

Cowichan Valley Regional District
Economic Development Cowichan

A Development Strategy For the Tech Sector in the Cowichan

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GOSS GILROY INC.
Management Consultants
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1. INTRODUCTION

1.1 The Cowichan Valley Regional District

The CVRD is bordered by the Nanaimo and Alberni-Clayoquot Regional Districts to the north and northwest, and by the Capital Regional District to the south and east. As of the 2016 Census, the Regional District had a population of 83,739, which represents an increase of 4% since 2011. The region includes nine electoral areas and four municipalities, including the City of Duncan (4,944 residents), the Towns of Ladysmith (8,537) and Lake Cowichan (3,226), and the District Municipality of North Cowichan (29,676).

The leading economic sectors in terms of employment include tourism, agriculture, forestry, and value-added manufacturing.



1.2 Why Development of the Tech Sector is a Priority

There is an emerging tech sector in the Cowichan. The Cowichan Valley is home to several acclaimed digital animation companies, software developers, and respected thought leaders within the tech industry. Characteristics such as a well-educated population, its strategic location in close proximity to Victoria, Nanaimo and Vancouver and their universities, connectivity, relative affordability, climate and high quality of life provide locational advantages that can help to drive further growth of the tech sector in the region.

Advancement of the tech sector has been identified as a potential priority for Economic Development Cowichan. The tech sector features many key characteristics which makes it a desirable target for development. These include:

- The **high rate of growth**. Tech sector revenues in BC have been growing at the rate of 6% per year, much higher than the overall average rate of growth in the provincial GDP.
- The sector is associated with **high paying, high skilled jobs**. In 2015, the average weekly earnings of high tech employees were \$1,590 per week, compared to \$910 for the average B.C. worker.
- Further development of a region's tech sector generates **spillover benefits** for other parts of the economy and the communities (e.g. through facilitating access to and adoption of new technologies). As technology becomes an integral part of other industries, the presence of a strong local tech sector can help contribute to the competitiveness of companion sectors in the region.

- The tech sector consists largely of small businesses which can in principle **locate almost anywhere** and move easily. Eighty-one percent of BC tech companies have fewer than 10 employees.
- Further development of the sector offers the potential to **diversify the region's traditional economic** and bring new business activity to village centers throughout the region.

Simply put, tech is big in BC and getting bigger. Encompassing a wide range of activities from interactive and digital media (IDM), clean tech, life sciences and information and communications technology (ICT), the tech industry consists of over 9,500 companies, generates \$26 billion in revenues (\$15 billion in GDP) and employs more than 90,000 people.

According a recent estimate from Collier's International, the tech sector now accounts for 14% of all office space in the Lower Mainland and 40% of the demand for new office space. The sector accounts for 17% of office space in Victoria and 10% in Kelowna.

1.3 The Tech Sector Strategy

This document presents a strategy for further developing the tech sector in the Cowichan Valley Regional District. This strategy is based on an analysis of the characteristics of the existing sector including its strengths and weaknesses and well as an assessment of the opportunities for development and the threats facing the sector. The strategy outlines key strategic directions and defines the actions that can be taken in the short-term and medium-term to promote further development of the sector. It identifies collaborative partnerships that will be required to create a robust technology sector throughout the region.

1.4 How It Was Developed

A Project Steering Committee was established to oversee development of the tech strategy. Members of the Task Force included Aaron Stone (Uforik Computers and Mayor of Ladysmith), Guillermo Ferrero (City Manager of Ladysmith), Phil Kent (Mayor of Duncan), Damir Wallener (EIO Diagnostics), Graham Truax (Executive in Residence/Business Advisor with Innovation Island), Cathy Robertson (Manager, Community Futures Cowichan), and Amy Melmock (Manager, Economic Development Cowichan).

Prior to the development of strategy, little was known about the characteristics of the tech sector in the region. The first step, therefore, was to identify tech companies in the Cowichan based on referrals from members of the Task Force, industry, government and economic development representatives and others associated with the tech sector. A review of business directories (e.g., the Canadian Company Capabilities database) and an internet search was also conducted and 25 companies were identified as priority research targets. Project research also included a literature review on the characteristics of the region and factors influencing the development of the regional tech in Cowichan.

A broad consultation process was then undertaken that included interviews with 19 representatives from the Cowichan Valley tech sector, 13 representatives from related organizations (telecommunication companies, educators, transportation and health agencies), 9 representatives from government, and 15 representatives from organizations outside the region. In October 2017, an industry roundtable involving 30 tech stakeholders was conducted to discuss the opportunities and constraints to development, as well as strategies and actions that could be implemented to promote further development of the local tech sector. A list of 63 representatives who contributed to the development of the strategy is provided in Appendix I.

2. The Tech Sector in the Cowichan

2.1 Size and Characteristics

BC Stats estimates that there were 108 technology companies in the CVRD in 2015 including 98 service companies and 10 manufacturers. Because there is no specific North American Industry Classification System (NAICS) code for the tech sector, BC Stats estimates the size of the sector by making assumptions regarding the percentage of firms within specific NAICS codes that could be considered high tech. The BC Stats figures include firms such as manufacturers of basic products, traditional media companies and offices of telecommunications firms, engineering companies, local labs, and environmental and other consultants that may not normally be defined as high tech firms.

Using a more restrictive definition, we estimate there are likely 35 to 45 tech businesses currently operating in the Cowichan region, most of which are small businesses. The following table describes 20 businesses in the region that could be considered tech companies.

Examples of Tech Businesses Operating in the Region

Business	Overview
Aquatech Environmental Systems (Duncan)	Formed in 1996, Aquatech Environmental Systems Ltd. develops services and innovative products to meet environmental challenges. It facilitates solutions to water quality issues by generating engineering data used to compute oxygen transfer rates. Products include fine bubble aeration, aeration tubing and waste retrieval systems.
Biomedica Labs (Duncan)	Biomedica Labs (Purica) researches, develops and manufactures food-based non-drug medicine and nutritional products.
Biopreme Medical Technologies (Chemainus)	Established in 2013, Biopreme is developing a novel syringe technology that will provide homecare patients with the versatility of a universal hypodermic syringe without the standard needle. It will be a fully disposable device that offers a safer and more user-friendly solution.
Boydel Wastewater Technologies (Chemainus)	Boydel is a British Columbia, Canada, based wastewater treatment technology development and licensing Company. BOYDEL has engineering, lab testing and demo facilities in Chemainus. The company was started with a mission of developing a better, more controllable and reliable sewage treatment technology.
BRON Studios (Duncan)	Established in 2010, BRON is an integrated media and entertainment company focused on the creation, production, and financing of motion picture, television, and digital media content. BRON develops, acquires, finances, produces, and arranges distribution through the company's various divisions: BRON Studios, BRON Animation, BRON Creative, BRON Life, The Realm, and BRON Digital. In 2013, BRON Animation set up a satellite office in Duncan, focused on digital animation.
Data Stream Networks (Cowichan Bay)	DataStream Networks provides a range of services including Fully-Managed IT solutions (i.e., managing, operating and optimizing a company's IT infrastructure), help desk support, backup Disaster Recovery and website development.
EIO Diagnostics (North Cowichan)	EIO Diagnostics pioneers new technology for the global dairy industry. Each year, the industry loses more than \$10 billion in production because of undetected udder infections. Using a technique known as multispectral imaging, EIO detects these infections dramatically sooner and cheaper than any other approach currently on the

Business	Overview
	market. This gives farmers an effective tool for increasing herd health and minimizing production losses.
eOmni Solutions (Duncan)	eOmni provides accounting software for property management and real estate, integrating systems not previously compatible. They are in the process of introducing AI into their products and have created a system that utilizes advanced automation to unify and simplify all aspects of the real estate business.
G3 Mechatronics (Chemainus)	G3 Mechatronics Inc. is a small, multifaceted technology firm providing engineering support to industry on Vancouver Island and the Lower Mainland. The company offers a range of services including prototyping support services, automation & robotics support, integrated solutions, and small-scale contract assembly & fabrication services.
Giles Environmental Engineering (Shawnigan)	Giles provides engineering services for sewage treatment and disposal for small communities; onsite sewage treatment for residences, municipalities, schools, and other institutions; municipal management of onsite systems; water treatment systems; environmental site assessments; and environmental science and technology.
Group Technologies (Ladysmith)	Group Technologies has two main products: an advanced whiteboard with features such as object select/cut/paste/move/delete, pan/zoom, undo/redo, user-defined icons, DXF import, and the ability to upload Office documents to the whiteboard and an advanced HTML5 web conferencing software.
Knowledge Computers (Duncan)	Knowledge Computers obtains networking equipment through overstock or surplus equipment reductions, asset recovery, closeouts, wholesaler and factory liquidations, and customer trade-ins. The company refurbishes the equipment, and markets both refurbished and new equipment to customers in North America and Asia.
Lockhart Industries (Cobble Hill)	Established in 1981, the company's main business is heating and refrigeration sales and service. Innovative developments have resulted in the granting of a number of patents for geothermal, energy generation and heat pump technologies.
Midgar Environmental Testing & Research (Duncan)	Midgar Environmental Testing and Research Ltd provides environmental consulting, and is currently working on opening an environmental testing lab in Duncan. The company is involved in testing water, air and soil quality for numerous parameters and chemicals in addition to consulting.
MRKS Media (Shawnigan)	MRKS Media is a digital design, development and marketing agency, specializing in user experience design, responsive websites and mobile applications for businesses.
Mustimuhw Information Solutions Ltd. (Duncan)	Mustimuhw Information Solutions Ltd. is owned by the Cowichan Tribes. For the past 22 years, they have developed and refined unique solutions designed specifically for First Nations Health Centres and Child & Family Service Agencies. Mustimuhw Solutions reflects an intimate working knowledge of the requirements of First Nation Health Centers and C&F Service Agencies with respect to information management systems, and the key supporting services that are essential to ensure their continued success.
RBS Managed Services (Duncan)	RBS Managed Services provides a range of managed services including IT outsourcing (a virtual IT department), managed disaster recovery, security and IT consulting.
Taiji Brand Group (Maple Bay)	Taiji Brand Group is a branding, communication and digital design firm with a unique approach to helping clients achieve clarity and focus. This approach includes technology-based solutions including internet presences and social media.

Business	Overview
Tracker Software Products (Chemainus)	Incorporated in 1997 in the UK to develop imaging and PDF format related software, Tracker Software Products has offices in Canada and the UK, with additional development offices in the USA and Ukraine. The corporate headquarters were relocated to Vancouver Island in 2008. The main thrust of their products is still PDF Document / Imaging related applications and developer toolkits.
Uforik Computers (Ladysmith)	Uforik is a computer retailer that has branched out to provide a range of IT services to companies and others.

In addition to these companies, there are various other small tech companies located in communities throughout the region. There are also tech workers located in the Cowichan who work remotely for businesses located outside the region.

Key characteristics of the companies listed above include:

- The companies employ approximately 250 people in total and two-thirds of these employees are based in the region.
- The companies are active in a range of sub-sectors of which the most common are software (6 companies), environmental, clean tech and alternative energy (5 companies), digital media (3 companies), and IT services (3 companies). The remainder are involved in hardware, medical devices and nutraceuticals.
- On average, the companies have been in operation for 12 years, with the length ranging from less than 3 years to 35 years.
- Most tech businesses in the region started here. Of the companies interviewed, only three started elsewhere and relocated to the Island. Companies are located here because of a personal connection between a principal in the business and the community or as a result of the owner or lead manager having grown up here or having a family relationship with someone from the Island.
- The larger companies tend to be more bullish about the potential for growth, with most of that growth projected to occur in markets beyond Vancouver Island and in most cases, outside of BC.
- Most companies have received little or no support from business development or support programs in the region.
- Two companies reported receiving assistance from Innovation Island, two reported some assistance from VIATEC, two received loans from CFDCs (one of which received the loan prior to relocating to the region), two reported receiving an IRAP grant, and one hired a University of Victoria student on a contract basis.

2.2 Our Strengths, Weaknesses, Opportunities and Threats

During the process of developing the strategy, interviews and a roundtable were conducted with a cross-section of tech companies and members of the sector ecosystem to identify the strengths, weaknesses, opportunities and threats facing the tech sector in the Cowichan.¹ The key issues and themes are summarized in the chart on the following page and discussed on the pages following.

¹ Appendix II summarizes the number of people who were interviewed and number of participants in the roundtables who identified particular advantages or disadvantages associated with the region.

Summary of Strengths, Weakness, Opportunities and Threats Associated With the Tech Sector in the Cowichan

<ul style="list-style-type: none"> ▪ High quality of life (slower pace of life, family friendly, short commutes, and recreational opportunities) ▪ Lower costs (affordable housing and lower cost of offices and business operations) ▪ Access to schools and health care options ▪ Extensive ecosystem supporting the development of the tech sector in BC overall with some of that support delivered directly in the region ▪ Well-established (albeit narrow) and growing base of tech companies in the region on which to build ▪ Strong regional interest in further developing the sector ▪ Available and attractive space for operations (availability of land, new developments, industrial parks, and tax incentives for investment) <p>Strengths</p>	<ul style="list-style-type: none"> ▪ Shortage of skilled tech workers in the region and more generally in BC overall ▪ Lack of local education and training programs related to tech ▪ Difficulties in attracting workers from outside of the region ▪ Low profile of the region and the sector ▪ Very limited networking between the tech companies in the region ▪ Little interaction between industry and educators in the broader region and local industry ▪ Limited access to capital ▪ Travelling times to the Lower Mainland and beyond ▪ Lack of local government support for development ▪ Connectivity issues, particularly outside of Duncan ▪ Low levels of entrepreneurship/limited access to business support <p>Weaknesses</p>
<p>Opportunities</p> <ul style="list-style-type: none"> ▪ Footloose nature of the tech industry creates opportunities to attract investment and tech workers combined with a trend towards locating tech companies in smaller communities ▪ Potential to build on resources within and adjacent to the region including the available ecosystem existing businesses, the sector in Victoria, Vancouver and Nanaimo, and other industry sectors in the Cowichan (e.g. film, agri-food) ▪ Priority placed on innovation and further development of the tech sector by the federal and provincial governments as well as local stakeholders 	<p>Threats</p> <ul style="list-style-type: none"> ▪ Strong competition from other regions for investment and workers ▪ Challenges regarding business retention (some dissatisfaction amongst existing businesses) ▪ Succession issues facing some of the businesses

Strengths:

Some of the strengths on which the tech sector in the Cowichan can build include:

- The **high quality of life**, which is the advantage of being located in the region most commonly identified by tech sector representatives. Key dimensions incorporated into the perceived quality of life include the pace and feel of a smaller town or community, short commutes, the climate, air and water quality, the natural setting, ready access to mountains, wilderness, lakes, rivers and the ocean for recreation activities and culinary experiences. In a 2016 Island Innovation survey of 50 tech companies located in the mid Island, all companies identified the lifestyle as a primary advantage of being located in the region'.²
- **Affordability (cost of living)** is another major advantage, particularly with respect to housing costs relative to those in surrounding communities such as Victoria, Nanaimo and Vancouver. In a 2016 VIATEC study of 250 businesses, 60% listed the lack of housing options as the top reason they have trouble recruiting talent.³ The cost of buying a home is more affordable in Cowichan and housing rental prices in Duncan are about 63% lower than in Vancouver and about 48% lower than in Victoria.

Median House Prices as of August 2016⁴

	Duncan	Ladysmith	Nanaimo	Victoria	Vancouver
House	\$391,200	\$424,950	\$419,99	\$699,900	\$2,255,000
Apartment	\$284,500	\$229,900	\$299,000	\$337,900	\$698,000

The lower prices are a competitive advantage for companies in recruitment and allows companies to provide a lifestyle comparable to other centres. The Victoria technology sector is being affected by rising house prices. Representatives also noted that office rents and business taxes can be lower in the Cowichan.

- **Educational offerings** are diverse and well regarded in Cowichan. The region is home to a wide variety of private, alternative and public schools that appeal to young professional families.
- **Health care** access in the region will be bolstered in the coming decade by the creation of a new Cowichan Valley Regional Hospital.
- The **climate of growth and collaboration in the region** as exemplified by partnered economic development strategies in Ladysmith and Lake Cowichan and the Western Region, along with new zoning bylaws in North Cowichan and Duncan to accommodate and plan for residential and commercial growth may further define opportunities for tech growth.
- There is a **strong ecosystem in BC** supporting the development of the tech sector. The federal and provincial governments have made significant investments in tech research, development and commercialization as well as education and training programs. In recent years, there has been a significant increase in access to capital, particularly early-stage financing with the introduction of

² <https://discovercomoxvalley.com/wp-content/uploads/2016/12/2016-VIEA-Economic-Report-Web.pdf>

³ <http://www.timescolonist.com/business/lack-of-affordable-housing-in-greater-victoria-stymies-economic-growth-study-1.21910874>

⁴ <http://www.canadianrealestatemagazine.ca/top-neighbourhoods-victoria-bc-27843.aspx>

programs such as the \$400 million federal government venture capital action plan and the BC government's \$100 million technology innovation venture and further development of angel investor networks, venture capital and private equity funds. An overview of programs and resources available to support development in BC and more specifically the Cowichan is provided in Appendix III.

While businesses in the region tend to have less access to on-the-ground resources than firms in larger tech regions, support is available from some regionally delivered programs including programs offered by Innovation Island, the NRC IRP program, the CFDC, and others.

- **Base of growing companies in the region.** As highlighted in the previous section, there are an estimated 35 of 45 tech companies based in the region, the largest of which are projecting significant growth over the next few years.
- **Strong regional interest in further developing the sector.** This interest is exemplified by the will to create a regional tech strategy, the strong turnout for the industry roundtable and the number of people who participated in the strategy interviews.
- **Attractive space for operations** (availability of new developments, industrial parks, and tax incentives for investment). New commercial developments and industrial parks have been created in various communities. Shared office spaces that are specifically designed for the start-up sector are being opened in Duncan and are being contemplated in other parts of the region.

Weaknesses:

Some of the weaknesses that slow or constrain further development of the sector include:

- **A shortage of skilled tech workers** in the region and more generally in BC. The shortage of tech workers available locally was the competitive disadvantage or constraint to development identified most frequently in both the interviews and roundtables. The 2016 Tech Talent BC study noted an overall shortage of talent in BC, particularly with respect to IT occupations such as systems engineers, programmers, and software developers. As the sector further develops, shortages are also increasing in terms of experienced management, business development, and sales and marketing professionals.
- **Lack of local education and training programs** related to tech. While Vancouver Island University (VIU) offers both degree and diploma programs in computer sciences at its campus in Nanaimo, none of the companies indicated that they employed a program graduate. Between the degree and diploma programs, there are fewer than 20 graduates per year. While VIU has a campus in Duncan, it does not offer IT related programs at the Cowichan campus.
- **Difficulties in attracting workers** from outside of the region. Some of the recruitment constraints include a lack of familiarity with the region, strong demand for workers from other regions, the perception of limited amenities available in the Cowichan for younger workers and the small size of the industry. This creates concerns that the worker will have to move back if the first job does not work out and concerns about the availability of employment in the region for spouses or partners.
- There is **not a critical mass of tech companies** and no anchor companies in the region. The rate of sectoral growth tends to be higher when there is a cluster of businesses sharing technologies, markets, workers and other assets. A recent article in the Atlantic maintains that a cluster of companies is still needed for sustained growth. "We know that it's a virtual world, and in theory you

can do high-value work anywhere. But in practice most of today's highest-value collaborative work takes place in clusters ... where communities evolve to provide the services, comforts, and daily experiences each group values." The development of one significant company can often greatly accelerate the development of the tech sector in a region (such as Club Penguin in Kelowna.)

- **Low profile of the sector and region.** Awareness of the tech sector is relatively low even amongst companies and members of the ecosystem based in the region. Most tech companies based in other parts of BC and beyond tend not to be very familiar with the region.
- **Very limited networking** between tech companies in the region. There are few connections between the tech businesses in the area (in interviews, most company representatives were able to provide few if any referrals to other tech companies in the region) or between those businesses and local customers, suppliers or other economic sectors in the region. The tech sector in the CVRD consists mostly of small companies operating in distinct markets and located in different communities through the region. There is no central hub of companies. A possible constraint to increasing the level of networking is the physical distance that exists between some of the companies as well as the wide differences in technology focus and markets.
- **Little interaction between industry and educators** in the broader region and local industry. According to the interviews, local companies interact very rarely with educators or trainers in the Cowichan or neighboring regions. Very few representatives have served on program advisory committees or hosted coop students.
- **Limited access to capital.** Many of the companies indicated that there is very limited access to capital in the region, although there are a few angel investors. Community Futures Cowichan provides loans to businesses in the region but does not have a distinct focus in the tech sector.
- **Travelling times (and costs)** of going to the Lower Mainland and beyond for business purposes. Business relationships tend to be with customers, suppliers, and sources of capital located in other regions. Some businesses reported a regular need to travel to meet with business associates, current and prospective customers, financiers and others. While there are a variety of transportation links urban markets, travel times can still be significant.
- **Perceived lack of government support** for development. Several of the businesses identified local regulatory, licensing and zoning issues as well as the lack of coordination across government jurisdictions in the region as slowing the growth of their business. Some of the businesses attributed this to a perceived resistance to growth in the region.
- **Connectivity issues.** While some significant recent new investments have been made in fiber optics, there are connectivity issues outside of urban areas in Duncan (largely because the low population density does not support enhanced investment).
- **Few connections to the local marketplace.** Most of the larger companies in the region generate the majority of their revenues through sales to customers off Vancouver Island.
- **Low level of entrepreneurship.** The rate of new business development has been declining across Canada as the population ages. Over half of the interviewed tech businesses currently operating in the region were established more than 10 years ago. The low rate of tech business start-up reflects a lack of recent tech graduates in the region who are looking to create their own jobs and businesses.

- **Centralized services.** Participants in the roundtables specifically highlighted the lack of business start-up services, incubators, and accelerators in the region as well as shared office spaces.

Other issues that were raised in the roundtable and by those interviewed included housing shortages and shortages in appropriate shared office space in some regions and some “small town” resistance to adapting newest technologies. In addition, a number of the businesses located in Duncan commented on the crime rate, which is higher on a per capita basis than in other regions of British Columbia.

Opportunities

Some of the opportunities identified for further development of the sector include:

- The **footloose nature of the tech industry**, particularly IT, creates opportunities to attract investment and tech workers. Two areas where the region may be most competitive with respect to attracting investment are:
 - **Where the investment involves a relocation or expansion from a neighbouring region** (e.g., from Victoria or, to a lesser degree, Vancouver). Given the lack of tech workers available locally, a new operation would typically bring staff with them or recruit from outside of the region. The closer the operation is to the previous or base location, the more likely this is to happen.
 - **When the management has a personal connection to the Cowichan Valley.** An emerging trend is people returning to the small town they grew up to relocate or expand their tech company. For example, in Redlands California (population 70,000), Esri (a GIS mapping software, spatial data analytics & location platform) transformed the local economy after the local air base closed. It was started by an entrepreneur who had grown up in the town.”⁵
- **A trend towards locating tech businesses in smaller communities.** A January 20, 2017 Forbes article contends that, at least for startups, the trend is away from large metropolitan areas to smaller towns. The article noted that high taxes and strict regulations associated with larger urban locations can hinder start-up growth. Communities that have been most successful in developing and attracting new tech companies tend to be those located close to universities and existing pools of tech talent.

A recent article in the Financial Post noted another potential advantage in small cities. “Smaller governments often mean that decision-makers are easier to find and speak with one on one. Towns often work harder to find new businesses the right location, smooth the startup process and help access incentive programs.”⁶

- **The potential to build on resources within and adjacent to the region** including the available ecosystem of existing businesses, the sector in Victoria, Vancouver and Nanaimo, and other industry sectors in the Cowichan (e.g., film, agri-food, etc.). In principle, the region could benefit from being

⁵ <https://www.theatlantic.com/national/archive/2014/01/luck-planning-karma-the-elements-of-a-small-towns-high-tech-success/282824/>

⁶ <http://business.financialpost.com/entrepreneur/fp-innovators/0227-biz-bc-croxon>

adjacent to the second (Capital Regional District) and fourth (Nanaimo) largest tech regions in BC and in close proximity to the largest tech region (the GVRD).

In the CRD, there are about 900 tech companies generating more than \$3 billion in revenues with 20,000 employees and contractors. In Nanaimo, there are 350 companies employing over 3,000 people. At present, the Cowichan companies interviewed have few links with the adjacent regions.

- **The priority placed on innovation and further development of the tech sector** by government. The tech sector has been **identified as a key priority by the Government of Canada**, through its innovation agenda. **The Province of British Columbia** plans to establish an innovation commission to support innovation and business development in the technology sector and is placing a high priority on rural development. There are also opportunities to build on various government initiatives, such as attracting investment through the BC PNP Entrepreneur Immigration Program and tech workers through the BC PNP Tech Pilot.

Threats

- **Strong competition from other regions for investment and workers.** Many other communities and regions have identified further development of the tech sector as a priority, which reinforces the importance of defining a clear niche and set of strategies for targeting specific segments of the industry where the region may have comparative advantages.
- **Challenges regarding business retention.** Several companies expressed dissatisfaction with the local business environment. One company indicated that they have already relocated part of their operation outside of the region because of the local building requirements.
- **Succession issues.** Several of the longer-established businesses reported facing succession issues. It can be much more difficult for businesses in smaller communities to attract buyers, which increases the likelihood that a tech business will simply be shut down once the founder decides to retire or to move on to other activities.

3. THE PLAN FOR DEVELOPMENT

3.1 Goals

The goals for the strategy are two-fold:

- To create an environment that will support growth of the tech sector over the medium to longer-term, recognizing that sector development is a longer-term process; and
- To achieve incremental growth in the short to medium term through supporting further development of existing tech businesses in the tech sector, the establishment of new businesses, and the attraction of tech investments and businesses from outside region.

The Cowichan Tech Strategy is designed to contribute to the region's broader objectives by helping to maintain and enhance the high quality of life and by providing business opportunities and long-term quality opportunities that will benefit residents and help retain youth in the community.

3.2 Positioning

The Cowichan is an attractive place for tech businesses to locate and develop. It is an affordable place to live and operate a business that offers a quality of life that is not available in larger centres. Yet, it is located close to those major centres, enabling businesses to readily access markets, skilled workers, capital and specialized expertise.

3.3 Our Pathways to Further Development

There are two pathways to further development of the tech sector in the Cowichan:

- Accelerate the rate of tech business formation and growth of existing businesses (build from within)
- Attract investment from outside of the region (relocation of businesses or establishment of satellite operations)

3.3.1 Building From Within

The rate of tech business formation and growth of existing businesses within the CVRD is a function of a variety of different factors or *economic drivers*. The rate of development in any given region tends to be higher when the tech sector has ready access to skilled tech workers, capital, markets, and other key inputs, as well as capabilities related to research, technology development and commercialization. Those resources do not necessarily need to be located in a region for the tech sector to grow; however, they need to be readily accessible to the businesses in the region.

The relative importance of the drivers varies depending on the sector and characteristics of the businesses. For example, the growth of companies involved in software development may be impacted primarily by access to skilled tech workers while organizations involved in the development of products, such as medical

devices, may be impacted more by access to capital and the resources available to support technology development and commercialization.

The challenge to the CVRD is to help create the conditions for growth from within by promoting a positive business climate, increasing local access to business support services, and facilitating greater access to the needed resources including tech workers, networks, markets and capital.

3.3.2 Attracting Tech Businesses to the Region

There are two forms of business attraction:

- **Investments by businesses that are relocating operations to the CVRD.** Research indicates that relocation decisions are most often driven by dissatisfaction with the existing location. The most common reasons given by site sectors for their clients relocating are proximity to suppliers or markets, amenable labor costs and lower taxes.
- **Businesses that will be expanding by opening a new operation in the CVRD to complement to add or complement their other locations.** The decision to open an additional operation is most often driven by the opportunity to access new markets or needed resources (e.g., tech workers, capital, or other key inputs). In some segments of the tech sector, there are also opportunities to attract one or a small group of tech workers who would work remotely for a tech business located in another region.

Regions that have greater access to markets, capital, highly qualified personnel, infrastructure and other key inputs are those that tend to be most successful in attracting tech businesses. Any steps taken to facilitate the establishment and growth of businesses within the CVRD will also serve to increase the attractiveness of the region for investment from outside.

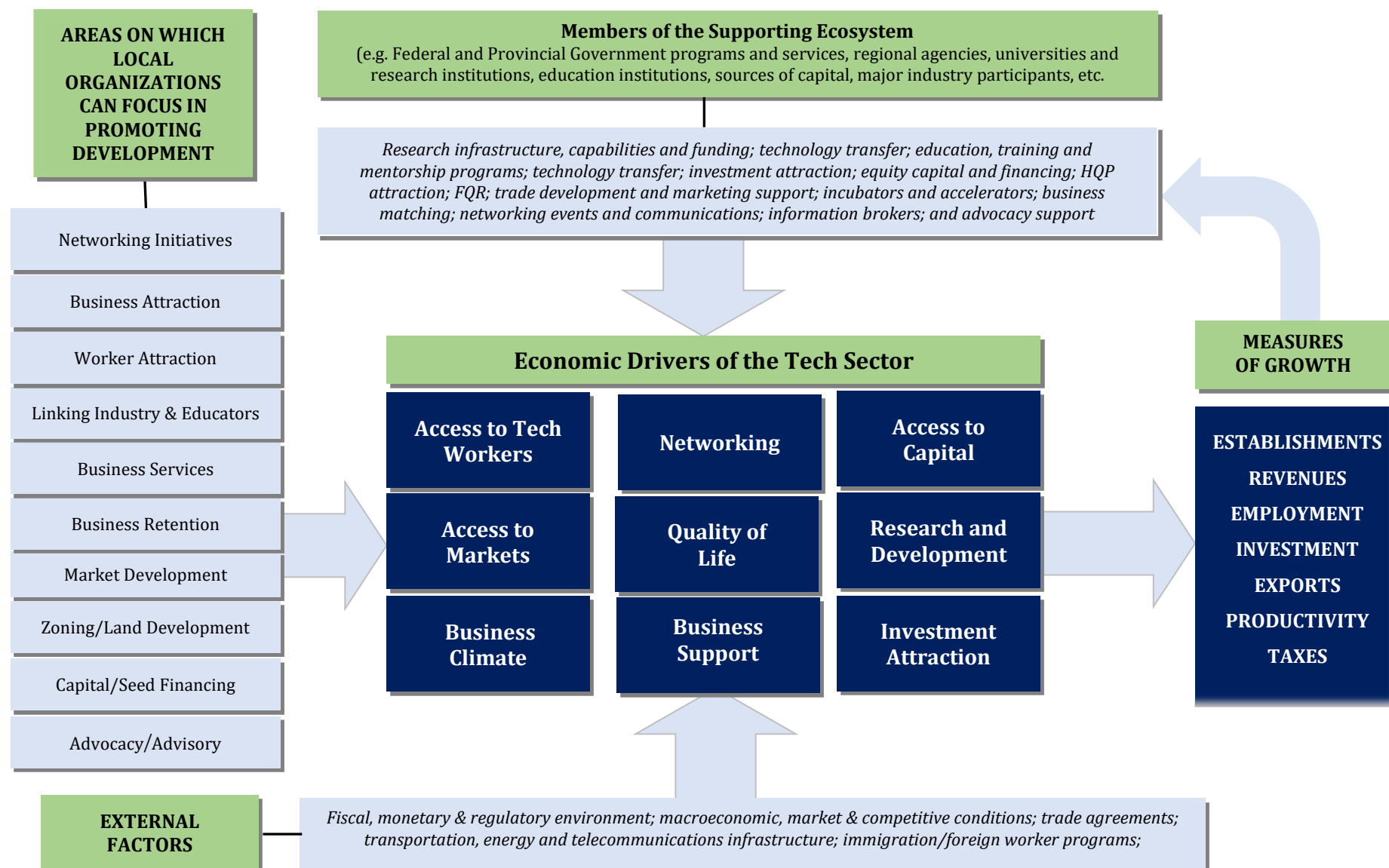
In addition to those steps, the CVRD can increase the profile of the region and create a positive image amongst potential investors to trigger interest and ensure that the Cowichan is on the initial consideration list. New investment tools, such as the revamped Economic Development Cowichan website and the partnered tech attraction strategy being developed through the Vancouver Island Community Economic Development Association (VICEDA) can assist in generating leads and should be accompanied by hands-on support to site selectors and potential investors.

3.3.3 Summary of Factors Influencing the Rate of Development

The chart on the following page summarizes the key factors or economic drivers, specifically relevant to the Cowichan, that influence the rate of development of the tech sector. The factors include quality of life (including cost of living), access to tech workers, the level of networking, access to capital, access to markets, research and development, the business climate, access to business support, and investment attraction.

The chart also illustrates that various members of the *supporting ecosystem* (e.g., government, education and research institutions, and capital suppliers) seek to influence these economic drivers by providing resources, programs and services. A description of some of these programs and services is provided in Appendix III. The rate of development is also affected by *external factors* that are typically beyond the control of the supporting ecosystem (e.g., fiscal, monetary and regulatory environment, macroeconomic conditions, etc.).

Factors Influencing the Rate of Development of the Tech Sector in the Cowichan



The chart also lists areas or types of initiatives on which regional stakeholders such as industry, educators, government and local development organizations could work together to strengthen the economic drivers and promote further development of the sector.

As indicated, organizations can work together in promoting industry networking, business and worker attraction, strengthening linkages between industry and educators, delivering business services, implementing business retention initiatives, assisting with market development, adjusting regulations and policies and facilitating access to capital or seed financing, and providing advice and advocating for the sector.

3.4 Strategic Priorities

Further developing the tech sector in the CVRD will require building on the five pillars or priorities defined under the strategy:

- **Access to Skilled Workers:** increasing the access to tech workers for the businesses located in the region.
- **Networking:** facilitating greater interaction and linkages within the tech sector and between tech companies and available programs and services, other sectors, and other resources.
- **Business Attraction:** attracting investment from businesses located outside of the region.
- **Business Development:** increasing access to business support services for start-up and expanding businesses and improving the local climate for business establishment, expansion and attraction.
- **Access to Capital:** increasing access to capital in the region, particularly angel investment.

In pursuing these priorities, **Economic Development Cowichan** will:

- **Not limit its focus to a narrow definition of the tech sector.** The tech strategy is only one part of an overall strategy to promote economic development in the Cowichan. Many of the initiatives undertaken as part of the tech strategy can also target other sectors.
- **Work in collaboration with entities located outside of the region in implementing elements of the strategy.** While there is inevitably some competition between closely located regions, further development of the tech sector on Vancouver Island can be implemented much more cost effectively in association with other regions than independently.
- **Leverage available resources including government programs and other support.** It will be important for the Project Task Force not only to be aware of existing programs, but also to monitor the introduction of new programming that will be forthcoming from both the provincial government and the federal government.

3.5 Tactics and Actions

This section proposes the tactics and action for pursuing each of the strategic priorities.

3.5.1 Increasing Access to Skilled Workers

The shortage of tech workers available locally was the competitive disadvantage or constraint to development identified most frequently in both the interviews and roundtables. To ease this constraint, steps can be taken to:

- **Strengthen linkages between local industry and educators as a means to increase the flow of graduates into the tech sector in Cowichan.** Responsibility for training the next generation of tech workers or providing technical upgrading is not solely the responsibility of educators. Ultimately, it is the responsibility of the industry in association with the educators.

With facilitation assistance from Economic Development Cowichan and other partners like Community Futures, local companies need to take a more active role in working with educators in the design of programs and curriculum (as part of industry advisory committees) as well as in helping the programs develop the business case for expanding programs by demonstrating the demand for graduates in the region.

Local companies also need to get more involved in hiring co-op students and those participating in other forms of experiential learning. This will help to strengthen linkages, improve the programs and enable employers to test out prospective workers whom they may hire upon graduation. Provincial government funding is available to partially offset the cost of hiring co-op students

In the short-term, these activities could focus on getting companies more involved with the VIU programs in Nanaimo as well as with programs at Camosun College in Victoria. However, the eventual goal will be to establish tech education programs at the VIU Cowichan Campus in Duncan. A first step towards local education programs may be to focus on the needs of the First Nations communities in the region. Mustimuhw Information Solutions Ltd., owned by the Cowichan Tribes, is a leading employer in the tech sector.

- **Attract workers from outside the region.** Similar to the investment attraction strategy, this involves creating awareness of the opportunities in the Cowichan. Awareness can be generated through web sites and promotional programs, by participating in job fairs and other events focused on the tech sector, and by focusing on both business and employee attraction as part of investment attraction efforts.

Posting opportunities on the co-op board of degree programs at UBC, SFU and the University of Victoria and facilitating joint recruitment efforts involving multiple employers are also means of attracting skilled workers. The region can also attract new hires by making use of the Tech Pilot established under the BC PNP, as well as the Federal Skilled Worker Program and the Temporary Foreign Worker Program.

3.5.2 Networking

Strategy research indicates there is little interaction between the members of the Cowichan tech sector, which contributes to the low profile of the sector and the lack of shared resources available to assist sector growth. To help address this issue, steps can be taken to:

- **Stage periodic networking events involving members of the tech sector.** The results of the roundtable indicate that there is considerable interest in a forum through which

technology people can meet regularly and exchange ideas. However, these networking sessions must serve a clear purpose. Following best practices that have been employed elsewhere, networking events could be scheduled quarterly and feature guest speakers who can discuss key issues and opportunities. The Northern BC Tech Growth Program, for example, is a CEO-level, peer-to-peer facilitated quarterly discussion forum featuring a series of five seminars.

- **Stage a discovery day** that would bring local tech companies together with potential investors, representatives from government and other sectors in the region (e.g., value-added agriculture and forestry, wine, and finance). The event would encourage participants to find out more about products and services within the tech sector in the Cowichan and the associated market opportunities.
- **Promote development of a hub** around which segments of the sector can further develop. There are currently no tech hubs within the Cowichan formed around major anchor companies, resource or innovation centres, an aggregation of companies, or tech incubators that provide shared office space and other resources. Establishment of a tech resource centre in the region is a longer-term goal. In the short-term, there may be opportunities to promote shared office space developments that are emerging in the region. The development of an agriculture innovation and research centre in the Cowichan, or the growth of the local film and digital animation sector could also bring associated benefits to the local tech sector.

3.5.3 Business Attraction

Attracting investment from businesses located outside of the region has the potential to increase the critical mass of tech companies in the region and their ability to influence the development of education programs and other resources. Efforts to attract investment to the region will target a range of economic sectors, one of which is the tech sector.

Investment attraction will require:

- **Clearly defining the targets for investment attraction.** Investment attraction activities can be targeted at both Canadian investors and international investors. The advantage of targeting international investors is that funding support is available for the attraction of foreign direct investment (through Invest Canada – Community Initiatives). Opportunities to link promotional efforts to the Entrepreneur Immigration Stream of the BC Provincial Nominee Program also exist.
- **Generating awareness and image building.** This can involve activities and events such as attending conferences and trade shows, email and social media campaigns, advertising, public relations, investment missions, investment seminars, and the generation of favourable news stories by cultivating journalists (earned media). The fundamental objectives of image building are to raise awareness amongst potential investors about the advantages of locating in the Cowichan region.
- **Providing information and investor services in response to leads.** The region needs to be able to provide timely information in response to enquiries for support. These services, which are already in development at Economic Development Cowichan, can range from providing information on commercial real estate to presenting the full business case for investing in the local tech sector.

Economic Development Cowichan can work with the local tech sector to identify potential attraction targets (i.e., companies with whom they work, companies led by managers with a connection to the region, etc.) and recruit ambassadors, tech sector leaders, recent investors and other private sector champions into investment promotion activities.

As part of this process, communities, property owners and developers can also help to strengthen the business climate, develop investment incentives, and implement coordinated attraction strategies. A nearby example of the private sector working together on this type of initiative is the Mid Island Business Initiative in Nanaimo.

3.5.4 Business Development

In order to increase to business development services to the Cowichan tech sector, Economic Development Cowichan can:

- **Work with Innovation Island to establish a regular presence in the region.** Having a Business Advisor in the community twice per month would help to accelerate the start-up and development of tech businesses in the region and would likely lead to more Cowichan tech businesses participating in the *Venture Acceleration Program*. Innovation Island can also be engaged to deliver the RETHINK Series, a workshop program targeted at tech start-ups. The series focuses on product and customer development, financing, team building, and scaling.
- **Create connections between the tech sector and local government** to ensure that municipal and CVRD planning staff and government decision makers have a well-rounded understanding of the development needs within the sector.
- **Adapt existing business development services to the tech sector.** Business development services are currently offered in the region by Community Futures, the provincial Venture Connect Program, and through other federally and provincially funded partners. These regional programs could develop a more specific focus on tech sector development.

3.5.5 Increase Access to Capital

Many of the companies in the region identified access to capital as a constraint. To improve access to capital, Economic Development Cowichan can:

- **Support the development of an angel investor network for the region.** As an option to increase access to capital, an angel investor network can be formed to serve the broader region. Angel investor networks have proven very effective in both increasing the level of angel of investment and the improving the returns for angel investors. Once formed, Western Economic Diversification could be approached for funding.

FedDev Ontario, WD's counterpart in southern Ontario, has provided significant funding to angel investor networks to support efforts to attract members/angel investors and qualified applicant companies, undertake outreach, education, mentoring and engagement for investors and entrepreneurs, provide investor accreditation, facilitate co-investment/investor syndication, and improve reporting.

- **Work with Community Futures Cowichan** to identify and pursue opportunities to increase the access of tech companies to capital.

3.6 Roles of the Key Stakeholders

The roles of various parties in implementing the strategy are outlined in the table below.

Organization or Groups	Roles
Economic Development Cowichan	<ul style="list-style-type: none"> • Provide leadership in the implementation of the strategy • Develop funding proposals and secure funding for various aspects of the strategy • Increase awareness within the region of the importance of the size and significance of the tech sector • Create connections between local government and the sector • Participate in investor and worker attraction programs and promote use of federal and provincial programs as appropriate • Provide information and investor services in response to leads • Organize quarterly networking events involving members of the tech sector and a discovery day • Explore the development of a tech hub or hubs • Support the development of an angel investor network for the region
Project Task Force	<ul style="list-style-type: none"> • Provide guidance and assist in the implementation of the strategy • Monitor the results
Innovation Island	<ul style="list-style-type: none"> • Establish a regular presence in the region (e.g., bi-weekly) • Deliver the RETHINK Series in the region • Work to increase local participation in the Venture Acceleration Program • Support the development of an angel investor network for the region
Community Futures Cowichan	<ul style="list-style-type: none"> • Identify constraints and pursue opportunities to increase the access of tech companies to loan funding • Support the development of an angel investor network for the region • Help organize quarterly networking events involving members of the tech sector and a discovery day
Vancouver Island University	<ul style="list-style-type: none"> • Work with industry to refine and expand the education programs • Get into the communities to better promote education and co-op programs to employers and potential studies • Examine opportunities to establish tech programs at the Cowichan Campus
Industry	<ul style="list-style-type: none"> • Participate in industry advisory committees for the education programs and help develop the business case for expanding programs • Hire co-op students on an on-going basis • Participate in networking events • Support investment and worker attraction initiatives

4. Measuring Success

The Cowichan Tech Strategy is a sector development initiative that will depend on the continued collaboration of project partners and stakeholders. In discussions with the Project Task Force, it was agreed that the short to medium range success measurements for the project should include:

1) Benchmarking the Growth of the Sector

Economic Development Cowichan should work with the Project Task Force to set up a series of benchmarks to track the growth of the existing tech sector in Cowichan and its success in attracting new companies to the region. Innovation Island currently uses measurements that track the growth rate of jobs, investment and revenue that accrue as a direct result of their service provision. Over the coming three years, these metrics could be aligned with the work of Economic Development Cowichan, particularly if Innovation Island is sub-contracted to provide regular business services to companies in the region.

2) Focus on Skills Development for the Tech Sector

In order to achieve measurable success, the tech sector in Cowichan requires a focused approach to skills development and attracting skilled workers. Components of a skills development strategy could include the formation of new and appropriate skills development programs and attraction partnerships for the region, the establishment of shared maker spaces that will spurn networking and mentoring at the high school and post-secondary level, and sector driven skills attraction strategies that would be implemented in collaboration all industry partners. To fuel these activities, ICET could be approached for incremental funding. Success would be measured in this area by the number of new hires that are achieved as a direct result of the skills development initiatives.

3) Sector Attraction

Attracting new tech sector activity to Cowichan will have a better opportunity for success if this is tied to a specific objective or initiative that is a priority for the Province. At present, the BC Ministry of Agriculture is examining the feasibility of setting up a “hub and spoke” model of five innovation centres throughout the province. Given the strong agricultural and agri-innovation footprint that exists in Cowichan, EDC should be resourced to develop an agri-innovation attraction strategy. Success measurements would include the documented attraction of agri-tech companies to the region. Downstream, other tech innovation partnerships could be linked to the development of the new Cowichan Hospital or the further growth of value-added forestry in Cowichan.

Appendices

Appendix I: Participants in the Interviews and Roundtables

Contact	Organization
Industry Representatives	
Damir Wallener	EIO Diagnostics
Allan Tweten	Aquatech Environmental Systems Ltd
Mark Syme	Biopreme Medical Technologies Inc
Randy De Luca	Boydell Wastewater Technologies Inc
Luke Carroll	Bron Studios
Darcy Gibbons	Cowichan Tribes
Lucius Craig	Data Stream Networks
Dan Cvitanovich	eOmni Solutions
David Jameson	Group Technologies Inc
Don Hatton	Hatton Insurance
Andrew MacLaren	Hud Studios / Brilliant Data
Kuljit Parmar	Knowledge Computers
Doug Lockhart	Lockhart Industries Ltd.
Phil Leedham CPA, CMA	Metropolitan Capital Partners
Marsha Stanley	MNP
Muhammad Hassaan Rahim	MRKS Media
Mark Sommerfeld	Mustimuhw Information Solutions Inc.
Filip Rezler	Shaw
Wayne Taiji	Taiji Brand Group
Lisa Ballinger	Telus
John Verbeeten	Tracker Software
Eric Quackenbush	Trigonetics
Aaron Stone	Uforik Computers
Tom O'Flaherty	Retired tech developer
Ron Bogdonov	Former tech developer
Members of the Ecosystem (Government, Educators, Development Organizations and Others)	
Ragwa Gopal	Accelerate Okanagan
James Street	BC Ministry of Agriculture
Paul Kan	BC Ministry of International Trade
Kevin Butterworth	BC Ministry of Jobs, Trade and Technology
Christine Fast	BC Ministry of Jobs, Trade and Technology
Andrew Brook	BC Ministry of Jobs, Trade and Technology
Martin Monkman	BC STATS
David Collier	BC Technology & Innovation Branch
Allan Stroet	Bulkley Valley Economic Development Officer
Rose Klukas	Campbell River Economic Development
Phil Kent	City of Duncan
Cathy Robertson	Community Futures Cowichan Manager
Ian Morrison	Cowichan Valley Regional District, Director
Kerry Davis	Cowichan Valley Regional District, Director
Lori Iannidinardo	Cowichan Valley Regional District, Director
Sharon Heppner	Cowichan Valley Regional District, Manager IT
Janae Enns	CVRD – EDC
Judy Mills	CVRD – EDC

Contact	Organization
Amy Melmock	Economic Development Cowichan
Allen Stroet	EDO Bulkley Valley
Mathew Brown	Government of BC Venture Capital Programs
Matt Hutcheon	Innovation Central Society
Graham Traux	Innovation Island
Line Robert	Island Coastal Economic Trust
Lincoln Smith	Kamloops Innovation
Aaron Hamilton	Lake Cowichan First Nations
John Hankin	Mid Island Business Initiative
Cheryl McLay	Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Regional Manager, South Vancouver Island/Coast
Mike Hooper	Nanaimo Airport
Bernie Dumas	Nanaimo Port Authority
Warren Nagata	National Research Council IRAP ITA
Natasha Horsman	North Cowichan
Joyce Behnsen	North Cowichan Councilor
Guillermo Ferrero	Town of Ladysmith
Felicity Adams	Town of Ladysmith
Gara Pruess	Vancouver Island University Computer Science Chair
Warren Weir	Vancouver Island University Cowichan Campus Academic Administrator
Keith Chicquen	Vancouver Island University Instructional Director

Appendix II: Advantages and Disadvantages of Locating in the Cowichan

Results of the Roundtable: Regional Opportunities/Advantages and Constraints to Development (n=25)				
Category	Opportunities/Advantages	#	Constraints	#
Natural Environment, Location, and Lifestyle	Quality of life (e.g., family friendly, cost of living, pace)	13	Competition from other areas (Victoria, Nanaimo, Kelowna, Lower Main Land)	3
	Housing affordability	5	Transportation times off the Island	3
	Proximity to Victoria, Nanaimo & Vancouver	4	Availability of rental housing	2
	Low transportation costs/short commutes	3	Primarily rural region (fewer amenities)	1
	Outdoor recreational opportunities	2	Transit connection to Victoria and Nanaimo	2
			Work/life balance	1
			Longer shipping and receiving time lines	1
Business Environment and Education	Support is available from local government and programs	6	Lack of tech educated/experienced population	8
	Traditional sectors need to develop the tech side of operations (e.g., food production, wine & spirits)	4	Lack of networking opportunity (limited interaction within the tech sector in the region and with government and other sectors)	7
	Opportunities to tap into the VIU alumni network	3	No promotion of the sector locally or to draw new companies/attract investment	5
	Partnerships and programs with VIU	2	Small local markets/limited population to draw from	5
	High school and VIU tech education programs	2	Lack of angel network/access to capital to foster entrepreneurs	2
	CVRD company directory	1	Lack of tech industry in the area	2
	Attracting spin off offices of established tech companies	1	Lack of zoning to accommodate “home” based businesses	1

Results of the Roundtable: Regional Opportunities/Advantages and Constraints to Development (n=25)				
Category	Opportunities/Advantages	#	Constraints	#
	Existing base of companies	1	Lack of suppliers and manufacturing reps	1
	Low cost of operations	1	Inability to retain educated young adults	1
			No coordinating body	1
			Limited benefit for companies looking to relocate vs other regions	1
Infrastructure	Low cost office rent space	1	No tech hub	6
	Land is available to develop	1	No entrepreneurial incubator	6
			Availability of appropriate office space for start-ups and business expansion	6
			Suitable space for hive programming	5
			High speed large bandwidth data connectivity	4
			Availability of training	2

Results of the Interviews: Advantages and Disadvantages of Being Located in the Cowichan (n=32)	
Advantage	Number Identifying
Quality of life	17
Affordable housing	8
Proximity of Vancouver and Victoria	7
Low costs (office space and land)	5
Building on family connections	4
Access to development programs and services (e.g., IRAP and Innovation Island)	4
Communications/available connectivity	4
Potential linkages to other sectors (e.g. agri-food, wine and finance)	3
Availability of land	3
Local markets for some services	2
Local campus/potential access to education	2
Cost of living	1
Tech, particularly rural tech, is a provincial priority	1
Local government is supportive of development	1
Access to retired executives	1
Disadvantages	Number Identifying
Access to skilled tech workers (few locally available/difficult to recruit)	12
Limited access to capital	11
Logistical issues (travel times/shipping time and cost to and from the region)	11
Limited local/regional education programs for tech (few graduates/limited fit with needs)	8
Issues with the local government (e.g. zoning, coordination across government, attitude towards development)	7
Small local markets	6
Transportation access	6
Low profile of the sector and the region	6
Limited networking between tech companies	7
Lack of a technology hub	5
Connectivity	4
Availability of housing	4
Access to research capabilities/limited focus of VIU on research	3
Crime or drug issues in Duncan	3
Availability of office space/shard space	2
Access to markets	2

Limited emphasis on/investment in economic development in the region	2
High costs because of the more isolated location	1
Lack of employment opportunities for spouses of workers drawn to the Island	1
Lack of local amenities	1
Access to professional services (e.g. legal for IP issues)	1
Awareness of government programs and services available to businesses	1
Access to health infrastructure	1

Appendix III: Programs and Resources Available to Support Development in BC

Organization	Relevant Focus	Description
Organizations Delivering Services Locally		
Economic Development Cowichan	Economic development	The Economic Development Division provides economic development and business retention, expansion and attraction services for the Cowichan Valley Regional District across a range of sectors and communities.
Community Futures Cowichan	Small business loans	Community Futures Cowichan offers entrepreneur & small business loans, training, planning, and advisory services in Duncan BC & the Cowichan Valley.
Innovation Island	Assistance for tech businesses	Innovation Island serves as a regional driver for accelerating business success through scientific innovation and technology. As part of the BC Innovation Council network, Innovation Island delivers the Accelerator Program that offers a structured approach to growing a company, the Venture Growth Model. The model involves ongoing coaching from experienced Executives in Residence (EIRs), access to knowledgeable mentors and their networks, and valuable opportunities for networking. Other services include training and business counselling.
Vancouver Island University	Education	Vancouver Island University (VIU) operates a regional campus in Duncan. The campus has two locations, a main teaching centre and a trades facility. The main campus operates an Innovation lab where students are encouraged to use 3D printers and try other technical projects. They have recently built a robot and an underwater drone. At the Nanaimo campus, VIU offers a four-year Bachelor of Science (Major in Computing Science) as well as a two-year diploma program to prepare students for a career as a computer programmer/programmer analyst. The Bachelor degree program offers a co-op option for students.
NRC IRAP	Support for innovation and technology	NRC IRAP works to accelerate business growth through innovation and technology. IRAP provides advisory services and technical expertise delivered by Industrial Technology Advisors (ITAs); financial support to qualified small and medium-sized enterprises in Canada to help them undertake technology innovation; linkages to sources of financing, research and development institutions, technology brokers and technology transfer centres; and financial assistance for hiring youth (15-30). An ITA located on the VIU campus has responsibility for the Cowichan region. While there has been some use of the program in the region, the support has been more in the area of introducing innovation into traditional industries rather than supporting high technology companies.
Government of BC		
BC Ministry of International Trade	Market development and investment attraction	The Ministry of International Trade and Responsible for Asia Pacific Strategy and Multiculturalism pursues strategic opportunities to promote British Columbia internationally as a preferred place to invest and do business. This is done by delivering services that accelerate British Columbia's exports, attract strategic investments including international offices, develop international partnerships, increase awareness of B.C.'s competitive advantages, and by negotiating agreements that eliminate barriers to trade. Within the Ministry, the Technology and Innovation Branch of this ministry is actively seeking regional technology companies to participate in provincial trade shows and missions.
BC Innovation Council	Business development	The BC Innovation Council (BCIC) is a Crown Agency that encourages the development and application of advanced or innovative technologies to meet the needs of industry in BC. The agency accelerates technology

Organization	Relevant Focus	Description
	/promotion of innovation	<p>commercialization by supporting startups and developing entrepreneurs through a number of programs including the Venture Acceleration Program</p> <p>Other programs include:</p> <ul style="list-style-type: none"> • The BCIC Ignite Awards honors BC research projects in natural resources and applied sciences. • The New Ventures Competition, a 10-week business seminar and networking series within a competition. • The BC Tech Co-op Grants Program that encourages student training and job readiness through work terms with small firms in tech or any companies hiring for tech roles. Employers in the technology sector may receive 25% of a student's salary, up to a maximum of \$2,700 if the business is for-profit, established in BC, and has less than 50 employees. • The BC Innovator Skills Initiative employs students with BC-based technology companies. • ACETECH: a non-profit training and mentoring organization for CEOs of technology, life sciences and innovative companies looking to grow their revenue faster with less risk. • Launch Academy is a non-profit organization that helps entrepreneurs and startups learn how to build tech companies faster and more efficiently through programs, events and networking opportunities. • The Industry & Innovation Group connects technology entrepreneurs, researchers and industry leaders in BC. The current focus is cleantech and the natural resource industry in BC, including agri-foods, energy, forestry, mining and oceans.
BC Provincial Nominee Program	Investment and worker attraction	<p>The BC Provincial Nominee Program includes two streams, both of which could be relevant to the Cowichan region. The Entrepreneur Immigration Stream attracts immigrants willing to invest in BC through the expansion of an existing business or establishment of a new business. The Skills Immigration Stream is an economic immigration option intended for people with the skills, experience and qualifications needed by BC employers.</p> <p>A Tech Pilot has been developed under the Skills Immigration Stream that provides a fast-track, permanent immigration pathway for in-demand foreign tech workers and international students. The BC PNP Tech Pilot features:</p> <ul style="list-style-type: none"> • A dedicated concierge service so tech employers understand the immigration process with timely and relevant information about the application process. • Weekly invitations for tech registrants to apply so employers have timely access to qualified individuals in the 32 key technology occupations. • Priority processing. • Focused outreach and engagement with the technology sector and industry partners with tailored presentations, networking opportunities and one-on-one employer support.
Canada BC Job Grants	Training	<p>Grants are available to cover up to two-thirds the costs of training employees to a maximum of \$10,000 per grant. Examples of eligible costs include tuition and examination fees, as well as textbooks, software, and other required materials. Employers need to pay 1/3 of the costs and use a third-party trainer. Those with 50 or fewer employees can benefit from flexible arrangements, such as the potential to count wages as part of the employer contribution.</p>
BC Ministry of Agriculture	Resource Centres	<p>Under its new mandate letter, the Minister of Agriculture is expected to work with growers, processors, colleges and universities, as well as the Minister of Advanced Education and the Minister of State for Trade, to develop a B.C. Food Innovation Centre model. Five "hub and spoke" centres throughout BC will help to innovate in the processing, packaging and marketing of B.C. food products, linking local food producers with new technology, and expanding exports and access to world markets.</p>

Organization	Relevant Focus	Description
BC Rural Dividend	Community funding	The BC Rural Dividend program has assisted rural communities with a population of 25,000 or less in strengthening their community resilience, and supporting their social, cultural and economic viability.
Other		
Discovery Foundation	Tech education	The Discovery Foundation is a registered charity with a mandate to promote and facilitate innovation and the development of the technology sector in British Columbia. Its principal role is the delivery of the Technology Education Program (TEP) through selected Agents who educate technology entrepreneurs in British Columbia. Each year, industry organizations and educational institutions apply to be TEP Agents through a competitive process. The Foundation is currently a partner of the Innovation Central Society in Prince George and the Kootenay Association for Science and Technology.
Island Coastal Economic Trust	Economic development funding	<p>The Island Coastal Economic Trust (ICET) was created to support economic development initiatives on central and northern Vancouver Island and the Sunshine Coast. ICET funds community-driven economic development initiatives in targeted sectors to spark new and sustainable regional economic growth and diversification. These key sectors include forestry, transportation, tourism, mining, small business, energy, agriculture and aquaculture, and economic development. The Trust provides:</p> <ul style="list-style-type: none"> • Up to \$400,000 in grant funding available for Economic Diversification Infrastructure Projects. • Up to \$30,000 in grant funding available for Investment Readiness and Regional Collaboration. • Bursaries for select economic development training courses and networking events. • Limited sponsorships available for regionally significant economic development or sectoral events. • Economic Development Internships or recent graduates.
Federal Government		
Western Economic Diversification	Economic development funding	<p>The Western Diversification Program (WDP) is the main program through which WD makes strategic investments in initiatives that enhance and strengthen the economy of Western Canada. Funding is available to not-for-profit organizations (e.g., universities and other post-secondary institutions, research institutes, industry associations, Indigenous organizations) for projects that support innovation, business development and/or community economic growth.</p> <p>More recently, WD has introduced the Western Innovation Initiative (WINN). It is a \$100 million five-year federal initiative that offers repayable contributions for small- and medium-sized enterprises (SMEs) with operations in Western Canada to move their new and innovative technologies from the later stages of research and development to the marketplace.</p>
Invest Canada – Community Initiatives		Invest Canada – Community Initiatives (ICCI) provides financial support to communities seeking to improve their capacity to attract, retain and expand FDI in order to create jobs for Canadians, support innovation and increase exports. For the purposes of the ICCI program, FDI refers to international businesses establishing or expanding operations in Canada. The initiatives supported by the program must focus on supporting the attraction, retention, and expansion of foreign direct investment through specific types of activities. Non-repayable contributions range from \$3,000 to \$300,000, and agreements can be made for a one-year period, from January 1 to December 31. ICCI provides reimbursement of up to 50 percent of eligible expenses. If an applicant accesses other federal government support, the total federal support cannot exceed 50 percent.
Agri Innovation Program (Agriculture and Agri-Food Canada)		Funding is available pre-commercialization R&D and knowledge transfer as well as to get agri-based products or services ready for the market. There are two streams within this program:

Organization	Relevant Focus	Description
		<ul style="list-style-type: none"> Industry-led Research and Development Stream — you may receive a non-repayable contribution of up to \$5 million; and Enabling Commercialization and Adoption Stream — you may receive a repayable contribution of up to \$10 million
Applied Research and Development Grants (NSERC)		Businesses partnering with an eligible Canadian college to develop clean technologies can receive funding of up to \$150,000 when the business covers 50% or more of the project cost or \$75,000 when the business covers 50% or less of the project cost.
Business Development Bank of Canada		BDC provides loans to start or buy businesses depending on the market and sales potential, competence in the management team, level of investment, and expertise in the chosen field. Venture capital or growth equity may be available for business start-up or purchase and business development.
ICE		The Government of Canada and the Province of British Columbia have teamed up to support the development of pre-commercial clean energy projects and technologies. A \$20-million provincial contribution from the Province of British Columbia's Innovative Clean Energy (ICE) Fund was matched the federal government's SD Tech Fund.
IFIT (Natural Resources Canada)		The Investments in Forest Industry Transformation (IFIT) program offers non-repayable contributions to successful applicants in the Canadian forestry industry to implement innovative, first-in-kind technologies in their facilities. The goal of the program is to provide funding for projects at the pilot to commercialization phase, with the intent of helping these technologies get to market.

Appendix IV: Examples of Initiatives in Other Jurisdictions

This section provides a brief overview of initiatives or approaches that have been implemented in other regions that are relevant to aspects of the strategy outlined in the main report.

Examples of Tech Initiatives	
Networking opportunities (meetings, speaker series and discussion groups)	
	<ul style="list-style-type: none"> The Northern BC Tech Growth Program in Prince George (Innovation Central) has implemented two types of networking events targeted at bringing together representatives from industry. <ul style="list-style-type: none"> A CEO-level, peer-to-peer facilitated quarterly discussion forum. This program is new this year, and was made available by funding from the Discovery Foundation. It is facilitated by their Executive in Residence. The group consists of CEO's of either more established companies or newer high-growth companies, so there is a commonality between them in terms of mindset and scale of challenges in their businesses. To date, it has been by invitation only. Seven CEO's have taken part. It is intended to be a local opportunity, similar to the peer groups that Acetech and others operate in Vancouver. The participants have dictated the content, and to date it has focused on company culture and tools that maximize efficiency in the business. A series of five seminars open to any participants. To date, the seminars have been on emerging technologies, and are intended to be introductory-level to help people understand how these technologies may affect their business and where some opportunities may lie. Examples of some of the subjects include Virtual Reality & 360 Video, block chain, and macro-trends in digital technology. These sessions are promoted through the client network of Innovation Central, partners such as the Chamber of Commerce, and their referral network (bankers, lawyers, accountants, etc.). The Kootenay Association for Science and Technology (KAST) stages monthly meetings, arranges crowd-sourced tech advice, and promotes work opportunities. This is mainly done

Examples of Tech Initiatives	
	<p>through a collaborative group of local technology workers who meet regularly to support each other's innovation work.</p> <ul style="list-style-type: none"> The City of Nelson (through the Nelson and Area Economic Development Partnership - NAEDP) co-funded a coordinator position with KAST. The Coordinator created the Nelson Tech & Knowledge Workers group (550 members), launched monthly tech meetups of 50-80 attendees, initiated an innovation centre feasibility study, and launched chapters of both Startup Nelson and Ladies Learning Code.
Mentorships and Targeted Support	
	<ul style="list-style-type: none"> KAST delivers the High Value Expertise in a Rural Environment (HERE) program that is a demand-driven subject matter mentorship for rural tech companies: HERE features 1 to 1 expertise in legal, accounting, engineering, leadership, online marketing & 3D Printing. The HERE program helps clients access crucial professional services in legal, online marketing, sales, HR, leadership, engineering and digital fabrication. Funded by the Discovery Foundation, in 2016, the HERE program supported 10 clients with 128 hours of free advice. Twenty-one Mentor/Company matches were made. Kamloops Innovation has set up a program, Manufacturing Innovation, targeted at manufacturers, designed to provide local SMEs with business and mentorship support in order to increase efficiencies, stimulate innovation, become more profitable and improve management skills. They have also delivered a series of workshops and seminars on topics of interest to manufacturers. It is funded by NRC-IRAP.
Hubs/Research or Resource Centres	
	<p>There are many examples of government investment in regional hubs, research centres or resource centres ranging from incubators, to industry services organization, to research centres. The centres are most commonly attached to universities or linked to major companies or clusters of companies and are more likely to be located in major centres. A few examples includes:</p> <ul style="list-style-type: none"> The BC Ministry is considering establishment of an agriculture innovation hub and spoke mode and Duncan could potentially be a spoke with the Lower Mainland serving as the hub. The eventual model may be based on an Ontario model built on the Agri-Tech Commercialization Centre (Guelph) and funded by Agriculture and Agri-Food Canada and the Ontario Ministry of Agriculture, Food and Rural Affairs. The ATCC is an internationally recognized cluster of agricultural innovation resources intended to enhance the research, development and commercialization of technologies and create and attract profitable businesses that advance Canada's leadership position in global markets. The three founding organizations — Bioenterprise Corporation, Soy 20/20 and Ontario Agri-Food Technologies form a hub of specialized industry knowledge and market expertise. The group now also includes the Livestock Research Innovation Corporation. Services are intended to help start-ups, grow companies and provide a competitive edge. Access to capital is facilitated. Metal Tech Alley (MTA) is a virtual cluster based in the Kootenays, consisting of a corridor of ventures focused on industrial innovation. Led by the Lower Columbia Initiatives Corporation (LCIC), the objective of MTA is to develop a global centre for digital fabrication and advanced materials/metallurgy. It is undertaking a marketing campaign focused on the availability of affordable local land and buildings that can support technology companies. The Innovation Centre at Bayview Yards, funded by FedDev Ontario in Ottawa, provides industry with access to an Advanced Digital Media Lab (which provides entrepreneurs, start-ups and SMEs with the technical capabilities required to develop, prototype and validate advanced digital media concepts), the Global Cybersecurity Resource Program (which provides access to cybersecurity expertise, resources and support) and a Maker Space (which provides access to leading-edge maker space infrastructure and capabilities including tools, technology and equipment).

Examples of Tech Initiatives	
Investment Attraction	
	<ul style="list-style-type: none"> A wide variety of communities and regions in BC have received funding to develop and implement investment attraction strategies, which focus largely the provision of information, awareness generation and image building. There are many examples of these strategies online. The Mid Island Business Initiative is a privately funded business attraction organization. Its main focus is to fill vacancies in the Nanaimo commercial property sector. The main selling points for the organization are cost living, life style and proximity to major centres. They are hoping to counter the myth that if you come to work at a tech company in the mid island and it doesn't work out there are no other opportunities.
Access to Tech Workers	
	<ul style="list-style-type: none"> The Government of BC has recognized the importance of preparing youth to enter the tech sector and is taking some major steps beginning with the K-12 education system. The Province is investing \$6 million to support coding and the new curriculum, to training teachers and purchase additional computers. Government is working with the First Nations Technology Council to continue their Bridging to Technology program, a comprehensive skills-development program that includes the professional development training stream. The portion of funding under the Canada-BC Job Grant directed towards the tech sector has been increased, which should increase access to funding for employers in the region to provide skills training to their employees. The post-secondary system is placing a priority on strengthening links between academia and industry. For example, UBC president, Professor Santa Ono has been appointed chief advisor of a new Innovation Network to foster greater collaboration between public post-secondary institutions and innovation-driven industries. Different sectors and regions are coming together to develop worker attraction initiatives, some of which are aligned with new BC PNP Tech Pilot. For example, KAST has identified a worker attraction initiative in its priorities for the current year. The Ministry is interesting with local industry to promote use of the Pilot.
Worker Attraction	
	<p>Examples of worker attraction programs include:</p> <ul style="list-style-type: none"> To assist local businesses with their business support and expansion efforts and help deal with the immediate labour shortage, the City of Kamloops has developed a streamlined, web-based, customized client information response package titled MovetoKamloops.com. Advertising of this new information vehicle is supplemented with supporting radio advertising; printed marketing material and direct trade show marketing. The purpose of these promotional activities is to drive potential residents to the web information portal. A similar program, Move Up Prince George, was launched in 2014. Move Up Prince George is a national marketing initiative that has been running since August 2014. It includes a cross-Canada advertising campaign that drives people to the associated website and social media. The dual purpose of the campaign is to assist local employers in attracting skilled workers to the city by providing them with tools for marketing the city and to overcome misperceptions of Prince George that are creating a barrier to workforce attraction. Accelerate Okanagan is pursuing a program to attract expats, aged 23-50, living in California (with a particularly focus on the San Francisco Bay Area) and Asia-Pacific (Hong Kong) to the Central Okanagan region. The program targets Canadians skilled workers and entrepreneurs who can bring expertise and investment resources to the region. The program involves the creation of an Expat database of individuals interested in relocation or investment in the Central

Examples of Tech Initiatives	
	<p>Okanagan, a website, digital marketing program, and in market activities. The program is cost-shared with Global Affairs Canada.</p> <ul style="list-style-type: none"> The Government of BC is supporting the Federal Government's Global Skills Strategy that is designed to attract and expedite the entry of global, highly skilled and qualified talent to support Canadian companies to grow and scale-up. The BC Tech Association is the BC designated referral partner for the program and screens companies to ensure they qualify for the program. There are four "pillars" to the program.
Promoting Tech To Other Sectors	
	<ul style="list-style-type: none"> Various programs have been established to create awareness of the potential application of technology in existing businesses (e.g. the Manufacturing Innovation program outlined above). Other programs hold discovery days or other special event designed to introduce people to technology developments as well as prospective suppliers of products and services. For example, the BC Cattlemen's Association has received funding from Growing Forward 2, a federal-provincial-territorial initiative, to provide a series of research extension events, as well as pilot and evaluate a number of technology transfer delivery mechanisms for producers.
Access to Capital	
	<ul style="list-style-type: none"> Access to Capital, delivered by Accelerate Okanagan, is one of a number of programs designed to facilitate access to capital. The program delivers a mixture of education events on topics such as the capital raise process, valuation, due diligence, pitching, common documents, deal structure, and after the investment. The Fast Track Training Program is a 12 week on demand program which pairs 10 qualified start-ups with an Executive in Residences who will provide pitch training, due diligence education, and valuation support and investor/entrepreneur matching. The counterpart of Western Economic Diversification in southern Ontario, FedDev Ontario, has placed priority on expanding regional angel investor networks that have been successful in promoting regional development. Each network can receive up to \$500,000 in non-repayable contributions for projects to strengthen angel networks through improved standards and better investments (up to 100% of direct eligible project costs). The contributions support The contributions support a variety of activities including the attraction of members/angel investors, growing the pipeline of qualified applicant companies, implementing outreach, education, mentoring and engagement activities for investors (e.g. education on best practices in angel investing) and entrepreneurs. The program also assists in establishing an investor accreditation process, facilitating co-investment, investor syndication and improved access to capital for Ontario companies, and improving reporting and monitoring tools. The angel investment networks match potential investors with those looking for funding. Tech businesses benefit by having greater access to capital and guidance from experienced business minds. In addition, FedDev Ontario program also provides matching VC or angel funding. Early stage SMEs (less than 50 employees) can receive up to \$1 million in repayable funding to be leveraged with \$2 in angel or VC funds for every \$1 in FedDev Ontario funding. The specific terms of repayment, including date of commencement and length of repayment term are determined on a case-by-case basis during the development of the contribution agreement with repayments begin no later than one year following the completion of the project.

Shared Work Spaces / Support for Tech Workers Employed Remotely

- The **Qualicum Beach Digital Media Studio** is a shared workspace located in an old train station building. It is billed as “A workspace for developers and digital creatives. A hub for events and ideas.” It has a drop in space as well as permanent offices. Currently operating as a one-year pilot project by the Town of Qualicum Beach, the studio serves as an attraction asset for the growing base of creative industry talent already in the area. There are workshops, talks and meetings of the tenants.
- The **Bulkley Valley Economic Development Association** (SMITHERS) operates an incubator with shared workspace. The Association focuses on attracting tech workers from large centres who can work remotely in the facility. There is a system of mentoring using BCIC funded mentors accessed from Prince George. Most of the clients are from Vancouver or Toronto who vacationed in the area and were attracted by the centre’s services and the local lifestyle.