DISTRICT OF SQUAMISH

OUTDOOR RECREATION PROFILE

PREPARED FOR:

SQUAMISH
HARDWIRED *for* ADVENTURE

ROI
RESEARCH ON INVESTMENT

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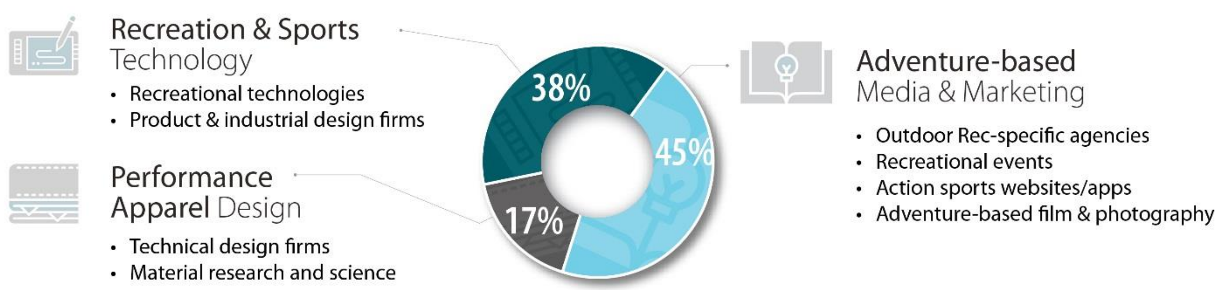
INTRODUCTION

The development of a sector development and investment attraction strategy should be based on a fact-driven understanding of the target industries and local assets. Expanding on the District of Squamish's effort in 2017-2018, with the report on Data Analysis for Sector Recommendations, this Outdoor Recreation Profile reviews Squamish and regional assets to align them with key growth sectors and trends. It also provides the market intelligence and rationale for recommended focus areas and market opportunities. Outcomes form this analysis were then vetted with local and regional stakeholders through focus groups, which also helped to refine target opportunities around the Outdoor Recreation Theme.

Outdoor recreation activities are supported by a diverse cluster of companies, from consumer products to business services to green initiatives. What they all have in common is that they do not just sell a product but a lifestyle, to increase awareness and engagement by using the natural resources to link into consumer trends in fitness, wellness, and environmental sustainability. The Outdoor Recreation theme reviewed here in the Squamish context focuses on recreation and sports technology design, performance apparel, and adventure-based media and marketing.



WHAT WE KNOW ABOUT THE OUTDOOR RECREATION THEME

The relative strength of the global economy and rising disposable income has spurred consumer spending on recreation activities and products, including increased overseas travel and adventure tourism. The drive for healthier lifestyles across all age segments, as well as the drive for more inclusivity of disabled visitors has led to more accessible outdoor trails, innovative outdoor event venues, and enhanced tourism offerings that combine outdoor sports activities with, for example, culinary experiences. Equally, equipment and apparel are expected to serve multiple lifestyles and provide enhanced functionality. Marketing and advertising these products and lifestyle has grown alongside these trends, and other consumer brands have played on the increased demand for an outdoor and healthy lifestyle with adventure and outdoor-themed campaigns. The United States is one of the largest consumer markets, where consumer spending on outdoor recreation products is the third-largest spending category

Global Adventure Tourism
$600+ billion industry
Annual Equivalent
Growth of 13% to 2026
(Allied Market Research)

at $887 billion (2016) – right behind finance and insurance and healthcare (Outdoor Industry Association).

Catalysts for Growth

- Technology-driven innovation has allowed many regional and small players to emerge, from specialized materials suppliers, to smart device manufacturers, to marketing technology providers.
- Global consumer spending and preferences for a healthy lifestyle are driving demand for sports and recreation products, services and their branding.
- Accelerating Asian market demand has been driving the export strength of Western Canada and especially B.C.
- Canadian and B.C. incentives for film, digital media and entertainment are driving the cluster and its supply chain.

Barriers to Growth

- Vulnerable to international macroeconomic trends and exchange rate fluctuations that affect outdoor activities and hence the use of products and services.
- Availability of low quality and counterfeit products can restrict the market growth for niche products.
- Key patent rights to machines and materials are often protected by a few major players with strong existing supplier relationships.
- Many smaller, niche customers for adventure-based digital media and marketing often do not have budget for full campaigns or rely on internal resources.

Among developed countries, Canada ranks 7th globally for adventure tourism (ATDI) based on a combination of a strong government policy that supports sustainable development, safety and security, health, natural resources, cultural resources, adventure activity resources, entrepreneurship, humanitarian factors, tourism infrastructure, and brand. Canada made it into the Top 10 primarily based on its natural resources and entrepreneurship rankings, where it ranked 1st and 4th, respectively. Many product and service providers have taken advantage of these natural resources and innovation. This includes the Canadian and B.C. outdoor gear, sports equipment and performance apparel market and other service companies in marketing, advertising and media. These companies leverage the access to unparalleled natural resources to drive their product and service branding.

Top 10 Countries Adventure Tourism

Rank	Country
1	Iceland
2	Switzerland
3	Germany
4	New Zealand
5	Norway
6	Sweden
7	Canada
8	Finland
9	United Kingdom
10	Australia

Source: ATDI, 2018

Traditionally, the outdoor tourism sector is a substantial contributor to the B.C. economy. British Columbia’s tourism industry generated $18.4 billion in revenue in 2017 (Destination BC), and contributed $9.0 billion towards GDP (in 2012 constant dollars) to the B.C. economy. This represents a +6.7% growth over 2016 and +32.5% growth since 2007. Overnight tourist numbers in B.C. have increased faster than in any other province. (Destination BC).

The province's outdoor recreation assets have attracted tourism, and they have also supported an increasing influx of skilled workers, with skill immigrant nominations for tech jobs up from 10% in 2015 to 16% in 2017, concentrating in the Vancouver region (BC Provincial Nominee Program). Building on the success of its role as the host city of the 2010 Winter Games, Vancouver is also host to many high-profile international events such as the 2014–2016 TED (Technology, Entertainment Design) Talks conferences, and many international sporting events.

Squamish presents itself as a perfect arena for adventure and outdoor-related industries, with inspiring outdoor training areas, a passionate and professional community, sporting events, and world-class recreation venues as testing grounds. It hosts annual internationally-recognized recreation events, including the Kite Clash (kiteboarding), Squamish Enduro (mountain biking), Squamish 50 (trail running), or the Climbing Academy (rock climbing).

Over 60 businesses are active in Outdoor Recreation industries in Squamish, from adventure-based film and photography, outdoor rec-specific agencies, to action sports websites and applications, high-tech outdoor apparel to outdoor sports technology. Entrepreneurs and young people have flocked to the region. Squamish was ranked #1 mid-sized community in Canada for Entrepreneurial Presence (Canadian Federation of Independent Business, 2018), and it has a young population, more than 10% younger than the B.C. median age.

The region's opportunities lie not just in supporting business growth around technology and media, but also in initiatives that continue to support the outdoor lifestyle. This can be encouraged by working with outdoor associations such as the Squamish Off-Road Cycling Association (SORCA), the Squamish Windsports Society, and Squamish Access Society, events management and brand marketing companies, and with Tourism Squamish. Its niche is in the growth of new technology providers to serve outdoor recreation users that are directly using its natural resource to market, demo, test and prototype.

FOCUS AREA 1: ADVENTURE-BASED DIGITAL MEDIA AND FILM

Trends Impacting Growth:

- Digitization across the value chain
- Global competitiveness forcing smaller players to carve out very specialized niche markets or to use innovative technologies
- Demand for integrated and more content-driven marketing
- Canadian and B.C. incentives for film and digital entertainment driving cluster and its supply chain

Companies are increasingly using content marketing in their communications and branding plans, a market estimated at over $300 billion globally (Technavio). Content marketing involves publishing informative and well-researched content to improve brand trust, brand recall, and brand awareness. Part of this strategy is to provide authenticity through relevant real-world examples and backdrops. In the outdoor industry, brands are showing top athletes and influencers using their products, and larger companies have their own in-house creative teams that produce media for a variety of channels, from social media to film festivals.

With an increased focus on digital media and enhanced content delivery, smaller companies are discovering niches by focusing on specific industries, geographies or target groups. The travel, tourism and hospitality market is one of the most competitive markets on the internet, requiring constant innovations in digital content marketing.

Content Marketing Market
Annual Equivalent Growth of 16%+ by 2021
(Technavio)

Technology has radically transformed the advertising and marketing world over the past decade. Global media owner revenue from digital ads surpassed TV ad revenue for the first time in 2017 (MAGNA), and brands are continuing to shift their advertising budgets to online video streaming services and other internet content destined for mobile devices and smart TV screens. Mobile advertising remains the main driver of global advertising growth.

Global Spending
Entertainment and Media: $2 trill.
Filmed Entertainment: $113 bill.
(PricewaterhouseCoopers)

The digital and content marketing business closely links to the film and digital entertainment sector in its technology development. Growth in the global film and video production industry is being driven by the Asia-Pacific market, which contributes 70% of consumers (First Research). Canada was listed as the 3rd-most popular global location for film budgets spent on the 100 top-grossing movies in 2017, behind the UK, and Georgia, but ahead of California (Film L.A.) In Canada, British Columbia alone makes up more than 40% of total film and television production volume in the country (Canadian Media Producers Association).

Production is growing with the support of federal and provincial governments that encourage investment in Canada through incentives. These incentives are a critical part of that growth in off setting the cost of productions in the country, allowing both domestic and international productions to reduce their costs.

Internationally, the major US-based studios continue to dominate film and video markets. The US is the world's largest box-office market, followed by China, Japan, the UK, and India. Growth is being driven primarily by the Asia/Pacific region. Recently, Australia and the UK have emerged as popular shooting locations for American productions through attractive incentive packages.

The Canadian advertising and motion picture industries, including pre- and post-production companies, have both grown over 20% in the past five years, and each segment represents over 70,000 workers, while traditional radio and television industries have seen job losses (Table 1). They are both supported by a high-growth Canadian ‘computer systems design’ sector with over 350,000 workers.

Table 1 - Canadian Media and Entertainment Industry Trends

NAICS	Description	Jobs, 2019	Job Growth, 2014-2019	Businesses (self-employed), Dec. 2018	SME profitability*
5418	Advertising, public relations, and related services	88,614	21%	5,933 (14,499)	85%
5415	Computer systems design and related services	356,973	33%	33,858 (86,524)	85%
541515	*Video game design and development services*	*n/a*	*n/a*	*366 (1,187)*	*n/a*
5121	Motion picture and video industries	74,004	30%	4,750 (15,460)	83%
5151	Radio and television broadcasting *(without pay and speciality tv)*	31,493	-16%	1,205 (831)	80%

*Source: Emsi, Stats Canada -Canadian Industry Statistics; * Percent of SMEs that were profitable in 2016*

Key Squamish and Regional Assets in Adventure-based Digital Media and Film

Companies flock to Squamish, not only because their owners and employees enjoy the outdoors, but because they see their presence in Squamish elevating their profile and their credibility as an outdoor or adventure-themed service. Beyond its natural resources and outdoor recreation activities, dozens of companies use natural resources to help brand their products and services in Squamish. Companies such as Whistler Creek Productions have worked with international automaker Subaru to film the off-road capabilities of their newest off-road vehicles. Digital agency VentureWeb supports outdoor brands in digital strategy, business development, marketing and sales, and sees a symbiotic relationship between their business focus and the Squamish talent pool of like-minded adventurists that keeps attracting skilled workers.

Regional Highlights

Award-winning Hololab - Vancouver fuses creative interaction design with advanced engineering to create interactive physical installations to mobile games and virtual reality, including applications for festivals, conferences and education. It was supported by a grant of the BC Arts Council in 2016.

Squamish can serve technology-driven companies with modern infrastructure including a fibre-optic network and new industry-informed real estate developments, such as the planned Oceanfront Development, which is exploring options for an innovation hub. Its proximity to the Vancouver International Airport and Metro Vancouver expands the reach of its companies, and provides access to Vancouver's technology, innovation, and workforce assets.

The B.C. animation industry is creating computer animation for television series and direct-to-video productions, producing long-form computer-generated imagery for feature films, commercials, and interactive entertainment. Vancouver offers the largest cluster of the world's top visual effects and animation studios and is continually attracting new international studios to the city with industry leaders such as Sony Pictures Imageworks and Industrial Light and Magic. British Columbia is home to more than 80 animation and VFX studios, with over 60 of these located in Vancouver.

Table 2 –Greater Vancouver Media and Entertainment Industry Trends

NAICS	Description	Jobs, 2019	Job Growth, 2014-2019	Businesses (self-employed), Dec. 2018
5418	Advertising, public relations, and related services	7,286	50%	601 (1,454)
5415	Computer systems design and related services	30,708	44%	2,583 (4,707)
541515	*Video game design and development services*	*n/a*	*n/a*	*70 (166)*
5121	Motion picture and video industries	12,656	51%	894 (2,565)
5151	Radio and television broadcasting *(without pay and speciality tv)*	2,407	8%	47 (68)

*Source: Emsi, Stats Canada -Canadian Industry Statistics; * Percent of SMEs that were profitable in 2016*

B.C. Interactive Digital Media
$2.3 billion
16,000 jobs+
(Creative BC)

British Columbia is also an international centre for console, social, and mobile game production, with over 170 gaming companies and industry leaders such as EA (Electronic Arts), Microsoft, and Relic Entertainment (Sega). British Columbia and Vancouver specifically are at the centre of the Pacific Northwest hub of VR development alongside Seattle. The region is also home to Canada's largest Virtual Reality/Augmented Reality/Mixed Reality conference - Vu - with over 5,000 visitors annually.

British Columbia is already one of the top three international full-service production centres in North America, creating content that is distributed, licensed, and broadcast to audiences around the world. Motion pictures have also been a top GDP and job growth contributor with a provincial workforce concentration that is 30% higher than the national average. Over 34,000 direct and indirect jobs are generated by film and TV production in B.C., with more than 80% located in Metro Vancouver and close to 900 businesses with employees in the motion picture and video industry. Spending on film and TV production-related activities in Vancouver has doubled over the past five years (Vancouver Film Commission).

Workforce Assets

Innovative marketing and digital entertainment industries require both technical and creative skills. The Greater Vancouver area is home to over 13,000 graphic designer and artist jobs, almost twice the national average, and it is growing rapidly (Table 3). Squamish has seen some of this growth spill over as well (Table 4). ***Squamish is home to over 450 residents trained in visual and performing arts, and communications technologies, and it has twice the national average of creative and graphic designers, growing at 30% over 5 years.***

Key Occupations

- *Advertising, marketing and public relations professionals*
- *Graphic designers*
- *Film and video camera operators and Audio and video recording technicians*
- *Graphic arts technicians*
- *Technical occupations in motion pictures, broadcasting and the performing arts such as visual effects technicians*
- *Technicians, software developers and engineers trained in virtual reality, special effects and 3D modeling*

Vancouver also has over 15,000 computer and interactive media developers, which can further support the development of digital content marketing and new entertainment products and services. This adds to the region's strong pool of advertising and marketing occupations, which added over 6,000 new jobs over the past five years to the Great Vancouver area. Software engineers and designers that have the skills to develop advanced motion picture and media technologies are already highly concentrated in the region, and in Squamish alone these occupations have grown by close to 150% over the past five years.

Table 3 - Greater Vancouver Key Media, Marketing, Film Jobs

Target Occupation	Jobs, 2019	Job Growth, 2014-2019	Location Quotient, 2019
Professional occupations: advertising, marketing and public relations	11,375	67%	1.09
Graphic designers and illustrators	11,708	58%	1.78
Graphic arts technicians	1,376	235%	1.84
Computer programmers and interactive media developers	15,857	36%	1.16
Other technical and co-ordinating occupations in motion pictures, broadcasting and performing arts	2,670	47%	2.71
Audio and video recording technicians	2,821	142%	2.78
Software engineers and designers	9,772	83%	2.12

Source: Emsi, Greater Vancouver Census Division

Table 4 - Squamish Key Media, Marketing, Film Jobs

Target Occupation	Jobs, 2019	Job Growth, 2014-2019	Location Quotient, 2019
Professional occupations: advertising, marketing and public relations	64	31%	1.0
Graphic designers and illustrators	81	33%	1.9
Graphic arts technicians	<10	<10	n/a
Computer programmers and interactive media developers	62	48%	0.7
Other technical and co-ordinating occupations in motion pictures, broadcasting and performing arts	12	20%	1.9
Audio and video recording technicians	15	n/a	2.2
Software engineers and designers	32	146%	1.1

Source: Emsi, Squamish CMA

Over 5,000 graduates in Greater Vancouver are trained each year for the marketing and advertising sector, combined with over 2,700 graduates in computer programming and interactive media. Vancouver is also home to three out of the top 10 Best Visual Effects Schools in the World 2019 (The Rookies) and the Centre for Digital Media (CDM) - Canada's first professional graduate program in digital media. Vancouver's Emily Carr Institute of Art & Design is home to three Canada Research Chairs working at the intersection of art, design, media and technology. Appendix 1 lists key educational and research resources related to the sector.

Squamish Market Opportunities

Differentiating in the competitive media and entertainment sector requires constant technological innovation, and companies can further differentiate by having access to unique local assets such as natural amenities and synergy with other key growth sectors. Squamish is already home to many outdoor-based filmmakers, marketing, and media companies that are positioned to grow. In addition, several other market opportunities exist to enrich and broaden the cluster that align well with the Squamish and regional assets and trends. Beyond continuing to pursue the attraction of film and TV production and potentially film studios, the following opportunities suggest the most promising areas, especially for small and medium sized businesses to grow in Squamish and capitalize on its assets. Based on the preliminary investigation of each of the subsectors for this project, opportunities are prioritized in order of current feasibility and fit for the region, coupled with the highest growth potential. We expect a refinement of the definitions and potential shifting of priorities to occur once the strategic recommendations of the Investment Roadmap and Action Plan are initiated.

Opportunity 1 – Pre- and Post-Production

The motion picture and video cluster includes a sizeable sector of pre- and post-production industries. These companies comprise graphic design, editing, film/tape transfers, subtitling, credits, closed captioning, animation, and special effects. Many of these industries require specialized multimedia, graphics, and publishing software. Offering these services in the vicinity of the shooting locations allows companies to keep to tighter schedules reducing production costs.

Video special effects (VFX) services include all processes involved in creating and manipulating visual imagery, apart from shooting the film. In post-production, services are performed through 3D modelling, animation, editing, and rendering software. Advertisers and video game companies are also regular users of visual effects services. They represent a significant opportunity for business in this sector. Squamish is already home to several post-production services, and with the popularity of filming in the Squamish region (there were 48 Squamish productions filmed in 2017), and the proximity to film studios in North Vancouver, further opportunities could be explored.

Opportunity 2 – Virtual Reality

Virtual reality (VR) is becoming an in-demand marketing tool for adventure tourism businesses and destinations eager to showcase natural, cultural, or adventure assets that may be difficult to convey through traditional forms of storytelling. VR technology is increasingly accessible, and headsets such as the Oculus Rift are becoming affordable marketing tools. IHS Technologies estimates that the global market for consumer augmented reality and VR content and applications grew by 72 percent, reaching $3.2 billion in 2017. Beyond the marketing opportunities, however, virtual and augmented reality experiences could be used to complement and enhance on-the-ground travel with behind-the-scenes “tours” of unreachable sites or informative guides. These technologies can also be incorporated into event management strategies. VR also presents a unique opportunity for Squamish to link its strong, foundational tourism sector with the emerging technology sector.

Opportunity 3 – Media and Filming Technologies

New computer graphics techniques are helping artists and engineers create digital images using cameras, laser scanners, camera drones, and helicopters. Developing these supply chain technologies specifically for outdoor use can be a unique market niche. Outdoor recreation companies are based around offering an experience and/or a lifestyle, and they benefit greatly from highlighting compelling images. During the sector workshops, some Squamish stakeholders reported that Greater Vancouver film companies are already using the area to, for example, test new outdoor camera cranes.

As the use of new film and media technologies grows, so does the demand for multimedia, graphics, and publishing software that is used to aid their creation and maintenance. Providing end-to-end integrated services of hardware and software will be crucial for smaller and niche market segments. With existing expertise in Squamish in filming and software development skills, these hybrid products could provide a niche opportunity for the region.

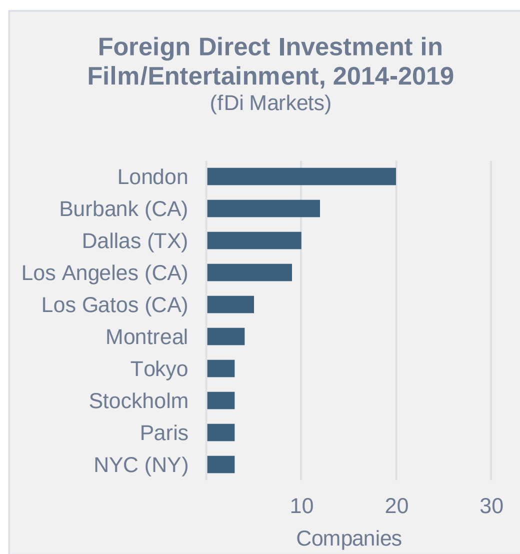
In motion picture and video production, advances in filming technologies are also continually reshaping the industry. For example, household TVs and devices now often have higher resolution screens than cinemas, and Netflix’s new “4K” threshold (whereby the service refuses content produced for screens under 4000 pixels) has set a new industry standard-- this means films must now be shot on 4K cameras. It also means that autonomous filming with drones, algorithmic editing, and even 3D printing of camera parts is now moving towards mainstream adoption. These trends create new business opportunities for photographic and optical equipment manufacturing with innovative camera technologies, new lenses, and equipment that can be used in aerial photography.

Squamish Supply Chain needs

Attracting, growing pre- and post-production, and media related technology companies can be accelerated by bringing in more end users to Squamish. Just like North Vancouver has clustered around its historic film studio, there could be potential to attract film studios for example to the new Oceanfront Development that could bring a critical mass of media and entertainment activity to the region with companies not just serving the motion picture industry but providing a wider array of technology-based services. Squamish has also seen examples of companies with a base in other regions who have come to test their filming equipment in the region. Further engaging these equipment companies can be supported by a strong technology and innovation focus, and leveraging the synergies with the existing sports equipment technology businesses in Squamish.

International Recruitment Regions

Digital media and marketing firms are centered around major metropolitan areas across the world, and film-related technology companies are mostly tied to major motion picture studio hubs. Key investor regions in the motion picture and related industries (which includes special effects and post-production) over the past eight years have been London, Los Angeles, New York, and Paris.



Beyond traditional film services, adventure-based companies in media and marketing tend to be located in regions with substantial natural resources and tourism, such as British Columbia, and globally in areas like Australia and New Zealand. They tend to be dispersed, and need to be identified through relevant industry events and associations.

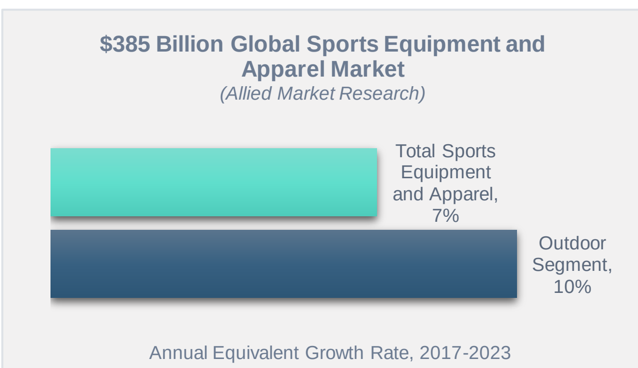
FOCUS AREA 2: RECREATION AND SPORTS PRODUCT INNOVATION

Trends Impacting Growth:

- Strong United States and China online market for sports and outdoor equipment
- Technological innovation is creating North American niche for high-quality products against a mass market of low-cost imports
- ecommerce has accelerated the success of small companies, but scaling is a challenge especially with strong existing supplier relationships

Apparel and equipment in this niche sector link innovations in engineering, design, materials science, performance measurement, prototyping and manufacturing to the testing and production of recreation products. Much of the innovation within this higher value-added part of the market is currently being led by either large corporations or start-ups that are located close to potential users. There is an important overlap with the tourism industry, with a shared consumer base, and opportunities for collaboration across sectors.

Over the years, the preferences of outdoor recreation users have shifted at an increasing pace. Brick-and-mortar outdoor retail specialists face competition from pure “e-tailers” and direct-to-consumer (D2C) brands that price aggressively. Companies have responded with more locally sourced products and faster delivery times coupled with innovative online marketplaces and platforms, and extensive warehousing coverage. The scale of the ecommerce part of the market is growing rapidly, with the market for sports and outdoor products (without apparel) in the US estimated at $18 billion, topped only by China at $21 billion (Statista).



Supply chain developments and automation advances have driven the research at major manufacturing companies worldwide, catering to the current consumer preferences for technical innovation and increasingly, sustainability. While much of the manufacturing occurs overseas, many of the firms in this sector conduct the design, development, and prototyping in-house, and there is growing consumer demand for greater supply chain transparency and for production closer to home. For example, apparel company Under Armour produced a line of Made in America sports apparel in 2017.

Innovative companies can gain a competitive edge by locating close to where the products are used, where smaller regions and start-ups can make a niche for themselves by piloting and testing new products with immediate consumer feedback. One of the biggest challenges, especially given continued competition of cheaper imports and growth of online retail giant Amazon.com, is the marketing and commercialization of products to potential consumers beyond the regional market. To be successful internationally, niche sporting and athletic goods companies need to differentiate through production innovation and quality, as well as developing their brand, ecommerce, and environmental sustainability practices. Consumers expect to be sold not just a product but also a lifestyle, with apparel manufacturers like MEC or The North Face offering, for example, outdoor trips and aligning themselves with the increasing environmental sustainability concerns of consumers. Smaller regions that are not just tourism destinations, but strive to be sustainable and green communities of the future, make a particularly good fit for attracting environmentally-responsible companies that can link to the community's vision while at the same time promoting a key outdoor destination.

Canadian sales of sporting and athletic goods (without apparel) amounted to approximately $60 million in 2018. Canada is home to just over 250 sporting and athletic goods manufacturers, and self-employed Canadians represent another 380 businesses. Due to the current market landscape and online expectations, even small and medium-sized enterprises need to have a defined ecommerce strategy to remain competitive.

Table 5 - Canadian Sports and Recreation Technology Industry Trends

NAICS	Description	Jobs, 2019	Job Growth, 2014-2019	Businesses (self employed), Dec. 2018	SME profitability*
3342	Communications equipment manufacturing	11,498	-31%	251 (242)	74%
33422	*Radio / Television Broadcasting and Wireless Communications Equipment Mfg*	*n/a*	*n/a*	*92 (95)*	*77%*
3399	Other miscellaneous manufacturing	48,483	0%	4,041 (5,901)	77%
33992	*Sporting and Athletic Goods Mfg*	*n/a*	*n/a*	*259 (380)*	*75%*
4511	Sporting goods, hobby and musical instrument stores	82,686	10%	5,813 (4,665)	77%
45111	*Sporting Good Stores*	*n/a*	*n/a*	*3,154 (1,814)*	*72%*
4541	Electronic shopping and mail-order houses	24,398	35%	1,597 (4,913)	76%

*Source: Emsi, Stats Canada -Canadian Industry Statistics; * Percent of SMEs that were profitable in 2016*

SQUAMISH AND REGIONAL ASSETS IN RECREATION AND SPORTS PRODUCT INNOVATION

The Outdoor Recreation gear, equipment and performance apparel design, development and manufacturing sector in Squamish has clear synergy with the second target sector theme of the District, the Green Economy. The sector, driven by innovation in digitization and sensor technology, shares a focus on sustainability, both in how products are created and how they are used and branded. In addition, the Squamish region has an historic connection to the apparel industry, with a rich history of textile development and industry in the Squamish Nation heritage. It is also closely linked to its thriving outdoor tourism sector, which attracts major international events each year, and many local recreation organizations, such as the Squamish Off-Road Cycling Association (SORCA). 7mesh is an example of a Squamish success story in outdoor performance apparel. Conceived in 2015, they tripled their workforce in just two years and entered into a strategic partnership with activewear giant lululemon in Vancouver to collaborate on research and development, marketing, and retail.

British Columbia and specifically Vancouver are home to a substantial apparel industry that is the 4th-largest component of B.C.'s manufacturing sector. It consists of an estimated 436 firms situated primarily in the Mainland/Southwest economic development region, and it employs approximately 7,642 people. In addition to apparel, over 100 sporting and athletic goods manufacturers call British Columbia home, ranked third in the nation after Ontario and Quebec, with over half located in the Greater Vancouver area (Table 6). It covers the complete supply chain, from design to manufacturing, distribution, and retail of clothing, footwear, and certain accessories.

Regional highlights

When China joined the WTO in 2001 there was an exodus of domestic production to China. This left room for innovative high-quality niche segments to emerge, that like Westcomb, not only to support the local economy but could take advantage of existing expertise and local users.

Table 6 – Greater Vancouver Sports and Recreation Technology Industry Trends

NAICS	Description	Jobs, 2019	Job Growth, 2014-2019	Businesses (self-employed), Dec. 2018
3342	Communications equipment manufacturing	973	11%	26 (19)
33422	*Radio / Television Broadcasting and Wireless Communications Equipment Mfg*	*n/a*	*n/a*	*8 (10)*
3399	Other miscellaneous manufacturing	3,984	-9%	380 (456)
33992	*Sporting and Athletic Goods Mfg*	*n/a*	*n/a*	*27 (27)*
4511	Sporting goods, hobby and musical instrument stores	7,056	3%	460 (322)
45111	*Sporting Good Stores*	*n/a*	*n/a*	*243 (119)*
4541	Electronic shopping and mail-order houses	4,532	100%	238 (650)

*Source: Emsi, Stats Canada -Canadian Industry Statistics; * Percent of SMEs that were profitable in 2016*

Vancouver has a reputation for technological innovation as well as ethical and sustainable apparel products. In combination with its access to major West Coast US markets and Asia, it has received increasing attention with global apparel leaders such as Arc'teryx, lululemon athletica, Mountain Equipment Co-op, Aritzia, and Sugoi being headquartered in the region. The Wilson School of Design at Kwantlen Polytechnic University was formed in response to the workforce needs of these Vancouver-based technical apparel brands, and it was recently named the best fashion school in the country and among the top undergraduate programs in the world by Business of Fashion (BOF) magazine.

In 2019, the BC Apparel and Gear Association launched to help scale up and promote the performance apparel and gear sector in B.C. Part of the sector's growth is anticipated to be from the flourishing wearables sector in Vancouver, which is supported by global wireless technology leaders such as Sierra Wireless and its strength in communications equipment manufacturing with close to 1,000 jobs (Table 5).

Regional highlights

Arc'teryx Equipment is recognized as a global leader in performance outerwear. Founded by local climbers in 1989, and located in North Vancouver, a key aspect of its development process is that designers themselves test product in real world conditions.

Workforce and Research Assets

Squamish is home to over 180 workers with skills in computer and information systems, with over 50% growth since 2014. It's also a hub for designers. ***Over 500 Squamish residents are trained in engineering, engineering-related technologies and precision technologies*** that could serve as a basis for additional light manufacturing industries. The Greater Vancouver area, in addition, offers a pool of over 22,000 workers in graphic design, and in advertising, marketing, and business development, all of which have more than doubled their growth over the past five years (Table 8).

Key Occupations

- *Industrial and fashion designers set the stage for developing new ideas*
- *Material, industrial and electronic engineers turn the designs into functioning test products*
- *Machine operators and patternmakers and sewers are necessary for wider commercialization*
- *Sales representatives, marketing researchers and business development officers drive product development and commercialization.*

Table 7 - Squamish Key Related Jobs

Target Occupation	Jobs, 2019	Job Growth, 2014-2019	Location Quotient, 2019
Computer and information systems professionals	185	53%	0.7
Graphic designers and illustrators	81	33%	1.9
Professional occupations: advertising, marketing and public relations	64	31%	1.0
Business development officers and marketing researchers and consultants	17	n/a	0.7
Industrial sewing machine operators	11	0%	0.9
Other products assemblers, finishers and inspectors	26	n/a	1.3
Electrical and electronics engineers	16	-6%	0.8

Source: Emsi, Squamish CMA

Over 2,400 students each year are trained in creative and industrial design, and over 5,000 graduates from local educational institutions (Appendix 1) support occupations in advertising, marketing, and public relations. The integration of electronics in performance apparel is supported by the high concentration of over 6,000 electrical and electronics engineers, assemblers, and testers in the region as well as the research potential at institutions such as Canada's Centre of Excellence for Wireless Commercialization in Vancouver, and the UBC Centre for Flexible Electronics and Textiles (CFET). Greater Vancouver's established software talent pool is another asset complementing these industries.

Table 8 - Greater Vancouver Key Recreation and Sports Tech Related Jobs

Target Occupation	Jobs, 2019	Job Growth, 2014-2019	Location Quotient, 2019
Professional occupations: advertising, marketing and PR	11,375	67%	1.09
Graphic designers and illustrators	11,708	58%	1.78
Industrial designers	297	53%	0.34
Business development officers, marketing researchers and consultants	2,988	106%	0.86
Industrial sewing machine operators	2,020	-20%	1.09
Other products assemblers, finishers and inspectors	2,066	11%	0.72
Electrical and electronics engineers	4,309	8%	1.28
Electronics assemblers, fabricators, inspectors and testers	2,358	114%	1.28

Source: Emsi, Greater Vancouver Census Division

Squamish Market Opportunities

Barriers to entry are relatively low, but there are two notable challenges. First, low production volumes may make it challenging to attract the attention of equipment manufacturers and materials suppliers for partnership and procurement opportunities. Second, and probably most important, economies of scale in distribution and sales may be a significant barrier to growth for manufacturers, especially those on the smaller end of the spectrum.

A combination of product use experience and proximity to markets allows innovators and designers to keep a finger on the pulse of the product development pipeline and industry trends. It also means that larger corporations see the benefits of outsourcing or relocating these functions closer to where products are used and might provide opportunities for more remote regions to attract testing facilities. This is particularly true for the variety of recreation and sports technologies being developed, which is why they are recommended as a first target for Squamish.

A challenge for entrants to this space is that the relatively low production volumes put them at a disadvantage in negotiating with component parts, raw materials, vendors, or machinery suppliers. This is especially problematic when existing sporting goods companies regard a material, component, or production process as a key to its competitive advantage. Despite the difficulties smaller product designers and innovators can face, some outdoor sporting goods manufacturers do manage to establish relationships that allow cooperative equipment investment and development with suppliers.

Opportunity 1 – Recreation and Sports Technology

Innovation in outdoor recreation gear and equipment has been closely aligned with the needs and preferences of local markets, with innovative start-ups popping up in mountain resorts and key outdoor sports regions such as Colorado. This segment includes sports equipment, backpacks, and similar outdoor gear that are not clothing. It also includes wearables and other portable technologies for outdoor use. There are many small, innovative companies in this market segment for a variety of applications and technologies. The sector is predicted to ride the wave of the global growth of the outdoor equipment and apparel market.

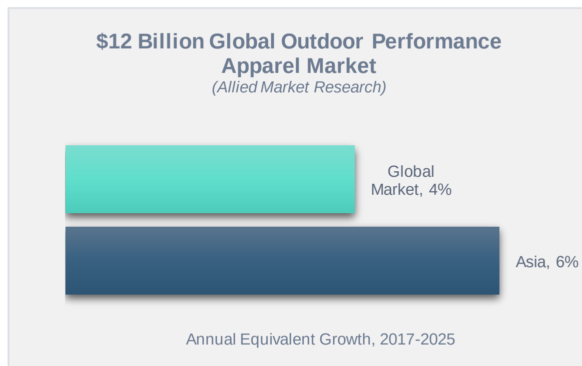
One recent trend has been towards the increased use of 3D printing of gear and components, from shoes, to helmet liners, to bike accessories. 3D printing allows for lighter equipment and enhanced customization. It allows for more complex designs than traditional manufacturing techniques, due to rapid and lower cost prototyping. Having already taken off in aerospace, automotive, and healthcare applications, it is prevalent now in the sports manufacturing world as well. Bicycle manufacturer Trek uses CAD software and 3D printers to design and test brackets and gear parts for bicycles, and all major sports shoe manufacturers have invested in 3D innovation. These technologies are well-suited for niche entrepreneurs in this space that already call Squamish their home.

Several sporting goods companies are also developing products with built-in sensors that analyze a user’s performance and provide feedback during training or use. Tennis rackets, golf clubs, fly-fishing rods, and even swimming goggles have been outfitted with wireless devices that measure motion and record detailed biometric data that can be used to pinpoint problems with a swing, cast, or stroke. Application development and wearables are becoming more commonplace with outdoor users as well, whether for GPS tracking, weather forecasts, or wildlife tracking. This is another synergy with Vancouver's wearables and communications equipment industry. Globally, Project Jacquard by Google is leading many of the new innovations in wearables, having recently commercialized new technologies in collaboration with Adidas and Levi's.

Advanced materials developed for the apparel sector can also help users monitor heart rate, blood pressure, or track other biometric responses. New materials have also created disruptions in the equipment market. However, these technologies are still relatively complex and costly, and production processes face safety and environmental concerns.

Opportunity 2 – Outdoor Performance Apparel

Growth in the outdoor performance apparel market will likely be driven by a growing portion of the population living healthier lifestyles with a higher participation rate in sports and fitness activities.



Technological developments designed to improve comfort and performance have also propelled growth. The performance apparel segment is growing across all price segments, making it increasingly difficult for brands to truly differentiate themselves. The most successful brands have proven they can withstand new market entrants and sell, not only clothes and the newest technologies, but a lifestyle, such as Vancouver's activewear giant lululemon athletica.

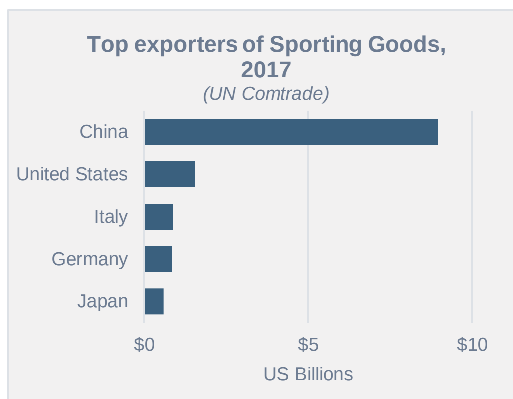
High-tech clothing is taking over the performance apparel market through the development of smart textiles that enhance our body's existing abilities. Fabrics that can help regulate body temperature, reduce body odour, or control muscle vibration will have a significant impact on athletic apparel manufacturing. Advances in microelectronics have made components like smart sensors an increasingly cost-effective driver for smart or E-fabrics, while 3-D printing production processes and production of nanomaterials have aided with production challenges. The sports and fitness smart fabrics market is expected to grow at an annual equivalent of 18% between 2019 and 2024 (Mordor Intelligence). Squamish could explore collaborations with Vancouver's expertise in wearables, and flexible electronics and textiles.

Another trend, especially with outdoor apparel companies, is the support of environmental sustainability in corporate strategy and product development. Some companies are adopting strategies to deal with textile waste, including take-back programs that collect used garments to be remade into other clothing. Companies are increasingly marketing their sustainable products to more environmentally-conscious buyers. Vancouver's reputation as a leader in environmental practices, and as a hub of ethical and sustainable apparel will attract similar-minded companies to the wider region.

Squamish Supply Chain needs

In North America, manufacturers of outdoor recreation technologies primarily focus on design and development, assembling products from existing inputs in an innovative way, and supporting it with unique brand and marketing experiences. Many supplies are sourced from low-cost destinations, and most of the production occurs offshore in Asia, South America, and eastern Europe. With the current market dynamics, targeting supply chain manufacturing companies is not seen as a key targeting strategy. However, downstream on the supply chain, the industry also still relies heavily on a strong distribution network, with a need for local warehousing, despite an increasing trend towards direct to consumer retail. While smaller companies might still work with individual customers, connecting them to larger wholesale distributors can open new market opportunities. On the retail side, companies are focusing more on engaging the consumer with the experience of the product, offering demo and rental stores that sell the experience. REI's flagship store in Seattle offers a makeshift wood test trail for their mountain bikes, inside its store. Tradeshows such as the Outdoor + Snow Show in the United States hosted On-Snow Demo Days to allow visitors to test the latest equipment and accessories from major manufacturers and up and coming brands.

International Recruitment Regions



Unsurprisingly, the United States is currently dominating the recreation and sports manufacturing sector across the board, though demand for certain types of sports equipment naturally varies by geographical region. For example, ice hockey is most popular in the Northeast and Midwest, while youth football participation is highest in the US South. Consequently, manufacturers locate their production and distribution centres based on regional demand for particular products. By volume, California, Texas, Florida, and Washington have the largest number of companies in this industry, while Utah, Illinois, and Minnesota appear on the top of lists when we look at revenue generation. Sporting goods retail sales, in terms of distributors, are highly concentrated in California, Texas, Florida, and New York. China remains the top exporter of sporting goods in the world, accounting for almost 48% of the global supply in 2017.

APPENDIX 1: KEY EDUCATIONAL AND RESEARCH RESOURCES

Kwantlen Polytechnic University

- Wilson School of Design was named the best fashion school in the country and among the top undergraduate programs in the world by Business of Fashion (BOF) magazine.
- Fashion Marketing Diploma, and Bachelor of Design - Fashion and Technology

University of British Columbia

- Integrated Engineering program with a strong focus on design, entrepreneurship and project management
- Materials Engineering and Advanced Materials Manufacturing program combining engineering and business courses in a Master of Engineering Leadership
- Access to UBC Aerolab wind tunnel for aerodynamics testing for equipment
- Electronic and Computer Engineering Department specialized in Data Communication
- Centre for Flexible Electronics and Textiles (CFET)
- UBC's STITCH (SmarT Innovations for Technology Connected Health) Institute researches and develops new technologies for wearables
- Designing for People Centre of Excellence to promote interactive technology

Emily Carr Institute of Art & Design

- Bachelor of Design (Industrial Design)

British Columbia Institute of Technology

- Digital Arts, Media and Design Programs
- Advanced Prototyping Hub (APH)
- BCIT Soft Shop - supports the development of products that interact in proximity with the body, bringing together researchers' skills in electronics, biomechanics, and soft product design

Centre for Digital Media (CDM)

- Canada's first professional graduate program in digital media: Jointly owned by the University of British Columbia (UBC), Simon Fraser University (SFU), British Columbia Institute of Technology (BCIT), and Emily Carr University of Art + Design: offers a Master of Digital Media (MDM) that prepares digital media professionals with advanced skills and critical management training

Think Tank Training Centre

- One-year certificate program in 3D animation, VFX and game design with industry mentorship program; also launched a new online program

Lost Boys

- Originally a VFX facility, it morphed into a School of Visual Effects, offering one-year certificate and diploma programs

Capilano University

- Digital Visual Effects Diploma

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