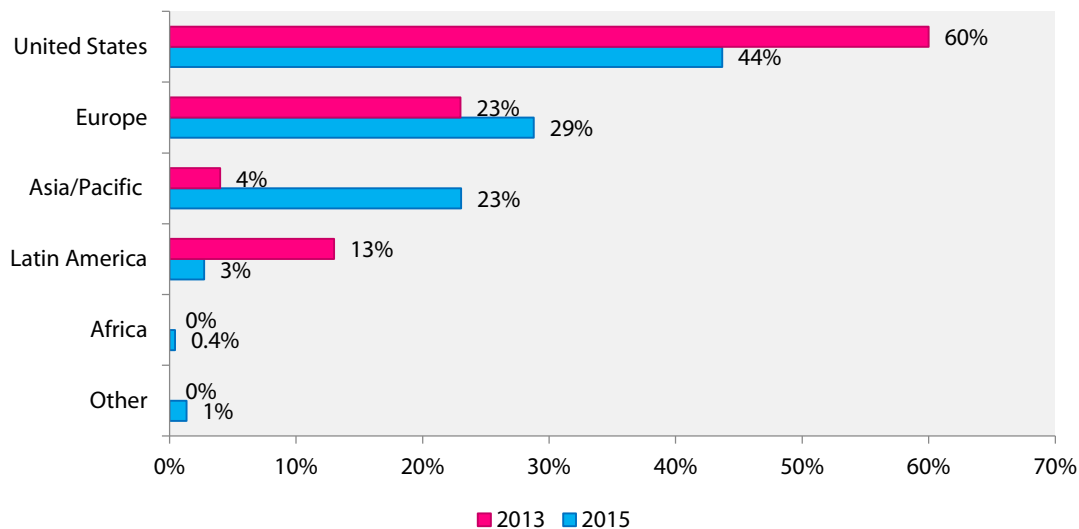
Figure 44 – Video game revenue by sales channel, 2015



Source: ESAC Industry Survey 2015
N = 51

In 2015, video game companies earned approximately 90% of their total reported revenue from export sales. The following chart (Figure 45) illustrates which jurisdictions yielded the most revenue from exports.

Figure 45 – Export sales revenue by jurisdiction, 2013 and 2015 compared



Source: ESAC Industry Survey 2015
N = 40

The United States is still the jurisdiction with the highest yield, representing an average of about 44% of all export sales revenue in 2015, though it represents a significantly smaller share of export sales than in 2013 when the US accounted for 60% of all export revenue. On the other hand, the Asia/Pacific market for games produced in Canada has grown markedly for Canadian companies, jumping up to account for an average of 23% of export sales in 2015, compared to 4% in 2013.

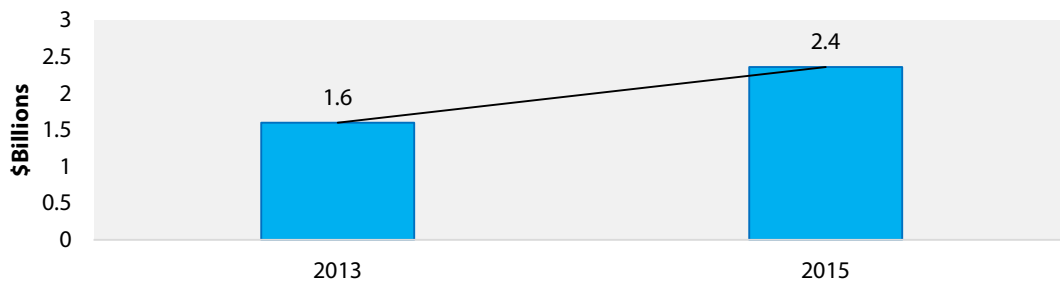
While these figures are unlikely to indicate a decrease in the amount of revenue being derived from the US market, they do likely indicate that sales in the US have not grown significantly. At the same time, sales of Canadian-made video games in the Asia/Pacific market have increased significantly over the last two years. As a result, the breakdown and distribution of total reported export sales has changed. This shift aligns with global trends which indicate that China, in particular, represents an ever-growing market for video games, rapidly catching up to share the title of the largest video game market with the US in 2015.²⁵

²⁵ Newzoo (2015), "Global Report: US and China Take Half of \$113Bn Games Market in 2018", May 18, 2015, <http://www.newzoo.com/insights/us-and-china-take-half-of-113bn-games-market-in-2018/>

4.2 Expenditures

Given that the video game industry in Canada is composed of several integrated studios (which cannot account for their revenue as a separate business unit), company expenditure is the most reliable indicator of the size of the video game industry in Canada. The Canadian video game industry spent approximately \$2.4 billion in 2015, an increase of almost 50% over the figure reported in 2013, as shown [below](#).

Figure 46 – Canadian video game industry expenditures (2013-2015)

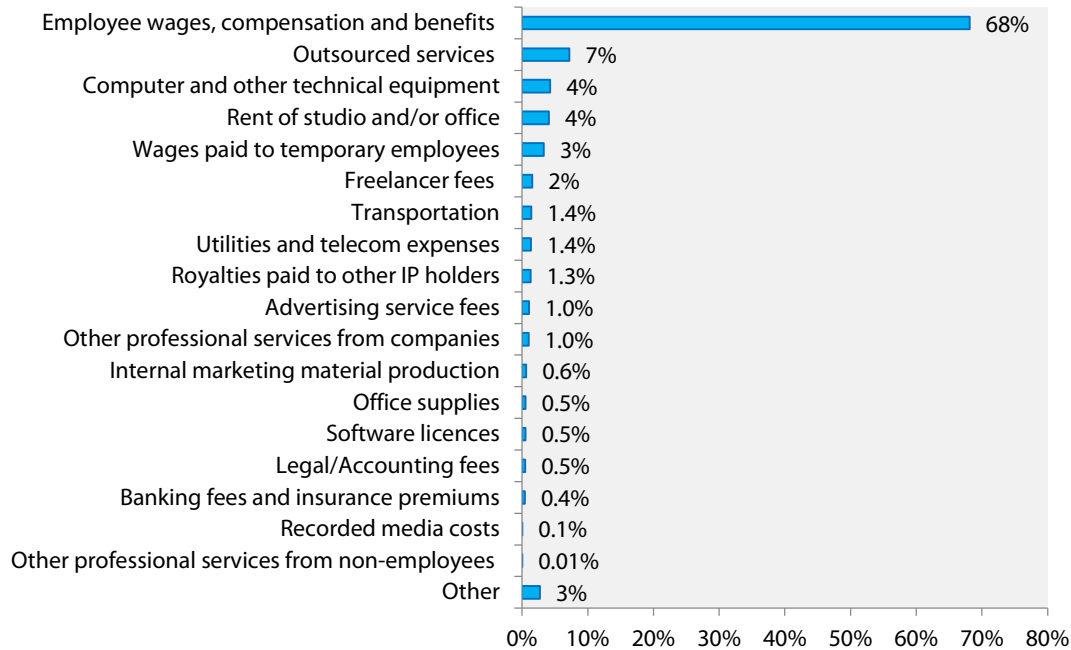


Source: ESAC Industry Survey 2013, 2015
N = 95

Labour makes up the vast majority of company expenditures for video game companies in Canada. For example, as the figure [below](#) illustrates, fees, wages, compensation and benefits paid to permanent, temporary and freelance labour accounted for roughly 74% of all spending on average by Canadian video game companies in 2015.²⁶ Canadian video game firms also spent significantly on “outsourced services”, which accounted for 7% of total spending on average. Companies appear to be spending slightly more on the purchase of computer and other technical equipment in 2015 than was reported in 2013. In 2013, companies reported an average of 2.6% of their expenditures were attributed to technical and computer equipment whereas in 2015 that has increased to 4%.

²⁶ In the 2015 Industry Survey, the expenditure categories were slightly adjusted to better reflect how video game companies report on their expenditures. In 2013, companies were asked to report spending on “core employee wages, compensation and benefits (permanent staff only)” and “contract wages and freelancer fees (paid to individuals)”. In 2015, those categories were further refined so that companies were asked to report spending on wages, compensation and/or benefits for permanent, temporary and freelance workers separately.

Figure 47 – Video game expenditure by cost category (2015)



Source: ESAC Industry Survey 2015
N = 95

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 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 a total of just under **\$1.6 billion in direct labour income in 2015**. With the indirect and induced employment generated by the industry the video game industry generated just over **\$2.3 billion in total labour income for Canadian residents** in the same year.

This total labour income represents a 34% increase over 2013, meaning that Canada’s video game industry has put more than one third more money into the pockets of Canadians than in 2013, as shown in the table [below](#).

Table 15 – Labour income, 2013 to 2015 (\$M)

	Video game industry*	Indirect impact	Induced impact	Total impact
Labour income 2014	\$1,568	\$316	\$423	\$2,307
Labour income 2012	\$1,199	\$249	\$272	\$1,720
% change	30%	27%	56%	34%

Source: Nordicity estimates based on ESAC Industry Survey 2015 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).

Based on data provided by video game companies in Canada through the Industry Survey 2015 (below), Nordicity estimates that the video game industry's direct contribution to GDP in Canada in 2015 was just under **\$1.6 billion**. The industry also generated roughly \$550 million in indirect-impact GDP and \$897.5 million in induced-impact GDP. The total GDP generated by the video game industry in 2015, including direct, indirect and induced impacts, was just over **\$3.0 billion**.

This GDP impact represents a **31% increase** from the total impact on the Canadian economy in 2013. For context, the Canadian economy (as a whole) grew by approximately 8% over the same period.²⁷ In other words, the impact that the video game industry has grown almost four times faster than the wider economy.

Table 16 – GDP impact, 2013 to 2015 (\$M)

	Video game industry*	Indirect impact	Induced impact	Total impact
GDP 2015	\$1,567	\$550	\$898	\$3,015
GDP 2013	\$1,381	\$429	\$495	\$2,305
% change	13%	29%	81%	31%

Source: Nordicity estimates based on ESAC Industry Survey 2015 and Statistics Canada input-output tables

*Direct impact

²⁷ Measured as change in expenditure-based GDP, per: Statistics Canada, CANSIM, table 380-0064.

4.5 Other Impacts

Thus far, we have examined the contribution that the video game industry made to the Canadian economy in 2015. 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 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 of age (Figure 12); approximately 39% are micro-sized, with fewer than five employees (Figure 7). 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 can also generate a host of economic spillovers that benefit other sectors of the economy, such as education, health or the general digital media sector. These spillover benefits are in addition to the economic benefits generated through the wages and GDP realized within the industry itself and by its suppliers.

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 games can benefit other sectors of the Canadian economy. For example, the innovative processes used to develop video games 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 spillovers, (ii) network spillovers, and (iii) knowledge spillovers.²⁸

Market spillovers include the benefits accrued to consumers and other downstream users of innovative products and services following the commercialization of those products and services.²⁹ Network spillovers occur when the economic benefits of specific communications platforms are captured by firms other than the developer of the platform.³⁰ 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 spillovers, however, are probably the most relevant channel through which the video game industry can affect other sectors of the Canadian economy. Knowledge spillovers 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 release and reverse engineering). However, for the video game industry, perhaps the primary route for spillover effects is through the movement of human capital.

Video game companies can impose legal and non-legal restrictions on their IP (i.e. they can protect and license their video game IP); 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 or sector to sector, this knowledge can spillover.

Knowledge spillovers 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 spillovers 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.

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²⁸ 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.

²⁹ Jaffe, 1996.

³⁰ Jaffe, 1996.

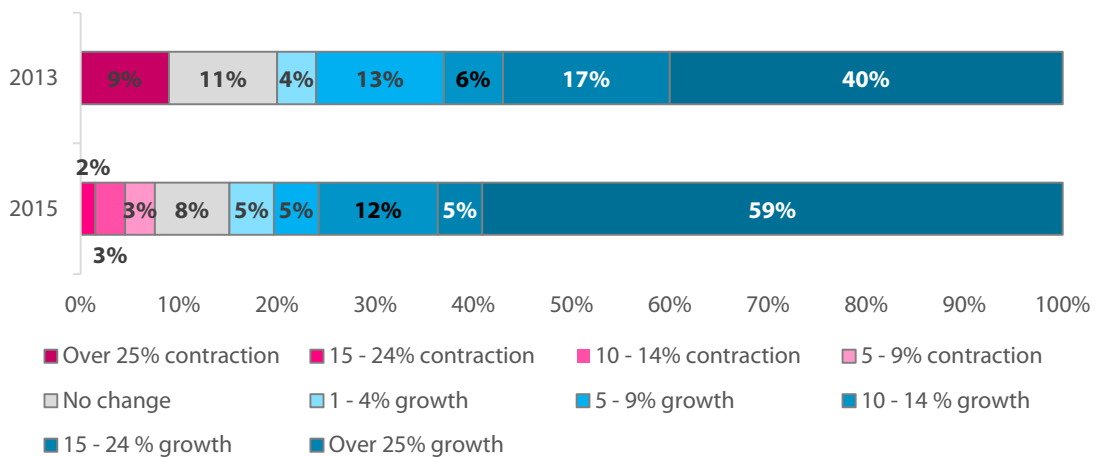
5. The Future of Canada’s Video Game Industry

This final section outlines video game companies’ views on the future of the video game industry in Canada.

Given the growth shown in the preceding sections, it should not be surprising that Canada’s video game companies have positive outlooks. As illustrated in Figure 48, a clear majority (59%) of respondents indicated that they expected revenue growth to exceed 25% in the next 12-24 months, with 86% of respondents expecting some growth over that period. This result is significantly more positive than observed in 2013 where only 40% of firms expected revenue growth to exceed 25%.

Moreover, only 8% of respondents indicated that they expected a contraction. This result is perhaps best understood as a gauge of industry confidence (rather than a prediction of actual revenue growth); most responding firms are quite confident. This result is not very different than in 2013, but the contraction is expected to be less severe.

Figure 48 – 12-24 month projected revenue growth (% of respondent companies)



Source: ESAC Industry Survey 2015
N =66

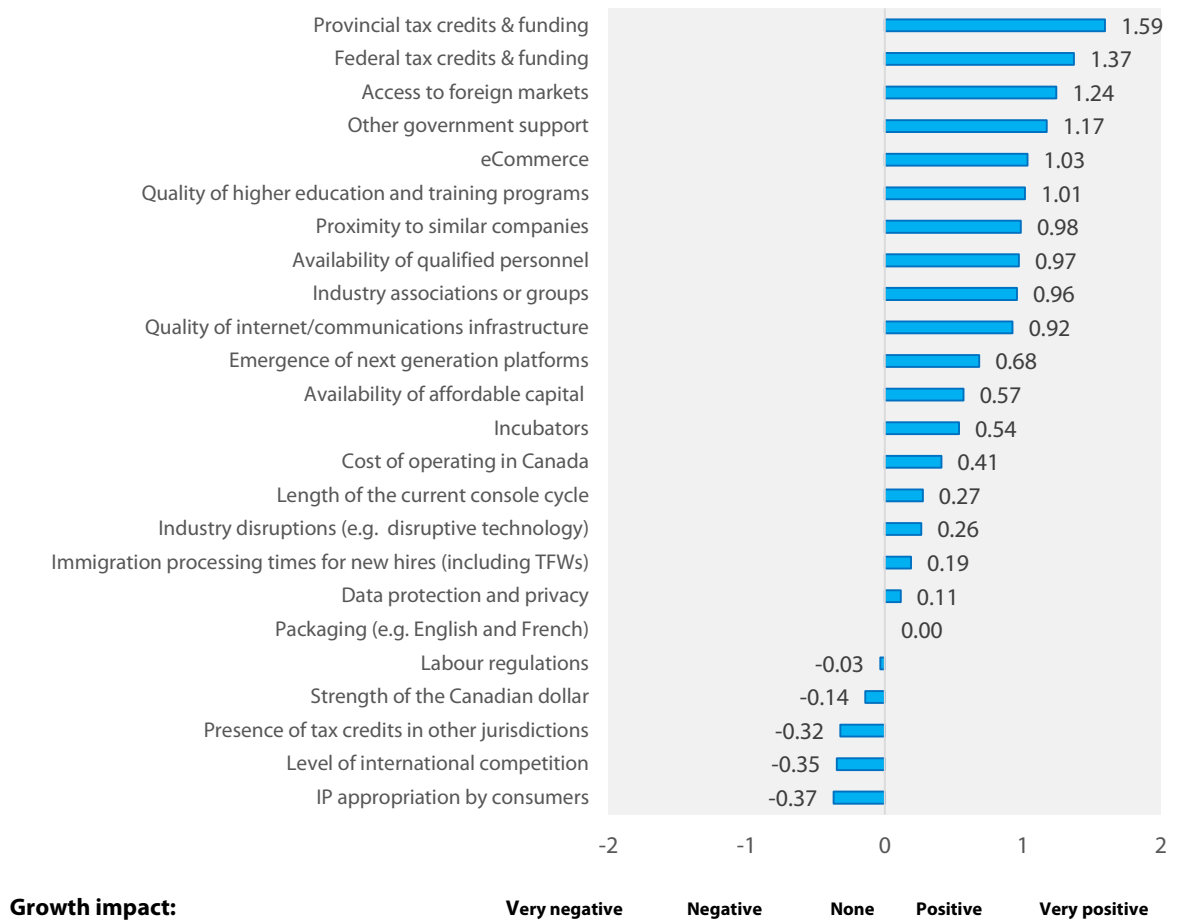
In some ways, this level of expected revenue growth is likely driven by the potential of new and evolving platforms (e.g., augmented and visual reality) and business models (e.g., Games as a Service). In another respect, it underlines the perceived potential of the core video game industry on a global scale. For instance, the revenue potential of Canadian-made video games increases significantly as console markets open in places like China.³¹

That said, the expected growth will not be without its challenges. Figure 49 presents the perceived factors affecting the growth of video game companies operating in Canada. It should be noted that

³¹ As explained in: <http://www.china-briefing.com/news/2015/08/13/14-years-later-china-fully-lifts-video-game-console-ban.html> (among others).

the average scores presented below were not weighted by size of company. As such, certain issues that might be top priorities for larger companies such as access to talent and foreign recruitment (i.e., immigration processing times) are not necessarily reflected as top priority issues for given that there are far fewer large companies who would have responded to the question.

Figure 49 – 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 2015

N = 48

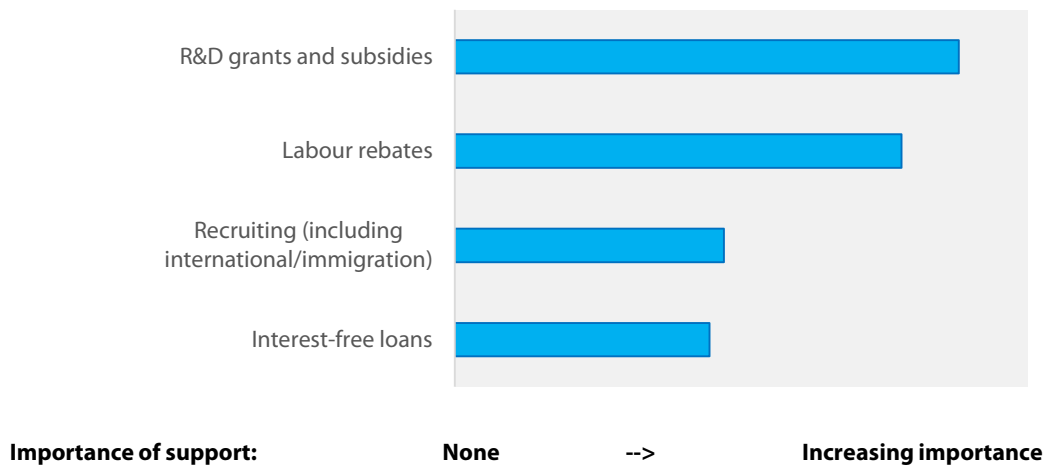
Note: this question is not weighted to reflect the size of firms. As such, the opinion of a large firm (employing 100 or more people) and a micro-firm (employing fewer than 5 people) are treated equally.

As illustrated above, tax credits (be they provincial or federal) are thought to have the most positive impact on companies' growth potential, whereas IP appropriation (i.e., piracy, cloning) and international competition have the most negative impact. In addition, interviewees indicated that key immigration processing issues and the access or the availability of talent are issues that have a significantly negative impact on growth potential.

That said, in aggregate, no single issue was deemed to have a significantly negative impact on growth, while all but six listed factors were thought to have at least a modestly positive impact. This finding aligns with the overall positive growth outlook for Canadian video game companies. After all, if firms thought that there are several factors severely inhibiting their growth, they would be unlikely to predict significant revenue gains over the next 12 -24 months.

When asked to rank the four most important forms of government support, respondents indicated that R&D grants, labour rebates, recruiting assistance and interest-free loans as the most important, overall. The chart below gives a representation of the relative importance attached to the four highest-ranked government supports, across all responses. The length of each bar is based on a score in which each support is given between one (4th most important) and four (most important) points. Other forms of support all received significantly lower scores.

Figure 50 – Importance of government supports



Source: ESAC Industry Survey 2015
N = 68

In all, Canada's video game industry has continued to grow since 2013. It employs more people, creates more and bigger games, and is having a greater impact on Canada's wider economy. As the global video game industry is expected to continue to grow, the future continues to look bright for the industry in Canada.

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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. Global 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 ten (10) 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 strengths and unique value propositions of Canada's video game industry; and
- Key policy issues that impact the industry

In addition, the 2015 version of this report focused to a greater degree on human resource issues facing the video game industry in Canada. To that end, some interviews focused more on topics such as Temporary Foreign Workers and the experience of women working in the video game 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 2015. Prior to deploying the survey, Nordicity and ESAC developed a list of some 370 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, direct outreach to video game companies and via social media channels. Through these efforts the known “universe” of video game companies (and this of potential survey respondents) grew to 472 firms. Upon closing the survey, Nordicity had received responses from 123 video game companies.

Of those 123 responses, 102 firms were able to provide detailed financial data. As this financial data lies at the heart of this exercise (e.g., because it is the primary input into the economic impact analysis), Nordicity used the 102 responses to estimate the degree to which the sample collected reflects the universe of video game activity in Canada.

A.1 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 102 firms that supplied expenditure data to the 472 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 (“Micro”), one for firms with between 6 and 99 employees (“Standard”), and one for firms with 100 or more employees (“Large”). To do so, Nordicity first classified the 472 companies into the three groups of firms, based on a review of their websites.³² 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 17 – 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+)*	24	13	1.85
Standard (6-99)	265	94	2.82
Micro (<5)	183	18	10.17

* 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,

³² If no employment data was available on a company’s website, it was left as a standard firm.

Nordicity is confident that its collected sample provides a reasonable accurate depiction of the video game industry in Canada.

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, standard 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.2 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 from 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.

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