



BC Venture Capital Research Project

Draft Report

Report Prepared For:

BC Ministry of International Trade

February 26, 2015

Submitted By:

*Don Ference, President
Ference Weicker & Company Ltd.
550-475 West Georgia Street
Vancouver, BC V6B 4M9
Tel: 604-688-2424 (extension #304)
Email: ference@shaw.ca
Website: www.fwco.com*



Executive Summary

Purpose of Study

The purpose of the venture capital policy review research project is to provide data and analysis to assist the Government of British Columbia in understanding venture capital in BC in order to develop policy framework options to best achieve provincial economic priorities.

Methodology

To undertake the research project, we conducted 105 interviews with a wide variety of stakeholders that included representatives of venture capital firms (VCs), angel investors, angel networks, serial entrepreneurs, large and small BC technology companies, accelerators, commercialization centres, provincial government, federal government and other key stakeholders. In addition, we conducted an online survey of a sample of 80 BC start-up companies that participated in the BC government angel tax credit program. The study also included a detailed internet and document review of previous studies, books, newspaper and magazine articles and other documentation on the venture capital sector in BC and other jurisdictions.

Key Findings

The Importance of Venture Capital

Venture capital is critical to economic growth because venture capital fuels innovation and exerts a major impact on new ventures, particularly technology companies. Research in Canada and other jurisdictions has demonstrated that the average performance of VC-backed firms over time is notably superior to comparable non-VC backed firms and results in higher R&D expenditures, stronger revenue growth and greater job creation.



Government has a Role in Venture Capital

Government has a role to play in facilitating venture capital because innovation is critical to growth and new ventures can stimulate innovation.

1. Researchers have demonstrated that new and small firms contributed almost half the innovations they examined and that entrepreneurs and small firms play a key role in observing where new technology can meet customers' needs and rapidly introducing new products.
2. Government's primary role is to ensure that BC technology firms have sufficient venture capital to grow because the expansion of the BC technology industry is one of the most effective ways of achieving the Province's economic development objectives. The technology sector has grown at double the rate of the overall BC economy over the last five years and in 2012, the BC technology sector employed more people than the forestry, mining, oil and gas, and utilities industries combined. The technology sector also creates jobs that pay 66 percent higher wages than the industrial average.
3. Another rationale for government involvement is that research has demonstrated that significant benefits are achieved by the stimulation of venture capital markets through direct government

investment because the social rate of return from financing entrepreneurial high-tech start-up companies is greater than the private rate of return.

4. Recognizing the need to stimulate innovation and the growth of a local technology industry, governments in most developed countries play a crucial role in providing venture capital funding that complements private sector venture capital funding.

Government Has a Role

Every hub of cutting edge entrepreneurial activity had proactive government intervention

- Innovation by small firms is the primary source of economic growth
- Gov't involvement needed because the whole economy benefits from innovation
- Gov't funding complements rather than replaces private venture capital

Government can Benefit from Increasing Access to Venture Capital

1. The key economic outcome achieved from government involvement in the venture capital sector is the growth of the local technology industry which results in job creation and an increase in GDP. Stimulation of the venture capital sector in BC would create 58,000 jobs between 2012 and 2020 and the BC technology industry will grow from 7.6% to 16% of the provincial GDP.
2. Government venture capital programs in other jurisdictions have had considerable success in leveraging private sector capital as well as creating employment and growth in revenues of companies that have received venture capital investments. One documented success is Israel, which went from only one venture capital fund in 1992 to 60 venture capital firms with \$10 billion of venture capital funds under management in 2002.
3. Increased access to venture capital is critical to achieving the BC Technology & Innovation Strategy and the BC Jobs Plan.

BC Economic Priorities Supported by Venture Capital

BC Technology & Innovation Strategy

Expand access to venture capital so BC businesses have access to financing at all stages to grow

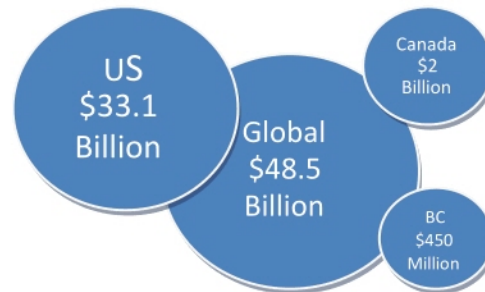
BC Jobs Plan Technology is a key sector. Goal to increase access to capital for business start-up & expansion so BC is globally competitive with a diverse economy

Current Environment

While BC's venture capital activity is a small proportion of international financing of innovation, it remains a critical driver to meet economic priorities.

1. **The largest source of venture capital in the world is the United States.** Venture capital investment in the US in 2013 was \$33 US billion which is more than two thirds of global venture capital investment.
2. Total venture capital investment in BC and Canada in 2013 was \$450 CDN million and \$1.95 CDN billion, which is less than 1% and 5% of global venture capital investment, respectively. In 2014, venture capital investment increased significantly in both BC and Canada to \$506 CDN million and \$2.37 CDN billion, respectively.

Venture Capital Investment in 2013



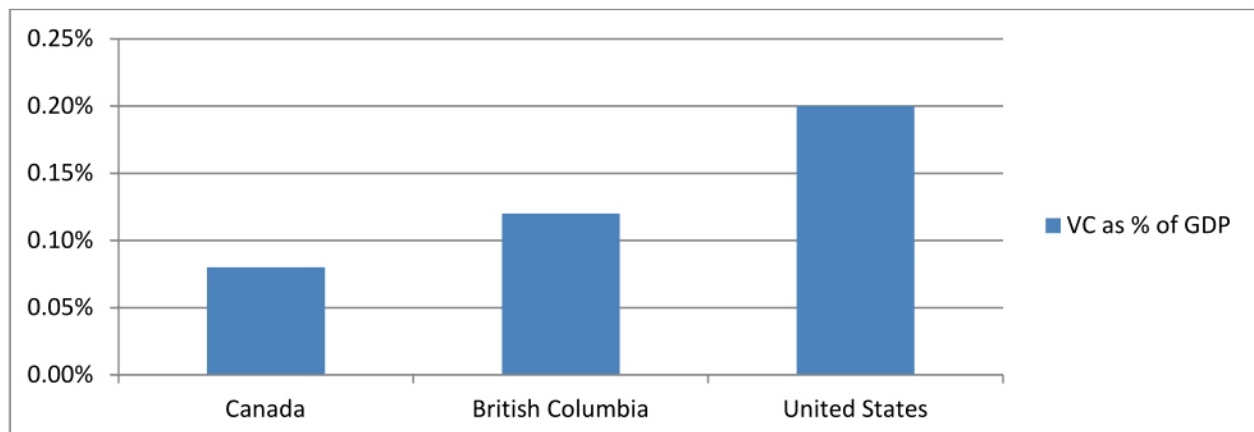
Note: US and Global VC numbers are in US dollars while Canada and BC numbers are in Canadian dollars.

- 2014 is the biggest year of venture capital investments in the United States since 2000. Venture capital investments in the US have increased by 45% from \$33 US billion in 2013 to \$48 US billion in 2014.



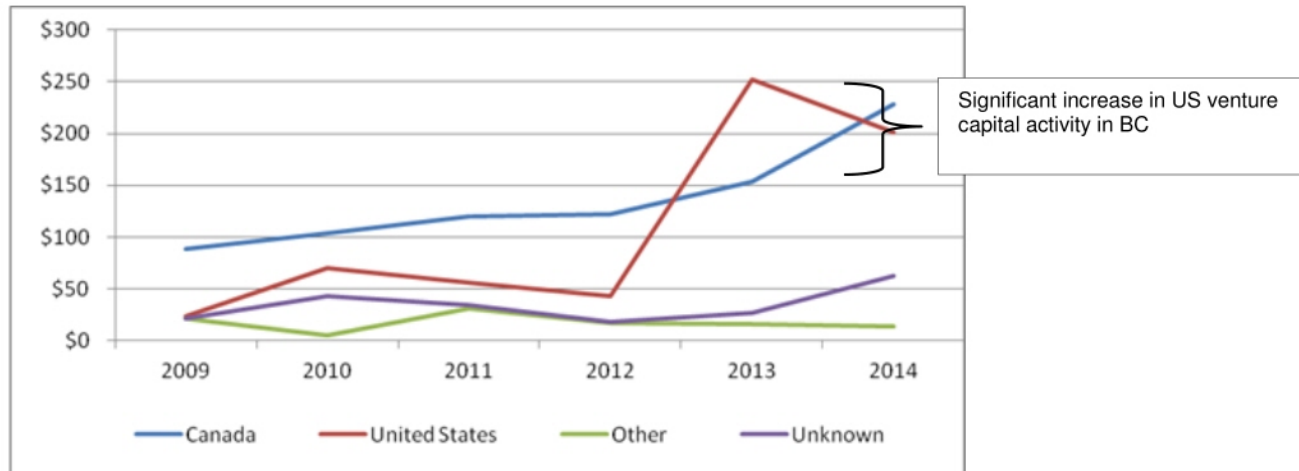
- Canada lags the US in effectively using venture capital to monetize innovation, and BC parallels this trend. Over the five year period from 2009 to 2013, venture capital investment in Canada as a percentage of GDP was less than half that in the United States and this gap has been increasing.

Venture Capital Investments as a Percentage of GDP from 2009 - 2013



5. **BC and Canada are increasingly reliant on the United States for venture capital.** Approximately 38% of venture capital investment in Canada in 2014 came from the US while 40% of venture capital investment in BC came from the US.

Venture Capital Investment in British Columbia Companies by Investor Nation (\$ millions)



Source: Thomson Reuters

The key drawbacks to reliance on US venture capital is that most US venture capital firms are not interested in providing early stage venture capital and some US venture capitalists require the relocation of Canadian companies to the United States so they can be more easily monitored if they are nearby.

6. **The Canadian venture capital industry is very young compared to the US and Europe venture capital industry.** Unlike the United States where institutional investors are the primary source of capital for venture capital firms, institutional limited partner (LP) capital from pension funds and other sources has fled the industry in Canada as a result of challenges on exits and poor returns. In Canada, there has been a 10-year internal rate of return (IRR) of -5% for the venture capital asset class.
7. **The Canadian and provincial government venture capital industries in Canada remain reliant on government support.** The primary government support mechanism for venture capital in Canada since the 1980s has been the labour sponsored venture capital corporation program. By 2005, labour sponsored funds in Canada accounted for roughly half of all venture capital under management, with more than \$10 billion (in 2004 dollars) under management. However, the returns achieved by labour sponsored funds have been poor as very few have earned a positive rate of return. Due to the poor performance of labour sponsored funds, investment in these funds has dropped dramatically across Canada except in Quebec. The viability of labour sponsored funds has decreased significantly recently due to the Canadian government decision not to match the provincial tax credit available to labour sponsored fund investors commencing in 2017.
8. **The vast majority of Canadian venture capital firms are small by US standards** (i.e. below \$150 million) with insufficient funds to make the follow-up investments that are needed to grow portfolio companies to enter world markets. Similarly, BC's venture capital market is characterized by small fund sizes and very few active fund managers.
9. **The federal government has launched a number of initiatives in the last two years to improve access to venture capital for Canadian businesses, support the return of institutional investors into Canada's venture capital system and ensure there are larger venture capital funds.** This Venture Capital Action Plan (VCAP) consists of the provision of \$400 million in financing to establish four large privately managed fund of funds as well as other initiatives.

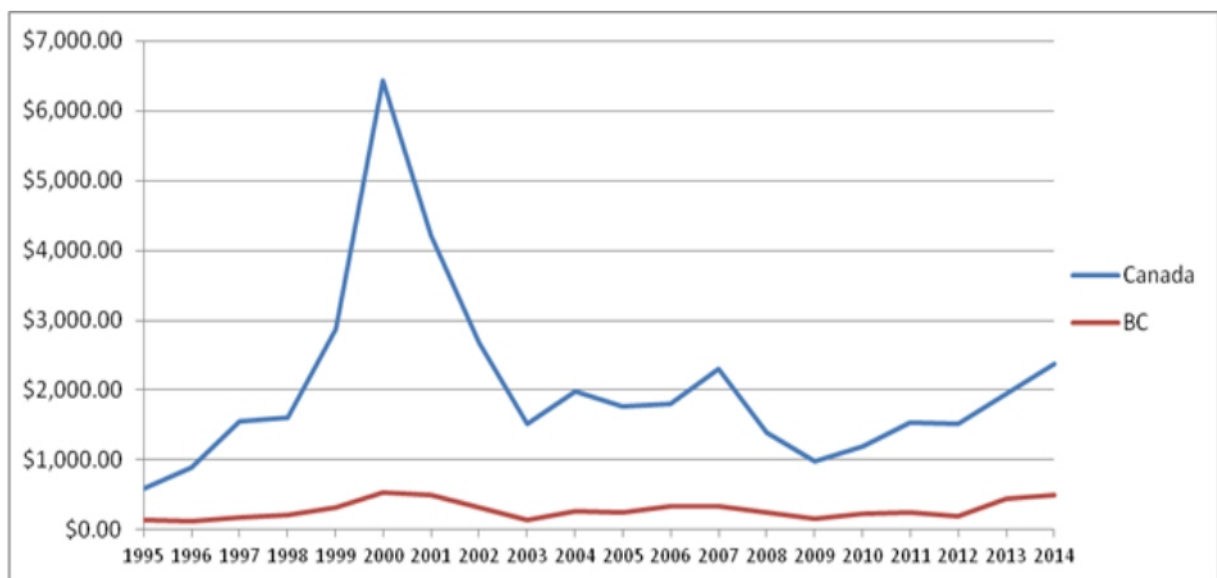
10. **Venture capital firms are becoming more specialized** (i.e. domain expertise) **and invest globally** rather than the previous model of local generalist firms. The trend also is for the venture capital firms to have staff with extensive sector expertise and to be run or guided by entrepreneurs with a successful track record in the sector. Specialist VC firms, focusing on investments in a limited number of industry sectors, generally perform better than generalist VCs with a broad sector focus.

BC Venture Capital Sector has Some Successes and Critical Gaps

There are some positive signs in British Columbia's venture capital sector:

1. **In 2013 and 2014, total venture capital investment in BC companies was strong.**
 - Venture capital investment in BC more than doubled from \$200 million in 2012 to \$450 million in 2013 and \$506 million in 2014.
 - BC moved up from 21st highest venture capital disbursements among provinces and states in North America in 2012 to 16th in 2014.
 - BC increased its share of Canadian venture capital from 13% in 2012 to 21% in 2014.

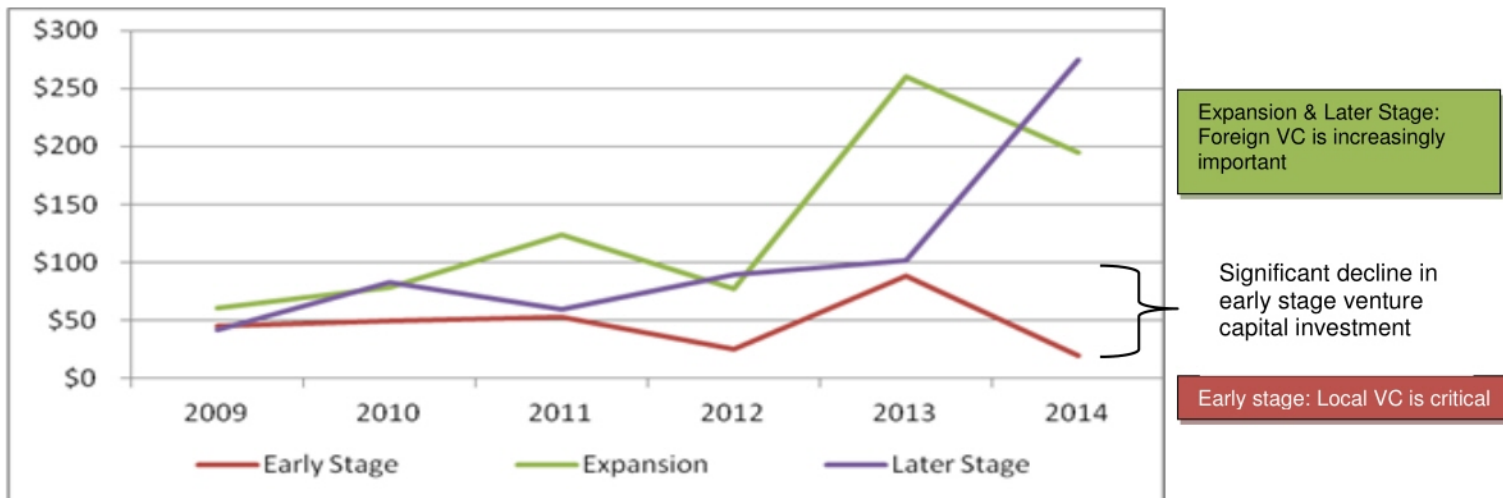
**Venture Capital Investment in Canada and British Columbia
1995 – 2014**



2. **Foreign investment in BC companies is increasing.** The significant increase in venture capital investment in BC in the last two years is due primarily to a significant increase in activity by US venture capital firms in BC (\$252 million in 2013 and \$201 million in 2014), representing almost one half of all venture capital investments in BC for the last two years. In 2013, this was driven largely by the largest VC deal in Canada ever: \$171 million raised by Hootsuite.
3. **Seed and angel investment is robust:** the amount of venture capital raised by the angel tax credit program of the BC Government has increased dramatically from about \$40 million in 2003 to \$92 million in 2013. The majority of available angel tax credits are consistently used from year to year.

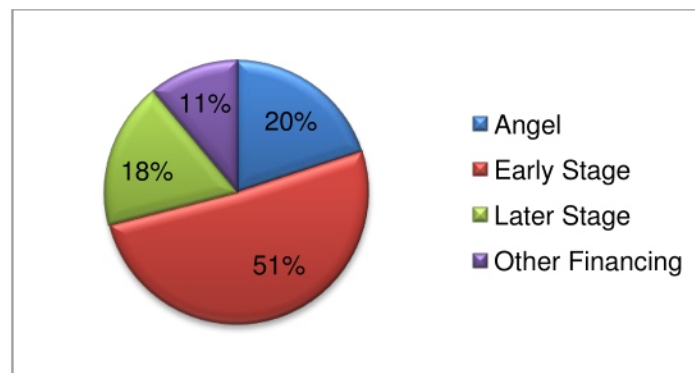
There is a clear consensus among stakeholders and informed observers that there is a **shortage of local, early-stage venture capital in BC** that is expected to be further exacerbated in 2015, approaching a state of crisis. The amount of early stage venture capital invested in BC firms has declined from \$88 million in 2013 to \$20 million in 2014.

Venture Capital Investment in British Columbia Companies by Deal Stage (\$ millions)



A survey of 80 BC companies that received angel funding indicated that they are experiencing difficulties in raising venture capital, particularly early stage venture capital. Raising additional capital was rated as the top priority of many of the 80 BC technology companies surveyed. The total amount of additional capital required by the companies surveyed is \$263 million and the average amount of financing required per company is approximately \$4 million.

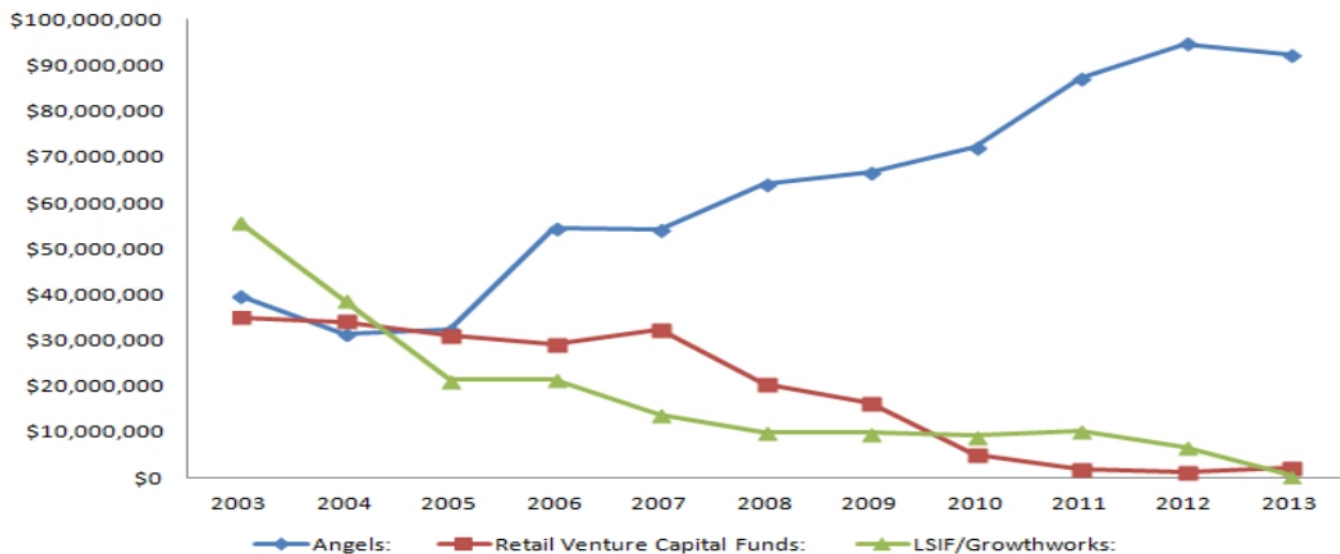
Type of Capital Most Difficult to Raise for the Companies Surveyed



The decline in availability of early stage venture capital in BC is due to a number of factors including a decrease in the number of local venture capital firms as well as less venture capital available for investment in early stage companies:

1. The number of venture capital firms in BC has declined considerably in recent years with the closure Ventures West, BC's largest and oldest private venture capital firm and the lack of activity of BC government backed labour sponsored funds (i.e. Growthworks) and retail venture capital funds that provide investors a 30% tax credit. The capital raised by the one labour sponsored fund remaining in BC has declined dramatically from \$56 million in 2003 to less than \$500,000 in 2013. Similarly, the capital raised by retail VCCs has declined from \$35 million in 2003 to about \$2 million in 2013. The poor returns of labour sponsored funds and retail venture funds have resulted in lack of demand by individual investors in BC to put invest any more money into these funds, which were previously a major source of early stage capital.

Venture Capital Raised by BC Venture Capital Program



- Many of the remaining seven venture capital firms in BC devote a larger proportion of their funding to mid and later stage investments rather than early stage investing to reduce their level of investment risk.
- Many BC venture capital firms invest only a small proportion of their total fund in BC companies because they also invest in many jurisdictions outside BC which is congruent with industry trends to specialize by sector domain rather than geography.

Geographic and Sector Focus of BC Venture Capital Firms

BC Venture Capital Firm	Geographic Focus	Sector Focus
Discovery Fund	BC	Early stage technology companies
Yaletown Venture Partners	Canada and US Northwest	Technologies for the intelligent enterprise and sustainable infrastructure
Vanedge Capital	Canada and US	Gaming & digital media, enterprise infrastructure & security, and small enterprise SaaS solutions
Renewal Funds	North America	Environmental and social mission businesses
Version One Ventures	North America	Consumer internet, SaaS and mobile
Chrysallix	Throughout the world	Clean energy
Pangaea Ventures Ltd	Global focus	Advanced materials

As indicated in the above table, none of the local venture capital firms specialize in the life sciences sector. Consequently, this important sector of the BC technology industry is experiencing a shortage of venture capital.

- The amount of venture capital available for new investment (capital that has been committed to a venture capital firm but not yet invested – also known as “dry powder”) by BC venture capital firms has decreased from an average of \$235 million per year (2010 to 2013) to an estimated \$43 million in 2015.
- The number of active, BC-based venture capital funds making new investments is expected to decline from 7 in 2010 to 2 in 2015.

6. Most foreign venture capital firms do not provide early stage financing to BC companies as they prefer instead to provide later stage venture capital once the companies have become more established.
7. Only two of the eight venture capital firms that received funds from the BC Renaissance Fund were based in BC while the remaining six venture capital firms are based elsewhere and are not obligated to invest in BC companies.

The growth of the angel sector in BC has been constrained by the cap on the angel tax credit program. The total value of angel investments has increased dramatically in recent years and angel tax credits have accounted for almost all of the tax credits available under the Venture Capital Program. Several requests for angel tax credits have been denied because the program budget for angel tax credits has already been spent early in the fiscal year.

It is Essential that Government and Industry Respond to the Critical Gaps

In formulating options to respond to the shortage of early stage venture capital funding in BC, consideration should be given to programs in other jurisdictions, best-practices in government venture capital policy and stakeholder recommended actions.

Jurisdictional Comparison of Venture Capital Programs

Governments in other jurisdictions are employing a variety of mechanisms to stimulate their local venture capital sector and there does not exist consensus regarding the most effective investment vehicles. However, the current trends with regard to the nature and type of government support to the venture capital sector in other jurisdictions are away from in-house government funds to indirect and arm's length interventions such as fund of funds with third party management and co-investment funds. An example of a co-investment fund is the Heznek Program where the government of Israel matches an investment in a start-up company, proportional to the investment of an investing entity, and gives an option to the investor to purchase the government shares in the start-up company at the initial price.

In addition to national programs, many provincial and state governments within North America also provide funding to incent venture capital firms to invest in their jurisdiction using a variety of investment vehicles of which the most prevalent are fund-of-funds, indirect investments via a third party manager and co-investment funds. The Ontario Emerging Technologies Fund (OETF) is an example of a co-investment fund which invests alongside qualified investors on the same terms and at the same time in Ontario innovative, high-growth companies. The OETF has engaged third parties to evaluate applications and monitor co-investments under the Fund.

Jurisdiction	Program	Investment Vehicle	Funding Level
Alberta	Alberta Enterprise Corporation (2008)	Fund-of-funds	\$100 million
British Columbia	BC Renaissance Capital Fund (2007)	Fund-of-funds	\$90 million
Quebec	Teralys Capital Innovation Fund - VCAP (2014)	Fund-of-funds	\$279 million
	Teralys Capital (2009)	Fund-of-funds	\$700 million
	Quebec Technology Seed Funds – Life-Sci (2010)	Indirect investment	\$50 million
Ontario	Northleaf Venture Catalyst Fund - VCAP (2014)	Fund-of-funds	\$400 million
	Ontario Venture Capital Fund (2008)	Fund-of-funds	\$250 million
	Ontario Emerging Technologies Fund (2009)	Co-Investment	\$250 million
Colorado	Colorado Fund 1 (2005)	Indirect investment	\$25 million
	Colorado Fund 2 (2010)	Indirect investment	\$25 million
Oregon	Oregon Investment Fund (2011)	Fund-of-funds	\$137 million
	Oregon Investment Fund (2011)	Co-Investment	\$10 million
Washington	Innovate Washington (2012)	Direct	\$24 million

Page 010

Withheld pursuant to/removed as

s.13;s.17

Page 011

Withheld pursuant to/removed as

s.13;s.17

Rationale for BC Government Involvement in the BC Venture Capital Sector

The primary rationale for BC Government involvement in the venture capital sector is to stimulate job creation and economic development which can only happen with economic growth. However, to achieve economic growth it is necessary to have innovation because many studies have demonstrated the strong connection between technological progress and economic prosperity. In order to enhance innovation, it is necessary that the innovation ecosystem includes many new and small ventures because it has been shown that new and small ventures are the main source of innovation in an economy because they are more innovative than large firms. For new ventures to thrive, it is necessary that there exist a vibrant venture capital sector because venture capital has a major positive impact on new ventures. Another reason for government involvement in the venture capital sector is that, in many instances, the social rate of return from financing entrepreneurial high-tech start-up companies is greater than the private rate of return. Consequently, a major strategic focus of policymakers around the world has been the high-tech sectors and the stimulation of venture capital markets through direct government investment programs and laws that are appropriately designed to facilitate entrepreneurship and entrepreneurial finance. Other jurisdictions have demonstrated that governments can encourage venture activity and play a catalytic role.

It must be recognized that building a successful innovation ecosystem is a long-term endeavour. A buoyant venture capital industry is one of the important ingredients of such an ecosystem; however, building a large pool of successful technology entrepreneurs, venture capitalists and company managers takes decades. Building a strong and sustainable venture capital industry requires a similarly long time. However, as witnessed in the United States, a successful venture capital sector has a huge impact on the economy in terms of productivity and innovation, economic growth and employment.

In order for BC to evolve from a resource-based economy to a knowledge-based economy, government must ensure that there exists a strong local venture capital sector. However, the BC venture capital industry is still maturing and is currently experiencing a significant decline. Consequently, the BC government has a role to play to stimulate the local venture capital sector until it is mature and self-sufficient.

The key economic outcome achieved from BC Government stimulation of the venture capital sector is the growth of the local technology industry which will result in job creation and economic development. Stimulation of the venture capital sector in BC would create 58,000 jobs between 2012 and 2020 and the BC technology industry will grow from 7.6% in 2012 to 16% of the provincial GDP in 2020 (BCTIA, 2014). Increased access to venture capital is also critical to achieving the BC Technology & Innovation Strategy and the BC Jobs Plan. The benefit of economic development rather than financial return should be the major outcome upon which the success of government support should be measured. Another reason for not focusing on financial return is that the social rate of return from financing entrepreneurial high-tech start-up companies is greater than the private rate of return.

If the BC government does not intervene, the BC venture capital sector will continue to decline and BC firms will have to rely on venture capital from the United States and the rest of Canada. This will inevitably result in many BC firms relocating from BC to their source of venture capital. In addition, less BC new ventures in the technology sector will be created or grow due to the lack of a local source of venture capital. The impact of declining venture capital capacity in BC will result in 7,000 fewer jobs with a result of a reduction in \$500 million in wages in 2020 alone and over \$2 billion for the cumulative period from 2015 to 2020 (BCTIA, 2014). Assuming an average BC tax rate of 10%, the taxation revenue impact alone would be \$200 million for the cumulative period from 2015 to 2020.

While it is important to support the BC venture capital sector, it is also important that BC companies have access to venture capital from the rest of Canada and other jurisdictions such as the United States. Because it will take some time for the BC venture capital sector to mature and meet the venture capital requirements of BC companies, it is critical that the BC government also assist BC companies in accessing venture capital from other jurisdictions.

Page 013

Withheld pursuant to/removed as

s.13;s.17

Page 014

Withheld pursuant to/removed as

s.13;s.17

Page 015

Withheld pursuant to/removed as

s.13;s.17

Page 016

Withheld pursuant to/removed as

s.13;s.17

Page 017

Withheld pursuant to/removed as

s.13;s.17

Page 018

Withheld pursuant to/removed as

s.13;s.17

Page 019

Withheld pursuant to/removed as

s.13;s.17

TABLE OF CONTENTS

Report

1 Introduction

1 Context

1 Purpose of Report

2 Methodology

4 Report Outline

5 Innovation Ecosystem in British Columbia

5 Description of Innovation Ecosystem

6 Components of BC Innovation Ecosystem

10 Characteristics of Venture Capital Investing

10 Investment Structure

11 Risk Profile

12 Investment Selection Process

13 Fund Management

14 Deal Flow

14 Success Factors

16 Description of Venture Capital Industry

16 Global Venture Capital Industry

18 North America

19 Canada

25 Venture Capital industry Trends

27 Alternative Sources of Venture Capital

29 Venture Capital in British Columbia

29 History of Venture Capital in BC

40 BC Government Venture Capital Programs

43	Federal Government Programs
47	Impact of BC Government Venture Capital Programs
50	Strengths and Weaknesses of the Angel Sector in BC
52	Strengths and Weaknesses of the Venture Capital Sector in BC
54	Capital Requirements of the BC Technology Companies Surveyed
59	Opportunities to Enhance the Venture Capital Sector in BC
59	Opportunities to Enhance the Angel Sector in BC
60	Opportunities to Enhance the Venture Capital Sector in BC
63	Need to Attract Investment Capital and Expertise from Outside BC
66	Geographic Considerations
67	Role of the Private Sector in Development of Venture Capital Sector
68	Immigrant Investment as a Source of Venture Capital
68	Competitive Advantages of BC Venture Capital Sector
69	Status of Technology Sector in BC
70	Other Considerations
71	Government Venture Capital Programs in Other Jurisdictions
71	Rationale for Government Support
73	Guidelines for Government Support of the Venture Capital Sector
75	Types of Government Support for the Venture Capital Sector in Other Jurisdictions
79	Economic Outcomes from Government Support of the Venture Capital Sector
	Appendices
81	Bibliography
83	Description of BC and Federal Government Programs
88	Government Venture Capital Programs in Other Jurisdictions

I. Introduction

A. Context

The Government of British Columbia has recently been looking more closely at the underlying policy objectives for the venture capital system in BC. Up to this point, government initiatives have been primarily focused on sections of the system (i.e. tax credits to stimulate angel and early stage venture capital financing). Venture capital in Canada is still quite young so a systemic approach to realizing key economic outcomes is beginning to emerge as a policy priority for Canadian governments.

Recent federal events (termination of the national Immigrant Investor Program and launch of the national Venture Capital Action Plan) have an impact on BC's venture capital system and require a provincial position that is rooted in a strong evidence base and a greater sense of venture capital (VC) in BC which includes understanding the evolution of VC and government involvement, and the best practices employed by similarly-aligned government agencies.

B. Purpose of Report

The purpose of the venture capital policy review research project is to provide data and analysis to assist the Government of British Columbia in understanding venture capital in BC in order to develop policy framework options to best achieve provincial economic priorities. The specific objectives of the assignment are to address the following policy questions to ensure greater understanding of the venture capital system, trends, lessons learned, opportunities and risks in order to inform the future provincial policy framework and key actions:

1. What are the key parts of the venture capital system and who are the key players of the innovation ecosystem and commercialization of technology in BC?
2. What are the key characteristics of the business of venture capital, and venture capital investing?
3. What is the history of venture capital in British Columbia, and how has government intervention evolved?
4. What are the current economic and venture capital industry trends?
5. What are the geographic implications of venture capital from a BC government perspective?
6. What other considerations, such as business culture, should be considered in understanding the BC venture capital ecosystem?
7. Does there exist a funding gap/shortage in terms of access to capital by start-up companies in BC? If so, in what sections of the start-up to exit life cycle? What are the risks and implications if the funding gap(s) is not filled? What are the opportunities of filling the gap(s)?
8. What role should the BC government play in the venture capital sector in BC (e.g. active funding with a variety of programs & policies or more of a level playing field through regulation with little or no market interference, trade off between financial return versus economic benefit, smoothing of venture capital activity through economic cycles, etc.)? If BC didn't intervene, what are the competitive implications? What are the risks? What will happen?
9. What can the BC government expect as outcomes from its involvement in the venture capital sector want to get for its involvement in the venture capital sector in BC (e.g. commercialization of innovation, more large companies over 1000)? What is right level of involvement?

C. Methodology

The following paragraphs describe the methodologies that were employed to undertake the venture capital research project.

1. Detailed Internet and Document Review

We conducted a detailed review of the extensive compilation of previous studies, books, newspaper and magazine articles and other documentation on the venture capital sector in BC and other jurisdictions provided by the Ministry of International Trade. We also conducted a review of the other information describing the BC innovation ecosystem and the venture capital programs in other jurisdictions.

2. Stakeholder Interviews

We conducted a total of 105 interviews with wide variety of stakeholders to obtain input on relevant research questions. The different types of stakeholders that we interviewed included the following:

- BC angel investors participating in BC Government venture capital programs
- BC super-angels
- Other BC angel investors
- BC angel networks
- BC serial entrepreneurs
- BC angel funds
- BC Renaissance Capital Fund
- BC retail venture capital corporations
- BC labour sponsored venture capital firm
- BC Renaissance Capital Fund firms (general partners)
- Other BC venture capital firms
- Business Development Bank of Canada
- US venture capital firms active in BC
- BC incubators/accelerators
- BC commercialization centres
- BC technology companies that have raised funding through retail venture capital funds
- BC technology companies that have raised funding from outside BC
- Other BC technology companies
- Crowd funders
- Academics
- Venture capital experts
- BC government
- Federal government
- Other stakeholders including:
 - BC Technologies Industry Association
 - Premier's Technology Council
 - LifeSciences BC
 - Canadian Venture Capital Association
 - Vancouver Economic Development Commission
 - British Columbia Investment Management Corporation
 - AdvantageBC International Business Centre
 - National Angel Capital Organization
 - National Crowdfunding Association of Canada

As indicated in Table 1.1 on the following page, we conducted 30 interviews with representatives of venture capital firms including BC-based venture capital firms as well as venture capital firms active in BC but based in other parts of North America. We also conducted 15 interviews with angel investors and representatives of angel networks in BC. In addition, we conducted interviews with representatives of 19 serial entrepreneurs and BC technology companies. The types of technology companies ranged considerably and included small technology start-up companies that obtained capital from angels participating in the BC government angel tax

credit program, companies that obtained venture capital from BC retail venture capital firms and large successful technology companies in BC such as Hootsuite, BuildDirect and Vision Critical. To obtain a detailed understanding of the innovation ecosystem and other key players in the commercialization of technology of BC, we also conducted interviews with representatives of accelerators, incubators and commercialization centres located throughout British Columbia as well as representatives of the provincial government, federal government and other key stakeholders.

Table 1.1: Number and Type of Stakeholders Interviewed

Type of Stakeholder	Number of Interviews Conducted
Angel investors	12
Angel networks	3
Serial entrepreneurs	3
Accelerators/incubators/commercialization centers	13
BC technology companies	16
BC venture capital firms	15
Venture capital firms based outside of BC	9
Business Development Bank of Canada	4
BC Renaissance Fund	2
BC Government	7
Federal Government	6
Other stakeholders	15
Total	105

3. Survey of Start-up Companies in BC

We conducted a survey of a sample of BC start-up companies to obtain their input on the level of difficulty in raising capital for business growth. A sample of 141 companies was selected from the population of BC companies that participated in the BC government angel tax credits program. To undertake the survey, we developed a dedicated website containing an online survey questionnaire. We then sent an email to each company and requested their participation in the survey. The email contained a link to the online survey questionnaire. A letter from the Ministry of International Trade was sent out prior to the email to solicit the participation of businesses in the survey. To maximize the response rate, we also offered companies alternative methods to complete the survey including a telephone interview with a representative of Ference Weicker & Company or the option of completing the survey by return email, fax or mail. In addition, we conducted a minimum of two follow-up telephone calls and two follow-up emails to companies that had not yet completed the survey. A total of 93 completed responses were obtained which represents a response rate of 66%. This rate of response is sufficient to provide statistically significant results at a confidence level of 95% for a confidence interval of 6%.

Of the 93 companies surveyed, 13 were not involved in the technology sector and, as a result, their responses have not been included in this study. As indicated in Table 1.2, 26 or 32% of the companies surveyed are involved in the information computing technologies (ICT) sub-sector. The number of companies surveyed in the clean technologies, life sciences and new media sub-sectors are 23, 14 and 10, respectively.

Table 1.2: Sub-Sector of Companies Surveyed

Sub-Sector	Number of Companies	% of Total
Information computing technologies (ICT)	26	32%
Clean technologies	23	29%
Life sciences	14	18%
New media	10	13%
Other	7	8%
Total	80	100%

The largest proportion (40%) of companies surveyed had revenues of less than \$500,000 while 26% of the companies did not have any revenues. One quarter of the companies surveyed had revenues of at least \$1 million (Table 1.3).

Table 1.3: Revenues of Companies Surveyed

Sub-Sector	Number of Companies	% of Total
No revenues	21	26%
Less than \$500,000	32	40%
\$500,000 to less than \$1 million	3	4%
\$1 million to less than \$5 million	11	14%
\$5 million to less than \$10 million	6	7%
\$10 million or greater	3	4%
Don't know/no response	4	5%
Total	80	100%

D. Report Outline

The next chapter of the report provides a brief description of the innovation ecosystem in British Columbia while Chapter 3 summarizes the characteristics of venture capital Investing. Chapter 4 provides a profile of the global and Canadian venture capital industry while Chapter 5 describes the venture capital sector in BC. Chapter 6 indicates opportunities to enhance the venture capital sector while Chapter 7 summarizes the government venture capital programs in other jurisdictions.

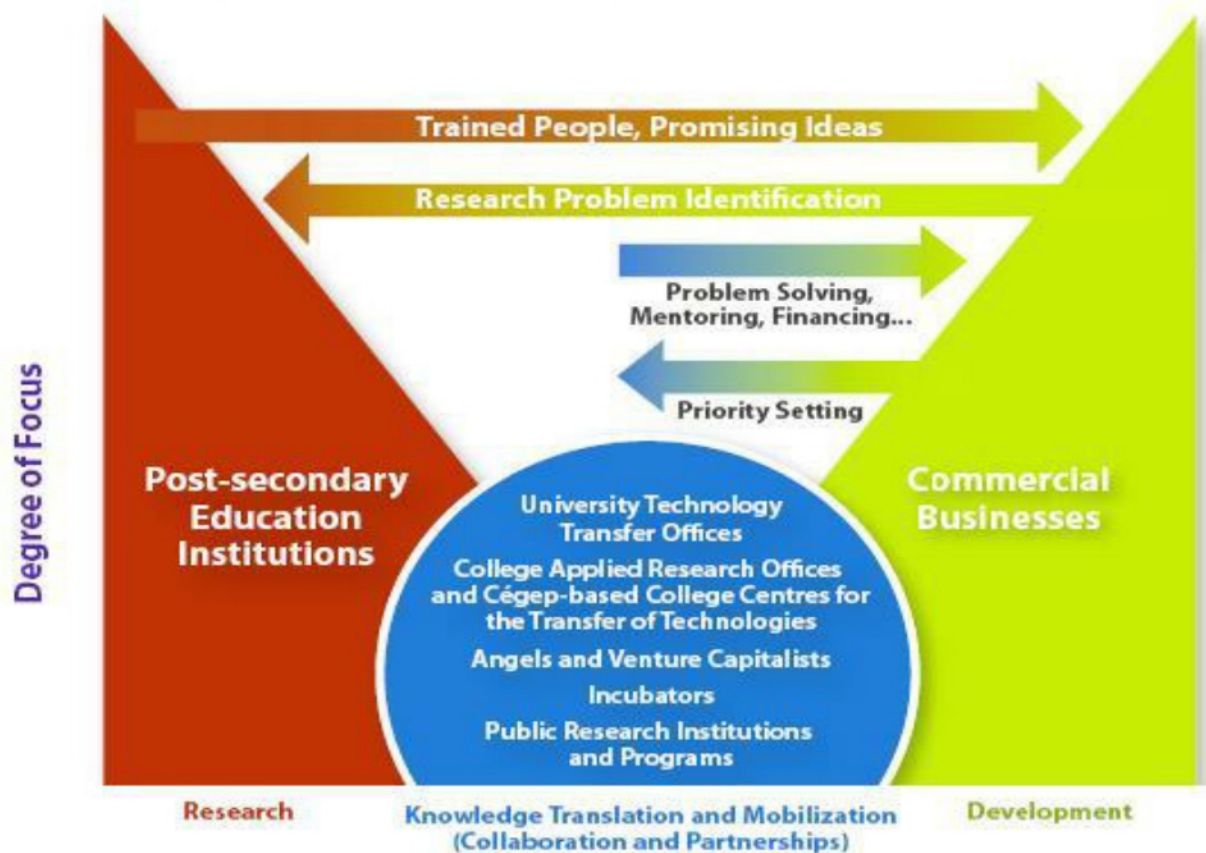
II. Innovation Ecosystem in British Columbia

The purpose of this chapter is to summarize the research findings regarding the key aspects of the venture capital system and who are the key players of the innovation ecosystem and commercialization of technology in BC.

A. Description of Innovation Ecosystem

The innovation ecosystem consists of all organizations involved in converting the research and technologies developed at post-secondary institutions into new products and processes adopted by existing and new commercial businesses (Figure 2.1). Collaboration among businesses, governments and the higher education sector can contribute importantly to the conception and successful introduction of new products and processes. Businesses develop strategic partnerships in order to connect to global knowledge flows, share research results and R&D risks, pool skilled staff, commercialize inventions and access new markets. As a result, social and physical infrastructure linking collaborators and supporting networks are important for business innovation. Effective collaboration between the business and higher education sectors depends on linking the "supply-push" of research and discoveries with the "demand-pull" of firms seeking to exploit the commercial potential of new ideas. This involves not only firms, universities, colleges and polytechnics, but also a spectrum of intermediary players that belong to an innovation "ecosystem" characterized by effective synergies, connections, and flows of knowledge and ideas (Independent Panel on Federal Support to Research and Development, 2011).

Figure 2.1: Components of Innovation Ecosystem: Converting Research into Innovation



Source: Independent Panel on Federal Support to Research and Development, 2011

The intermediary actors depicted in Figure 2.1 that are part of the innovation ecosystem include the following:

- Technology transfer offices, which provide support to help bring university-generated research and intellectual property to the commercial sphere;
- University applied research offices, through which they support firms with solutions for their specific commercialization needs;
- Public research institutes and programs, such as government labs, National Research Council institutes and others;
- Incubators and accelerators, which offer technical expertise, mentorship and other services to help accelerate the development of entrepreneurial firms; and
- Angels and venture capitalists, who provide the risk capital that innovative start-up firms require to build a bridge between their new ideas and commercial viability.

B. Components of BC Innovation Ecosystem

The following paragraphs provide a brief description of key components of the BC innovation ecosystem.

Universities, Research Centers and Technology Transfer Offices

One of the strongest components of the BC innovation ecosystem is the significant amount of research and development activity being conducted in universities and research centres throughout British Columbia:

- There are over 100 science and technology related research facilities located in BC, the majority of which are located on the campuses of the various universities in BC.
- Eight BC universities and university-colleges participate in 20 of the 21 Networks of Centres of Excellence (NCE) in Canada, taking the lead in two of the Centres.
- Leading federal government research institutions in BC include the Institute for Fuel Cell Innovation, Herzberg Institute of Astrophysics, Pacific Forestry Centre, Pacific Biological Research Station, Summerland Research Station, and Aggasiz Research Station.

The technology transfer organizations and facilitators in BC include the following:

- UILOs have been established at UBC, SFU, UVic, and University of Northern BC.
- Industrial technology advisors funded by the National Research Council (NRC) support business through every aspect of the innovation process by matching clients with expertise, information and resources. NRC also operates the Canadian Technology Network, which provides access to a wide range of technology and related business assistance through connections to government labs and agencies, universities, colleges, industry associations, regional technology councils, and technology transfer centres.
- The BC Regional Science and Technology Network (BCRSTN) consists of nine innovation councils and technology transfer centres throughout rural BC. The BCRSTN members foster business and community growth through the application of science, technology and innovation.
- Provincial Government funded agencies such as the Investment Agriculture Foundation and Forest Innovation Investment play a role in facilitating technology transfer and encouraging applied research.
- Industry associations and groups also help facilitate the technology transfer process.

Canada's record of university-based research activity is particularly strong and ranks highly among OECD countries. Canada ranked #15 in the world with respect to university-industry collaborations on R&D (World Economic Forum, 2014).

Accelerators, Incubators and Commercialization Centres

The terms accelerators and incubators are often used interchangeably. However, accelerators have recently emerged as an innovation model distinct from incubation. While the first accelerator materialized less than a decade ago, incubators have a much longer history and have been a key tool for regional economic development for several decades now. Statistics Canada defines a business incubator as "...a business unit

that specializes in providing space, services, advice and support designed to assist new and growing businesses to become established and profitable.” This definition is broad enough to encompass accelerators as well, and both share the goal of assisting new and growing businesses. The difference between accelerators and incubators lies in the “how”. Accelerators can be characterized by:

- An open, highly competitive application process;
- Pre-seed investment, usually in exchange for equity;
- A focus on small teams, not individual founders;
- Time-limited support comprising programmed events and intensive mentoring; and
- Start-ups supported in cohorts rather than individual companies.

Some accelerators may also offer:

- A “Demo Day,” where participating ventures present to audiences of qualified investors and other guests;
- Working space for the founding team, with office services such as Internet access; and
- Access to free or discounted technology and professional services such as legal advice.

The BC Innovation Council (BCIC), which is the responsibility of the BC Ministry of Technology, partners with other organizations to create and deliver programs and support key industry initiatives that meet its mission of accelerating the commercialization of BC technologies. One program delivered by BCIC is the Venture Acceleration Program which is a paid structured venture growth program designed to guide, coach and grow ambitious early-stage technology entrepreneurs and effectively grow their technology ventures. The Venture Acceleration Program helps entrepreneurs accelerate the process of defining a proven business model based on a set methodology and set of best practices for growing technology companies. The goal of the program is to drive economic development and job creation in the province of BC by accelerating the commercialization of technology, resulting in the rapid growth of technology ventures. The Venture Acceleration Program is delivered by a team of Executives in Residence (EiRs) and supported by a province-wide network of partners and entrepreneurs. Together, they make up the BC Acceleration Network, an alliance of regional partners, EiRs and executive-level mentors. A list of the partners across the province who form the BC Acceleration Network is provided below:

- Accelerate Tectoria, Victoria
- Innovation Island, Nanaimo
- Wavefront, Vancouver
- Foresight Cleantech Accelerator Centre, Burnaby
- VentureLabs, Vancouver
- Sumas Regional Council for High Tech, Mission
- Accelerate Okanagan Technology Association, Kelowna
- Kootenay Association for Science & Technology, Rossland
- Kootenay Rockies Innovation Council, Golden
- Kamloops Innovation, Kamloops
- Innovation Central Society, Prince George

Other programs/accelerators which BCIC supports or partners with include Entrepreneurship@UBC Accelerator Program, e@UBC Seed Fund, Technology entrepreneurship@SFU, AceTech and Launch Academy.

Some examples of other accelerators/incubators in BC are:

- Highline (merger of GrowLab in Vancouver and Extreme Startups in Toronto)
- Invoke Labs
- Spring Activator
- Bootup Labs
- Alacrity

The Accel-Rx Health Sciences Accelerator is a national organization focused on maximizing new health sciences company creation, and ensuring start-ups have the resources they need to enable them to stay and

grow in Canada and give rise to a new generation of strong health sciences anchor companies. CDRD Ventures Inc. (CVI), the commercialization vehicle of the Centre for Drug Research and Development, is providing the management to launch Accel-Rx's operations. BDC Venture Capital will further advance Accel-Rx's mission by acting as the main funding mechanism for companies created at and/or supported by Accel-Rx, with the intent to invest in up to three to four companies annually.

Foreign Affairs and International Trade Canada has recently invested in a series of "accelerator-like" programs (Canadian Technology Accelerators) based in major US centres (Boston, San Francisco, New York, Philadelphia, Sunnyvale) for Canadian start-ups. Another form of accelerator-like assistance available to BC Canadian start-up companies is C100 which is a flagship mentorship program run by a Silicon Valley-based organization dedicated to supporting Canadian technology entrepreneurship and investment.

In addition to accelerators and incubators, there are a number of commercialization centres in BC including Genome BC and the Centre for Digital Media.

Angels and Angel Networks

Angel investors in BC include a large variety of angel types, some investing only in personal acquaintances, others investing in strangers; some investing small amounts, others investing large fortunes; some spending little time, others investing near full time; and some investing on their own, others investing as part of angel groups. Angels range from small angels (sometimes called checkbook angels), who invest \$10,000 or less, to so-called super-angels who invest millions of dollars.

Several angel networks operate in the Vancouver area, and some efforts to introduce networks in the rest of the province have also been undertaken. Some of the most prominent angel networks/forums operating in BC include the following:

- Vancouver Technology Angel Network
- Angel Forum Vancouver
- Keiretsu Forum

Each angel network has a distinct approach: but all aim to bring angels together to share knowledge. In addition to organizing regular events where pre-selected start-up teams present their pitches, the leaders of these networks frequently cooperate in organizing workshops for angels, covering topics such as how to structure deals and how to plan exits. There are also contacts between the Vancouver-based angel networks and some of the US-based angel networks (e.g. Bellingham Angel group).

One offspring of the organized angel networks has been the creation of so-called angel funds such as the WUTIF Capital Fund which allows smaller angels to passively invest alongside larger, more active lead angels. Angel funds introduce portfolio concepts commonly associated with venture capital funds into angel investing. Instead of concentrating their investments in a handful of companies, angel investors diversify their investment portfolios by investing in an angel fund that makes multiple investments on their behalf. Unlike venture capital funds, however, these funds have no or low management fees or carried interest. They also have low overhead costs and their promoters often provide a large part of the capital. While angel investors typically provided seed investments that help entrepreneurs to start up, only rarely do they finance start-ups all the way to exit. Their companies, therefore, have to seek venture capital funding at some later stages.

Venture Capital Firms

There are several different types of venture capital firms that in BC and include locally based venture capital firms as well as firms based in other parts of Canada and the United States that invest in BC companies:

Retail VCCs that participated in the BC Government Venture Capital Program

- British Columbia Discovery Funds (VCC) Ltd. – manages the BC Discovery Fund
- BC Advantage Funds (VCC) Ltd. – manages two funds Advantage Growth Fund and Advantage Venture Funds
- Pender Growth Fund (VCC) Inc – manages the Pender Growth Fund

BC Labour Sponsored Venture Capital Firm

- GrowthWorks - manages the Working Opportunity Fund

Other BC Venture Capital Firms

- Vanedge Capital - focuses on gaming & digital media, enterprise infrastructure & security, and small enterprise SaaS solutions investments throughout the world with a focus on the US and Canada
- Yaletown Venture Partners - invests in emerging-growth companies in Canada and US Northwest that develop technologies for the intelligent enterprise and sustainable infrastructure
- Version One Ventures - specializes in early-stage fund investing in outstanding consumer internet, SaaS and mobile entrepreneurs throughout North-America
- Chrysallix - focuses on clean energy investments throughout the world
- Pangaea Ventures Ltd – specializes in advanced materials venture capital and has a global focus
- Renewal Funds – invests in North America's leading environmental and social mission businesses
- Ventures West – recently ceased operations but was one of Canada's oldest, largest and most established venture capital firms with total committed capital of over \$700 million

Business Development Bank of Canada

Non-BC based BC Renaissance Fund Venture Capital Firms

- ARCH Venture Partners
- Azure Capital
- iNovia Capital
- Kearny Venture Partners
- Tandem Expansion
- VantagePoint Capital Partners

US Venture Capital Funds Active in BC

- Blumberg Capital
- Versant Ventures

Institutional Investors

Institutional investors provide the funds for venture capital firms to invest in technology companies. There are many different types of institutional investors including pension funds, federal and provincial governments, banks and other types of financial organizations. Two of the largest institutional investors in BC are the BC Renaissance Fund and the British Columbia Investment Management Corporation. However, there are not very many other institutional investors in BC which means that BC venture capital firms must seek funding from other sources including institutional investors in the rest of Canada and other countries.

Corporate Strategic Investors and Corporate Venture Capital Arms

Corporate strategic investors invest in innovative companies that offer unique technologies and products that will accelerate their growth and facilitate the accomplishment of their strategic objectives. An example of a corporate strategic investor is TELUS Ventures which is the strategic venture investment arm of TELUS, a leading North American telecommunications firm. Telus Ventures partners with high potential, privately-held companies that offer unique technologies and innovative products that will accelerate growth initiatives within TELUS. Their team drives success for portfolio companies by actively facilitating relationships within TELUS and its network of partners.

Exit Markets

The most frequently used exit market of BC technology companies is to be acquired via a merger or acquisition. Another exit market is to go public with an initial public offering on the TSX Venture Exchange, Toronto Stock Exchange or NASDAQ.

III. Characteristics of Venture Capital Investing

This chapter summarizes the key characteristics of the business of venture capital.

A. Investment Structure

Venture capital is independently managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high-growth companies. Venture capital is thus defined by three elements:

- Its focus: privately held growth companies.
- Its investment vehicle: equity (common or preferred shares) or equity linked investments such as convertible debt or warrants, as opposed to debt.
- Its management teams: independently managed dedicated specialist teams as opposed to more generalist teams within large financial institutions.

The dominant model of fundraising in the venture capital industry is that of independent teams which raise funds from institutional investors, mainly pension funds, university endowments and financial institutions (CVCA, 2009). These funds are structured as Limited Partnerships. This is why investors are called Limited Partners (LPs) and the team which manages the fund acts as the General Partner (GP). GPs are usually asked to invest a significant portion of their own net wealth in the fund. Along with the carried interest, this is an important way to ensure a good alignment of interest between LPs and GPs.

There are several reasons why the limited partnership became the dominant venture capital structure in the US and, increasingly, in the rest of the world: (i) many of the LPs are tax exempt institutions, such as pension funds and the limited partnership structure allows gains to be passed from the fund to the investors without taxation; (ii) it is well suited to investors such as endowments or pension funds with long-term investment horizons; (iii) it can be restricted to a limited number of experienced investors and therefore has not required registration with securities authorities; (iv) the distribution system allows for the distribution of a carried interest to the managers which is a powerful tool to align interests between investors and fund managers to ensure they work towards the same objectives; and (v) it has a limited lifespan which implies that the fund managers have to raise a new fund every three to five years based on their track record. This is the basis for a very efficient mechanism for selecting managers: successful managers are able to raise new funds, unsuccessful managers exit the market.

The term of the partnership is usually 10 years with an extension option of 2 years. The investment period, during which new investments are made, is usually 3 to 5 years. The team is authorized to raise a new fund once the investment period is closed. The role of LPs is limited to choosing the funds in which they invest and providing capital. They do not intervene in the management of the fund. The main management parameters of the fund (management fees, carried interest, investment strategy and restrictions) are defined in the limited partnership agreement. Unless there is a clear breach of this agreement, LPs generally cannot remove the GP. However, they can choose not to invest in the next fund raised by the GP. This is why it is important for GPs to keep a close relationship with their LPs and to deliver results.

Once the fund is raised, the GP invests it in a portfolio of companies. The key success factors at this phase are:

- The quality of the deal flow to which the team has access. GPs not only react to business plans they receive, they actively look for investment opportunities from various sources: universities and research centers, large companies' spin offs, serial entrepreneurs, etc. Sometimes they will create companies themselves to meet a perceived market or technology opportunity.
- The thoroughness of the due diligence process, which looks at the management team, the business model, the market potential, the technology, the intellectual property, the ability of the firm to add value to the investment, the required capital to build a successful exit and the potential return. Given the level of risk incurred, the investment opportunity has to have the potential to be a real breakthrough and a big winner.

- The ability to structure a deal which aligns interests among the syndicate of investors and between investors and the management team of the portfolio company.
- The ability to work closely with the management of companies in which they invest.

Venture capital funds only make a small number of investments every year and are very selective in their investments. For every 100 business plans received, 10 are looked at in detail and 1 or 2 actually get funded. However, the fact that an opportunity does not meet one fund's investment criteria at a certain time does not mean that it will not fit another fund's strategy. Venture capital funds usually invest in syndicates along with other investors, which allows them to diversify their risk and, by choosing the other members of the syndicate, to access more expertise and networks. They also invest in rounds, or stages, which means that when they invest in a new company, they reserve capital for follow-on financing.

Not all investments in the portfolio will succeed. Successful GPs are those who set appropriate milestones to be reached by the company, walk away quickly from non-performing investments and concentrate their capital and time in winners in order to build large exits. Portfolio returns are usually determined by these winners. To build these exits, venture capitalists work closely with the management of portfolio companies; they are active on the board of directors and through key relationships, help recruit other value-added board members. When the company is still in its early stage, they work with management on the business model, provide hands-on operational support and may intervene to complete or change the management team in order to meet the new challenges that arise as the company grows. They draw on their network to actively connect portfolio companies to strategic customers.

Leveraging their network within the venture capital community, they help build subsequent rounds of financing with other value added investors. Finally, they help build the investment exit, working with investment bankers to prepare for an IPO or positioning the company for sale to a strategic buyer. To achieve all this, they rely on very experienced partners with broad and deep industry and operational knowledge and far reaching strategic networks.

Once an investment has been sold or when it has become public and its stock has become freely marketable after a period of escrow, proceeds are distributed. LPs receive their capital and profits are usually divided 80% to the LPs and 20% to the GP. This part of the gains received by the GP is called "carried interest". It is meant to align interests between GPs and LPs and is usually set at 20% although very successful managers may be able to raise funds with higher carried interest. Many funds include a "hurdle rate", which is a minimum threshold rate of return, below which 100% of the profits go to the LPs. This model is designed to align interests of fund managers and fund investors, and compensate managers only for realized investment performance. Other models exist but the one described accounts for most venture capital organizations worldwide.

B. Risk Profile

Venture capital is a type of investment instruments that is not freely tradable. Its illiquidity combined with the nature of the investments make the investments considered risky. Venture capital has a high risk because funds are usually invested in companies which are in pre-commercial stages. High rates of failure and high gains on success make venture capital investing extremely high risk.

The risk profile of venture capital is as follows (CVCA, 2009):

- First, a high level of uncertainty: beyond the usual uncertainty factors which surround the building of any company, there are specific uncertainties linked to R&D activities and the development of new technologies, or to the fact that many of these companies address emerging markets (new needs and new products) which are difficult to overcome or even quantify and in which the competition evolves very quickly due to the continuous emergence of new technology solutions, new business models and new companies.
- Second, a high level of information asymmetry between the entrepreneur and the investor: for technology start-ups, the usual financial statements are not adequate tools for the investor to

monitor the risk and the progress of the company. In companies where there are virtually no revenues or profits, the investor needs a much closer understanding of what is going on inside the company to judge whether it is on track or not, or whether it needs some kind of re-orientation.

- Third, these companies have very limited tangible assets; most of their assets are intangible (R&D results, intellectual property and people) which makes it virtually impossible to secure conventional debt financing.
- Fourth, it usually takes a long time, up to 7 years or more, before these companies can launch an Initial Public Offering (IPO) or are acquired; a limited number of these investments will be great financial successes; others can become complete losses. Therefore venture capital investment is, by its very nature, highly illiquid and risky.

To deal with these unique characteristics, specialized teams and investment tools have been developed by venture capital:

- To reduce uncertainty: specialized teams with deep industry expertise and networks are brought in to quickly access specialized information on technologies, markets, competition, and potential buyers and to source seasoned management resources. These skills and networks allow venture capital managers to (i) make better-informed investments and (ii) work more closely with the management to help build the company and prepare an exit.
- To face information asymmetry, venture capitalists rely on:
 - An in-depth due diligence process before investing;
 - A very close monitoring process after investing including active participation on board meetings, direct relationship with the management on key performance metrics commonly referred to as 'dashboards' and 'milestones';
 - A good alignment of interests between the entrepreneur and investors through customized compensation systems, including stock ownership and options, and contractual clauses such as liquidation preferences;
 - Syndication with other experienced venture capitalists to maximize expertise and access to relevant information.
- To deal with intangible assets: equity and equity linked financing.
- To face illiquidity and risk: the dominant venture capital investment vehicle, particularly in the U.S. and Europe, is structured as a limited partnership with negotiated terms that are designed to appeal to long term investors with diversified portfolios i.e. institutional investors such as endowments, public and private pension funds, and insurance companies. This provides the venture capital fund with a long term stable source of capital.

All of these activities require specific skills, industry knowledge, and networks and are highly time consuming. For this reason, venture capital managers only make a small number of investments (1 to 2 investments per senior manager each year) and manage a limited number of investments at a time. This active involvement implies relatively higher management fees compared to other types of investments, which have to be compensated by higher returns.

C. Investment Selection Process

To address uncertainty and lack of information, venture capital investors employ a variety of investment selection mechanisms. The first of these devices is the screening process that venture capitalists use to select investment opportunities. This process is typically far more efficient than that used by other funders of innovation, such as corporate research and development laboratories and government grant-makers. The typical process used by venture capitalists to assess the large number of business plans they receive each year is as follows (Lerner, 2012):

- Conversations with other venture capitalists that already looked at the company
- Checked personal references of controller, vice-president and president
- Met with company's founders and controller
- Conversation with loan officer at major insurance company which considered company's request for financing
- Conversation with company's accountant
- Conversation with local banker who slightly knew the company
- Conversation with banker who handles company's account
- Telephone conversation with director of company
- Talked to about 30 users
- Talked to two suppliers
- Talked to two competitors

Some of the most common investment criteria used by venture capital firms to decide which company to invest in are as follows:

- Market attractiveness (size, growth and access to customers);
- Product differentiation (uniqueness, patents, technical edge and profit margin);
- Managerial capabilities (skills in marketing, management, finance and the references of the entrepreneur);
- Environmental threat resistance (technology life cycle, barriers to competitive entry, insensitivity to business cycles and downside risk protection); and
- Cash-out potential (future opportunities to realize capital gains by merger, acquisition or public offering).

Another way in which venture capitalists screen transactions is through financial analysis. They carefully analyze the prospective returns from investments, conditional on the firm's success. They invest only if the expected return is suitably large. This requirement of a large return if the firm is successful stems from the high failure rates associated with venture capital investments.

In addition to the careful interviews and financial analysis, venture capitalists usually make investments with other investors. One venture firm will originate the deal and look to bring in other venture capital firms. Involving other firms provides a second opinion on the opportunity. There is usually no clear-cut evidence that an investment will yield attractive returns. Having other investors approve the deal limits the likelihood of funding bad deals. This is particularly true when the company is early-stage or technology-based.

D. Fund Management

Venture capitalists commonly serve as directors and become actively involved in mentoring their portfolio companies. Venture capitalists add numerous restrictive covenants and provisions to their preferred stock in the company. As a result, they may be able to block future financings if they are dissatisfied with the valuation, to replace the entrepreneur, and to have a set number of representatives on (or even control of) the board of directors. In this way, if something unexpected happens, the venture capital investor can assert control. The advice that venture capital firms provide to the entrepreneurs and the post-investment monitoring and control they exert support top-quality innovation. Venture capitalists also tend to spot more potential future applications of technology than larger, mature companies do, perhaps because older companies focus on narrower markets (Lerner, 2012).

The staging of investments also improves the efficiency of venture capital funding. Once they make a decision to invest, venture capitalists frequently disburse funds in stages. The refinancing of these firms, termed "rounds" of financing, is conditional on achieving certain technical or market milestones. Proceeding in this fashion allows the venture capitalists to gather more information before providing additional funding, thus helping investors separate investments that are likely to be successful from those that are likely to fail. Managers of venture-backed firms have to return repeatedly to their financiers for additional capital, which ensures that money is not squandered on unprofitable projects.

Venture capitalists provide intensive oversight of the firms they invest in. Venture capitalists spent about half their time monitoring an average of nine portfolio investments and serving on the boards for five of those nine companies (Lerner, 2012). They visit their companies relatively frequently, and spent an average of 80 hours a year on site with the company on whose board they served. Frequent telephone conversations amount to another 30 hours per year for each company. In addition, they work on the company's behalf by attracting new investors, evaluating strategy against new conditions, and interviewing and recruiting new management candidates.

With support from venture capitalists, start-ups can invest in the research, market development, marketing and strategizing they require to attain the scale necessary to go public. As a result, venture-backed firms tend to be considerably younger at the time they go public, or first start trading in the market, than other companies. A recent study indicated that the average number of months from founding date to IPOs was 105 for venture backed firms versus 203 months for non-venture backed firms (Lerner, 2012). This evidence suggests that the early participation of venture firms – including their guidance, monitoring, shaping of management teams and boards, networking, and credibility – helps innovators sustain their success long after their company issues an IPO. By contrast, companies that go public without having had professional investors beforehand often encounter disappointment: they do not have the infrastructure in place, for example, financial reporting, investor communications, and strategic planning, to operate successfully as a public firm.

The quality of venture capitalists making the investment decisions has a tremendous impact on the overall performance and health of the industry because skilled venture capitalists can help in the following four ways (BDC, 2011):

- Select appropriate investment opportunities and invest the appropriate amount of capital;
- Mentor entrepreneurs and help them make better strategic management decisions;
- Create opportunities for portfolio companies through their sector-focused networks, both in business development and partnership/acquisition opportunities; and
- Build companies to maximize exit values by attracting more skilled entrepreneurs to the business and more capital to the asset class.

E. Deal Flow

Deal flow (the generation of a continuous stream of high quality investment opportunities) is a critical concern for venture capital investors. It is crucial to obtain access to viable projects which can be funded at entry prices which will generate target rates of return. Holding periods are shorter and the corresponding success rates are higher following improvements in the availability of investment opportunities (Soderblom, 2006). Analogously, investments are held longer, and are less successful, when competition for deal flow is tougher. The difficulties faced by venture capital firms, due to increase competition between venture capital firms, serve to highlight the importance of a deal generation strategy. An international venture capital investment focus may be a part of a strategy to secure higher returns by investing in opportunities in markets where there is lower competition and hence the ability to invest on more favourable deal terms.

F. Success Factors

Specialized VC firms, focusing on investments in a limited number of industry sectors, generally perform better than generalist VCs with a broad sector focus (Soderblom, 2006). At least until recently, VC investments in the 'new economy' sectors have yielded the highest returns. Specialization in early stage phases, however, has had a negative effect on returns. Neither should the geographical focus for investments be too narrow. VC funds with limited partnership structures have shown to be more successful than those with other structures. In addition, sophisticated structuring of VC investments and "US-inspired" legal contracts with portfolio companies has a strong impact on the fund performance. Taking the role as lead investor and thereby controlling a significant part of the portfolio companies' share capital also have a positive impact on fund returns.

Larger fund sizes correlate with higher returns – although they should not be too large or grow too fast. A high availability of investment opportunities has a crucial impact on performance as well as screening capabilities. Syndication of deals is another factor that seems to have a clear impact on fund performance. However, the

most important performance factor is the quality and skills of the VC firm's management, which are highly correlated with fund performance whereby older VC firms, with former fund success and developed brand recognition, achieve better fund returns. Keeping investments longer in the portfolio has turned out to be negative for fund performance. Another important factor is the capability to abandon early the non-performing investments.

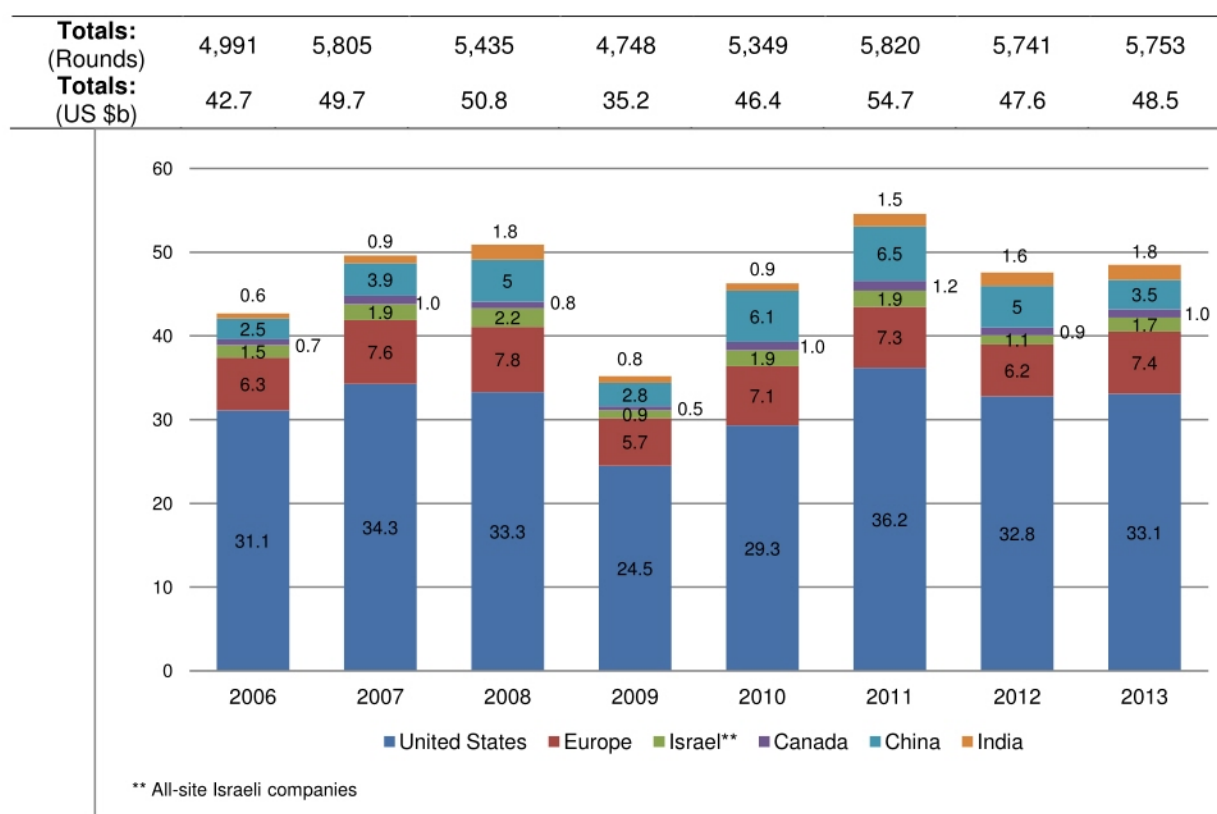
IV. Description of Venture Capital Industry

This chapter summarizes global, North American and Canadian venture capital activities and trends.

A. Global Venture Capital Industry

Global annual venture capital investment has rebounded in recent years from a significant decline in 2009 due to the world-wide recession. As indicated in Figure 4.1, global annual venture capital investment in 2013 was \$48.5 US billion which represents an increase of 2% from \$47.6 US billion in 2012 (Ernst & Young, 2014). Venture capital investment in the United States was \$33.1 US billion and accounted for more than two thirds (68%) of global venture capital investment in 2013. The next largest venture capital investments occurred in Europe and China with investments of \$7.4 US billion and \$3.5 US billion which amount to 15% and 7% of global venture capital investment, respectively. (Please note that there is a discrepancy between the \$1.0 US billion in Canadian venture capital investment shown in Figure 2.1 and the \$1.95 CDN billion in Canadian venture capital investment reported by Thomson Reuters for 2013).

Figure 4.1: Global Venture Capital Investment from 2006 to 2013



Source: Ernst & Young *Global Venture Capital Insights and Trends 2014*

Some key trends in the global venture capital industry are (Ernst & Young 2013):

- While 68% of the total global dollars invested were in the US, 26% of the total global dollars were invested in the Bay Area. The Bay Area and New England have been the top two hotbeds for the past five years. In 2013, however, NY Metro, supported by consumer services sector deals, surpassed Southern California to rank third among global VC hotbeds and is close to overtaking New England in dollars raised.
- In 2013, European VC investment rebounded to above 2011 levels with \$7.4 US billion invested, largely driven by a positive economic scenario in the two largest European VC hotbeds — UK and

Germany. Europe continued to attract small-ticket deals in 2013, indicating that VC investors continue to be cautious about making large investments in the region.

- Following historical trends, the technology sector continued to attract the major share of VC investment as well as number of deals in the US, Canada and Israel, while the consumer services sector continued to secure the bulk of VC investment and deals in Europe, India and China.
- Companies at the revenue-generation stage continued to dominate in terms of number of rounds as well as the proportion of VC investment, indicating the preference of VC investors for these “partially de-risked” companies across all geographies.

The venture capital industry prefers industries with a fast route to value (Ernst & Young, 2014). Favorite sectors for investment globally are overwhelmingly consumer services and information technology. Consumer-facing subsectors such as e-commerce, internet gaming and web marketing and the mobile interfaces or cloud technologies that support them have a direct and immediate connection with consumers that offers extremely rapid feedback on whether investments are likely to pay off, plus a rapid path to value realization compared to other sectors. Information technology continues to be the sector that attracts greatest venture capital interest in the US, accounting for a greater proportion of dollars and deals than any other. As costs of entry have plummeted due to innovations such as cloud technology, which enable global businesses to be built faster with less cash, demand for start-up funding has eased. Venture capital investors in information technology are responding by shifting their focus to later stage, less risky, investments as businesses scale up. Conversely, larger scale, longer term funding will continue to be required for more capital-intensive sectors including information technology hardware where the larger sums involved mean venture capital is more likely to retain its interest to benefit from the longer-term value story post-exit.

Another sector that consistently occupies third or fourth place in the sector preferences of the six global hotbeds by number and value of investments is health care — a category which covers a multitude of fast-growth sectors traditionally funded by VC including life science, biotech and medical device technology (Ernst & Young, 2014). Many recent IPOs have been in the biotech sector, adding to the appeal for VCs. Aging and wealthy populations in mature markets are a clear source of future value, and the US and Europe both ranked health care second in terms of capital invested.

Participation of angel investors and incubators continues to increase globally. While historically the percentage of angel/incubator participation has been the highest in the US (12% in 2013), the trend is quickly catching up in other markets (Ernst & Young, 2014). For the last two years, the percentage of angel/incubator participation has been the highest in Canada (20%), followed by India (17%), as indicated in Table 4.1.

Table 4.1: Angel and Incubator Investment in 2013

Region	Rounds of Angel Investment		Rounds of Incubator Investment		Total		Total Rounds
	Number	%	Number	%	Number	%	
United States	213	6%	205	6%	418	12%	3,480
Europe	79	6%	67	5%	146	11%	1,395
China	14	4%	3	1%	17	5%	314
Canada	20	11%	16	9%	36	20%	176
Israel	2	1%	3	25	5	3%	166
India	19	9%	18	8%	37	17%	222

Source: Ernst & Young Global Venture Capital Insights and Trends 2014

Some key trends in angel and incubator investments are (Ernst & Young, 2013):

- One in every four start-up stage venture capital rounds in the US and Europe in 2013 was by an angel investor or incubator.
- In the US and Europe, the start-up stage of venture capital rounds saw maximum participation by an angel investor or incubator in 2013, with a significant increase in the angel and incubator

participation rate at the start-up stage to 25% and 27% from 15% and 9% in 2010, for US and Europe, respectively. However, the percentage share at subsequent stages of development was far lower for these regions.

- The highest angel/incubator participation in Canada in 2013 was at the product development stage (34%) and not at start-up stage, unlike other geographies.

The United States continued to be the most active market for venture-backed IPOs in 2013. The number of deals (74) rose nearly 50%, with biopharmaceuticals the leading sector for new listings in terms of both volume and value (Ernst & Young, 2014).

The key results of a recent survey of venture capitalists throughout the world are (Deloitte, 2013):

- Venture capitalists are more confident investing domestically than globally.
- There is optimism in select IT sectors.
- There is a lack of confidence in energy/clean tech sector.
- Enthusiasm for Brazil, China and other emerging markets is fading.
- Venture capitalists' confidence in investing in Europe is still low.
- Average confidence of venture capitalists in investing in Canada was 3.26 which is lower than the average confidence of venture capitalists investing in the US (3.79), Southeast Asia (3.42), Brazil (3.33), Israel (3.55), Singapore (3.31); same as China (3.26); and higher than Australia (3.00), France (2.25), Germany (2.97), Japan (2.74), Netherlands (2.82), South Africa (2.82), Taiwan (3.05), United Kingdom (2.90) and India (3.17).
- Venture capitalists from the following countries showed the highest levels of confidence in investing in Canada: Germany (3.83), China (3.67), Israel (3.63), United Kingdom (3.60) while the level of confidence of US venture capitalists investing in Canada was 3.24.

B. North America

The states with the highest venture capital disbursements in 2014 are California (\$30.7 US billion), Massachusetts (\$5.2 US billion) and New York (\$4.7 US billion) (Table 4.2). Ontario (\$906 million), Quebec (\$604 million) and British Columbia (\$506 million) finished in 8th, 12th, and 16th place, respectively.

Table 4.2: North American Venture Capital Disbursements by State and Province

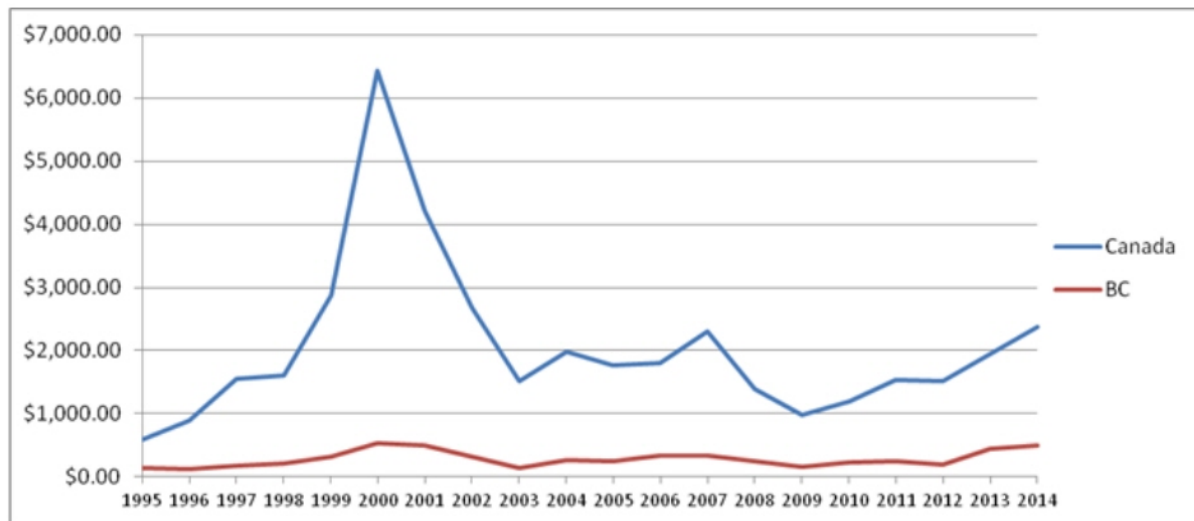
State/Province	2014 Rank	2013 Rank	2014 VC Invested (\$CDN millions)	2014 North American Market Share
California	1	1	\$30,699	54.3%
Massachusetts	2	2	\$5,182	9.2%
New York	3	3	\$4,726	8.4%
Texas	4	4	\$1,664	2.9%
Washington	5	5	\$1,385	2.1%
Illinois	6	12	\$1,194	2.1%
Florida	7	14	\$961	1.7%
Ontario	8	6	\$906	1.6%
Colorado	9	10	\$882	1.6%
Utah	10	17	\$881	1.6%
Pennsylvania	11	11	\$858	1.5%
Quebec	12	9	\$604	1.1%
Connecticut	13	22	\$572	1.0%
Georgia	14	15	\$559	1.0%
Virginia	15	8	\$526	0.9%
British Columbia	16	13	\$506	0.9%

Source: Thomson Reuters

C. Canada

Venture capital investments in Canada peaked in 2000 at \$6.4 billion and declined to \$990 million in 2009 as a result of a recession. Since 2009, venture capital investments in Canada have more than doubled to \$1.95 billion in 2013 and \$2.37 billion in 2014 (Figure 4.2).

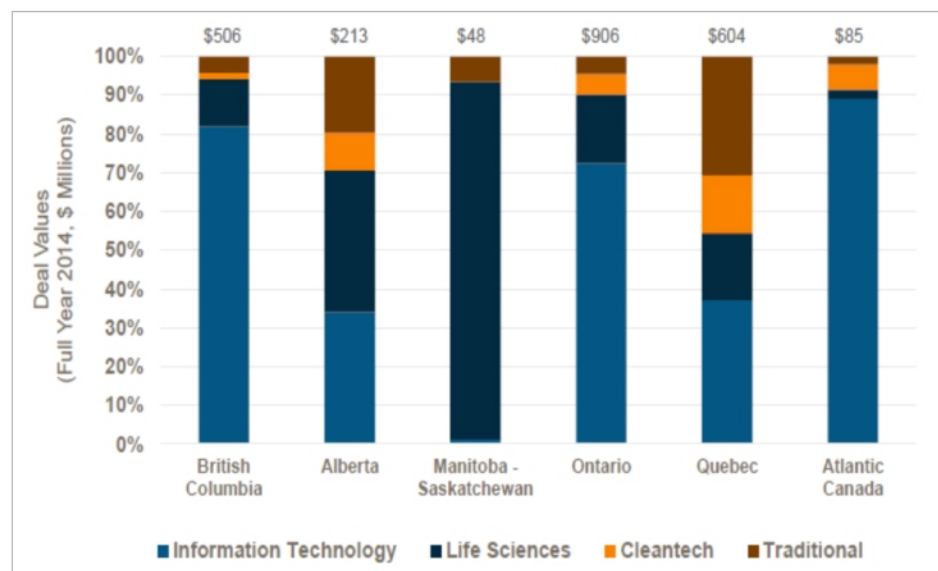
Figure 4.2: Venture Capital Investments in Canada and British Columbia



Source: Thomson Reuters, 2014

Canada's venture capital market activity has been dominated by investments in information technology. In 2014, a total of 226 companies received \$1.45 billion in venture capital investments, up 38% over 2013 (Figure 4.3). Software led most of this activity, with \$772 million and a 33% share of VC investment across all sectors. Internet-specific companies came in second, raising \$366 million in 2014. Life sciences companies continued an upwards trend with \$451 million invested in 49 companies in 2014, an increase of 78% over 2013 when \$253 million was invested in the sector. Clean tech investment activity showed a decline in 2014 with only \$153 million invested in 30 companies compared to an investment of \$327 million in 2013.

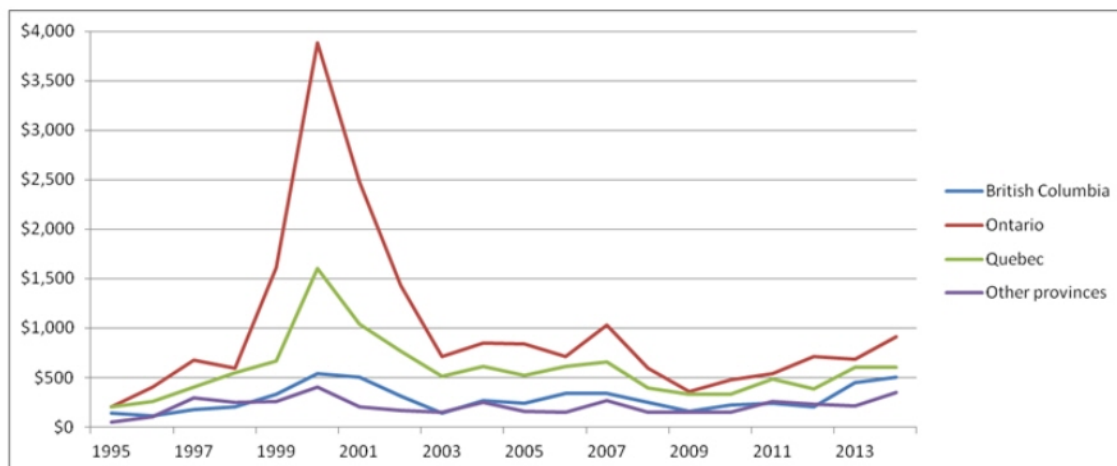
Figure 4.3: Venture Capital Investments in Canada by Sector in 2014



Source: Thomson Reuters

The two provinces with the greatest amount of venture capital investment in Canada over the last ten years have been Ontario and Quebec, respectively, while the third largest amount of venture capital investment has occurred in BC (Figure 4.4). In 2014, a total of \$906 million was invested in Ontario or 38% of the Canadian total. The amount invested in Quebec in 2014 was \$604 million giving it a 26% market share. British Columbia companies raised \$506 million in 2014, up 13% from 2013 and the greatest annual total for the province since 2001.

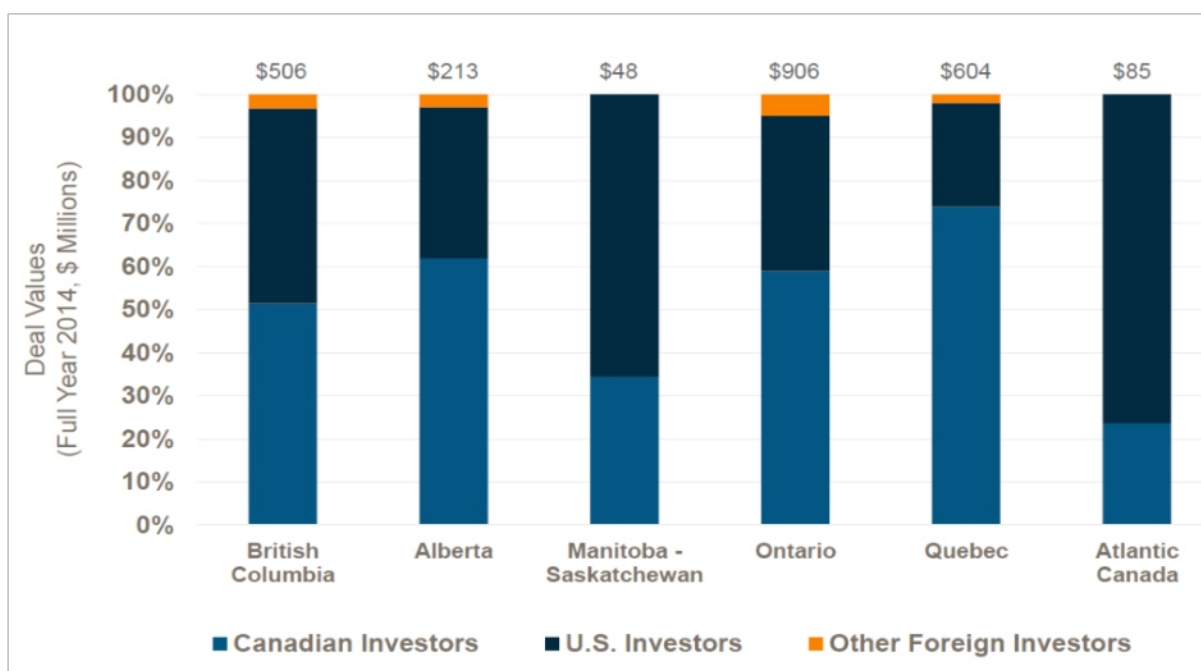
Figure 4.4: Venture Capital Investment by Region of Canada



Source: Thomson Reuters

American venture capital funds and other foreign investors were essential to higher levels of Canadian market activity in 2013. Domestic Canadian sources provided 59% of capital while US investors provided 38% of venture capital investments in Canadian companies in 2014. The areas of Canada most reliant on US venture capital investment are British Columbia, Manitoba/Saskatchewan, and Atlantic Canada (Figure 4.5).

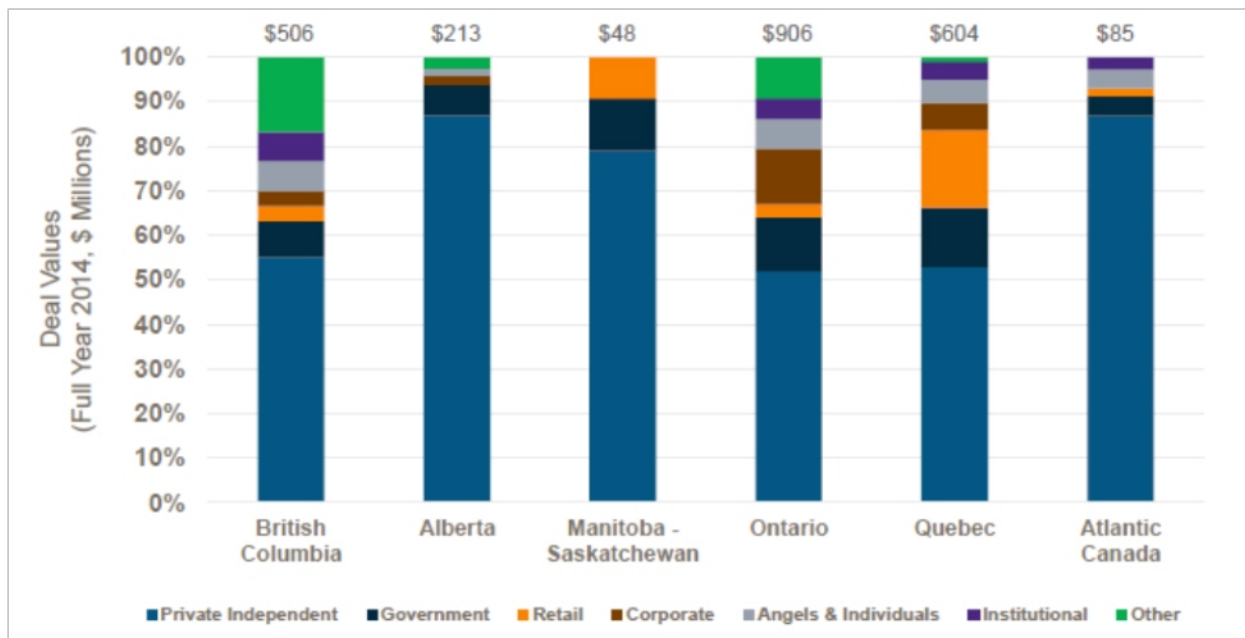
Figure 4.5: Canadian Source of Venture Capital in 2014 by Investor Nation



Source: Thomson Reuters

Private independent venture capital funds provided 58% of the capital invested in Canadian companies in 2014. Due to significant investments by other types of investors, the proportion of venture capital investments by private independent venture capital funds was lowest in Ontario, Quebec and British Columbia (Figure 4.6).

Figure 4.6: Venture Capital Invested in Canadian Companies by Investor Type in 2014



Source: Thomson Reuters

Mergers and acquisitions are the predominant form of exits accounting for approximately 90% of all Canadian VC-backed exits from 2011 to 2013, averaging about 35 exits per year. The number of IPO exits by Canadian VC-backed companies accounted for the remaining 10% of exits, averaging less than 5 exits per year (Figure 4.7)

Figure 4.7: Number and Value of Canadian VC-Backed Exits

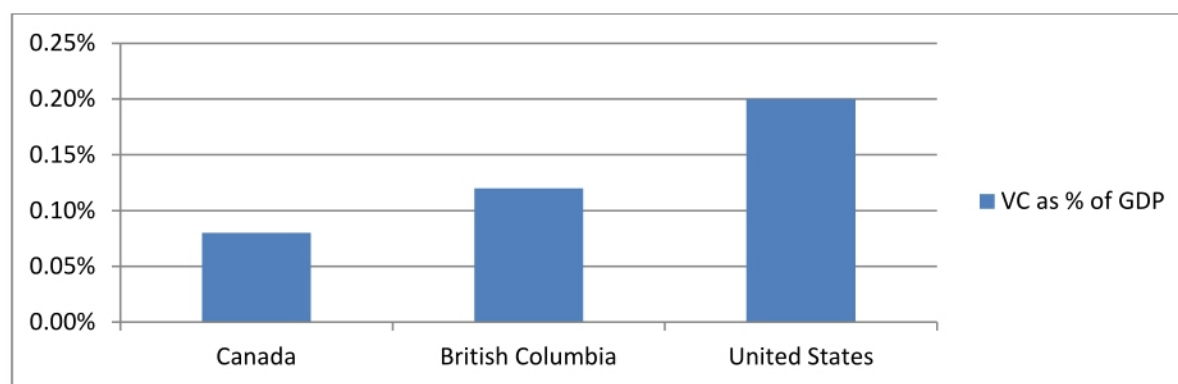


Source: Canadian Venture Capital & Private Equity Association

The Canadian venture capital industry is very young compared to that of the US and Europe. Approximately 42% of US venture capital funds started before 1990 versus 18% in Europe and 3% in Canada. About 92% of Canadian funds started after 1994 versus 68% in Europe and 46% in the US. This concentration of funds in the late 90's and early 2000's explains in part why the Canadian industry has been particularly hit by the burst of the technology bubble in 2000 (CVCA, 2009).

As a percentage of GDP, the Canadian venture capital industry is smaller than the US industry (Figure 4.8). Over the five year period from 2009 to 2013, venture capital investment in Canada as a percentage of GDP (0.08%) was less than half that in the United States (0.20%) while BC did not perform much better (0.12%). Consequently, Canada and BC are not benefiting as much as they should from the valuable intellectual property (IP) being generated in this country (Independent Panel on Federal Support to Research and Development, 2011). While Canada produces IP in abundance, it is less adept at reaping the commercial benefits; too many of the big ideas it generates wind up generating wealth for others. Without an active presence in Canada of adequate sources of capital, some of the commercial benefits of innovations originating in this country are being exploited by firms in other countries with greater risk investment capacity and/or propensity.

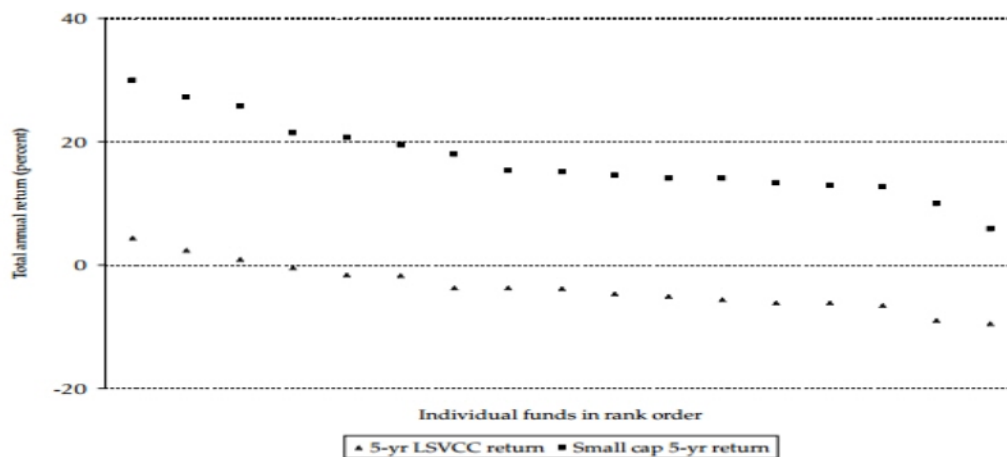
**Figure 4.8: Venture Capital Investment as a Percentage of GDP
For the period from 2009 to 2013**



Through the late 1990s and early 2000s, the rise of tax-incentivized, labour-sponsored funds in Canada greatly increased the amount of venture capital available in the industry and created a number of GPs. However, these funds were often limited by foreign content constraints, pacing requirements and, in some cases, lower performing fund management teams (BDC, 2011). The BDC report stated that this generation of government sponsored funds showed lacklustre results and that historically poor returns combined with modest capital available for private funds in Canada have created a lack of sufficiently large, skilled GPs. In 2005, the average Canadian GP was half the size (\$106 million) of a US GP (\$199 million) and the gap has widened (BDC, 2011). Sub-scale GPs lack the operating budget needed to attract top-tier global partners, and often lack sufficient capital to follow through on an investment.

A 2007 C.D. Howe Institute study stated that by 2005, labour sponsored funds accounted for roughly half of all venture capital under management, with more than \$10 billion (in 2004 dollars) under management (Cumming, 2007). Labour sponsored funds did not even outperform risk-free, 30-day treasury bills, and only three labour sponsored funds earned a positive rate of return over the past five years; indeed, even the best labour sponsored funds did not earn rates of return that are comparable to the worst performers among small-cap funds (Figure 4.9).

Figure 4.9: Returns of Labour Sponsored Funds Versus Returns of Random Sample of Canadian Small Cap Equity Mutual Funds as of December 2006



Source: Prepared by Finn Poschmann, C.D. Howe Institute, Toronto, based on data from www.morningstar.ca.

Note: LSVCC refers to labour sponsored funds.

The average labour sponsored fund ratio of management expenses to assets (MER) is more than 4 percent, which is substantially higher than that for all other types of mutual funds in either Canada or the United States (Cumming, 2007). Given that the economic rates of return for labour sponsored funds shown in Figure 4.9 do not include management expenses, most labour sponsored funds clearly are negative-value-added investment vehicles. Indeed, in the absence of tax subsidies, it would not be rational for an investor to contribute capital to a labour sponsored fund. The 2007 C.D Howe Institute report concludes that, in Canada, venture capital has been inefficiently allocated due to the tax breaks afforded to labour sponsored funds.

Labour sponsored funds are bound by a number of statutory constraints, which are similar in each province (Cumming, 2007). These include limits on the geographical range of investment opportunities to within the sponsoring jurisdiction, constraints on the size and nature of investment in any given entrepreneurial company, and requirements to reinvest fixed percentages of contributed capital in private entrepreneurial companies within a stated period of time (typically one to three years, depending on the jurisdiction). These constraints are extremely inefficient, however, because they limit investment opportunities and, at times, force labour sponsored funds to make investments in inferior companies without adequate due diligence. Private independent limited partnership venture capital funds also have constraints or restrictive covenants, imposed by their institutional investors, but they differ significantly from those placed on labour sponsored funds. For instance, covenants on the former include restrictions on the use of debt (to prevent fund managers from leveraging the fund and increasing the risk to institutional investors), and time restrictions on fundraising by fund managers for their subsequent funds (to force fund managers to spend their time pursuing and nurturing investments that further the interests of the current fund beneficiaries). These covenants also vary depending on the agreed-on needs of the fund investors and fund manager, which enables the limited partners and the general partner to design covenants that are best suited to the fund's particular objectives. Labour sponsored fund constraints, in contrast, are invariant across funds and change over time only with statutory changes.

There exists consensus among researchers that private LPs (e.g. pension funds) have left the Canadian venture capital market and it will take significant changes to draw them back. There are currently only five LPs in Canada actively seeking to fund VC firms. One is the federal government-sponsored Business Development Bank of Canada and the other four are relatively new provincially-sponsored funds of funds: Alberta Enterprise Corporation, BC Renaissance Fund, Ontario Venture Capital Fund and Teralys Capital (Quebec). A challenge

these five government-sponsored funds face is that, as a matter of prudent diversification of risk, they generally seek to invest no more than 25% of the total investment made in any VC firm. As a result, they experience difficulty in deploying their funds by reason of the paucity of LP co-investors in Canada.

There exists some disagreement regarding the level of returns achieved by the Canadian venture capital sector. A 2011 BDC states that there has been a 10-year IRR of -5% for the asset class (BDC, 2011). A 2007 C.D. Howe Institute study stated the investment performance of Canadian venture capital firms also significantly lags that of US firms and, over the 10-year period prior to the end of June 2006, Canadian venture firms had net horizon returns of 2.5 percent, while their US counterparts achieved 20.7 percent. The report hypothesized that the underfunding of Canadian venture capital firms is a significant contributing cause to their underperformance. The less funding Canadian venture capital firms receive, the less they have to invest in emerging Canadian companies. To continue this argument, the more poorly capitalized emerging Canadian companies are, the less competitive they will be in the North American marketplace against their better capitalized US counterparts. The more poorly these emerging Canadian companies perform, the worse is the resulting performance of the Canadian venture capital firms that fund them. The worse the performance of these Canadian venture capital firms, the greater their difficulty in securing funds from institutional and other investors. And so this debilitating cycle goes, reinforcing and causing underachievement for Canadian entrepreneurs and venture capitalists alike. At each level of the Canadian venture capital sector, a significant shortage of capital exists relative to that available in the US counterpart.

In contrast, a 2013 CVCA report stated that Canada's venture capital top performers have generally outperformed most benchmarks and that net returns for the first quartile of Canadian VC firms have exceeded all stages of VC in the US, over the 3, 5 and 10-year time horizons (Table 4.3). The report concludes that the historical performance of the entire VC asset class in Canada has been comparable to the US venture industry.

Table 4.3: Comparison of Venture Capital Fund Returns

Net Horizon Returns 2012	10 Years	5 Years	3 Years
Canada			
First Quartile VC	7.6%	10.4%	15.6%
All VC	-2.3%	0.0%	4.3%
TSX benchmark	3.0%	-4.1%	1.6%
United States			
Early/seed VC	-2.9%	2.5%	-0.1%
Balanced VC	1.1%	0.4%	1.3%
Later stage VC	2.5%	5.7%	7.4%
All VC	-0.3%	1.0%	1.8%
NASDAQ	3.1%	1.7%	12.0%
S&P 500	1.4%	-0.6%	11.5%

Source: *Think Canada (Again)*, CVCA, 2013

The six key indicators of a healthy venture capital ecosystem are as follows (BDC, 2011):

- Talented entrepreneurs and management start high powered companies;
- Skilled VCs/angels direct funds to best companies;
- Best companies grow through additional financing and VC support;
- Attractive exit options bring strong returns;
- Sophisticated LPs allocate appropriate capital to the industry; and
- Vibrant VC infrastructure that links all players domestically and to global exports, markets and businesses and government policies aligned to encourage VC and entrepreneurial activity (e.g.

public R&D funding that is conducive to innovation and commercialization, legal, tax, IP regulations).

The 2011 BDC report states that the Canadian venture capital industry exhibits gaps in many of the above elements including the following:

- Shortage of serial entrepreneurs and skilled management with global networks;
- GPs are subscale and lack strong capabilities and experience compared to the US GPs;
- Significant investments made by government and retail funds, with objectives and constraints (e.g. region focus, pacing requirements) that may hurt returns;
- Angel network not well developed;
- Over-investment in early stage without adequate follow-on capital, leading to dilution;
- Undercapitalized and sometimes dysfunctional syndicates make follow-on investment difficult;
- GPs lack experience and networks to develop companies to potential;
- Foreign GPs capture a disproportionate share of exit value;
- Exits have been mediocre as public markets place a discount on Canadian VC-backed companies;
- Relatively low listing requirements on the TSX Venture Exchange can be counterproductive;
- Total funding to VC eligible companies was proportionately higher in Canada than the US at the turn of the decade but has significantly decreased in recent years;
- Current capital supply crunch as institutional LPs and retail funds have significantly reduced investments;
- Government-sponsored funds made up half of all available LP capital, with allocation sometimes driven by public policy and misaligned incentives;
- Bottom-quartile funds receive largest share of capital; the fund natural selection process is broken;
- Lower level of non-dilutive capital from government and other sources prior to first VC investment;
- Lack of commercialization focus of R&D investment;
- Relatively low effectiveness of Technology Transfer Offices in commercializing technology; and
- Lack of connectivity to global markets, reducing opportunities for syndication, business development and exits.

Both sub-scale private funds and labour-sponsored funds have focused on a large volume of early stage investments and “spread the jam too thin”. Between 2005 and 2009, they invested almost 70% more in early stage companies than in the US, while also investing 40% less capital per company (BDC, 2011). This forced Canadian technology entrepreneurs to spend too much time on fundraising and not enough time on running their businesses. Furthermore, there was insufficient capital available for follow-on rounds of investing. In some situations, foreign GPs with available capital were able to cherry-pick the most attractive opportunities. Although foreign GPs invest in only 10% of Canadian venture capital deals, they account for 31% of exits and 44% of exit proceeds.

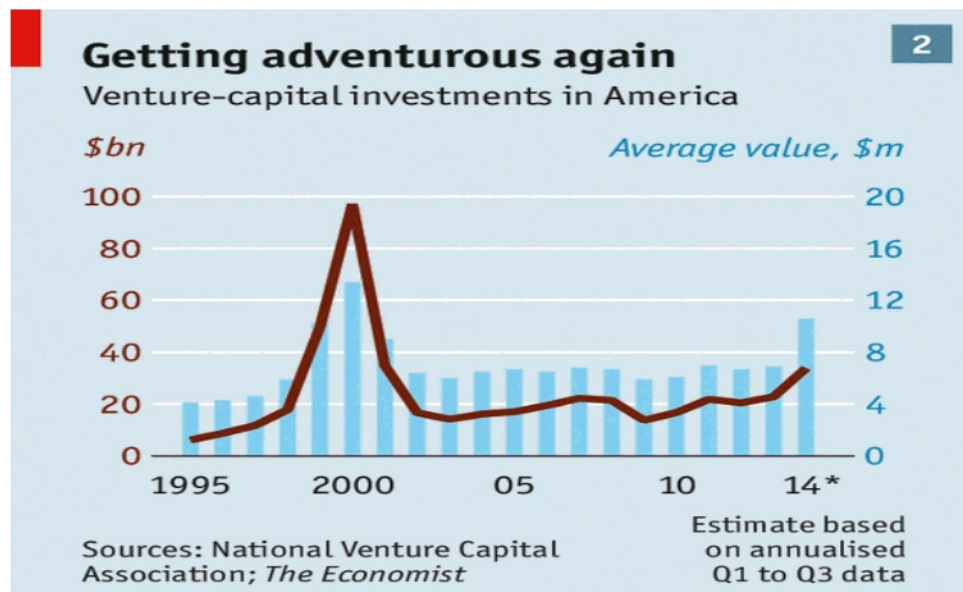
The tax incentives allowing unsophisticated retail investors to invest in this asset class may have been somewhat counterproductive. Historically, capital allocation to venture capital funds has been inefficient in Canada and has broken the natural selection process: top quartile funds in Canada received 19% of capital compared to 31% for US top quartile funds, while bottom quartile funds received 33% of capital compared to 20% for those in the US (BDC, 2011). The BDC report concludes that the historically inefficient allocation of capital to lower-performing funds has been truly damaging to the industry and must be reversed.

D. Venture Capital Industry Trends

As indicated in Figure 4.10, 2014 is the biggest year of venture capital investments in the United States since 2000. Venture capital investments in the US have increased by 45% from \$33 US billion in 2013 to \$48 US billion in 2014. Venture capitalists in the US are pouring increasing amounts of money into tech companies such that there is concern about the emergence of another tech bubble.

A recent article in the Economist (December 22, 2014) stated that one possible sign of a tech bubble is technology froth in private markets and their exuberance was demonstrated on December 4 when Uber closed a \$1.2 billion private funding round that valued the five-year old firm at \$40 billion. In addition, there are 48 American VC-backed firms worth \$1 billion or more, compared with ten at the height of the dotcom bubble.

Figure 4.10: Rise in Venture Capital Investments in America



A special report on tech start-ups in the January 18, 2014 edition of the Economist magazine stated that while one may think that another dotcom bubble that is bound to pop, this time is different because today's entrepreneurial boom is based on more solid foundations than the 1990s internet bubble, which makes it more likely to continue for the foreseeable future. This report also stated that VCs will continue to play an important, if smaller, role in channeling money to start-ups but many weaker funds will not survive. The number of actively investing VC firms in America has dropped from 627 in 2007 to 522 in 2012. At the same time a new class of smaller and more focused micro-funds is emerging. They typically raise less than \$100 million rather than billions, charge lower fees and hope to generate better returns.

A 2012 report by the Ewing Marion Kaufman Foundation, a charity that supports entrepreneurship, states that venture capital has delivered poor returns in the United States for more than a decade. The report states that over the past decade, public stock markets have outperformed the average venture capital fund and for 15 years, VC funds have failed to return to investors the significant amounts of cash invested. The report also illustrates a persistent pattern of inflated early returns in funds that may be used to raise subsequent funds and shows the poor historical performance of funds with more than \$500 million in committed capital.

An April 3, 2014 Forbes article questioned why capital continues to flow into the venture funds if the returns have been low. The article stated that there is a great deal of inertia in institutional limited partnerships. When a pension fund, particularly a state pension fund, decides that it has an allocation for venture capital, it may be three percent of a \$40 billion fund, they are committed to putting that money to work. It can take a decade, even two decades, for them to make that allocation. It is not surprising that it should take a decade for them to cut it back, or eliminate it. Another reason for the continued flow of capital into venture funds is there is a "home run sort of momentum herding" that contributes to the slow rate of change.

E. Alternative Sources of Venture Capital

Corporations are increasingly looking to VC-backed businesses to fill gaps in their innovation pipeline and enhance treasury returns. As a general rule, corporate investors prefer the later funding rounds, when companies that have been somewhat de-risked are at the revenue-generation stage and where the product or service can be integrated in a short period of time to drive revenue growth or other synergies in their business. Historically, corporate investors have been most active in the business and financial services sector, information technology and health care.

Corporate venture capital investing has grown significantly over the past few years and many leading tech companies are diversifying their investments by operating autonomous venture capital funds that look more and more like traditional private venture capital firms. In recent years, many large tech companies have followed in the path of Google and Intel. As an example, Microsoft, General Electric and Bloomberg have launched funds to focus on returns over strategic investments. Other corporate venture arms like Qualcomm Ventures, Comcast Ventures and Samsung Ventures have also recently participated in high-profile rounds for promising start-ups (Tech Crunch, Nov 2013),.

Venture capital funds are increasingly recognizing the contribution of angels and, in some cases, are collaborating on early stage investments with them (Ernst & Young, 2014). This is sometimes done on a personal or a fund basis, although this involvement is not well documented in terms of formal activity statistics. Angels and incubators have become more recognized and better understood as a capital source. They command larger pools of capital than ever before and are increasingly better organized, making it easier for businesses to locate them and converse with them in an effort to secure capital. Until recently, forging a deal with angel investors was often a challenge. Entrepreneurs had to work their personal networks to get meetings with the right financiers and then negotiate privately. There are signs, however, that this is starting to change. AngelList, for example, is an online forum where start-up founders post their ideas and meet investors who fund early-stage companies.

At the very early stages of the company life cycle, where even angels are hesitant to join in, crowdfunding is filling the gap in markets such as the US and Europe, extending the choices and support open to entrepreneurs at the very early stages of development. Crowdfunding is an innovation in VC policies and is the collective efforts of individuals who pool their resources through networking to support efforts initiated by other people or organizations. Young entrepreneurs can advertise their ideas and specify the amount of capital they are looking for, always via the Internet. Individuals can then decide to invest a small amount in the project. In some cases, investors obtain a share of the equity (until recently this was not allowed in the U.S.), and they are promised a share of (potential) future returns.

Crowdfunding in the United States is regulated by the Jumpstart Our Business Startups (JOBS) Act, better known as the crowdfunding act, which was signed in 2012 by President Barack Obama. The law could eventually enable ordinary people to invest in start-ups as easily as they put money into the stock market. At this point, only "accredited investors" can invest in start-ups. The US government limits start-up investing to individuals with \$1 million net worth or annual income of \$200,000. The Securities Exchange Commission (SEC) is still deciding on who will be able to use crowdfunding platforms and how much they'll be able to invest. The European Commission is evaluating what "soft-law" measures could be taken to promote crowdfunding across Europe, and is investigating how government funding could be aligned to support crowdfunding platforms and investment opportunities that attract significant popular support. In France, the government made a significant vote of confidence in crowdfunding in 2013 by raising the threshold for regulatory oversight, enabling entrepreneurs to access up to €1m before external supervision kicks in (Koenders, 2013).

The New York-based Kickstarter website, started only in 2009 raised about \$100 million in 2012 – equivalent to 10% of the total of U.S. seed investments (Koenders, 2013). Crowdfunding may be particularly successful

because of the screening function of the individual investors. If a large number of investors decide to invest a small amount, it is very likely that the public will have an appetite for the product or service – if only because this large number of investors is part of the public. Furthermore, crowdfunding does not seem to need active government stimulation. Incentives are thus not distorted and a tight government budget is not an obstacle.

Crowdfunding has also gained popularity outside the United States. In Europe, crowdfunding platforms collected €446 million in 2011 and \$735 million in 2012, which allowed for the financing of 470,000 projects (Koenders, 2013). Crowdfunding has also been active in Canada. Brightspark Ventures is a 14-year-old venture capital firm that has disintermediated its own industry and is using a new model built for a modern VC industry that essentially crowdsources/crowdfunds its fund investors (TechVibes, January 13, 2014). Brightspark creates a separate VC fund for every investment they make and finds angels (Canadian accredited investors) to invest in that fund.

Saskatchewan became the first province to allow start-ups and small businesses to raise capital through equity crowdfunding (TechVibes, December 9, 2013). The Financial and Consumer Affairs Authority (FCAA) announced the Saskatchewan Equity Crowdfunding Exemption which allows local start-ups and small businesses to use crowdfunding to sell securities such as shares, limited partnership units and promissory notes to residents of the province and unaccredited investors. BC joined six other provinces in publishing proposals that would allow companies to raise cash by selling equity directly to investors through online portals (BC Business 2014). The BC proposal would relieve companies from the need to register with the BC Securities Commission, publishing a detailed prospectus and regularly issuing audited financial statements. The company would simply fill out a four-page form explaining what it does and why it needs the money, post the form online and wait for investors to click their pledges in return for a stake in the company. The lack of safeguards for investors would be offset by a limit on how much they could lose: in BC, individual investments are capped at \$1,500.

V. Venture Capital in British Columbia

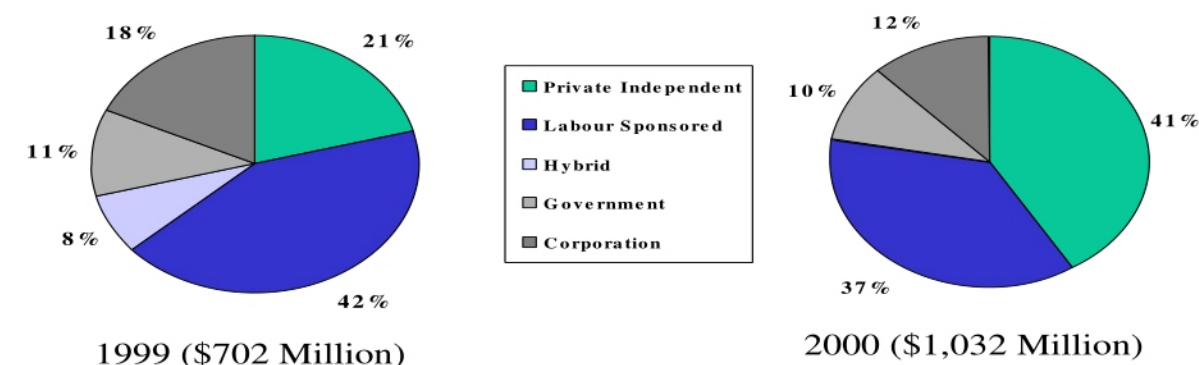
This chapter provides a history of venture capital in BC, influence of government programs and the current strengths and weaknesses of the angel and venture capital sectors in BC.

A. History of Venture Capital in BC

For much of the 1990s, labour sponsored funds (LSVCCs) held the greatest portion of British Columbia's capital under management, typically accounting for between 30% and 40% of aggregate supply from year to year. With the Working Opportunity Fund's successful capital raising (supported by federal and provincial tax credits), labour sponsored funds managed \$380 million in British Columbia – or 37% of the provincial pool at the end of 2000.

The venture capital industry in British Columbia in 2000 was very robust with a large amount of venture capital under management and considerable diversity in the sources of venture capital. At the end of 2000, the total venture capital under management in British Columbia stood at \$1.0 billion, up by 47% from \$702 million one year earlier (MacDonald & Associates, 2000). This growth was attributable to robust capital raising on several fronts, and especially among private independent funds (notably Ventures West Management) and labour sponsored funds (primarily Working Opportunity Fund). The MacDonald report stated that, due to a recent revival in their fortunes, the standing of private independent funds in the venture capital industry was greatly improved. Following a highly successful season of capital raising, private independent funds replaced labour sponsored funds as the dominant players in the provincial pool. Ventures West, Discovery Capital Corporation, Greenstone Venture Partners, FutureFund Capital Corporation, MDS Capital, Qwest Bancorp and other private independents attracted \$136 million in new capital to their BC operations, after bringing relatively few fresh venture resources into the market in 1999. As of early 2001, these funds collectively managed \$423 million or 41% of the provincial pool, up from a 21% share a year earlier (Figure 5.1). This situation contrasted sharply with that of the mid-1990s, when private independents accounted for a declining share of resources in British Columbia.

Figure 5.1: Venture Capital under Management in BC by Investor Type



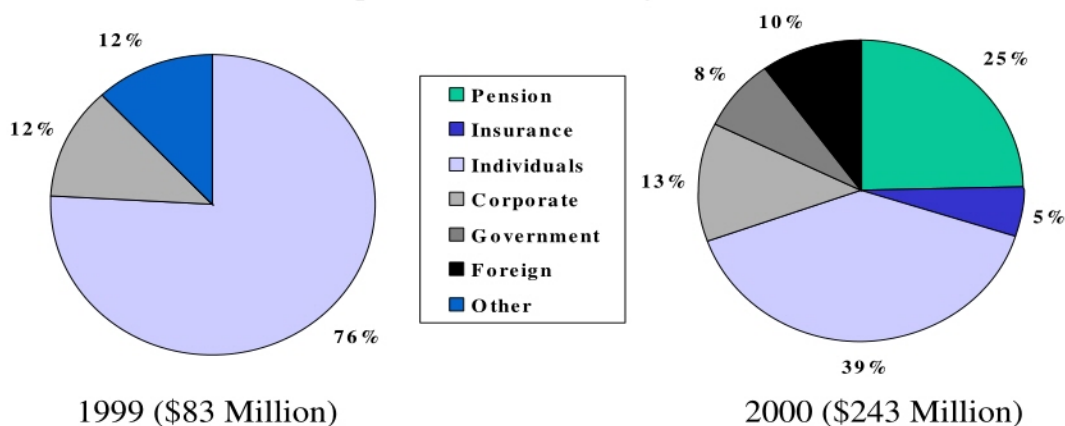
Source: MacDonald & Associates, 2000

Corporate venture groups with significant operations in British Columbia, such as Royal Bank Ventures and VanCity Capital Corporation, accounted for the third largest portion of the capital pool, with \$126 million, or 12%. This represents a relative decline from approximately 20% in the mid-1990s. Injecting a modest additional \$19 million in 2000, BDC and other government venture funds in British Columbia represented 10% of all capital resources managed, or \$103 million.

The capital supply which fueled the activity of British Columbia's industry in 2000 was well supported by new capital commitments from a relatively large number of sources. The largest single source of capital for the

venture industry in BC was individuals that purchased shares in labour sponsored funds (Figure 5.2).

Figure 5.2: Venture Capital Raised in BC by Investor Type

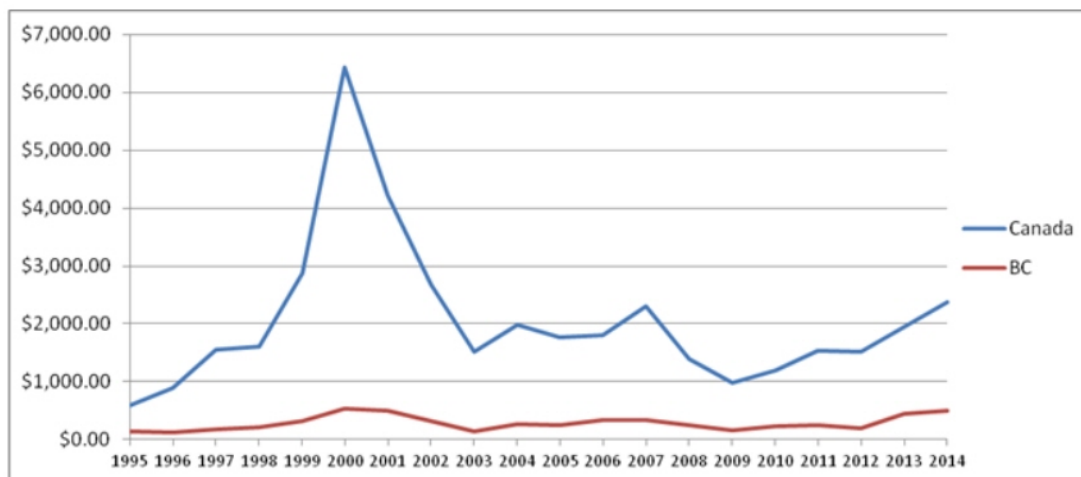


Source: MacDonald & Associates, 2000

In 2000, pension funds emerged as a fairly durable presence in supply conditions in British Columbia and committed \$60 million, or one-quarter of new capital inflows, much of which went to Ventures West and other private independents. Only in Quebec did pension funds play as substantial a role in venture capital supply infrastructure at that time. In British Columbia, this part was assumed by a handful of very large public sector funds and, above all, those funds aggregated for investment under the auspices of the British Columbia Investment Management Corporation (BCIMC). Insurance companies comprised the other top institutional source of fresh resources (\$13 million) in 2000. New capital commitments from corporations totaled \$31 million in 2000, reflecting 13% of new capital flowing into the industry. Foreign investors committed \$24 million to BC-based funds last year, or 10% of the total amount raised.

Since 2002, venture capital investments in BC have remained considerably below that level until the last two years (Figure 5.3). In 2013 and 2014, capital investments in BC have increased considerably to \$450 million and \$506 million, respectively. Over the last twenty years, BC venture capital investments have averaged 14% of the Canadian total. However, in 2013 and 2014, BC's share of the national total has increased significantly to 23% and 21%, respectively. The large increase in market share in 2013 is due primarily to the Hootsuite deal which is the largest private technology financing in western Canadian history.

Figure 5.3: Venture Capital Investment in Canada and British Columbia from 1995 to 2014



Source: Thomson Reuters

In 2002, the Premier's Technology Council examined the venture capital situation in BC. It noted with concern that a single labour-sponsored fund had the right to raise and invest venture capital with the assistance of tax credits. This not only provided an unfair competitive advantage, it discouraged the creation of other funds and had the potential to result in a shortage of venture funds for businesses in British Columbia. On June 21, 2002 the government announced that it had approved regulatory change that removes the requirement that eligible sponsors of a labour-sponsored fund have a paid membership of at least 150,000 people, and makes it possible for available tax credits to be allocated to more than one labour-sponsored venture capital corporation.

The 2004 (fifth) Premier's Technology Council Report stated that the following four issues predominate in the BC venture capital sector:

- Sufficiency of resources available to the entrepreneurial community and growth business from limited capital available to the venture capital industry;
- Labour-sponsored funds compared to regular venture capital funds;
- Role of "angels" in the marketplace;
- Role of government in supporting entrepreneurial enterprise.

The 2004 Premier's Technology Council stated that for BC's technology industry to grow faster, more venture capital funding is required. In addition, the report stated that there was an under-investment in venture capital pools by the traditional sources of funding found in developed economies. Retirement funds, insurance portfolios, and other long-term investment funds usually constitute the primary source of venture capital in the G7 countries. In Canada, retirement funds, in particular, have not followed the trend to put at least 10% of their investment pool in "at risk" financing areas, with a large portion of this dedicated to private equity pools. The resulting gap in venture capital funding has been partially filled through other mechanisms, particularly the creation of labour-sponsored funds. The report stated that labour-sponsored funds should not be a long-run solution to sustaining the pool of venture capital. There should be little reason to put tax incentives in place to ensure a sufficient pool of capital if the returns are reasonable from venture capital activity in the region, and if capital flows freely in from the "normal sources." The recommendations of the 2004 (fifth) Premier's Technology Council Report in order to help accelerate the funding of venture capital from various investment portfolios are as follows:

1. *The provincial government undertake a study to investigate the under-investment by pension funds and other investment portfolios in venture capital, determine the key drivers (particularly educational and training) that would enhance such investment, and work with the venture capital industry and appropriate industry associations to encourage and/or secure further investments by such portfolios in venture capital funds within the province.*
2. *The provincial government remove the individual annual limit in the provincial Income Tax Act for angel investors in eligible small businesses under the Small Business Venture Capital Act to increase the amount of early stage capital that is invested in early stage companies.*
3. *In order to accelerate the creation of a world class, market driven venture capital industry in British Columbia, the provincial government develop programs to focus on attracting and/or building 2 to 3 new, venture capital funds per year, staffed with experienced venture capital players, in British Columbia. The new funds would be required to:*
 - *Be associated with a top tier world class venture capital player that is establishing a new fund in BC,*
 - *Be a new fund primarily directed at investment in BC which counts among the principals in the new fund individuals with extensive venture capital experience.*

Any new funds must:

- *Establish their funds locally: a BC office and general partners in BC,*
- *Target its investments in BC companies, and*
- *Raise private capital before accessing the BC programs.*

These new funds are more likely to be formed if there is ready capital available to support their formation. We strongly suggest the establishment of a capital pool or pools to accelerate the formation of market-based venture capital funds. Examples of possible funding mechanisms for ensuring the formation of new venture capital funds include the establishment of:

Matching Fund of Funds

- *Run by experienced and qualified management.*
- *Initial capital provided would receive a market rate of return based on sound investment principles.*
- *Targeted at institutional investors who are currently not targeting venture capital as an asset class (generally because they are too small or lack expertise).*
- *No matching unless the qualified new venture fund has first raised private institutional capital.*
- *Qualified new venture funds would be able to match 1:1 against the funds they raise.*

Loan Program – Similar to the successful Small Business Investment Corporation (SBIC) Program in the US

- *Guarantee assists qualified new venture funds to raise additional venture capital.*
- *Qualified new venture funds would be able to raise up to 3 times the amount of the private institutional capital raised.*

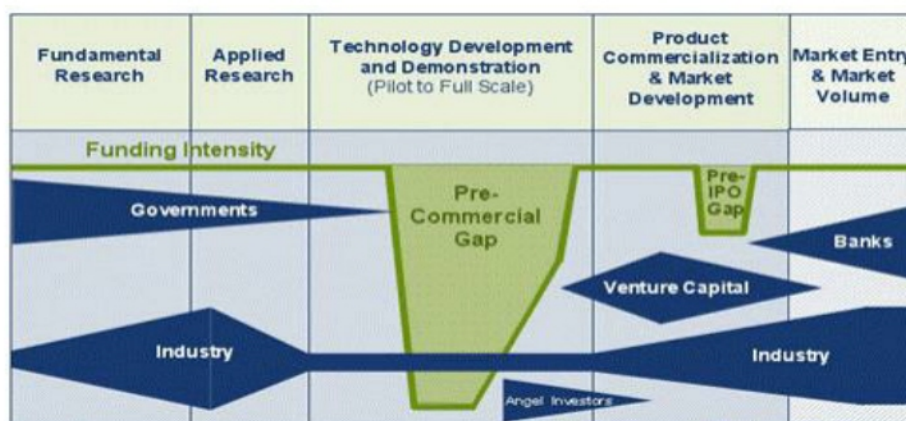
No matter what the circumstance, we recommend the formation of capital pools which would be allocated to new forming funds on a fully commercial basis with the expectation of a return on capital invested. Any involvement of government funding would be to seed the formation of further commercially viable capital pools. This would continue the movement of risk capital formation away from government “incented” risk capital to commercial risk capital.

4. *In order to attract world class venture capital firms to invest in British Columbia, immediate steps be taken to identify an appropriate and targeted campaign for creating greater awareness of British Columbia as a high technology jurisdiction and to make clear the entrepreneurial opportunity that lies within it. The campaign should be designed to be undertaken with existing provincial high technology and biotech players so that it benefits both the companies and the region. In the end, the campaign should be a partnership between government and industry, not an initiative solely driven or financed by the government.*
5. *The provincial government work with the venture capital industry, successful high technology and biotech businesses, and appropriate trade associations to host small group meetings in the key investment centres of New York, London, Boston, Frankfurt and San Francisco. These meetings should be undertaken to inform the management of funds and investment banks of the entrepreneurial business opportunities that exist in British Columbia and the opportunity for further investment (based largely on even further increases in innovation funding). These meetings can be scheduled using local industry network connections.*
6. *The provincial government work with industry and the financial and academic communities to invite the management teams of the top 20 global venture capital and private equity funds to visit the province on fact-finding tours. This should be executed within the year, in an effort to build momentum in the venture community. These tours should include networking opportunities with key figures in the British Columbia finance and high-tech industries. Such “person to person” visits help to establish relationships and build an image of the province that broad-based advertising alone cannot achieve.*

The 2004 (sixth) *Premier's Technology Council Report* reiterated the recommendations of the fifth report. The report stated that the Fund of Funds was the central recommendation made to generate capital and the PTC reiterates the need for government to implement this concept. To spur the involvement of more experienced angels, the report reiterated the need to remove the individual annual limit in the provincial Income Tax Act for angel investors. This would place them on par with corporations and funds neither of which have limits. The report recommended that government expand the tax credits under the SBVC Act. Further, government should change appropriate regulations so that the tax credits exist as a total allocation over multiple years and unused credits can be transferred between programs.

The 2005 (seventh) Premier's Technology Council Report stated that that various industry groups and levels of government agree that closing the pre-commercial funding gap (Figure 5.4) is essential to BC's and Canada's future economic prosperity. As technology development stages are interdependent, a capital shortage at an early stage of development will hinder progress to later development stages and ultimately reduce the number of successful high growth businesses. This is probably the largest barrier for companies trying to commercialize innovations. As technology development advances to full-scale prototype development, less funding is available. Financing from the venture capital community is usually offered at a later stage when the potential product is more market ready (prototype has been developed and ready for demonstration). Investors will then realize a return on investment when the companies enter the market and industry/banks/IPO markets start to invest.

Figure 5.4: Funding Gaps in Capital Ecosystem



Source: Sustainable Development Technology Canada, http://www.sdtc.ca/en/about/innovation_chain.htm

The 2005 (seventh) Premier's Technology Council Report stated encouraging angel investment in start-up and early stage companies is the most effective way to achieve industry growth. Angel investments are considered very important for early capital finance, even more so than the venture capital financing. Many leading technology companies and those listed on the Canadian public exchanges were first financed by individuals rather than by the formal venture capital community. It is estimated that those Canadian grown companies that were first financed by the venture capital community were significantly less than one percent. Often a retired or active entrepreneur, angels provide not only early stage capital, but also business advice, contacts, and market intelligence that are usually lacking in most start-up/early stage companies.

The 2006 (eighth) Premier's Technology Council Report stated that more efforts are necessary to stimulate the development of a vibrant and sustainable risk capital market in the province. The recommendations of the 2006 PTC report are as follows:

1. *The provincial government remove or substantially raise the individual annual limit in the provincial Income Tax Act for angel investors in eligible small businesses under the Small Business Venture*

Capital Act. The rationale of this recommendation is the importance of angel investors for the development of early stage companies. In the United States, there are about 3 million angels investing more than \$50 billion in total every year and funding thirty to forty times as many companies as the venture capital firms. In BC, it is estimated that about 60% to 80% of arm's length, early stage, and private equity is angel investment.

2. *The provincial government work with the federal government to remove any administrative and fiscal constraints that hinder foreign capital investment into BC's companies and venture capital pools.*
3. *The provincial government work with the federal government to recognize tax-exempt corporations under the Canada/US Income Tax Convention to encourage foreign capital investment into BC, and Canada in general.*

The 2007 (tenth) *Premier's Technology Council Report* stated that limited access to capital is one of the key inhibitors to starting and growing technology businesses in BC. The PTC report stated that in comparison with Silicon Valley, BC does not have as much money readily available at any stage of the life cycle. Furthermore, comparisons with the Silicon Valley revealed that companies in BC get less help from funders in mentorship, access to partners, recruitment and strategic advice. Finally, it is apparent that when BC companies do find funding, they find it in smaller amounts. This is because of the conservative nature of our investors since the BC community is more risk averse. The recommendations of the 2007 PTC are as follows:

1. *BCIC lead innovation associations in the other key provinces to press for implementation of the changes to the tax treaty.*
2. *Government work with the Discovery Foundation to form a set of proof-of-concept funds with a few select partners. The rationale for this recommendation is that lack of funding in the commercialization cycle is particularly significant at the pre-seed stage. During this stage, when the entrepreneurs are still trying to build confidence in their concept or idea, they need funding to develop prototypes and proofs of concept. Because of the funding gap at this level, there are currently more ideas in our research labs that can be commercialized, than there is money to develop them. Providing more funding at this stage will build a bigger pipeline of promising technology companies. The PTC believes there is a role for government to play. An initial pool of capital could be created with \$10 million from the Discovery Foundation with matching funds from government. Additional matching funds would be provided by a partner and the fund would be tailored to that partner's needs. Universities, for example, may want to develop funds specific to their university. They could raise capital from their endowments or their alumni and partners. All applications for funding would then be reviewed by an independent group of industry advisors and funds would be awarded in amounts of \$50,000 to \$250,000. The money would be converted to equity in the case of successful ventures, and returned to the investment fund.*
3. *The provincial government raise the annual investment cap and double the size of the Equity Capital Program to provide the opportunity for more angels to get involved with more money. The rationale for this recommendation is that the Equity Capital Program reaches its limits fairly early in the year, indicating there is extra demand.*

Limited access to capital was also reported in a 2006 Ference Weicker study which stated that:

- There is limited access to capital at virtually all stages of the development cycle, including seed, start-up, early-stage, expansion, and mezzanine/buyout funding. A lack of early proof of concept funding as well as seed capital and venture capital was specifically highlighted by the information technology, new media, life sciences, and power technology sectors. The undercapitalized nature of BC companies contributes to slower growth rates, lower survival rates, and increased incidence of innovative

companies being acquired by larger firms which can result in the loss of intellectual property to other jurisdictions.

- A reliance on foreign sources of capital (BC continues to attract at least one-third of its venture capital from foreign investors) may contribute to the loss of BC companies and intellectual property. For example, the shallow pool of risk capital in the life sciences sector not only slows commercialization but also encourages the export of Canadian developed technology for little economic value captured relative to the inputs. Similarly, local creators (e.g. production studios, animation studios, videogame developers) are forced to give up ownership of intellectual property rights to obtain the capital needed to produce their projects. BC also has a history of losing entrepreneurial energy in the wireless sector due to migration and acquisition of BC firms by others over time.
- Access to patient capital is much more limited in the rural regions of BC than in the Lower Mainland. A major constraint is that many of the companies are simply not sufficiently investor ready to attract investment capital.

The 2009 (twelfth) *Premier's Technology Council Report* stated that the venture capital situation is worsening on a Canada-wide basis because the industry has not been able to garner consistent enough returns to attract institutional and foreign investors and the funds are now shrinking. To address this challenge and add to the depth of the venture capital community in BC, the province established the BC Renaissance Capital Fund (BCRCF) as a crown corporation in 2008. The BCRCF was initiated with \$90 million earmarked for investment in top-tier fund managers from both the United States and Canada. The key recommendation of the 2009 PTC report was that government expand the tax credits under the SBVC Act.

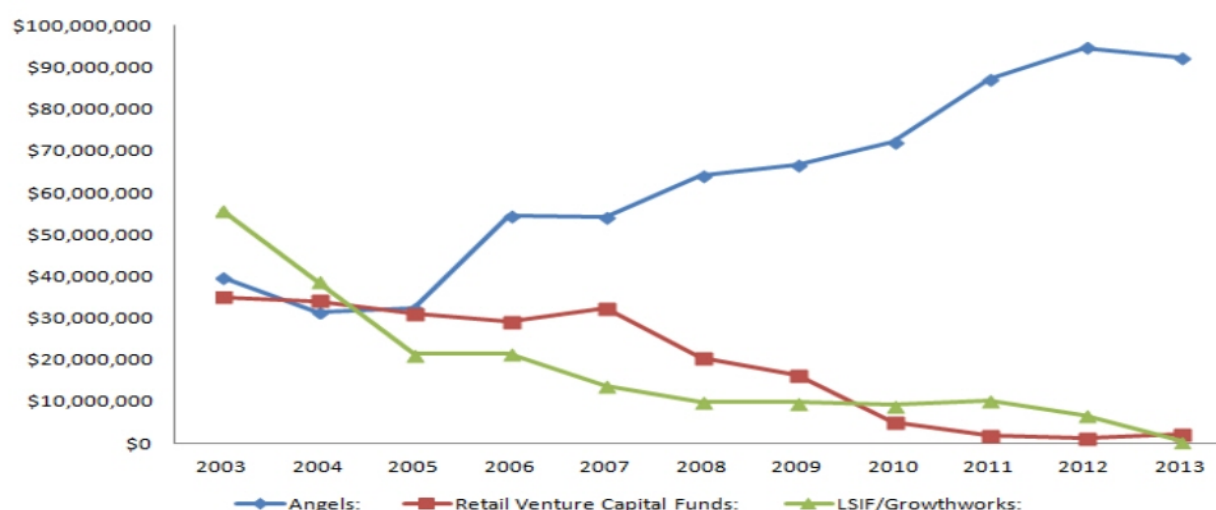
The 2010 (thirteenth) *Premier's Technology Council Report* expressed concerns to the PTC that investment funds have become increasingly difficult to access. The PTC report stated that in terms of attracting capital to BC, the International Financial Activity (IFA) program is one the stronger potential tools at government's disposal. The IFA can help by attracting high quality fund managers to British Columbia. This would increase not only the quantity of the funds in BC but also the quality of them, adding greatly to the depth of the capital pool and creating a more sustainable risk capital market in BC. The recommendations of the 2010 PTC report were as follows:

1. *The provincial government work with the federal government to expand the application of SR&ED tax credits beyond Canadian-Controlled Private Corporations and seek greater participation of the federal government in VCC programs in BC.*
2. *The provincial government continue the venture capital programs to ensure predictable, long-term capital flow.*
3. *The provincial government maintain the BC Renaissance Capital Fund, allowing it to provide a continued supply of capital so it can add to the depth of the venture capital marketplace in BC.*
4. *The provincial government continue to encourage the formation of venture capital in the province and the syndication of venture capital with international partners by including in the eligible activities of the BC International Financial Centre those of venture capital management and partners and their income earned from management fees and carried interest incentive.*

In the last ten years, there has been a dramatic decline in capital raised by labour sponsored funds and retail venture capital which has reduced the amount of venture capital available to BC companies (Figure 5.5). The capital raised by the only labour sponsored fund remaining in BC (Growthworks) declined dramatically from \$56 million in 2003 to less than \$500,000 in 2013. Due to an inability to raise additional capital, Growthworks

has not been not been offering capital to new ventures in recent years.

Figure 5.5: Capital Raised by BC Venture Capital Program



Source: BC Ministry of International Trade

The capital raised by retail VCCs declined from \$35 million in 2003 to \$2.2 million in 2013. In 2003, there were three retail VCCs that were active in raising venture capital via the BC Government Venture Capital Program through four different funds: British Columbia Discovery Funds (VCC) Ltd. – BC Discovery Fund; BC Advantage Funds (VCC) Ltd. – Advantage Growth Fund and Advantage Venture Fund; and Pender Growth Fund (VCC) Inc – Pender Growth Fund. In 2011, both BC Advantage Funds and Pender Growth Fund ceased raising venture capital through their VCC funds. Consequently, the only retail VCC that has continued to raise venture capital funds is British Columbia Discovery Funds via the BC Discovery Fund.

A key contributing factor to the decline in activity of the retail VCC funds and the labour sponsored fund in BC is the significant decline in most share prices which has reduced investor interest. The current share price of five of the six labour sponsored and retail VCC funds shown are considerably less than the initial share price of \$10,000 paid by individual investors (Table 5.1). The costs of these funds are also higher than the 2% fee typically charged by private venture capital firms.

Table 5.1: Share Price and Costs of Sample BC VCC Retail Funds and Labour Sponsored Fund

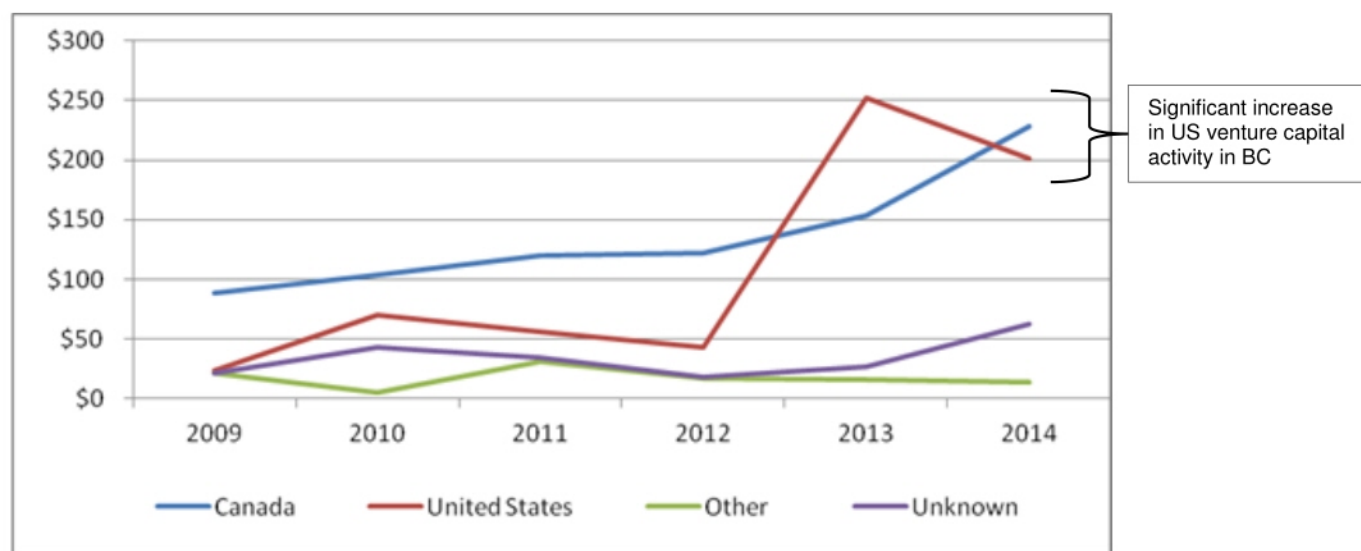
Fund	Inception Date	Initial Share Price	Current Share Price*	% Change	Management Fee	Management Expense Ratio
Working Opportunity Balanced Ser 1	November 1991	\$10,000	\$14,789	+ 48%	2.00%	2.63%
Working Opportunity Growth Ser 1	January 2000	\$10,000	\$6,107	- 39%	2.56%	2.70%
Working Opportunity Growth Ser 2	January 2004	\$10,000	\$7,411	- 26%	2.00%	2.91%
Working Opportunity Balanced Ser 1	January 2004	\$10,000	\$7,592	- 24%	2.00%	2.91%
Advantage Structured Fund	July 2009	\$10,000	\$3,070	- 69%	2.75%	-
BC Discovery Fund	June 2002	\$10,000	\$7,010	- 30%	2.75%	-

* Share price as of November 2014

The significant increase in angel investment in BC has partially offset the decline in venture capital raised by labour sponsored funds and retail VCCs. The capital raised by angels participating in the BC Government angel tax credits has increased dramatically from about \$40 million in 2003 to \$92 million in 2013 (Figure 5.5). During this period, the number of angel investments that received angel tax credits increased from 136 in 2003 to 240 in 2013. In some years, the demand for angel tax credits has exceeded the available budget which has meant that some angel investors have been denied angel tax credits.

The proportion of total venture capital invested in BC companies from the United States has increased dramatically in 2013 and 2014 such that the total US investment was almost one half of the total sources of venture capital (Figure 5.6). Of the total US investment of about \$450 million in the last two years, one investment was one deal (i.e. Hootsuite for \$171 million). However, the United States made a total of 56 deals with 48 companies in 2013 and 2014 combined which indicates that there is a high level of activity of US VCs in BC. The key benefit of investment of foreign venture capital firms is that they are able to provide later stage financing which is critical to BC companies becoming world-class players. The key drawbacks to reliance on US venture capital is that most US venture capital firms are not interested in providing early stage venture capital and some US venture capitalists require the relocation of Canadian companies to the United States because they can be more easily monitored if they are nearby.

Figure 5.6: Venture Capital Investment in British Columbia Companies by Investor Nation (\$ millions)



Source: Thomson Reuters

Private venture capital firms (i.e. independent private partnerships) have accounted for the largest proportion of venture capital invested in BC companies in 2014 when a total of \$231 million was invested in BC companies which accounted for 46% of total venture capital investment in BC (Table 5.2). The second largest investor in BC companies in 2014 is government (e.g. BDC) which invested approximately \$33 million. In recent years, the amount of venture capital invested in BC companies by government (e.g. BDC) has increased considerably while the amount invested by retail VCCs has declined substantially. The third largest investor in BC companies in 2014 is angels and individuals and the amount invested by them is approximately \$27 million (this data is incomplete as the total investment by angels under the BC Government angel tax credits is considerably larger).

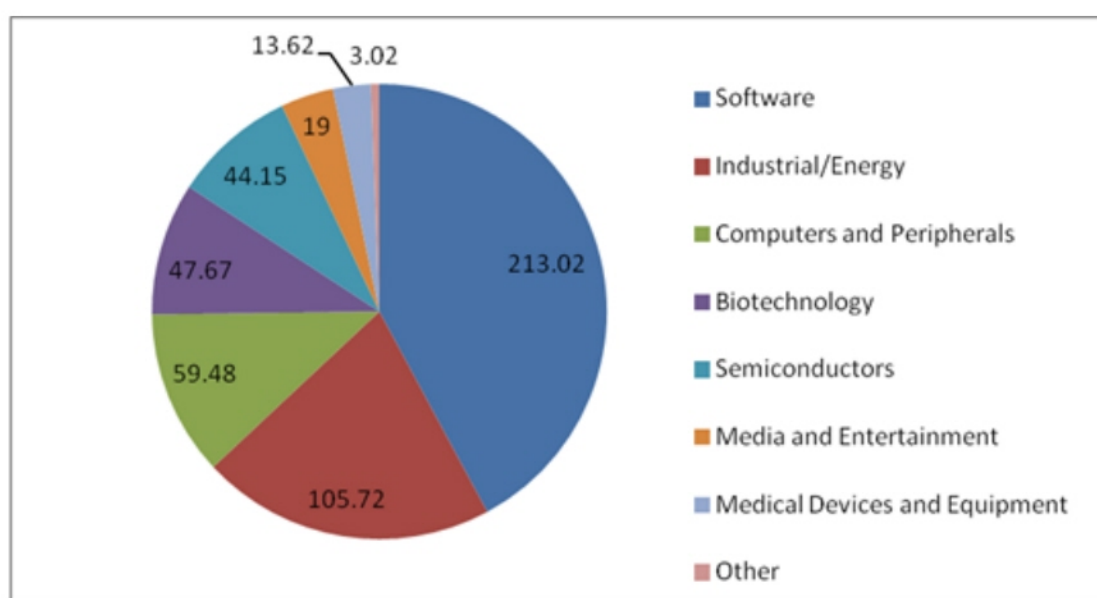
Table 5.2: Venture Capital Investment in British Columbia Companies by Investor Type (\$ millions)

Investor Type	2009	2010	2011	2012	2013	2014
Independent Private Partnership	\$53.79	\$110.34	\$109.64	\$65.55	\$282.07	\$230.85
Government	26.66	5.23	6.91	13.57	27.83	32.87
Angels and Individuals	2.72	5.49	3.80	4.91	20.88	27.39
Endowment, Foundation or Pension Fund	-	-	-	36.50	33.85	26.25
Corporate Private Equity/Venture Fund	0.60	21.57	12.41	7.00	16.90	13.97
Retail	29.92	20.27	19.25	9.18	10.65	7.34
Other	41.47	60.00	89.76	62.95	57.59	167.00
Total	\$155.16	\$222.90	\$241.77	\$199.66	\$449.77	\$505.69

Source: Thomson Reuters

Software accounted for the largest proportion (42%) of total venture capital invested in the BC companies in 2014 (Figure 5.7). The next largest investments were in industrial/energy (21%) and computers and peripherals (12%).

Figure 5.7: Venture Capital Investment in British Columbia Companies by Sector (\$ millions)



Source: Thomson Reuters

The proportion of early stage venture capital invested in BC companies has declined from 29% in 2009 to 4% in 2014 (Figure 5.8). The total amount of early stage venture capital invested in BC companies in 2014 was only \$20 million. This decline in early stage venture capital is critical because without early stage capital BC technology firms are unable to grow. Some factors contributing to the decline in early stage venture capital are a decline in number of BC venture capital firms as well as the inability of local venture capital firms to close their funds. As an illustration, Ventures West which was one of Canada's largest and oldest venture capital firms recently closed. Some local venture capital firms are also shifting more capital to later stage funding. In addition, most foreign venture capital firms are not interested in providing early stage funding.

Figure 5.8: Venture Capital Investment in British Columbia Companies by Deal Stage (\$ millions)

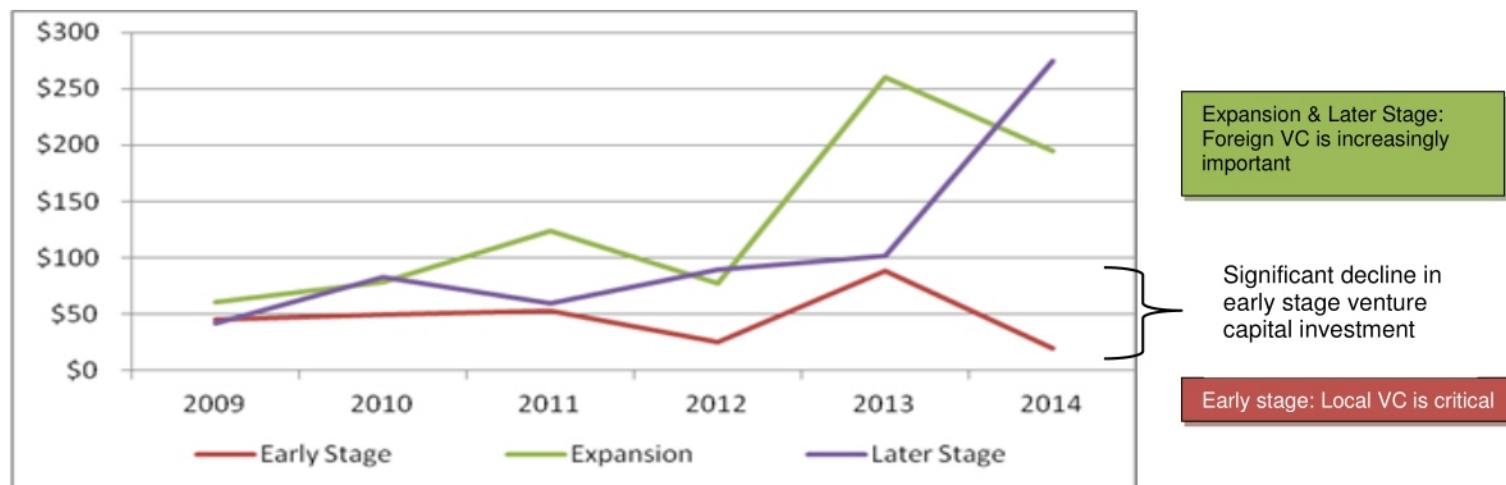
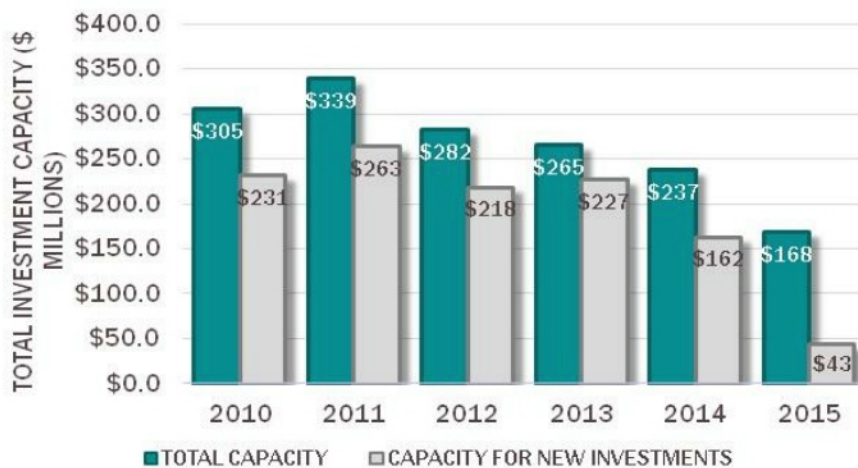


Figure 5.9 depicts the results of a recent survey of the venture capital investment capacity of BC venture capital firms that was recently undertaken by Yaletown Venture Partners. As indicated, the capacity for new venture capital investments by BC private venture capital firms is projected to decline from a peak of \$305 million in 2010 to \$43 million in 2015. During this period, the number of active VC funds making new investments is projected to decline from 7 in 2010 to 2 by the end of 2015. Only a portion of the two remaining active funds in 2015 will be invested in BC as these two funds have historically invested the majority of their funds outside of BC. These results indicate that there will soon be a serious shortage of venture capital available in BC.

Figure 5.9: Survey of Investment Capacity of BC-Based Venture Capital Firms



Source: Yaletown Venture Partners

Note: Total Capacity in the above table is net remaining capital available for investment as long as the Fund is still active. Capacity for New Investment in the above table is equal to Total capacity when Fund is in investment period and able to add new portfolio companies.

One factor that has reduced the availability of venture capital in BC is local venture capital firms invest not only in BC companies but in companies in many other jurisdictions. Six of the seven BC venture capital firms listed in Table 5.3 state that their geographic focus is much larger than BC. Consequently, only a portion of their investments will be made in BC companies.

Table 5.3: Geographic and Sector Focus of BC Venture Capital Firms

BC Venture Capital Firm	Geographic Focus	Sector Focus
Discovery Fund	BC	Early stage technology companies
Yaletown Venture Partners	Canada and US Northwest	Technologies for the intelligent enterprise and sustainable infrastructure
Vanedge Capital	Canada and US	Gaming & digital media, enterprise infrastructure & security, and small enterprise SaaS solutions
Renewal Funds	North America	Environmental and social mission businesses
Version One Ventures	North America	Consumer internet, SaaS and mobile
Chrysallix	Throughout the world	Clean energy
Pangaea Ventures Ltd	Global focus	Advanced materials

Source: Venture capital firm websites

As indicated in Table 5.3, none of the local venture capital firms specialize in the life sciences sector.

B. BC Government Venture Capital Programs

This section briefly describes the current BC Government programs undertaken by the BC Ministry of International Trade and Asia Pacific Strategy to support BC companies while Appendix 1 describes additional programs of the BC Government that support the BC technology sector.

Small Business Venture Capital Program

The following paragraphs describe the individual programs comprising the Small Business Venture Capital Program to stimulate the angel and venture capital sector and the growth of technology companies in BC.

Labour Sponsored Investment Funds

In B.C. there is currently one labour-sponsored investment fund administered by Growthworks (Working Opportunity Fund) registered as employee venture capital corporations under the Employee Investment Act. The goal of this fund is to earn a competitive return for shareholders, through long-term equity investments by retail investors in small to medium-sized businesses in B.C.'s emerging markets. The maximum annual investment that can be made by the retail investor is \$5,000. B.C. investors receive a combined federal and provincial tax credit of up to 30 per cent on their investment in a labour-sponsored investment fund. This can be used to reduce their income taxes. However, the federal government has announced that federal tax credits for labour sponsored venture capital funds are being phased out beginning in 2015. Consequently, the government of BC is assessing its options in response to the federal phase-out decision, because BC's Working Opportunity Fund is a beneficiary of the federal tax credit that matches provincial tax credits.

Retail Venture Capital Corporations (Retail VCCs)

This program is similar to labour-sponsored investment funds because it obtains funds from retail investors and is operated by a Venture Capital Corporation (VCC) which is a corporation registered under the program that has been formed for the sole purpose of investing funds in a number of start-up, emerging and expanding eligible small businesses. The maximum amount that can be invested per investor each year is \$200,000. A 30% equity tax credit is provided to investors that are residents of BC. The entire 30% equity tax credit is provided by the provincial government. The maximum amount that can be invested into a portfolio company by the VCC is \$10 million over a two-year period. There is a holding requirement of 5 years after completion of each tranche. The Retail VCCs that have been established under this program are as follows:

- British Columbia Discovery Funds (VCC) Ltd. – manages the BC Discovery Fund
- BC Advantage Funds (VCC) Ltd. – manages two funds Advantage Growth Fund and Advantage Venture Funds
- Pender Growth Fund (VCC) Inc – manages the Pender Growth Fund

Presently, only one of the above funds (BC Discovery Fund) is current active in raising capital from individual investors.

Angel Venture Capital Corporations (Angel VCCs)

This program involves a different type of fund that is not based on retail investors but funding for the VCC is provided by an accredited investor. Angel VCCs have become the preferred investment vehicle for BC angel investors and there are over 100 Angel VCCs. Many of these Angel VCCs have been created to invest in a single company while other Angel VCCs have invested in multiple companies. A tax credit of 30% is provided by the provincial government up to a maximum investment per year of \$200,000. The maximum amount that can be invested into a portfolio company by the VCC is \$10 million over a two-year period. There is a holding requirement of 5 years after completion of each tranche.

Eligible Business Corporation (EBC)

This program does not involve any fund-based investing, but instead provides equity tax credits directly to individuals who invest in eligible businesses. Under the 'direct' investment approach, a small business registers as an eligible business corporation. This allows a small business to accept equity capital directly from investors without having to set up a venture capital corporation. The eligibility requirements for an EBC include the following:

- Must be substantially engaged in BC in one or more of the following qualifying activities: manufacturing, processing or export of value-added goods produced in BC; destination tourism; research and development of proprietary technology; development of interactive digital new media product; or community diversification outside of the Lower Mainland and the Capital Region.
- Not more than 100 employees.
- Must pay 75% of its wages and salaries to employees who regularly report to work at operations located in BC (50% for businesses engaged in the export of goods or services outside BC).
- Maintain a permanent establishment in BC and keep at least 80% of its assets in the province.

This investment structure has been designed for an investor planning to be actively involved in the growth of the small business. A tax credit of 30% is provided to the investor by the provincial government up to a maximum investment per year of \$200,000. The maximum equity capital that an EBC can raise is \$5 million and the holding requirement is 5 years.

For the purposes of this report, the Angel VCC and the EBC programs are collectively referred to as "angel tax credits" because they are both predominantly used by angels to invest in BC technology companies.

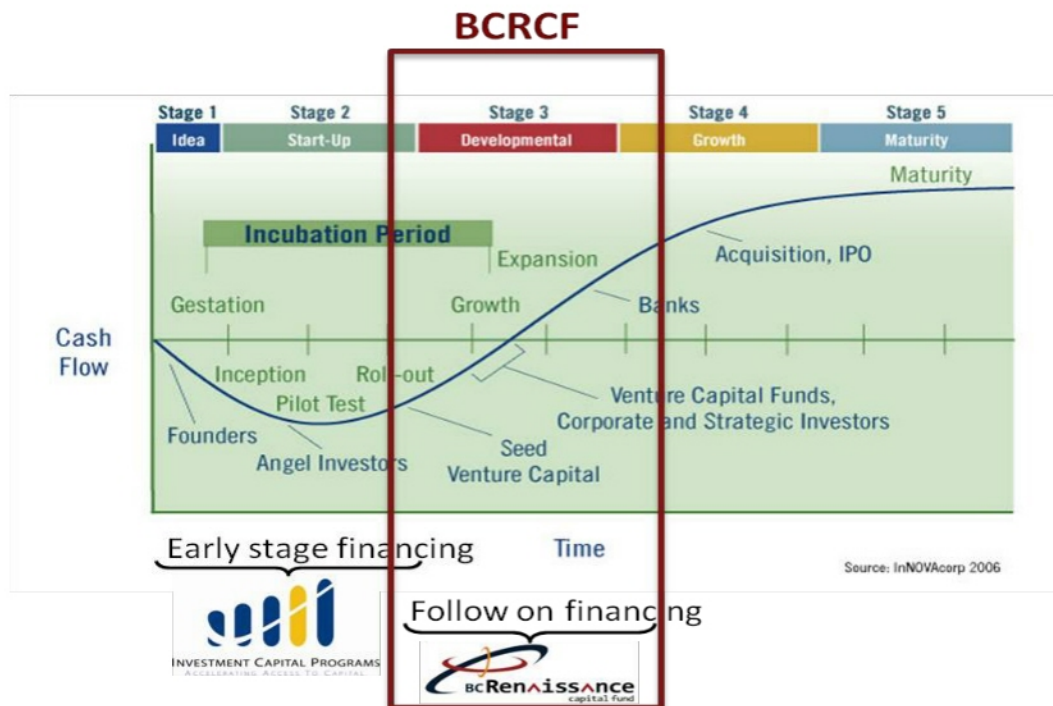
The Small Business Venture Capital Program's \$33 million budget enables equity investment up to \$110 million yearly based on a tax credit of 30%. This overall budget of \$100 million in investments is broken down into the following categories: equity capital (\$48.33 million), clean tech (\$25 million), new media (\$16.66 million), community diversification (\$10 million) and business creation (\$10 million).

B.C. Renaissance Capital Fund

The goal of the BC Renaissance Fund is to attract successful venture capital managers and their capital to British Columbia to develop promising, innovative technology companies in the province. The fund was created to pursue investment in four key technology sectors: digital media, information technology, life sciences and clean technology. The Renaissance Fund has committed capital to eight venture capital fund managers based in the United States and Canada. As of 2013/2014 (Q2), \$90 million has been committed to the following eight venture capital fund managers: Vanedge Capital, Yaletown Venture Partners, ARCH

Venture Partners, Azure Capital, iNovia Capital, Kearny Venture Partners, Tandem Expansion and VantagePoint Capital Partners. To date, the total amount of capital placed with these fund managers is approximately \$54 million. According to the BC Renaissance Capital Fund website, the aggregate amount invested in BC companies by these fund managers is \$236 million and the total number of jobs active in BC portfolio companies is over 850. The role played by the BC Renaissance Fund is to provide follow-on financing to BC companies (Figure 5.10).

Figure 5.10: Role of BC Renaissance Fund within BC Venture Capital Ecosystem



The BC Renaissance Fund is owned and operated by the BC Immigrant Investment Fund Ltd. (BCIIF) which was incorporated on September 19, 2000 under the Company Act of British Columbia and is wholly-owned by the Province of British Columbia. BCIIF is approved for funding under the federal Immigrant Investor Program (IIP), administered by Citizenship and Immigration Canada. The regulations require approved funds participating in the federal IIP to invest in initiatives that contribute to economic development and job creation in Canada. BCIIF receives and manages BC's allocation of funds under the federal IIP. The federal IIP confers discretion on the provinces to manage their allocation of the federal IIP's immigrant investor funds for investment in economic development and job creation. BCIIF is required to return funds to the federal government five years after receipt. Accordingly, BCIIF must continue to manage its investments to: provide for needed liquidity in the future; maximize investment returns; and satisfy the federal IIP's economic development criteria.

The Federal Immigrant Investor Program was terminated as of February 11, 2014. Consequently, the Federal Immigrant Investor Program cannot be a continuing source of venture capital funding for the BC Renaissance Fund. The termination of the Federal Immigrant Investor Program has called into question the future of the BCIIF and BCRCF.

C. Federal Government Programs

The following paragraphs briefly describe some federal government programs that contribute to the development of technology firms in BC while Appendix 1 provides a more comprehensive description of federal government programs to support technology companies in BC and the rest of Canada.

Venture Capital Action Plan (VCAP)

A key impetus for the federal government Venture Capital Action Plan (VCAP) is the 2011 Jenkins report entitled *Innovation Canada: A Call to Action; Review of Federal Support to Research and Development – Expert Panel Report* which states that without an active presence in Canada of adequate sources of capital, some of the commercial benefits of innovation originating in Canada could be exploited by firms in other countries with greater risk *investment capacity and/or* propensity. The report states that rates of return of Canadian venture capital funds have been well below those in the US for both private and tax-assisted (“labour-sponsored”) venture capital funds. The relatively low returns result from a number of factors, including subscale venture capital funds and a comparatively young venture capital industry in Canada that has not yet developed sufficient breadth and depth of experience to select and mentor the best potential investment candidates. The Panel’s consultations revealed a strong consensus within the community of venture capitalists and entrepreneurs in R&D-based and technologically advanced sectors that gaps exist along the funding chain. Some recurring themes from the consultations included the following: there is a need to improve access to seed capital; angel networks in Canada are not as well developed as in the US; Canadian companies are not as well financed as their US counterparts; foreign funds are present in a disproportionate share of Canadian exits; and Canadian firms are often forced to, or choose to, go public too early.

The 2011 Jenkins report also highlighted the problems caused by the relatively small size of Canadian venture capital investment funds. Subscale size limits the ability of Canadian fund managers to follow firms through to maturity as the size of successive financing rounds increases. This adversely affects financing opportunities for innovative firms in Canada and hurts the performance of Canadian venture capital funds. The smaller relative scale of Canadian venture capital funds has two main consequences. First, in order to create enough diversity in their portfolios, fund managers must keep investment per project relatively low. The small deal size spreads fixed costs — for example, evaluation and monitoring of investments — over a smaller investment base, which hurts returns. Second, smaller-scale Canadian funds are less able to participate in later-stage financing, since these involve a larger average deal size. Canadian funds, therefore, find it difficult to adopt the typical US strategy of financing firms from early stage to exit. As a result, foreign funds, particularly from the US, are often dominant in later-stage financing in Canada — for example, over the 2004–09 period the average venture capital investment by foreigners in Canadian firms was \$3.8 million, compared with \$1.0 million on average by Canadian investors. Although foreign partners invest in only about 10 percent of Canadian venture capital deals, they account for about 30 percent of exits and almost 45 percent of exit proceeds (BDC 2011). This situation appears to be hurting returns of Canadian funds and is contributing to a financing gap in later-stage investments.

Interviews with managers of venture capital and growth equity funds conducted by the Panel indicate that access to financing for firms that have revenues but are not yet profitable is particularly difficult. The typical deal size here is \$10–20 million, with fewer than 10 percent of deals greater than \$40 million. Canadian participation in this segment is limited. From 2003 to 2011, private venture capital funds disclosed 255 technology related deals over \$10 million. About a quarter of these deals were undertaken by purely Canadian funds, and foreign participants dominated all of the funding syndicates. Canadian-only funds accounted for about a third of the deals in the \$10–20 million range and none of the deals above \$40 million.

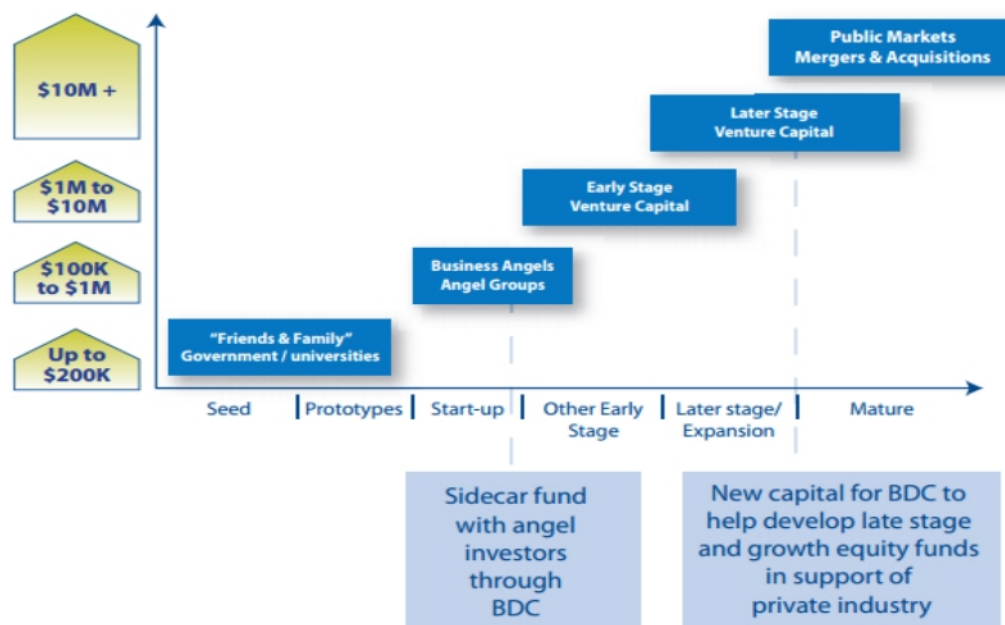
The Jenkins report states that the relative lack of participation from Canadian funds at the critical late stage of development of a business can have a number of adverse effects. First, either too many worthy firms are not getting financing, or they are being financed by US funds, which can affect where the intellectual property developed by the firm is ultimately exploited. While financing by US funds is preferable to no financing, overcoming barriers to full participation by Canadian private equity funds would result in greater benefits for Canada. Second, in downturns, US funds will tend to invest closer to home, which amplifies the decline in “peripheral” markets like Canada. Third, the required return on a foreign investment may be higher than that on domestic investments, especially if the investment is not in a current “hot spot” and the company is further away from breakeven. This increases the probability that a good Canadian company will not be properly financed. On the other hand, US funds bring not only capital but also expertise and networks, which result in higher exit values. Technology companies that obtain quick access to global markets and meet international standards attract the attention of global acquirers or are able to make an initial public offering on foreign stock exchanges. Foreign funds appear to prefer to co-invest with a local investor but, given the small size of Canadian funds, this is not always possible. This observation reinforces the point that small fund sizes are hurting returns in Canada. With the foregoing in mind, the Panel recommended programs to facilitate

investment in the two parts of the risk capital market where the most crucial gaps exist: angel investment and late-stage venture capital and growth equity. To realize this vision, the Panel recommended the following.

- Start-up stage — Direct the Business Development Bank of Canada (BDC) to allocate a larger proportion of its portfolio to start-up stage financing, preferably in the form of a “sidecar” fund with angel investor groups.
- Late stage — Provide the BDC with new capital to support the development of larger-scale, later-stage venture capital funds and growth equity funds in support of the private venture capital and equity industry. These funds would specialize in deals above \$10 million and be managed by the private sector.

Figure 5.11 reflects the Panel's views on where the weaknesses in the financing chain are found as well as the initiatives required to address these gaps.

Figure 5.11: Weaknesses in Financing Chain in Canada



Source: The Panel.

In response to the 2011 Jenkins report, the Government of Canada adopted *Economic Action Plan 2012* which announced resources to support Canada's venture capital industry, including \$400 million to help increase private sector investments in early-stage risk capital, and to support the creation of large-scale venture capital funds led by the private sector. To develop *Economic Action Plan 2012*, the Government conducted extensive consultations with key stakeholders to determine how to structure this support to best contribute to the creation of a sustainable, private sector-led venture capital sector in Canada. During the consultations, stakeholders emphasized the need to implement private sector-led initiatives that demonstrate the return potential of the Canadian venture capital market to investors. Based on the results of these consultations, the Prime Minister announced in January 2013 the *Venture Capital Action Plan*, a comprehensive strategy for deploying the \$400 million in new capital over the next 7 to 10 years, which is expected to attract close to \$1 billion in new private sector investments in funds of funds. Of the \$400 million in federal funding committed under the plan, the federal government will put a total of \$350 million into four funds of funds, each of which is intended to be led by highly experienced private-sector investment managers, and \$50 million will be reinvested directly into venture capital firms. More specifically, the \$400 million financing will comprise:

- \$250 million for two new national funds of funds in the amount of \$125 million each;
- \$100 million for recapitalizing two existing Canadian funds of funds in the amount of \$50 million each; and
- \$50 million for investment into three to five high-performing existing Canadian venture capital firms.

The four funds of funds collectively will seek to raise at least an additional \$800 million from outside investors (especially institutional ones) for a total of \$1.2 billion. The exact incentives the government will offer for other investors to invest \$800 million in the new funds of funds are expected to include creative ones such as the right of such investors to fulfill their capital commitments after the government fulfills its capital commitments and to receive returns on investment in advance of the government receiving its returns. To enhance the chances of success with the new funds of funds, the chosen investment managers are expected to be highly experienced and successful in their prior investments, and they are expected to commit their own capital. The funds of funds will focus primarily on early-stage investment (e.g., series A or B), with some growth equity and expansion capital investments throughout the lifecycle of their portfolio companies.

Business Development Bank of Canada (BDC)

The Business Development Bank of Canada (BDC) is a Crown corporation that operates at arm's length from its sole shareholder, the Government of Canada. BDC is a business development bank and the only financial institution dedicated exclusively to entrepreneurs. Through its subsidiary—BDC Capital, BDC also offer a full spectrum of specialized financing, including venture capital, equity as well as growth and business transition capital. BDC has recently refined its mission to refocus its activities on achieving a positive rate of return, and to emphasize the importance of building businesses instead of selling technology (BDC, 2011). BDC's venture capital mission is to help Canadian entrepreneurs create and grow successful, innovative technology businesses through patient investment and value-added support. The four strategic initiatives that will allow BDC to deliver on its mandate and improve its financial performance over the long term are as follows:

1. Develop at-scale "internal GPs" to build leading technology businesses – direct investment activities will be maintained through the creation of three distinct "internal GPs", covering life sciences, IT/Telecom, and energy/cleantech. For the time being, BDC will be the sole investor but will aim to spin them off once they are able to raise private capital.
2. Manage and grow a diversified portfolio – direct investments will be maintained through investments in a separate portfolio of businesses.
3. Catalyze the emergence of world-class Canadian venture capitalists through indirect investment – BDC's Funds group will ensure the creation of a number of at-scale funds, staffed with high-potential emerging or existing GPs. As one of Canada's very few large nationally focussed LPs, BDC VC can take the lead to reshape the LP landscape and attract institutional capital back into the Canadian venture capital market.
4. Stimulate the venture capital and innovation ecosystems – A series of initiatives will be put in place to address many challenges faced by the industry including improving industry global connectivity, reinforcing angel networks and supporting entrepreneurship development.

BDC is responsible for facilitating the implementation of VCAP on behalf of the Government of Canada by providing independent expertise, undertaking due diligence, supporting negotiations with funds and other investors, and assisting in the deployment of VCAP investments. As indicated below, BDC has made considerable progress in establishing the four fund of funds to receive funding from the *Venture Capital Action Plan*:

- The federal government has contributed \$36.3 million into the Northleaf Venture Catalyst Fund (NVCF) – the first of the government-sponsored funds comprising the \$400-million *Venture Capital Action Plan*. A total of \$217.5 million has been invested in the fund so far, with a goal to increase the amount to \$300 million. About two-thirds of the money is from the private sector, with the Ontario and federal governments contributing the other third. Both governments have agreed to provide \$1 for every \$2 committed to the NVCF by private sector investors, to a maximum of \$50 million each. NVCF is being managed by Toronto-based Northleaf Capital Partners, an independent, employee-owned global private markets investments firm that manages more than \$5 billion in private equity, venture capital and infrastructure commitments. Northleaf was picked by industry and Ottawa, following an extensive review process, based on its knowledge and experience in the Canadian private equity market. It will manage the fund on behalf of the two government partners as well as the private industry backers,

including the Canada Pension Plan Investment Board, Canadian Imperial Bank of Commerce, National Bank of Canada, BMO Financial Group, BDC Capital Inc., Ontario Capital Growth Corp., OpenText Corp, Royal Bank of Canada, Bank of Nova Scotia and Toronto Dominion Bank. The capital will be committed in smaller pieces, between \$10 million and \$30 million commitments in underlying funds, over a three to four year investment period. NVCF will invest primarily in Canadian venture capital and growth equity funds and direct co-investments in innovative Canadian companies. The sectors that Northleaf is focussing on include info technology, life sciences and clean technology.

- Teralys Capital Innovation Fund is the second fund of funds established under the VCAP. Teralys Capital Innovation Fund had its initial closing with \$279 million in commitments, of which \$186 million was from institutional and corporate investors, alongside \$46.5 million from each of the Governments of Canada and Quebec. The Fund has an overall target size of \$375 million. Teralys Capital Innovation Fund has an emphasis on investment opportunities in the life sciences sector, and will invest primarily in Canada-focused early-stage and mid-stage venture capital funds, and directly in companies across Canada. The Governments of Canada and Quebec have agreed to make a combined capital commitment of \$1 for every \$2 committed by private sector investors to the new Fund, up to a maximum of \$62.5 million each. The initial partners in Teralys Capital Innovation Fund are: BDC Capital Inc. (on behalf of the Government of Canada), Caisse de dépôt et placement du Québec, Desjardins, Fondation CSN, Fonds de Solidarité FTQ, Investissement Québec (on behalf of the Government of Quebec), Knight Therapeutics Inc., National Bank and OpenText Corporation. This Fund is seeking additional investors to reach its target size and anticipates holding a second closing in 2015. Teralys Capital has been selected by lead investors to act as the general partner and manager for Teralys Capital Innovation Fund, following a fair and competitive selection process led by the private sector-led Venture Capital Expert Panel. Teralys Capital is a fund manager financing private venture capital funds investing in innovative businesses in information technologies, life sciences, and industrial or clean technologies. With more than \$1.5 billion in assets under management across two venture capital funds of funds and a management mandate for two additional portfolios of funds, Teralys is one of the largest investors in Canada focused on innovation. Teralys has been supported since inception in 2009 by its many partners including the Caisse de dépôt et placement du Québec, the Fonds de Solidarité FTQ and Investissement Québec.
- Kensington Venture Fund, the third fund of funds established under the VCAP, had its initial closing with \$160 million in commitments—\$107 million from institutional, corporate and individual investors, alongside \$53 million from the Government of Canada. Kensington Venture Fund will place an emphasis on investment opportunities in clean technology and energy technology as well as information and communications technologies, and will invest primarily in early-stage and mid-stage venture capital funds and directly in companies across Canada. Kensington Capital Partners has been selected by lead investors to act as the general partner for the Fund, following a fair and competitive selection process led by the Venture Capital Expert Panel. Investment decisions will be made by Kensington Capital Partners based on market-based principles in order to maximize returns. The Government of Canada has agreed to make a capital commitment of \$1 for every \$2 committed by private sector investors to the new Fund, up to a maximum of \$100 million. The Fund will seek additional investors to reach its target size and anticipates holding a second closing in 2015. The initial partners in the Fund are: BDC Capital Inc. (on behalf of the Government of Canada), BMO Financial Group, CIBC, OpenText Corporation, Richardson GMP, Royal Bank of Canada, Scotiabank, TD Bank Group and individual investors. Representatives of Kensington Venture Fund have indicated a plan to focus on venture capital investments in western Canada.
- Discussions are currently being undertaken by BDC with HarbourVest Capital. HarbourVest is a leading global private equity investment firm based in Boston. HarbourVest has been investing in the private markets for 30 years and has access to a diverse range of high quality investment opportunities in the U.S., Latin America, Europe, Asia Pacific, and emerging markets.

Table 5.4 summarizes the status of the four VCAP fund-of-funds. Ontario and Quebec are the only two provincial government that have agreed to provide matching funding for the VCAP funds-of-funds.

Table 5.4: Status of VCAP Funds of Funds

Fund	Manager	Investment Focus	Maximum	Close	Provincial Government
1	Northleaf Venture Catalyst Fund	Early-stage and mid-stage venture capital funds, and directly in companies across Canada	\$300 M - gov't Canada \$1 for every \$2 private up to a max of \$100 M public	\$217.5 M (Jan 21, 2014) \$235 M (Aug 5, 2014)	Ontario
2	Teralys Capital Innovation Fund	Investment opportunities in the life sciences sector, and will invest primarily in Canada-focused early-stage and mid-stage venture capital funds, and directly in companies across Canada	Max \$375 M - gov't Canada \$1 for every \$2 private up to a max of \$125 M public	\$279 M (Nov 10, 2014)	Quebec
3	Kensington Venture Fund	Investment opportunities in clean technology and energy technology as well as information and communications technologies, and will invest primarily in early-stage and mid-stage venture capital funds and directly in companies across Canada	Max \$300 M – gov't Canada \$1 for every \$2 private up to a max of \$200 M	\$160 M (Nov 18, 2014) \$107 M institutional \$53 M federal	None
4	HarbourVest Capital	TBD	TBD	TBD	None

D. Impact of BC Government Venture Capital Programs

A 2010 evaluation of the BC Government venture capital program stated that over the period 2001-2008, 517 companies that received a total of \$191 million in provincial and \$65 million federal tax credits generated an estimated \$379 million in provincial and \$368 million in federal taxes (Hellman and Schure, 2010). The report stated that for every \$1 of provincial tax credits issued, recipient companies generated \$1.98 in provincial taxes; and for every \$1 of Canadian (i.e., combined provincial and federal) tax credits issued, they generated \$2.92 in Canadian taxes. In short, the BC tax multiplier was 1.98 and the Canadian tax multiplier was 2.92. The authors concluded that the venture capital program is fundamentally valuable to the province of British Columbia because companies in the program generate more taxes than they consume tax credits, and companies consistently create new jobs.

The 2010 evaluation stated that the returns of the retail funds and labour sponsored funds have been negative over medium and long term horizons if the tax credit is not included. From an individual investor's perspective, taking into account tax credits and broker fees, program-supported investments in the retail and labour sponsored funds made at the inception date of these funds paid off less than unsupported investments in public equities as represented by either the S&S-TSX Composite Index or the S&P-TSX Venture Composite Index. The report stated that the long-term decline of funds raised from retail investors appears to be largely driven by the low returns generated by the retail funds, as well as the recent turmoil in financial markets.

The 2010 evaluation of the venture capital program recommended moderate increases in the personal investment limit of \$200,000 per year and the lifetime company maximum of \$5 million for the angel tax credits. The report also recommended greater budgetary flexibility where unused credits could be rolled over for several years and that barriers between different parts of the program, such as between the retail and

nonretail segments, as well as between the so-called equity capital, new media, cleantech and community budgets, may impose inefficient limitations. In addition, the report stated that the federal government should participate in the costs of the EBC and VCC programs through the establishment of a Canada-wide non-retail (or angel) program.

A 2012 review of the angel tax credits program stated that the current angel program works well, but that a few tweaks (e.g. increasing investment limit of \$200,000 per year) would enhance its value (Lerner, Hellmann, and Ilyaszade, 2012). The report stated that within the investment community, there was a shared view that more equity tax credits would lead to more investments. A survey of angels revealed that, in the absence of the equity tax credit, 24% would seek more angel investments in other Canadian provinces and 40% in the US.

The stakeholders interviewed as part of this research project were asked how the role of government has influenced the BC venture capital system over time. The most frequent response by stakeholders is that the angel tax credits have worked well and have had a positive impact on the angel sector in BC (Table 5.5). Some specific impacts of the angel tax credits noted by respondents are they have helped to develop the angel sector, increased the average size of angel investments, encouraged new angels to invest, helped fill the rounds of local venture capital firms, and created a functional and active angel sector in BC. Other respondents said that the angel tax credits have helped to fill the gap in venture capital funding. Some respondents stated that the program is still needed because the recent focus on accelerators in BC will result in more entrepreneurs looking for start-up capital from angels.

Table 5.5: Most Frequent Stakeholder Responses Regarding How Government has Influenced the VC Venture Capital System

Question: How has the role of government influenced the BC venture capital system over time?

- Angel tax credits have worked well and had a positive impact on the angel sector in BC (69)
- Labour sponsored funds have not worked well (61)
- Retail VCCs have not worked well (57)
- BC Renaissance Fund has had very little impact in BC (49)
- BC Renaissance Fund had some positive impacts such as creating relationships with foreign VCs and increasing their awareness of BC deal flow (8)
- Labour sponsored funds and retail funds help some local firms get access to capital (6)
- Labour sponsored funds and retail funds provided average investor an opportunity to participate in the asset class (5)
- Government has created a good environment and infrastructure for technology (5)

The second most frequently mentioned stakeholder response regarding how government has influenced the BC venture capital system is that the labour sponsored funds have not worked well. Some reasons given by respondents why labour sponsored funds have not worked well are: lack of demand by investors; too high management fees; poor fund returns; incentive structure is wrong because there is insufficient incentive for fund manager to perform well; the investment/redemption cycle is too short resulting in illiquidity problems; cost of raising money from the public is too high; and there is not a lot of value add provided by labour sponsored fund staff to companies that they invest in.

The third most frequent stakeholder response regarding how government has influenced the BC venture capital system is that the retail venture capital funds have not worked well. Some reasons given by respondents why retail venture capital funds have not worked well are similar to those given why labour sponsored funds have not worked well including the following:

- Lack of demand by investors;
- Too high management fees;
- Poor fund returns;

- Incentive structure is wrong because there is insufficient incentive for fund manager to perform well;
- Investment/redemption cycle is too short resulting in illiquidity problems;
- There is not a lot of value add provided by fund staff to companies that they invest in;
- Cost of raising money from the public is too high; and
- The model attracts poor managers.

A few respondents stated that the labour sponsored funds and retail funds have had a positive impact by helping some local firms get access to capital while other respondents stated that labour sponsored funds and retail funds provided the average investor an opportunity to participate in the asset class.

The fourth most frequently mentioned response from stakeholders regarding how government has influenced the BC venture capital system is that is that the BC Renaissance Fund has had a limited impact in BC. Some specific reasons given for this response included the following:

- Not a lot of investments in BC;
- Minimal investments in their sector;
- Lot of partner VCs chose to invest outside of BC;
- Insufficient incentives/guidelines to encourage VCs to invest in BC firms;
- Wrong VCs were selected because they did not invest in BC firms;
- Proportion of funds invested with local VCs too low compared to the proportion of funds invested with VCs not based in BC; and
- Putting more money into local VCs would have helped local VCs raise funding from elsewhere because their credibility would have been enhanced as a result of government investment in their fund.

A few stakeholders indicated that the BC Renaissance Fund has had some positive impacts such as creating relationships with foreign VCs and increasing their awareness of BC deal flow. In particular, some respondents stated that BC Renaissance Fund staff have been very effective in getting foreign venture capital firms more connected to BC entrepreneurs and more aware of investment opportunities in BC. Some representatives of BC Renaissance Fund partner VCs stated that they have invested more in BC than they would have if the BC Renaissance Fund had not existed.

Some stakeholders also indicated that the government has created a positive environment and infrastructure for technology which is necessary for a venture capital sector to thrive in BC. Some positive aspects of government support noted by respondents are excellent university research capabilities, creative university graduates, good talent pool, funding of accelerators, SR&ED tax credits, IRAP grants, and competitive taxes.

Stakeholders were asked what key lessons have been learned as a result of the last 20 or more years of history of venture capital in BC. Overall, the response rate was low to this question as several respondents did not feel qualified enough to respond. The most frequent response is that BC venture capital firms are still maturing as it takes a long time to develop a local venture capital sector (Table 5.6). Some other respondents stated that government has played a major role in increasing venture capital but it still needs to be involved due to shortage of venture capital in BC. Some specific ways in which respondents indicated that government has played a major role is in the provision of angel tax credits, SR&D credits and IRAP assistance. Some respondents stated that government still needs to be involved because many of the companies that are currently receiving angel or start-up financing will be unable to grow or survive due to the absence of venture capital.

Some respondents stated that venture capital is not appropriate for some firms and they need other types of assistance such as grants or loans. In particular, a few respondents stated that the biggest problem for start-ups is to find the first \$25,000 because sometimes money from family and friends is not available. Consequently, government should play a role to provide the first \$25,000 for a promising start-up because this

is not a role for angel funding or venture capital firms. A few respondents stated that the BC Government used to have an excellent program called Technology BC that provided funding for startups and enabled some of these start-ups to become major companies in BC. Other respondents stated that venture capital is not appropriate for companies that are established but growing slowly and that other sources of financing (e.g. loans) need to be more readily available for these companies to continue to grow.

Table 5.6: Most Frequent Stakeholder Responses Regarding Lessons Learned from the History of Venture Capital in BC

<i>Question: When you think of the last 20+ years of history of venture capital in BC, what are the key lessons that can be learned from the impact of changing economic forces?</i>
<ul style="list-style-type: none"> • BC venture capital firms are still maturing as it takes a long time to develop a local venture capital sector (18) • Government has played a major role in increasing local venture capital but it still needs to be involved due to shortage of venture capital in BC (16) • Venture capital is not appropriate for some firms and there needs to be additional sources of financing for these companies to grow (15) • Key to a successful venture capital sector is to get good entrepreneurs in BC (13) • Insufficient attention has been given by government to the technology sector in BC and too much effort has been focussed on extraction of natural resources (12)

Some respondents stated that the key to a successful venture capital sector is good entrepreneurs in BC because they provide a high quality of deal flow to enable local venture capital firms to thrive and achieve high returns (Table 5.6). To get good entrepreneurs, it is necessary to invest in universities and promote entrepreneurship. Some other respondents stated that insufficient attention has been given by government to the technology sector in BC over the last twenty years and too much effort has been focused on the extraction of natural resources.

E. Strengths and Weaknesses of the Angel Sector in BC

There exists consensus among the stakeholders interviewed that BC has a very functional and vibrant angel sector in BC. The most frequent responses regarding the key strengths of the angel investment sector is that there is a very strong and active angel community with lots of angels and they invest in quite a few deals (Table 5.7). Many respondents stated that the angels are very helpful and willing to provide their expertise and to undertake mentoring. Some respondents indicated that the number of angels is increasing as a result of younger successful entrepreneurs becoming angels. Other respondents stated that angels are a crucial part of the financing ecosystem and is a primary source of funding in some sectors due to the lack of VC funding.

When stakeholders were asked to indicate the weaknesses of the BC angel sector, many respondents were unable to provide a response. The most frequent response was that the angel sector is not very organized and needs more collaboration to enable more angels to pool their funds and resources in specific deals (Table 5.7). A few respondents stated that angels in BC are not as organized as in the United States in terms of collaboration on deals. In contrast, however, some other respondents indicated that the existing angel forums and networks are useful in providing education and advice to angels as well as introducing new opportunities.

Table 5.7: Most Frequent Stakeholder Responses Regarding Strengths and Weaknesses of the Angel Sector in BC

<i>Question: What are the key strengths and weaknesses of the angel investment sector in BC?</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Very strong and active angel community (38) • Lots of angels and they invest in quite a few deals (34) • Very helpful and willing to provide expertise (33) • Crucial part of financing ecosystem (17) • Put in a lot of time mentoring (16) • Number of angels is increasing (14) • Primary source of funding due to lack of funding from venture capital firms (9) 	<ul style="list-style-type: none"> • Not very organized and needs more collaboration (16) • Limited amount of angel funding available/can't meet demand (14) • Some angel investments are very small (12) • Lots of angels waiting for exits (8) • Lack of follow-on funds once angels have invested (8) • Some angels do not provide expertise (6) • Data not available on number and type of angel and angel deals (5) • Some angels are too risk averse (5)

Several respondents stated that there is a limited amount of angel funding available and that the available funding can't meet the demand of the many entrepreneurs in BC starting up and expanding companies). One factor constraining the amount of angel capital available is that there are lots of angels waiting for exits. Some respondents stated that the amount invested per deal by some angels is very small making it cumbersome to deal with because it is necessary to work with several small angels to raise enough financing. A few respondents stated that it currently takes almost 10 years to get an exit compared to only five years previously. Some stakeholders stated that there exists a lack of follow-on funds once angels have invested. Without follow-on funding, the company either withers or does not grow. A few stakeholders indicated that there does not exist data not available on the number and type of angel and angel deals undertaken in BC. Better data would be useful to improve understanding of the angel sector and facilitate collaboration among the angel community in BC.

The online survey of a sample of 80 companies that participated in the angel tax credit program contained a question regarding the key strengths and weaknesses of the angel sector in BC. The most frequent responses are that there is a strong and active community of local angels; there are well organized angel forums to present to potential investors; and the angel tax credit program is effective in motivating investors (Table 5.8). The most frequent responses of the company representatives surveyed regarding the weaknesses of the angel sector are that there are not enough angels; angel investments are too small and it is difficult for entrepreneurs to access accredited angels (Table 5.7). Some respondents stated that many of the people attending the angel forums are not in fact angels and have no money to invest.

Table 5.8: Most Frequent Online Company Survey Responses Regarding Strengths and Weaknesses of the Angel Sector in BC

<i>Question: What are the key strengths and weaknesses of the angel investment sector in BC?</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong and active community of local angels (15) • Well organized angel forums to present to potential investors (14) • Angel tax credit program is effective in motivating investors (13) • Angels are very experienced and supportive (11) 	<ul style="list-style-type: none"> • Not enough angels (20) • Angel investments are too small (12) • Difficult for entrepreneurs to access accredited angels (11) • Angels are too conservative/risk adverse (6) • Valuations are low (4) • Too passive/not much value add (3)

F. Strengths and Weaknesses of the Venture Capital Sector in BC

The most frequent stakeholder responses regarding the key weakness of the BC venture capital sector is the lack of venture capital and there are few VCs left in BC, particularly private VCs that obtain funding from institutional investors (Table 5.9).

Table 5.9: Most Frequent Stakeholder Responses Regarding Strengths and Weaknesses of the Venture Capital Sector in BC

<i>Question: What are the key strengths and weaknesses of the venture capital sector in BC?</i>	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Good deal flow/lots of investment opportunities (22) • Emergence of new VC models/becoming more specialized (9) • Good intellectual ideas (8) • Locals VCs have good contacts in United States (8) • More US VCs are investing in BC companies (7) • Local VCs very supportive (3) 	<ul style="list-style-type: none"> • Lack of venture capital in BC (63) • Few VCs left in BC (42) • Gap in capability of local VCs/local VCs are still maturing (40) • Gap in early stage funding (37) • Funding gap in other stages (24) • Local VCs make too small investments/do not have follow-on funding (14) • Not enough deal flow (10) • Local VCs shifting to later stage investments (8) • Lack of VCs specializing in life science sector (8) • Limited number of exits (6)

Stakeholders noted that Ventures West has closed and that Growthworks and the retail VCCs such as Discovery, Advantage and Pender have either closed or are not very active. The local VCs that are still active reported by the stakeholders are Yaletown Venture Partners, Vanedge, Chrysallix, Panagea, Version One Ventures and Renewal Funds. However, several stakeholders stated that most of these venture capital firms have a significant proportion of their investments outside BC and that the remaining firms have very little venture capital to invest. Several stakeholders noted that the reason for the lack of local venture capital is due to the poor returns obtained by BC venture capital firms. As a result of the poor returns, the amount of funding they are able to raise from institutional investors in Canada has declined dramatically. Some VCs are currently having difficulty in raising money for new venture capital funds. Another factor that has constrained the amount of venture capital is the limited number of exits that have occurred in recent years.

The problem with the lack of local venture capital funding noted by respondents is that it results in the building of only small companies because there is no capital available to grow companies bigger. Due to the lack of venture capital, some BC companies shift to smaller plans and to not think big. In addition, only the top entrepreneurs in BC can get money from elsewhere such as Silicon Valley which results in less business creation and expansion in BC. Another problem noted is that many companies that get venture capital from US venture capital firms are likely to relocate to the United States to be close to their source of venture capital.

The funding gap reported most frequently by stakeholders is a shortage of early stage funding. Some stakeholders noted that the shortage of early stage funding is partly exacerbated by some local VCs shifting to later stage funding. Several stakeholders also reported gaps in mid stage and later stage funding. A few respondents indicated a shortage in seed funding. Some respondents stated that there exists a lack of local VCs specializing in the life science sector which has meant that this sector has experienced a more serious shortage of venture capital than other technology sectors.

Some stakeholders stated that when compared to foreign VCs, local VCs make too small investments and that local VCs are still challenged by scale. The problem with too small investments is that the companies that

receive venture capital are undercapitalized and unable to compete with US companies who are able to obtain a higher level of funding for the same opportunity from US venture capital firms. A number of stakeholders also indicated that local VCs often do not have sufficient follow-on funding and do not have the capacity to take the company the whole way. The resulting problems are that BC companies are unable to grow to a large size; they are forced to exit or go to the market too early; or they take on debt resulting in a larger risk for the company. Difficulty in raising capital also distracts management attention and because they spend too much time raising capital, they are less likely to be successful.

Several stakeholders indicated that one of the weaknesses of the venture capital sector in BC is the gap in capability of local VCs and the fact that local VCs are still maturing. Several stakeholders indicated that many local VCs lack operational skills and don't have enough entrepreneurial experience. Other stakeholders stated that some local VCs do not provide much value add (i.e. networking, marketing and strategic connections, mentoring, sector expertise, etc) while a few respondents stated that most local VCs do not lead the deals due to lack of experience.

When stakeholders were asked to indicate the strengths of the BC venture capital sector, many respondents were unable to provide a response. The most frequent response was that there exists a good deal flow in BC with lots of venture capital investment opportunities. Some respondents indicated that increased research and development in BC universities such as UBC and SFU has resulted in good intellectual ideas and this has created many investment opportunities. A few respondents stated that more United States VCs are investing in BC because of the good deal flow in BC.

Some stakeholders stated that some new VC models have recently emerged in BC as these VCs are more specialized with a focus on a specific sector and a global rather than local geographic scope. One example of a new VC model referred to by some stakeholders is Version One Ventures which invests in consumer internet, SaaS and mobile entrepreneurs throughout North-America.

Representatives of the 80 companies surveyed online were also asked to indicate the key strengths and weaknesses of the venture capital investment sector in BC. Overall, the response to this survey question was very low, particularly with regarding to key strengths of the venture capital sector. The most frequent responses regarding the weaknesses of the venture capital sector are the lack of venture capital in BC; not enough venture capital firms; lack of early stage funding; and local venture capital firms are too risk adverse (Table 5.10)

Table 5.10: Most Frequent Company Survey Responses Regarding Strengths and Weaknesses of the Venture Capital Sector in BC

Question: What are the key strengths and weaknesses of the venture capital sector in BC?	
Strengths	Weaknesses
<ul style="list-style-type: none"> • Want to invest in BC/are local (5) • Have good connections to Seattle and Silicon Valley (4) 	<ul style="list-style-type: none"> • Lack of venture capital in BC (19) • Not enough VCs in BC (16) • Lack of early stage funding (6) • VCs are too risk adverse/conservative (5)

When stakeholders were asked to indicate the key strengths and weaknesses of the venture capital exit market in BC, there was consensus among stakeholders that the exit markets for BC companies are essentially the same as the exit markets for all other North American companies because all companies compete in the North American market. In other words, BC companies are not disadvantaged in terms of exit opportunities. Some stakeholders stated that the primary acquirers for BC companies are located in the United States and that US companies now readily acquire BC and other Canadian companies due to the low cost of

talent in Canada and the fact that there are no additional hurdles for American companies to acquire Canadian businesses. Other stakeholders stated that exits for BC companies are not restricted geographically and companies look to bigger companies in their sector for an exit.

A number of stakeholders indicated that due to lack of sufficient venture capital, some BC companies are forced to exit too early. The problem with early exits is that very little value is created resulting in very little money for the entrepreneur who sold the business to fuel the next deal or start the next company. Another issue is that many BC companies and their staff are forced to leave BC when it is acquired by an American firm. Several stakeholders stated that due to lack of venture capital, some companies are forced to go to IPOs too quickly. However, these stakeholders indicated that IPOs are not a good route for most tech companies. The primary reason is that it often results in a stalemate due to low stock prices which constrain the company from raising additional funding.

When stakeholders were asked to indicate the key trends affecting the venture capital sector in BC, the overall response rate to this question was low. The most frequent responses were (in order of frequency with the most frequent responses listed first):

- Decline in venture capital and the number of venture capital firms in BC.
- BC venture capital firms are still maturing.
- Venture capital firms in BC and elsewhere are becoming more specialized (i.e. domain expertise) and invest globally rather than the previous model of local generalist firms. The trend also is for the venture capital firms to have staff with extensive sector expertise and to be run or guided by entrepreneurs with a successful track record in the sector.
- Silicon Valley VCs are going global now and do not just invest in their own backyard.
- More US based VCs are coming to BC.
- It is difficult for venture capital firms to get good returns from early stage investments and higher returns are usually obtained in later stages.
- Some pension funds in Canada (e.g. OMERS) are going direct rather than investing with VC firms.
- The market for IPOs is improving.
- There exists pressure from LPs to decrease the management fees charged by venture capital firms.
- The traditional 10 year time frame for venture capital funding is too short in some cases (e.g. biotech) and is being extended to 12 to 14 years by some venture capital firms throughout North America.
- Crowdfunding is increasingly becoming an alternative source of seed funding and early stage venture capital.

G. Capital Requirements of the BC Technology Companies Surveyed

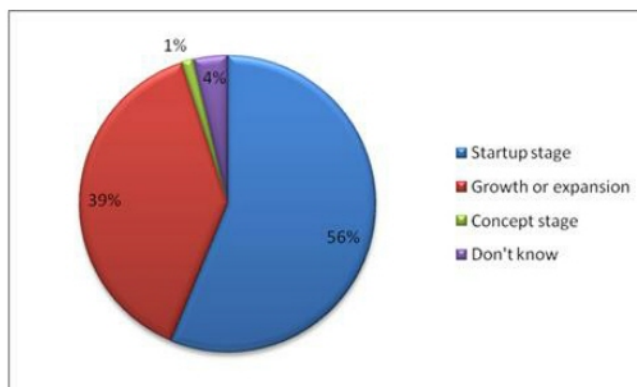
About 30% of the 80 companies surveyed online as part of the research project have been established for three years or less, 20% have been established within the last 4 or 5 years while 40% have been established for 6 or more years (Table 5.11).

Table 5.11: Number of Years Established of the Companies Surveyed

Number of Years Established	Number of Companies	% of Total
Less than 1 year	1	1%
1 – 3 years	23	29%
4 – 5 years	16	20%
6 – 10 years	24	30%
More than 10 years	8	10%
Don't know/no response	8	10%
Total	80	100%

Of the 80 companies surveyed, approximately 56% indicated that they were in the startup stage while 39% indicated that they are in the growth or expansion stage (Figure 5.12).

Figure 5.12: Current Stage of Development of Technology Companies Surveyed



The number of employees of the 80 companies surveyed ranged considerably. As indicated in Table 5.12, 29% of companies surveyed had less than 5 employees, 21% had between 5 and 9 employees and 20% had between 10 and 19 employees while 25% of the companies had 20 or more employees.

Table 5.12: Number of Employees of Companies Surveyed

Number of Employees	Number of Companies	% of Total
Less than 5	23	29%
5 – 9	17	21%
10 – 19	16	20%
20 – 29	8	10%
30 – 50	4	5%
Over 50	8	10%
Don't know/no response	4	5%
Total	80	100%

The total number of employees of the companies surveyed is 1,369, and the average number of employees per company is 28. Most of the companies plan to hire a significant number of employees over the next three years because total employment of the companies surveyed is projected to increase by 2,160, which is an increase of 158% (Table 5.13). Forty or 51% of the companies plan to hire between 20 and 50 employees while an additional six companies plan to hire more than 50 employees.

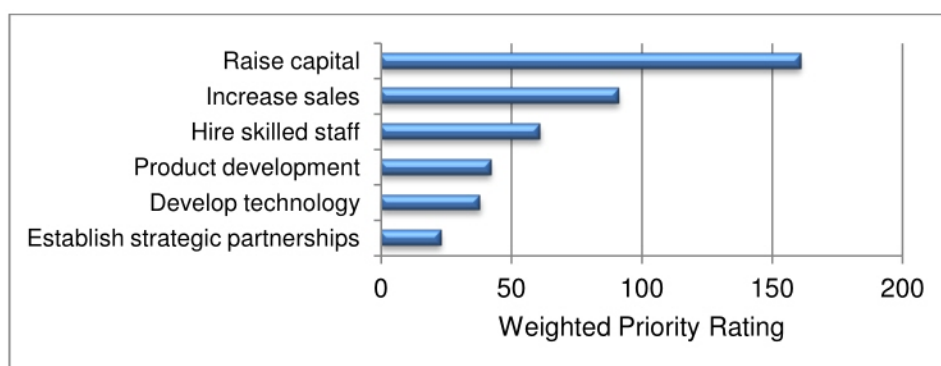
Table 5.13: Projected Increase in Employees over the Next Years for the Companies Surveyed

Increase in Employees	Number of Companies	% of Total
Less than 5	9	11%
5 – 9	5	6%
10 – 19	13	16%
20 – 29	14	18%
30 – 50	26	33%
Over 50	6	7%
Don't know/no response	7	9%
Total	80	100%

Angel investments have been the primary source of capital for the companies surveyed. These companies raised a total of \$104 million from angel investors since the inception which is an average of about \$1.5 million per company. Only 16 or 20% of the companies surveyed have raised any venture capital funds since the inception of the company. The total amount of venture capital obtained by these companies is approximately \$69 million.

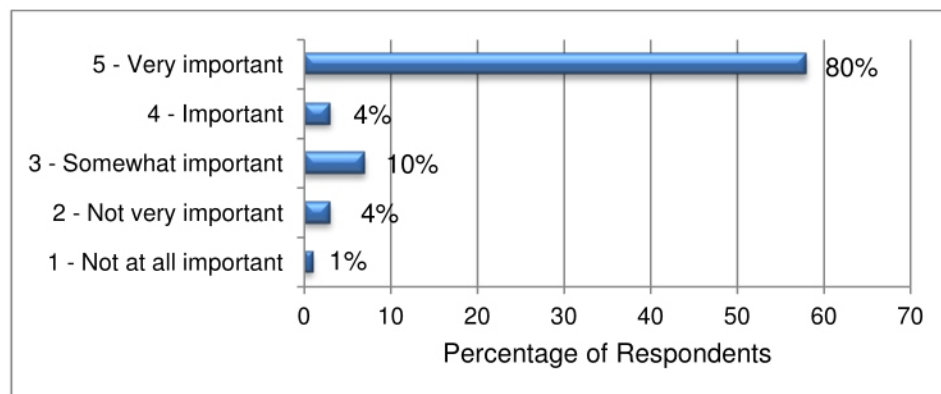
Raising additional capital was the top priority of many of the companies surveyed. The companies surveyed were asked to indicate their top three priorities in order for them to develop further. The top priority of the companies surveyed is to raise additional capital while the second and third most important priorities are to increase sales and hire skilled staff, respectively (Figure 5.13).

Figure 5.13: Top Priorities of the Companies Surveyed



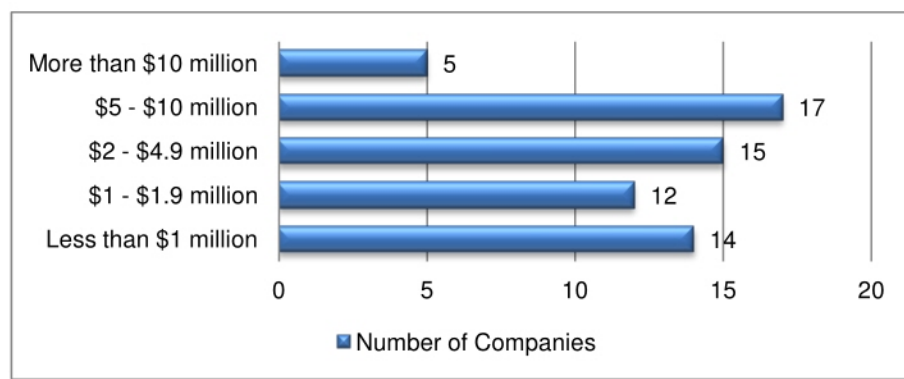
When company representatives were asked to indicate how important is access to additional capital at the current stage of their company's development, on a scale of 1 to 5 where 1 is not important at all, 3 is somewhat important and 5 is very important, the average rating was 4.6. A total of 58 companies or 80% of respondents to this question stated that access to additional capital was very important at the current stage of their company's development. The most frequent reasons given by respondents why access to additional capital is very important is that capital is needed for R&D and operational costs because they are still at a pre-revenue stage or revenues are not sufficient to cover costs (Figure 5.14). Some other reasons mentioned frequently are that capital is needed for product development or to accelerate sales growth.

Figure 5.14: Importance of Access to Additional Capital for the Companies Surveyed



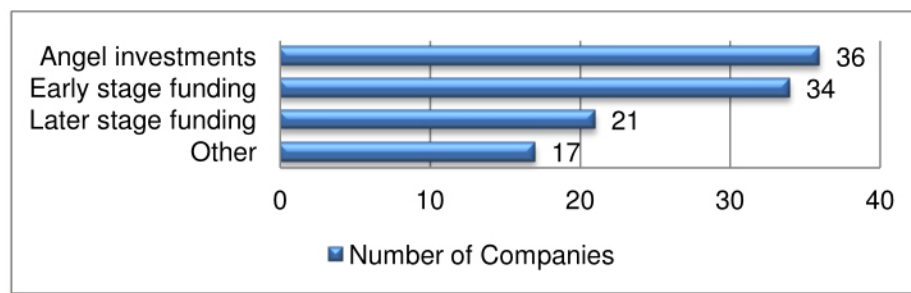
The total amount of additional capital current required by the companies surveyed is approximately \$263 million. The amount of additional capital required by the companies varied considerably ranging from less than \$1 million to over \$10 million while the average amount of financing required is approximately \$4 million (Figure 5.15).

Figure 5.15: Amount of Additional Capital Required by the Companies Surveyed



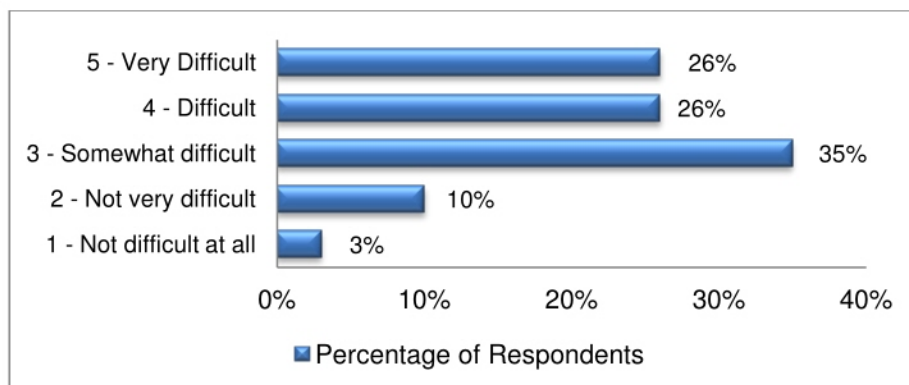
The type of capital required by the companies surveyed ranged considerably with the angel and early stage funding mentioned most frequently (Figure 5.16). The number of companies that indicated they require additional funding from angels and early stage funding is 36 and 34, respectively, while 21 companies indicated that they require later stage funding. Of the 17 companies that indicated they required other types of capital, the most frequent types of funding mentioned are government loans, working capital financing and strategic partner financing.

Figure 5.16: Type of Additional Capital Required by the Companies Surveyed



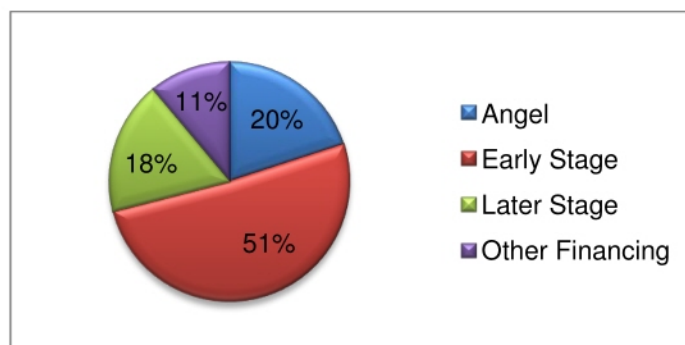
Most of the companies surveyed experienced difficulties in raising capital for their company. When the companies surveyed were asked how difficult it has been to raise capital for their company, on a scale of 1 to 5 where 1 is not difficult at all, 3 is somewhat difficult and 5 is very difficult, the average rating was 3.7, which indicates that they have had considerable difficulty in raising capital. Thirty eight companies or 52% of the companies that responded to this question stated that it was difficult or very difficult while another 35% of the companies stated that it was somewhat difficult to raise capital for their company (Figure 5.18). The most frequent reasons provided by respondents for experiencing difficulties in raising capital are: there is a very limited amount of early stage venture capital available in BC; they have gone to the US for capital but US investors require them to relocate to the United States; Canadian investors are too risk averse; and local investors are hesitant to invest in pre-revenue companies.

Figure 5.17: Level of Difficulty in Raising Capital for the Companies Surveyed



When respondents were asked what type of capital was the most difficult to raise, early stage capital was most frequently mentioned and accounted for 51% of total responses. Difficulties in raising angel funding and later stage funding accounted for 20% and 18% of responses, respectively (Figure 5.18).

Figure 5.18: Type of Capital that is Most Difficult to Raise by the Companies Surveyed



VI. Opportunities to Enhance the Venture Capital Sector in BC

This chapter summarizes the results of stakeholder consultations and other research regarding the opportunities to enhance the angel and venture capital sector in BC.

A. Opportunities to Enhance the Angel Sector in BC

There exists considerable consensus among the stakeholders interviewed that the angel sector in BC could be enhanced by expanding the existing angel tax credits provided by the BC Government. When stakeholders were asked to indicate the key opportunities to enhance the angel sector in BC, the most frequent response is to increase the maximum annual tax credit per person of \$200,000 (Table 6.1). The amount that this cap should be increased suggested most frequently by stakeholders is \$500,000 while a few respondents indicated a maximum of \$300,000. The primary reason given for increasing the maximum annual tax credit is to provide greater incentive for angel investors and to increase the amount invested in each deal.

The second most frequently suggested opportunity to enhance the angel sector is to increase the lifetime maximum amount of \$5 million that can be invested in a company. Most respondents suggested that this limit should be increased from \$5 million to \$10 million to account for the current lack of capital available from local venture capital firms in BC. The third most frequent suggestion to enhance the angel sector is to increase the overall budget for angel tax credits. Several respondents stated that the budget for angel tax credits should be increased to \$50 million. The primary reasons for the budget increase are to account for the strong demand for angel tax credits, to accommodate the suggested increases in personal annual maximum of \$200,000 and company lifetime maximum of \$5 million, and to help resolve the critical lack of early stage funding for start-up companies in BC.

**Table 6.1: Most Frequent Stakeholder Responses
Regarding Opportunities to Enhance the Angel Sector in BC**

Question: What are the key opportunities to enhance the angel sector in BC?
<ul style="list-style-type: none"> • Increase the maximum annual tax credit per person of \$200,000 (38) • Increase the maximum amount of \$5 million that can be invested in a company (37) • Increase the total program budget for angel tax credits (33) • Provide government support to improve the organization and collaboration of angel sector (16) • Convince federal government to pay for 50% of the angel tax credit program (16) • Allow angels from rest of Canada to participate in angel tax credit program (9) • Expand eligibility of the program to wider range of companies (8) • Eliminate/reduce requirement to pay back tax credits if company sold within 5 years (6) • Increase tax credit higher than 30%, particularly for seed funding (6) • Match existing angels funds (6) • Encourage new angels to get involved (5) • Provide better data on number, type and activity of angels in BC (4) • Expand eligibility of angel tax credit program to include convertible debt (3)

As indicated in Table 6.1, some stakeholders suggested that government should provide support to improve the current degree of organization and collaboration of the angel sector. Some respondents stated that government funding should be provided to hire an executive director that would assist angels in doing more deals through greater collaboration as well as encouraging and educating new angels how to do deals.

Some respondents suggested that federal government should be convinced to pay for half of the angel tax credit program in BC by providing a tax credit of 15%. If this were achieved, the angel tax credit budget in BC could effectively be doubled thereby significantly increasing the amount of angel capital available in BC. To

convince the federal government to participate in a national angel tax credit program, some respondents stated that the BC government should collaborate with other provinces to launch a unified appeal for a national program. In addition, it will be necessary to conduct a detailed analysis of the impact of the existing angel tax credit programs in Canada to demonstrate their impacts in stimulating angel investments. Some respondents stated that the angels from rest of Canada should be allowed to participate in the BC angel tax credit program in order to increase the amount of angel funding for BC companies. This could best be achieved if there were a national angel tax credit program. It should be noted that this approach may not be feasible given that other province's do not have matching provincial angel tax credit programs.

Some other refinements to the angel tax credits program suggested by a few stakeholders are: expanding eligibility to a wider range of companies; include convertible debt as an eligible type of investment; eliminating or reducing the requirement to pay back tax credits if company sold within 5 years; and increase the tax credit higher than 30%, particularly for seed funding, to encourage angels to get more involved in seed funding and to recognize the higher risk involved with this type of funding. Some stakeholders suggested that a government fund should be established to match existing angel funds in order to increase the impact of angel funding in BC. Some jurisdictions have already established angel side car funds and BDC has a budget to undertake such an initiative in Canada.

Another opportunity mentioned by a few stakeholders to enhance the angel sector is to provide better data on number, type and activity of angels in BC. This could be done by modifying the existing database of the provincial government (i.e. angel tax credit database) and establishing new databases as part of an initiative to improve the current degree of organization and collaboration of the angel sector in BC.

The most frequently mentioned responses of the companies surveyed online regarding the key opportunities to enhance the angel sector in BC are to increase the overall budget and annual cap of \$200,000 per investor of the angel tax credit program; organize more events to bring angels and entrepreneurs together; establish a government fund to co-invest with angels; and undertake greater promotion of the angel tax credit program to increase the number of angels in BC (Table 6.2). Other responses are to allow any Canadian angel investor to benefit from angel tax credits and to hold angel training sessions, particularly for young angels, in order to increase their value-add to companies that they invest in.

**Table 6.2: Most Frequent Responses of Companies Surveyed Online
Regarding Opportunities to Enhance the Angel Sector in BC**

Question: What are the key opportunities to enhance the angel sector in BC?
<ul style="list-style-type: none"> • Increase the overall budget and maximum cap per investor of angel tax credit program (9) • Organize more events to bring angels and entrepreneurs together (7) • Establish a government fund to co-invest with angels (5) • Greater promotion of angel tax credit program to increase the number of angels (5) • Allow any Canadian angel investor to benefit from angel tax credits (4) • Hold angel training sessions (3)

B. Opportunities to Enhance the Venture Capital Sector in BC

When stakeholders were asked to indicate the key opportunities to enhance the venture capital sector in BC, the most frequent response is that the BC Government should invest in VCAP by matching funds provided by the federal government in much the same way as the Ontario and Quebec provincial governments have providing matching federal government funds for the Northleaf and Teralys funds-of-funds, respectively (Table 6.3).

**Table 6.3: Most Frequent Stakeholder Responses
Regarding Opportunities to Enhance the Venture Capital Sector in BC**

Question: What are the key opportunities to enhance the venture capital sector in BC?
<ul style="list-style-type: none"> • BC Government should invest in Venture Capital Action Plan by matching funds provided by federal government (38) • BC Government should establish a co-investment fund (i.e. side-car fund) that provides matching funds directly to BC companies that have obtained funding from angels, local VCs or foreign VCs (28) • BC Government should undertake a modified Phase 2 of the BC Renaissance Fund to support existing and new VCs in BC (18) • BC Government should provide other types of financing to BC technology companies that are not suitable for venture capital funding (16) • BC Government should encourage US VCs to increase their investment in BC companies (12) • BC Government should create an environment for a vibrant venture capital sector (8) • BC Government should use immigrant investor funds as a source of venture capital (6)

The primary reasons given by stakeholders for suggesting that the BC Government participate in VCAP include the following:

- There would be considerable leverage obtained from a BC Government contribution thereby increasing the potential amount of venture capital available in BC;
- It would likely result in a fund-of-funds manager based in BC which would likely increase the number of BC companies that receive VCAP venture capital;
- Without participation by BC Government, there will not be a VCAP fund-of-funds manager based in BC which will reduce the number of BC companies that receive VCAP funding because even though VCAP is not supposed to have any geographic restrictions, VCAP fund-of-fund managers take a closer look at companies in their immediate locale.
- If successful, the initiative would result in Canadian institutional investors deciding to invest again in BC and Canadian venture capital firms;
- VCAP is a superior option than renewing the BC Renaissance Fund because VCAP can attract more institutional funds and has greater leverage than the BC Renaissance Fund;
- It could enable the establishment of specialist funds (e.g. life sciences or clean tech) that would alleviate the current shortage of venture capital in some specific sectors in BC; and
- The model relies on private sector expertise to select the fund managers which is preferable because private fund managers are more capable than government in selecting fund managers.

As indicated in Table 6.3, the second most frequently mentioned suggestion to enhance the BC venture capital sector is for the BC Government to establish a co-investment fund (i.e. side-car fund) that provides funds directly to BC companies that have obtained funding from angels, local VCs or foreign VCs. For this option, BC Government would provide a fixed proportion of matching funds to BC companies in same (or relaxed) terms as the participating angel or VC. No due diligence is required because this will have already been undertaken by the pre-qualified angel or VC that decided to provide funding to BC companies. This model would significantly reduce or eliminate the management fees paid by the BC Government on the funds invested. A few stakeholders indicated that immigrant investor funds could be possibly used as a source of capital for the renewed BC Renaissance Fund.

Some stakeholders stated that a side-car fund could enable the BC Government to maximize benefits from VCAP because it would provide an enhanced incentive for GPs from the four VCAP funds-of-funds to provide venture capital to BC companies. To further enhance this option, some stakeholders suggested that the terms of the funds provided to BC companies from the side-car fund could be structured so that the participating angel or VC benefit to a greater extent than the BC Government in order to provide additional incentive for

angels, local VCs, VCAP VCs and foreign VCs to participate in the side-car fund. Several stakeholders referred to similar side-car funds that have already been established in Quebec and Ontario as a model for the BC government.

The third most frequent suggestion by stakeholders to enhance the BC venture capital sector is that the BC Government should undertake a modified Phase 2 of the BC Renaissance Fund to support existing and new VCs in BC. The modified version of the BC Renaissance Fund suggested is that only existing and new BC venture capital firms would be eligible to receive funding and no funding would be available to VCs not based in BC. Several stakeholders stated that it is important to have a local VC capability in order to access venture capital from Silicon Valley as well as to provide early stage funding to BC companies because most foreign venture capital firms are not interested in providing early stage funding. A number of stakeholders suggested that one of the key goals of the modified BC Renaissance Fund should be to establish new VCs with specialized expertise in sub-segments of the BC technology sector such as life sciences to resolve the current gap in funding for the life sciences sector in BC. Existing VCs should also be provided with funding in order to enable them to better obtain funding from other sources. By the BC Renaissance acting as the first institution to commit to a fund, it would enhance the credibility and likelihood of the local VC obtaining sufficient funding from other institutions and their ability to close their fund.

The fourth most frequently mentioned suggestion by stakeholders to enhance the BC venture capital sector is that the BC Government should provide other types of financing to BC technology companies that are not suitable for venture capital funding. The other types of funding suggested include seed funding for start-up companies as well as loan funding for companies that are already established but are growing slowly. Some types of programs suggested are a loan loss guarantee program (such as that undertaken by Western Economic Diversification) and a seed fund (such as the Technology BC fund that used to be funded by the BC Government or the highly successful SBIR program of the United States Government).

Some stakeholders suggested that the BC Government should encourage foreign VCs to increase their investment in BC companies. One alternative to encourage US VCs to increase their investment in BC is to increase their awareness of the deal flow and vibrancy of the technology sector in BC. This could be accomplished by inviting representatives of US venture capital to come to BC on familiarization tours where they would meet with leading technology companies in BC as well as technology companies requiring venture capital. Another option suggested is for BC Advantage to offer tax credits to encourage foreign VCs to locate in Vancouver. A few stakeholders stated that the BC Government should create an environment for a vibrant venture capital sector such as making it easy for companies to attract the right talent locally as well as from other jurisdictions, keep funding the universities, maintain or enhance the SR&ED program, and be the first customer of local tech companies.

The companies surveyed online were also asked to indicate the key opportunities to enhance the venture capital sector in BC. The response rate to this question was very low. The most frequent responses are Increase the number of local venture capital firms; provide matching government funding to establish new venture capital funds; attract more foreign venture capital investment to BC; and provide more early stage funding (Table 6.4).

**Table 6.4: Most Frequent Company Responses
Regarding Opportunities to Enhance the Venture Capital Sector in BC**

<i>Question: What are the key opportunities to enhance the venture capital sector in BC?</i>
<ul style="list-style-type: none"> • Increase the number of local venture capital firms (6) • Provide matching government funding to establish new venture capital funds (6) • Attract more foreign venture capital investment to BC (5) • Provide more early stage funding (5)

C. Need to Attract Investment Capital and Expertise from Outside BC

One possible method of increasing venture capital activity is for government to develop policies to increase the attractiveness of the venture capital market to international institutional investors. There are two considerations which suggest why relying on local investors (i.e. local entrepreneurs or domestic sources of capital) is often not enough (Lerner, 2013):

- The relative size of the markets – Given the highly dispersed nature of the world's capital, there will be far more capital outside a given nation than inside. Even a very modest allocation to venture capital on the part of global investors will swamp a more significant domestic allocation in all but a few nations.
- The greater sophistication of global investors – In most markets with poorly developed venture capital industries, institutional investors have had very limited exposure to the asset class. Meanwhile, major pension funds, funds-of-funds, and government investment corporations have been investing in this asset class for decades. Over the years, they have developed an understanding of what makes an effective venture capital group, and the confidence to make major commitments when a group satisfies their criteria.

Many of the recent success stories, such as Israel and Singapore, had the growth of their venture capital industries driven not by inexperienced domestic investors, but by global players. In these cases, only after the markets had been validated by global players did local investors begin playing a significant role.

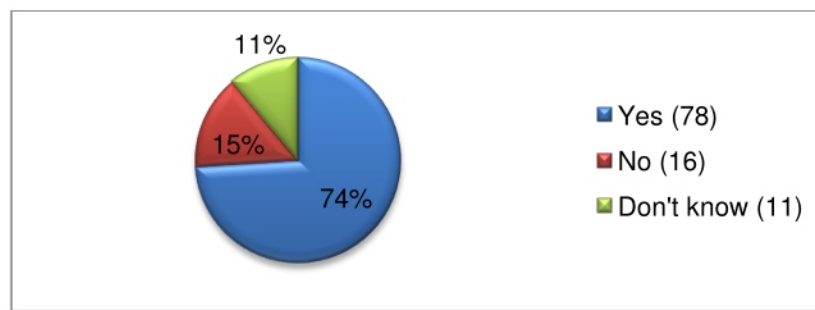
Governments should emphasize the development of strong interconnections with venture funds elsewhere. Venture capital is an increasingly global business where strong connections to major markets are critical to success. Growing a venture capital industry in isolation, however appealing to policymakers, is unlikely to be a winning strategy. The increased globalization of the venture capital industry can be seen along three dimensions (Lerner, 2012):

- The first is in capital commitments by limited partners. Venture capital markets used to be extremely segmented (e.g. German limited partners invested in Germany, French investors in France, etc.). Over time, these barriers have broken down and international capital flows have become far more common. In the most successful markets such as Great Britain, only one-quarter of the capital is from sources within the United Kingdom.
- The second dimension is the changing location of investments by venture capitalists. In previous years, many venture groups emphasized the importance of investing extremely locally, often within an hour's drive of the office. Over time, however, long-distance investing has become far more commonplace. The explosive growth of opportunities in India and China, coupled with successful deals elsewhere, has opened venture capitalists' eyes to the potential of long-distance investing.
- The final dimension is in the deployment of resources by entrepreneurial firms themselves. In the past few years, it has become commonplace for even the youngest Silicon Valley firm to have an overseas presence. As a result, venture capitalists are spending far more time supervising the far-flung operations of their portfolio firms, or even opening offices in these nations.

In some cases, these global connections can arrive without government intervention. Eastern Canada in recent years offers an example. The venture capital industry has expanded largely because of its close ties to the United States. First, local transactions have appeared increasingly attractive to funds based in Boston and New York because the disparity in valuations between eastern Canada and the United States has meant that stakes in comparable companies have been available at a substantial discount. Second, Ontario and Quebec-based funds are increasingly attracting limited partners based in the US as investors in their new funds.

Approximately three quarters of the stakeholders interviewed stated that there is a need to attract additional investment capital and expertise from outside Canada by increasing the involvement of foreign venture capital firms in BC (Figure 6.1). The most frequent reasons provided by respondents for the need to increase the involvement of foreign venture capital firms is that there are not enough local sources of venture capital in BC. Some other frequently mentioned reasons include the following: local VCs need to have connections with Silicon Valley VCs because they have lots of expertise and capital; Silicon Valley VCs are a good source of later stage funding for BC companies; and there is a need for BC VCs to capitalize on the marketing and strategic connections of foreign VCs.

Figure 6.1: Stakeholder Responses Regarding the Need to Increase the Involvement of Foreign Venture Capital Firms in BC



Most stakeholders indicated that the most appropriate foreign venture capital firms that should be targeted for increased involvement in BC are VCs in Silicon Valley because this is the largest pool of venture capital in the world. Some stakeholders indicated that US VCs now search the world for good companies to invest in and they do not just invest in their own backyard. Very few stakeholders suggested focusing on Asian VCs they are not likely to be interested and it will take an inordinate amount of time to attract investment from Asian VCs. While a few stakeholders indicated that foreign VCs do not need to partner with a local VC in BC to provide venture capital to BC companies, more stakeholders indicated that most Silicon Valley VCs like to partner with local VCs because they can provide local intelligence as well as undertake monitoring of their investments. Some stakeholders also indicated that Silicon Valley VCs are not very interested in providing early stage funding as they prefer to supply later stage funding and that provision of early stage funding is a more appropriate role for local VCs. A few stakeholders indicated that while there is a need to attract foreign VCs to BC, if we rely only on Silicon Valley as a source of venture capital, only a small proportion of the viable opportunities in BC will get funding.

When stakeholders were asked what actions the provincial government could take to increase the involvement of foreign venture capital firms in BC, the most frequent responses are as follows (listed in order of frequency):

- Increase awareness of BC technology companies by Silicon Valley venture capital firms (e.g. taking BC technology companies to Silicon Valley and organizing familiarization tours where Silicon Valley venture capital firms are invited to come to BC and meet with leaders of BC technology companies as well as BC technology companies that require venture capital);
- Continue initiatives such as BC Renaissance Fund because it has increased the involvement of foreign venture capital firms in BC;
- Support local venture capital firms because they are necessary to convince foreign venture capital firms to come to BC and work with them once they have invested in BC; and
- Provide tax incentives (via BC Advantage) for foreign venture capital firms to operate out of Vancouver.

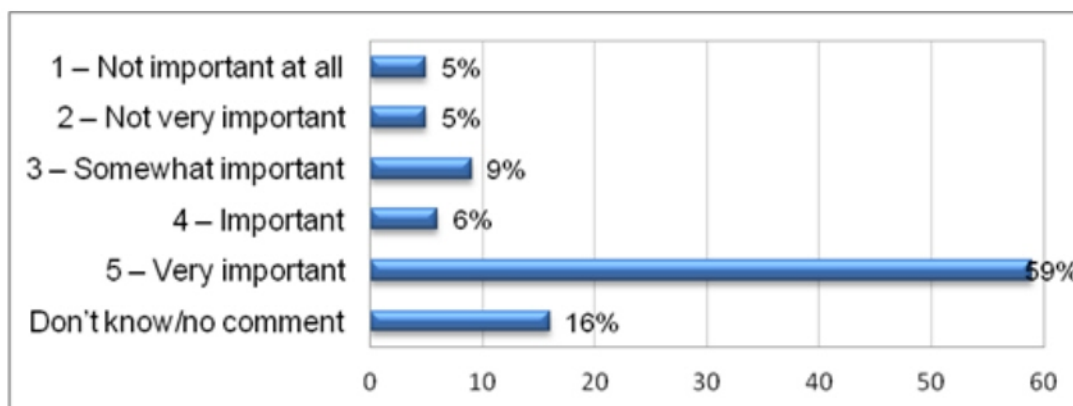
Several stakeholders stated that the BC government should not employ traditional trade missions as a means of increasing awareness of BC technology companies by Silicon Valley venture capital firms. They indicated

that past attempts have not proven effective and it is more important to focus on facilitating face-to-face interactions between Silicon Valley venture capital firms and BC technology companies.

As indicated in the Figure 6.1, 15% of stakeholders interviewed stated that there does not exist a need to increase the involvement of foreign venture capital firms in BC. The most frequent reasons provided are that Silicon Valley VCs are already familiar with BC companies; there does not exist enough deal flow to interest Silicon Valley investors; and foreign VCs are only interested in later-stage funding.

The companies surveyed online were asked to indicate how important it is to attract additional investment capital and expertise from outside BC by increasing the involvement of foreign venture capital firms in BC, on a scale of 1 to 5 where 1 is not important at all, 3 is somewhat important and 5 is very important. The average rating of company responses was 4.3. Approximately 59% of companies stated that it is very important (i.e. rating of 5) to increase the involvement of foreign venture capital firms in BC (Figure 6.2).

Figure 6.2: Importance of Access to Additional Capital for the Companies Surveyed



The most frequent reasons provided by the companies regarding why it is necessary to increase the involvement of foreign venture capital firms in BC are (listed in order of frequency):

- There exists a lack of venture capital in BC;
- BC venture capital firms are too small;
- Larger pools of capital are available from foreign venture capital firms;
- Foreign investors are less risk adverse; and
- BC companies can benefit from the marketing and strategic connections of US venture capital firms as well as connections to liquidity events.

When the companies surveyed were asked what actions the provincial government could take to increase the involvement of foreign venture capital firms in BC, the most frequent responses are as follows (listed in order of frequency):

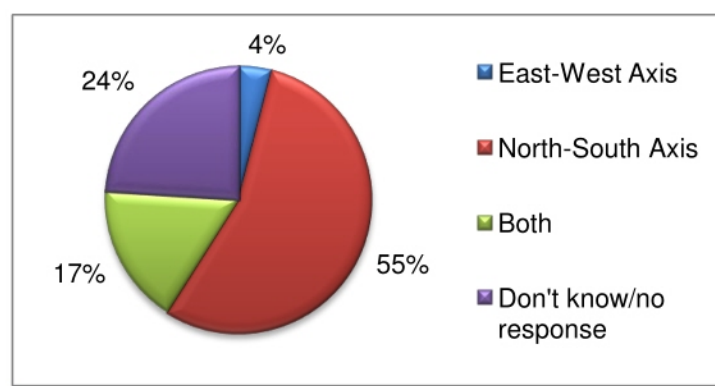
- Increase awareness of BC technology companies by Silicon Valley venture capital firms (e.g. providing funding for BC technology companies to travel to Silicon Valley and organizing familiarization tours where Silicon Valley venture capital firms are invited to come to BC and meet with leaders of BC technology companies as well as BC technology companies that require venture capital);
- Provide matching funds to co-invest with foreign venture capital firms that invest in BC companies; and
- Provide tax incentives to foreign venture capital firms that invest in BC companies.

Some current initiatives focused on increasing the investment of foreign venture capital in BC are undertaken by the Vancouver Economic Commission, C100, and Metabridge. The Vancouver Economic Commission recently received approval for a three-year \$900,000 program to attract investment in Vancouver companies from foreign venture capital firms, including those in Silicon Valley and Asia. C100 is a non-profit, member-driven organization that supports Canadian technology entrepreneurship through mentorship, partnership and investment. In 2010, a group of ultra-successful Silicon Valley business people from Canada discovered a mutual desire to support the next generation of Canadian entrepreneurs and help build the next billion dollar Canadian tech company. They created C100 which hosts events and organizes mentorship programs that connect Canadian entrepreneurs with Silicon Valley venture capital firms and technology companies. Metabridge is a non-profit organization created to provide a unique experience for Canadian technology companies by fostering direct connections with key Silicon Valley technology partners for investment, joint strategic partnerships, mentorship and advisory opportunities. Metabridge organizes a two-day retreat in the Okanagan each year where Silicon Valley venture capital firms are invited to meet with Canadian technology companies and participate in interactive presentations, round table discussions and multiple VIP networking sessions.

D. Geographic Considerations

The stakeholders interviewed were asked whether there should be greater priority on enhancing a national venture capital ecosystem (i.e. east-west axis) or enhancing collaborations between BC and the US venture capital ecosystems (i.e. north-south axis). As indicated in Figure 6.3, the majority (55%) of respondents stated that greatest priority should be placed on enhancing collaborations between BC and US venture capital ecosystems (i.e. north-south axis).

Figure 6.3: Stakeholder Responses Regarding Whether Greater Priority Should be Placed on National Capital Ecosystem or Collaborations between BC and US Venture Capital Ecosystems

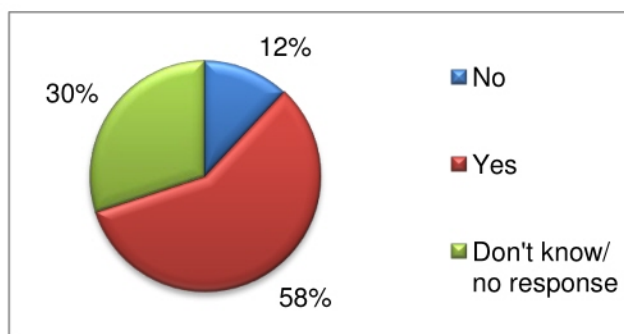


The most frequent reasons provided by stakeholders for greater focus on collaborations between BC and US venture capital ecosystems (i.e. north-south axis) are (listed in order of frequency mentioned):

- United States has a much larger supply of venture capital;
- US venture capital firms have much greater capability both in the amount of funding as well as networking and strategic connections to help BC companies;
- BC is closer to Silicon Valley (i.e. geographically and in same time zone) which makes travel much easier between the two jurisdictions;
- BC companies need exposure to US market opportunities which can be facilitated by US venture capital firms; and
- There is a similar culture between BC and the US West Coast.

Several stakeholders stated that one rationale for enhancing collaborations with United States venture capital firms is that they take greater risks than Canadian venture capital firms. The stakeholders interviewed were asked if they agree with the statement that Canadian risk-aversion is a hindrance to realizing the full benefit of the culture of entrepreneurship. The majority (58%) of stakeholders agreed that Canadian risk-aversion is a hindrance to realizing the full benefits of entrepreneurship while only 12% of respondents disagreed (Figure 6.4).

Figure 6.4: Stakeholder Responses Regarding Whether Canadian Risk Aversion is a Hindrance to Realizing the Full Benefit of the Culture of Entrepreneurship



The most frequent reasons why stakeholders felt that Canadian risk-aversion is hindrance to the full benefit of the culture of entrepreneurship are (listed in order of frequency):

- US venture capital firms and other investors (e.g. pension funds, endowment funds, etc.) are willing to take more risks than Canadian venture capital firms and other investors (e.g. pension funds);
- In the United States it is OK to fail and it is a good thing while in Canada entrepreneurs are penalized when things don't work out;
- Canadians are more risk averse and make companies smaller to reduce risk but this actually increases risk because the company has a greater chance of failing because it does not have enough capital to succeed; and
- Canadian companies think too small which prevents them from growing into large companies.

As indicated in Figure 6.3, only 4% of respondents stated that primary focus should be placed on enhancing a national venture capital ecosystem (i.e. east-west axis). However, 17% of stakeholders stated that both the north-south axis and the east-west axis are important. The primary reasons why stakeholders stated that priority should also be placed on enhancing a national ecosystem are as follows (listed in order of frequency):

- Need both to ensure availability of venture capital in BC It is critical to develop Canada as a source of venture capital that is supplemented with US capital;
- Should not prioritize by geography but rather than by sector – should go where there exists expertise in the sector; and
- There is more commonality between BC and rest of Canada compared to the United States (e.g. dealing with Eastern Canada venture capital firms has less legal barriers).

E. Role of the Private Sector in Development of Venture Capital Sector

The stakeholders interviewed were asked what role the private sector should play in the development of the venture capital sector in BC. Overall, most stakeholders stated that the private sector has not played a very large role in the development of the venture capital sector in BC. As an illustration, the local mining and forestry companies have not played a major role in developing/purchasing innovative technology from the local

tech sector. The general consensus of the stakeholders interviewed is that because there are not many large companies in BC, there are not enough larger private companies for them to play a major role.

Some stakeholders stated that, in the US, many corporations invest in venture capital funds to enable them to stay current but they don't see that level of interest by Canadian corporations. They indicated that Canadian corporations should be more supportive of local venture capital firms and start-ups because large US companies spend a lot of time with start-ups to help them with marketing connections.

Some stakeholders felt that BC technology companies could be source of innovation for local large companies in other sectors of the BC economy. They stated that a good role for the BC Government is to facilitate start-ups to help solve problems of larger companies in BC (e.g. natural resource companies). BCIC has undertaken an initiative in this regard.

F. Immigrant Investment as a Source of Venture Capital

The source of venture capital funding for the BC Renaissance Fund has been the Federal Immigrant Investor Program. The Federal Immigrant Investor Program was terminated as of February 11, 2014 which has called into question the future of the BC Renaissance Fund. However, in December 2014, the federal government announced that it will unveil a pilot program in January 2015 to attract experienced business immigrants who can actively invest in the Canadian economy, stimulating innovation, economic growth and job creation. Under the new Immigrant Investor Venture Capital Pilot Program, in addition to making an investment of \$2 million for a period of 15 years and having a net worth of \$10 million, immigrant investors will be required to meet certain program eligibility criteria related to language and education, and have proven business or investment experience. This will ensure that immigrant investors will have a strong impact on the Canadian economy, and that those admitted for permanent residence will be well prepared to integrate into Canadian business society. This new pilot program will begin accepting applications in late January 2015 and will provide a pathway to permanent residence for approximately 50 immigrant investors and their families. Investments into the Immigrant Investor Venture Capital Fund will be used to seed innovative Canadian start-ups with high growth potential. A number of stakeholders interviewed stated that the Immigrant Investor Venture Capital Fund could be source of venture capital for BC companies. Because the program details have not been announced, it is difficult to determine the nature and extent to which this source of capital will assist BC companies.

G. Competitive Advantages of BC Venture Capital Sector

One of the main competitors of BC's venture capital firms are venture capital firms in other jurisdictions because the venture capital industry is becoming increasingly global and venture capital firms are searching around the world for investment opportunities. In many instances, it is difficult for BC venture capital firms to compete with foreign VCs because there are not many BC venture capital firms and they are small in comparison to many US venture firms. The competitive advantages of BC venture capital firms compared to venture capital firms from other jurisdictions are that BC venture capital companies have a much better understanding of the local economy and are able to source investment opportunities. In addition, they are best positioned to provide early stage capital because foreign venture capital firms usually prefer to focus on later stage funding. Foreign venture capital firms often do not compete but instead collaborate with BC venture capital firms because they see value in partnering with a local venture capital firm to help in undertaking due diligence as well as monitoring their investments. Some BC venture capital firms have established expertise in a specific sector and have established world-wide recognition for their specialized knowledge. For example, Pangaea is the world leader in advanced materials venture capital. Some other sectors where BC venture capital firms have specialized expertise are clean tech, biotech as well as specific ICT sub-sectors (e.g. consumer internet and SaaS).

H. Status of Technology Sector in BC

The BC tech sector has outperformed other sectors of the BC economy in the following ways (KPMG, 2014):

- Strong economic contribution – Contributes more to the economy than resource-based sectors, with one of the highest GDP generated of all industries in BC (\$15.5 billion in 2012).
- Strong growth – Grew by double the rate of the BC economy, having the second highest GDP growth among all industries in BC. Industry revenues have grown at 6.7 percent on an annual basis since 2009.
- Large labour force – Employs 84,000 people, more than the forestry, mining, and oil and gas sectors combined.
- High paying jobs – Wages are 66 percent higher than the BC industrial average.
- In certain technology sectors (e.g., financial and business software, mobile/wireless technologies, and web-based and gaming technologies), growth has been supported by rich talent pools available at a lower cost relative to US clusters such as Silicon Valley. BC tech companies have also demonstrated stronger employee retention rates when compared to other jurisdictions in the US and globally.

Stimulation of the venture capital sector in BC would create 58,000 jobs between 2012 and 2020 and the BC technology industry will grow from 7.6% in 2012 to 16% of the provincial GDP in 2020 (BCTIA, 2014).

BC is home to eight of Deloitte's Technology Fast 50 winners, with Vancouver's Hootsuite Media Inc. taking second place with a revenue growth rate of 56,514% over five years. The other seven fastest growing companies in BC are QuickMobile, Clio, Avigilon Corp, Zafin, Appnovation, Clevest and Photon Control. Another indicator of the vibrancy of BC's tech sector is the number of top global tech players that have announced plans to move to BC including Microsoft, Amazon and Sony Pictures Imageworks.

Compared to other provincial tech sectors, BC tech industry is still catching up to its peers in the rest of Canada and faces significant challenges to becoming globally competitive (KPMG, 2014). While the BC tech sector has a number of advantages – a strong tech infrastructure, a vibrant start-up community, a wealth of ideas and innovation, proximity to major tech markets, the major stumbling blocks include a lack of early-stage venture capital and shortage of talent as the number of BC graduates in science, engineering and related fields falls dismally short of that in other regions. A renewed focus on, and investment in the BC tech sector is required for it to realize its full potential. The KPMG report states that government support in the following three critical areas could have a significant impact on the continued growth of the technology industry and its companies:

- **Revitalizing access to early stage venture capital.** A local supply of early stage venture capital is largely absent in the province. Early stage venture capital is an essential ingredient to the most successful tech companies. Without it, companies falter, stall or worse fail outright in capturing the market opportunity before them. The decline of local venture capital not only deprives companies of adequate risk capital, but also of the guidance and networking support that are essential to early stage growth. Moreover, an over-reliance on foreign venture capital increases the risk that successful companies will eventually relocate to other jurisdictions.
- **Expanding talent availability.** There is a dearth of seasoned senior management, while upcoming talent is currently lacking in specific fields, such as engineering, sciences and marketing. The talent needed to fill senior roles is typically cultivated organically as firms grow in size to medium and large enterprises. With relatively few medium and large enterprises in BC, the available pool of senior management is noticeably constrained. At the staff level, companies are increasingly challenged to fill roles locally as a result of fewer students enrolling in key areas –

including engineering, sciences and marketing – compared to other provinces in Canada.

- **Growing the size of firms.** The BC technology industry faces the challenge of growing the average size of tech firms and growing the number of medium and large anchor companies in the province. Organic growth and start-up success are the lifeblood of a vibrant, sustainable tech sector, but currently the vast majority of BC tech companies employ fewer than 50 people. Given the degree to which medium and large firms benefit the economy through R&D, employment, community involvement and other spinoff effects, a commitment to a growth strategy to both grow existing ones and attract larger companies is essential.

I. Other Considerations

The technology sector is important because today's youth appear to be more interested than previous generations in getting involved with start-ups. In January 2014, the Economist magazine published a special report on tech start-ups that stated that economic and social shifts have provided added momentum for start-ups. The prolonged economic crisis that began in 2008 has caused many millennials, people born since the early 1980s, to abandon hope of finding a conventional job, so it makes sense for them to strike out on their own or join a start-up. The report states that a lot of millennials are not particularly keen on getting a real job anyway. According to a recent survey of 12,000 people aged between 18 and 30 in 27 countries, more than two thirds see opportunities in becoming an entrepreneur (Economist, 2014). That signals a cultural shift. Young people see how entrepreneurship is doing great things in other places and want to give it a try. Lastly, start-ups are a big part of a new movement back to the city. Young people increasingly turn away from suburbia and move to hip urban districts, which become breeding grounds for new firms. Even Silicon Valley's centre of gravity is no longer along Highway 101 but in San Francisco south of Market Street.

VII. Government Venture Capital Programs in Other Jurisdictions

This chapter summarizes government venture capital programs in other jurisdictions and explains why many governments have developed programs to support their local venture capital sector.

A. Rationale for Government Support

Virtually every hub of cutting-edge entrepreneurial activity in the world today had its origins in proactive government intervention. Similarly, the venture capital industry in many nations has been profoundly shaped by government intervention (Lerner, 2012). As an illustration, public subsidies – particularly during the two World Wars – catalyzed the growth of Silicon Valley and shaped its critical features. Similarly, the pioneering firms in the venture capital industry were initially shaped largely by government interventions and public-spirited citizens. Policymakers should indeed care about new ventures and venture capital – and do have a role to play in facilitating their activity – for the following reasons (Lerner, 2012):

- Innovation is critical to growth – Economists have documented the strong connection between technological progress and economic prosperity, both across nations and over time. The pioneering work of Morris Abramowitz demonstrated that the growth of inputs between 1870 and 1950 could account for only about 15% of the actual growth in the output of the economy while the remaining 85% of increased economic activity stemmed from innovations in getting more stuff from the same inputs. Robert Solow, who won a Nobel Prize for his work, identified an almost identical residual of about 85%. These studies demonstrated that the crucial driver of growth was changes in the way inputs were used and that innovation was a major force in the growth of outputs. The relationship between innovation and growth has also been recognized by many governments. From the European Union – which has targeted increasing research spending as a key goal in the new few years – to emerging economies such as China, leaders have embraced the notion that innovation is critical to growth.
- New ventures can stimulate innovation – Researchers have demonstrated the critical role played by new firms, or entrants, in many industries. A study by Zoltan Acs and David Audretsch found that new and small firms contributed almost half the innovations they examined and that entrepreneurs and small firms play a key role in observing where new technology can meet customers' needs, and rapidly introducing new products. Three reasons why entrepreneurial ventures are more innovative than large firms are: incentives – there is a striking contrast between the very limited incentives at large corporate labs and the stock-option-heavy compensation package at start-ups; large firms may simply become ineffective at innovating because incumbent firms frequently have blind spots whereas new entrants can identify and exploit market opportunities that established leaders don't see; and new firms may choose riskier projects while established firms rationally choose more traditional approaches; therefore, while small firms may fail more frequently, they are also like to introduce more innovative products.
- Venture capital exerts a major impact on new ventures - In September 2008, 895 new ventures were publicly traded on US markets after receiving their private financing from venture capitalists. These firms made up 13% of the total number of public firms in the US. Of the total value of public firms (\$28 billion), venture-backed companies accounted for 8.4% or \$2.4 billion. The operating income margins for venture-backed companies were an average of 6.8% which was close to the average public company profit margin of 7.1%. The public firms supported by venture funding employed 6% of the total public company workforce – most of these jobs high-salaried, skilled positions in the technology sector. Clearly, venture investing fuels a substantial portion of the US economy as well as strengthens particular industries.
- Governments can encourage venture activity and play a catalytic role. The first rationale for government intervention lies in the fact that there is a "virtuous cycle" in entrepreneurship and venture capital. Activities by pioneering entrepreneurs and venture capitalists pave the way for subsequent generations: in a given city, it is far easier to recruit the staff for the one-hundredth start-up, or to find a lawyer to structure the one-hundredth financing, than the first. Indeed, history

is full of examples of pioneering firms that served as “entrepreneurship academies” from which other entrepreneurs sprung. A second rationale for government involvement lies in its ability to provide a stamp of approval. A growing body of empirical research suggests that new firms, especially technology-intensive ones, may receive insufficient capital to fund all value-creating projects. Venture capitalist back only a tiny fraction of the technology-oriented business begun each year. Furthermore, private venture funds have concentrated on a few industries. As a result, many promising firms in other industries are not attracting venture capitalists’ notice, perhaps reflecting herding by venture capitalists into particular areas. If government programs can identify and support these neglected firms, they might provide the stamp of approval these high-potential, underfunded firms need to succeed. A third rationale for public entrepreneurship and venturing initiatives is that knowledge spillovers may result (e.g. a firm may make a substantial investment in a new product only to see a rival capture most of the sales and profits; another firm that develops a related product may get most of the profits; and innovations may end up not being very profitable, while very beneficial to society). Thus, in many instances, the firms pursuing an innovation get fewer benefits than society as a whole. As a result, left to their own devices, companies will do less research than desirable. But with government subsidies, firms may be encouraged to invest the socially ideal amount of funds in R&D.

As indicated above, one rationale for government involvement in the venture capital sector is the social rate of return from financing entrepreneurial high-tech start-up companies is greater than the private rate of return (Cumming, 2007). Consequently, a major strategic focus of policymakers around the world has been the high-tech sectors and the stimulation of venture capital markets through direct government investment programs and laws that are appropriately designed to facilitate entrepreneurship and entrepreneurial finance.

The Canadian venture capital industry has a significant impact on the economy. Between 1996 and 2007, venture capital investors financed 2,175 technology companies in Canada, and 1,740 of those were operating in Canada in 2008 (CVCA, 2009). During this period, venture capital-backed companies created 150,000 jobs (1.3% of all private sector employees) and nearly 1% of GDP. Their impact on growth is also important, since venture capital-backed companies grow more than 5 times faster than the overall economy. Moreover, their impact on innovation (R&D and patents) and exports is very substantial. There are additional major benefits beyond these economic measures: (i) successful venture capital-backed companies generate wealth and talent which are reinvested in the next generation of technology start-ups; (ii) They create serial entrepreneurs; (iii) They allow investments by business angels, and (iv) They provide a source of experienced management talent. Alongside business angels, venture capital funds play a critical role in linking these pools of wealth and talent to new start-up companies.

Government support of the innovation ecosystem is necessary if Canada wishes to evolve from a resource-based economy to a knowledge-based economy. To this end, provincial and federal governments in Canada have massively invested in publicly funded R&D and, by means of a series of policy actions such as tax credits and government venture capital funds, both federal and provincial governments have supported the development of the venture capital industry. The benefits of venture capital to the Canadian economy are very sizable and, based on comparison with the US industry, there is opportunity for these benefits to be at least doubled if the industry is able to grow. However, the Canadian venture capital industry is currently experiencing a very difficult transition. As is the case for many other venture capital industries around the world, the industry has not yet been able to deliver strong enough returns to consistently attract institutional Canadian and foreign investors. As a consequence, venture capital fund raising is shrinking and the investment pace by Canadian funds is contracting. This decline has been partly compensated by an increase in investment by US funds. However, this US based funding generally supports later stage companies and sometimes results in a shift of company activities to the US. Building a strong and innovative technology based economy in Canada requires a strong Canadian based venture capital industry.

B. Guidelines for Government Support of the Venture Capital Sector

Building a successful innovation ecosystem is a long-term endeavour. A buoyant venture capital industry is one of the important ingredients of such an ecosystem; however, building a large pool of successful technology entrepreneurs, venture capitalists and company managers takes decades. Building a strong and sustainable venture capital industry requires a similarly long time. It took three decades, several business cycles and a strong government support (in the 60s through the SBIR program) before the US venture capital industry enjoyed a strong and self-sustainable expansion starting in the late 70s. This industry expansion had a huge impact on the US economy in terms of productivity and innovation, economic growth and employment.

If public programs are to create an environment in which new ventures can succeed, they must first understand the ways in which the market identifies and funds high-risk, high-potential entrepreneurs. Three common pitfalls in which public efforts misunderstand the working of venture markets are as follows (Lerner, 2012):

1. Timing – an entrepreneurship or venture capital initiative requires a long-run commitment on the part of politicians and public officials – if programs are abandoned after a few months or years, they are highly unlikely to bring any benefits.
2. Sizing – Either too small or too large an initiative can pose profound difficulties. The problem with too small a program is that it won't make much of a difference. While the minimum size varies by country and sector, conversations with practitioners suggest \$60 to \$75 million is the smallest size for an effective venture fund. On the other hand, if public programs become too large, they can crowd out, or discourage, private funding. Public funds may become so extensive that they discourage venture capitalists from investing in a given market, because all attractive opportunities have been funded already by the public funds. The experience of the Canadian labour-sponsored fund programs in the 1990s provides a good illustration of this latter danger. A number of provincial governments, seeking to encourage venture capital, established these funds in the 1980s and 1990s. But in doing so, they adopted some very peculiar elements:
 - Rather than encouraging institutional investors and sophisticated high-net-worth investors – who are the dominant investors in venture funds around the world – these funds were designed for the “little guy”.
 - Reflecting the political horse-trading that is part of the democratic process, the Quebec parliament (which enacted the first of these funds and whose legislation was widely imitated in other provinces) decreed that these funds would be managed by labour unions. Predictably, labour unions were unfamiliar with the venture process, leading to a “rent-a-union” dynamic where outsiders curried favour with unions to get permission to run their funds. Not surprisingly, the unions turned to cronies and fast-buck operators rather than experienced investors to manage the funds. There were no incentives for the unions to hire top-tier managers, or any provision for government program managers to step in if a problematic manager was hired.
 - The funds frequently had wide-ranging, somewhat muddled mandates, which ran from generating financial returns to providing labour education to promoting local economic development.
 - Tight limits were put on how long the funds could “sit” on the money they raised. For instances, in Ontario, one half of the funds had to be invested in the first year, and 70% within two years, whether there were attractive opportunities or not.
 - Numerous costly reporting requirements were imposed on the funds and were compounded by the presence of many individual investors.

Despite these design imperfections, the amount of capital investors put into labour funds in Canada grew spectacularly: the investment pool climbed from \$800 million in 1992 to \$7.2 billion in 2001, while private independent funds grew from \$1.5 billion to \$4.4 billion over the same period. The performance of labour funds lagged far behind both private and public equity indexes in the United States and Canada. In short, by flooding the market with funds, the program appears to have accomplished neither its financial nor broader social goals.

3. Flexibility – Government officials must appreciate the need for the flexibility that is central to venture capital investment. Venture capitalists make investments in young firms facing tremendous uncertainties in technology, product market, and management. Rather than undertaking the task of addressing all the uncertainties in advance, they remain actively involved after the investment, using their contractually specified control rights to guide the firm. Changes of direction – which often involved shifts in product market strategy and the management team – are an integral part of the investment process. Far too often, public administrators views these shifts not as natural evolution, but as troubling indications that awardees are deviating from their plan.

Another problem relates to the way in which public funds are allocated. Far too often, the decisions are distorted by a lack of understanding how the market works or by political rather than economic considerations. By requiring that matching funds be raised from the private sector, the dangers of uninformed decisions and political interference can be greatly reduced. There exists extensive literature that has emphasized the distortions that may result from government subsidies as particular interest groups or politicians seek to direct subsidies to benefit themselves. One common impetus is the pressure to “spread the wealth”; to ensure that every region has its “fair” share of venture subsidies. But entrepreneurship is an intensely unfair activity: there are powerful forces that lead firms to cluster in particular places. Thus, in many cases, much of the impact is diluted as funds that could be very helpful in a core area end up where there aren’t useful.

One way to ensure that good prospects are funded is to insist on matching funds. If venture funds or entrepreneurial firms need to raise money from outside sources, organizations that will ultimately not be commercially viable will be kept off the playing field. In order to ensure that these matching funds send a powerful signal, the matching requirement should involve a substantial amount of capital (ideally one-half the funding or more should be from the private sector). If a significant share of the matching funds come from the managers themselves, they are likely to focus on making sure the investments do well. Yet in many cases, overseers of public entrepreneurship initiatives have not demanded such provisions, and the results have been disastrous. Unfortunately, governments have not always thought as carefully about incentives before establishing entrepreneurship and venture initiatives. Far too often, the programs have been designed so that the private sector participants do well, no matter if the investment generates a good return or not.

Government officials should examine the track record of the venture capitalists and entrepreneurs who may receive public funding. Moreover, it is important to look critically at the programs themselves. Far too often, public venture capital programs support underachieving funds and firms. Participants are allowed to linger without a vigorous evaluation.

A bad idea is the commonly heard demand for provisions that give venture capital investors an immediate tax deduction. A frequently cited model is the CAPCO program pioneered in Louisiana and adopted by other states. These efforts have been largely unsuccessful. Two reasons why tax incentives are problematic: little evidence suggests that tax policy can dramatically affect the amount of venture capital supplied by the sophisticated institutional investors that provide capital to the world’s leading venture industries. Indeed, many dominant venture capital investors – such as pension funds and endowments – are exempt from taxes in most nations. Second, one of the powerful features of the venture capital process is the alignment of incentives. No one – whether limited partner, venture capitalist or entrepreneur – gets substantial gains until the company is sold or goes public. Economists argue that such an alignment keeps everyone focussed and minimizes the danger of behavior that benefits one party but hurts the firm. Substantial tax incentives at the time of the investment can distort the alignment of incentives.

A review of government venture capital support by a researcher in the Netherlands (Koenders, 2013) provided the following guidelines for government involvement:

- Incentives - The actors in the VC cycle should have the right incentives. Most importantly, the innovator and the venture capitalist should have a significant stake in the success of the project. The risk they face should not be taken away (entirely).

- Crowding out of private investments - Governments should make sure that private investments are encouraged, not discouraged. Government funding should therefore not take over the funding role, but rather use methods of co-investing.
- Nurturing and retaining expertise - The unique expertise of venture capitalists of bringing innovative products to the market and of screening projects should be used. Government officials should not take investment decisions. Where such expertise does not exist, it should be attracted and nurtured.
- Market-orientation and cyclicalities - Governments should adapt to the market (with a long-run perspective), and not shape or constrain it. Examples: do not constrain VC investments to a certain region; allow for follow-up investments; do not specify an exact volume of supplied funds; accept that cyclical behaviour is natural (but the best way to counteract it is to use co-investing).
- Geographical concentration - Rather than trying to develop VC uniformly across the country, it may be considered to concentrate resources.
- Simplicity - Government policies should be kept as simple as possible and the number of policies as small as possible.
- Attracting foreign capital - Government policies should acknowledge the importance of foreign sources of VC and should try to persuade them to invest in local firms.
- Crowdfunding - Closely follow developments and, if it is deemed desirable, act pro-actively in the promotion of crowdfunding, for instance through deregulation, enacting regulation to protect investors, or running an awareness campaign.

Venture capital can foster innovation in Canada but certain types of venture capital are better than others. A review of the performance of Canadian venture capital sector (Fancy, 2012) stated that private and institutional VC funds consistently foster innovation; corporate and government VC funds (e.g. BDC) do reasonably well in promoting innovation; but retail (e.g. labour sponsored funds), bank and other VC dollars perform poorly on that score. Canadian policymakers are correct to focus on venture capital as a critical component in promoting innovation, but they should focus less on the overall size of the VC market in Canada and more on promoting the right kinds of VC funding, with innovation outcomes as an important criteria. Governments are right to assume that a link exists between a healthy venture capital system and innovation in Canada. But if governments are to continue to intervene in order to promote such an ecosystem, an effective strategy should take into account the following (Fancy, 2012):

- Not all VC is created equal. Rather than simply measuring success by the aggregate amount of venture capital activity, greater emphasis should be placed on promoting the right kinds of VC funding, in the interest of seeing a boost in innovation.
- Private, institutional and government VC (e.g. BDC) should be encouraged. Institutional and government venture capital activities show a clear capacity to promote innovation. But a potentially large opportunity remains in seeing private VC firms thrive, because they boost innovation by providing not only critical funding, but also knowledge and oversight to entrepreneurial start-ups. Many private firms in Canada have had a hard time raising funds, owing to poor returns in the past, possibly because of the crowding out effect of other types of VC, including labour sponsored funds.
- If government money is to be spent, spend it wisely. Providing tax relief to labour sponsored funds has been, overall, a disappointing use of taxpayers' money. Such funds have been shown in multiple studies, to do a poor job of achieving public policy aims. Given that subsidizing such firms potentially crowds out private venture capital, doing nothing at all would arguably be better than subsidizing labour sponsored funds. If government money must be spent, an emphasis should be placed on promoting private or institutional VC spending or, failing that, allocating capital to arms-length government institutions such as BDC and EDC – which better promote innovation.

C. Types of Government Support for the Venture Capital Sector in Other Jurisdictions

Governments in other jurisdictions are employing a variety of mechanisms to stimulate their local venture capital sector and there does not exist consensus regarding the most effective investment vehicles. However, the current trends with regard to the nature and type of government support to the venture capital

sector in other jurisdictions are away from in-house government funds to indirect and arm's length interventions such as fund of funds with third party management and co-investment funds (Table 7.1). An example of a co-investment fund is the Heznek Program where the government of Israel matches an investment in a start-up company, proportional to the investment of an investing entity, and giving an option to the investor to purchase the government shares in the start-up company at the initial price.

**Table 7.1: Comparison of Government Involvement
In the Venture Capital Sector by Jurisdiction**

Jurisdiction	Direct Investment (government funds)	Co- Investment Funds	Indirect Investment (government investment in funds or government fund of funds)	Investment in Funds of Funds Managed by 3 rd Parties
Canada	✓	✓	✓	✓
Australia		✓	✓	
France		✓	✓	✓
Germany		✓	✓	
Israel		✓	✓	
New Zealand		✓	✓	
U.K.		✓	✓	✓
U.S.*			✓	

Source: Durafle, 2010

*Does not include specific states but only United States Government involvement

In addition to national programs, many provincial and state governments within North America also provide funding to incent venture capital firms to invest in their jurisdiction using a variety of investment vehicles of which the most prevalent are fund-of-funds, indirect investments via a third party manager and co-investment funds. The Ontario Emerging Technologies Fund (OETF) is an example of a co-investment fund which invests alongside qualified investors on the same terms and at the same time in Ontario innovative, high-growth companies. The OETF has engaged third parties to evaluate applications and monitor co-investments under the Fund.

**Table 7.2: Comparison of Provincial and State Government Involvement
In the Venture Capital Sector by Jurisdiction**

Jurisdiction	Program	Investment Vehicle	Funding Level
Alberta	Alberta Enterprise Corporation (2008)	Fund-of-funds	\$100 million
British Columbia	BC Renaissance Capital Fund (2007)	Fund-of-funds	\$90 million
Quebec	Teralys Capital Innovation Fund - VCAP (2014)	Fund-of-funds	\$279 million
	Teralys Capital (2009)	Fund-of-funds	\$700 million
	Quebec Technology Seed Funds – Life-Science (2010)	Indirect investment	\$50 million
Ontario	Northleaf Venture Catalyst Fund - VCAP (2014)	Fund-of-funds	\$400 million
	Ontario Venture Capital Fund (2008)	Fund-of-funds	\$250 million
	Ontario Emerging Technologies Fund (2009)	Co-Investment	\$250 million
Colorado	Colorado Fund 1 (2005)	Indirect investment	\$25 million
	Colorado Fund 2 (2010)	Indirect investment	\$25 million
Oregon	Oregon Investment Fund (2011)	Fund-of-funds	\$137 million
	Oregon Investment Fund (2011)	Co-Investment	\$10 million
Washington	Innovate Washington (2012)	Direct	\$24 million

Appendix 2 provides a more detailed environmental scan of government involvement in the venture capital sector in other jurisdictions in Canada and other countries.

Some key findings of a CVCA international comparison of government involvement in the venture capital industry are (Durafle, 2010):

- Governments outside the US are heavily involved in supporting the financing of innovation and the venture capital industry. Countries where governments are less involved in supporting the industry such as Germany have a much smaller VC industry.
- Tools used vary among countries - Channels used vary according the administrative traditions of the countries: grants or subsidies involving an assessment or a due diligence by the government are more developed in countries such as Israel or France where there are strong government agencies such as the Office of the Chief Scientist (Israel) and OSEO (France), and less so in other countries.
- R&D tax credits tend to generalize - Canada was among the pioneers for R&D tax credits. This type of measure has recently been introduced in several other countries: Australia, France, and the UK. Debates in the various countries revolve around the definition of eligible expenditures for the tax credit.
- Co-investment funds are the most common contra-cyclical tool - Co-investment funds have been chosen by several jurisdictions (Australia, France, Germany, Israel, New-Zealand, Ontario) as the best-contra cyclical investment tool to be used in stimulus packages to deal with the economic and financial crisis.
- A trend towards indirect and arm's length interventions - When it comes to government investments in venture capital funds, there is a clear trend towards third party management:
 - From direct investment into companies to indirect investment where investments in companies are managed by private independent funds.
 - From in-house government funds of funds to arm's length managed funds of funds as in the UK with Capital for Enterprise Ltd or to independently managed public/private funds of funds as in Canada (OVCF, Teralys), in the UK (UK Innovation Investment Fund) or in France (France Investissements).

The rationale behind this trend is (i) independence from political influence (ii) greater ability to attract the right management skills and to implement investment best practices and (iii) better leverage to attract private sector co-investors. Independently managed funds of funds triggered by a government allocation appear increasingly as one of the best ways to attract private sector LPs of all sizes into the asset class and to support a more diversified ecosystem which is not dominated by one government funded source of capital.

- A trend towards less stringent investment constraints - Several recent evaluation studies have shown that ill-designed and conflicting investment constraints suitable to economic development purposes (size of investments, sector, geographical constraints or volume to be invested in a given period of time) may have very adverse effects on returns and on alignment of interests with potential private sector co-investors. As a consequence, there is now a growing consensus that government schemes should work with the market, not against it, and that investment objectives and constraints which come with a government investment program should be designed accordingly.
- The difficult question of incentives - In most jurisdictions outside Silicon Valley and U.S. North East, studies show that it is very difficult to attract private sector money to invest in early stage technology companies and that investment funds tend regularly to move downstream towards less risky investment strategies. As a consequence, governments have tried a series of financial incentives to attract and retain private sector investors in that field. Tax credits for individual investors to invest in VC funds have been a powerful tool for fundraising in the UK, France and Canada. In all 3 countries however, there have been questions raised around agency problems

(cost of intermediation) and the adverse effects of conditions imposed on these funds (investment limitations, obligation to invest monies raised).

- Tax credit for business angels have been used in the UK, France, British Columbia and in several US states. They seem to have had a strong impact on the volume of investment by business angels. Agency problems seem to have appeared in some of these countries (notably France), while in places like British Columbia, the tax credit seems to have had a strong impact on the direct involvement of tech savvy business angels.
- There is a strong debate, with no clear direction around incentives to private sector LPs to co-invest with the government in VC funds. Several schemes have been tried:
 - A preferred return for the government that implies deeper losses for the private sector if the fund underperforms the preferred rate of return and a return enhancement for private sector LPs if the fund over performs the preferred rate of return. This scheme had been developed by the SBIC program in the US and adapted by the Enterprise Capital Funds in the UK (the government transfers to the private sector part of its profit above the preferred return, but not all).
 - A subordinated position for the government whereby the government takes first losses if the returns of the fund are negative or under a preferred rate of return. This was the case for the UK Regional Venture Capital Funds (2002) or the UK High Tech Fund (2000).
 - An option for the private sector to buy the government position during a certain period of time (5 years) at a preferred rate of return. This scheme which was developed by Yozma (Israel, 1992) has been adopted by other government funds of funds such as the New Zealand Venture Capital Fund or the Russian Venture Capital Fund and Heznek, the new Israeli co-investment program. It provides a return enhancement to the private sector if the return of the fund is superior to the preferred return.
 - A mix of the previous schemes that provides a protection against the downside below a preferred return and a return enhancement above this rate: Israeli Life Science Fund.
 - Finally, an asymmetrical attribution of capital calls and capital distributions between government and private sector LPs which, according to its design, may provide a protection against first losses, a return enhancement, or both.
- The increasing recognition of the role of business angels - There is an increasing recognition, supported by studies in the US and the UK, that business angels play a very important and increasing role in the ecosystem as they not only provide funding (supply side) but also experience, credibility, contacts and connections that improve the flow of high-quality firms available to the VC sector (demand side). This has translated already in some jurisdictions in measures to support business angels' investments: tax credits (British Columbia, US States, France), co-investment funds (New Zealand, Scotland) and investments in business angel funds (France, Enterprise Capital funds in the UK, Technology Seed Funds in Quebec).
- Investment readiness - During the last decade, several observers pointed out that government policies and industry representations usually focus on the supply side (lack of capital, "equity gap") but underestimate the importance of the demand side: quality of the deal-flow, "investment readiness". Several countries have developed programs that address one or several aspects of this investment readiness issue:
 - Commercialization Australia
 - NZTE's Escalator Program
 - Alberta Innovation Voucher Pilot Program
 - France Investissement: "Les Services du Club"

However, setting up efficient programs to "train entrepreneurs" is never easy and many argue that "only entrepreneurs can talk to entrepreneurs". This is why a new trend sees an important role to be played in this domain by tech savvy business angels and recommends providing incentives or supporting to business angels investment and to business angels' networks because they will "bring not only capital to companies but also skills, credibility, connections and contribute to set the

right culture in the companies". A recent report by NESTA in the UK concludes: "Improved support for business angel networks is encouraging, and is a good example of a 'demand side' policy that seeks to improve the flow of high-quality firms available to the VC sector".

D. Economic Outcomes from Government Support of the Venture Capital Sector

Some economic outcomes achieved from government support of the venture capital sector in other jurisdictions are an increase in increased innovation (e.g. new products, processes and services), increased company sales, creation of employment and an increase in government tax revenues (Table 7.3)

**Table 7.3: Economic Outcomes from Government-Supported Venture Capital
In the Venture Capital Sector by Jurisdiction**

Jurisdiction	Program	Program Description	Economic Outcomes
Ontario	Ontario Venture Capital Fund (OVCF)	\$90 million provided by Government of Ontario has leveraged \$970 million in private sector capital	➤ Created and retained 1,611 jobs in Ontario
Quebec	Teralys Capital	Investissement Québec invested \$200 million in \$700 million fund resulting in \$1.2 billion invested in 90 Québec-based businesses by these private funds and external co-investors	➤ Increase of \$550 million in annual company revenues ➤ Creation or maintenance of 3,000 jobs
Oregon	Oregon Investment Fund	Invested \$298 million in 44 Oregon and Pacific Northwest companies and leveraged \$425 million in other funding	➤ Influenced approximately 4,432 jobs
Colorado	Small Business Innovation Research (SBIR) and Small Business Technology Transfer Research (STTR) for Colorado companies	SBIR/STTR research by 82 Colorado companies	➤ 415 new products, processes or services ➤ 360 improved products, processes or services ➤ 164 patent applications filed ➤ 165 license agreements ➤ 360 new research jobs and 260 new non-research jobs ➤ 11 spin off companies
Ohio	Ohio Capital Fund (OCF)	\$745 million invested in 71 Ohio companies	➤ 2,595 jobs created or maintained ➤ \$150 million annual payroll ➤ 3% average revenue growth ➤ \$38 million in state tax revenues
New Zealand	New Zealand Venture Investment Fund (NZVIF)	NZVIF invested in 3 private VC funds	➤ 1,333 jobs created
Scotland	Scottish Co-investment Fund	Fund co-invested £28 million through its partners (venture capitalists and angels) in 100 companies	➤ Increased revenues estimated to range from £38 million to £55 million ➤ Employment created estimated to range from 449 to 664 full time equivalent jobs

A review of government venture capital support by a researcher in the Netherlands (Koenders, 2013) stated that venture capital is generally believed to foster rising living standards, economic growth, increased productivity levels, and increased employment, either directly or via innovation. The report states that governments can successfully jumpstart VC investing using all kinds of measures, including loans,

participations, and guarantees. A review of the performance of Canadian venture capital sector found that, overall, Canadian VC funding spurs innovation more effectively on a dollar-for-dollar basis than investment in research and development (Fancy, 2012). A more recent study (Industry Canada and CVCA, 2013) that compared the performance of VC-backed firms with non-VC-backed-firm found that VC-backed firms posted:

- Stronger revenue growth, sales growth, employee growth, and asset growth.
- Higher cumulative wage growth – over time this wage growth is higher among VC-backed firms, suggesting that these firms do more high value-added employment than non-VC-backed firms.
- Higher R&D expenditure growth – VC-backed firms performed better although only the one-year growth rate was statistically significant.
- Higher survival rates over periods of one to five years – by the fifth year, VC-backed firms had survival rates higher than all firms in the professional, scientific, and technical group, higher than all small and medium enterprises earning over \$30,000, and higher than all manufacturing firms.

Based on the empirical analysis performed in this study, the report concluded that the suggested benefits of VC are indeed demonstrated in the performance of Canadian VC-backed firms and the positive effect of VC on innovation and as a catalyst for growth of employment and revenue.

The Israel experience is an example of effective government policy in catalyzing the venture capital globalization process (Lerner, 2012). In June 1992, the Israeli government established Yozma Venture Capital Ltd., a \$100 million fund wholly owned by the public sector. At the time, there was a single venture fund active in the nation, Athena Venture Partners. The key goal of Yozma was to bring foreign venture capitalists' investment expertise and network of contacts to Israel. The need for this assistance was highlighted by the failure of the nation's earlier efforts to promote high-technology entrepreneurship. One assessment concluded that 60% of the entrepreneurs in prior programs had been successful in meeting their technical goals but failed because the entrepreneurs were unable to market their products or raise capital for further development. Foreign expertise was seen as key to overcoming this problem. Accordingly, Yozma discouraged Israeli financiers from participating in program. Rather, the focus was on getting foreign venture investors to commit capital for Israeli entrepreneurs. The government provided matching funds to investors, typically \$8 million of a \$20 million fund. The venture fund was given the right to buy back the government stake within the first five years for the initial value plus a preset interest rate of roughly 5 to 7% in order to provide an additional incentive to the venture fund if the investments provided successful.

Ten groups took advantage of this offer, mostly from the United States, Western Europe, and Japan. Many of the original Yozma funds, including Gemini and Walden Ventures, earned spectacular returns and served as precursors to larger, follow-on funds. Moreover, many of the local partners recruited by the overseas venture capitalists were able to spin off and establish their own firms, which global investors were eager to fund because of their impressive track records. One decade after the program's inception, the ten original Yozma groups were managing Israeli funds totalling \$2.9 billion, and the Israeli venture market has expanded to include 60 groups managing approximately \$10 billion. The ratio of venture investments to GDP is far higher in Israel than elsewhere. In most tabulations, Tel Aviv has surpassed Boston as the urban area with the most venture capital activity after San Francisco.

The YOZMA programme can, however, not exclusively claim the credits for the successful jumpstart of the VC market in Israel (Koenders, 2013). The programme played a role mostly on the supply-side – it incentivised (domestic and foreign) investors to supply VC. But another major explanatory development was present on the demand side. Namely, before and during the YOZMA programme a massive stream of high-tech scientists entered Israel as immigrants, stimulating the demand for VC. This does indicate that the timing of the YOZMA programme was right, and that supply-side policies alone will not jumpstart a VC industry.

Bibliography

BDC, *Venture Capital Industry Review*, 2011

BC Business, *Crowded Funding*, June 2014

BCTIA, *Revitalizing Venture Capital in BC*, 2014

Business Development Bank of Canada (BDC), *Venture Capital Industry Review*, 2011

Cumming, Gordon: *Financing Entrepreneurs: Better Canadian Policy for Venture Capital*, C.D. Howe Institute, 2007

CVCA, *Why Venture Capital is Essential to the Canadian Economy: The Impact of Venture Capital on the Canadian Economy*, 2009

CVCA, *Canada's Venture Capital Market in 2013*

CVCA, *Think Canada (Again)*, 2013

CVCA, *Canada's Venture Capital Market in Q2 2014*

Deloitte, *2013 Global Venture Capital Confidence Survey Results*

Durufle, Gil: *Government Involvement in the Venture Capital Industry: International Comparisons*, CVCA, 2010

Economist, *Special report on tech start-ups*, January 2014

Ernst & Young, *Venture Capital Insights 2013*

Ernst & Young, *Global Venture Capital Insights and Trends 2014*

Ernst & Young, *G20 Entrepreneurship Barometer 2013*

European Commission, Directorate-General for Enterprise and Industry, *Final Report of the Expert Group, Best Practices of Public Support for Early-Stage Equity Finance*, 2005

Fancy, Sid: *Can Venture Capital Foster Innovation in Canada?*, C.D. Howe Institute, 2012

Ference Weicker & Company, *Development of the Technology Strategy for British Columbia*, 2006

Forbes, *The Future of Venture Capital, Tech Valuations and the Fate of Tech Incumbents – Conversation with Bill Janeway*, April 3, 2013

Hayton, Thom, Percy, Boyd and Latimer: *Evaluation of the Scottish Co-Investment Fund*, 2008

Hellman and Schure, *Evaluation of the Venture Capital Program in British Columbia*, 2010

Hurwitz and Marett, *Financing Canadian Innovation: Why Canada Should End Roadblocks to Foreign Private*

Equity, C.D. Howe Institute, 2007

Independent Panel on Federal Support to Research and Development, *Innovation Canada: A Call to Action*, 2011

Industry Canada & CVCA, *The Performance of Canadian Firms that Received Venture Capital Financing*, 2013

Koenders, *Venture Capital Policies in the Netherlands: Lessons from the Literature and Benchmark Countries*, University of Tilburg, 2013

KPMG and BCTIA, *BC Technology Industry – 2014 Report Card*

Lerner, Josh: *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed – and What to do About It*, 2012

Lerner, Hellmann, and Ilyaszade, *Angels in British Columbia*, 2012

Lerner, *The Government as Venture Capitalist – the Long-Run Impact of the SBIR Program*, 1998

Lo, Ky: *Study on Private Equity with Focus on Venture Capital and the Impact of Governmental Programs in British Columbia*, 2006

MacDonald & Associates, *Venture Capital Industry in British Columbia*, 2000

Mulcahy, Bradley & Weeks, *We Have Met the Enemy ... And He is Us*, Ewing Marion Kauffman Foundation, 2012).

Soderblom, Anna: *Factors determining the performance of early-stage high-technology venture capital funds – a review of the academic literature*, Stockholm School of Economics, 2006

Tech Crunch, *Corporate Venture Investors Starting To Look A Lot More Like Private VCs*, Nov 2013

TechVibes, *A New Model of VC in Canada: Brightspark looks to Disintermediate its Own Industry*, January 13, 2014

TechVibes, *Saskatchewan Becomes First Province to Allow Equity-based Crowdfunding*, December 9, 2013

Thomson Reuters, *Venture Capital Statistics, 1995 – 2014*

World Economic Forum: *The Global Competitiveness Report 2014-2015*

Appendix 1 **Description of BC and Federal Government Programs**

The following paragraphs provide a brief description of some BC and federal government programs that assist in the development of the technology sector in BC.

BC Government Programs

BC Innovation Council (BCIC)

BCIC, a crown agency of BC, promotes the development and application of advanced or innovative technologies to meet the needs of industry in BC. BCIC's mission is to build British Columbia's economy by accelerating the growth of BC ventures through the support of entrepreneurs and tech start-up companies. BCIC operates with support from its primary funder, the Ministry of Technology, Innovation and Citizens' Services. In addition, BCIC relies on volunteer participation from recognized experts and leaders in their fields. With their partners, BCIC delivers programs and initiatives that promote company growth, resulting in jobs, increased revenue and economic development in BC. Some current programs and initiatives operated or sponsored by BCIC are:

BC Venture Acceleration Program

The Venture Acceleration Program, the largest BCIC commercialization initiative, is a structured venture growth program that helps early-stage entrepreneurs in BC grow their companies. Companies enroll with regional partners in the BC Acceleration Network who provide support and guidance through a dedicated Executive in Residence (EIR), a successful business professional trained in best practices in accelerating the growth of new ventures. Companies may also receive mentoring from highly qualified volunteers in the BCIC Mentor Program. The cost of the Venture Acceleration Program is \$200/month. There are currently 10 partners across the province who deliver the program and are part of the BC Acceleration Network. As of September 30, 2013, companies involved in the program have generated 446 jobs, \$6.6 million in revenue and \$29.8 million in investment.

BCIC Mentor Program

The BCIC Mentor Program is a province-wide entrepreneurial development program for founders and CEOs of British Columbia technology ventures and has been offered by BCIC since 2011. Modeled on the very successful MIT Venture Mentoring Service, the BCIC Mentor Program adopts best practices from ACETECH's Growth Strategy Program, which delivers tools and peer mentoring to CEOs of technology companies in order to improve their effectiveness as leaders. Program participants are early-stage start-up companies with a goal to progress and grow.

BCIC New Ventures Competition

BCIC is the lead partner of the BCIC New Ventures Competition, operated by New Ventures BC Society. The Competition provides BC entrepreneurs with the skills to launch and manage a start-up through a 10-week business seminar and networking series while competing to win one of several prize packages. Created in 2001, the BCIC New Ventures Competition's top companies have raised over \$200 million dollars in financing, created more than 3,300 jobs in BC, filed over 800 patents and launched over 1,000 new products. Each year, 150 business leaders donate their time to the competition. Since its inception, more than 1,500 entrepreneurs have participated in the program.

Innovative Clean Energy Fund (ICE)

The Innovative Clean Energy (ICE) Fund encourages the development of new sources of clean energy and technologies to help support local economies in communities across B.C.

Provincial SR&ED Tax Credits

The British Columbia SR&ED tax credit is administered by the Canadian Revenue Agency (CRA) and is refundable for CCPCs up to 10% of the expenditure limit and non-fundable otherwise at a rate of 10% of SR&ED qualified British Columbia expenditures. However, for calculating the Federal SR&ED ITC the

Provincial ITC is considered a grant, and is deducted from the eligible expenditure pool. Budget 2014 extended the SR&ED tax credit to qualifying corporations that carry on SR&ED in B.C. before September 1, 2017.

Advantage BC International Business Centre

This program, administered by the BC Ministry of Finance, allows registered corporations to receive up to a 100% refund on BC corporate taxes paid on income earned from qualifying activities. To qualify, a business must be incorporated in Canada, with a permanent establishment in BC. Management and administration of investment funds is one of the many business activities that qualifies under this program. As a result, this program provides an incentive for foreign venture capital firms to relocate part or all of their business to British Columbia.

Interactive Digital Media Tax Credit (IDMTC)

The BC IDMTC was created to further assist companies that develop digital media products. The BC Ministry of Finance administers the registration for the IDMTC program, and the CRA administers the claim and refund process. The IDMTC is a refundable tax credit (to the extent that it exceeds any taxes payable balance) of 17.5% of the eligible wages that are directly attributable to interactive digital media activities. The activities should focus on entertainment or education, and involve two of the three following media: text, sound, or images. The tax credit applies to wages of BC-resident employees earned between September 1, 2010, through August 31, 2015, and excludes overhead costs such as marketing, human resources, administrative support, and management services.

Federal Government Programs

SR&ED Tax Credits

The Scientific Research and Experimental Development (SR&ED) tax incentive, applied to income taxes payable, provides income tax deductions for allowable expenditures, as well as investment tax credits. There are two categories of SR&ED investment tax credits (ITC):

- 35% per cent Investment tax credit (ITC) for Canadian-controlled private corporations (CCPCs) with prior-year taxable income under \$400,000 and prior-year taxable capital employed in Canada under \$15 million. ITC up to \$2M of eligible expenditures are refundable.
- 20% per cent ITC for all other companies. ITC may be deducted from federal taxes otherwise payable. Unused tax credits can be carried back three years (to the extent that they were not deductible in the year they were earned) or carried forward 10 years.

Due primarily to SR&ED tax credits, Canada is ranked #2 in G7 countries with regard to the generosity of R&D tax incentives.

National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP)

NRC-IRAP supports small and medium-sized enterprises in Canada to develop technologies and successfully commercialize them in a global marketplace. This program has regional offices spread throughout BC to help local entrepreneurs build their businesses. Besides providing advisory, employment and networking services, IRAP also provides financial support to qualified small and medium-sized enterprises in Canada to help them undertake technology innovation. In order to be considered for possible IRAP funding, the basic eligibility criteria are: be a small and medium-sized enterprise in Canada, incorporated and profit-oriented; have 500 or fewer full-time equivalent employees; and have the objective to grow and generate profits through development and commercialization of innovative, technology-driven new or improved products, services, or processes in Canada.

The Business Innovation Access Program (BIAP) is a Government of Canada pilot program, announced in the 2013 Budget that provides \$20 million in funding to small and medium-sized enterprises (SMEs) to help them access business services or technical assistance at Canada's learning institutions and publicly-funded

research organizations to bring bigger and better innovations to market faster. The program is delivered by the National Research Council of Canada Industrial Research Assistance Program (NRC-IRAP). Eligible projects for BIAP include short-term projects for which a business service or technical assistance would clearly demonstrate the potential to contribute to quicker commercialization of products or academic research. Some examples of eligible technical services include: product optimization, process development, analysis or optimization or specialized testing. Some examples of eligible business services include: market research, marketing strategy development, competitive analysis, business strategy development, etc.

Export Development Canada (EDC)

Export Development Canada provides Canadian exporters with financing, insurance and bonding services, as well as foreign market expertise. EDC also offers programs in equity, banking and insurance. As part of its equity program, EDC invests in companies alongside institutional investors or venture capital arms of strategic investors.

Sustainable Development Technology Canada (SDTC)

Commenced in 2001 with funding from the Government of Canada, SDTC is a not-for-profit foundation that provides non-dilutive financing and support for the development and demonstration of clean technologies which deliver economic, environmental and health benefits to Canadians. Of the many links in the innovation chain between research and commercialization, two of the most critical—but traditionally under supported—are development and demonstration. These are the critical stages at which technologies exit the laboratory and prove themselves in full-scale, real-world test situations. SDTC bridges the gap in the innovation chain by fast-tracking groundbreaking clean technologies through development and demonstration, in preparation for commercialization. One of SDTC's chief aims is to de-risk clean technologies in a way that will ultimately attract downstream private-sector investment and open up opportunities for commercial success. This is done by employing a stringent due diligence process when selecting technologies to support, and by actively strengthening project consortia—requiring every project to involve representatives from the entire supply chain. SDTC currently has the following complementary funds that address funding gaps in the innovation chain.

SD Tech Fund

The SD Tech Fund™ is aimed at supporting the late-stage development and pre-commercial demonstration of clean technology solutions: products and processes that contribute to clean air, clean water and clean land that address climate change and improve the productivity and the global competitiveness of the Canadian industry. Sustainable Development Technology Canada's SD Tech Fund™ has supported 269 projects from \$684 million allocated by the federal government, and over \$1.6 billion being leveraged primarily from the private-sector. Fifty-seven of SDTC's more mature companies have received \$2.5 billion in follow-on financing as of December 2013, meaning that for every dollar invested by Canada in these companies the marketplace has responded with fourteen dollars of private capital.

NextGen Biofuels Fund™

The NextGen Biofuels Fund™ is aimed at supporting the establishment of first-of-kind commercial scale demonstration facilities for the production of next-generation renewable fuels and co-products. The fund will help Canada sustainably meet its Renewable Fuels Standards. The purpose of the fund is to encourage retention and growth of technology expertise and innovation capacity for cellulosic ethanol and biodiesel production in Canada. The NextGen Biofuels Fund™ is positioned downstream from the SD Tech Fund™. The SD Tech Fund™ can therefore be a feeder to the NextGen Biofuels Fund™. The NextGen Biofuels Fund™, however, is open to all cellulosic ethanol and new biodiesel technologies once they have been successfully demonstrated at the pilot scale.

SD Natural Gas Fund

The SD Natural Gas Fund™ supports the development and demonstration of new downstream natural gas technology. The fund was created with a \$15 million contribution over three years from the Canadian Gas Association (CGA) that is matched through SDTC's SD Tech Fund™. This Fund identifies and supports natural gas technologies that generate cleaner energy, create new jobs and stimulate economic growth in Canada.

Start-up Visa Program

Start-Up Visa Program was launched on April 1, 2013 by the federal government, is slated to run for five years. The Start-Up Visa aims to connect immigrant entrepreneurs to private sector firms with experience regarding start-ups. The primary goals of the Start-Up Visa are to:

- Support immigrant entrepreneurs in starting “innovative companies” that will generate jobs in Canada;
- Provide support to newcomers regarding Canada’s business environment; and
- Allow private sector firms to have access to a greater range of entrepreneurs.

Before applying for the Start-Up Visa, prospective applicants need to have the backing of a Canadian angel investor group or a venture capital (VC) fund or a business incubator from a list of designated firms chosen by Citizenship and Immigration Canada, Canada’s Venture Capital and Private Equity Association (CVCA) and the National Angel Capital Organization (NACO). The foreign entrepreneur is required to obtain a minimum \$200,000 investment from a VC fund or a minimum \$75,000 investment from a Canadian angel investor group before they can be considered for the visa. Alternatively, they can be accepted into a Canadian business incubator program. The government has said it will issue a maximum of 2,750 visas for each year of the five-year pilot program.

Canada Accelerator and Incubator Program (CAIP)

In 2013, the Government of Canada established CAIP to help accelerators and incubators deliver their services to promising Canadian. Delivered by NRC-IRAP on behalf of the government, CAIP provides funding over a five year period in the form of non-repayable contributions to a limited number of outstanding accelerators and incubators that meet strict eligibility and selection criteria. Maximum contributions to accelerators and incubators under the program are up to \$5 million per year for each selected outstanding organization. Recipients will be required to demonstrate matching contributions on at least a 1:1 basis during the period of the contribution funding. Contributions will support incremental activities that expand the overall service offerings to early-stage firms and entrepreneurs, and promote a higher output of SMEs that are investment-ready and able to develop into sustainable, high-growth businesses. This initiative is part of the Government of Canada’s *Venture Capital Action Plan*. The following BC-based accelerators have been chosen to advance in the selection process under CAIP:

- GrowLab Ventures in collaboration with Extreme Startups
- Wavefront Wireless Commercialization Centre Society
- Centre for Drug Research & Development (CDRD) in collaboration with CDRD Ventures
- BC Technology Industry Association (BCTIA)

Build in Canada Innovation Program (BCIP)

The Canadian Innovation Commercialization Program was launched as a pilot program in 2010’s budget to support innovation. Budget 2012 committed to make the pilot program permanent and add a military procurement component. The permanent program is known as the Build in Canada Innovation Program (BCIP). Created to bolster innovation in Canada’s business sector, the BCIP helps companies bridge the pre-commercialization gap by procuring and testing late stage innovative goods and services within the federal government before taking them to market by:

- Awarding contracts to entrepreneurs with pre-commercial innovations through an open, transparent, competitive and fair procurement process;
- Testing and providing feedback to these entrepreneurs on the performance of their goods or services;
- Providing innovators with the opportunity to enter the marketplace with a successful application of their new goods and services; and
- Providing information on how to do business with the Government of Canada.

Apart from having a military component, other target sectors for innovation include Environment, Safety & Security and Health & Enabling technologies. The BCIP is managed by Public Works and Government Services Canada (PWGSC), and implemented by the Office of Small and Medium Enterprises (OSME).

Canadian Technology Accelerator Initiative

The Government of Canada's Canadian Technology Accelerator (CTA) initiative, led by the Canadian Trade Commissioner Service at Canada's consulates general in San Francisco, New York City and Boston, provides Canadian start-ups in information and communications technologies, digital and social media, gaming, life sciences and clean technologies with access to unique resources and contacts that can help them grow internationally. There are currently six CTA programs, three located in California, two in New York and one in Boston. These CTAs provide Canadian companies with the opportunity to engage in business development to further their growth in key markets, in addition to accessing key venture funding and entrepreneurial resources available in San Francisco-Silicon Valley, New York City and Boston. More than 170 Canadian companies have benefited from CTAs since the inception of the initiative in San Francisco in 2009.

Western Innovation (WINN) Initiative

Announced as part of *Canada's Economic Action Plan* in Budget 2012, WINN is a concrete step towards addressing the commercialization gap in the Canadian innovation process and applies to provinces of Alberta, British Columbia, Manitoba and Saskatchewan. WINN 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. SMEs may request up to \$3.5 million per project to commercialize the development of their technology-based products, processes and services. There is a maximum funding limit of \$7.5 million per recipient over the five-year period. The objectives of WINN are to:

- Commercialize innovative technology-based products, processes and services;
- Stimulate greater private sector investments in commercialization activities;
- Increase the number of jobs for highly qualified personnel in Western Canada; and
- Assist in industry growth.

Since the inception of WINN, \$21 million has been made available to 27 projects in Western Canada, with 12 BC projects receiving total funding of \$8.45 million.

MITACS

MITACS, which stands for Mathematics of Information Technology and Complex Systems, is part of Canada's Networks of Centres of Excellence program. MITACS is a national, not-for-profit organization that has designed and delivered research and training programs in Canada for 15 years. Working with 60 universities, thousands of companies, and both federal and provincial governments, MITACS builds partnerships that support industrial and social innovation in Canada. In 2003, MITACS launched a research internship program designed to increase deployment of highly educated graduates into the private sector. Open to all disciplines since 2007, MITACS has expanded in response to industrial and university needs, including programs in R&D management, professional skills development, and international research training. From aerospace systems to childhood literacy rates, MITACS-funded research helps to strengthen connections, improve economic performance, and create jobs. Over the past 15 years, MITACS has supported more than 10,000 research internships, trained more than 19,000 student and postdoctoral career-skills participants, and supported more than 1,300 international research collaborations. MITACS has 25 offices across Canada and a coast-to-coast business development team dedicated to building and supporting new partnerships.

Appendix 2 **Government Venture Capital Programs in Other Jurisdictions**

The following paragraphs describe some venture capital programs that have been implemented by government in other jurisdictions in Canada and other countries.

Ontario

Some key initiatives undertaken in Ontario to provide venture capital include the following:

Ontario Venture Capital Fund (OVCF)

The Ontario Venture Capital Fund was established by the Ontario government in 2008 to serve as a catalyst in creating a profitable, globally competitive and self-sustaining venture capital industry in Ontario and to generate attractive long-term returns for its investors from a focused portfolio comprised principally of Ontario-based and Ontario-focused VC fund investments and direct co-investments. The size of the OVCF is \$250 million with \$90 million provided by the Government of Ontario while the other lead investors are the TD Bank, OMERS Strategic Investments, BDC, RBC and Manulife Financial. The fund is managed by a third party, namely Northleaf Capital Partners (formerly TD Capital Private Equity). The strategy of the OVCF is to: play a proactive role as an anchor investor, but will not seek to represent a majority of the total capital commitments of any single fund; to construct a focused portfolio of high-potential fund managers with sufficient scale, resources, track record and connections to effectively execute on their investment strategy; and to invest selectively and opportunistically in direct co-investments alongside leading fund managers in high-potential Ontario-based portfolio companies. The following funding guidelines have been established for the OVCF:

- Sectors: ICT, life sciences, clean tech
- Investment type: 80% - 100% in VC funds, Up to 20% in direct co-investments
- Geography: 80% -100% in Ontario-based or Ontario-focused funds or companies, up to 20% in other North American VC funds to generate enhanced returns and for transfer of best practices

OVCF has leveraged \$970 million in private sector capital while creating and retaining 1,611 jobs in the province.

Ontario Emerging Technologies Fund (OETF)

The Ontario Emerging Technologies Fund (OETF or the Fund) is a direct co-investment fund established by the Province of Ontario in 2009. OETF is a \$250 million fund to co-invest alongside qualified investors into innovative, high-growth, private, Ontario companies. OETF is managed by the Ontario Capital Growth Corporation (OCGC), an agency of the Ontario Ministry of Research and Innovation. OCGC has retained the services of Covington Capital Corporation and Ernst & Young to evaluate applications in relation to OETF. Covington Capital Corporation also provides ongoing administration and monitoring of co-investments under the Fund. The OETF is designed to respond to the challenges faced in raising capital by innovative, private, Ontario-based companies in the clean technology, life sciences and advanced health technologies, and digital media and information and communications technology sectors. The OETF is intended to increase the amount of investment made directly into Ontario-based companies in the sectors noted above, and to become self-sustaining by allowing it to reinvest any returns from its investments. It is a discretionary, non-entitlement investment fund. The OETF will co-invest alongside qualified investors on the same terms and at the same time. On October 29, 2012, OCGC advised that it has closed its 27th investment under the OETF, and has increased the total number of conditionally approved initial investments and follow-on investments to date to 40 for a total dollar commitment of approximately \$60 million.

Northleaf Venture Catalyst Fund

The Northleaf Venture Catalyst Fund is the first fund-of-funds to be implemented under the federal government's \$400-million Venture Capital Action Plan. A total of \$217.5 million has been invested in the fund so far, with a goal to increase the amount to \$300 million. About two-thirds of the money is from the private sector, with the Ontario and federal governments splitting the other third. Both governments have agreed to chip in another \$1 for every \$2 committed to the NVCF by private sector investors, to a maximum of \$50 million each. NVCF is being managed by Toronto-based Northleaf Capital Partners.

Investment Accelerator Fund (IAF)

The Investment Accelerator Fund (IAF) helps build and strengthen Ontario-based businesses in the clean tech, ICT, and life sciences & healthcare sectors. It offers two types of funding, tailored to each type of applicant:

- The IAF invests up to \$500,000 in early-stage companies that have the potential to be global leaders in their field and provide sustainable economic benefits to Ontario.
- The Youth IAF invests up to \$250,000 in innovative technology-based companies where the majority of founders are under the age of 30.

Funded by the Province of Ontario, the IAF program is managed by MaRS and delivered through the Ontario Network of Entrepreneurs.

Quebec

Some key initiatives undertaken by the Government of Quebec to provide venture capital include the following:

Teralys Capital

Teralys Capital was established in 2009 to reshape the technology focused VC sector in Canada and to strengthen the local technology ecosystem; to create a competitive and self-sustaining VC industry; and to generating long-term returns for investors. The total size of the fund is \$700 million and the lead investors are the Fonds de solidarité FTQ (\$250 million), Caisse de depot (\$250 million) and Investissement Québec (\$200 million), an agency of the Quebec Government. Teralys Capital is the fund manager financing private venture capital funds investing in innovative businesses in information technologies, life sciences, and clean or industrial innovations. Their sector allocation is approximately 50% in information technology funds, 25% in life sciences and 25% in clean tech and other technologies. They cover the entire investment spectrum with approximately 70% of capital targeting early stage funds and the remaining 30% in growth, expansion and technology buyout funds.

Teralys Capital pursues the path initiated in 2004 by the Fonds de solidarité FTQ, the Caisse de dépôt et placement du Québec and Investissement Québec. As of December 31, 2012, more than \$1.2 billion has been invested in 90 Québec-based businesses by these private funds and their external co-investors. These companies generated more than \$550 million in annual revenue and have allowed the creation or maintenance of close to 3,000 jobs. Québec-based businesses directly received three dollars for each dollar committed by Québec-based investors in these funds in order to accelerate their development.

Teralys Capital Innovation Fund

Teralys Capital Innovation Fund is the second fund of funds established under the federal government Venture Capital Action Plan. Teralys Capital Innovation Fund had its initial closing with \$279 million in commitments, of which \$186 million was from institutional and corporate investors, alongside \$46.5 million from each of the Governments of Canada and Quebec. The Fund has an overall target size of \$375 million. Teralys Capital Innovation Fund has an emphasis on investment opportunities in the life sciences sector, and will invest primarily in Canada-focused early-stage and mid-stage venture capital funds, and directly in companies across Canada. The Governments of Canada and Quebec have agreed to make a combined capital commitment of

\$1 for every \$2 committed by private sector investors to the new Fund, up to a maximum of \$62.5 million each. The initial partners in Teralys Capital Innovation Fund are: BDC Capital Inc. (on behalf of the Government of Canada), Caisse de dépôt et placement du Québec, Desjardins, Fondation CSN, Fonds de Solidarité FTQ, Investissement Québec (on behalf of the Government of Quebec), Knight Therapeutics Inc., National Bank and OpenText Corporation. This Fund is seeking additional investors to reach its target size and anticipates holding a second closing in 2015. Teralys Capital has been selected by lead investors to act as the general partner and manager for Teralys Capital Innovation Fund.

Quebec Technology Seed Funds

In its 2009–2010 Budget, the Government of Québec announced the creation of three seed funds for technology companies awarded by calls for tenders. In so doing, the government aimed to increase available seed financing for technology companies based in Québec, promote the recruitment of experienced staff to manage these new funds, secure this and other funding further up the financing chain, and broaden the range of the seed financing sector in Québec. Seed funds invest in the first stage of business development. The company may be in the process of creation or at the very beginning of its activity, but its business model has not yet been validated. These new seeds funds are financed in part by the Québec government, which provided a \$50-million contribution through Investissement Québec, by the Solidarity Fund QFL, which is investing \$33 million, and by FIER Partners, which plans to invest \$17 million. The minimum contribution from the private sector is \$8.25 million per fund, and the minimum total contribution for each fund is \$41.25 million. The three seed funds established are as follows:

- Amorchem: a seed fund for companies in the life sciences field (drugs, nutraceuticals, bioproducts, diagnostics, prognostics, etc.)
- Seed Fund Cycle–C3E: a seed fund for companies in the clean tech industry (energy efficiency, energy production, transportation, etc.) that have not yet established income-generating commercial activities
- Real Ventures Fund: A seed fund for companies in the information technology and communications industry (Internet development, mobile applications, video games)

Alberta

Some key initiatives undertaken by the Government of Alberta to provide venture capital include the following:

Alberta Enterprise Corporation (AEC)

AEC's mission is to foster a thriving venture capital industry in Alberta that provides the capital and other resources needed to bring Alberta technologies to market, and create globally successful companies. They achieve this by investing as a Limited Partner in VC funds that meet the criteria outlined in their Investment Policy. These criteria include – but are not limited to – a successful track record, strong global networks, operational expertise, and a demonstrated commitment to the province of Alberta (including an Alberta office). AEC undertakes the following activities:

- Engage regional VC fund managers, as well as leverage VC fund networks across Canada, the US and abroad.
- Require any funds they invest in to include Alberta-based fund managers.
- Invest in funds that target next-generation technologies.
- Leverage the province's strengths by seeking Alberta investors who target Alberta innovation.
- Develop a strategy that will yield more early stage and angel investment capital for Alberta's knowledge-based entrepreneurs.

The size of the fund is \$100 million of which more than \$94 million has already been committed to seven VC funds and one angel-co-investment fund - Accelerate Fund. AEC has leveraged the \$94 million into more than \$765 million. Funding has been provided to 21 companies to date.

Alberta IVAC Capacity Builder

The IVAC Capacity Builder Program helps pre-commercial and seed stage technology companies get to the investor-ready stage so they can attract angel investors, seed funding and venture capital. The Capacity Builder offers support for: mentoring and management expertise; intellectual property development; professional marketing plans, assessments and feasibility studies; and other professional services (legal, professional, engineering).

United States

One of the most successful government venture capital programs is the Small Business Innovation Research (or SBIR) program is a United States Government program, coordinated by the Small Business Administration, which helps certain small businesses conduct research and development (R&D). The program was established with the passing of the Small Business Innovation Development Act in 1982 to award federal research grants to small businesses. The program originally had three main objectives:

- Spur technological innovation in the small business sector;
- Meet the research and development needs of the federal government; and
- Commercialize federally funded investments.

A fourth objective - to enhance the participation of women and socially or economically disadvantaged persons in technological innovation - was added at the time of the 2000 reauthorization.

SBIR funding takes the form of contracts or grants. The recipient projects must have the potential for commercialization and must meet specific U.S. Government R&D needs. The SBIR program was created to support scientific excellence and technological innovation through the investment of federal research funds in critical American priorities to build a strong national economy. The program provides funding to small businesses with early-stage innovation ideas that are still too high risk for private investors, including venture capital firms. For the purposes of the SBIR program, the term "small business" is defined as a for-profit business with fewer than 500 employees, owned by one or more individuals who are citizens of, or permanent resident aliens in, the United States of America.

Funds are obtained by allocating a certain percentage of the total extramural (R&D) budgets of the 11 federal agencies with extramural research budgets in excess of \$100 million. Approximately \$2.5 billion is awarded through this program each year. The United States Department of Defense (DoD) is the largest agency in this program with approximately \$1 billion in SBIR grants annually. Over half the awards from the DoD are to firms with fewer than 25 people and a third to firms of fewer than 10. A fifth are minority or women-owned businesses. Historically a quarter of the companies receiving grants are receiving them for the first-time.

The SBIR program agencies award monetary contracts and/or grants in phases I and II of a three-phase program: [

- Phase I, the start-up phase, makes awards of up to \$150,000 for approximately 6 months support [for] exploration of the technical merit or feasibility of an idea or technology.
- Phase II awards grants of up to \$1 million, for as many as 2 years, in order to facilitate expansion of Phase I results. Research and development work is performed and the developer evaluates the potential for commercialization.
- Phase III is intended to be the time when innovation moves from the laboratory into the marketplace. No additional SBIR set-aside funds may be awarded for Phase III. The small business must find funding in the private sector or other non-SBIR federal agency funding.

A study by Lerner (1998) stated that the Small Business Innovation Research (SBIR) program has provided over \$7 billion to small high-technology firms between 1983 and 1997. Using a unique database of awardees compiled by the U.S. General Accounting Office, Lerner shows that SBIR awardees grew significantly faster

than a matched set of firms over a ten-year period. The superior performance of SBIR awardees was confined to firms based in zip codes with substantial venture capital activity. The impact of the awards was pronounced in high-technology industries. The awards have played an important role in certifying firm quality.

A study by Cumming (2007) states that the SBIR program is the largest government support program for venture capital in the world, with SBIRs having invested more than US\$21 billion in nearly 120,000 financings of small businesses since the 1960s. Investee companies include such successes as Intel Corporation, Apple Computer, Federal Express, and America Online. SBIRs, which are run by private investment managers, operate like private, independent, limited partnership venture capital funds, except that they are subject to statutory terms and conditions on the types of investments they make and the manner in which investments are carried out.

Colorado

The Colorado Venture Capital Authority (VCA) was established in 2004 to make seed and early-stage capital investments in businesses. The VCA was allocated \$50 million in premium tax credits, which it subsequently sold to insurance companies. The VCA selected fund manager High Country Venture (HCV) and established Colorado Fund I (2005) and Colorado Fund II (2010), each with approximately \$25 million. High Country Venture operates independently and makes the final decisions on investing. The key points of the program are:

- 50% of the funding is available to statewide businesses; 25% to rural businesses and 25% to businesses in distressed urban communities.
- HCV reviews funding deals and makes investments in selected businesses throughout Colorado. HCV can fund businesses by using debt, equity, or debt with a conversion option into equity.
- The investment could vary between \$250,000 and \$3,375,000, and HCV may partner with other funding institutions (banks, business loan funds, VC funds etc) in making investments.

As of February 2014, Colorado Fund I has invested a total of \$24 million and Colorado Fund II invested \$17 million. The number of jobs created by investments from CF I and CF II are 539 and 174, respectively.

Washington

In 2012, Innovate Washington, the statewide public-private partnership that is the catalyst for economic growth in Washington's innovation economy, launched its Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grant-writing program. Innovate Washington also runs the Technology Growth Fund (\$3 million) and Energy Innovation Fund (\$1.5 million), which invest in technology and cleantech companies respectively. The Washington Department of Commerce has recently worked with private financial institutions to create four new programs whose \$19.7 million in funds will deliver \$300 million in new capital to Washington State small businesses by 2016:

- Collateral Support Program helps small businesses secure SBA 504 financing with their lenders when collateral support is a concern.
- Capital Access Program helps small businesses secure financing in the difficult post-recession credit environment. The CAP encourages lenders to make small business loans that fall just short of conventional business loan approval.
- Craft3 Fund is a non-profit Community Development Financial Institution (CDFI) that lends to small businesses in underserved communities across the state and partnering with other small business lenders
- W Fund, an \$18.5 million venture fund, invests in early-stage life science, biotech, medical device, alternative energy, and information technology companies emerging from universities, research centers and individual start-ups across Washington. The objective is to spur company

formation and job creation from Washington's significant research and development base.

Ohio

Launched in 2002, the 10-year, \$1.6 billion Ohio Third Frontier (OTF) has been the catalyst for increased entrepreneurial activity and job creation in Ohio. In 2010, voters approved a bond issue to provide another \$700 million of Third Frontier funding over five years. OTF provides funding to seed and start-up funds, technology-based companies, universities, nonprofit research institutions, and other organizations to create new technology-based products, companies, industries, and jobs.

- OTF has helped establish an active professional investor network and supported over 1,000 seed and start-up companies in the past decade. A large number of these companies are now at the point where they require early-stage capital to continue building their businesses and creating jobs in Ohio.
- Different programs are operated through OTF under the categories of
 - Innovation - One Fund, Entrepreneur Signature Program, Incubation Program, etc.
 - Commercialization - Technology validation & Start-up fund, Technology Asset Grant Program, Technology Commercialization center, etc.
 - Capital & Talent - Pre-seed Fund Capitalization, Commercial Acceleration Loan fund, etc.
- Through the above programs, OTF invests the capital in state's incubators, accelerators, technology transfer offices and seed/start-up funds such as CincyTech, JumpStart, TechColumbus, Ohio TechAngels Fund and North Coast Angel Fund.

The Ohio Capital Fund (OCF) was created in 2003 to complement existing Ohio Third Frontier programs aimed at increasing the amount of private investment capital for Ohio companies in the seed or early stage of business development:

- OCF is financed by \$150 million in bonds issued on its behalf by the Columbus-Franklin County Finance Authority. Investors who buy those bonds are eligible for state tax credits to offset any losses they incur as a result of their investments, but the state only issues those tax credits if the fund suffers losses.
- Capitalized by private investors and governed by the Ohio Venture Capital Authority (OVCA), OCF has fully committed its available funds to 27 professionally managed VC funds, 23 of which were based in Ohio and 12 of which established a new presence in Ohio because of OCF.
- Any fund that receives money from the OCF must agree to invest at least 50% of that amount in Ohio-based early stage companies. The maximum amount that OCF can invest in a single fund is \$10 million.
- These venture funds and their private sector co-investors have invested \$745 million in 71 Ohio companies, helping to create or maintain more than 2,500 jobs generating an estimated payroll of over \$150 million annually.

Michigan

InvestMichigan Growth Capital Fund was initiated in 2008 and makes growth capital investments directly in companies with enterprise values of less than \$200 million and one of the following characteristics:

- Are domiciled in Michigan;
- Have their corporate headquarters in Michigan;
- Have a significant percentage of their employees based in Michigan; or
- Are in the process of planning an expansion in and/or relocation to Michigan.

The Funds are co-managed by Beringea, a Michigan-based venture capital firm experienced in geographically targeted investment programs, and GCM Grosvenor Private Markets. The objectives of the Funds are to:

- Retain and attract growth businesses to Michigan;

- Nurture portfolio companies at each phase of development;
- Enhance Michigan's reputation for entrepreneurship;
- Attract leading regional and national private equity and venture capital investment funds to Michigan, and
- Further develop Michigan's entrepreneurial ecosystem.

Portfolio companies that become part of the program and their management teams are supported by the Business Leadership Council which is comprised of Michigan business leaders who offer support, guidance and access to business relationships. Eligible companies include those involved in advanced materials and manufacturing, health care and life sciences (excluding pharmaceuticals), media and communications, specialized consumer goods, homeland security, IT and clean technology.

Oregon

The Oregon Investment Fund (OIF) is managed by GCM Grosvenor Private Markets. The manager's activities include: sourcing premier funds, performing comprehensive due diligence, investment execution, and monitoring and reporting. Since the inception of the OIF, the net impact to Oregon has been approximately \$723 million of capital invested by OIF's funds and co-investors in Oregon and Pacific Northwest companies as of December 31, 2011. The OIF has committed and invested its funds on behalf of the Oregon Public Employees Retirement Fund (OPERF) and created value in the portfolio for the benefit of OPERF and its constituents. As of December 31, 2011, the OIF has accomplished the following milestones:

- Committed \$137 million to 14 funds and invested over \$10 million directly into five companies in Oregon.
- Invested \$298 million in 44 Oregon and Pacific Northwest companies. Other equity coming into these investments from outside the OIF totals \$425 million. This \$723 million represents a 7.45x leveraging of OIF capital to date.
- Influenced approximately 4,432 jobs in Oregon and Pacific Northwest companies, including 1,936 jobs in Oregon.
- Grew the number of individual investments in Oregon and the Pacific Northwest companies to 44 of which 26 are either headquartered in Oregon or have significant operations in the State.

Tennessee

The Tennessee Department of Economic and Community Development is creating the INCITE (Innovation, Commercialization, Investment, Technology and Entrepreneurship) Co-Investment Fund using \$29.7 million of federal funding Tennessee was awarded under the State Small Business Credit Initiative. The purpose of the Fund is to increase access to seed, early and expansion-stage capital for Tennessee businesses. The Fund is designed to be self-sustaining and to complement Tennessee's existing capital access initiatives.

Approved investors can be any of the following:

- Small Business Investment Company (SBIC), New Market Venture Capital Company or Rural Business Investment Company, as certified by the U.S. Small Business Administration;
- A person or entity that has at least \$15 million of assets under management, or an investment vehicle that is managed exclusively by a person or entity having at least \$15 million of assets under management, and is deemed an accredited investor under the Securities Act of 1933; or
- A person or entity that is deemed an accredited investor under the Securities Act of 1933.

A Qualified Business is a business that meets the following requirements:

- The business must be headquartered in Tennessee; its principal business operations must be located in Tennessee; and at least 60% of its employees must be providing services in Tennessee to the business.
- Businesses must have less than 500 existing employees.

Funding will be made available in the following three tiers.

- Tier I: Seed Stage Investments (25% Match)
 - Seed stage Co-Investments from the Fund will range from \$75,000 to \$250,000 per Qualified Investment and will represent a \$0.25 on the dollar match.
 - Approved Investors must invest between \$300,000 and \$1,000,000.
- Tier II: Early/ Growth Stage Investments (20% Match)
 - Early/ Growth stage Co-Investments from the Fund will range from \$200,000 to \$900,000 per Qualified Investment and will represent a \$0.20 on the dollar match.
 - Approved Investors must invest between \$1,000,001 and \$4,500,000.
- Tier III: Expansion Stage Investments (15% Match)
 - Expansion stage Co-Investments from the Fund will range from \$675,000 to \$1,800,000 per Qualified Investment and will represent a \$0.15 on the dollar match.
 - Approved Investors must invest between \$4,500,001 and \$12,000,000.

Oklahoma

The State of Oklahoma established the OKAngel Sidecar Fund for the following reasons:

- Accelerate the growth of companies seeking angel investment;
- Increase the number of investment-grade companies;
- Accelerate private capital investment in Oklahoma companies;
- Position more Oklahoma-based companies to attract later stage investment and create high-paying, private sector jobs;
- Catalyze the growth and formal structure of more angel groups in Oklahoma; and
- Provide angel investors additional capital to close investment rounds.

The eligibility criteria for the OKAngel Sidecar Fund are:

- Committed leadership team located in Oklahoma with significant related experience;
- Committed to successfully growing a company in Oklahoma;
- A viable plan for securing follow-on financing needed to successfully grow the company; and
- A market-based, private investment commitment by one or more angel investors and/or angel groups providing significant co-investment.

Plans presented by eligible companies and entrepreneurs are evaluated by i2E using nationally accepted diligence standards based on the quality of the plan and a demonstrated likelihood to achieve the following outcomes in Oklahoma:

- Accelerate the growth of a company in a high-growth industry sector;
- Leverage angel investment;
- Develop solutions to solve key business and technical milestones to position the company for additional venture capital funding and market penetration;
- Strengthen one or more of Oklahoma's high-growth industry sectors; and
- Create and retain high-paying, private sector jobs.

Individual investments do not exceed 50% of the total investment round. Investments are in the form of preferred equity or convertible debt and have size limitations and are deal specific.

Connecticut

The State of Connecticut has established a Sidecar Investment Fund that provides matching grants to businesses or state university student entrepreneurs who receive pre-seed or seed financing from angel investors. Connecticut Innovations, Incorporated (CII) must administer the side-car investment fund program. The bill requires 90% of the program grants to match angel investments to businesses, and up to 10% for investments in state university student entrepreneurs who receive angel investment funding. The bill restricts a grant to any company to a 50% match, up to \$ 250,000.

Israel

The Israel experience is an example of effective government policy in catalyzing the venture capital globalization process (Lerner, 2012). In June 1992, the Israeli government established Yozma Venture Capital Ltd., a \$100 million fund wholly owned by the public sector. At the time, there was a single venture fund active in the nation, Athena Venture Partners. The key goal of Yozma was to bring foreign venture capitalists' investment expertise and network of contacts to Israel. The need for this assistance was highlighted by the failure of the nation's earlier efforts to promote high-technology entrepreneurship. One assessment concluded that 60% of the entrepreneurs in prior programs had been successful in meeting their technical goals but failed because the entrepreneurs were unable to market their products or raise capital for further development. Foreign expertise was seen as key to overcoming this problem. Accordingly, Yozma discouraged Israeli financiers from participating in program. Rather, the focus was on getting foreign venture investors to commit capital for Israeli entrepreneurs. The government provided matching funds to investors, typically \$8 million of a \$20 million fund. The venture fund was given the right to buy back the government stake within the first five years for the initial value plus a preset interest rate of roughly 5 to 7%. Thus, the incentives of Yozma meant that the government provided an additional incentive to the venture fund if the investments provided successful.

Ten groups took advantage of this offer, mostly from the United States, Western Europe, and Japan. Many of the original Yozma funds, including Gemini and Walden Ventures, earned spectacular returns and served as precursors to larger, follow-on funds. Moreover, many of the local partners recruited by the overseas venture capitalists were able to spin off and establish their own firms, which global investors were eager to fund because of their impressive track records. A Yozma alumni club allows groups to learn from each others' experiences while making these transitions. One decade after the program's inception, the ten original Yozma groups were managing Israeli funds totalling \$2.9 billion, and the Israeli venture market has expanded to include 60 groups managing approximately \$10 billion. The ratio of venture investments to GDP is far higher in Israel than elsewhere. In most tabulations, Tel Aviv has surpassed Boston as the urban area with the most venture capital activity after San Francisco.

The YOZMA programme can, however, not exclusively claim the credits for the successful jumpstart of the VC market in Israel (Koenders, 2013). The programme played a role mostly on the supply-side – it incentivised (domestic and foreign) investors to supply VC. But another major explanatory development was present on the demand side. Namely, before and during the YOZMA programme a massive stream of high-tech scientists entered Israel as immigrants, stimulating the demand for VC. This does indicate that the timing of the YOZMA programme was right, and that supply-side policies alone will not jumpstart a VC industry.

After five years, Israeli government examined the program and decided to auction off the ownership of Yozma. This sale did not represent a shift of fashion, but rather was a planned step to be taken once the market had sufficiently matured.

The Israeli government is currently involved in the following funds:

- Heznek Program - the Government seed fund: The program is based on the government

matching an investment in a start-up company, proportional to the investment of an investing entity and on giving an option to the investor to purchase the government shares in the start-up company at the initial price.

- Israeli Life Science Funds (2010): government commitment of USD 80 million for 3 funds with return enhancement and downside protection for private sector LPs. Funds should invest at least three times government commitment in the bio pharma sector.

The new Israeli Hezkek Fund (Jenkins, 2011) gives private sector partners an option (but not the requirement) to purchase the government's position after a certain length of time at a price that would generate a predetermined rate of return to the government. With this structure, the government is exposed to the same downside risk as in a standard co-investment model, but has less upside potential, which reduces the expected return on its investment. Nevertheless, if market forces are appropriately harnessed to allocate funding, the government should be able to obtain a positive return on its investment. This approach raises the expected return to private investors without affecting the risk of loss. It therefore helps align private incentives with the public interest by giving the fund managers an incentive to invest in firms that have substantial upside potential rather than using government funds to offset losses on poor investments. Fund managers also have an incentive to work closely with funded companies because, once the minimum return has been achieved, fund managers are able to keep all of the additional return from their extra effort.

New Zealand

The New Zealand government is involved in the following venture capital funds (Durafle, 2010):

- New Zealand Venture Investment Fund (NZVIF) – \$160 million
- NZVIF Annex Fund (\$20 million), set up in 2008, to be invested by managers of NZVIF backed VC funds as follow on investments on a 1:2 ratio of NZVIF capital to private capital
- New Zealand: NZVIF's Seed co-investment program (invests pari passu 50/50 with angel networks or seed funds – \$40 million)

Prior to any investments being made, NZVIF was structured as a stand-alone company, which enables the government to distance itself from risk and liability for the investments made. This approach also ensures distance and independence from decisions about appointment of venture capital fund managers and from individual investment decisions. These investments were structured as equity (to minimize possible distortions) and could be bought out by the investors. Government investments in the funds were on the same terms as those of private investors, except that each fund was provided with an option exercisable up to the end of the fifth year of the fund to buy out the investment on the basis of capital plus interest only (that is, other investors would receive any upside above this amount). Deliberately, the project designers asked for no special rights. The fund managers were given responsibility for making and managing investments without government interference. NZVIF leaders participated in investor governance decisions on the same terms as private investors, with the same voting rights. Investor governance arrangements reflected current market practice. The funds were geared toward investors in early-stage companies, and every dollar has to be matched with two dollars from the private sector.

NZVIF's decision to invest in a fund is made following completion of an extensive selection and due diligence process, undertaken by the fund manager, to determine whether the fund proposal is "investment grade". The initial screening is done by staff, followed by an outside assessment by an independent specialist private equity advisor. A standard methodology and fixed criteria are used to assess and rank all applications. In many cases, the staff work actively with teams of would-be venture fund managers to help them make their proposals more attractive (for instance, helping them identify prospective additional individuals who can contribute needed experience). Following the completion of external due diligence, the NZVIF board selects those applicants with whom it wishes to negotiate investment terms. As part of the negotiations, a monitoring and reporting framework is agreed with each NZVIF seed fund manager. This enables NZVIF to collect the

economic and financial data it needs for the required regular reports on the performance of each fund and the impact of the program. This also enables NZVIF to monitor each fund to ensure it is compliant with its investment agreement and investor governance requirements. Once fund agreements are finalized, investment activity commences.

In 2008, New Zealand Venture Investment Fund committed up to \$20 million to an Annex Fund to support existing venture capital backed portfolio companies which are seeking growth capital. The Annex Fund is designed to assist companies which have previously received investment from NZVIF backed venture capital funds and are looking for follow-on funding for their next stage of growth, such as establishing an export base offshore and developing international markets.

The Seed Co-Investment Fund is a direct investment fund aimed at early-stage businesses with strong potential for high growth. The main objective of the fund was to enhance the development of angel investors and angel networks, which would in turn stimulate investment into innovative start-up companies. The fund provides \$40 million of matched investments on a 1:1 basis. Investment occurred alongside selected private investor groups (approved co-investors) with the fund acting as a direct investor on the same terms as the co-investment partner.

Singapore

Singapore has developed a dazzling array of policies to promote entrepreneurial activity and many of them involve direct subsidies to entrepreneurs and venture funds (Lerner, 2009). The government launched a variety of initiatives including the following to create an environment where investors could thrive:

- Spending for academic research was dramatically increased by three times. In conjunction with this spending, the government boosted support for entrepreneurial activity at various levels at top universities, from classes for students to incubators to nurture ideas developed by faculty.
- The Agency for Science, Technology and Research not only funds basic research and licences the output, but reaches out to provide financing to other “orphan” technologies, as well as subsidies or free consulting advice about commercialization strategies.
- Singapore’s enterprise development agency, SPRING, encourages associations that can bring together small and new enterprises for efforts such as training, joint research, and investments in new technologies; it also provides grants for start-ups to hire consultants.
- The Economic Development Board subsidizes part of the research expenses of corporations beginning new initiatives.
- The Techno-preneurship Investment Fund and Singapore’s sovereign wealth funds invest in leading global venture funds. While these investors have no special rights or provisions beyond those that other investors receive, these investments help establish relationships that may prove helpful for Singaporean start-ups.
- The Ministry of Manpower and other agencies expedite the paperwork for foreign entrepreneurs interested in beginning a high-growth new business in Singapore.
- A variety of competitions and events with names, such as the BlueSky Festival and Enterprise Day, highlight the potential for new growth enterprises and seek to identify promising nascent entrepreneurs.
- One of the most ambitious efforts has been the creation of the Biopolis, a seven-building complex constructed at an estimated cost of \$500 million, which includes state-of-the-art laboratory facilities and other amenities. Singapore has aggressively pursued and lured top researchers to the Biopolis, offering a combination of state-of-the-art laboratory facilities, generous research funding, stratospheric salaries (reputed to be \$1 million per year) and a favourable political climate. By co-locating top-flight researchers, government agencies, and private firms, the government hopes to create the foundation for a vibrant biotech industry in the island-state.

The following paragraphs describe in more detail the government venture capital funds, other venture capital programs and tax incentives that have been established by the Government of Singapore:

Government VC funds

- Co-Investment Program - Launched in December 2010, Phase I of the CIP set aside up to \$250 million of Government capital for two funds managed by Heliconia Capital Management Pte Ltd – (i) the SME Catalyst Fund, which invests in a portfolio of private equity funds that manage and match the Government's capital; and (ii) the SME Co-Investment Fund, which co-invests with private sector investors in qualifying investee companies on deal-by-deal basis. To date, approximately \$160 million of seed capital has been committed to two private equity funds and four investee companies. This has catalyzed over \$500 million from the private sector, more than the 1:1 public-to-private co-investment ratio originally envisaged. The government will set aside up to S\$150 million for two new funds in Phase II of the Co-investment Programme (CIP). This brings total government capital under CIP to S\$400 million. Phase II of the programme will provide equity capital and mezzanine capital to qualifying investee companies through co-investment with private sector investors.
- EDB Investments (EDBI): As the corporate investment arm of Singapore's Economic Development Board (EDB), their main focus is to grow Singapore's knowledge and innovation-intensive sectors of Biomedical Sciences, Information & Communication Technology, Smart & Sustainable Technology as well as other key industry clusters within their Strategic Growth Programme.
- Infocomm Investments Pte Ltd (I IPL): I IPL's aim is to use its equity investments to support IDA's industry development efforts to develop a globally competitive infocomm industry in Singapore.
- Early Stage Venture Fund: The Early Stage Venture Fund (ESVF) invests S\$10 million on a 1:1 matching basis, to seed venture capital (VC) funds that invest in Singapore-based early stage high-tech companies. As an incentive, the VCs have the option to buy out NRF's share of the fund within five years by returning NRF's capital with interest.

Other Venture Capital Programs

- Business Angel Scheme (BAS) : In encouraging experienced angel investing, SPRING SEEDS Capital works closely with pre-approved private business angel investors to co-invest and nurture growth-oriented, innovative start-ups. If the start-up is able to obtain investment interest and commitment from any of the business angel investors, SPRING SEEDS Capital could potentially match the intended amount (dollar-for-dollar) of up to a maximum of S\$1.5 million.
- StartUp Enterprise Development Scheme (SEEDS): SPRING SEEDS Capital Ltd (SSC), the investment arm of SPRING Singapore, manages the SPRING SEEDS, an equity-based co-financing option for Singapore-based start-ups with innovative products and/or processes with intellectual content and strong growth potential across international markets.
- Technology Incubation Scheme (TIS): Under the TIS scheme, started in 2010, the National Research Foundation (NRF) Singapore could co-invest up to 85% of investment (up to S\$500,000 per company) into a Singapore-based start-up, on recommendation from the Technology Incubator. The Technology Incubator will be required to co-invest the remaining 15% of investment into the start-up. In addition to funding, the Technology Incubator will be required to provide active mentorship and guidance to the start-up.
- As an incentive, the Technology Incubator will be given an option to buy over NRF's stake in the start-up within three years by repaying the capital plus interest. This will align the interests of all parties towards the success of the start-up companies, and help to develop the entrepreneurial ecosystem in Singapore.
- Proof-of-Concept (POC): The Proof-of-Concept (POC) grant scheme provides funding to researchers from public hospitals and institutes of higher learning (IHLs) to enable them to carry out further research on their inventions or ideas. The resulting product or application could then be licensed to interested companies or be marketed by a new company.
- ACE Startups Grant: The ACE Startups grant provides funding support to entrepreneurial Singaporeans who want to take their first step in starting up differentiated businesses. ACE will match \$7 to every \$3 raised by the entrepreneur for up to \$50,000. ACE does not take equity in the company.

Tax Incentive Schemes

- Angel Investors Tax Deduction Scheme (AITD): The scheme applies to an approved angel investor who invests a minimum of \$100,000 in a qualifying start-up. An approved angel can enjoy a tax deduction, equal to 50% of his investment amount, at the end of a two-year holding period. For each Year of Assessment (YA), the qualified investments will be subject to a cap of \$500,000.
- Tax Exemption for Start-ups: Launched in 2005, under this scheme, a newly incorporated company that meets the qualifying conditions under this scheme can claim for full tax exemption on the first \$100,000 of normal chargeable income for each of its first three years of assessment (YA). From 2008, a further 50% exemption is given on the next \$200,000 of the normal chargeable income for each of the first three YAs.

India

The experience of India is a case where spectacular growth in venture capital activity has occurred in recent years as a result of a healthy local market to take companies public (Lerner, 2009). The amount of capital invested in young and growing firms exploded from \$570 million in 2001 to \$3.8 billion in 2007, much of it driven by American, European, and Middle Eastern capital. In addition to the robust growth that characterized the nation and the well-trained workforce, venture capitalists were lured by the robust public markets that characterized India until the beginning of 2008. For instance, in September 2008, 4,917 firms traded on the Bombay Stock Exchange. In many instances, venture capitalists invested in companies that were already publicly traded, and nurtured them while their market value grew and they could achieve a profitable exit. While this market is far from an efficient one, and suffered substantial losses during the financial crisis, it is an important asset for India's entrepreneurs.

India has also been successful at leveraging human resources outside the nation. Venture capital is a true "people business" where personal connections are critical to overcoming the very substantial information gaps that surround these risks investments. Thus, it is not surprising that ties to entrepreneurs and venture investors working in more developed markets can often be critical. Most countries have large pools of expatriates, which often include many individuals active in high-technology and venture capital industries abroad. These people can serve as a valuable resource along several dimensions, including roles as angel investors, as mentors to, or even partners of, local venture capitalists, and as sounding boards for policymakers. The nation that has probably benefited the most from this resource has been India, particularly from the substantial Silicon Valley community of first and second generation Indians. India has an extensive diaspora, estimated to total 18 million people in 130 countries, many of whom are highly skilled. As a result, they serve as a very valuable resource to local entrepreneurs: Two thirds of the Indian-born entrepreneurs working in Silicon Valley advised entrepreneurs in India, while 18% invested in those firms (Lerner, 2009).

Australia

The Australian government is involved in the following venture capital funds (Durafle, 2010):

- The Innovation Investment Fund program provides fund managers with \$20 million in which they must match with private sector capital to establish new funds to invest in promising early-stage Australian companies commercializing Australian research.
- The Pre-Seed Fund has over \$100 million in capital, of which the Australian government is providing \$72.7 million. Private sector investors, universities and public sector research agencies will provide the balance. Pre-Seed investments can be made into projects or companies that have been established to commercialize Australian research.
- The Innovation Investment Follow-on Fund is a temporary fund targeted to address the lack of capital available to the most promising innovating companies during the global financial crisis. The \$64 million of funding is shared by 11 fund managers from Rounds 1 and 2 of the Innovation Investment Fund, the Pre-Seed Fund and the ICT Incubators Program.

Through the Innovation Investment Follow-on Fund, fund managers will be able to provide follow-on investments to early stage companies that have already received investment capital under these programs.

Europe

Many European Member States have recognized the importance of angels in the seed and early stages and have introduced tax incentives for capital gains or started programmes to enhance cooperation between angels and other investors (European Commission, 2005). Widely recognized good practices like the Scottish Co-investment Fund have acted as models for other countries. At the European level, providing additional leverage for public sector and business angel co-investment models have been proposed in the new Competitiveness and Innovation Framework Programme.

The role of the public sector in promoting finance for European firms with growth potential is based on the market failure in the seed and early stages. Given the increase in public welfare that arises from successful commercialization of innovation, the public sector has an interest in addressing the market imperfections and most Member States have programmes that aim to improve access to risk capital. The presence of an identified and permanent market failure in access to risk capital is longstanding, and it is likely that it will continue to exist for the foreseeable future in most Member States.

Many national programmes are using the structure of a fund-of-funds or co-investments with private venture capital funds. The fund-of-fund structure almost inevitably increases the level of management fees, as both the fund-of-funds and the venture capital fund take their share of the fees. To ensure that any incentives are not lost to the venture capital industry, it is important that these fees are kept as low as possible through competitive tenders and other mechanisms. To ensure that the participating funds have right incentives, the 2005 European Commission report stated that programmes should in their design emphasize upward potential and perhaps devise a profit sharing scheme where the private investors get a larger share of the profits instead of offering them downside protection.

Scotland

The Scottish Co-investment Fund (SCF) is a £72 million equity investment fund managed by the Scottish Investment Bank (SIB) and is partly funded by the European Regional Development Fund (ERDF). SCF is available to start-up businesses or companies trying to make a step change in their business through expansive growth into new products and/or markets. It offers funding from £100,000 to £1 million for equity finance deals with a total value of up to £2 million. The Fund shares the risks by investing alongside a partner that leads the transaction. This means that, unlike a standard venture capital (VC) fund or a business angel, Scottish Enterprise (SE) does not find and negotiate SCF investment deals on its own. Instead, SE forms contractual partnerships with active VC fund managers, business angels and business angel syndicates from the private sector (the SCF partner). The SCF partner finds the opportunity, negotiates the terms of the deal and offers to invest its own cash in equity (shares). If the opportunity needs more money than the partner can provide alone, it can call on the SCF to co-invest on equal terms. The SCF partner determines how much the SCF can invest in any new deal, however, the SCF cannot invest more than the SCF partner.

The SCF funds are not placed in a limited partnership arrangement with partners. Instead, the SCF legally guarantees the agreed funding, with SCF funds only being called down from Scottish Enterprise (SE) once an individual investment has been legally concluded. The partners are paid a flat arrangement fee per investment at completion; this figure is 2.5% of the SCF funds invested, which is typical in syndicated deals. Once a partner has been awarded partnership status, a three-year allocation is agreed with SCF. The SCF Executive team reviews the allocations every six months up to the end of a three-year period and the performance of the partners is also reviewed annually. Some investment guidelines of the SCF are:

- The SCF investment in a company must not exceed £1 million in one tranche or in multiple rounds;
- The total deal size should not exceed £2 million (this will include any debt component);
- The investment must be at least matched pound for pound by the SCF partner;
- The terms obtained must be equal to those of the SCF partner;
- Scottish Enterprise cannot hold in aggregate more than 29.9% of the voting rights of a company; and
- Public money cannot account for more than 50% of the total risk capital funding in a deal.

An evaluation of Scottish Co-investment Fund (Hayton, Thom, Percy, Boyd and Latimer, 2008) stated that by 2008, the Fund co-invested £28 million through its partners (venture capitalists and angels) in 100 companies. The evaluation stated that the benefits achieved are:

- Increased revenues - estimated to range from £38 million to £55 million
- Employment creation - estimated to range from 449 to 664 full time equivalent jobs