Calgary’s Video Games and Immersive Technology Strategy

Final Report

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Nordicity

Contents

Executive Summary

In view of Alberta's current pursuit of economic diversification, Calgary Economic Development (CED) asked Nordicity (in partnership with Jason Della Rocca) to provide advice as to how best to support the business development, trade and investment activities which ultimately contribute to Calgary's overall economy.

More specifically, CED asked the Nordicity team to devise a series of evidence-based strategic recommendations geared to nurturing Calgary's nascent and emerging video games development and immersive media (VR/AR/MR) industries. While CED has a central role to play in these recommended actions, they are more of a description of the steps that need to be taken for Calgary to succeed.

Calgary's video games and immersive media industries do not operate isolated from the rest of the world. The video games industry, global by essence, is a US $139 billion industry dominated by giant international manufacturers, studios and publishers (Nintendo, Microsoft, Sony, Ubisoft, Electronic Arts, Activision Blizzard, etc.). Forecasts indicate a strong, steady growth over the 2017-2022 period, with global revenue approaching US $200 billion worldwide, driven by mobile gaming and the expansion of cloud gaming and new business models. Immersive media generated US $12 billion globally in 2018 and is forecast to surpass US $65 billion by 2023. Areas of growth are location-based entertainment (VR arcades) and enterprise applications (e.g., healthcare, education, manufacturing, etc.).

Based on their research and years of engagement with the industries, Nordicity and Jason Della Rocca identified three key components to a vibrant video games industry and immersive media ecosystem:

- **Talent**: For a regional ecosystem to grow and flourish, it needs to produce, attract, and retain the relevant talent. Local schools and focused educational programs play a crucial role in producing talent. It is therefore critical to understand the flow of talent and career path decisions made by younger students and help them realize that careers in games and immersive media are possible.
- **Triple Helix Engagement**: Vibrant ecosystems have the full engagement of three critical stakeholders: government (which provides funding), academia (which trains talent), and industry (which produces content). Each party understands and respects the value and importance of the other party. Furthermore, there is clear communication and constant engagement between all parties.
- **Clear Path to Success**: Each region is different, with unique obstacles and advantages. This ingredient is somewhat recursive in that, the more success there is in the ecosystem, the more others can see that success is possible. This ingredient builds on the previous two, serving as the "concierge" to success: organizations and programs lay out the resources and options for talent to engage in the ecosystem and for companies to access every advantage available in the region.

At the core of any industry is the firms and organizations that create the products and services. In Calgary, there are about 60 companies working on video games and/or immersive media products and services. For the sake of clarity, Nordicity has distinguished between "companies" and those individuals who may be creating video games and/or immersive media products as a part-time endeavor or hobby. Survey data suggests that, on average, companies operating in Calgary's video games and immersive media sector have been in business for approximately 4.5 years and are almost all financed by the founders' personal investment. Most projects completed by existing video games and immersive media companies in Calgary are mobile games and about half of the products created are done as part of a fee-for-service contract (with the other half being owned intellectual property).

Survey data suggests that there are about 200 people working in the video games and immersive media industry in Calgary – with each company employing an average of 8.5 people. Of those employees, about 40% are full-time employees, with the majority (55%) employed on a contract or freelance basis. Data also suggests that much of the workforce was hired from outside of the city – and thus that the local talent pool may be somewhat shallow. Reflecting the general growth of the industry, about 70% of companies reported that they plan on hiring more employees over the next six months. On average, companies are looking to hire roughly five people over the next year; junior and senior technical talent are in the most in demand.

A significant portion of the industry in Calgary is composed of "indies" or hobbyists. While the work done by these indies can be quite sophisticated, they do not work on games or immersive media products as their principal form of employment. Rather, these individuals work on their products on a part-time basis, often over the course of several years. However, only half of these indies reported having completed a game. This community constitutes a significant supply of (likely junior) talent in Calgary, split between workers that would like to join an existing company and those who may become games/immersive media entrepreneurs. Given that level up interest in the industry it is only logical to ask why these indies are not already in the industry: the perceived lack of positions, risky nature of games/immersive media employment and better pay outside of the industry are significant factors.

Video games and immersive media industries in Calgary face a host of challenges ranging from available talent to access to funding (both public and private). The lack of collaboration within the industry is also commonly reported.

To supplement the survey results and environmental scan, Nordicity conducted a comparative analysis of four jurisdictions that have implemented a strategy for interactive and immersive digital media (Vancouver, Canada; Melbourne, Australia; Helsinki, Finland; and Austin, USA). Two approaches can be discerned based on this benchmarking exercise. On one hand, Vancouver's and Austin's core strategy is to sustain a video games industry that emerged "by chance", spearheaded by historical studios (Distinction and Origin Systems respectively). These pioneer studios served as oak trees from which many acorns dropped and sprouted. Cities facilitated this growth by preserving an attractive business climate, while occasionally bridging gaps (e.g., education, targeted incentives). This approach is possible where an "oak-tree company" has demonstrated a strong trailblazing performance. On the other hand, Melbourne and Helsinki are more pro-active, and developed defined strategic plans for the video games and XR industry. In these cities, the video games industry comprises many small and medium video games companies and a buoyant indie community. These cities want, in the first instance, to reinforce the entrepreneurship and SMEs local fabric, knowing that this will eventually generate more economic value from owned IP, and potentially attract larger companies and investments. This second approach better fits Calgary's circumstances.

The research (Global Environment/Calgary's Ecosystem/Comparative Analysis) served as the foundation for a series of evidence-based recommendations for a Strategy for Success. These recommendations (and a summary of their respective rationales) are as follows:

1. **Encourage and support the creation of a formal Alberta trade association:** Having a trade association to represent the business interests of local companies is a pre-condition of building a successful ecosystem. Alberta is behind the ball on proper governmental representation and lobbying efforts, as these efforts are currently being undertaken by individual companies and/or by city-based representatives. A single, cohesive, voice is needed at the bargaining table. This entity will rally the Albertan studios and drive the engagement with government.
2. **Create "PlayCalgary" to drive and support entrepreneurship:** This entity would serve a similar role as Startup Calgary does for all things startup – simply with a focus on games and

immersive technologies. As such, PlayCalgary would be a one stop-shop for video games and immersive media specific industry info, support, training and related entrepreneurship programs. Programming offered by PlayCalgary would need to be focused more on business, marketing, economic and entrepreneurial aspects of the video games and immersive media industries. Further, PlayCalgary could act as a coordinating body between the various offerings emerging for the games industry in Calgary.

3. **Assist in the creation a collaborative/co-working space for video games and immersive media companies (the "Hub"):** Modelled after similar spaces in other successful jurisdictions, this location will offer low-cost office space and act as a physical catalyst for networking and collaboration within the sector. The Hub would also serve as the home for PlayCalgary, who would have the responsibility to manage the space, and run their programming within the space. The first floor would allow start-up companies, freelancers, and aspirants to work in a communal space, while upper floors would house companies seeking more traditional, closed office space. The space would lower operating costs by addressing the overhead portion of a games/immersive media company's budget (typically 15-20% of annual operating expenses). The facility would also provide a dedicated venue for inter-company collaboration and for accelerated learning within the sector.

4. **Facilitate the creation of a project and IP commercialization fund:** Funding is the fuel that allows new companies to form and projects to get created and commercialized. Most of the capital that is in circulation in Calgary is inaccessible and/or not optimized for early stage game studios or immersive media projects. Without access to funds, would-be entrepreneurs are stuck on the sidelines, or the growth potential of existing companies is limited. A dedicated fund is needed, with <u>two streams</u>: one for game project funding, and another for the commercialization of XR intellectual property.

5. **Better leverage Reboot Red for Calgary's games ecosystem:** Having this event in Calgary's "back yard" is an invaluable benefit that should be maximized. Some ideas to explore with Reboot management include: Hosting a pre-Reboot tour, pitch and mentorship day at the Hub; coordinating 1-on-1 match-making meetings between Calgary studios and publishers attending Reboot; running a "Best of Calgary" showcase panel session; organizing exclusive closed-door "ask-me-anything" sessions with selected speakers and Calgary developers; hosting a "beers and chill" networking event in the Rundle lounge; conducting pre-conference pitch and networking prep workshops at the Hub; animating the shuttle bus between the airport and Banff with a rep trained to serve as a tour guide and mention Calgary specific FDI factoids; and ensuring maximum attendance by Calgary game developers.

6. **Fund and facilitate trade and learning missions for selected companies with market-ready products:** In the games and immersive media industries (as in many industries), being on the event circuit is part of getting deals done and finding success. As such, there should be subsidized annual trade missions to some of the key events (e.g., GDC, Pax West, etc.). That said, the ROI of attending larger events is significantly improved with sales/pitch prep and planning. Participation in training programs would be mandatory for the teams selected for each trade mission. In addition to the trade focused missions, there also needs to be learning missions to key games development jurisdictions in Canada (and beyond), including Edmonton, Vancouver, and Montreal.

7. **Establish the Hub as a gateway for XR and gamification needs in Calgary (and beyond):** Traditional Calgary enterprises and industries (e.g., O&G, health, finance, real estate) are not buying from local companies with the capacity to deliver on XR and gamification needs. This impedes growth, as Calgary studios need to chase contracts abroad. There is an opportunity to better evangelize the power of applied game technologies and immersive media for more

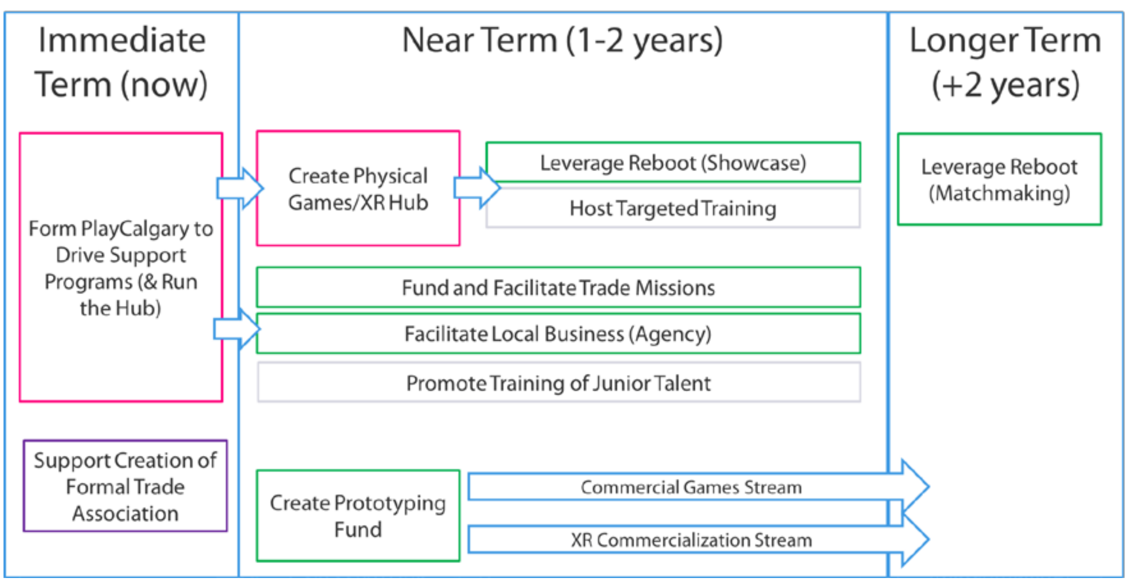
serious, training, and enterprise level applications. And, further, that Calgary studios have the expertise and capacity to deliver.

8. **Address the talent pathways to the games and XR industry:** Talent is a fundamental ingredient of a vibrant games and immersive media ecosystem. This is true both for the quantity of available talent, as well as having talent with the right level of training and skills. Too much of the local game industry is made up of part-time or hobbyist developers. Further, would-be developers express their desire to join the sector, but are comfortable with their day-job in a seemingly more stable industry. What's more, many university students do not even look at the games and immersive media sectors as a viable option.

Although the strategies presented above form a cohesive plan for Calgary's video games and immersive media industries, there are several considerations that CED should take into account when planning their implementation. These considerations include:

- **Multi-level Funding**: These recommended actions may pique the interest of funding partners including Western Economic Diversification, Alberta Innovates;
- **Not Re-inventing the Wheel:** It is important that CED look more closely at existing models similar to those proposed when implementing related recommendations; and,
- **Coordinating Industry Efforts**: Coordination will be required between all entities providing services to the games and immersive media industries to ensure that they complement one another (and do not compete for audience).

In addition to these factors, CED should consider how the proposed strategies will be staged. To that end, the following schematic lays out the recommendations on a notional timeline. The purpose of this diagram is not to prescribe a defined path, but to point out dependencies between the recommended actions.



1. Introduction

1.1 Nordicity's Mandate

In view of Alberta's current pursuit of economic diversification, Calgary Economic Development (CED) plays a leading role in marketing the competitive advantages and pro-business climate of Calgary (and the wider region) to both Canada and the world. As articulated by *Calgary in the New Economy: Calgary's Economic Strategy,* the City of Calgary and CED clearly understand the opportunity presented by growing the province's creative industries and the corresponding digital media industry. For this reason, CED asked Nordicity (in partnership with Jason Della Rocca) to provide advice as to how best to support the business development, trade and investment activities which ultimately contribute to Calgary's overall economy.

More specifically, CED asked the Nordicity team to devise a series of evidence-based strategic recommendations geared to nurturing Calgary's nascent and emerging video games development and immersive media (VR/AR/MR) industries. While CED has a central role to play in these recommended actions, they are more of a description of the steps that need to be taken for Calgary to succeed in these highly competitive global industries. It is a blueprint, rather than a playbook.

1.2 Methodological Overview

This study was developed using three principal methodological tools:

1. **Desk Research:** Nordicity conducted research to establish the global (and Canadian) market context for the video games and immersive media industries. At the same time, the Nordicity team documented four comparison jurisdictions in order to better understand how other jurisdictions with similar attributes have supported the growth of their video games and/or immersive media industries.
2. **Stakeholder Interviews:** Nordicity conducted two rounds of stakeholder interviews. First, in October 2019 nine "discovery" interviews were conducted with industry leaders (mostly company executives working in Calgary's video games or immersive media industries). These interviews were conducted to ground the process in the day-to-day realities of actual companies. The second round of interviews (conducted in December 2019) brought draft recommendations to 12 industry stakeholders for their comments and feedback.
3. **Online Survey:** Recognizing that interviews can only ever touch a portion of the industry, Nordicity also conducted a brief online survey designed to capture the working realities of companies, workers and independent creators ("indies") active in Calgary's video games and/or immersive media industries. The survey was active between late November and early December 2019 -- and gathered data from 89 respondents.

1.3 About this Report

This report first presents the results of Nordicity's research, structured around three elements.

Section 2 introduces the two industries under review, i.e. the video games industry and the immersive media industry and provides an overview of the global and Canadian contexts. This section also states the key ingredients required for vibrant video games and immersive media industries.

Section 3 then focuses on the ecosystem in Calgary and synthesizes the results of the industry survey and asset inventory.

Section 4 compiles results from the comparative analysis: four cities and their strategies for video games and XR technologies are reviewed. A summary of learnings is provided at the end this section, as well as a list of elements that could be inspire Calgary's strategy.

These three aspects of the research constituted the foundation of a Strategy for Success in **Section 5**. Nordicity developed eight recommendations to foster the video games and immersive media industries in Calgary. For each recommendation, Nordicity provides rationale, expected outcomes and CED's role.

Finally, **Section 6** lays out an implementation plan for the Strategy for Success: the partners, resources and timelines that are keys to an effective, fruitful strategy.

2. Industry Context

This section introduces the overall context in which Calgary operates, both on the global stage and in Canada.

2.1 Global Context

Video Games

According to NewZoo research, video games generated US$139 billion in global revenue, making it the top entertainment industry in the world.[1] For instance, in 2018, American consumers spent as much on video games as they spent on home video, cinema and music combined.[2]

The video games industry, global by essence, is dominated by giant international companies who develop systems - Nintendo's Switch, Sony's PlayStation, Microsoft's Xbox, HTC's Vive, etc.- or blockbuster games – Activision's *Call of Duty*, Blizzard's *World of Warcraft*, Ubisoft's *Assassin's Creed*, Electronic Arts' *FIFA*, Epic's *Fortnite*, etc. In the past years, digital distribution has taken precedence over brick-and-mortar retailing, driven by these leading companies and their platforms like Steam, PlayStation Store, Microsoft Store, Nintendo Game Store, Google Play, App Store, etc.

While top companies generate a large majority of the industry's value (more than 99%)[3], surprise successes from indie developers are not uncommon: smaller teams can also achieve resounding success. The story behind 2009's global hit *Angry Bird* is a perfect example: Finish mobile game developer Rovio, less than 10 employees at that time, was on the verge of bankruptcy when they developed *Angry Birds* with a budget of €100,000. A decade later, after several games and two feature films derived from this IP, Rovio posted a net income of €24.5 million in 2018, with over 400 employees.[4]

The gaming community is deeply attached to the innovation that emerges from the indie space, whether it relates to the technology itself, to gameplay mechanics or storytelling. Despite this support from the community, creating a successful indie video game presents many challenges: human and financial resources, discoverability, etc.

The chart below presents an overview of the video games industry's value chain. Note that the advent of digital stores allows independent developers to bypass intermediaries and to self-publish their titles (dotted line).

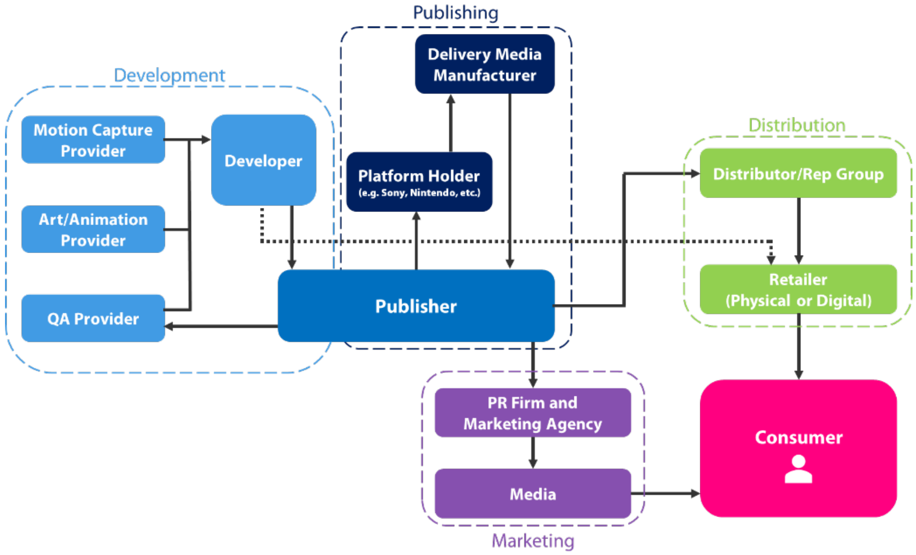
[1] Newzoo, *Global Games Market Report 2019*

[2] NPD Group as reported by the Internet Innovation Alliance

[3] Hackermoon as reported by Tech Jury

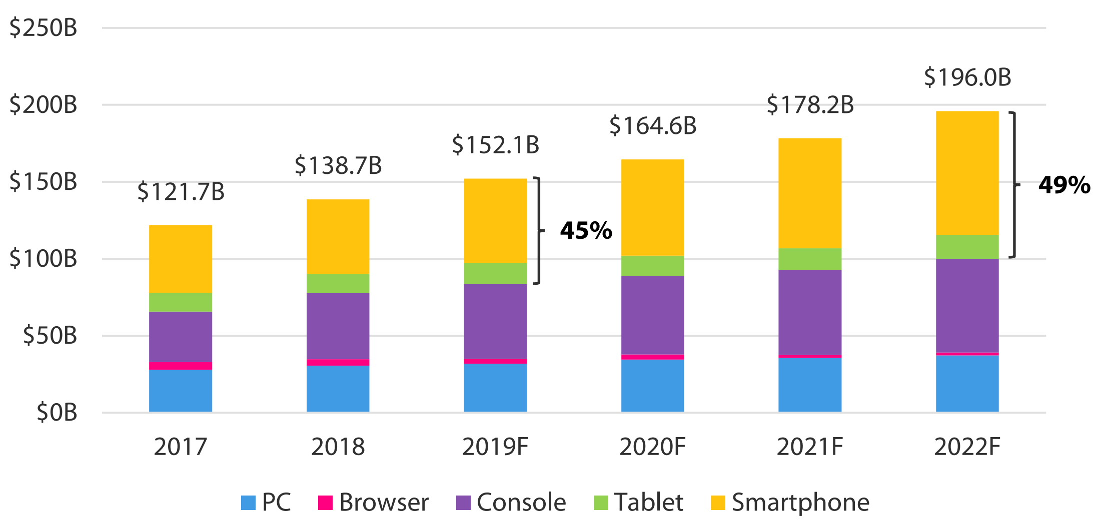
[4] Rovio Entertainment *2018 Annual Report*

Figure 1 Video games industry value chain



The following chart shows the breakdown of global video games revenue, by platform. Forecasts indicate a compound annual growth rate of 10% over the 2017-2022 period, with total revenue approaching US$200 billion worldwide.

Figure 2 Global revenue, video games industry, by platform ($US billion)



Source: Newzoo *Global Games Market Report 2019*

Mobile gaming is the most promising segment, more specifically revenues generated from smartphone (CAGR 2017-2022 of 13%). Games on phones and tablets are expected to account for about half of global revenue by 2022. The prominent business models on mobile platforms are in-app-advertising and in-app purchases (the application can be downloaded for free but extra lives, power-ups and additional features can be bought in-game). With its subscription service Arcade, Apple is offering a premium alternative to the dominant free-to-play model.

Nordicity

Console revenues will be reinvigorated in the years to come with the release of the next generation of consoles by Sony (PlayStation 5) and Microsoft (currently titled Xbox Series X), expected for Q4 2020. PC revenues will remain stable, displaying a CAGR of 6%.

This segmentation could be shaken in a few years by the development of **cloud gaming**. Google Stadia, Nvidia GeForce Now, Microsoft xCloud, all these platforms are promising a seamless streaming gaming experience, no matter the platform. The principle behind cloud gaming is that the software runs on remote servers, streaming the game on the user's device, be it a smartphone, a laptop or a smart TV. All the intense computing is done in the cloud, in these remote servers, which virtually renders any expensive hardware obsolete: a lower-end laptop can stream a game that initially required a more powerful machine. However, the promise is not yet delivered, and many questions remain unanswered (e.g., minimum required connectivity, latency, environmental impact, etc.). Google received lukewarm reception for its service Stadia, launched in November 2019.[5] Sony already offers cloud gaming through PlayStation Now, but this service is of course limited to its console. Nevertheless, cloud gaming, even in its first steps, remains a major revolution that could reshape the industry over the next decade.

More broadly, cloud gaming is just one aspect of an approach to the video games business taken by a growing number of studios: **Game as a Service** (GaaS). With GaaS, games can be monetized for a longer lifecycle thanks to additional content and expansion packs: playable content expanding the basic universe (e.g., maps, story chapters, etc.), cosmetic elements (e.g., character customization). A "season pass" is generally available for a premium when the original game is released, giving access to all further updates and additional content, or players can opt for a basic game and buy any additional content piece by piece. Subscription models, as offered by *World of Warcraft*, also fall in the GaaS category. Despite recurrent critics, GaaS has become a major source of revenue for game developers. For instance, Electronic Arts generated $2 billion from its GaaS models in 2018.[6]

Immersive Media

Immersive media encompasses several technologies:

- **Virtual Reality (VR)**: the experience of an interactive computer-generated three-dimensional environment viewed through a head-mounted display (e.g., Oculus Rift, HTC Vice, PlayStation VR).
- **Augmented Reality (AR)**: an enhanced version of the real-world experience created by overlaying digital information on an image of something being viewed through a device (e.g., smart glasses, smartphone camera). Popular examples include *Pokemon Go*, Snapchat's filters, etc.
- **Mixed Reality (MR)**: a hybrid technology, it goes beyond AR in the extent that it just not overlays virtual objects on the real-world, but anchors virtual object to real-world objects, enabling physical/virtual interaction.

The generic term 'XR' comprises all these technologies.

As illustrated below, the VR/AR market will surpass $65 billion worldwide by 2023. AR revenue in particular is forecast to see a CAGR of 57% over the 2018-2023 period. The VR industry slightly underperformed in 2018, in part because of the ongoing struggle to drive hardware mass adoption:

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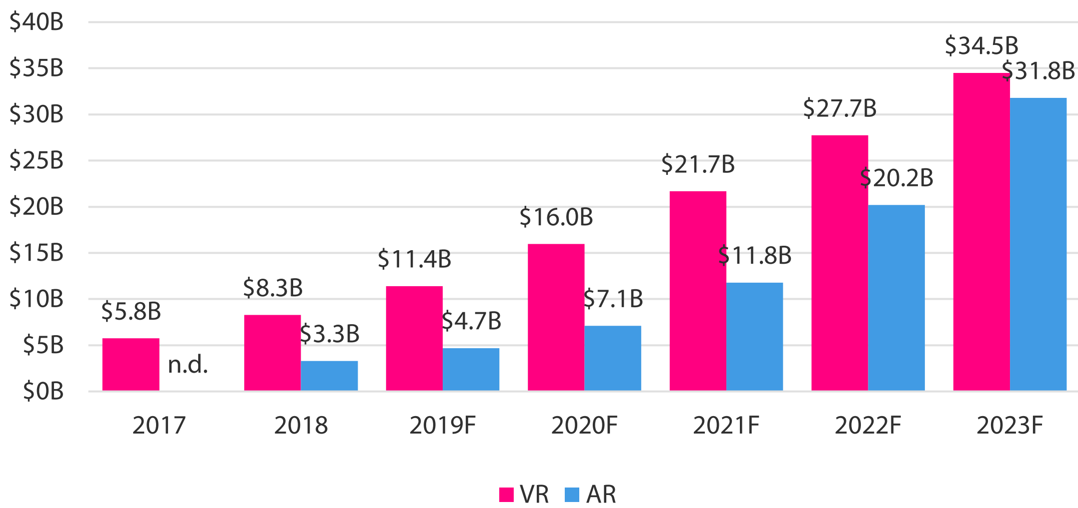
[5] See for instance this review by The Verge

[6] GamesIndustry.biz, *EA and Activitsion's $79bn games-as-a-service growth*, Oct 19, 2018

VR global revenue was projected to hit $8.8 billion by year-end 2018 while it actually totaled $8.3 billion, a 6% delta. However, forecasts still indicate a strong growth for the years to come.

Figure 3 VR and AR worldwide revenues



Source: Greenlight Insights

Two areas will drive the growth in VR revenue. First, Location Based Entertainment (e.g., VR arcades) will remain a major consumer catalyst and a point of entry for many users. It will account for 31% of total VR revenues in 2023. Second, enterprise VR is forecast to grow at a CAGR of 84% for the 2017-2023 period. Similarly, between 2018 and 2023, revenues from AR enterprise applications will increase at a CAGR of 90% to $4.8 billion worldwide.

Immersive technologies have applications in the entertainment industry, and for this reason it makes sense to build a strategy that encompasses both the video games and immersive media industries. Nevertheless, immersive technologies are increasingly used in other sectors. XR has in fact use cases in the health, retail, marketing, aerospace, automotive, real estate, oil and gas, training and e-learning industries. The most promising opportunities lie in these verticals.

In 2018, mobile-based VR (e.g., Google Cardboard, Samsung Gear) was disrupted by standalone VR headsets. These untethered displays offer a higher-quality, more flexible experience than mobile VR. The Oculus Go and Oculus Quest, the HTC VIVE Focus Plus and Lenovo's Mirage Solo are examples of hardware that could drive faster consumer adoption thanks to their comfortable and more accessible experience.

When it comes to entertainment, and more precisely content-wise, the XR market is highly competitive. Only a few games stand out from the mass of content available. The rhythm game *Beat Saber* by Beat Games, is a great example of a viral application, racking up one million downloads as of March 2019.[7] Apart from a few unicorns, the vast majority of XR titles struggle to find a large audience.

[7] Forbes, *Beat Saber VR Slasher Hits 1 Million Downloads*, Mar 14, 2019

2.2 Canadian Context

Results from Nordicity's 2019 study for the Entertainment Software Association of Canada provided more evidence of the success and healthy growth of the Canadian video games industry.

Canada's video games industry generated $3.6 billion in revenue in 2019, a 15% increase from 2017. It also directly supports 27,700 Full-Time Equivalents of employment. It represents a 28% growth from 2017 and only 14% of companies indicated having less employees in 2019 than in 2017. The video games industry directly contributed an estimated $2.6 billion to GDP in Canada in 2019 (+26% from 2017). [8]

Figure 4 The Canadian video games industry in 2019

Data also shows that micro companies constitute the bulk of the industry: out of the 700 Canadian video games companies, 54% indicated having less than 5 employees. However, very large studios (100+ employees) account for 79% of total employment. [9]

Most of the Canadian video games activity takes place in Quebec, British Columbia and Ontario (82% of companies, 91% of direct FTEs). Nordicity estimates that less than 90 video games companies operate in the Prairies. [10] The Alberta video games sector is therefore a small piece of the larger, vibrant (but also competitive) Canadian video games industry. Studios outside of Quebec, British Columbia and Ontario must deploy significant efforts (e.g., attractive compensation and benefits) to attract and retain talent, the most precious resource in this industry.

As far as XR is concerned, companies are also consolidated in Quebec, Ontario and British Columbia. One of the key factors explaining this geographic distribution can be the presence of attractive tax credit programs in these jurisdictions as is shown in the following table.

Figure 5 Interactive Digital Media Tax Credit programs by province

	Interactive Digital Media Tax Credit
British Columbia	17.5% of qualified BC labour directly attributable to IDM activities
Quebec	Multimedia titles intended for commercialization: up to 37.5% of qualified labour (30% if no French version) Other multimedia titles: 26.5% of qualified labour

[8] ESAC, *The Canadian Video Game Industry 2019*

[9] Ibid.

[10] Ibid.

	Interactive Digital Media Tax Credit
Manitoba	35% of eligible labour *OR* 40% of eligible project costs (incl. up to $100,000 of eligible marketing and distribution costs)
Newfoundland and Labrador	40% of eligible NL labour attributable to IDM products
Nova Scotia	50% of eligible NS labour *OR* 25% or total NS expenditures
Ontario	Non-specified products: 40% of eligible ON labour and up to $100,000 of eligible marketing and distribution costs) Specified products (fee-for-service): 35% of eligible ON labour directly attributable to IDM products Large game companies: 35% of eligible ON labour directly attributable to the development of eligible digital games
Prince Edward Island	25% of eligible PEI labour
Alberta (discontinued in October 2019)	25% of eligible Alberta labour directly attributable to IDM products Additional 5% through the diversity and inclusion component

2.3 Ingredients to a Successful Video Games/Immersive Media Ecosystem

A healthy and robust ecosystem is a successful ecosystem. While success can be defined in many ways, for purposes of this strategy, success is defined as economic impact: revenues, taxes, jobs and related economic KPIs.

For such success to exist, an ecosystem needs three key factors:

1. Talent Flow
2. Triple Helix Engagement
3. Clear Path to Success

Talent Flow

Even though technology gets much of the attention, at the core of digital media creation is the wide-ranging and multidisciplinary human talent that goes into the production process. From programmers and visual artists, to narrative directors and composers, to UX designers and backend engineers, there are many different skillsets that contribute to a final product. The list of highly specialized and well-trained skills needed to create games and XR experiences is extremely long.

For a regional ecosystem to grow and flourish, it needs to produce, attract, and retain the relevant talent. This includes both senior talent with experience and leadership skills, as well as junior talent full of energy and fresh ideas. Local schools and focused educational programs play a crucial role in producing the necessary junior talent. More importantly, understanding the flow of talent, and career path decisions made by younger students, and helping them understand that careers in games and immersive media are possible. Similarly, successful ecosystems attract senior talent from abroad or across sectors with programs optimized to identify and welcome them. Further, by creating a context of personal de-risking (e.g., by having many studios in the local cluster), an individual can move to the city knowing they have many viable employment options.

And, finally, once talent is in the ecosystem, measures are taken to invest in them and keep them inside the ecosystem via cool projects, strong working environment and good pay.

Triple Helix Engagement

Successful ecosystems have the full engagement of three critical stakeholders: government, academia, and industry. Each party understands and respects the value and importance of the other party. Further, there is clear communication and constant engagement between all parties.

Government is generally providing an advantageous and stable environment to create and operate businesses. When appropriate, they are incentivizing economic activity via favorable tax policies and/or funding programs. And, looking at elements like immigration policy, IP protection, labor standards, trade facilitation, regional promotion, etc. federal, provincial, and municipal agencies should be engaged and leveraged as appropriate.

In a successful video games and/or immersive media ecosystem, **academia** is primarily focused on generating the talent portion of the equation (see previous Section 2.3.1). Academia also plays a key role with research, and engaging with industry on R&D. As industry rarely has the time or budget to engage in proper long-term research, these collaborations are critical in uncovering new innovations and novel applications of game related technologies.

In turn, **industry** is committed to creating great products with strong commercial viability, ensuring a good environment for talent, and constantly striving for success. Further, industry needs to be good corporate citizens via participating in the ecosystems, providing input/guidance to government, engaging with academia, volunteering for community initiatives and associations, and so on.

The success and growth of a regional ecosystem is severely negatively impacted if one (or even two!) of these stakeholder groups are not fully engaged.

Clear Path to Success

Each region is different, with unique obstacles and advantages. The path for a game studio to release a global blockbuster game, or an immersive media agency to deliver widely adopted XR tool may look quite different if they are based in Mumbai than in Sao Paolo, or Calgary. This ingredient is somewhat recursive in that, the more success there is in the ecosystem, the more others can see that success is possible – and what that path looks like – inspiring others to tackle the obstacles and chase success as well. Further, having the people who have succeeded on the ground to support the next wave of success is crucial.

This ingredient builds on the previous two, serving as the “concierge” to success. More specifically, that organizations and programs exist that lay out the resources and options for talent to engage in the ecosystem and for companies to access every advantage available in the region.

3. The Industries in Calgary

This section describes the video games and immersive media industry in Calgary. In so doing, it outlines the companies that comprise the industry – and the workers employed by those companies. The section also presents a view on the freelancers/hobbyists that are active in Calgary's video games scene, as well as present some of the other ecosystem assets.

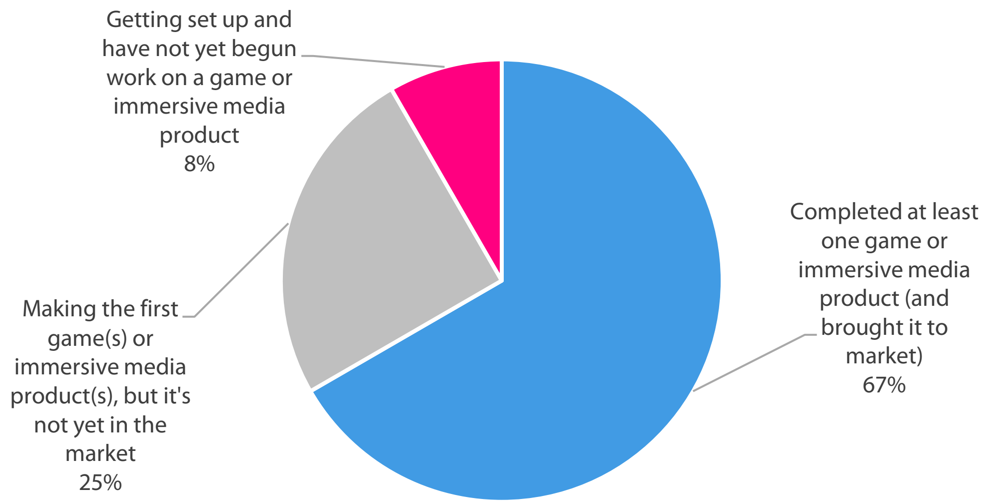
3.1 About the Companies

At the core of any industry is the firms and organizations that create the products and services. In Calgary, there are about 65 companies working on video games and/or immersive media products and services. For the sake of clarity, Nordicity has distinguished between "companies" and those individuals who may be creating video games and/or immersive media products as a part-time endeavor or hobby. In this context, a company is therefore understood as any entity demonstrating signs of active operations (e.g., up-to-date website, own business name) in the video games and XR sectors, without necessarily being a registered business. Among the companies are the following key stakeholders:

- **New World Interactive**: the American video games developer behind *Insurgency* established Canadian offices in Calgary in 2019.
- **Mammoth XR**: this AR/VR/360 studio produced video for Shell, PwC, Canada's Oil and Natural Gas Producers, the Calgary Flames and for the Urban Society for Aboriginal Youth.
- **Red Iron Labs**: founded in 2016, this indie studio built an expertise in virtual reality entertainment with titles like *Abduction*.
- **Vizworx**: from immersive media development, to artificial intelligence, from mobile apps to data visualization, Vizworx has become a leading tech company in Calgary.
- **Finger Food Advanced Technology Group**: based in Port Coquitlam, Finger Food developed solutions, including XR, robotics and wearables, for Electronic Arts, Activision, Telus Health, Cirque du Soleil, MEC, etc.
- **Quantum Integrity Software Inc.**: *Dead Matter*, a survival horror game set in post-apocalyptic Alberta full of zombies, raised over $750,000 via Kickstarter and pre-order sales.

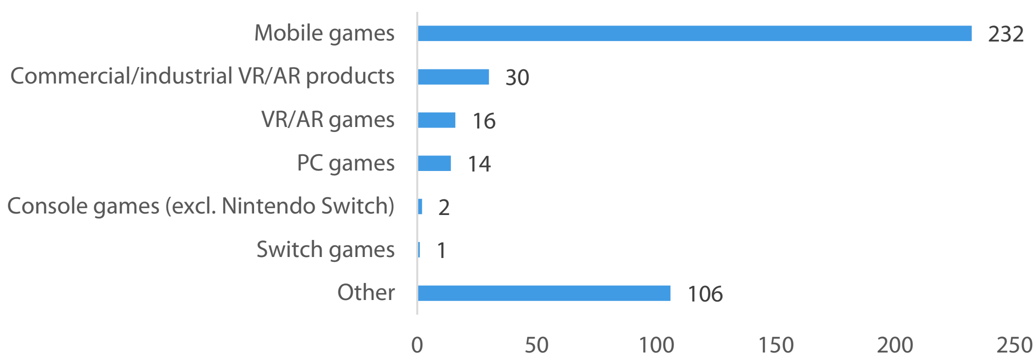
Survey data suggests that, on average, companies operating in Calgary's video games and immersive media sector have been in business for approximately 4.5 years (as of late 2019) and are almost all financed by the founders' personal investment. Moreover, as the following figure illustrates, most of the *companies* operating in the space have completed (and commercialized) at last one product.

Figure 6 Stage of company development



Of course, not all of games or immersive products are equal – as projects vary widely in scope, ambition, and thus budget. Indeed, most projects completed by existing video games and immersive media companies in Calgary are mobile games (as illustrated below).

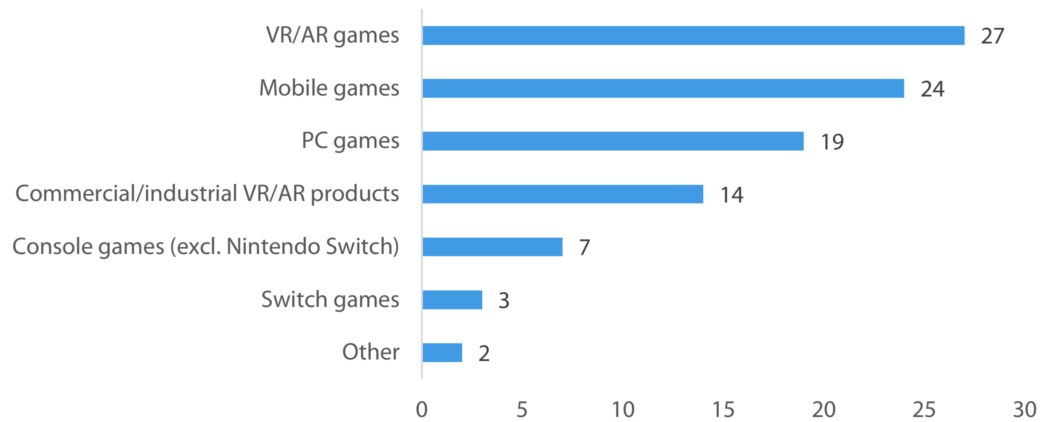
Figure 7 Products brought to market



At the same time, not all of the products created in Calgary are owned by the Calgary-based company. Indeed, about half of the products created are done as part of a fee-for-service contract (with the other half being owned intellectual property).

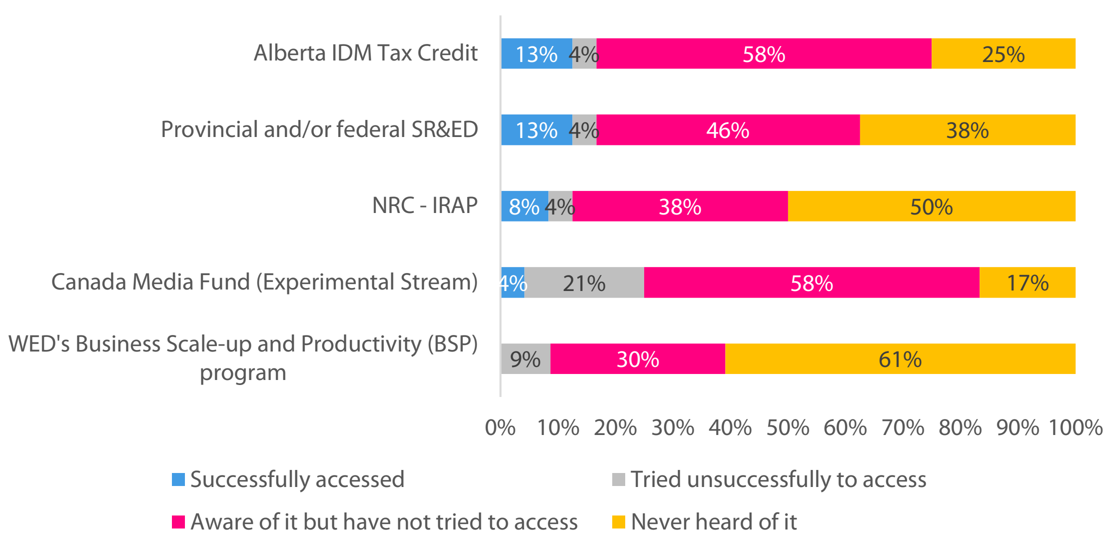
Finally, these companies continue to work on projects, as illustrated in the following Figure.

Figure 8 Project being worked on



While mobile games are still a focus of games and immersive media companies, more VR/AR games and PC games are underway. To fund these projects, companies can access a number of sources of funding, including several sources of public investment, as depicted below.

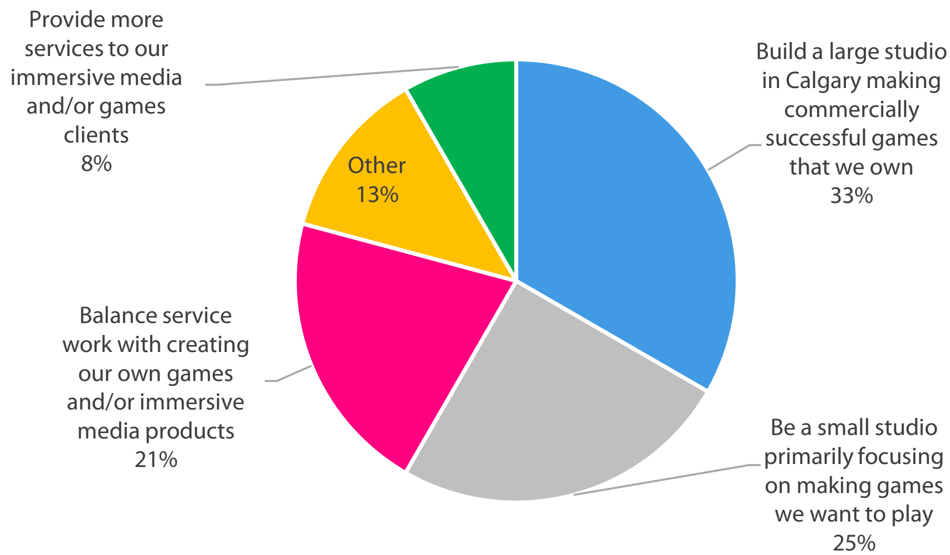
Figure 9 Sources of public funding



Whereas the Canada Media Fund (CMF) is the best-known source of funding, only about a quarter of companies have actually applied for it. On the other hand, the most commonly used sources of public investment (i.e., the IDMTC and the SR&ED credit) have been discontinued or significantly reduced.

Looking ahead, companies do not appear to have a clear or consistent perspective regarding their future in Calgary (as illustrated below).

Figure 10 Company vision



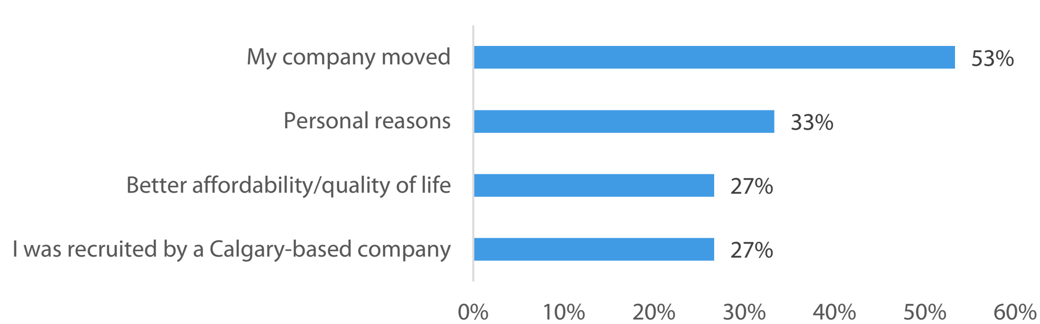
While the largest share of companies wants to build a larger company in Calgary, almost as many want to "stay small" in Calgary. At the same time, a good number of companies do not see themselves focusing on owned intellectual property.

3.2 Industry Employment

Survey data suggests that there are about 200 people working in the video games and immersive media industry in Calgary – with each company employing an average of 8.5 people (per company). Of those employees, about 40% are full time employees, with the majority (55%) employed on a contract or freelance basis. Given that the Calgary Game Developers' Association boasts over 800 members, one can conclude that much of the industry's broader headcount in Calgary is composed of hobbyists and prosumers.

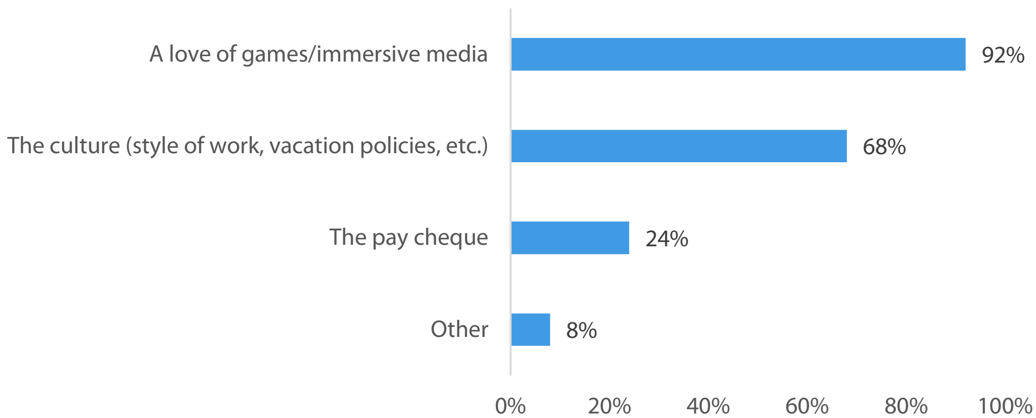
In general, these (existing) employees are fairly experienced, with an average of just under seven years of total experience. That only an average of three of those years of experience were in Calgary suggests that much of the workforce was hired from outside of the city – and thus that the local talent pool may be somewhat shallow. Indeed, when asked about their reasons for moving to Calgary survey respondents with experience outside of Calgary suggested that they moved primarily because their company relocated (as illustrated below).

Figure 11 Reasons for moving to Calgary



Only about one third of workers in Calgary's video games and immersive media industry have always worked in the industry. – the rest have moved to the industry from other jobs (although only 4% came from oil and gas). Of those workers that were attracted to the industry from another sector, almost all made the switch motivated by their love for games and/or immersive media (as illustrated below):

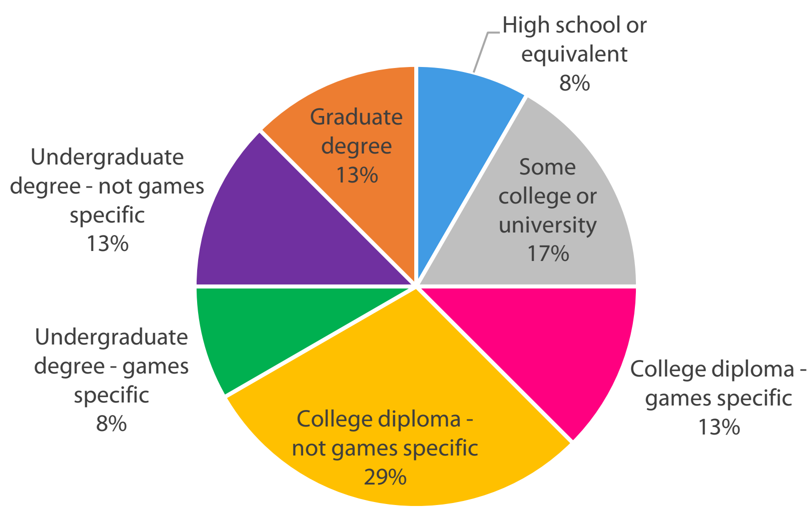
Figure 12 Reasons for attraction to games/immersive media



While the culture at games/immersive media companies also appears to be important, relatively few employees appear to be particularly motivated by money.

Regardless of where they work (or why they work there), the workforce in Calgary's video games and immersive media industry is well educated, with almost 80% having completed a postsecondary degree or diploma.

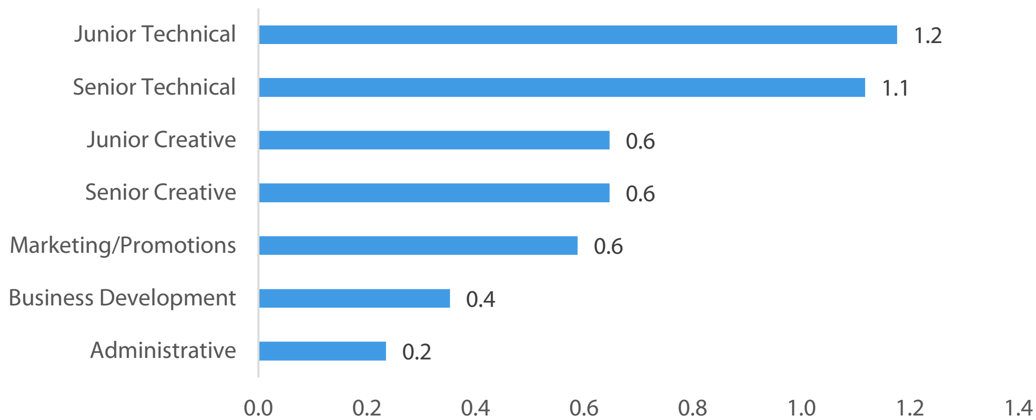
Figure 13 Highest level of education achieved



In addition, it is notable that only 25% of respondents indicated that their postsecondary work was in a games-specific program. This finding suggests that games-specific programs may not be a critical requirement to employment in the industry.

Reflecting the general growth of the industry, about 70% of companies reported that they plan on hiring more employees over the next six months. On average, companies are looking to hire roughly five people over the next year (although that figure is likely skewed to reflect the plans of faster-growing companies). As the following figure illustrates, junior and senior technical talent are in the most demand.

Figure 14 Average number of hires over the next 12 months (by job type)



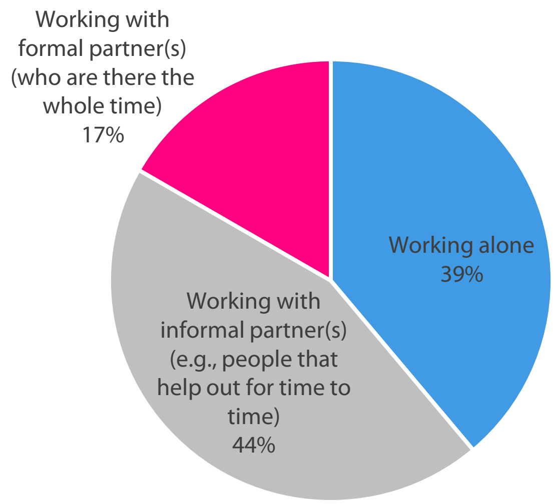
At the same time, existing employees appear to be loyal to the industry in Calgary, with 88% of respondents indicating that they are Very likely or Somewhat likely to be working in a Calgary-based games or immersive media company one year from now.

3.3 The Indie Community

As suggested above, a significant portion of the industry in Calgary is composed of "indies" or hobbyists. While the work done by these indies can be quite sophisticated, they do not work on games or immersive media products as their principal form of employment. Rather, these individuals work on their products on a part-time basis, often over the course of several years. Indeed, about three quarters (75%) of those indies are currently working on a project – with an average project length of 12.4 months.

As the following graphic illustrates these indies are most likely to work on these projects with informal partners (or on their own).

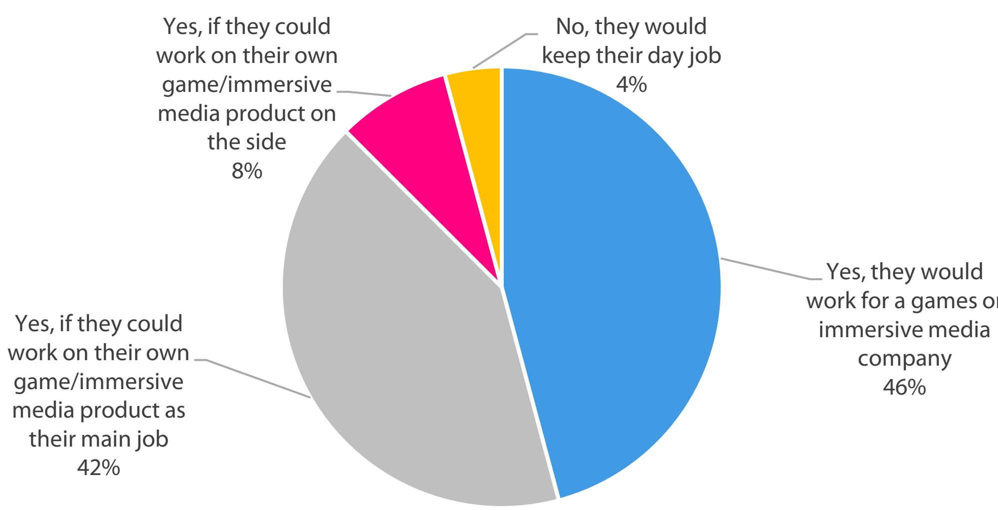
Figure 15 Collaboration among indies



Despite the high rate at which these indies are working on games, only half of them report having completed a game. Again, it seems that a good portion of those games worked on by indies in Calgary never see the market.

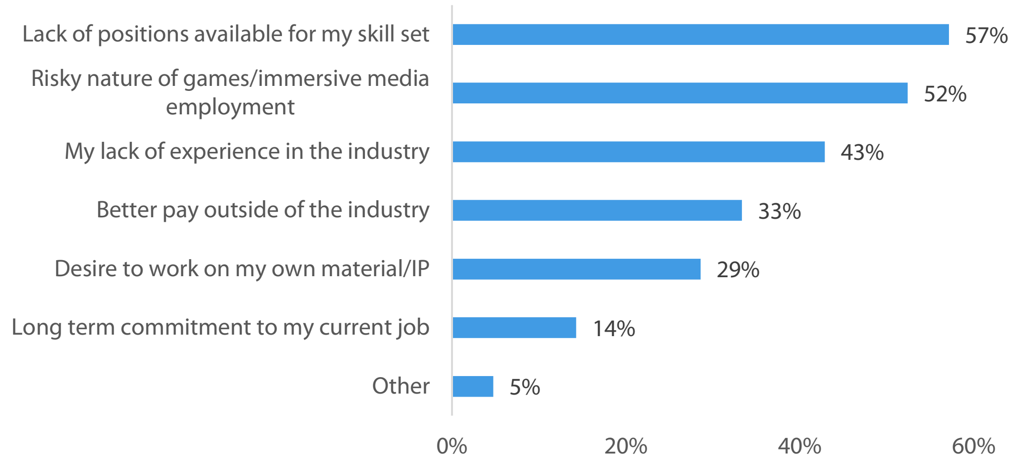
When asked if, given the opportunity, they would work on games (or immersive media products) on a full-time basis, almost all (96%) responded that they would do so (see below):

Figure 16 Would indies work on games full time?



This finding suggests that there is a significant pent-up supply of (likely junior) talent in Calgary. Moreover, that supply is split between workers that would like to join an existing company and those who may become games/immersive media entrepreneurs. Given that level up interest in the industry it is only logical to ask why these indies are not already in the industry. As the following chart illustrates, several factors are common, including the perceived lack of positions.

Figure 17: Reasons not already in games/immersive media



In the Calgary context, it is particularly notable that the perceived risky nature of games/immersive media employment and better pay outside of the industry are significant factors. It may be the case that the promise of longer term, more stable, better paying jobs in the oil and gas sector is dissuading indies from more fully committing to the industry.

3.4 Other Ecosystem Assets

At the same time, the industry seems to be structure around several associations and groups, including:

- **Calgary Game Developers Association**: the non-profit numbers 825 members with different levels of experience and expertise and has the objective to build a video games community in Calgary with meetups, workshops and coworking sessions.
- **Calgary Unreal Meetup**: this group (160 members) hosts events and talks to learn and exchange on Unreal Engine projects.
- **Alberta Makes Games**: a provincial directory and platform for community resources.
- **Digital Alberta**: this provincial not-for-profit organization promotes innovation and collaboration between a number of sectors that relate to digital creation (including video games, mobile apps, XR, AI, marketing, e-commerce, education, etc.). Digital Alberta's website lists funding sources and training programs available and has a member directory of about 40 members. Digital Alberta has also been celebrating excellence in the province with its annual Ember Awards.
- **VR/AR Association, Alberta Chapter**: this international organization helps XR companies connecting with key players in the ecosystem, collaborating with innovators and creators and regularly releases research publications.
- **The Alberta Machine Intelligence Institute (Amii)**: Amii is an Alberta-based research institute, partner organization with the University of Alberta, with the objective of guiding business understanding of artificial intelligence and machine learning.

Meanwhile, a dozen of organizations act as business development catalysts, such as:

- **Startup Calgary**: part of Calgary Economic Development since 2017, Startup Calgary fosters Calgary's entrepreneurial spirit with a range of events, programs and resources.
- **Platform Calgary**: focusing on placemaking, acceleration and advocacy, this nonprofit works to make Calgary a global hub for startups and innovation. Platform Calgary also operates the Alastair Ross Technology Centre and the upcoming Innovation Centre.
- **Creative Destruction Lab Rockies**: the Calgary branch, housed in University of Calgary, supports startups at all levels of maturity, from a variety of innovation areas, including digital oil and gas, blockchain, supply chain, etc.
- **Assembly**: a coworking space in Kensington which has been supporting local tech start-ups for over a decade.
- **Alberta Innovation Corridor:** a joint pursuit in Alberta's big-city innovation ecosystems, and an advocate for technology-enabled innovative companies in Alberta..
- **Thin Air Labs**: an integrated venture studio for small developers to be launched soon. Thin Air Labs plans to support 50 teams over 5 years.

2019 marked the first edition of a major event for Canada's video games industry:

- **Reboot Develop Red**: taking place in Banff, the Reboot conference welcomes video games industry professionals to a celebration of all things video games.

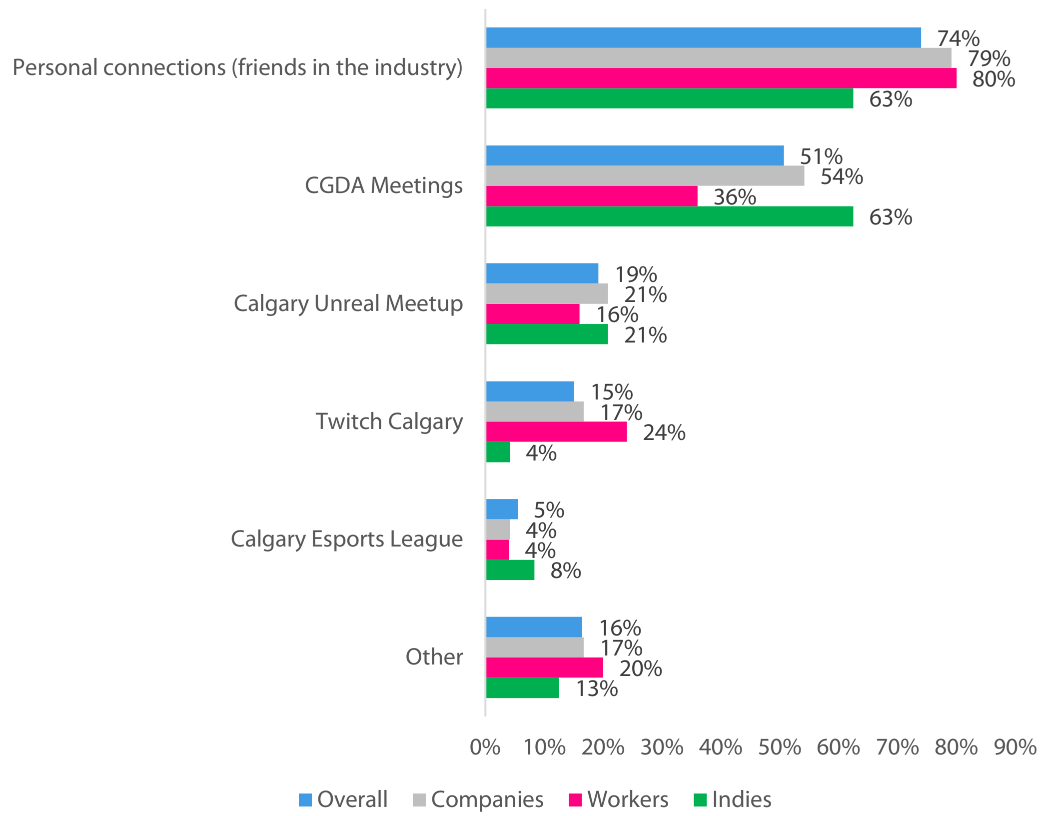
Several post-secondary institutions in Calgary are a gateway for the video games and immersive media industries:

- **Alberta University of the Arts** (e.g., Bachelor of Fine Arts in Media Arts)
- **South Alberta Institute of Technology** (e.g., Basic 2D Game Design Certificate)
- **University of Calgary** (e.g., Bachelor of Science in Computer Science with a Concentration in Computer Game Design, Game Design Student Club, forthcoming game development post-graduate program)

3.5 Key Issues

As suggested in Section 2.3, one of the hallmarks of a successful video games/immersive media ecosystem is well-connected industry with multiple levels of collaboration and communication. As the following chart illustrates the industry in Calgary primarily communicates via personal connections.

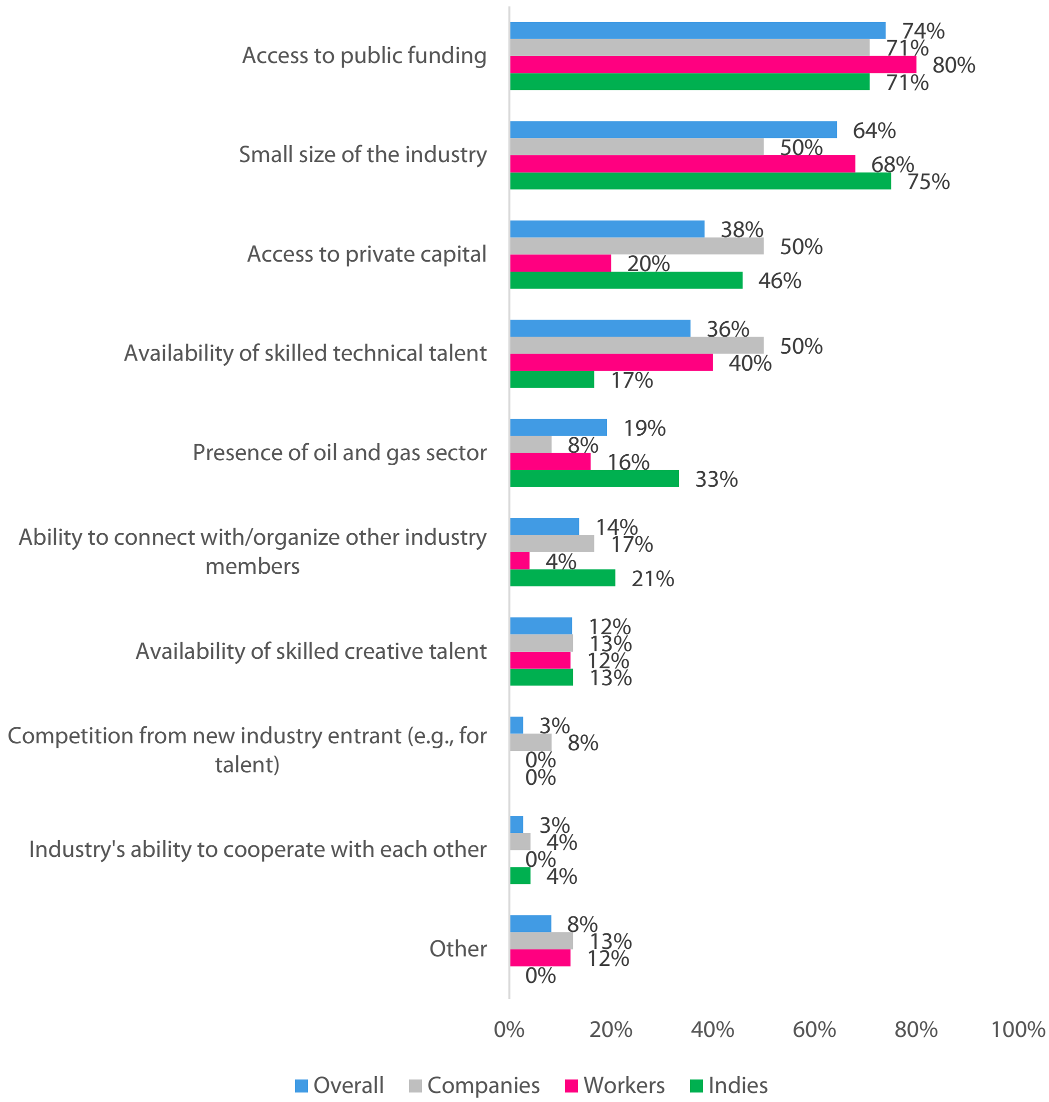
Figure 18 Methods of connecting with industry in Calgary



While the trends are mostly the same for each respondent group (companies, workers and indies), it is clear that indies are more likely to use CGDA meetings to connect to other industry members than those workers employed by companies. Indies are also least likely to rely on “friends in the industry,” which is typical of those trying to enter an industry.

Beyond collaboration, video games and immersive media industries can face a host of challenges ranging from available talent to the availability of funding for projects. As the following chart illustrates, access to funding (both public and private) is a commonly reported perceived issue:

Figure 19 Top issues facing the games/immersive media industry in Calgary



Of note, indies (who are the least connected) are most likely to be concerned about the size of the industry – and also most concerned about the influence of oil and gas on the industry. On the other hand, companies seem equally concerned about the size of the industry, private capital and the availability of skilled technical talent.

The top issues pinpointed by stakeholders also give a sense of the priority objective that a successful strategy should aim for. The larger companies recently attracted to Calgary (e.g., New World Interactive, Finger Food Advanced Technology Group) arrived with the understanding that they would be able to benefit from the IDM tax credit and/or the investor tax credit. Those incentives made up, in part, for the relative lack of local talent in Calgary by lessening the effective cost of bringing in new talent to the province. Absent those incentives, the focus needs to be henceforth on building a talent base in Calgary. As suggested in Section 2.3, talent flow is a substantial and diversified talent pool and clear career paths are critical factors. In time, that talent base may attract new foreign direct investment (FDI) and will moreover form the basis of an argument for a reinstated tax incentive. In the meantime, CED's FDI activities regarding video games and immersive media will be necessarily opportunistic, for instance with a company whose leadership wants to move back to Calgary for personal reasons.

4. Comparative Analysis

This section presents four comparable examples of cities that developed their video games and immersive technology industries: Vancouver (BC, Canada), Melbourne (Australia), Helsinki (Finland) and Austin (TX, USA). A summary of learnings is provided at the end this section, as well as a list of elements that could be inspire, to some extent, Calgary's strategy.

For every jurisdiction, Nordicity examined the local context (e.g., size of the industry, key stakeholders, recent developments, etc.), factors of success, support instruments and organizations (e.g., tax credit, grants, industry associations, incubators, investors, etc.), education and training opportunities, and strategic plans for the interactive digital media sector. Not all aspects were publicly available for every jurisdiction under review.

4.1 Vancouver, BC

There is no doubt that BC is an international hub for creative industries. Vancouver is not only one of the top film centres in North America, but also a hotbed for visual effects and animation praised globally. All year long, Vancouver hosts world-class creative events such as SIGGRAPH or the VR/AR Global Summit. The video games sector in British Columbia – consolidated in the Vancouver area – is a mature industry with numerous legacy studios such as EA, Activision/Demonware, Microsoft and SEGA/Relic. In fact, Vancouver comprises over 170 video games development studios, as well as over 200 companies in the immersive technologies sector (e.g., Archiact, Stambol Studios).[11] 27% of the workforce employed in the Canadian video games industry is based in British Columbia.[12]

Despite the excellence of the Vancouver ecosystem and the presence of leading global studios, the video games industry exhibited mixed signals in recent years, starting with the closures of Bandai Namco and Capcom Game Studio's Vancouver offices, which led to 150 jobs cut.[13] Nordicity's latest report for the Entertainment Software Association of Canada indicates that British Columbia was the only province showing a decrease in the number of active companies between 2017 and 2019.[14] At the same time, Relic Entertainment (*Age of Empire*) and mobile gaming developer Kabam are both expanding in cutting-edge new offices and planning on increasing their headcount in the coming years.

Furthermore, now that Alberta has abandoned its tax scheme, British Columbia might be able to reinforce its attractiveness. British Columbia's **Interactive Digital Media Tax Credit** was initiated in 2010 and now offers rebate up to **17.5% of eligible salary and wages** – which is the lowest rate against other Canadian provinces that offer such incentives. The Government of British Columbia provided additional information on eligible XR products, which include non-entertainment products.[15]

Digi BC, the Interactive and Digital Media Industry Association of British Columbia, is a member-based not-for-profit that supports, promotes and advocates for the video games, VFX, animation and XR industries. It is the principal catalyst of the sector in British Columbia and is based in Vancouver. In

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[11] Vancouver Economic Commission – *Digital Entertainment & Interactive*

[12] Creative BC, *Impact Report 2018-2019*

[13] Business In Vancouver, *Why Alberta poses a new threat to BC gaming industry,* Sep 28, 2018

[14] ESAC, *The Canadian Video Game Industry 2019*

[15] British Columbia – *Interactive Digital Media Tax Credit FAQ*

addition to facilitating collaboration between stakeholders (companies, post-secondary institutions, decision-makers), Digi BC administers three outreach programs:[16]

- **Play to Learn**: launched in 2016, this program lets students in grades eight through 12 to learn the basics of coding, as well as the necessary skills to pursue a career in the gaming industry. The program is supported by the Ministry of Education and partner companies (primarily EA) and has engaged with over 6,000 students since its inception.
- **IndigiGeeks**: this program helps Indigenous youth build a professional path towards the interactive and digital media industry.
- **DigiMusic**: this annual competition, developed in collaboration with Creative BC, invites students in grades 8 through 12 to submit an audio composition for one of the four provided video clips. It is also an opportunity for Digi BC to promote career pathways in the interactive and digital media industry.

The emphasis is therefore put on the next generation of talent and making sure that they see the IDM as a viable and multifaceted industry. There is not lack of educational institution with a focus on IDM – if not specifically video games – in Vancouver: UBC's Master of Digital Media, Vancouver Film School's Game Design programs, Centre for Digital Media, Vancouver Animation School, etc.

The tech ecosystem in Vancouver also benefits from a rich and diverse entrepreneurship culture, with several business accelerators and incubators open to video games and immersive technologies ventures. For instance, Victory Square invest in startups innovating in the gaming sector through XR, AI or blockchain and Launch Academy partnered with the VR/AR Association Vancouver Chapter to develop a 12,000 square feet immersive space.

While all ingredients are reunited at the provincial level, there are no Vancouver specific support instruments for video games and immersive technologies. There is a Vancouver Music Strategy, as part of the new cultural master plan[17] for the city, but no interactive digital media plan so far. The City of Vancouver still works hard to get the word out about its vibrant IDM scene. This is the role of Vancouver Economic Development; its website summarizes the key selling points for Vancouver's Digital Entertainment and Interactive sector: an integrated creative ecosystem, leading-edge affordable infrastructures, attractive business climate (tax incentive, lower operating costs), long-time presence of global stakeholders and a great quality of life.[18] [19]

4.2 Melbourne, Australia

Despite success stories like Halfbrick's *Fruit Ninja* (more than one billion downloads), the Australian video games industry particularly struggled in the late 2000's – mid 2010's. Indeed, 60% of the studios' workforce disappeared between 2007 and 2012, partly as a result of the global financial crisis.[20] At that time, the Australian game industry was predominantly made up of studios owned by foreign companies and substantially reliant on work-for-hire projects. Under the pressure from the

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[16] Digi BC, Programs

[17] City of Vancouver, *Culture|Shift: Blanketing the City in Arts and Culture Vancouver Culture Plan 2020-2029*

[18] Vancouver Economic Development, *Video Games and Interactive Media*

[19] Vancouver Economic Development, *Virtual, Mixed, and Augmented Reality*

[20] Environment and Communications References Committee, *Game on: more than playing around*

crisis, many of the home offices pulled the plug and/or terminated contracts, leading to Australian studio closures.

This climate of uncertainty contributed to the Ministry for the Arts' decision to create the Australia Interactive Games Fund (AIGF) in 2012-2013. However, the Fund was terminated in 2014, disbursing only half of its AUD $20 million budget. The closure of Canberra-based 2K-Australia (behind the BioShock franchise) in 2015 was another sign of a fragile situation. In April 2016, the Australian Senate held an inquiry into the future of Australia's video games development industry, which resulted in a report titled *Game on: more than playing around.* [21] This report advocated for greater recognition of the industry and for better support mechanisms. In its response (two years after the original release), the Government simply noted the recommendation regarding the reintroduction of the AIGF, and clearly stated that it did "not support [the] recommendation" regarding the development of a refundable tax offset for video games. [22]

The termination of the AIGF and the Government's response to *Game on* illustrate the fact that the video games industry does not appear to be a priority at the federal level. As such, states authorities took over the support for video games, notably through their respective screen industry or innovation offices.

Melbourne (Victoria) has become the beating heart of the Australian video games and immersive technology industries: 36% of video games development studios are based in Melbourne, in comparison to 21% in Sydney. [23] This creative hub aspires to global recognition thanks to a vibrant community of indie developers like Mountains Studio (*Florence*) and Hipster Whale (*Crossy Road*), successful service companies such as PlaySide, and the establishment of international studios like Epic Games (*Fortnite*) or EA/Firemonkey Studios [24]. Melbourne is also home to the largest professional and consumer platform for digital games and immersive technologies in Asia Pacific, the Melbourne International Games Week (MIGW) and to the Melbourne Esports Open, a two-day event that gathers 17,000 Australian fans every year. In short, the video games industry is well-established and poised for continued growth in Melbourne.

It seems like there is less support for video games and immersive technologies at the city level than at the **state level**. Melbourne's creative strategy (2018-2028) is simply a roadmap to better integrate creativity and the creative industry into city planning: gaming is only identified as one of the many creative practices, but no commitment is made to support this particular area. [25]

As such, Creative Victoria has a much more ambitious plan for video games and immersive technologies. [26] This strategy is structured around six pillars: [27]

- **MIGW**: Creative Victoria wants to leverage this event to connect Victorian talent with the global video games community.

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[21] Ibid.

[22] *Australian Government response to the Environment and Communication References Committee report*

[23] Ibid.

[24] Firemonkey Studios cut between 40 and 50 jobs in February 2019 following a restructuring plan around the studio's live services.

[25] City of Melbourne *Creative Strategy 2018-2028*

[26] Creative Victoria, *Creative State 2016-2020*, in the process of developing its strategy for 2020-2024

[27] Creative Victoria, *Quick Guide – Digital Games*

- **Funding**: the strategy restates the funding role of the State's film commission. Film Victoria supported 32 video games projects in 2017-2018. One of the recent projects supported by this fund was the surprise hit *Untitled Goose Game*, which sold more than 100,000 copies on the Nintendo Switch.[28] Four grant strands tackle the key issues identified by the industry, from development financing to marketing to skill retention:

	Assigned Production Investment	Games Release	Women in Games	Games Company Placements
Area covered	Early development Development Marketing	Marketing Distribution	Training Gender balance	Training Talent retention
Amount	Up to AUD $150,000 Up to 50% of budget	Up to AUD $30,000	Up to AUD $20,000	Up to AUD $20,000 Up to 50% of wages

- **Trade and cultural missions**: trade conference represent critical points where companies can not only learn from their peers from all around the world, but also opportunities to develop business. Creative Victoria pledges for increased participation of creative companies, including video games companies in export programs and trade missions. As such, Victoria sent its largest delegation to date (80 persons) to the 2019 Game Developers Conference in San Francisco. A trip to Cologne's Gamescom and a Seattle mission were also organized in 2019.
- **Inbound trade missions**: similarly, Creative Victoria is working with the State's government toward greater representation of creative industries in the Victoria Invitation Program and all opportunities that connect local creative companies with international visitors**.**
- **Business acceleration**: Creative Victoria collaborates with organizations that fund, finance and invest in video games companies such as LaunchVic, a public body that supports the startup ecosystem, or the Melbourne Accelerator Program (University of Melbourne), which supported more than 150 startups in various sectors.
- **Co-working spaces & creative places**: the strategy emphasizes the value of collaboration in the creative industries. The most relevant example is Melbourne-based **The Arcade**, a not-for-profit collaborative workspace specifically designed for game developers and companies using gaming technologies.[29] The Arcade offers working space at one of the best prices in Melbourne, meeting spaces, desk and offices (open and permanent). The Arcade also promotes shared-knowledge and hosts workshops and seminars for the community. It also houses the Game Developers Association of Australia (GDAA) and 47 companies, including award-winning indie studios Mountains Studio and Samurai Punk. Created in September 2013 thanks to funding from Film Victoria and seed money from the GDAA, The Arcade has largely participated in the success of Melbourne's video games industry and in the development of a creative community.

4.3 Helsinki, Finland

For more than two decades, Finland has been a fertile ground for mobile technology. Nokia spearheaded this innovation spirit, establishing the foundation of a rich local talent pool of

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[28] See this article from the ABC.

[29] The Arcade Melbourne

developers, programmers, animators and designers. Despite Microsoft taking over Nokia's smartphone division in 2013, the appetite for mobile technology and computer gaming has not vanished. On the contrary, since the 2000's, the Finnish video games industry has maintained a strong momentum – with a boom in 2011-2015 – making it one of the major global hubs for video games. In 2010, the Finnish video games industry's turnover was €105 million, and €2 billion in 2018.[30] This growth was driven primarily by mobile gaming, with companies like Rovio (*Angry Birds*) or more recently Supercell (*Hay Day, Clash of Clans*). However, Finland has also seen success stories in the non-mobile sector, for instance Remedy Entertainment (*Max Payne, Alan Wake, Control*). Such a positive development was made possible by the support provided by the Finnish Government though Tekes, the national funding agency for technology and innovation, which invested a total €140 million in the video games sector between 2004 and 2015. In particular, a game specific program called Skene – Games Refueled granted €30 million over the 2012-2015 period, supporting success stories like Rovio, SuperCell, Remedy and Small Giant. Today, public funding for video games is offered by Business Finland.[31]

Supercell, Remedy and Rovio are all based in Helsinki (or its near suburb Espoo). Actually, Helsinki is home to 46% of the video companies in Finland, and 97% of the national video games industry's turnover is generated by companies established in the Capital Region.[32] To be more precise, Supercell generates a crucial share of this turnover, even though the whole industry is starting to become less dependent to Supercell's performance: in 2018, Supercell's share of the Finnish turnover was 65%, against 88% in 2015. The rapid growth of Helsinki on the global stage, notably as it relates to mobile gaming, led to the establishment of major global game giants like EA, Ubisoft, Unity and Microsoft and the arrival of an increasing number of mobile gaming companies (e.g., Zynga, WarGaming).

As it is the case in many jurisdictions, the Finnish video games industry identified key challenges in the access to early stage funding, the use of data analytics, discoverability for smaller, indie productions and in the labour shortage (especially at the senior level). At the other side of the spectrum, Finland is praised for the creativity of its startup and indie developers (despite the closure of a few companies post 2011-2015 boom), its tight-knit video games community, the different clusters and incubators[33] and the quality of life.

To build on these strengths and tackle the barriers, the city of Helsinki is taking part to the Baltic Game Industry Project (BGI). This project "aim is to foster innovation power and the emergence of a powerful game business scene around the Baltic Sea, to strengthen internationalization and cooperation across stakeholders and countries, and finally to make the region a game business hotspot with a joint branding."[34] This partnership gathers 47 organizations from eight countries and is built around three elements: (i) create favourable framework conditions (policy and regulations), (ii) build stronger incubation capacity, and (iii) foster VR in non-game sectors. For Finland, the participating organizations are the city of Helsinki, Metropolia University of Applied Sciences (Helsinki) and Neogames, a member-based not-for-profit industry association supporting the development of the Finnish game cluster.

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[30] Neogames, *The Game Industry of Findland – Report 2018*

[31] List of public funding instruments and private equity funds on Baltic Games

[32] Ibid.

[33] See list of regional game clusters on Neogames - Operators

[34] From BGI website - Project

As part of the BGI, the City of Helsinki developed an *Action Plan to Strengthen Game Industry*, released in March 2019.[35] The plan unfolds in three components, as summarized below:[36]

1- Improving accessibility of public support measures for games industry SMEs	
Needs	▪ Necessity of stable funding ▪ Easier access to information ▪ Support mechanisms specifically designed for video games and immersive technologies
Actions	▪ Mapping the gaps in access to information ▪ Implementing bespoke support mechanisms to bridge these gaps ▪ Creation/Identification of a lead body in city administration responsible for the design and administration of specific measures for the video games SMEs

2- A private-public cooperation in city marketing and talent attraction	
Needs	▪ Increasing global competition/struggle to find skilled talents ▪ Importance of a brand for the Helsinki and Finnish video games industry (marketing)
Actions	▪ Development of a marketing plan for talent attraction ▪ Development of a cooperation plan ▪ Identifying ways to support the relocation and integration of global talents and their families

3- A clear route for games industry professional for amateur talent	
Needs	▪ Securing steady growth of local talent ▪ Lack of business acumen for young developers ▪ More spaces to develop both creative and business skills, formal and informal education
Actions	▪ Identifying measures to facilitate entrepreneurship in the video games sector ▪ Developing an incubator pilot (with Metropolia University) to better understand the needs of young entrepreneurs ▪ Implementing the BGI principles and best practices on games industry incubators ▪ Developing a mentoring system and improve matchmaking for local internship positions

This strategy places collaboration between public and private organizations at its centre. As such, Neogames will help with stakeholder consultation and engagement and will facilitate cooperation. The City of Helsinki will design plans, models and incentives. Metropolia University will set up the incubator project and Business Finland will support additional research.

The *Action Plan* also draws on a cohesive, well-structured and engaged community. The Finnish chapter of the International Game Developers Association has been recognized as one of the most vibrant and fastest growing chapters, offering extensive monthly programming and leaning

[35] Action Plan to Strengthen Game Industry in Helsinki

[36] Summary tables based on Action Plan to Strengthen Game Industry in Helsinki

opportunities.[37] The co-working space Arcade5 (previously the Game Factory), also plays a crucial role.[38] The Arcade5 building is entirely dedicated to gaming, with offices, collaborative spaces and events. Arcade5 is co-administered by Helsinki Games Capital, an industry association formed in June 2019, and by Maria01, the innovation and entrepreneurship campus west of downtown Helsinki.

Finally, another initiative worth mentioning is the Helsinki XR Center, a digital innovation hub of immersive technologies that opened in January 2019. Supported by the Metropolia University and the Finnish Virtual Reality Association, it is one of the largest startups centres in Europe that is specifically dedicated to XR technologies.[39] That enthusiasm for investing in tech-based start-ups has spilled over into games, with investors list Play Ventures and Sisu Ventures motivated by several recent successful exits (e.g., Supercell in 2016 for US$8.6 billion).

4.4 Austin, TX

Austin is the creative capital of Texas, with a vibrant independent film community, and a historical music scene, earning it the title of "Live Music Capital of the World". Nonetheless, Austin's tech and digital sector is not outdone: about half of Texan video games companies are established in Austin (140 companies out of 270).[40] This roster includes a fair number of big names, some Austin-brewed like computer technology company Dell, video games studio Certain Affinity *(Left 4 Dead*), and many more based in other US states or abroad such as Zynga (*Farmville*), Magic Leap, Nintendo (Retro Studios), EA, BioWare, Activision Blizzard, Unity, NCSoft, Facebook, Google and Apple. Austin fosters all creativity and facilitates exchanges between film, music and interactive media. The epitome of this convergence is SXSW, a forward-looking event encompassing a wide range of topics (including XR and video games) with a combined attendance of 80,000 visitors.

Austin has developed a strong entrepreneurial fabric and now competes with major tech hubs. The "Silicon Hills" is draining talent out of the Silicon Valley.[41] Tech workers are leaving California for Austin's lower cost of living, numerous big tech opportunities and its well-established ecosystem of venture capital investors, accelerators and incubators (e.g., Tech Ranch, Sputnik ATX, etc.).

The success of Austin also hinges on competitive programs at universities, for instance the Game and Mobile Media Application program[42] at the University of Texas, which also houses the high-tech collaborative spaces Bill & Melinda Gates Computer Science Complex and Dell Computer Science Hall. SMU Guidhall, one of the top ranked institution for game design, is located in the Dallas suburb, only a few hours away from Austin. These programs are designed in collaboration with local companies to ensure that the gaps are filled by new graduates. Companies can therefore source highly skilled labour locally, which is a challenge for many jurisdictions. Global studios and big tech companies mentioned above came to Austin because they knew they would find this combination of entrepreneurial spirit, unleashed creativity, and state-of-the-art education.

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[37] IDGA Finland

[38] Arcade5

[39] Helsinki XR Centre

[40] Statesman, *Austin dominates state's video game industry, new data show*, Mar 8 2018

[41] Business Insider, *Silicon Valley tech talent is flocking to Austin, TX*, Jul 6, 2019

[42] KVUE/ABC, *UT creates video game design degree to meet demand of the $137 billion gaming industry*, Feb 28, 2019

Austin's video games sector owes a great deal to tech and games pioneers Dell and Origin Systems (a studio since bought and dissolved by EA), which both started in the early eighties and initiated the tech momentum. Today, Austin is one of the best places for business in the USA. Ranked as the best place to start a business by CNBC in 2016, Austin is the urban area with the fastest growing population.[43] Texas also offers one of the best corporate tax environments. As such, the success of Austin's video games industry was not as planned as in other jurisdiction under review. In fact, gaming is only mentioned a few times in the city's Cultural Master Plan (2009-2019)[44] and the latest report on the impact of the creative sector was released in 2012[45].

However, this does not mean that Austin does not support the industry. The Cultural Arts Division, the Economic Development Department and Austin Chamber work together to strengthen the creative industries in the Austin region, including video games. Video games companies can access the Creative Content Incentive Program, an incentive that funds 0.50% of wages paid to local workers. Projects produced by an Austin-based company or which significantly promote Austin may be eligible for an additional 0.25%. Additionally, video games projects are eligible to the Texas Moving Image Industry Incentive Program, a cash grant that amounts up to 22.5% of eligible Texas spending.

In summary, while at first sight it seems less structured, Austin has built a strong case for a thriving video games industry, assembling the three key ingredients identified in Section 2.3:

- **Talent flow**: abundant educated labour, competitive tech programs;
- **Triple helix engagement**: inciting business environment for investors and entrepreneurs (e.g., regulation, low personal income and corporate taxes, grants), connections between industry and training organizations; and
- **Clear pathway**: strong creative identity, recognizable brands, big tech names.

4.5 Key Lessons Learned

Two approaches can be discerned based on this benchmarking exercise. On one hand, Vancouver and Austin have opted for organic growth. The two cities have a deeply rooted, mature tech and video games ecosystem. To some extent, their core strategy is to sustain a video games industry that emerged "by chance", spearheaded by legacy studios like Origin Systems in Austin, Distinction in Vancouver. These pioneer studios served as oak trees from which many acorns dropped and sprouted. Cities facilitated this growth by preserving competitive advantages (e.g., an attractive business climate), while occasionally bridging gaps (e.g., education, targeted incentives). With time, a tight-knit, supportive community emerged, as well as robust structures that reinforced the sector. This approach is possible where an "oak-tree company" has demonstrated a strong trailblazing performance. For instance, Edmonton is starting to see this type of organic strategy emerge, given the presence of BioWare.

On the other hand, Melbourne and Helsinki have gone the pro-active route, and developed a more defined strategic plan for the video games and XR industry. In these cities, the video games industry comprises many small and medium video games companies and a buoyant indie community. By designing a bespoke plan for video games, these cities want in the first instance to reinforce the

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[43] CNBC Metro 20, *The top 20 metro areas to start a business in America*, Aug 11, 2016

[44] *Austin Cultural Master Plan*

[45] Austin Chamber, *The Economic Impact of the Creative Sector in Austin* (2012)

entrepreneurship and SMEs local fabric, knowing that this will eventually generate more economic value from owned IP, and potentially attract larger companies and investments. Once again, this is only possible though consultation with the community. With an existing industry comprised of many startups and hobbyists, Calgary could learn from this second approach.

5. Strategies for Success

5.1 Key Strategic Themes

At the highest strategic level, Calgary needs more successes to emerge from the local game and immersive media sectors. Companies, with talent on the ground in Calgary, producing successful products, delivering economic impact. Currently, there are just too few companies in Calgary, making too few products.

As is seen in other vibrant ecosystems, the triple helix engagement of government, academia and industry generates the needed context for that success to emerge. With a properly supported ecosystem, the right talent can flourish in Calgary. And, with programs and resources needed to make the path to success more evident, that talent will be more capable to deliver success.

The below recommendations are a reflection of those higher-level strategic themes, uniquely designed for the specific context and current state of Calgary.

5.2 Encourage and support the creation of a formal Alberta trade association

Having a trade association to represent the business interests of local companies is a pre-condition of building a successful ecosystem. Alberta is behind the ball on proper governmental representation and lobbying efforts, as these functions are currently being undertaken by individual companies and/or by city-based representatives.

A single, cohesive, voice is needed at the bargaining table. This entity will rally the Albertan studios and drive the engagement with government.

CED's Role

CED would need to work with its counterparts in Edmonton (and other parts of Alberta) to ensure that the focus remained on Alberta-wide initiatives (e.g., the tax credit). As this would ultimately need to be driven by industry, CED would then "nudge" key industry leaders to take action, with commitment for financial support, and access to other resources to get the ball rolling.

Expected Outcomes

Alberta would have a single, coordinated voice with which to represent the industry at the Provincial level. CED (along with its counterparts in other parts of the province) would then have an on-going relationship with this provincial association.

Doing so would also bring Alberta up to speed with the industry in other provinces, who generally have trade associations representing their respective industries.

A concerted voice would also increase the potential to reinstate tax credit and/or make the case for other support incentives and programs.

5.3 Create "PlayCalgary" to drive and support entrepreneurship

Much like how Startup Calgary is the one-stop-shop for "all things startup" in Calgary, PlayCalgary would serve a similar role – simply with a focus on games and immersive technologies. As such, PlayCalgary would be a one stop-shop for video games and immersive media specific industry info, support, training and related entrepreneurship programs.

Whereas Startup Calgary does a good job of supporting entrepreneurs in general, Calgary video games and immersive media developers are not getting the right level of support and guidance. As such, the suite of existing services should be reviewed in detail – and re-packaged to be more relevant to games companies. Some programs (e.g., those focused on basic business skills such as incorporating a business) would simply need to be re-branded, while others (e.g., those related to product development) would need to be entirely reformulated to reflect the complex realities of the games business.

Importantly, this organization would be purely Calgary-focused and would be distinct from the Alberta-wide trade association (see Section 5.2). Whereas the industry association would focus on advocacy for the province as a whole, PlayCalgary would be focused on providing services directly to games developers in Calgary. That said, the two organizations would be encouraged to work together on industry-wide initiatives.

Programming offered by PlayCalgary would be focused on business, marketing, economic and entrepreneurial aspects of the video games and immersive media industries. As such, the efforts of PlayCalgary would strive not to overlap with existing community initiatives like the CGDA's event and the Unreal Meetup. Rather, PlayCalgary could support/promote those efforts, thereby increasing their respective reach in Calgary. Further, PlayCalgary could act as a coordinating body between the various offerings emerging for the games industry in Calgary (e.g., TAG's incubator, workshops by Finger Foods, etc.).

As Figure 19 shows, many companies in Calgary find it difficult to find the right talent. Accordingly, PlayCalgary would also maintain a network of freelancers, consultants and specialist resources both in and outside Calgary. This network would be leveraged both in terms of implementing mentorship and training programs, as well as directly helping on company projects when such hard-to-find skills are needed.

Given the overwhelming complexity of these industries, PlayCalgary would need a minimum of two dedicated full-time staff with direct experience and knowledge of the game/XR industries. Ideally, these employees would be an Executive Director (responsible for running the programming and for providing industry connections) and community manager (responsible for proactively engaging the local industry).

CED's Role

CED would help setup, and assist in the selection of the staff for, PlayCalgary. CED could also help to locate source for operating capital, with the potential to find matching funds via other economic development organizations (e.g., Western Economic Diversification, Alberta Innovates). Ideally, the capital allocation would be sufficient to staff PlayCalgary and fund programs for a minimum of 4-5 years.

Expected Outcomes

The programming and resources provided by PlayCalgary would dramatically accelerate learning and upgrade entrepreneurial skills among Calgary game and immersive media companies. More critically, start to create the "path to success", inspiring other developers to jump in, and move them past the hobbyist stage.

Doing so, would help to ensure that the projects and studios that exist are more market-ready and thus have a better chance to succeed, thereby moving the industry/community away from a purely grassroots level.

5.4 Assist in the creation of a collaborative/co-working space for video games and immersive media companies (the "Hub")

Modelled after similar spaces in other successful jurisdictions (e.g., Montreal's GamePlay Space, Helsinki's Arcade5, Melbourne's The Arcade), this location will offer low- or no-cost office space and act as a physical catalyst for networking and collaboration within the sector.

The Hub would also serve as the home for PlayCalgary, who would have the responsibility to manage the space, and run their programming within the space. The first floor would allow start-up companies, freelancers, and aspirants to work in a communal space (and have shared facilities), while floors two through four would house more established companies seeking more traditional office space (with walls, doors, etc.). As such, it would include companies along the corporate development spectrum (as illustrated in Figure 6).

This Hub concept builds on one of Calgary's competitive advantages: unoccupied office space. Moreover, absent a tax credit, the space would lower operating costs by addressing the overhead portion of a games/immersive media company's budget (typically 15-20% of annual operating expenses).

The facility would also provide a dedicated venue for inter-company collaboration and for accelerated learning within the sector (e.g., PlayCalgary's own programming, Unity engine workshops, etc.). The Hub would also provide (low to no cost) space for community events and meetings (e.g., for the CGDA and/or Unreal Meet-up). The Hub would also welcome other interesting players within the ecosystem (e.g., one of Devolver's web developers lives in Calgary and should be invited to operate from the space).

A non-exhaustive list of other considerations that should be taken into account then creating this Hub include:

- Whether the landlord would have any stake in the tenant companies;
- The role of private investors in creating and maintaining the Hub;
- The precise revenue model of the Hub and how that model could be supported by the City (e.g., via property tax reduction, wage subsidies, etc.); and,
- The location of Hub (in a "cool" jurisdiction) and whether or not any existing municipal buildings could be used.

CED's Role

CED would need to identify the appropriate partner(s) to buy/lease the space, lead a design consultation, identify anchor tenants, and manage the renovation alongside PlayCalgary (who would serve as stewards and administrators of the Hub).

Expected Outcomes

The Hub would be the physical manifestation of the video games and XR industry in Calgary, creating a dynamic space for learning and collaboration, ultimately serving as a platform for community success.

Further, the low rent would help lower the cost of operating a studio in Calgary, increasing the long-term viability of businesses. And, more broadly the scale of such a project (and the likely need for other governmental agency support), would show a positive sign of the city/Province's commitment to support the industry (and help to offset the negative reputational impact of the tax credit removal).

5.5 Create a project and IP commercialization fund

Funding is the fuel that allows new companies to form and projects to get created and commercialized. Most of the capital that is in circulation in Calgary is inaccessible and/or not optimized for early stage game studios or immersive media projects. Without access to funds, would-be entrepreneurs are stuck on the sidelines, or the growth potential of existing companies is limited.

A dedicated fund is needed, with two streams: one for game project funding, and another for the commercialization of XR intellectual property.

The games stream could include two funding instruments: An earlier stage prototyping grant ($50k) to stimulate the initial creation of commercially viable games, and production financing as a conditionally repayable loan via revenue share structure ($250k). Ontario Creates' "Interactive Digital Media Fund" serves as a good model for inspiration.

The XR IP commercialization stream would provide the needed funding to productize XR related technologies. As many immersive media companies work from client contract to client contract, there is little time or funds to separate out interesting technologies that could become a standalone product or platform for broader commercialization.

A plausible initial target for such a fund would be a minimum of $5 million (or $1 million per year for 5 years). This model could also be augmented by a cashflow facility – potentially via partnership with a bank or an organization like Business Development Bank of Canada (BDC).

Critically, funding provides an opportunity to encourage positive behavior change via setting the rules of eligibility and selection criteria (e.g., must submit a marketing plan, conduct competitive analysis, have at least three team members, etc.). Further, these criteria should be reviewed annually, and evolve as the local ecosystem matures.

CED's Role

CED would source/raise the pool of money required and set the rules, based on industry consultation. CED would also operate the fund with guidance/support from PlayCalgary. Note, to avoid potential conflicts, it is advised that PlayCalgary does not manage or administer the fund.

Expected Outcomes

A dedicated fund will catalyze the creation of new projects. With such funding available it is likely that more startups will be formed in order to claim the funding. Further, properly set eligibility criteria will help accelerate the professionalization of existing developers.

With this funding and the required professionalism required to access it, there is an increased probability of success stories coming from local talent, both in terms of games that are more ambitious and commercially viable, and for XR companies with additional financial runway, the commercialization of their IP.

Such seed funding can also be used to attract and/or de-risk other sources of capital (e.g., angel investors, the Canadian Media Fund, international publishers, etc.). Further, recipients of the funding could be ideal candidates to participate on other programs such as Platform or Thin Air Games' venture builder.

5.6 Better leverage Reboot Red for Calgary's games ecosystem

Reboot is a longstanding European game industry boutique-style conference with a strong global reputation. For its expansion into the North American market, it chose Banff and held the inaugural Reboot Red conference in October 2019. CED was a featured sponsor, and many Calgary game developers were present alongside numerous international publishers and speakers. Reboot has made a minimum three-year commitment to be in Banff.

Having this event in Calgary's "back yard" is an invaluable benefit that should be maximized. Some ideas to explore with Reboot management:

- Host a pre-Reboot tour, pitch and mentorship day at the Hub with a pre-selected group of publishers and gurus.
- Coordinate 1-on-1 match-making meetings between Calgary studios and publishers attending Reboot.
- Run a "Best of Calgary" showcase panel session, with 3-4 top Calgary studios to demonstrate and discuss their upcoming games.
- Organize exclusive closed-door AMA sessions with a handful of the speakers and Calgary developers.
- Host a "beers and chill" networking event in the Rundle lounge, with Calgary-made games on display.
- Conduct pitch and networking prep workshops at the Hub ahead of each Reboot Red.
- Animate the shuttle bus between the airport and Banff with a rep trained to serve as a tour guide and mention Calgary specific FDI factoids.
- Ensure maximum attendance by Calgary game developers.

CED's Role

CED should continue to sponsor Reboot Red, either directly or via a pre-allocated budget within PlayCalgary and evolve the relationship into a more collaborative partnership. PlayCalgary would likely take on the heavy lifting of coordinating workshops, panels, networking events, etc.

Expected Outcomes

Aside from the usual networking and learning that takes place at such a conference, the primary benefit would be more intense exposure to publishers and investors (either at Reboot or in the Hub prior to the conference). Eventually, these interactions would lead to more publishing deals and investments for Calgary studios via direct matchmaking.

Relationships developed by these showcases would also help in building a pipeline for future FDI (e.g., of publishers, as they see success emerging from Calgary studios). In short, there will be a greater general awareness of Calgary as a game making jurisdiction.

Maximizing the presence at Reboot Red will accelerate the learning and deal-making potential of Calgary studios, leading to more success, faster.

5.7 Facilitate trade and learning missions for companies with market-ready products

In the games and immersive media industries (as in many industries), being on the event circuit is part of getting deals done and finding success. As such, there should be subsidized annual trade missions to some of the key events, such as (but not necessarily limited to):

- Game Developers Conference, March/San Francisco
- PAX West, September/Seattle

- GamesCom, August/Germany
- AWE, May/California, October/Germany

That said, the benefit of attending larger events is significantly improved with sales/pitch prep and planning. Due to the relatively junior nature of the industry in Calgary, participation in training programs would be mandatory for the teams selected for each trade mission.

In addition to the trade focused missions, there also needs to be less formal **learning missions** to key games development jurisdictions in Canada (and beyond), including Edmonton, Vancouver, and Montreal. These missions could link to specific companies and individuals purely for learning purposes (e.g., field trip to visit BioWare in Edmonton), or to visit learning-focused conferences (e.g., Full Indie in Vancouver). In this way, Calgary could better leverage the experience present in other parts of the province – and the country.

The trade missions could leverage funding from, or run alongside, existing Canada-wide programs run by CEIM and/or Global Affairs Canada. Moreover, Ontario Creates runs a similar style IDM Export program that can serve as an inspirational model.[46]

CED's Role

CED should help secure funding (e.g, via WED, GAC) and support PlayCalgary in creating and executing this program. PlayCalgary would be responsible for the selection of market-ready projects (and thus companies) and conduct the pitch training programs.

Expected Outcomes

Fundamentally, having better market access will lead to more publishing deals, investments, and contracts for Calgary studios. At the same time, having savvy Calgary-based companies in market will build greater level of awareness for Calgary-made games and immersive media capacity.

Critically, by selecting market-ready projects, along with the pitch training and pre-trip prep, Calgary studios will be more productive, gain better ROI from missions, and have a more professional approach. This will also increase the reputation of Calgary as a serious place for games and immersive media development.

Further, by subsiding the missions, more companies will have easier/less costly access to key markets. Finally, the non-trade learning trips will accelerate the learning for Calgary developers, increasing chances of success at a relatively low cost.

5.8 Establish the Hub as a gateway for immersive media and gamification needs in Calgary (and beyond)

Traditional Calgary enterprises and industries (e.g., O&G, health, finance, real estate) are not buying from local companies with the capacity to deliver on immersive media and gamification needs. This impedes growth, as Calgary studios need to chase contracts abroad.

[46] See the description of the portion of Ontario Creates' IDM fund focused on global market development here.

There is an opportunity to better evangelize the power of applied game technologies and immersive media for more serious, training, and enterprise level applications. And, further, that Calgary studios have the expertise and capacity to deliver.

The Hub can serve as a one-stop-shop for anyone interested in exploring the power of games and XR, and to connect with companies that can deliver solutions. PlayCalgary would serve as both evangelist and lead generator, funneling all such opportunities to the relevant immersive media studios.

As part of these efforts, the Hub could host a show-and-tell-style showcase event and invite local enterprises to be inspired by what can be done with immersive media and gamification solutions.

CED's Role

With the Hub and PlayCalgary in place, CED can be relatively hands off. At first, the key would be to ensure that sufficient budget was in place for PlayCalgary to deliver on this role. That said, given CED's highly prominent and visible role, CED reps can serve as additional "scouts", directing opportunities to the Hub.

Expected Outcomes

The initial outcome would be more contracts with local enterprises for XR and gamified solutions. This would lead to increased revenue flows (and assumedly via less costly local business development efforts).

Over time, PlayCalgary would grow into a "virtual agency" for Calgary-based games and XR companies linking them to opportunities and establishing the Hub as the "go-to" starting place for any XR or games related solutions and services.

5.9 Optimize talent pathways into games and immersive media sectors

Talent is a fundamental ingredient of a vibrant games and immersive media ecosystem. This is true both for the quantity of available talent, as well as having talent with the right level of training and skills.

As the survey results show, much of Calgary's local game industry, in particular, is made up of part-time or hobbyist developers. Further, would-be developers express their desire to join the sector, but are comfortable with their day-job in a seemingly more stable industry (as illustrated in Figure 17). What's more, many university students do not look at the games and immersive media sectors as a viable career option.

Programs need to be implemented to bring awareness, support and encourage more talent into the sector. Some ideas to help accomplish this type of engagement could include:

- The Hub would **welcome part-time developers**, but it would also limit some access to funding to those teams fully committed to their development businesses. By participating in programs and seeing a path to success, would-be developers will become more knowledgeable and hence more comfortable taking the risk of committing full time;
- Capture students in the latter years of their programs by having **paid internships** in teams that are in the Hub;
- Host **game jams and hackathons**, as well as other events and activities (e.g., Indie Friday) to serve as funnels to the community and gets as much talent in the door;
- Run a **Summer Immersion Program** (for students and/or hobbyists) at the Hub, where participants would form mini-project teams, access Hub programming– and mentoring from

existing Hub members. This program could also be linked to an end of term game jam, where the top 2-3 teams win a slot in the program.

In addition to these specific talent flow programs, a deeper/ongoing dialog needs to be started with local schools and educational programs to ensure longer term mapping of talent and curriculum.

CED's Role

With the Hub and PlayCalgary in place, CED can be relatively hands off. At first, the key would be to ensure that sufficient budget was in place for PlayCalgary to deliver on these talent-focused programs.

As the ecosystem evolves and more studios grow and succeed (and thus likely require more/varied talent), CED should conduct a more in-depth needs assessment.

Expected Outcomes

With a more inclusive approach and focus on pulling in would-be developers, the flow of talent will increase. While formal discussions with schools align long term, in the short term there needs to be more capacity, more teams and more projects in the works by better trained, informed and supported talent.

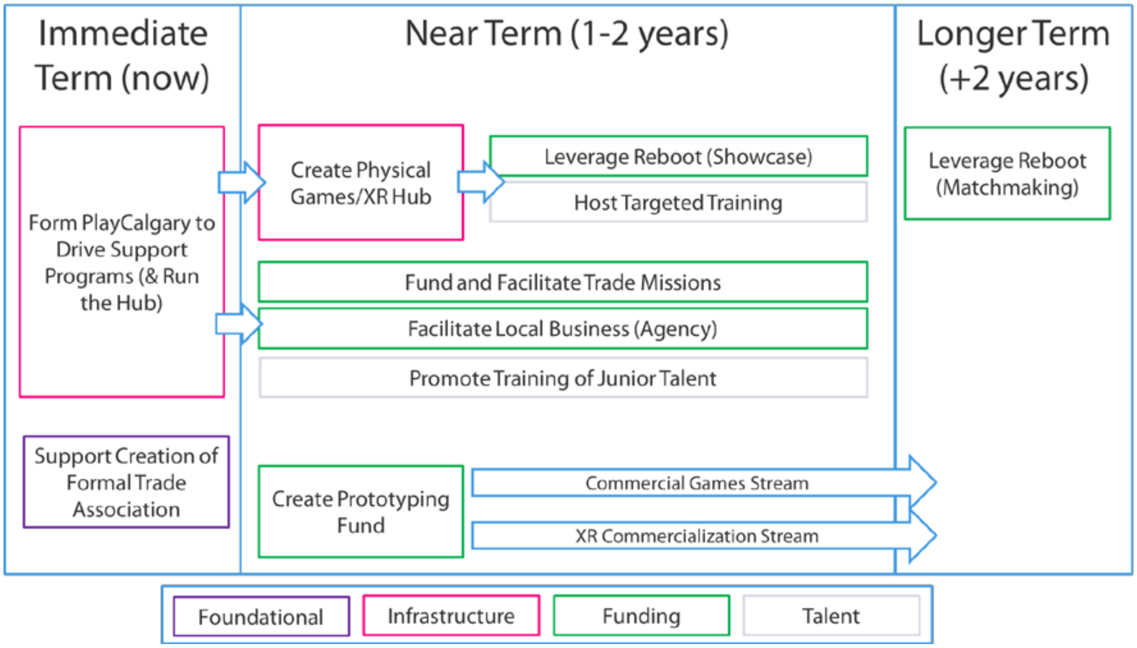
6. Implementation Considerations

Although the strategies presented above form a cohesive plan for Calgary's video games and immersive media industries, there are several considerations that CED should take into account when planning their implementation. These considerations include:

- **Multi-level Funding:** several of the strategies proposed may be of interest to provincial and/or federal funders. For example, the establishment of and/or operation of PlayCalgary may appeal to Western Economic Diversification, as it represents a project to help a key centre in Western Canada explore economic opportunity outside of resource extraction. Similarly, Alberta Innovates has recently launched a VR Health Innovation Program, indicating an interest in the immersive media industry.
- **Not Re-inventing the Wheel:** As many of the recommendations made here allude (at least in part) to programs and/or facilities in operations around the world, it is important that CED look more closely at those examples when implementing the recommendations. This examination should include both what has worked, and what might be improved. For example, should the recommendation to facilitate trade missions be adopted, CED should liaise closely with Ontario Creates to learn about how their program has been so successful – and also how they might like to see it improved.
- **Coordinating Industry Efforts:** Over the course of this study, the Nordicity team became aware of several industry-led efforts that may accomplish similar ends to those described in this study. For example, Finger Food and InceptionU are offering (or plan to offer) workshops similar to those planned for PlayCalgary. As such, it is likely that (at a minimum), coordination will be required between these entities to ensure that they complement one another (and do not complete for audience).

  Similarly, CED will likely need to incorporate one or both of the existing industry associations (i.e. Digital Alberta and Interactive Arts Alberta) into the efforts to create of an Alberta-wide industry association

In addition to these considerations, CED should consider how the proposed strategies will be staged. To that end, the following schematic lays out the recommendations on a notional timeline. The purpose of this diagram is not to prescribe a defined path, but to point out dependencies between the recommended actions.



As the above graphic illustrates, the first two items to explore are the formal trade association and the creation of PlayCalgary. While the former does not have any downstream dependencies (but is urgently needed), the latter is required to deliver programming (e.g., trade missions, junior talent development, etc.) and/or create (and then operate) the Hub.

7. Appendix

The following tables provide a list of companies that completed the industry survey, and a list of stakeholders interviewed by the project team in the context of this engagement.

Survey participants	
31Charley	Mobovivo
BridgeTownWorks	New World Interactive
BuildR	Ottocal
Dark Serpent Design Studio	Quantum Integrity Software Inc.
Devitec Corp.	Red Iron Labs
EO Interactive Ltd.	Skymarch Entertainment
Faces of Valour	Unicorn Whale
Full Couch	Vivid Helix
Isto Inc	VizworX Inc.
LateNight Apps	Wulum Ltd
MAMMOTH XR	Zugalu entertainment
Michif Media INC	

Stakeholders consulted
CGDA
Finger Food Advanced Technology Group
Isto Inc
MAMMOTH XR
Michif Media INC
New World Interactive
Quantum Integrity Software Inc.
Red Iron Labs
Start-Up Calgary
University of Calgary
Unreal Meetup Group
Vivid Helix
VizworX Inc.
Wulum Ltd
Zugalu entertainment