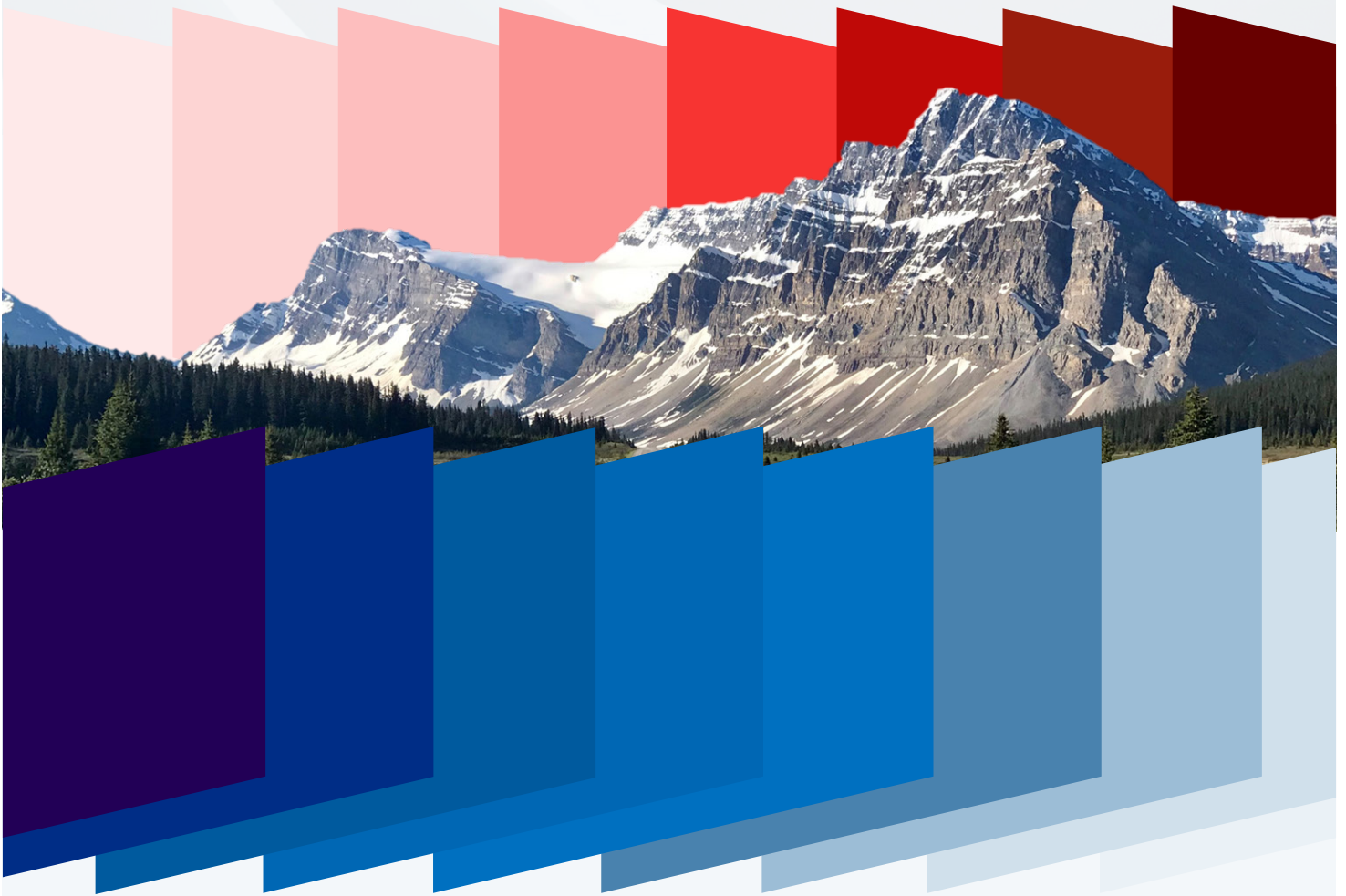


KEY FRAMES

A Growth Strategy for Animation and VFX in Alberta



Presented by



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Executive Summary



Courtesy of Solid Green

KEY FRAMES | Environment

Calgary Economic Development (CED), Edmonton Screen Industries Office (ESIO), and their project partners across Alberta have plans to grow and attract larger and more lucrative budget productions to support the growth and expand the presence of Animation and VFX in Alberta.

As such, CED and ESIO commissioned Nordicity to develop an Alberta Animation & VFX Strategy to capture the economic benefits of the industry, as well as capitalize on the existing players in the provincial ecosystem.

1 – Global Market for VFX and Animation

The global spend for the Animation and VFX market was US\$155.26 billion in 2020, and is expected to reach US\$289.4 billion by 2026, with a combined annual growth rate (CAGR) of 10.9% between 2020 to 2026.

The growth of streaming as a form of content consumption has increased global consumer demand for high quality film and television productions to be released on a more frequent basis than in previous times. Increased adoption of Animation and VFX solutions is driven in large part by an increase in production value and budget for mainstream film and television, as well as by an increasing willingness by writers, directors and producers to incorporate content requiring VFX into their stories.

In addition to the growing market for these technologies for entertainment purposes, Animation is seeing increased demand beyond just the entertainment sector. Industries like education and design are increasingly turning to Animation and virtual production as VR, AR and other immersive experiences become increasingly common tools for creating and marketing engaging content.

An environmental scan notably identified the following trends and drivers of change:

- **Talent:** with the rapid growth of the industry, there has also been a significant growth in the demand for talent.
- **Business model and Intellectual Property:** the development of IP is a key element in the sustainable growth and expansion of Animation and VFX companies.
- **Working environment:** the pandemic has demonstrated that employees are able to be productive remotely and company have widely adopted cloud-based workflows.
- **Equity, diversity and inclusion:** women are significantly underrepresented in the VFX field, with only 22.6% of VFX credits across 400 top movies in 2019.

In this context of growth and challenges, Alberta has a part to play and can capture a relative share of the attractive – yet competitive – Canadian market for Animation and VFX. **KEY FRAMES**, the Growth Strategy for Animation and VFX in Alberta positions the local industry to seize the domestic and international opportunities with pragmatism.

2 – VFX and Animation in Alberta

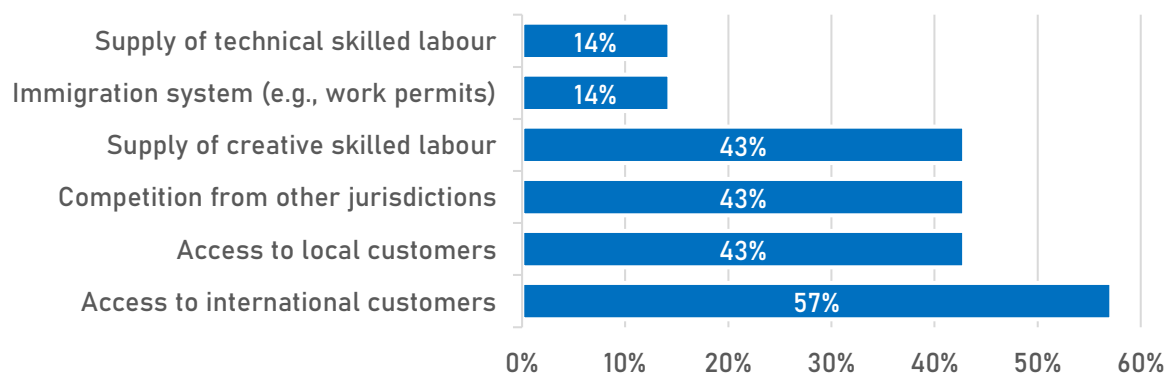
Nordicity identified 24 active VFX and Animation companies in Alberta. In addition, an active freelance community (the size of which is more difficult to assess) completes the growing VFX and Animation sector in Alberta.

According to the industry survey conducted in June 2022, the average VFX and Animation company in Alberta is:

- A Canadian-owned corporation based in Calgary and in operation for over 10 years.
- Working on both animation and visual effect projects.
- Employing less than five permanent employees, a number that almost doubles if we include temporary employees and freelancers in the headcount.
- Its primary client industries are the film and TV industry, advertising and marketing, education, and government and military.
- Generating a significant part of its revenue from fee-for-service works, primarily from Alberta clients. Additionally, the USA is the first international market and accounts for 12% to 18% of the revenue (depending on the size of the company).
- Spending more than two-thirds of its annual expenditure on labour costs.

Overall, VFX and Animation companies in Alberta are rather confident about the future and identify promising opportunities to grow over the next five years. For instance, 64% of respondents indicated having a desire or a (future or existing) plan to develop and exploit intellectual property. However, Animation companies that would like to move away from a business model centered around fee-for-service work require investment and financial support to alleviate the risk associated with developing IP.

In addition to funding and financing, companies have identified access to markets (local and international) as the main barrier to growth. The figure below lists other concerns raised by participants.



Alleviating these barriers to support the expansion of the vibrant Animation and VFX ecosystem in Alberta is the starting point of the present Growth Strategy.

3 – Economic Impact

Nordicity estimates that the VFX and Animation industry in Alberta generated a total of **110 full-time equivalents** (FTEs) in 2021, as well as a **total of \$10 million in gross domestic product**.

Economic impact of Alberta's Animation and VFX industry (2021)

	Direct impact	Indirect impact	Induced impact	Total impact
Employment (FTEs)	70	20	20	110
Labour income (\$000s)	4,332,000	771,000	785,000	5,888,000
Gross domestic product (\$000s)	7,003,000	1,389,000	1,826,000	10,218,000

At the provincial level, Nordicity estimates that the VFX and Animation industry generated **more than \$930,000 in taxes** in 2021, for a total of \$2,3 billion.

Fiscal impact of Alberta's Animation and VFX industry (2021)

	Federal	Provincial	Total
Personal income taxes	984,000	413,000	1,397,000
Corporation income taxes	181,000	70,000	251,000
Consumption taxes	223,000	177,000	400,000
Local property taxes and other fees	000	271,000	271,000
Total	1,388,000	931,000	2,319,000

KEY FRAMES | Growth Strategy

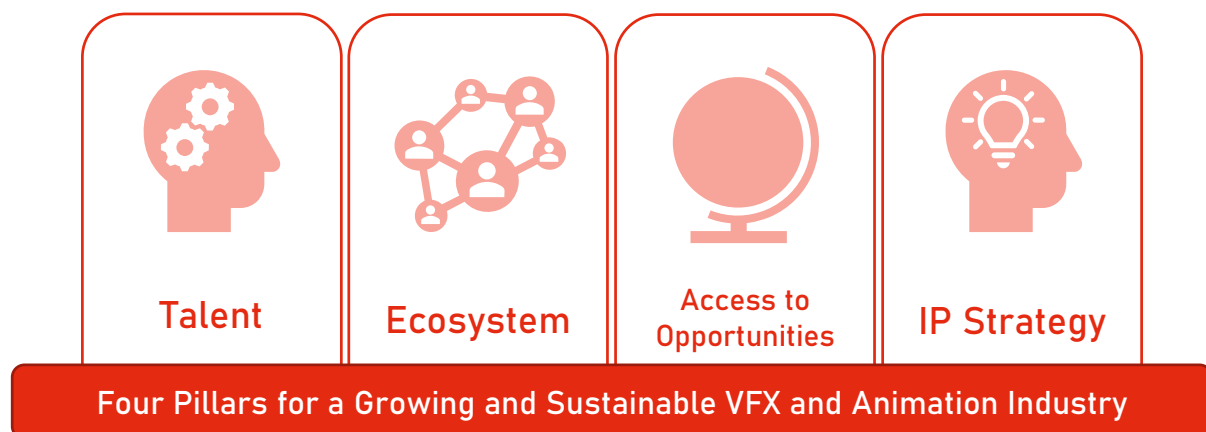
Now that we have set the scene and introduced the Animation and VFX section in Alberta, it is time to assess and unlock the potential for growth.

1 – Four Pillars

While success can be defined in many ways, for purposes of the strategy, success will be defined as economic impact: revenues, taxes, jobs and related economic key performance indicators.

Nordicity has identified four key components that provide a solid basis for the emergence of a growing and sustainable VFX and Animation industry:

- **A large, high-quality, accessible and affordable talent pool:** for an 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.
- **An interconnected, scalable ecosystem:** in a globalized creative world increasingly dominated by giant players, growing demand for Animation and VFX services on increasingly ambitious projects, collaboration has become not only a way to save money and time, but also a necessity to approach complex creative and technological issues.
- **A pipeline to access opportunities:** a strong support ecosystem should provide companies with information, events and programs that guide them throughout their development, locally and internationally.
- **An environment conducive to creating and retaining intellectual property:** IP ownership models can often result in downstream revenue (from royalties, licensing payments, derivative sales, etc.), thus supporting sustainable growth.



2 – Opportunity for Alberta to Become a Leader in Animation and VFX

Based on an extensive scan of the sector in Alberta, as well as validation interviews, the assessment below has been developed to summarize the assets that **KEY FRAMES** can leverage and the opportunities it needs to seize, for each pillar of success.

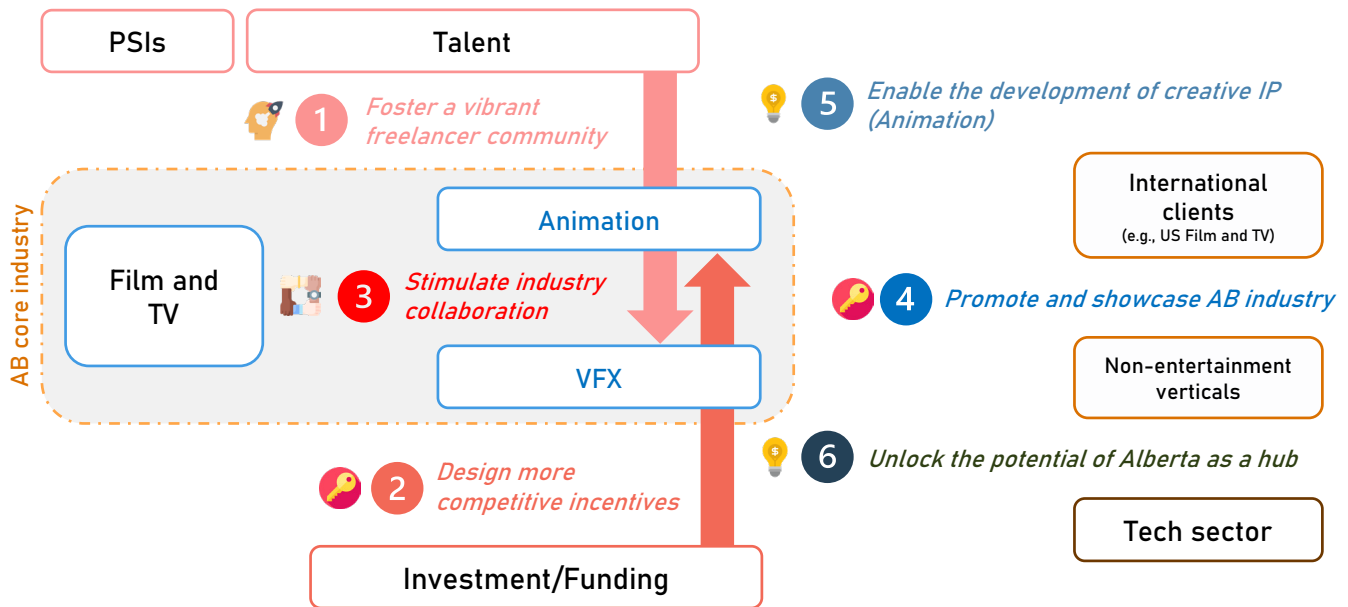
- **Talent:** Local PSIs seem to provide a sufficient supply of highly-skilled talent – however, the scan reveals that there is a risk to see this talent leave the province if the industry cannot absorb and retain graduates. Moreover, by supporting PSIs to design more opportunities for continued training and mentorship, Alberta will have a more comprehensive talent pipeline that feeds into the sustainability of a robust Animation & VFX ecosystem.
- **Ecosystem:** Through collaboration, Alberta's Animation and VFX SMEs will be able to increase capacity and collective skills to elevate themselves to take on bigger opportunities in the national and global film & TV market. Given the expected growth in the global Animation and VFX market, Alberta's companies should be positioned to capture a growing share of demand from foreign markets as Canada has been benefiting from the foreign location and service production, particularly from the US.
- **Access to opportunities:** The local support ecosystem (decision-makers, industry associations and post-secondary institutions) will play a significant role in the development of the creative and technical fabric – this interconnected network is the key to unlocking the potential of Alberta's Animation and VFX industry. The offering should not only include attractive incentives but also industry events, export missions, promotional efforts, matchmaking sessions with investors, etc.
- **Intellectual Property:** The analysis of trends and drivers of change indicated that the ability to produce local IP not only helps attract top-tier talent but also creates value on top of a fixed or semi-fixed bid business model. Most of Alberta's Animation & VFX companies are small and micro businesses that primarily provide fee-for-service work with a client base in various industries. In addition, the Animation and VFX industry is also seeing early adoption of emerging technologies such as virtual production, artificial intelligence and machine learning. Alberta has demonstrated notable advancement in this sector: there is potential for the local innovators to develop solutions that will reshape the creative production workflows.

As such, the Growth Strategy will focus on the following objectives:

- Absorb and retain locally trained high-quality talent;
- Build neural pathways towards more collaboration;
- Reinforce Alberta's film and TV production centre as a one-stop shop; and
- Build on high-potential adjacent sectors in the province (e.g., immersive media).

3 – Growth Strategy

KEY FRAMES, the Growth Strategy for Animation and VFX in Alberta is built around a suite of interconnected recommended actions compiled into six core ideas. The following pages present an overview of the strategy and its main actionable elements.



1 Foster a vibrant freelancer community

- Create programs that provide consistent training and information on key/emerging skills that are in demand for Animation & VFX (e.g., masterclasses, workshops).
- Create a directory/platform to facilitate matchmaking between talent and companies, and stimulate mentorship.
- Facilitate programs that sponsor internship/co-op opportunities for students and studios.

2 Design more competitive incentives

- Ensure that funding mechanisms remain stable and unchanging.
- Work with government and industry stakeholders to revise the provincial post-production grant's (PPG) operational policy to set out best practices that support effective processing and productive relationships with funding recipients.
- Work with government and industry stakeholders to develop incentives to encourage infrastructure investment.

3 Stimulate industry collaboration

- Establish a provincial VFX and Animation specialist or consultant position to assist local studios with the collaboration process.
- More generally, the province would largely benefit from a creative industry agency as observed in other Canadian jurisdictions.
- Hold regular networking events and meetup opportunities to encourage collaboration.

4 Promote and showcase the industry

- Carry out missions to trade markets with the higher potential companies to meet international investors/distributors (e.g., BANFF) to promote Alberta as a one-stop shop for production and post-production.
- Provide training and/or guidance to help Alberta companies develop their pitch and sell their services and ideas in an effective way.
- Promote and market local Animation & VFX companies to production companies and even businesses in other sectors.

5 Enable the development of creative IP

- Promote available development and marketing grants to Animation stakeholders via industry associations.
- Establish slate funding to allow IP creation and entrepreneurship among established companies.
- Organize pitch competitions/matchmaking with investors/distributors.
- Provide training for professional development and for PSI students and entrepreneurs to improve business acumen.

6 Unlock the potential of Alberta as a hub

- Create bridges between film and TV production companies and VFX companies via industry events to organically grow as a one-stop destination.
- Advocate for public and private investments in VFX infrastructure such as sound stage with motion tracking equipment and LED volume screens.
- Connect the industry with the province's tech sector to fuel research and development for technology applied to the creative industries.

KEY FRAMES | Vision

The growth strategy will further integrate Animation and VFX companies into the broader provincial creative and technological ecosystem to position Alberta as the fourth audiovisual production centre in Canada.

Alberta will achieve this vision by nurturing **collaboration, innovation and creativity**.

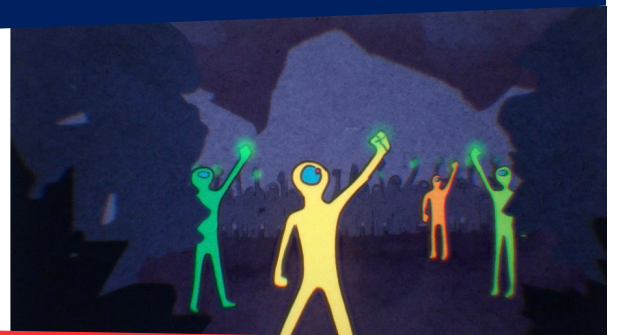
In leveraging provincial capabilities in both the creative industries and the commercial/industrial sectors, the Animation and VFX industry will generate a significant impact:

- Creating **more opportunities for local talent** to establish viable career plans in the province;
- Designing a sustainable environment for local companies to **partner** and take on more ambitious projects;
- Strengthening the attractiveness of Alberta as a leading film and TV production centre through the **consolidation** of the production and post-production pipelines;
- Fostering and **cementing relationships** between Animation and VFX and non-entertainment sectors, notably via the use of immersive media; and
- Promoting Alberta as a place of **innovation and creativity**.

As such, the outcome of a successful growth strategy would be for Alberta's Animation and VFX to become:

- An ecosystem of well-connected SMEs that actively participate in the capture of a meaningful part of global film and TV projects produced in Canada;
- A national leader in Animation and VFX services aimed at commercial and industrial applications;
- A vibrant place to explore the integration of technology into the creative industries (e.g., Artificial Intelligence solutions).

*Courtesy of Quickdraw
Animation Society / Anthony Stewart ►*



About the Strategy



Courtesy of 3D Pix

Methodology

1 - Mandate

The demand for digital content consumption continues to increase globally and the Alberta film industry continues to grow. In order to support and be part of this growth, the Alberta Animation & VFX Growth Strategy provides an overview of the existing ecosystem, provides relevant comparative market data on how this sector can expand in Alberta by supplying tangible action items, and in essence be utilized as a guide for business development and FDI.

Calgary Economic Development (CED), Edmonton Screen Industries Office (ESIO), and their project partners across Alberta have plans to grow and attract larger and more lucrative budget productions to support the growth and expand the presence of Animation and VFX in Alberta. As such, CED and ESIO commissioned Nordicity to develop an Alberta Animation & VFX Strategy to capture the economic benefits of the industry, as well as capitalize on the existing players in the provincial ecosystem.

The Animation & VFX Strategy will be designed to be an ecosystem development tool and will serve as a business development guide to attract, grow, and develop key Animation and VFX ecosystem players to Alberta to build upon the robust and sustainable film production ecosystem within the province.

The Strategy will also be used as an advocacy tool to create alignment across government and industry on further support for the Animation and VFX infrastructure segments of the film production world in Alberta and across Canada. Further, it will inform on the necessary information to support the Animation and VFX production companies that currently exist in the market.

The Strategy shall achieve the following objectives, as determined by CED and ESIO:

- Understand the factors of success and best practices in current international and national Animation and VFX hubs;
- Understand Alberta's current Animation and VFX ecosystem components;
- Identify Alberta's strengths and similarities in Animation and VFX compared to other Animation and VFX hubs;
- Develop Alberta's value proposition in Animation and VFX;
- Develop a strategy that builds upon Alberta's Animation and VFX ecosystem, and provides the necessary plan of action to support the province in becoming a national and international leader in Animation and VFX production; and,
- Identify potential investors for Alberta.

2 - Methodology

This study was structured around five components designed to ensure that the subsequent growth strategy is relevant, actionable, feasible and integrated with existing strategies and priorities.

- Literature review

The Project Team conducted extensive research to understand the global and national landscape of Animation and VFX, and to identify the key to success.

- Industry Survey

A survey was developed to assess the size of the VFX and Animation industry in Alberta, its economic impact and the main barriers and opportunities that companies perceive.

- Interviews

A series of interviews with companies, decision-makers, post-secondary institutions and industry associations help the project team nuance the literature review and further explore the strengths and gaps of the industry in Alberta.

- Ongoing stakeholder engagement

Throughout the process, stakeholders (including ESIO and CED) were regularly consulted to finetune the direction of the growth strategy.

- Validation roundtables

Finally, the Project Team organized group discussions to test and validate the recommendations developed for this growth strategy.

KEY FRAMES

In Animation and media production, a key frame is a marker on a timeline which marks the start and end point of an action.

Courtesy of Studio Dialog ►



Defining Animation and VFX

1 – Similarities and Differences

Animation and Visual effects (VFX) are two terms frequently mentioned together in the screen industry. While the two lines of business overlap in terms of production capabilities and share similarities in terms of infrastructure, talent skill sets, business model and clients, each of the business lines has their distinct workflow and creative output.

With many of the aspects that are interrelated for the two businesses (e.g. talent skill sets and fee-for-service business models), understanding the commonalities, as well as differences between the two businesses, is key to defining a growth strategy that supports both businesses and captures the economic benefits of the Animation and VFX industry.

The table below depicts the major divergences and commonalities between the two businesses. The table shows that Animation and VFX companies work primarily in film, TV, digital content, commercials, and increasingly AR/VR/XR production and both have a high dependency on technology.

Animation companies' revenues can come from fee-for-service contracts and original content creation, whereas VFX companies mostly rely on fee-for-service contracts.

A key difference between the two businesses lies in the potential to have content IP ownership, and subsequently the potential of more diversified revenue streams (e.g., derivative works, merchandise, and licensing rights).

	Animation	VFX
Definition	Computer-generated imagery manipulated to appear as a moving image	Computer-generated imagery applied to live-action footage
Business models	Fee-for-service contracts	
	Original content creation Technical solutions (software, hardware)	Technical solutions (software, hardware)
IP ownership?	Original content and technology assets	Technology assets
Clients/collaborators	Feature films, TV series, digital platform content, commercials, AR/VR/XR, etc.	
Example of job roles	Writer, art director, animator, Animation TD, art director, background designer, character designer, layout artist, lighting artist, modeler, rigger, etc.	Software developer, environment artist, animator, layout artist, texture artist, compositor, roto artist, lighting artist, matte painter, etc.

2 – Animation and VFX Value Chain

The following pages outline the value chain for Animation and visual effects, as applied to the entertainment industry (i.e., the final step being the distribution of Film and TV content).

As such, it is worth noting that the value chain can be slightly different depending on the client and sector (e.g., creative agency, advertiser, government, corporate client, etc.). While a number of Animation companies (as well as some VFX companies) operate outside the entertainment space, such as in advertising or education, the value chain is similar in the pre- to post-production phases. Development and distribution may differ outside of the entertainment industry.

Furthermore, Animation can now take many forms, from hand-drawn animation to computer-generated animation, to stop-motion animation. Each animation style will bring nuances to the value chain (e.g., need for animation software developers, need for clay sculptors/model makers, etc.), but the overall workflow is essentially the same.

This section is also an opportunity to remind the reader that while Animation and VFX are often approached as a single sector, they are two different disciplines with specific features and challenges. Of course, there are similarities, in particular between VFX and computer-generated animation, and companies (as illustrated in Part B) often pursue opportunities in both segments. The common features will allow the Growth Strategy to support these two sister industries at the same time while taking into account their distinctive characteristics.

For every link of these value chains, the schematics highlight some key roles. Some definitions are provided in the [End Notes](#).

Animation Pipeline

Production Management

Producer | Director | Production Manager | Production coordinator

Development

Writer | Concept Artist

Pre-production

Head of Story | Art Director | Storyboard Artist | Character Designer |
Background Designer | Modeller

Production

Animation Technical Director | Layout Artist | Rigger | Lighting Artist |
Animator | Effects Technical Director | Compositor

Post-production

Sound Designer | Composer | Editor

Delivery and Distribution

Sales | Marketing

Based on [ScreenSkills: Animation Industry Career Map](#)

VFX Pipeline

Production Management

VFX Producer | Production Manager | Production coordinator |
VFX Editor | Data Technician

Pre-production

Concept Artist | Previsualization Artist

On Set

VFX Supervisor | Data Capture Technician

Production

Computer Graphics Supervisor | Look Development Artist | Modelling
Artist | Animator | Texture Artist | Environment Artist | Layout Artist |
Matchmove Artist

Technical

Pipeline Technical Director | Rigging Technical Director | Creature
Technical Director | Effects Technical Director | Software Developer

Compositing

Prep Artist | Roto Artist | Compositor | Compositing Supervisor

Based on [ScreenSkills: VFX Industry Career Map](#)

Part A

International and National Animation and VFX Landscape



Courtesy of Studio Dialog

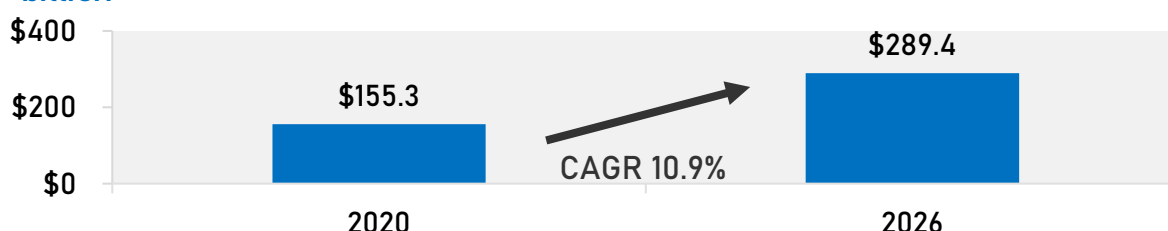
The Global Market

Animation and VFX are global industries, with significant growth being seen across international jurisdictions. This section outlines the global market and identifies some key hubs.

1 – Global Market

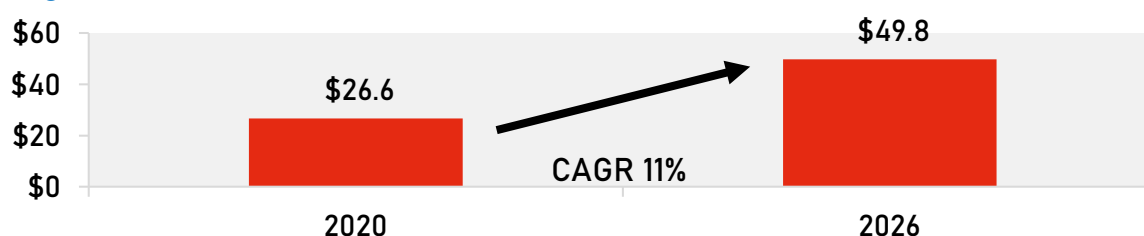
The global spend for the Animation and VFX market was **US\$155.26 billion** in 2020, and is expected to reach **US\$289.4 billion** by 2026, with a combined annual growth rate (CAGR) of 10.9% between 2020 to 2026.¹

Figure 1. Global Spend for the Animation and VFX market (2020-2026) \$US billion



Television and OTT made up the largest market share of Animation and VFX in 2020.² The global VFX market alone was valued at **US\$26.64 billion** in 2020, and is expected to grow to almost **US\$49.83 billion** by 2026, for a CAGR of 11% between 2020-2026.³

Figure 2. Global Visual Effects Market (2020-2021), \$US billion



The global market for virtual production, the ability to mix live footage and computer graphics to get real-time feedback, and to make decisions on set about the VFX and Animation, and a rapidly expanding subsection of Animation and VFX, was valued at **US\$1.46 billion** in 2020, and is projected to reach **US\$4.73 million** by 2028. North America represented the greatest share of the global virtual production market in 2020, with the United States accounting for approximately 30% of the global market share, and Canada accounting for 3.5%.⁴

North America's significant share of the Animation and VFX market is in large part attributable to the widespread adoption of technology used in the creation and consumption of Animation and VFX content, as well as the region containing many of the global hubs for the filmmaking industry.⁵ Other significant jurisdictions in the international market include the United Kingdom with approximately 10% of the market, and Australia with 2.5%.⁶

2 – Global Demand for Animation and VFX

The growth of streaming as a form of content consumption has increased global consumer demand for high-quality film and television productions to be released on a more frequent basis than in previous times.⁷

Many of these productions are Animation- and VFX-heavy, leading to a rapid increase in demand for these services. Targeted broadcasting hours for cable and satellite TV have also increased, adding to the demand for more content.⁸

Increased adoption of Animation and VFX solutions is driven in large part by an increase in production value and budget for mainstream film and television, as well as by an increasing willingness by writers, directors and producers to incorporate content requiring VFX into their stories.⁹

The recent and fast adoption of virtual production solutions (e.g., LED panels) has also driven global demand for Animation and VFX. This technology allows production teams to combine live footage and computer graphics in order to get real-time feedback, and to make decisions on set about the VFX and animation. With virtual production sets, actors can immerse themselves into the scenes, improve their performance and bring their characters to life. Most of all, virtual production has proven that it is an effective solution to challenges presented by the COVID-19 pandemic. A large range of production departments can now collaborate live and virtually, therefore involving fewer crew members and enabling social distance on sets. Leading Canadian jurisdictions have already started developing cutting-edge infrastructure to house projects that require virtual production ecosystems.

Moreover, Animation and VFX are also key components in the growing markets for Augmented Reality (AR) and Virtual Reality (VR) immersive experiences.¹⁰ The increasingly widespread use of immersive technologies such as ultra-HD televisions, smartphones and VR devices are also propelling the demand for high-quality Animation and VFX in film and television.¹¹

In addition to the growing market for these technologies for entertainment purposes, Animation is seeing increased demand beyond just the entertainment sector. Industries like education and design are increasingly turning to Animation and virtual production as VR, AR and other immersive experiences become increasingly common tools for creating and marketing engaging content.

The growth in popularity of animated content aimed at adults is also key to the Animation boom, with the expansion of a market that previously predominantly targeted children and teenagers. In a 2020 white paper, series for adults was identified as the largest growing Animation segment.¹² While animated content from Japan has been marketed to a wide age range of audiences for many years.

Western Animation companies have been increasingly producing content for an adult market, with Netflix releasing many well-received and popular shows in recent years.

3 – Global Hubs for Animation and VFX

The United Kingdom

The United Kingdom is a significant competitor in the global Animation and VFX markets, and is the second biggest Animation producer in Europe.¹³ The UK market is more mature than many others worldwide, and is home to a number of well-known and well-established production houses, responsible for work on many recent films which have won VFX Oscars.

The UK also has very competitive tax credits for film and television, and particularly for VFX and Animation, and which allow a broader range of films to qualify than credits in other jurisdictions.¹⁴ The 2013 Animation tax credit was crucial to the growth of the industry, with experts saying it may have saved the sector.¹⁵

London specifically has one of the largest VFX and Animation industries in the world, and has attracted facilities from many major VFX companies, which in turn attract more large-scale productions to shoot in the region.¹⁶

The London Animation sector is large, with 2,500 direct employees as of 2021. The sector also receives significant government support, with investment in London's Animation sector having increased from £35 million to £450 million per year over the last ten years. However, experts feel that additional support for development and production would be valuable, particularly for commercially-driven IP.¹⁷

While Brexit has had mixed results for the UK economy overall, the drop in the pound against the US dollar has made it a more appealing jurisdiction for North America-based productions to export their VFX work. However, the increase in red tape curtailing the movement of labour into and out of the UK may have negative impacts for the Animation and VFX sector long-term.

The UK industry has previously built some of its great success on its ability to attract international talent, particularly from the European Union.¹⁸



◀ *Courtesy of Tribal Imaging*

India

India is home to a strong media and entertainment industry, with a projected CAGR of 10%-12% between 2021-2030. This growth is driven in large part by Animation and VFX, which accounts for approximately 10% of the global Animation and VFX market.¹⁹ As of 2019, the Indian VFX and Animation sector generated between 45,000 and 60,000 jobs, and had a direct GDP contribution of 0.05%.²⁰

Indian studios offer a full range of visual effects for locally produced movies, and aspire to expand the services they provide to international productions as well.

With much lower costs for Animation and VFX work than in North America and Europe, there is a growing industry of fee-for-service VFX work in India (as well as other countries, such as China), particularly doing work like rotoscoping, tracking, and wire removal.²¹ However, the Indian Animation and VFX sectors are also striving to develop more creative intellectual property, rather than focusing solely on imported fee-for-service work.²²

National and state governments are both taking notice of these growing sectors in India, and are implementing plans to develop incentives, found centres of excellence, host national and international events, and train new talent.²³ In early 2022, India set up an Animation, visual effects, gaming and comics task force with the goal of addressing skill development, hardware/software costs, and economic support.²⁴

Australia and New-Zealand

Australia and New Zealand are home to a robust Animation and VFX industry. New Zealand has a strong education and training ecosystem for Animation and VFX, and is therefore emerging as a key hub outside the North American and European regions as global demand for talent rises.²⁵

New Zealand also houses a significant number of Animation and VFX studios for a country of its size, and is home to world-leading studios like Weta Digital, who were responsible for blockbuster productions like *The Lord of the Rings* and *Avatar*.²⁶

In these jurisdictions, high tax incentive rebates for post-production as well as a strong dollar make the jurisdiction appealing for international productions looking for VFX work.²⁷

The boom in Animation and VFX is driving a high demand for talent in Australia and New Zealand, drawing both from local training programs and international talent. Some Australian studios are particularly ramping up work in “real-time” projects such as remote motion capture and virtual production technology, as well as providing similar services to the extended reality and gaming sectors.²⁸

Trends and Drivers of Change

The Animation and VFX industry is undergoing significant changes that present opportunities for Alberta. In this section, we discuss key trends and drivers of change, and factors that will shape the industry today and will impact the industry in the years to come.

1 – Talent

With the rapid growth of the Animation and VFX industries, there has also been a significant growth in the demand for talent.²⁹

Additionally, with advents in new technology to assist and enhance the Animation process, the Animation industry is seeing increased participation from other tangential professions such as programmers or technicians.³⁰ However, some studios are still struggling with finding mid-level and senior talent to support expanding businesses.

Although an increasing number of colleges and universities are offering programs in Animation and VFX, the cost of entry is also a significant barrier to many prospective employees. Particularly in Animation, degrees from well-respected institutions can be prohibitively expensive but are often required to get jobs at major companies.

Burnout continues to be a major issue in the Animation and VFX industries, as it is in the related video game sector. A 2019 study found that Animation workers were leaving the industry after an average of only 5-10 years, primarily as a result of burnout. Furthermore, many Animation and VFX studios rely on temporary workers on fixed-term contracts, which can create an ecosystem of job instability for industry workers.³¹

Unionization is a significant discussion in the Animation industry. Although the entertainment industry is broadly very unionized, and countries such as France and the United Kingdom have had Animation unions for many years, the North American Animation industry is behind its counterparts in terms of unionization.³² However, as workplaces with unions tend to see higher job satisfaction (and therefore lower turnover rates), greater support for unions from the industry could assist in reducing talent retention challenges.

Animation and VFX work is becoming increasingly international, with more major North American and European studios exporting fee-for-service work to other jurisdictions that offer better tax incentives and subsidies or lower labour costs.³³

In this context, reinforcing Alberta's vibrant talent pool (further explored in Part B and Part C) will be a cornerstone of the Growth Strategy. A successful Growth Strategy will ensure that the province offers a flexible and well-trained workforce, available to meet a growing global demand.

2 – Business Models and Intellectual Property

There are two primary types of work in the Animation and VFX industries. The first is fee-for-service, in which companies complete work on one aspect of a larger product, but do not own or retain any intellectual property from it. The second model is intellectual property ownership, in which the company is the creator and owner, or partial owner, of the intellectual property. Whereas fee-for-service models generally only result in revenue for the company upon completion of a contract, IP ownership models can often result in downstream revenue from royalties, licensing payments, derivative sales, etc.

Animation companies typically perform a combination of fee-for-service and IP ownership work, whereas most VFX companies primarily do fee-for-service work, though some develop technological or asset IP, rather than the creative IP commonly generated by Animation companies.

The development of intellectual property is an important element in the growth and expansion of any regional Animation industry (or, to a lesser extent, VFX industry). In jurisdictions that provide a significant amount of fee-for-service work, there is a lack of available talent to create new work, which in turn stagnates the growth of the industry as a stand-alone ecosystem.³⁴

To truly be considered a global hub for Animation or VFX, jurisdictions must be able to produce new content in their own right. The ability of a country to produce local IP adds to the creation of a local narrative “brand”; many jurisdictions are known for the kind of stories they tell, particularly stories revolving around local culture or mythology. Thriving jurisdictions find a healthy balance between fee-for-service work that attract larger productions and original content, with or without international partners. This is the direction the Growth Strategy for Alberta should support.

A strong track record of creative IP is also key to attracting top-tier talent who are interested in creating and innovating new Animation creative IP or VFX technical IP, rather than working solely on imported fee-for-service projects. Strong creative IP also helps form links between industries and increase the value add of the industry to the jurisdiction, with the ability to create and market derivatives such as merchandise or games.

While this is not universally the case, many VFX studios work to narrower profit margins than their Animation equivalents, in part as a result of the bidding model. Most VFX companies use a fixed or semi-fixed bid business model, in which a bid is submitted to the client for the work to be done, which estimates the time and resource cost of a job before the job has been started. This can be problematic because there are many potential sources of delay or added expense, for which the contracted company often must absorb the overages rather than being able to negotiate additional pay.³⁵

While (larger) studios are sometimes able to do this, the industry climate has historically discouraged it. In many cases, VFX companies are also expected to be innovating, rather than just reproducing tried and tested techniques. Quotes to clients don't generally include expenses to cover the time and resources required for this, so this work can also subtract from a company's profit margin.³⁶

3 – Working Environment and Processes

Although COVID-19 had a significant impact on Animation and VFX, as it did on all sectors, the ability of animators and VFX artists to work fully remotely allowed the industries to continue production relatively uninterrupted, as opposed to live film and television production. However, there was still an initial slowdown as companies figured out how to pivot to fully remote work and navigated challenges relating to access to technology, cloud storage, and broadband issues.³⁷

As companies begin to emerge from COVID-19, many are looking at adopting longer-term work-from-home or hybrid working models, as the pandemic has demonstrated that employees are able to be productive remotely. However, some companies still have concerns with recruitment and onboarding, as well as the increased difficulty with collaboration and the development of workplace culture in a fully remote environment.

This disruption of working practices and processes should eventually be reflected in the guidelines of incentives designed to adequately support the industry. For instance, a more flexible measure should not prevent local companies who access, to a reasonable extent, international talent from accessing funding.

Remote work also pushed companies to adopt fully cloud-based workflows, as opposed to in-house or hybrid models. With cloud computing, software, infrastructure, or a platform are provided as a service by a third party, removing the need for companies to have in-house farms to perform the same work.³⁸ In Animation and VFX, this allows for efficiencies such as performing character rendering and modeling processes in reduced time compared to traditional rendering,³⁹ and also allows for real-time collaboration between artists.⁴⁰

In removing the need for in-house technology, cloud computing allows smaller studios to be more competitive against larger studios who are able to afford the up-front cost of setting up their own farms, as well as making it easier for SMEs to scale up as their businesses grow.

While there are residual concerns about data security in cloud-based systems,⁴¹ the cloud has overall had a significant positive impact on the Animation and VFX industries that is likely to persist even after many companies bring employees back to the office.



◀ *Courtesy of
BLMRS*

4 – Infrastructure and Technology

With the increase in remote work, access to fast and reliable broadband internet is becoming a key requirement in many industries, particularly in sectors with high data usage and storage requirements like Animation and VFX. A 2020 survey found that workers in most Animation and VFX roles require at least 50Mbps of internet, and in many roles, there was a preference or requirement for at least 150 Mbps.⁴²

These numbers may be achievable in urban areas with a wide array of internet provision options but is more challenging in locations with a less robust broadband internet infrastructure or availability. While many rural regions do not have that kind of internet capability, governments in a number of jurisdictions are beginning to push better internet access into more remote areas, making working from home more viable even in these internet-intensive professions. It is also possible that jurisdictions with unsatisfactory access to broadband internet would be able to make use of 5G technology to resolve connectivity issues.

Virtual production (the use of video game technology in filming to perform pre- and post-production on set by inserting actors being filmed live into virtual sets) is a rapidly expanding facet of the Animation and VFX industry, having seen particular growth as a result of COVID-19 and restrictions on in-person shooting.⁴³

While previously reserved for big-budget productions, virtual production technology has been decreasing in price, making it more accessible to mid-size and indie production companies.⁴⁴ Not only is virtual production used in large-budget productions to replace or augment post-production VFX, but it is also useful in Animation, allowing motion-captured movement to be applied directly to an animated figure within the animated world.⁴⁵

Artificial Intelligence and Machine Learning are being used in Animation and VFX to both improve creator experiences and enhance final products. Some programs offer AI-enhanced features for post-production, such as allowing the automation of tasks or improving CGI shots in live-action content.⁴⁶ AI will also help reduce costs, as software will be able to generate material independently of human animators.⁴⁷ Machine learning already assists the Animation industry with processes like denoising images and real-time rendering.

AI algorithms can also be taught to create and animate 3D models, based on existing work. In the future, machine learning may also be able to assist with motion capture, allowing animators to simply use raw footage of actors rather than needing motion capture suits.⁴⁸ However, integration of AI into the Animation and VFX industries is still in the very early stages, with the majority of companies not having begun integrating these technologies yet.⁴⁹

Much like the cost of education for workers, high cost of equipment continues to be an obstacle in the growth of the global Animation and VFX industry, particularly outside of North America and Europe. Countries which don't produce their own hardware and software (such as China or Indonesia) are reliant on importing equipment from other countries and paying higher prices than they would with locally sourced equipment.⁵⁰

5 – Equity, Diversity and Inclusion

Women are significantly underrepresented in the VFX field, with only 22.6% of VFX credits across 400 top movies in 2019. Women are also significantly less likely to appear in title card credits, with only 15.2% representation. Women held 16.2% of all leadership roles in the 400 films surveyed, but BIPOC women held only 2.5% of leadership roles, showing that while there is a significant gender-based gap, there is an even greater race-based gap.⁵¹ However, experts are seeing an increase in 50/50 pledges (in which companies commit to equal representation for men and women) in the industry, which will hopefully have a greater impact long term.⁵²

In the wake of the Black Lives Matter movement in 2020, entertainment companies were among many that committed to improving racial diversity within their organizations, and to be more cognizant of the diversity in the stories they told. However, despite public commitments by the entertainment industry, BIPOC representation in leadership and executive-level roles remains minimal.⁵³ Without active efforts to bring in BIPOC staff at all levels, it is unlikely that the situation will improve dramatically.

More studios are starting to amplify stories that showcase equity deserving groups. Productions like Disney's *Soul* and Sony's *Spider-Man: Into the Spider-Verse* have begun to prove that animated stories featuring BIPOC characters can have broad-reaching, universal appeal.⁵⁴ With mainstream studios beginning to peak audience interest in these stories, it opens the door for smaller studios to gain more widespread engagement with their content. It is hoped that, by showing people from underrepresented groups on-screen, the industry will attract more people from those groups by making them feel more welcome and seen.

Accessibility for people with disabilities is also an issue in the Animation and VFX sectors. A 2021 report on accessibility in Animation found that the majority of disabled people surveyed felt that the Animation sector discriminated against people with disabilities, and felt that disability could not be openly discussed in the workplace or in job interviews. Disabled participants also felt that there was a pay gap based on ability, and all participants felt that they didn't receive adequate training on how to create an inclusive workplace for people with disabilities. Potential supports included the development of accessible and flexible career pathways, and allowing more flexible work arrangements (including continued remote work).⁵⁵

6 – Environmental Issues

The film industry has historically been a waste-heavy sector, whether in terms of garbage generated by cast and crew, discarded props and sets after production, or the carbon emissions of air and land transportation.⁵⁶ However, there have been vocal calls for positive change and numerous solutions have been implemented to improve the situation. In recent years, a number of labels, tools and certifications have emerged to help production assess and offset their impact.

New technologies like virtual production can contribute significantly to the reduction of carbon emissions and ecological damage by adding sets virtually rather than requiring productions to travel to shoot on location. Since over 50% of emissions in many productions are related to transport, the benefits of this could be substantial.⁵⁷ The extent to which the Animation and VFX sectors embraced working from home during the pandemic also assists in reducing travel-based waste.

While Animation and VFX offer environmental benefits to the film industry, parties have raised concerns about the electricity consumed and heat generated by the level of computing required for this work (particularly in render farms).⁵⁸ At this crossroads, the costs and benefits must still be weighed.⁵⁹ In the past five years, companies like France-based Simergy found ways to use the heat generated by the heavy-duty computing required in the Animation, VFX and video games industries, selling decarbonized heat to heat buildings or even swimming pools.⁶⁰ While Simergy is no longer in practice, R&D companies and industry stakeholders continue to explore similar heat-reduction methods, such as free-cooling methods such as using river water in cooling systems.⁶¹

To reflect growing concerns about climate change, the present Growth Strategy should integrate elements and incentives to support the industry's positive efforts in limiting its footprint.

7 – Legal Issues

Some countries which are currently emerging into the global Animation and VFX markets struggle with the creation of local IP due to insubstantial or poorly-enforced copyright and anti-piracy legislation. This is particularly a challenge for the Animation industry as children's content tends to have a bigger market for merchandise, which is one of the prime sources of entertainment copyright infringement.⁶² Greater support and action are needed from governments in these jurisdictions to protect local IP.

Pillars of Success

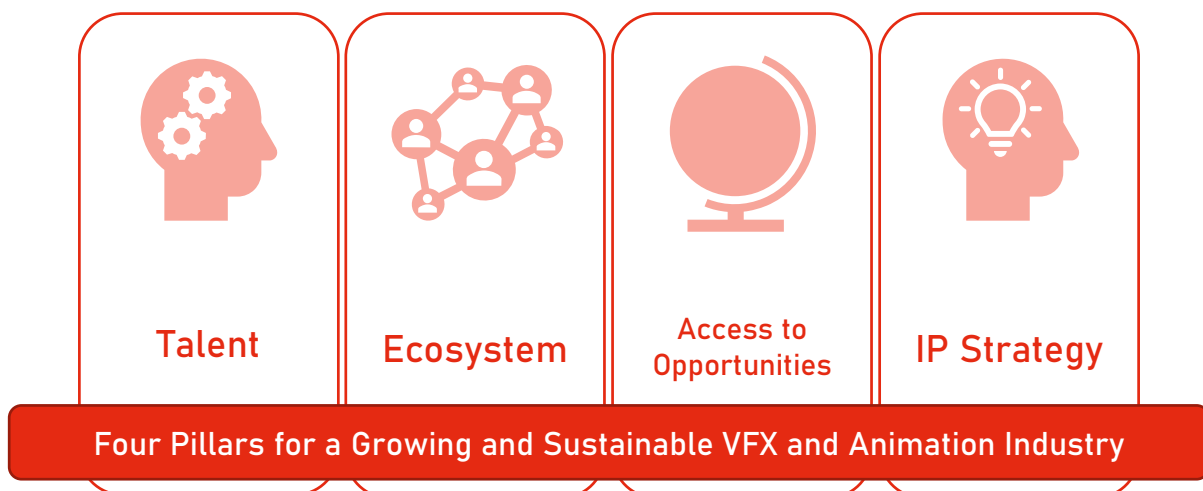
This section analyzes the elements that should be at the very core of a growth strategy: four pillars that facilitate the success of a VFX and Animation hub.

While success can be defined in many ways, for purposes of the strategy, success will be defined as economic impact: revenues, taxes, jobs and related economic key performance indicators.

Nordicity conducted a scan of VFX and Animation hubs both in Canada and internationally to determine the factors that enabled the development and consolidation of these jurisdictions as leading VFX and Animation production centres.

Nordicity has identified four key components that provide a solid basis for the emergence of a growing and sustainable VFX and Animation industry:

- A large, high-quality talent pool;
- An interconnected, scalable ecosystem;
- A pipeline to access opportunities;
- An environment conducive to creating and retaining intellectual property.



1 – Talent

Even though technology gets much of the attention, at the core of Animation and VFX production is the wide-ranging and multidisciplinary human talent that goes into the process. From software developers and CG artists, to heads of story and data technicians, there are many different skillsets that contribute to a final product (see Value Chains pages 17-18 and End Notes). The list of highly specialized and well-trained skills needed is extremely long – and forms the “raw material” required for any Animation and VFX industry to operate (let alone succeed).

For an 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 VFX and Animation are possible.

Similarly, successful ecosystems attract senior talent from abroad or across sectors with programs that 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 new jurisdiction knowing they have many viable employment options.

Factors to watch:

- **Quality:** highly skilled, diversified and experienced (especially at the intermediate and senior levels) workforce.
- **Quantity:** adequate talent pool to meet the demand from local companies.
- **Affordability:** competitive labour costs, usually supported by incentives such as tax credits.
- **Accessibility:** talent pipeline is streamlined both for local talent (via schools and PSIs) and for talent from outside the jurisdiction (via visa programs, work permits)

2 – Ecosystem

Creative industries are by essence a collaborative space that encourages companies to combine their resources to explore new solutions and take on new creative challenges. In a globalized creative world increasingly dominated by giant players, growing demand for Animation and VFX services on increasingly ambitious projects, collaboration has become not only a way to save money and time, but also a necessity to approach complex creative and technological issues.

A sustainable ecosystem, despite the average size of local companies, has protocols and pathways in place to emulate scale when required. As such a flexible and collaborative ecosystem is directly linked to the following pillar, allowing medium-size shops to submit bids for considerable projects.

Collaboration is often stimulated by brick-and-mortar infrastructure such as creative and technological hubs. These spaces embody the vibrancy of an ecosystem and act as a forum where big studios, indie studios, freelancers and parties from the support ecosystem (e.g., post-secondary institutions, industry associations) can meet and eventually grow together. Collaborative hubs are strategic flagships that can clearly be identified by talent, companies and investors when they want to know what's happening in the local industry.

Factors to watch:

- Combination of a creative community and a technical community: vibrant communities with opportunities to meet, share, experiment and collaborate, help unlock the potential of creative clusters. Hobbyists, companies, associations, students, clients, investors, and funders should have platforms to create essential links that strengthen the local industrial and entrepreneurial fabric.
- Collaboration pipeline: local companies are used to set up consortiums to submit competitive bids on larger-scale projects. When there are no big shops to meet the international demand, local studios can bring the resources together as an alternative option.
- Cooperative network: beyond the VFX and Animation industry, the cooperation of adjacent sectors (e.g., creative industries, AI and machine learning) provides opportunities and resources that stimulate growth.
- Collaborative spaces: brick-and-mortar spaces encourage exchanges, stimulate creativity and facilitate community building.

3 – Access to Opportunities

The industry needs opportunities to grow, which means facilitated access to funding, investment and markets. The support ecosystem (governments, associations, incubators and accelerators, etc.) plays a critical role in the definition and facilitation of the strategic paths to market. Access to markets is critical to business success – as clients/customers provide the revenues and profits necessary to justify business operations (and eventually foreign direct investment).

Factors to watch:

- Clear path to local and international opportunities: companies should not only understand the different business models but also identify their clientele and where to meet them, at which stage of their growth. A successful ecosystem provides companies with information, events and programs that guide them throughout their development, locally and internationally.
- Branding: conversely, clients should identify the jurisdiction as a leading location for VFX and Animation services. Efforts must be done by the industry and the development agencies to this end.
- Access facilitated by a support ecosystem: in addition to promotion efforts, the support ecosystem should help connect companies with clients, talent and investors. Funding, export programs, matchmaking and other industry events play a key role in this industry.



◀ *Courtesy of
Tribal Imaging*

4 – Intellectual Property

Part A addressed the importance of intellectual property in the creative industries. This pillar should however be envisioned as a longer-term objective to strengthen a sustainable ecosystem. In fact, as original creation is riskier activity, the transition from a fee-for-service model to an IP-centered model requires human resources and financing (to be able to focus on original projects without jeopardizing client contracts). Time and strategic planning are also key elements in the development of IP.

As mentioned in previous sections, there are two visions of IP in the Animation and VFX industry:

- Content IP: original animated content (e.g., animated feature, TV show, etc.); and,
- Technical IP: patented technology and software, such as motion capture technology, AI plug-ins, camera, LED walls for virtual production.

The Growth Strategy should aim for a healthy balance for Alberta. The province can welcome larger studios to produce VFX and Animation for high-end projects (therefore attracting talent), while encouraging independent creators to develop original content. A sustainable and thriving ecosystem will support fee-for-service work while facilitating the exploration of IP development for companies and creators with promising ideas.

Factors to watch:

- Clear path to local and international opportunities: companies should not only understand the different business models but also identify their clientele and where to meet them, at which stage of their growth. A successful ecosystem provides companies with information, events and programs that guide them throughout their development, locally and internationally.
- Conversely, when it comes to branding, clients should identify the jurisdiction as a leading location for VFX and Animation services. Efforts must be done by the industry and the development agencies to this end.
- Access facilitated by a support ecosystem: in addition to promotion efforts, the support ecosystem should help connect companies with clients, talent and investors. Funding, export programs, matchmaking and other industry events play a key role in this industry.

Animation and VFX in Canada

The following pages provide an overview of the Canadian Animation and VFX ecosystem and takes a closer look at the key national hubs (Vancouver, Toronto, Quebec).

1 – Markets

In 2020/21, the volume of Canadian Animation production was \$306 million, with \$70 million in theatrical feature films and \$236 million in television. This represented a significant increase in feature films from the previous three years, as well as a significant decrease in television.

The vast majority of Canadian Animation production was media for children and youth, with 94%.⁶³ The Canadian Animation and VFX markets combined made up approximately 3.5% of the global market, significantly behind the approximately 30% made up by the United States.⁶⁴

In 2019, the Canadian film, television and video post-production industry (of which VFX and Animation services make up a significant portion) generated \$2.0 billion in total operating revenue, up 16.1% from 2017. Operating expenses reached \$1.9 billion, marking a 19.6% increase from 2017, meaning that the operating profit margin fell from 8.4% to 5.7%.⁶⁵ Film, television and video-postproduction generated \$1.8 billion in total sales in Canada, of which VFX and Animation services for audiovisual works accounted for \$1.2 billion (66.1%), up 13.9% from 2017.⁶⁶

2 – Features of the Canadian Industry

Canada has an internationally recognized Animation and VFX sector and has contributed to the production of a wide range of hugely popular movies and television shows, including Star Wars: The Force Awakens, Suicide Squad, Game of Thrones, The Walking Dead, Teenage Mutant Ninja Turtles, and My Little Pony.

As a recognized global leader in Animation and VFX, Canada is home to many renowned educational institutions teaching Animation and VFX, such as the Banff Centre for the Arts, the Emily Carr Institute, the National Animation and Design Centre, Sheridan College, the Vancouver Film School and Centennial College, just to name a few.⁶⁷

As is the case internationally, Canada is missing talent in volume, suffering the same lack of mid- and senior-level talent as other jurisdictions over the world. That being said, the quality of the Canadian Animation and VFX workforce is often praised, indicating that domestic educational institutions are a notable competitive advantage.

In Canada, particularly in children's Animation, the full production pipeline is more often done in-house, as opposed to in the United States where artwork is often outsourced overseas. This served the Canadian Animation industry well during COVID-19, as companies were more easily able to complete productions without being affected by disruptions in other countries or greater technology needs to work together internationally.⁷⁰

The hubs of Vancouver, Toronto and Montreal are world class, and as such, there is a perception that the Animation and VFX industries in Canada are very much centered in those locations to the exclusion of other jurisdictions, particularly in regard to access to talent.⁷¹ Actually, active efforts (film and television tax credits, college and university programs in Animation or VFX), are made to shine a light on other Canadian jurisdictions, including Alberta, which are increasingly seen as competitive against the top Canadian hubs. These provinces are poised to capture growing production volume as they design strategic pathways to success such as the present Growth Strategy.

3 – Leading Canadian Hubs

Vancouver / British Columbia

For many years, Vancouver has been Canada's central hub for the film industry, accounting for over half of all film and television productions in Canada.⁷² Continued support from public entities and advocacy efforts from the industry put Vancouver on the global map for Animation and VFX.

For instance, the municipal government's 2013-2016 Digital Strategy initiative was an effort to improve Vancouver's digital infrastructure and assets to attract more tech and IDM investments. This initiative includes improving access to free wi-fi internet in the city (especially in the downtown area) and encouraging more digital entrepreneurship by supporting incubation programs and creating favourable regulatory environments.

When it comes to concrete incentives targeting Animation and VFX companies, the British Columbia Digital Animation, Visual Effects and Post-Production Tax Credit (DAVE) has been a key tool in developing the industry. DAVE grants a credit of 16% of qualified BC labour directly attributable to digital Animation or visual effects activities or post-production activities, with no maximum limit.⁷²

Vancouver positioned itself as a global destination to grow Animation and VFX careers through engaging communication campaigns and collaboration with stakeholders. Indeed, Vancouver regularly promotes its globally acclaimed Animation and VFX programs provided by PSIs with three of the top 10 VFX schools worldwide.

Vancouver's Animation and VFX industry also benefits from the organizations that help sustain the growth of the industry through advocacy, spaces, and investments. For example, the Vancouver Economic Commission (VEC), the economic development agency for the City of Vancouver, helps companies develop financial connections and network with other stakeholders in their industry. As part of key sectors prioritized by VED, Animation & VFX growth benefited from the strong tax incentives and diverse education and training programs for talents.

DigiBC, a non-profit organization incorporated in 2010, has been a voice for the industry in Vancouver and elsewhere in BC. DigiBC focuses on three main categories: education, policy advocacy, and community development. DigiBC also hosts networking and career development events to help companies and talent make connections and receive the training they need.

This strong support ecosystem is further reinforced by the Animation & VFX Alliance of British Columbia, established by the Motion Picture Production Industry Association of BC (MPPPIA). Other organizations include: Visual Effects Society, Vancouver Post Alliance, Spark Computer Graphics Society, and Women in Animation Vancouver.

Building upon a rich foundation in the creative industries, Vancouver supported the growth of the Animation and VFX industry through a strategic combination of marketing, infrastructure investment, workforce development, community building and incentive design.

Toronto

The Toronto Animation and VFX industry is a significant player in Canada, and is home to more small and medium sized Animation and VFX companies than other jurisdictions.⁷³ Just like Vancouver, Toronto is a popular filming destination and expanded its film and TV offer by developing the local Animation and VFX industry over the years.

The city takes an active role in supporting the continued growth of the film and TV sector, such as the recently announced development of a \$250 million film, TV and digital media hub on Toronto's Port Lands. Toronto's Animation and VFX industry benefited from the uptick in production volume fueled by increased content demands during COVID-19.

Institutions like the Screen Industries Research and Training Center (SIRT) at Sheridan College are also a draw for the VFX industry, with their focus on cutting-edge research and technology in the screen-based sector.⁷⁴

Toronto also has developed a thriving startup ecosystem that has grown and evolved over the last decade. Many of the immersive indie companies lead innovation and cutting-edge technology adoption. They transform creative experiences and provide alternative solutions to the Animation and VFX industry.

As such, Toronto's Animation and VFX industry's development strategy is structured in the following components:

1. Continued strengthening of the labour pool and promotion of specialized Animation and VFX programs. Partnerships with Toronto's PSIs have been key to cultivating the flow of talent through the ecosystem of research that is critical to Animation and VFX innovation, and commercialization. Over half the workforce (55%) was hired directly from local institutions.
2. Ongoing investment in state-of-the-art physical infrastructure.
3. A range of competitive incentives – including the Ontario Computer Animation & Special Effects (OCASE) tax credit, which helps Ontario-based companies maintain competitiveness by reducing the effective cost of labour up to 18%.
4. An active support ecosystem that stimulates collaboration between SMEs to form a flexible industry capable to take on indie projects as well as ambitious US-based projects.

While Toronto still struggles with access to markets and talent, the coordinated efforts to support, develop and expand the four pillars of success have proven to benefit a successful Animation and VFX industry. This brief case study further illustrates the decisive role of industry collaboration and the strategic importance of a proactive and committed support ecosystem in touch with the reality of the industry.

Montreal

Montreal's long history of creativity and innovation makes it a competitive jurisdiction for Animation and VFX in Canada. The city is also home to high-quality talent and thousands of students studying arts- and cinema-related programs at the city's colleges and universities.⁷⁵

To support its burgeoning digital ecosystem, Montreal has implemented (and continues to update) several strategies, initiatives and policies. Recently, the city has for example been focusing on initiatives to tackle the labour shortage issue in the industry and to attract international capital for economic value creation.

The City of Montreal and the Quebec Film and Television Council (QFTC) announced the initiative "Release your creativity" aimed at developing innovative solutions for tackling the current labour shortage in the Animation and VFX industry. The initiative is developed in collaboration with other non-profit organizations such as Access: VFX and CyberCap and the education institution École des arts numériques, de l'Animation et du design. "Release your creativity" illustrates how industry associations, decision-makers and PSIs can work together to strengthen the capacities of a jurisdiction.

It can also be noted that Animation and VFX are fully integrated into the broader film and TV strategies. This positioning of Montreal as a preferred place for production and post-production has been key to the success of the local creative industries. Beyond the film industry, Animation and VFX stakeholders have also forged close relationships with the vibrant video games industry to create more business and advocacy opportunities.

The city also benefits greatly from policy planning by the provincial government to continuously improve the digital infrastructure of Quebec. In 2020, Quebec established the Infrastructures Technologiques Québec (ITQ) initiative to help the provincial government determine and develop solutions to digital infrastructure challenges in the province

Furthermore, Animation and VFX companies in Montreal can access support from the Quebec Computer Animation and Special Effects Tax Credit, allowing productions to claim 10% of qualified Quebec labour to a maximum of 5% of production costs.⁷⁶

This final case study puts emphasis on the role of a committed support ecosystem. The support ecosystem and its ongoing efforts to build an interdisciplinary network, promote the local industry and accompany companies throughout their Canadian and international growth have certainly helped put Montreal on the map. Organizations, companies and public entities collaborate to each bring their expertise to the table: business development, workforce development, infrastructure investment, investment attraction, etc.

Thanks to coordinated efforts building on legacy assets and strategic investment, Montreal has become a versatile hub with a solid talent pool and tightly knitted creative and technical communities.

Part B

Alberta's Animation and VFX Landscape



*Courtesy of Quickdraw
Animation Society /
Maedeh Mosavarzadeh*

Ecosystem

The VFX and Animation ecosystem in Alberta is comprised of three key components:

- The core industry: companies for which VFX and/or Animation is the main line of business, regardless of their business model (service or product).
- Adjacent sectors: companies that operate in sectors that regularly collaborate with the core VFX/Animation industry or that share common skills or technologies. Examples include but are not limited to the broader Film and TV industry, other creative industries (e.g., video games, music, etc.), AI and machine learning companies, etc.
- The support ecosystem: this component regroups all parties that play a role in the development of the core industry, throughout the value chain, from talent to financing, to opportunities, to advocacy. Examples include but are not limited to post-secondary institutions, industry associations, government agencies, accelerators and incubators, etc.

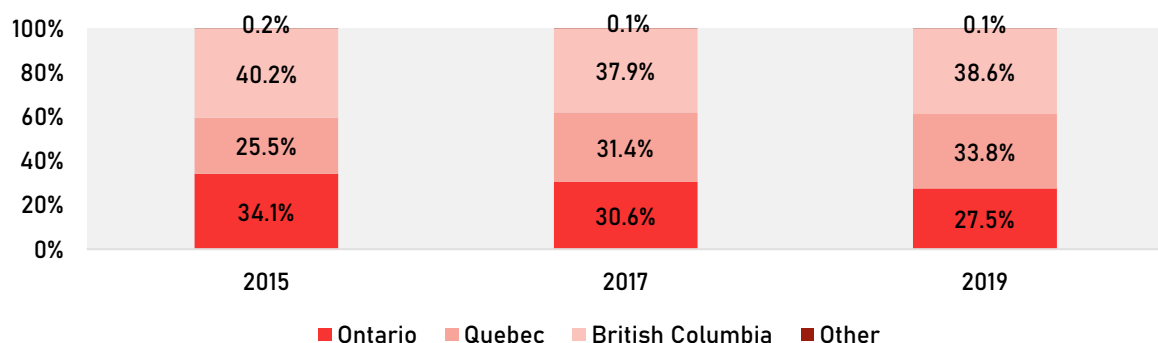
This section provides an overview of the core industry and support ecosystem in Alberta.

1 – Relative Canadian Market Share

Of the aforementioned film, television and video post-production revenue in Canada in 2019, \$6.5 million is attributable to Alberta, up 22.6% from 2017, showing significant growth in this creative industry. More specifically, expenses only reached \$4.4 million, meaning that the Alberta post-production industry was operating at a 32.3% profit margin in 2019, significantly higher than the 5.7% profit margin nationwide.⁷⁷

However, as the following chart illustrates, the Canadian VFX and Animation service industry is largely dominated by the hubs introduced in Section 3.1.3: Alberta accounts for less than 0.1% of the Canadian revenue from visual effects and Animation services for audiovisual works (\$1.2 billion in 2019). While top jurisdictions are facing talent and space shortages, companies are turning to secondary markets to produce Animation and VFX content, a potential windfall for Alberta. Significant investment in infrastructure and training coupled with competitive incentives could position Alberta to capture a growing share of the Canadian market.

Figure 3. Revenue from visual effects and animation services for audiovisual works, by region



2 – Profile of the Core Animation and VFX Industry in Alberta

An online survey was launched on June 2, 2022 targeting VFX and Animation companies based in Alberta. The survey received 15 responses, which represents 63% of an estimated universe of 24 companies. The survey does not include the freelance community, the size of which is more difficult to assess.

Baseline Information

Over half (60%) of the fifteen Animation and VFX companies in Alberta who responded to this question are located in Calgary. The majority of the remaining companies (33%) are located in Edmonton, and the final 7% are located in Airdrie.

Figure 4. Location of AB VFX and Animation companies (n=15)

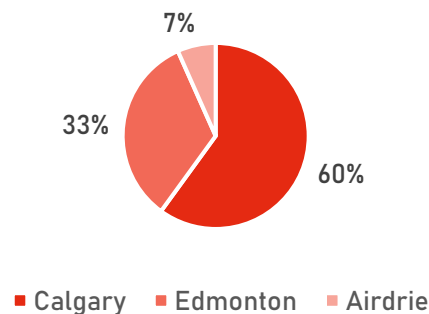
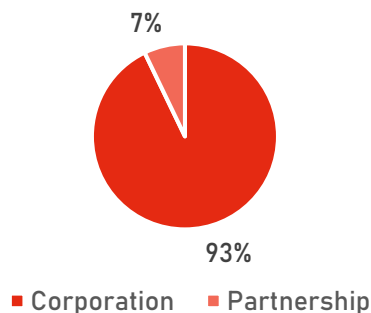
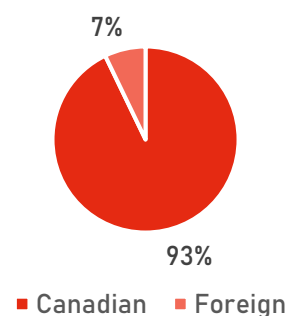


Figure 5. Structure of AB VFX and Animation companies (n=15)



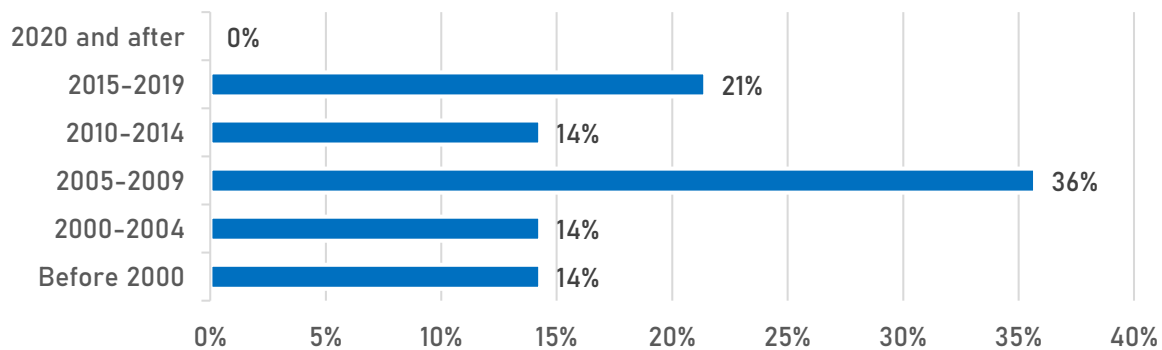
The vast majority of Alberta VFX and Animation companies are structured as a corporation (i.e. are incorporated, owned by shareholders, and managed by an elected board). Only 7% of companies are structured as a partnership.

Figure 6. Ownership of AB VFX and Animation companies (n=15)



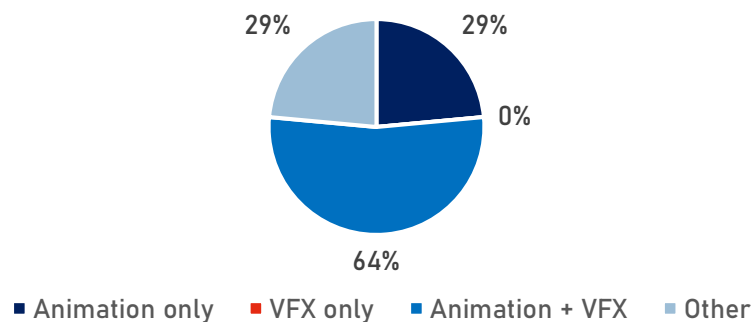
Almost all Alberta VFX and Animation companies are Canadian-owned. The remaining 7% are owned by foreign companies, showing that Canada is holding ground in its own internal Animation and VFX market.

Figure 7. Year of creation of AB VFX and Animation companies (n=15)



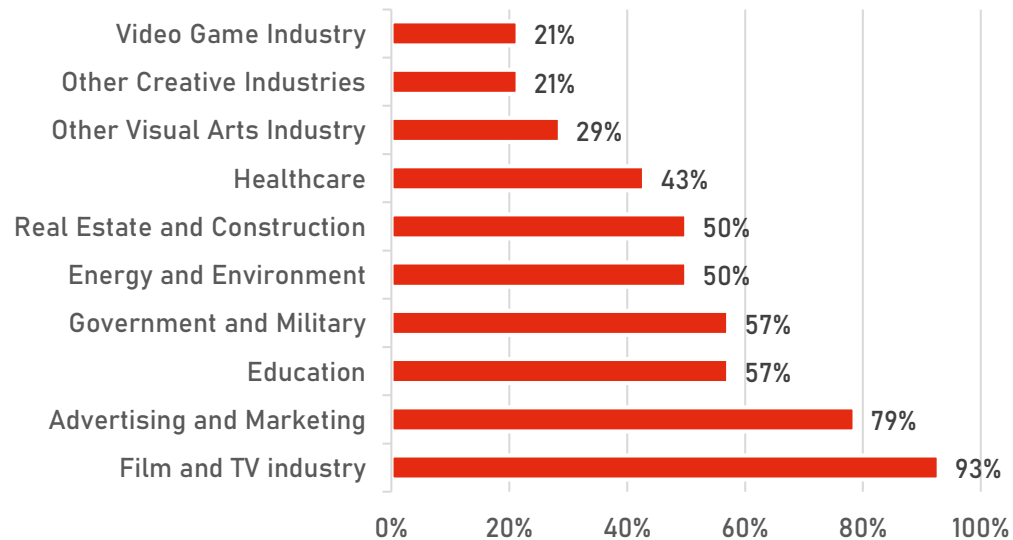
Over half (64%) of the respondent companies have been in operation for over 10 years. Close to one quarter (21%) were established more recently, between 2015-2019. No respondent companies were established in 2020 or later, which may have been partially due to COVID-19.

Figure 8. Lines of business of AB VFX and Animation companies (n=15)



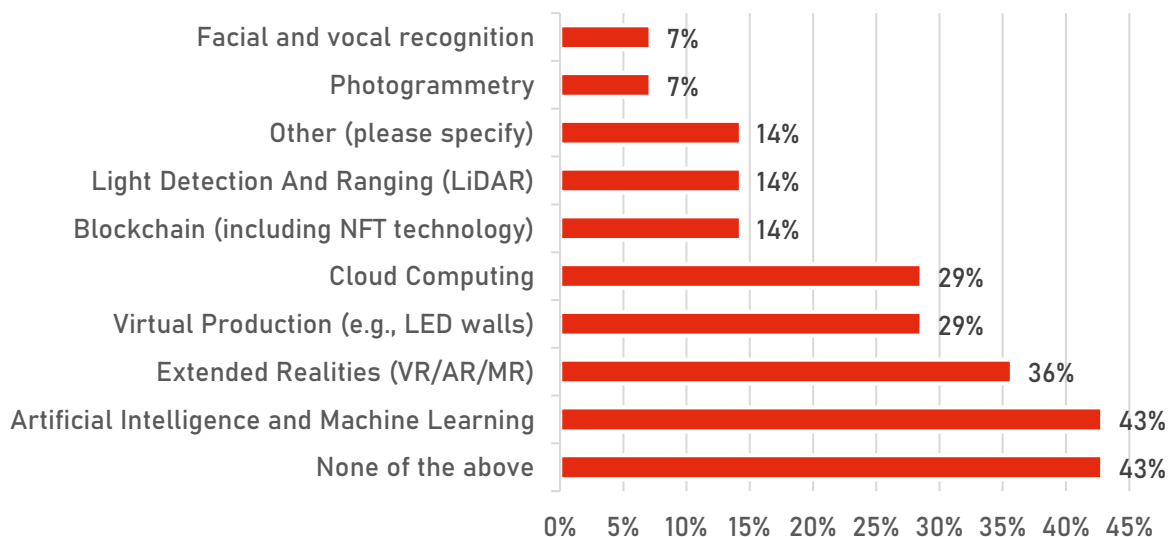
The majority (64%) of respondent companies work in both the VFX and Animation spaces. An equal number of respondents (29% each) answered that they worked in Animation only, or selected "Other." No respondents indicated that they only worked in VFX.

Figure 9. Client industries of AB VFX and Animation companies (n=14)



Many survey respondent companies worked in multiple sectors. However, almost all of them (93%) worked in the film and TV industry, and most (79%) worked in advertising and marketing. Comparatively, few worked in the video game industry (21%), the least-represented category.

Figure 10. Technologies used by AB VFX and Animation companies (n=14)



While there are a number of advanced technologies used by Alberta VFX and Animation sector, many companies have not embraced their use, with 43% not having used any of the technologies listed in the survey. Almost half (43%) have used AI and/or machine learning, and over a third (36%) have used VR, AR or MR. Virtual production and cloud computing were both moderately popular, with 29% each. For more information on the impact of AI and machine learning in the Animation and VFX sector, read Part A – Trends and Drivers of Change.

Employment

Figure 11. Company size, permanent employees only (n=15)

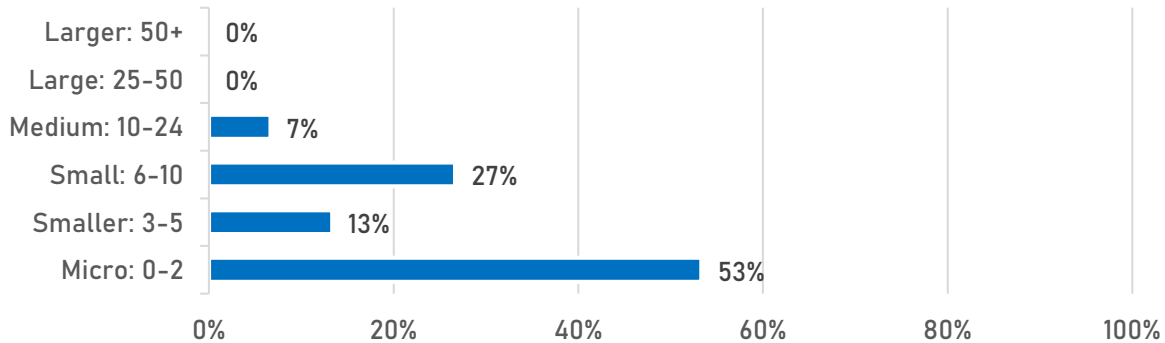
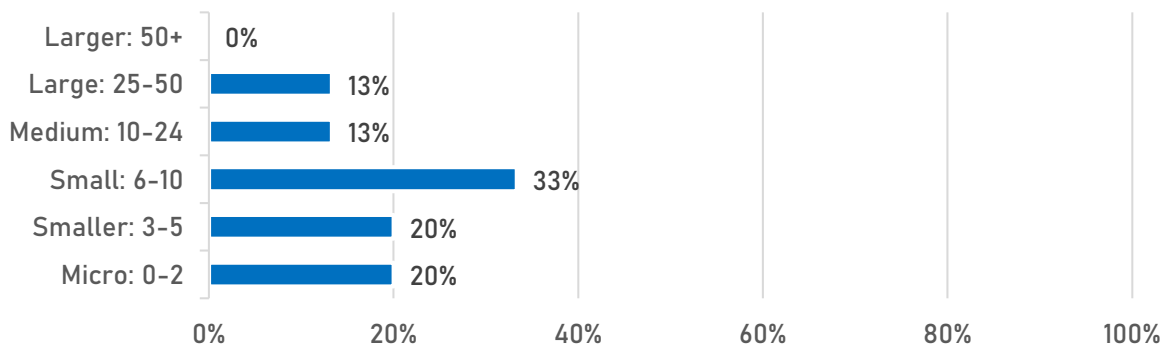


Figure 12. Company size, including permanent, employees, temporary employees and freelance workers (n=15)



The Animation and VFX sectors are both industries that rely heavily on temporary workers. The average company size is 4.3 permanent employees and 3.6 temporary workers. Over 50% of companies surveyed had 0-2 permanent employees, and none had more than 24. In contrast, 13% of companies had between 25-50 employees when permanent, temporary and freelance workers were all included.

Additionally, 70% of permanent employees are senior, with at least six years of experience. This suggests that the majority of entry- and mid-level jobs are being filled by temporary workers, pointing to the potential for high turnover and job insecurity.

▲ Courtesy of Quickdraw Animation Society / Ryan von Hagen & Lydon Navalta

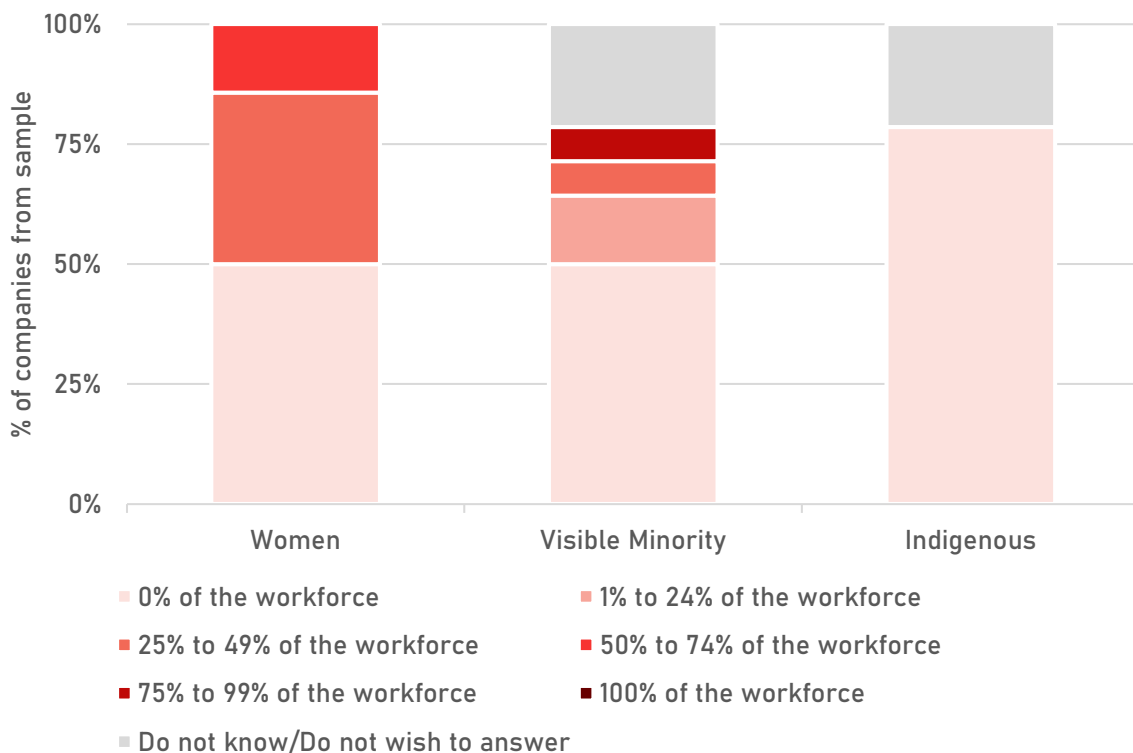
Employment Diversity

The Animation and VFX sectors in Alberta, like others in Canada, have ample opportunity for growth in the areas of employment diversity. Traditionally a male-dominated industry, like with video games, the industry is seeing slow positive momentum for inclusivity.

Of the companies surveyed, 50% had no women employees, and women made up over half the workforce in only 14% of the companies.

Visible minorities were also underrepresented, with only 28% of companies indicating that they had any employees who were visible minorities (with 21% choosing not to answer the question). None of the companies who answered this question indicated that they had any employees who were Indigenous.

Figure 13. Representation of women, visible minority and Indigenous identifying individuals among the workforce of Alberta's VFX and Animation industry (n=14)



3 – The Support Ecosystem in Alberta

A committed support ecosystem is key to the growth of the VFX and Animation industry. The support ecosystem is comprised of educational institutions (including post-secondary and continued education institutions), industry and community associations, and public entities that offer programs, services and funding.

In Alberta, the support ecosystem is relatively solid given the size of the industry. That being said, financial incentives (which are critical in attracting foreign projects, and therefore growth) such as the Post-Production Grant do not allow Alberta to effectively compete with leading Canadian jurisdictions.

Post-Secondary Institutions

Alberta's Animation and VFX industry is supported through a range of education and training programs at post-secondary institutions. Below is a summary list of programs:

- Animation course offered by the University of Alberta as part of the [Film Studies](#) degree. 3D Graphics and Animation with 3DS Max and 3D Modeling and Animation courses offered by the University of Alberta as part of the [Computing Science](#) degree.
- [Digital Media and IT program](#) (with Animation Concentration) at the Northern Alberta Institute of Technology (NAIT).
- [Bachelor of Applied Arts in Animation and Visual Effects](#) offered by Red Deer Polytechnic (former Red Deer College).
- [3D Modeling Animation Art and Design](#) and [Game Development and Design](#) programs offered by Visual College of Art and Design of Calgary.
- [Animation Micro-Credentials](#) offered by Alberta University of the Arts.
- [Advanced 3D Animation and 3D Modeling Diploma](#) offered by Bow Valley College.
- [3D Animation & Visual Effects](#) and [2D Animation & Illustration](#) programs offered by Pixel Blue College.
- [Design and Digital Media](#) program offered by Grant Mac Ewan University.

Government

Government agencies in Alberta play a catalyst role in supporting the Animation and VFX industry by building the community's capacity through funding and tax credits. At the city level, Calgary Economic Development supports the creative economy as well as other key strategic sectors. It played a key role in building Calgary as Canada's fourth-largest production jurisdiction. In Edmonton, the counterpart entity, the ESIO (Edmonton Screen Industry Office) acts as a cultivator and a stimulator for the Edmonton screen media sector and offers grants, market access and scouting support.

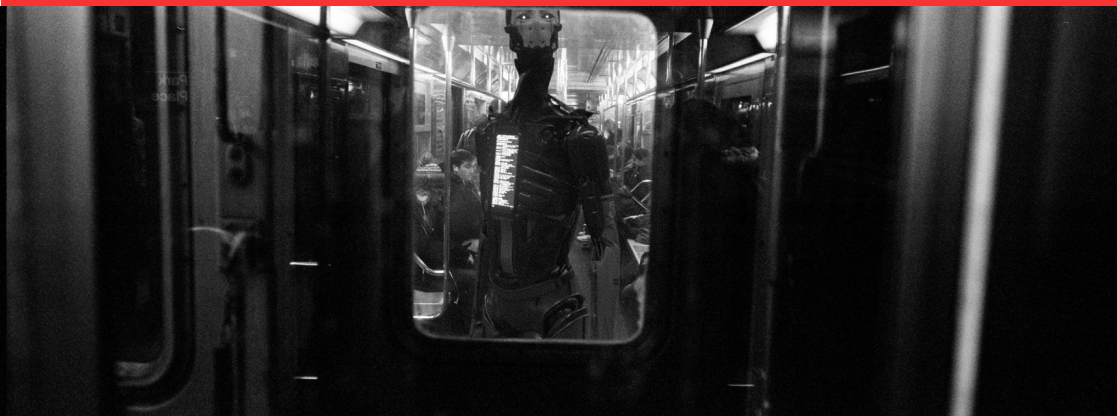
Like British Columbia, Quebec and Ontario, the Alberta provincial government provides the Alberta Post-Production, Visual Effects and Digital Animation Grant to support Animation and VFX companies. This grant provides 18% of total eligible invoiced Alberta labour, to an annual maximum of \$200,000.⁷⁸

Associations

The not-for-profit associations in Alberta play a key supporting role by showcasing innovative creations, connecting the industry and advocating for the Animation and VFX industry.

The Quickdraw Animation Society, for example, is a not-for-profit that promotes the art of Animation through courses, workshops, screenings, and production resources.⁷⁹

Another example is the Alberta Post-Production Association (APPA) advocates for the industry at all levels of government, educates about post-production processes and best practices, and celebrates the successes of its members and partners.



▲ Courtesy of BLMRS

4 – Economic Impact

Using the survey results, Nordicity estimated the economic impact of the VFX and Animation industry in Alberta. In this section, key inputs such as revenue, expenditure and salaries are reviewed, and a summary of impacts (employment, GPP, taxes) is provided on page 44.

Revenue

The chart below indicates that the industry generates a significant part of its revenue from fee-for-service works. Only 4% of the industry's revenue comes from the exploitation of intellectual property. Notably, the Alberta Post-Production Grant accounts for an average 5% of the annual revenue of VFX and Animation companies, which underlines the relatively critical role that this incentive can play.

Finally, the survey also signals that companies generated on average \$980,000 in revenue during their last fiscal year.

Figure 14. Breakdown of revenue, by source (n=15)

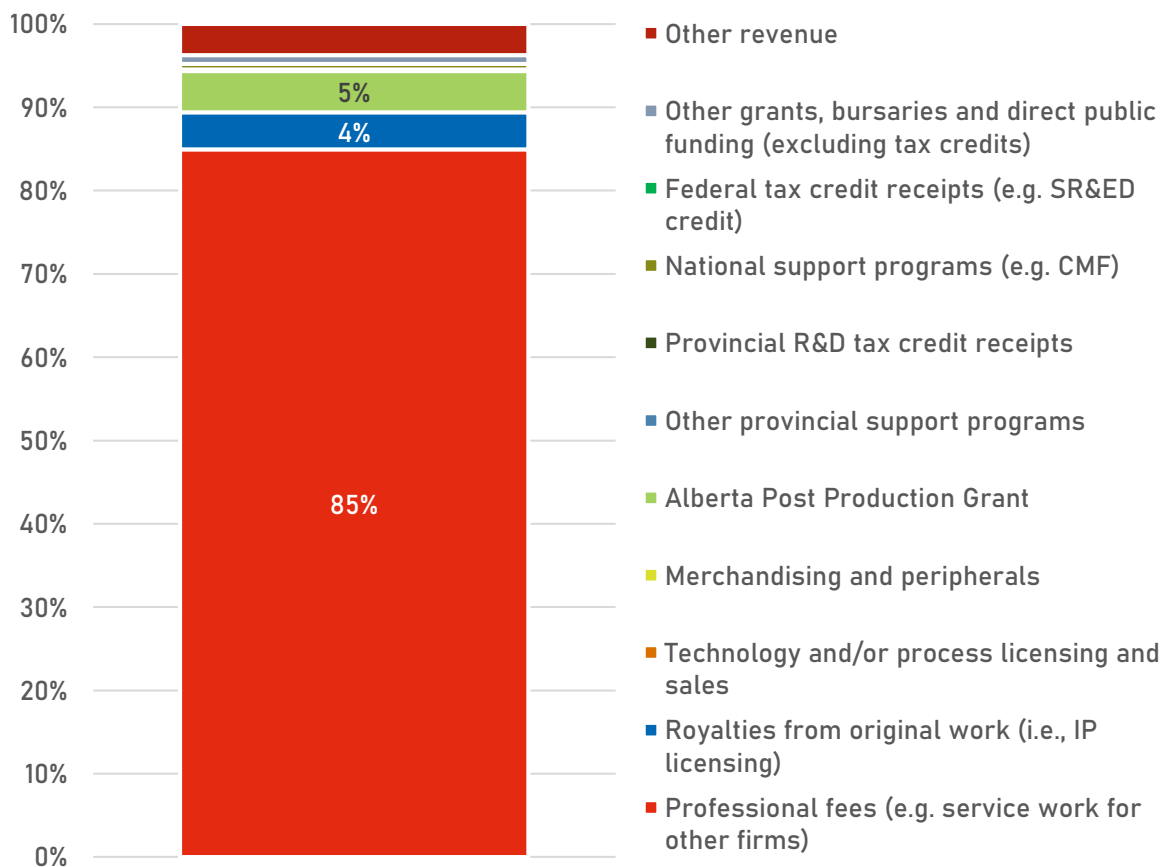
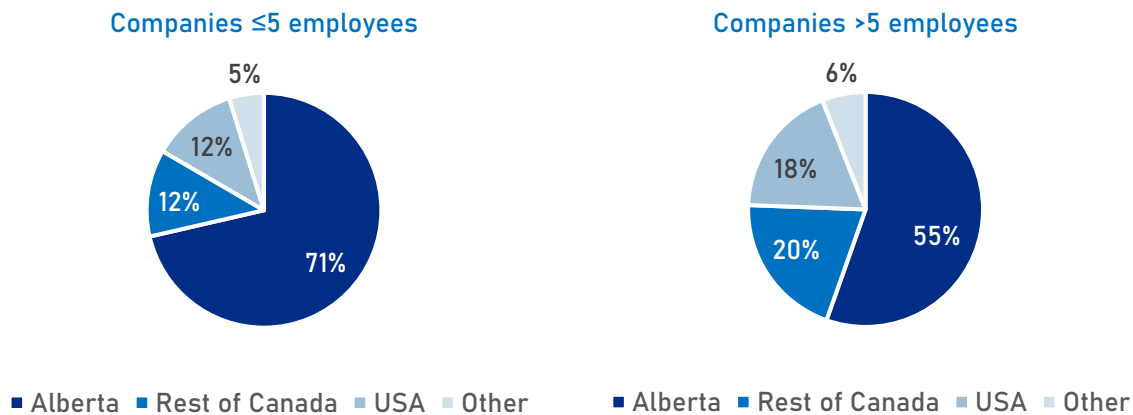


Figure 15. Revenue by region (n=15)

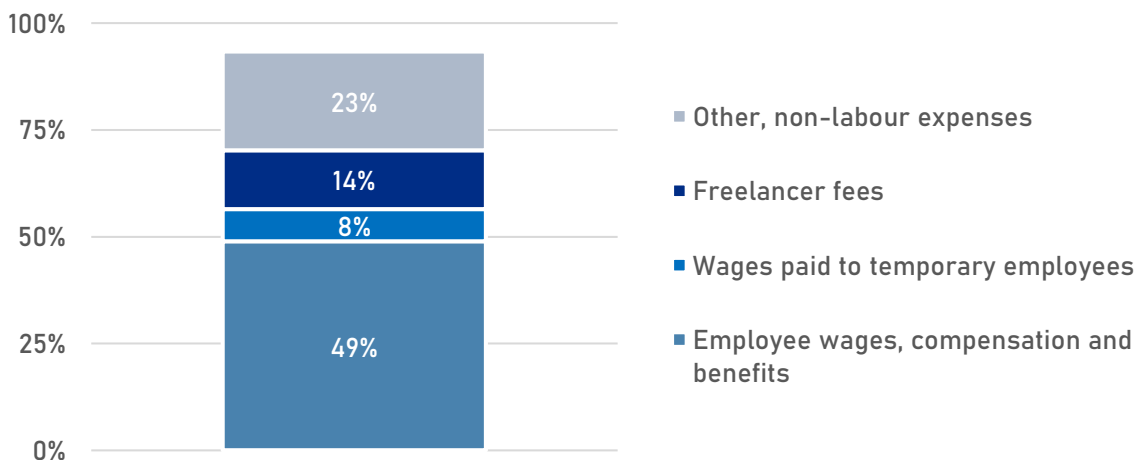


Continuing on revenue, respondent companies indicated that a significant part of their business is conducted within the province. It seems that larger companies (more than five employees) are more successful in capturing business outside of the province – and Canada – than their smaller and micro counterparts. Beyond Canada, the USA is, not surprisingly, the first market for Alberta VFX and Animation companies and accounts for 12% to 18% of the revenue depending on the size of the company.

Expenditure

VFX and Animation companies in Alberta spent an estimated \$5.7 million in 2021. More than two-thirds (71%) of the total expenditure relates to labour which is approximately \$4.3 million. The proportion of labour expenditure is similar to other creative industries that rely heavily on technical workforce such as video games.

Figure 16. Breakdown of expenditure, by source (n=15)



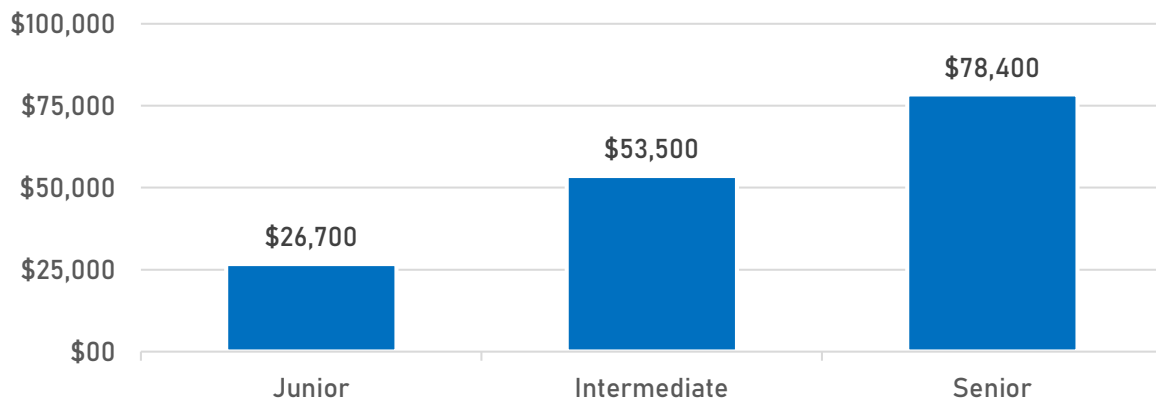
Salary

The average salary for employees in the VFX and Animation industry in Alberta was \$66,300 for 2021. As a comparison, the average salary across all industries in Alberta was \$56,000. VFX and Animation seem to offer higher-paying jobs in a growing industry.

That being said, there are some notable discrepancies between junior and senior talent. Junior employees earned only \$26,700 in 2021, a third of what their more senior colleagues brought home. Lower salaries for less experienced talent might be a reason why the local industry is struggling to retain graduates.

As a reminder, 70% of permanent employees in Alberta would be considered senior (i.e., with six years or more of experience). As a comparison, senior talent accounted for 40% of Ontario's VFX and Animation talent pool in 2018. Similarly, 60% of temporary workers and freelancers in Alberta are also senior. These figures could indicate that while smaller in size, Alberta's talent pool provides companies with more experienced, and therefore much in demand, resources.

Figure 17. Average salary, by seniority (n=15)



Courtesy of Tribal Imaging ►



Economic Impact

Nordicity estimates that the VFX and Animation industry in Alberta generated a total of 110 full-time equivalents (FTEs) in 2021, as well as a total \$10 million in gross domestic product.

Table 1. Economic impact of Alberta's Animation and VFX industry (2021)

	Direct impact	Indirect impact	Induced impact	Total impact
Employment (FTEs)	70	20	20	110
Labour income (\$000s)	4,332,000	771,000	785,000	5,888,000
Gross domestic product (\$000s)	7,003,000	1,389,000	1,826,000	10,218,000

At the provincial level, Nordicity estimates that the VFX and Animation industry generated more than \$930,000 in taxes.

Table 2. Fiscal impact of Alberta's Animation and VFX industry (2021)

	Federal	Provincial	Total
Personal income taxes	984,000	413,000	1,397,000
Corporation income taxes	181,000	70,000	251,000
Consumption taxes	223,000	177,000	400,000
Local property taxes and other fees	000	271,000	271,000
Total	1,388,000	931,000	2,319,000

Learnings from Consultation

In this final section of our assessment of the ecosystem in Alberta, other themes are explored to further understand the impediments to growth.

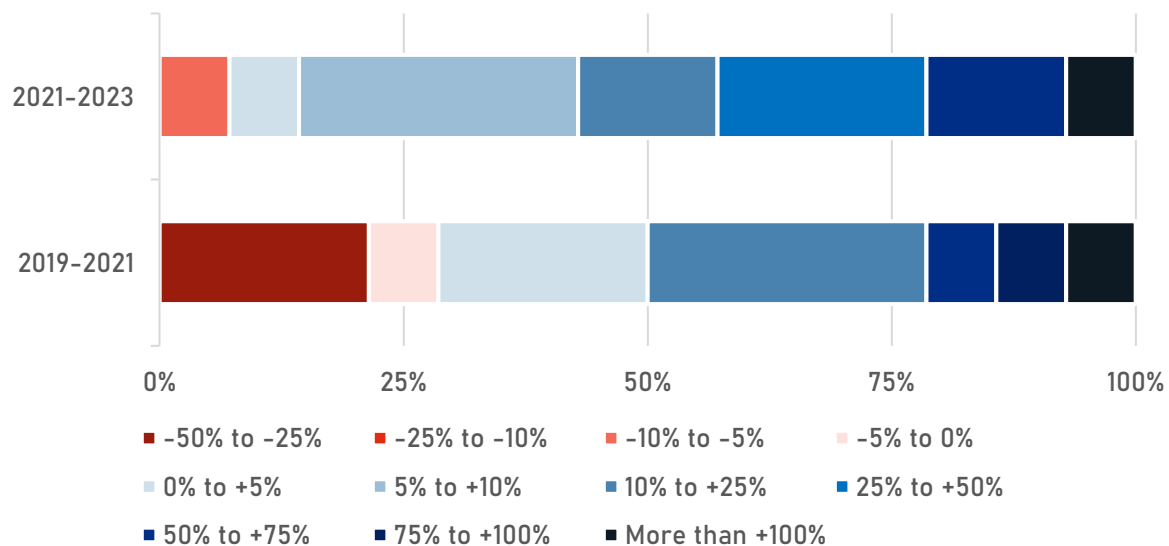
1 – Future of the Industry

Survey respondents were invited to share their perspectives on the future of the VFX and Animation industry in Alberta and where they see opportunities for their company.

Revenue

The 2019-2021 period was a period of relative growth for the industry: 50% of respondents indicated an increase of 10% or more in revenue. The industry anticipates even more solid performance for 2021-2023, with only 7% of companies expecting lower sales volume and 56% confident that they will record an increase of 10% or more in revenue.

Figure 18. Evolution of revenue, 2019-2021 actual and 2021-2023 forecast (n=15)

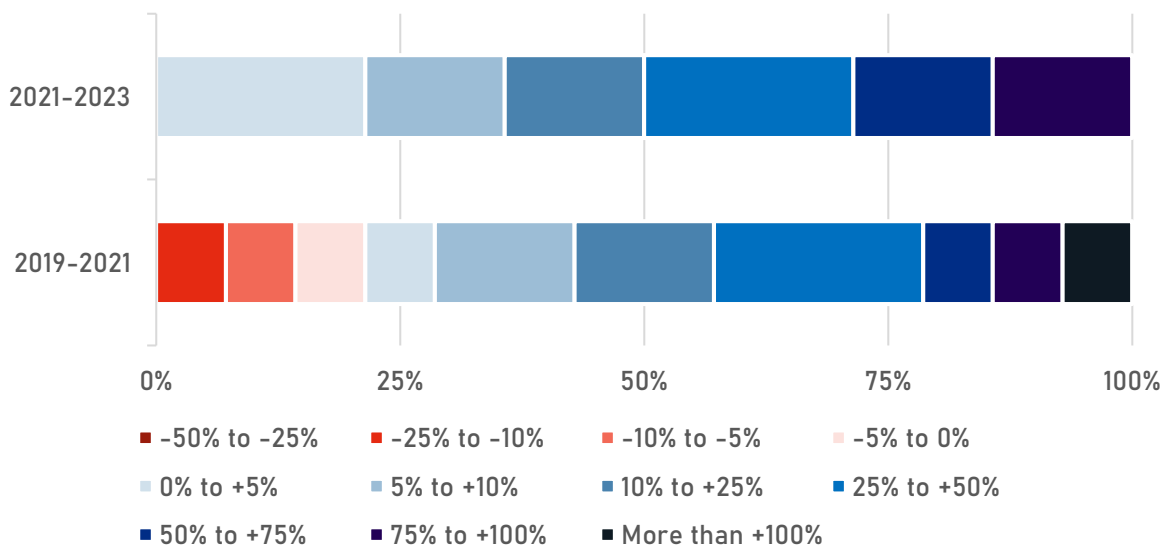


Expenditure

In parallel to the revenue growth, the chart below indicates that the industry also expects expenses to rise over the 2021-2023 period. More precisely, 63% of companies anticipate expenditure to increase by 10% or more, signaling concerns regarding the profitability of their business.

Rising expenditure is a barrier to growth for the industry in Alberta. With more than 80% of the budget spent on labour, incentives alleviating this expenditure item are a strategic element to a growing and sustainable industry.

Figure 19. Evolution of expenditure, 2019-2021 actual and 2021-2023 forecast (n=15)

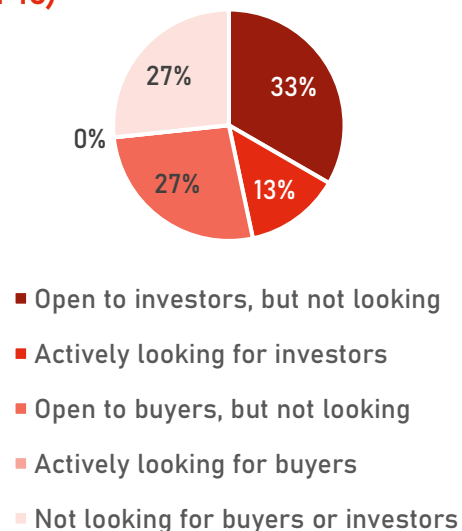


Investment

Finding additional capital to scale or selling the business might be another strategic direction that companies choose to follow.

Investment does not seem to be a priority for VFX and Animation companies in Alberta as only 13% of respondents are actively looking for investors. However, more than half of respondents (60%) are open to investors or buyers.

Figure 20. Investment strategies (n=15)

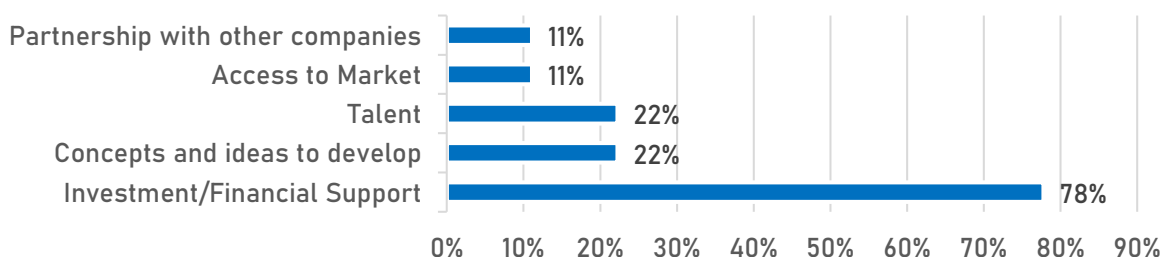


2 – Intellectual Property Strategy

64% of respondents indicated having a desire or a (future or existing) plan to develop and exploit intellectual property. This primarily concerns Animation companies that would like to move away from a business model centered around fee-for-service work.

However, as illustrated by the chart below, companies require investment and financial support to alleviate the risk associated with developing IP.

Figure 21. Barriers to grow IP (n=9)

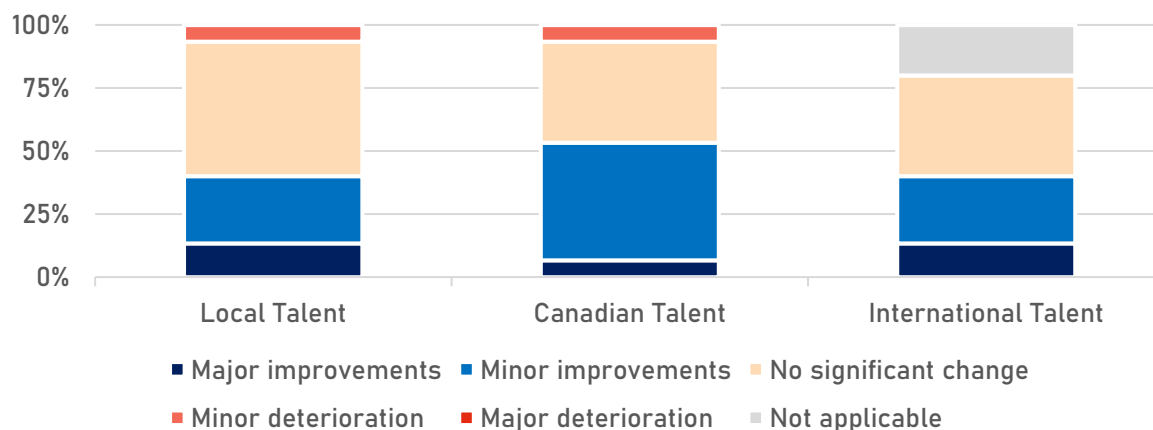


3 – Barriers to Growth

Talent

As an industry relying heavily on workforce, easy access to talent is a critical competitive advantage. In light of the expected demand, companies will supplement the growing local talent pool with resources from other Canadian jurisdictions. As such, in a post-pandemic world open to remote work, 54% of companies anticipate seeing some improvements when it comes to accessing the Canadian talent pool. All things being equal, the situation will likely remain challenging for accessing local and international talent, a barrier that all Canadian jurisdictions are facing.

Figure 22. Perceived access to talent in the next five years (n=15)

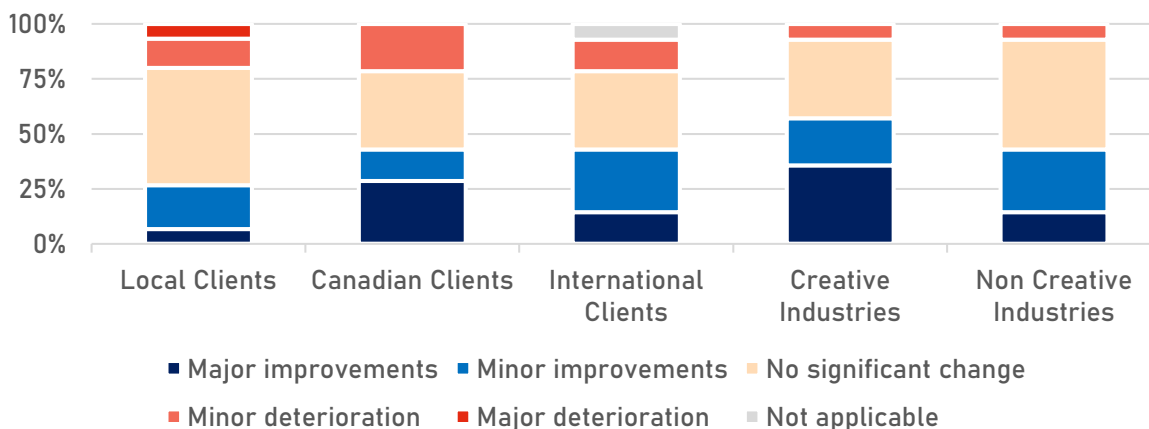


Access to Market

Similarly, companies expect to expand their activity primarily in Canada, and to some extent globally. However, on average the industry does not seem overly confident in accessing markets in the next five years.

The industry expects to be further integrated into the creative industries: 57% of companies anticipate improved access to the creative industries.

Figure 23. Perceived access to markets in the next five years (n=15)



Collaboration

Over the past five years, 60% of respondent companies have missed opportunities because of limited capacity. To address gaps in capacities, some companies collaborate on specific projects. Two-thirds of respondents have already explored partnerships and collaborations with other VFX and Animation companies. Other companies do not see the benefit of collaboration, have a hard time identifying the right partners, or simply did not find the right opportunity to collaborate.

Collaboration can also happen with partners beyond the province, as it is already happening with VFX studios based in Vancouver.

▼ *Courtesy of Studio Dialog*



Top barriers

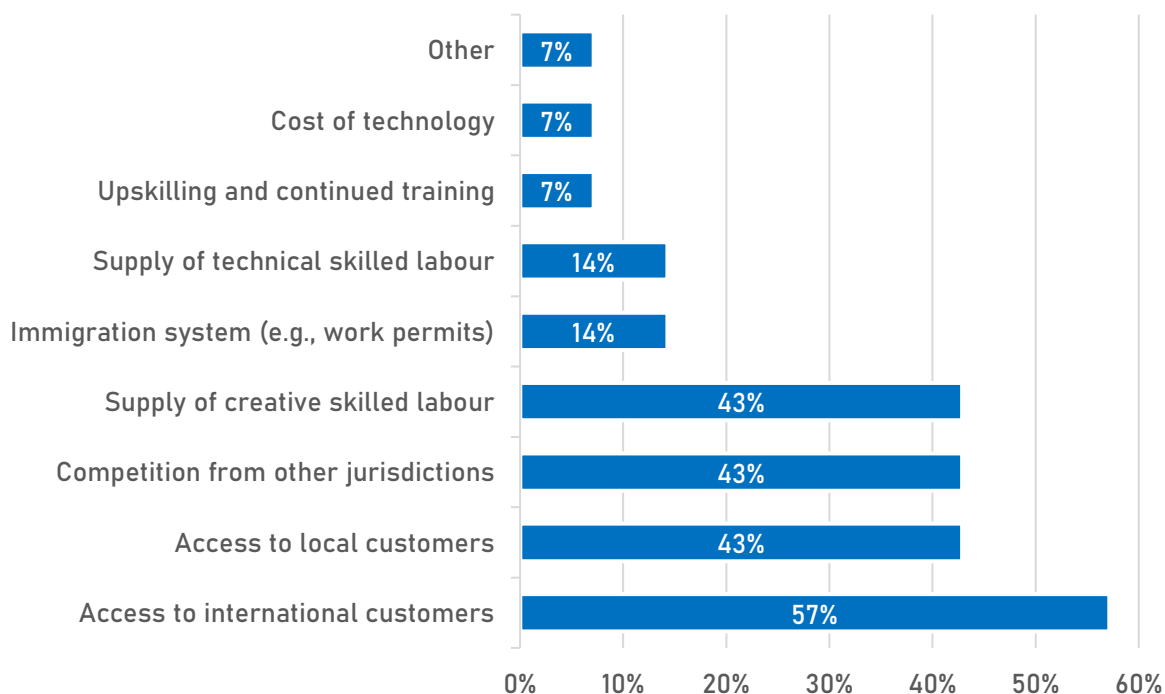
This final figure below summarizes the main concerns for Alberta-based VFX and Animation companies.

The top barrier to growth appears to be a lack of opportunities to access markets. In particular, since the domestic market is limited, growth will need to happen through international projects coming to Alberta. Competition is therefore a growing concern for local businesses in an industry where cutting-edge infrastructure is a competitive advantage and the province's investment seems to be lagging.

Talent is another challenge for the VFX and Animation industry. Stakeholders are concerned to see the province struggling to absorb and retain junior and more experienced talent who seek out opportunities in competing jurisdictions.

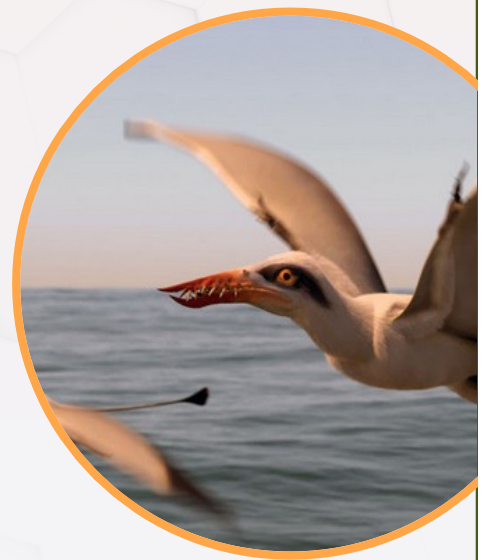
Consultation indicates that the industry in Alberta is particularly in need of experienced **CG artists** and **animators** (who create the images, from characters to environments, to lighting), **software developers** (who create the tools used by artists), **riggers** (who create the digital skeleton for CG characters) and **compositors** (responsible of assembling assets).

Figure 25. Most significant barriers that hinder the development of Animation and VFX companies in Alberta (n=15)



Part C

Vision



Courtesy of 3D Pix

Situation Analysis

This table provides a situation analysis of the local VFX and Animation industry in Alberta. The Growth Strategy will reinforce the existing initiatives that support each pillar, while strengthening these pillars of success through targeted actions with the objective to enable Alberta to catch up with competitive Canadian jurisdictions.

	Challenges to address	Opportunities to seize
Talent	- The limited capacity (i.e., not enough projects) could exacerbate the brain-drain from other leading Canadian hubs - The local talent pool might not be sufficient to support the short-term growth of the sector - Remote working opens local market to global competition	- Local pool seems to meet the local demand - Local educational institutions are recognized for the quality of their programming - A flexible workforce based on a community of hobbyists and freelance artists and technicians ready to be deployed
Ecosystem	- No “neural pathway” to industry collaboration between small and medium companies. As such, they cannot compete with large shops outside the province or take on ambitious projects. - Provincial incentives could better be designed to facilitate collaboration - A large community of hobbyists that could make it challenging to coordinate efforts - A growing need for more regular touchpoints between decision-makers and the industry - The industry requires infrastructure investment to level the playing field with other Canadian jurisdictions	- Dynamic local creative industries, (in particular Film/TV and video games) and tech sector with natural linkages with the Animation and VFX sector - A relatively close-knitted community: associations, meetups, etc. - An ecosystem (companies, industry associations, public entities) willing to commit and support the Growth Strategy - A leading 5G network and high-level connectivity
Access to Opportunities	- PPG is currently less competitive than other Canadian incentives - A limited capacity to take on international projects - A lack of audiovisual high-tech infrastructure in the province	- A pool of local clients with a demand for small- to medium-scale commercial and corporate projects (e.g., training videos, government, trades, natural resources, etc.) - The provincial Post-Production, VFX and Digital Animation Grant (PPG) provides some support to the industry
IP	- The local ecosystem relies heavily on the service model - A lack of financing options to support the risk of producing original content	- A solid tech industry with the potential to develop and licence innovative solutions. - A vibrant creative community

The assessment of pillars of success in Alberta reveals that the Growth Strategy can address gaps while capitalizing on existing success.

- **Talent:** Local PSIs seem to provide sufficient supply of highly-skilled talent – however the scan reveals that there is a risk to see this talent leave the province if the industry cannot absorb and retain graduates. Moreover, by supporting PSIs to design more opportunities for continued training and mentorship, Alberta will have a more comprehensive talent pipeline that feeds into the sustainability of a robust Animation & VFX ecosystem.
- **Ecosystem:** Through collaboration, Alberta's Animation and VFX SMEs will be able to increase capacity and collective skills to elevate themselves to take on bigger opportunities in the national and global film & TV market. Given the expected growth in the global Animation and VFX market, Alberta's companies should be positioned to capture a growing share of demand from foreign markets as Canada has been benefiting from the foreign location and service production, particularly from the US.
- **Access to opportunities:** The local support ecosystem (decision-makers, industry associations and post-secondary institutions) will play a significant role in the development of the creative and technical fabric – this interconnected network is the key to unlocking the potential of Alberta's Animation and VFX industry. The offering should not only include attractive incentives but also industry events, export missions, promotional efforts, matchmaking sessions with investors, etc.
- **Intellectual Property:** The analysis of trends and drivers of change indicated that the ability to produce local IP not only helps attract top-tier talent but also creates value on top of a fixed or semi-fixed bid business model. Most of Alberta's Animation & VFX companies are small and micro businesses that primarily provide fee-for-service work with a client base in various industries. In addition, the Animation and VFX industry is also seeing early adoption of emerging technologies such as virtual production, artificial intelligence and machine learning. Alberta has demonstrated notable advancement in this sector: there is potential for the local innovators to develop solutions that will reshape the creative production workflows.

As such, a growth strategy should focus on the following objectives:

- Absorb and retain locally trained high-quality talent;
- Build neural pathways towards more collaboration;
- Reinforce Alberta's film and TV production centre as a one-stop shop; and
- Build on high-potential adjacent sectors in the province (e.g., immersive media).

Alberta's Opportunity to Become a Leader

A vision and value proposition for the Animation and VFX industry in Alberta.

The growth strategy will further integrate Animation and VFX companies into the broader provincial creative and technological ecosystem to position Alberta as the fourth audiovisual production centre in Canada,

Alberta will achieve this vision by nurturing **collaboration, innovation and creativity**.

In leveraging provincial capabilities in both the creative industries and the commercial/industrial sectors, the Animation and VFX industry will generate a significant impact:

- Creating **more opportunities for local talent** to establish viable career plans in the province;
- Designing a sustainable environment for local companies to **partner** and take on more ambitious projects;
- Strengthening the attractiveness of Alberta as a leading film and TV production centre through the **consolidation** of the production and post-production pipelines;
- Fostering and **cementing relationships** between Animation and VFX and non-entertainment sectors, notably via the use of immersive media; and,
- Promoting Alberta as a place of **innovation and creativity**.

As such, the outcome of a successful growth strategy would be for Alberta's Animation and VFX to become:

- An ecosystem of well-connected SMEs that actively participate in the capture of a meaningful part of global film and TV projects produced in Canada;
- A national leader in Animation and VFX services aimed at commercial and industrial applications;
- A vibrant place to explore the integration of technology into the creative industries (e.g., Artificial Intelligence solutions).

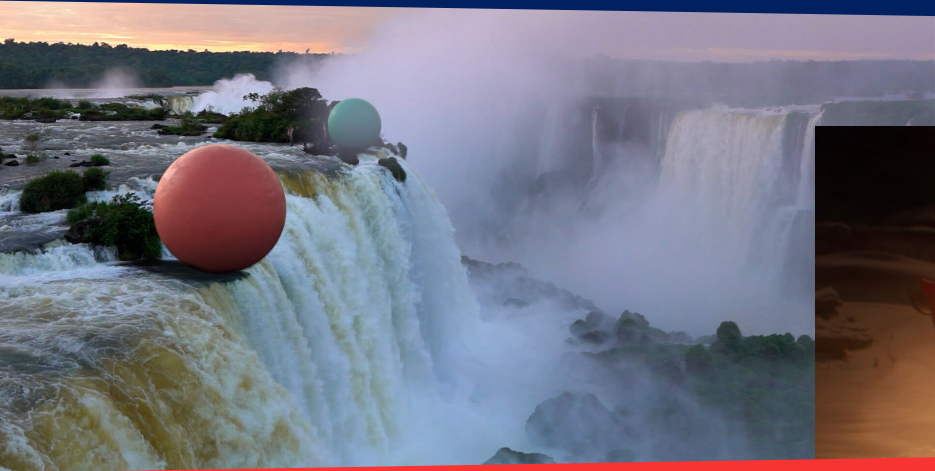


◀ Quickdraw
Animation Society /
Joanne Fisher

▼ 3D Pix



▼ Studio Dialog



▼ Tribal Imaging



▲ BLMRS

Part D

Growth Strategy



Courtesy of Studio Dialog

Overview

In this section, the six recommendations developed with the industry and partners of this study are introduced.

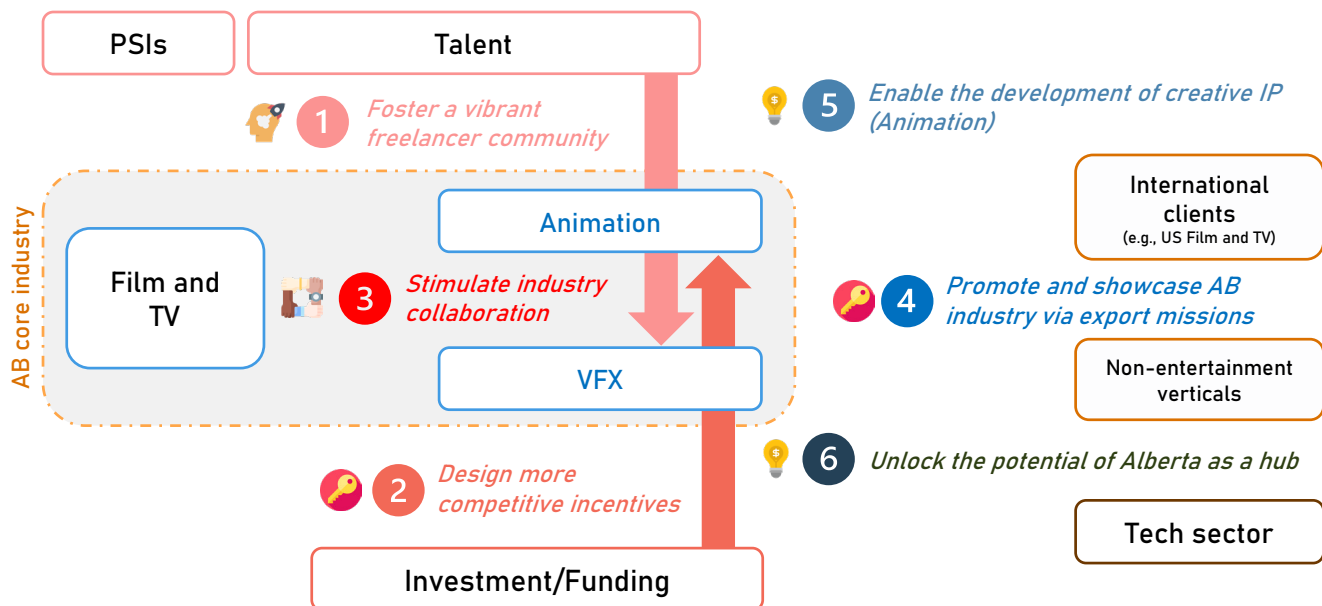
These recommendations were designed to consolidate and reinforce the four pillars of success in Alberta according to the assessment of the situation and assets in Alberta (see Part C).

The figure below illustrates how the various components of this Growth Strategy fit together and connect Animation and VFX companies with adjacent industries for increased opportunities: the film and TV industry in Alberta, international clients in the creative industries, non-entertainment industries (e.g., education, government, energy, etc.) and the technology sector.

The strategy positions Alberta to better compete for talent and opportunities with leading Canadian jurisdictions (recommendations 1 and 2).

More importantly, this Growth Strategy solidifies the local ecosystem to better position Alberta as a one-stop shop for film production and post-production (recommendations 3 and 4).

Finally, the Growth Strategy gives a significant role to sustainability and provides avenues for continued growth through IP creation and technological investments (recommendations 5 and 6).



1

Foster a Vibrant Freelancer Community

Collaboration between CED, ESIO provincial PSIs and industry associations will foster a vibrant freelance community network and support professional development.

Rationale

Freelancers are the most commonly recruited source of talent in the industry.

The consultation revealed that challenges of talent pool are in three folds. First, studios have to reach beyond the jurisdiction in order to find more senior and experienced talent.

Secondly, despite Alberta having a number of relevant PSI programs that cultivate talent, Alberta faces

tough competition from other jurisdictions to retain talent.

Lastly, due to the size of the industry, studios lack capacity to hire and train junior workers. As such, the industry can not afford the investment to retain this talent, and often can not prioritize local talent over remote workers.

Successful Animation and VFX hubs have created platforms to assist individuals and companies to find jobs, partners, or training: for instance, Montreal with the VFX Montreal platform.

Actions

- Create programs that provide consistent training and information on key/emerging skills that are in demand for Animation & VFX (e.g., masterclasses, workshops)
- Create a directory/platform to facilitate matchmaking between talent and companies, and stimulate mentorship, in particular for students/emerging talent
- Facilitate programs that sponsor internship/co-op opportunities for students and studios

Impact

The key objective here is to retain resources who are easily tempted to pursue opportunities in other Canadian jurisdictions by providing stronger career paths in Alberta.

With further training and upskilling to local talent, the Alberta industry will increasingly turn to local talent as the first priority, rather than recruiting remote workers.

Since recruitment is often based on word-of-mouth recommendation, increased hiring of local talent will likely reinforce a mutually supportive network, and fuel the growth of the talent pool

As the industry grows, takes on more projects and faces a steadier and more reliable sales pipeline, some freelancers will be converted into permanent employees.

Roles

CED should pursue initiatives that convene parties with an interest in Alberta's Animation and VFX workforce (e.g., local post-secondary institutions and studios) in settings that facilitate new types of relationships.

ESIO may also build up the current events for the screen industry and undertake activities that help Animation and VFX workers and companies gain access to professional development needed for them to grow their careers and companies (e.g., masterclass, pitching skills, etc.).

Evaluation

The success of this recommendation can be assessed in terms of the number of participants, and incremental benefits brought by the participation. Specific impacts and metrics are detailed below:

Activity	Impacts	Indicators
Training programs	Increased and improved local talent pool	Number of participants Results of participants' survey
Matchmaking program and internship initiative	Increased local-level employment Increased industry-supportive network	Number of participants that are successfully placed Number of positions created as a result of the initiative

2

Design More Competitive Incentives

Developing and enhancing a suite of public incentives will allow Alberta to better compete with other Canadian jurisdictions.

Rationale

A robust source of funding is essential to the growth of the industry. During the consultation, the industry expressed a much-needed sense of stability and security. Interviewees emphasized the importance of having a consistent and stable funding mechanism in place.

Specifically, many studios could not use Post-Production, Visual Effects and Digital Animation Grant (PPG) as a tool for financial and business planning due to the inconsistent and long processing time.

The community also expressed the need for Alberta to support local vendors through investment in infrastructure such as state-of-art sound stages, LED volume screens, etc.) that are lacking in the province.

Beyond the top Canadian hubs for Animation and VFX, comparable jurisdictions (i.e., Manitoba, Nova Scotia, etc.) are offering or developing attractive incentives to attract productions and infrastructure investment. As such, Alberta's public funding options should be more competitive.

Actions

- Ensuring funding mechanisms remain stable and unchanging, allowing the industry to rely on them
- To ensure that PPG can better serve studios' business decisions, we recommend CED and ESIO work with government and industry stakeholders to revise PPG's operational policy to set out best practices that support effective processing and productive relationships with funding recipients
- To ensure that funding mechanisms support local vendors as well as attract more production activities to Alberta, we recommend CED and ESIO work with government and industry stakeholders to establish incentives to encourage infrastructure investment and attract productions

Impact

Better access to public funding will allow the industry to better compete with other Canadian jurisdictions and to capture a growing share of the volume of VFX and Animation produced nationally.

Companies will be able to take on larger and more potentially risky projects as well as focus on creating original IPs and long-term strategic planning.

This will in turn encourage companies to bring on additional talent for larger projects.

Roles

- The Alberta government should engage CED and ESIO to revise PPG to reduce administrative burden and follow a consistent approval process for executing the funds to applicants.
- CED and ESIO will convene parties with an interest in Alberta's public incentives to gain insights on specific improvements of current incentives and needs for new incentives.

Evaluation

The effectiveness of this recommendation can be assessed in terms of the uptake of applicants, successfully funded projects, and increased satisfaction with the program.

Activity	Impacts	Indicators
Consistent and stable funding and improved PPG	Increased appetite for larger and riskier projects Increased capacity for studios' long-term growth Increased capacity for financial planning and business decision making	Incremental revenues from recipients Success rate of recipients growing businesses
More competitive public incentives	Increased production activities in Alberta, leading to increased work for local vendors Increased infrastructure capacity	Growth (by production volume, employment, square footage of sound stage)

3

Stimulate Industry Collaboration

A package of mechanisms will foster collaboration not only within the industry, but also with the broader creative industries.

Rationale

The desk research and consultation indicated that collaboration between companies plays a significant role in the continued growth of the industry.

Notably, in Alberta where the industry is comprised of small and medium businesses, collaboration becomes a strategic approach to capture more ambitious projects.

As such, the primary objective of this recommendation is to formalize collaboration and to create organic neural pathways to

make collaboration a more common practice in the VFX and Animation industry in Alberta.

By reinforcing central players such as industry associations, the strategy will facilitate the identification of partnership opportunities within the core Animation and VFX industry but also with the vibrant film production centres in Alberta.

Finally, there is emerging potential outside of the creative sector, particularly in the AR/VR space in non-entertainment verticals that the industry should keep exploring.

Actions

- Establish a provincial VFX and Animation specialist or consultant position to assist local studios with the collaboration process. Ideally, this position would be created within industry associations to ensure its relevancy.
- More generally, the province would largely benefit from a creative industry agency as observed in other Canadian jurisdictions. In addition to administering programs and services, this entity would act as a catalyst and matchmaker.
- Regular networking events and meetup opportunities can encourage collaboration, as well as help build connections with external stakeholders and potential clients.
- Grants and other incentives should be explicitly open to such partnerships.

Impact

As companies work together and manage to score larger contracts, awareness of the Alberta Animation and VFX industry and its flexible capacity will grow, further reinforcing the sustainability of the industry.

More collaboration with the Film and TV industry (e.g., production companies) will allow clients to better comprehend the province as a one-stop shop for production and postproduction.

Moreover, increased collaboration with entities outside the creative sector can provide opportunities for the industry to expand in new directions and develop innovative solutions and content.

Finally, a creative industry association and the creation of a specialist position will improve communication between decision-makers and the industry and will make it easier for clients and stakeholders to find relevant information and partners.

Roles

- CED and ESIO will advocate for the increase of resources for industry association, which will facilitate the creation of the position of industry specialist/concierge.
- The industry specialist will regularly connect with company representatives but also with CED, ESIO and decision-makers to communicate needs, opportunities and challenges.
- CED and ESIO will also advocate for the creation of a provincial creative industry agency.

Evaluation

The success of this recommendation will be primarily evaluated on the number of successful partnerships.

Activity	Impacts	Indicators
Partnerships	Increased capacity and attraction of larger-scale international projects	Number of successful joint bids
Touchpoints	Improved communication within the ecosystem (i.e., within the industry and with partner such as decision-makers)	Number of strategic meetings/touchpoints

4

Promote and Showcase the Industry

A more active promotion of the Animation and VFX industry, led by CED and ESI0, will shine a light on Alberta and facilitate access to local and international markets.

Rationale

Although working on expanding the Animation and VFX industry within Alberta is important, the scope of the industry within the province is still a limiting factor.

During the consultation, many stakeholders identified the lack of opportunities as a major limiting factor to the growth of the industry.

In order to have significant growth, Alberta-based companies need to be able to compete on a national and international stage for projects,

rather than competing with each other for a limited number of opportunities within the province.

The consultation also revealed that the Animation and VFX sector is not considered as a real option by producers. It showed the lack of sufficient knowledge of what Alberta's Animation and VFX sector can provide.

As such, Alberta needs to sell itself as a great place to get Animation and VFX services and set up studios, in addition to being a vibrant production environment.

Actions

- Carry out missions to trade markets with the higher potential companies to meet international investors/distributors (e.g., BANFF), and/or join in with existing film and TV industry missions to promote the idea of doing both production and post-production in Alberta.
- Provide training and/or guidance to help Alberta companies learn and be better prepared to pitch and sell their services and ideas in an effective way to potential buyers in an international market.
- Promote and market local Animation & VFX companies to production companies and even businesses in other sectors. Specific activities could include compiling and promoting success stories and “anchor” projects.

Impact

Companies being better equipped to pursue opportunities outside of Alberta will allow the industry to grow as companies stop competing for the same small number of jobs.

Missions to trade markets will increase international awareness

of Alberta as a strong provider of Animation and VFX work, meaning that companies may increasingly be approached by new international clients.

Finally, these actions will reinforce the province's objective to position Alberta as a comprehensive audiovisual production centre.

Roles

- CED and ESIO should work with the industry to develop relevant trade missions promoting Alberta Animation and VFX studios through either outbound international travel or by bringing international buyers to Alberta.
- CED and ESIO should also work with industry associations to develop training and/or guidance to help Alberta companies be prepared for trade missions.
- The Ministry of Jobs, Economy and Innovation should collaborate with CED and ESIO to leverage the expertise in building an export strategy and review available programs (e.g., Export Alberta) that fund export initiatives.

Evaluation

The success of this recommendation will be measured by its ability to help Alberta-based Animation and VFX companies generate additional revenues and increased production investments from outside of Alberta.

Activity	Impacts	Indicators
Trade missions/Training	Increased export revenues, investments and partnerships Growth of Alberta Animation and VFX industry Increased business skills	Number of companies showcased Increased export revenues, investments and partnerships
Promotion of local companies	Increased awareness of Alberta Animation and VFX sector as part of the one-stop production place Increased access to opportunities	Success stories identified and sourced Number of inquiries directed to studios

5

Enable the Development of Creative IP

CED, ESIO and the Alberta Government will foster entrepreneurship in Animation and support the early development of commercially viable Animation projects.

Rationale

Consultations revealed a clear desire from Animation companies to diversify their revenues by developing original IP.

However, limited talent and capital are major barriers that inhibit companies from pursuing revenue diversification strategies. Capital, in particular, would allow companies to alleviate the risk associated with developing original content and moving away from fee-for-service work.

Currently, ESIO offers grants that support the development and marketing phases of original IP for the screen sector. However, only a few companies applied for it.

In addition to the need for funding, respondents also indicated that they need creative ideas or partnerships with other IP makers.

In the long run, IP strategies ensure financial sustainability by creating steady revenue streams and diversification opportunities.

Actions

- Given that ESIO currently offers grants that support the development and marketing phases of original IP, we recommend that ESIO promote available grants to Animation stakeholders via industry associations.
- Establish slate funding to allow IP creation and entrepreneurship among established companies.
- Organize pitch competitions/matchmaking with investors/distributors.
- Provide training for professional development and for PSI students and entrepreneurs to improve business acumen (e.g., strategic decision-making around IP and commercialization, developing a pitch, market trends, etc.).

Impact

Slate funding will act as a stepping stone for Alberta Animation companies to present high-potential projects to investors and distributors.

More original IPs will spur creativity and innovation in Alberta, attracting and retaining talent.

Successful animation studios will adopt a sustainable business model, which in turn will create more employment and economic impact.

Roles

- CED and ESIO should advocate for other levels of government on behalf of Alberta's Animation and VFX sector in support of critical issues related to grants and funding for original IP.
- ESIO should undertake activities that promote available grants for IP development to Animation companies via collaboration with industry associations such as Quickdraw Animation Society.
- ESIO may also undertake activities that help Animation and VFX companies gain access to training and events that relate to IP development, pitching and commercialization.

Evaluation

The effectiveness of this recommendation will be assessed by the indicators outlined below:

Activity	Impacts	Indicators
Promotion of available grants for IP developments	Growth in Animation original content	Increased uptake of funding Number of original Animation projects being funded
Slate funding for IP creation and entrepreneurship	Increased revenue streams for Animation and VFX studios	Number of original Animation projects being funded
Events and trainings on IP development and commercialization	Diversified business model for Animation and VFX studios Increased competitiveness	Portion of revenue generated from original IP

6

Unlock the Potential of Alberta as a Hub

CED, ESIO and the Alberta Government will strengthen the one-stop destination concept for production companies by supporting investment in infrastructure and technical innovation.

Rationale

Research showed that the technology investment required in the VFX industry narrows the profit margin for VFX studios. VFX companies are expected to innovate, but often quotes to clients don't include expenses to cover the time and resources required for the R&D.

The VFX community in Alberta expressed the priority to have necessary infrastructure as the foundation to be able to take on bigger projects and attract productions.

As mentioned in Recommendation 2, other jurisdictions have developed ambitious infrastructure plans to support their creative industries. For example, Nova Scotia announced an \$8M soundstage plan to further boost the province's film and TV production scene in 2022.

While the priority is bridging the technological gap with other jurisdictions, the VFX and Animation industry in Alberta could benefit from the innovative tech sector and the investment made in this space (e.g., Artificial Intelligence).

Actions

- Create bridges between film and TV production companies and VFX companies via industry events to organically grow as a one-stop destination.
- Advocate for public and private investments in VFX infrastructure such as sound stage with motion tracking equipment and LED volume screens.
- Connect the industry with the province's tech sector to fuel research and development for technology applied to the creative industries.

Impact

Positioning Alberta as the one-stop-shop for production and post-production in Canada will generate more interest in the province and allow local and international productions to work efficiently in the province from start to finish instead of sourcing part of the service outside of the province.

Once the technological gap is bridged, connections with the tech sector will allow Alberta to eventually push the envelope and develop innovative technical solutions for VFX and Animation. Therefore, sustainability is embedded within this recommendation.

Roles

- CEO and ESIO should work with the industry to identify the most critical needs in terms of infrastructure.
- CED and ESIO should advocate for public and private investment in the strategic infrastructure.
- Industry associations, CED and ESIO should act as the catalyst to build long-term relationships with leading research centre and innovative tech companies to identify promising trends and solutions.

Evaluation

The effectiveness of this recommendation will be assessed in terms of the increased hiring of local Animation and VFX companies and new soundstage being built.

Activity	Impacts	Indicators
Industry events connecting production companies to Animation and VFX companies	Increased business network Increased production and post-production service work	Number of events hosted and participants matched Increased revenue for participants
Investment in infrastructure	Increased production and post-production service work Increased employment	Growth by soundstage space and production activities



End Notes

Definitions: Animation Pipeline

Concept Artist: Draws the very first sketches of the animation, conceptualizes how it will look. The artwork of concept artists is used as a reference point for the animators and designers further down the animation pipeline.

Modeler: Translates concept art, character designs and environment designs into models ready to be animated. In stop-motion animation, modelers make models from materials, such as Plasticine or metal. In 3D computer-generated animation, they make models with computer software.

Animation Technical Director: Programs digital tools to help the artists. They work with animation software, developing and testing tools, custom features and add-ons, making sure it does the best job possible for the animators and layout artists.

Layout Artist: Decides the depth and perspective of what's being displayed on the screen. In 2D hand-drawn animation, layout artists draw the backgrounds and show the relative size of the objects in the foreground. In 3D animation, layout artists are directors of photography in a virtual space (e.g., decisions about lenses, camera angles and camera movements, etc.).

Rigger: Creates digital skeletons for 3D computer-generated characters. These skeletons, or rigs, are like puppets that define the range of movement of a character or creature. Rigs are used by animators as the basis for the movements of their characters.

Lighting Artist: decides what lights to use and where to place them. They use software to create the lighting effects, showing the source of the light and enhancing the mood, tone and depth of a scene.

Animator: There are different types of animators. Some draw frames by hand in 2D, others create 3D animations using computer software and others move models by tiny amounts, one frame at a time. But whatever the medium, the basis of animation is the same: they make still images that are played in a rapid sequence to create the illusion of movement.

Effects Technical Director: Makes physics-based digital effects, such as explosions, smoke and water, for the artists to use in their shots and sequences.

Compositor: Creates the final image of a frame, shot or sequence. Compositors take different elements, like the animations, background plates, graphics and effects, and put them together to make a believable picture. They are also responsible for continuity, ensuring that the art from different sources and different artists looks the same. They ensure the overall look of the animation is in line with the director's vision.

Source: [ScreenSkills – Animation Industry Career Map](#)

Definitions: VFX Pipeline

VFX Producer: Manages the whole process of creating the VFX for film or TV. They put together the team of artists and technical staff, set the schedules and manage the budget. They also communicate between the crew working on the film set and the VFX editor in the studio.

VFX Supervisor: In charge of the whole VFX project. They manage the VFX pipeline, including all the VFX artists who work in the process. They have ultimate responsibility for all the VFX elements produced for a project by their company or studio. They are therefore ultimately responsible for the relationship between a VFX studio and the director or producer of the film or TV content. They continue to lead when a film is being put together in post-production.

VFX Editor: Works as the link between the film or TV production team, which shoots the live-action footage, and the VFX studio that does the visual effects. The role of a VFX editor varies depending on whether they are in-house or client-side but they are essentially responsible for ensuring that the VFX artists at the VFX studio have everything that they need to create their work.

Data input/output technician: Responsible for organizing, transferring and storing the computer files and data for a VFX production company.

Concept Artist: Creates artwork to inspire the look of the VFX in a film or TV production. Concept artists are the first to draw the characters or creatures and environments as well as vehicles, props and buildings. Their work is used to help other members of a production, or in the VFX pipeline, to have a shared vision.

Previsualization artist: Helps to plan what a film is going to look like. Previs is the process of visualizing a scene before creating it. This is used to map out how the VFX will fit into a live-action scene.

CG artists: Depending on their expertise, create and define the look of textures, environment, lighting, props and characters, determine the position of the virtual camera or match CG scenes with live-action shots.

Pipeline Technical Director: Makes sure a VFX project runs smoothly by identifying and fixing problems as they arise. Pipeline technical directors make sure each department has the software tools that they need to complete their part of the project to the best standard possible.

Other Technical Directors: They lead the creation of digital skeletons, of visual effects such as explosions and smoke, and the development of tools that enable artists to create creatures, characters and environments.

Software Developer: Produces the technology required for a VFX project. Software developers create the systems that technical directors can use and modify to suit the specific needs of their VFX artists.

Roto Artist: Manually draws around and cuts out objects from movie frames so that the required parts of the image can be used, a process known as rotoscoping.

Compositor: Creates the final image of a frame, shot or VFX sequence. Compositors take all the different digital materials used (assets), such as computer-generated images, live-action footage and matte paintings, and combine them to appear as one cohesive image and shot.

Source: [ScreenSkills – VFX Industry Career Map](#)

- ¹ Mordor Intelligence, “Global Animation and VFX Market (2021–2026)”
- ² *ibid*
- ³ EMR, “Global Visual Effects (VFX) Market Outlook”
- ⁴ The Insight Partners, Virtual Production Market Forecast to 2028; Boston Consulting Group, *Lights, Camera, Action...*
- ⁵ Mordor Intelligence, “Global Animation and VFX Market (2021–2026)”
- ⁶ Boston Consulting Group, *Lights, Camera, Action...*
- ⁷ EMR, “Global Visual Effects (VFX) Market Outlook”
- ⁸ Digital Vector, “Global Animation, VFX & Video Games Industry”
- ⁹ Mordor Intelligence, “Global Animation and VFX Market (2021–2026)”
- ¹⁰ Digital Vector, “Global Animation, VFX & Video Games Industry”
- ¹¹ Mordor Intelligence, “Global Animation and VFX Market (2021–2026)”
- ¹² Variety, “Why Animation Aimed at Adults Is the Fastest Growing Toon Trend”
- ¹³ Film London, *Animation Strategy 2021/22*
- ¹⁴ VFX Voice, “VFX in the U.K.: From Cottage Industry to Global Powerhouse – With Pause for Brexit”
- ¹⁵ Film London, *Animation Strategy 2021/22*
- ¹⁶ VFX Voice, “Global VFX: State of the Industry 2019”
- ¹⁷ Film London, *Animation Strategy 2021/22*
- ¹⁸ VFX Voice, “VFX in the U.K.: From Cottage Industry to Global Powerhouse – With Pause for Brexit”
- ¹⁹ Boston Consulting Group, *Blockbuster Script for the New Decade*
- ²⁰ Boston Consulting Group, *Lights, Camera, Action...*
- ²¹ VFX Voice, “Global VFX: State of the Industry 2019”
- ²² Firstpost, “India sets up Animation, Visual Effects, Gaming and Comics task force: What this means for future of metaverse in country”
- ²³ Boston Consulting Group, *Blockbuster Script for the New Decade*
- ²⁴ Firstpost, “India sets up Animation, Visual Effects, Gaming and Comics task force: What this means for future of metaverse in country”
- ²⁵ Mordor Intelligence, “Global Animation and VFX Market (2021–2026)”
- ²⁶ New Zealand Film Commission, *People and Infrastructure*
- ²⁷ AusFilm, *Australian VFX: On Par With the World*

- ²⁸ Before & Afters, “Boom-times: Australian Animation and visualisation”
- ²⁹ Playback, “Surge in Animation Drives Demand for Talent in B.C.: Report”
- ³⁰ Digital Vector, *Global Animation, VFX & Video Games Industry*
- ³¹ Kidscreen, *Labor Report: Taking the Pulse of Unionization in Animation*
- ³² *ibid*
- ³³ Digital Vector, *Global Animation, VFX & Video Games Industry*
- ³⁴ Kuo-Kuang Fan and Ting-Ting Feng, *Sustainable Development Strategy of the Chinese Animation Industry*
- ³⁵ Effects Corner, “VFX Business Models”
- ³⁶ Fxguide, “A Way Forward for the VFX Industry”
- ³⁷ Mordor Intelligence, “Global Animation and VFX Market (2021-2026)”
- ³⁸ Foundry, “Cloud Service Models and How They’re Impacting the VFX Industry”
- ³⁹ Digital Vector, *Global Animation, VFX & Video Games Industry*
- ⁴⁰ Foundry, “Cloud Service Models and How They’re Impacting the VFX Industry”
- ⁴¹ *ibid*
- ⁴² Nordicity, *Opportunities for Broadband and Cloud Services in Ontario’s Animation and VFX Sector*
- ⁴³ Canada Media Fund, “Virtual Production: Are You Game?”
- ⁴⁴ *ibid*
- ⁴⁵ Forbes, “Virtual Production is the Future of the Animation Industry”
- ⁴⁶ ActionVFX, “2021 State of the VFX Industry”
- ⁴⁷ Business of Animation, “The Future of the Animation Industry”
- ⁴⁸ *ibid*
- ⁴⁹ Quebec Film and Television Council, *The Impact of Artificial Intelligence on Visual Effects and Animation Professionals*
- ⁵⁰ Kuo-Kuang Fan and Ting-Ting Feng, *Sustainable Development Strategy of the Chinese Animation Industry*, Eka Nurjati et al, *Indonesian Animation Industry: Its Mapping and Strategic Development*
- ⁵¹ Women in Animation, *Invisible in Visual Effects: Understanding the Prevalence and Experiences of Women in the Field*
- ⁵² VFX Voice, “Global VFX: State of the Industry 2019”
- ⁵³ Variety, “Artists of Color Push for More Inclusion in Animation Industry”
- ⁵⁴ *ibid*
- ⁵⁵ The Animation Skills Council, *Accessibility in Animation*

- ⁵⁶ VICE, “Behind Every Film Production is a Mess of Environmental Wreckage”
- ⁵⁷ The Guardian, “BFI Study Calls on Film Industry to Urgently Reduce Emissions”
- ⁵⁸ Green Film Shooting, “Let’s Green it in Post”
- ⁵⁹ Animation UK, “‘A Screen New Deal – A Route Map to Sustainable Film Production’ Launches”
- ⁶⁰ Green Film Shooting, “Let’s Green it in Post”
- ⁶¹ Cartoon Brew, “How Animation Studios Are Combating Climate Change”
- ⁶² Kuo-Kuang Fan and Ting-Ting Feng, *Sustainable Development Strategy of the Chinese Animation Industry*, Eka Nurjati et al, *Indonesian Animation Industry: Its Mapping and Strategic Development*
- ⁶³ Nordicity, *Profile 2021*
- ⁶⁴ Boston Consulting Group, *Lights, Camera, Action...*
- ⁶⁵ Statistics Canada, “The Daily – Revenues and expenses up for Canada’s film, television and video post-production industries in 2019”
- ⁶⁶ Statistics Canada, “Film, television and video post-production, industry profile based on type of revenue (x1,000,000)”
- ⁶⁷ CEC Network, “Canadian Animation Programs Among World’s Best”
- ⁶⁸ CSION, “Canada’s First-Ever Animators’ Union Demonstrates for Better Working Conditions”
- ⁶⁹ Deadline, “Animators at Titmouse Vancouver Join IATSE to Become First Canadian Animation Studio to Unionize”
- ⁷⁰ Eli Glasner, “The animated advantage: How Canadian cartoonists are staying home and staying busy”
- ⁷¹ “VFX Voice, Bright Northern Lights: The Evolution of the Canadian VFX Industry”
- ⁷² PWC, *The Big Table: Animation incentives in Canada 2021*
- ⁷³ Kate Xagoraris, “Spotlight: The Canadian VFX Industry”
- ⁷⁴ “VFX Voice, Bright Northern Lights: The Evolution of the Canadian VFX Industry”
- ⁷⁵ Montréal International, “Greater Montréal’s Booming VFX Industry”
- ⁷⁶ PWC, *The Big Table: Animation incentives in Canada 2021*
- ⁷⁷ Statistics Canada, “Film, television and video post-production, summary statistics”
- ⁷⁸ PWC, *The Big Table: Animation incentives in Canada 2021*
- ⁷⁹ Quickdraw Animation Society, “About Quickdraw”

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