

CALGARY: FINANCING OUR FUTURE

Creating an environment that supports diverse and innovative company growth



JUNE 2007

CALGARY
ECONOMIC
DEVELOPMENT


Calgary
Heart of the New West

CALGARY ECONOMIC DEVELOPMENT



Calgary Economic Development (CED) is Calgary's lead economic development agency, committed to marketing the Calgary Region's competitive advantages, pro-business climate and superior lifestyle across Canada and around the world.

Our organization works closely with business, partner agencies, educational institutions, the community and all levels of government. We focus on leveraging Calgary's abundant energy and innovative spirit to sustain economic growth.

Calgary is Western Canada's business centre and has more head offices per capita than any other Canadian city. Its key economic drivers are Transportation and Logistics, Information and Communication Technology, Energy, Manufacturing, Financial and Business Services, Film and Creative Industries.

CED concentrates its activities on developing these sectors; an experienced economic development professional is dedicated to each sector. Using a hands-on approach, we are furthering the success and growth of existing businesses, helping small and medium businesses grow their markets globally and promoting the Calgary Region as the ideal location for business investment.

Our operating principles allow us to get the job done - by working with business and partners proactively, collaboratively and responsively.

www.calgaryeconomicdevelopment.com

ACKNOWLEDGEMENTS

Calgary Economic Development (CED) would like to thank the following individuals for their time and valued input.

Derek Ball	Calgary Technologies Inc
Warren Bergen	Deal Generator
Peter F. Bovell	DeVry Institute of Technology
Mark Carlson	AVAC Ltd.
Paul Cataford	University Technologies International
Cody Church	TriWest Capital Management
Michael Dost	Octane Venture Partners
Veer Gidwaney	Computer Associates
George Gosbee	Tristone Capital
Keith Jones	AVAC Ltd.
Gordon Kelly	Abtech Capital Inc.
Linda Hohol	TSX Venture Exchange
John MacInnes	Print Audit Inc.
John Masters	Calgary Technologies Inc
Brian McCreedy	Canadian Manufacturers & Exporters Association
Michael McGee	Cavendish Investing Ltd.
Sandy McLeod	Tower Aerospace Inc.
Jacqueline Pembrun-Hunt	Western Economic Diversification
Don Pott	Aero Aviation Inc.
Duane Pyear	Alberta Employment, Immigration and Industry
Michael Robinson	Haskayne School of Business, University of Calgary
Alfred Sailer	Acumen Capital
Randy Thompson	Venture Alberta
Mike Tims	Peters & Co.
Bill Walsh	FutureMark Strategies
Bill Werny	Alberta Employment, Immigration and Industry

Additionally, CED would like to thank the following members of its Board of Directors for their insight and direction: Doug Armitage, Jim Barker, Philip Chang, Daryl Fridhandler, John Maduri and Lew Turnquist.

We continue to seek feedback on the issues and strategies raised in this document. If you have any comments about the content of this document or the topic in general, please contact Calgary Economic Development.

This report has been composed by Calgary Economic Development and does not reflect any individual opinions of the persons stated above.



TABLE OF CONTENTS

01 PART I – INTRODUCTION

02 1.1 – Purpose

02 1.2 – Background

03 1.3 – Methodology

05 PART II – CAPITAL MARKETS OVERVIEW

05 2.1 – Types of Capital

07 2.2 – Stages of Company Growth and Financial Needs

08 PART III – CAPITAL MARKETS IN CANADA

09 3.1 – Venture Capital in Canada

14 3.2 – Angel Investments in Canada

15 3.3 – Public Equity in Canada

17 PART IV – RAISING CAPITAL ACROSS SECTORS

17 4.1 – Knowledge Based Industries

19 4.2 – Non-KBI sectors

21 PART V – INNOVATION, RESEARCH AND COMMERCIALIZATION

21 5.1 – Innovation

24 5.2 – Research and Development

28 5.3 – Commercialization

31 PART VI – CALGARY PERSPECTIVES AND PROGRAMS

31 6.1 – Calgary Advantages

32 6.2 – Challenges for Calgary Investors

36 6.3 – Challenges for Calgary borrowers/recipients

38 6.4 – Working Together

42 PART VII – OTHER JURISDICTIONS GOVERNMENT INCENTIVES AND PROGRAMS

42 7.1 – International Jurisdictions

46 7.2 – Canada

50 PART VIII – CHANGING THE LANDSCAPE

51 **8.1 – Lessons for Calgary from other jurisdictions**

53 **8.2 – Policy Needs**

57 **8.3 – New Investment Models**

61 **8.4 – Opportunities for Calgary Investors and Entrepreneurs**

64 **8.5 – Education and Awareness**

65 PART IX – STRATEGIES FOR DISCUSSION

72 PART X – CONCLUSION

EXECUTIVE SUMMARY

A fundamental enabler of long term sustainability is the quality and breadth of capital markets. This enabler is meant to address financing alternatives that are available to local businesses; furthermore, it speaks to the ability of Calgary businesses of various sizes, stages of development, and industries, to gain access to financing beyond the local sources. The purpose of this report is, first, to identify potential or perceived gaps which exist for Calgary businesses who are: a) seeking to raise capital and b) commercialize R&D innovation.

To further qualify, we are concerned primarily with the gaps which impact the diversity of industry sectors, as well businesses of different size or stages of development broadly, and which could impede sustainable growth at the macro level. Second, we wish to present an inventory of strategies and solutions which exist locally, and which are identified in examples in Canada and beyond our national borders. Third, it is our goal to initiate a structured dialogue within the city which will lead to the execution of long term and quantum improvements in both access to capital and the ability of our city to fully leverage its extensive investments in research and development. This executive summary highlights some of the key issues that are explored in this paper.



CED hopes this report will add a new and valuable perspective to the issue, along with certain urgency, as it represents the view of Calgary's business community. This discussion paper is the start of the journey, not the end. Throughout the summer and fall of 2007 we hope to continue an active engagement with Calgary's business community by seeking feedback on this report, and will continue to advocate for the issues raised in the document.

CED began this study in response to concerns that there is a perceived lack of capital in Calgary, particularly in the non-energy sectors. Many firms operating in industries such as information and communications technology, life sciences, aerospace, alternative energy and advanced manufacturing, are of the opinion that the financing gap they are experiencing is very different than the experience of the oil and gas industry, and this gap is impeding their growth and development. CED recognizes that along with land and labour, capital is one of the three pillars of economic development, and by ensuring that capital is accessible to all sectors and all stages of company growth, we can seek out new economic opportunities and expand existing business wealth.

A key piece of knowledge shared by many of those interviewed for this report is that capital is only part of a larger innovation system. High quality capital investments will only come once certain components of the innovation environment or ecosystem are established. Management and company development, investments in research, commercialization and training, path-to-market development, and commitments to strengthen the infrastructure and culture of innovation, all need to be in place for an influx of capital to have long-lasting and positive impact on economic growth. While this paper addresses some of these components, the larger innovation system goes beyond the confines set by our initial question of accessing capital in Calgary. We are, however, of the belief that future efforts by governments, industry and interested institutions need to address this larger innovation system.

In Calgary, businesses across all sectors of the economy require capital to conduct research, enable technology commercialization and increase their capacity to provide new, innovative and value-added products, processes, or services.

In order for Calgary's economy to continue its growth in a diversified manner, there is a need to ensure the following elements are in place:

- People and partners – Local businesses need to be sufficiently supported by both the public and private sectors, who collaborate to provide the development skills and lessons necessary for company growth.
- Education and awareness – Firms need to be able to identify how to connect with the correct investors and be aware of all the opportunities and mentorships that are open to them.
- Policy initiatives – Companies operating in every industry should be able to access a large pool of capital which is available for all stages of company development and across all sectors of the economy.

The three elements as described above all work together to form an ecosystem that nurtures business growth and adds to the depth and diversity of Calgary's economy. The risk inherent when any part of the three is not fully developed is that Calgary could fall behind other jurisdictions in providing innovative products and services.

1) PEOPLE AND PARTNERS

There are a variety of programs and organizations already established in Calgary that work to promote collaboration and cooperation between investors, entrepreneurs and policy-makers. But despite the programs and organizations already in place, there is still a large gap between the developed state of start-up companies, what entrepreneurs expect and what investors are seeking and willing to invest. Thus government agencies and private industry need to work more collaboratively to improve management skills and educate entrepreneurs on what investors are looking for.

In Calgary, there is a lack of engagement and awareness about potential business ventures outside the energy sector. As the city's most mature sector, the energy sector has the most sophisticated investment community and the largest pool of experienced managers and entrepreneurs. In other sectors, Calgary lacks a critical mass of successful entrepreneurs and investors who have had success in new ventures and are willing to re-invest their time and money into developing new firms. Thus there is a need to encourage more cross-sectoral communication and networking strategies for which are identified throughout this report.

In the end, investors, entrepreneurs and policy makers are all working towards the same outcome – enabling quality deals to be made to further the ability of companies to have sufficient capital to make the decisions and investments that will make them successful and therefore spur economic growth.



2) EDUCATION AND AWARENESS

There are some very apparent education and awareness gaps in the innovation ecosystem. On the financing side, there is a lack of information and management expertise which prevents investors from sufficiently assessing the risks and benefits of all investment opportunities. On the entrepreneurial side, there is a dearth of education, mentorship or development opportunities available to start-up companies across all sectors of the economy.

In many cases, business owners and entrepreneurs are not fully informed on how to properly approach investors, are too concerned with pitching their deal as opposed to developing a solid business plan, and they are not sure where to find the right type of investor. On the investment side, there is a lack of information about quality ideas across sectors and what type of companies are seeking financing. One tool that would certainly aid in better cross-sectoral communication and cooperation would be a firm identification of the real financing needs that exist in Calgary.

3) POLICY INITIATIVES

In researching this paper, we interviewed a variety of people actively involved in Calgary's capital markets. One of the key messages coming out of these conversations is that Calgary is not lacking in financing. Rather it is lacking in organized financing. Entrepreneurs are not fully aware of how to access to capital in the city and investors are not fully aware of the variety of investment opportunities that exist. One of the reasons behind this disconnect is a lack of a true venture capital community in Calgary.

Currently the provincial government provides few programs facilitating the environment for the creation of large pools of capital, which are required for increased business development. For one, Alberta has no policy to leverage private investment. One of the consequences arising from the lack of a private equity community to service all sectors of Calgary's economy is that the sources of supply (investors) are unaware of the activity occurring on the demand side (entrepreneurs) and vice-versa. Policies in place to encourage the development of a true private equity community would strengthen Calgary's capital markets and provide a way to bridge the financial gap that currently exists. The build-up of a true private equity community, that services all sectors of the economy, would only add to Calgary's standing as a financial and economic powerhouse.

In order to encourage a more active venture capital community, there are several programs that the government could implement. There are three tax policies that could be implemented to spur more venture capital investment. One model would be the creation of a fund-of-funds. A fund-of-funds would not directly invest in businesses, but rather would invest into other venture capital and private equity funds that in turn invest in businesses.

Other provinces have enacted legislation allowing for labour sponsored investment funds that provide tax incentives to individual investors to invest in provincial funds. This type of retail venture capital has been criticized in the past, but has also proven successful in stimulating the creation of a true private equity community in those jurisdictions.

Another possible strategy for improving capital accessibility would be the introduction of a new tax structure, based on an already existing successful tax model; in this case the flow-through model. As the program was so successful in encouraging investment in oil and gas, some have suggested that perhaps there is a need to extend a similar tax structure to other industries like manufacturing or communication technologies.

Beyond direct policy intervention in capital markets, governments can facilitate business development by legislating policies aimed at investing in innovation, research and commercialization. Alberta has proven its dedication to investing in research through the establishment of a variety of research and granting bodies, but more can be done.

No matter how many new technologies are produced in Alberta as a result of increased research funding, if no money is invested in commercializing capabilities, there is no way to absorb these technologies. Alberta (and Canada as a whole) limits prospects for potential entrepreneurs who want to translate their research into commercial products or processes. Without targeted commercialization funding available for researchers working in the Calgary Region, the city risks losing some of its most innovative and creative people. This is just one way that an ineffective capital market affects the ecosystem as a whole. What is needed is a more comprehensive approach to R&D funding, such as a Provincial R&D tax credit, to achieve greater economic development value from research expenditures.

Finally, government policies facilitating more private equity and research investment will also enable the city to become a larger capital centre. Calgary's most mature sector – energy – is one of the most capital intensive sectors of any economy, and as a result all major Canadian financial institutions, and a growing number of global organizations, have offices in Calgary. A policy environment that encourages more private equity would in turn facilitate other types of investment, such as passive institutional investors or mutual funds, giving Calgary the opportunity to build a reputation as a true financial centre for all sectors of the economy.

Strategies for discussion

In summary, this report has a goal to provide an analysis of what is happening in Calgary's investment community and apply strategies aimed at encouraging new dialogue and best practices to help facilitate an environment to support the growth of Calgary companies. These strategies and best practices all work towards CED's ultimate goal of ensuring Calgary's continued growth and diversification.

Additionally, it should be noted that when looking at supply and demand issues surrounding access to capital, our focus has been mostly on Calgary. But when it comes to addressing policy decisions aimed at encouraging innovation and facilitating investment, our focus turns towards Alberta as a whole. It is hard to separate the two jurisdictions from each other and many of the observations in this paper are reflective of issues at both the provincial and city level. In the end, the strategies have as a goal to identify a role for CED and other local agencies to work towards addressing the issues at a city level, along with identifying changes to federal and provincial policies.

We recognize that attempting to understand how to address perceived financing gaps, facilitate access to capital and increase innovation are not new concepts. There have been multiple reports over the years at the federal and provincial level, as well as by various organizations and associations representing knowledge-based industries. The strategies included in this document are aimed at encouraging new dialogue and best practices to help facilitate a well functioning innovative environment and to ensure the long-term growth and diversification of Calgary's economy. The specific strategies are:



PEOPLE AND PARTNERS

1. Increased collaboration on both sides of the deal and with the government, to ensure that all priorities are considered when determining policy and programs aimed at ensuring a well-functioning and accessible capital market for all sectors of the economy.
2. The establishment of a new type of investment network that engages experienced managers from Calgary's more established sectors to lend their business expertise and investment experience to help the maturation of the other, less developed sectors.

EDUCATION AND AWARENESS

3. Increased collaboration between government agencies, post-secondary institutions and private industry to improve education, development, coaching and mentorship of entrepreneurs about building and managing a successful company.
4. Better identification of the financing requirements of local firms in an effort to diagnose the needs of Calgary companies and identify possible global jurisdictions that could fill the gap.
5. A vehicle to capture investment activity in Calgary and a communications program showcasing the innovative activity and success of the local capital market.

POLICY INITIATIVES

6. The examination of a variety of tax policy initiatives to increase the pool of capital in the Province.
7. The implementation of a Provincial R&D tax credit and an exploration of how a specific amount of research funding could be re-directed towards commercialization.

PART I – INTRODUCTION

This paper is a review of the capital landscape: what is happening in Canada, Alberta and Calgary now; what has happened in the past and how to learn from it; what is happening elsewhere and how other jurisdictions are tackling the issue; providing clarity around research and development funding; and identifying some potential strategies to encourage both an influx of capital and continued business growth. This report is an attempt at understanding the perceptions of both the entrepreneurial and the investment communities in regard to accessing capital in Calgary and the difficulties inherent in allocating it across all sectors. In tackling the issue from the perspective of all of Calgary's businesses and not only the high-tech industries, CED is hoping to add a new perspective to the issues. By presenting the analysis in this way, it is possible to demonstrate the importance of a strong capital market, especially in a period of economic strength like Calgary is experiencing now. In order for Calgary to continue to be competitive, there is a need to capitalize on our current position of strength, and ensure access to capital across all economic sectors and at all stages.



1.1) Purpose

The purpose of this report is to address the perceived gaps in Calgary's financing and innovative community that could impede continued growth, and to present some strategies that will allow for the creation of an environment to support innovative and diverse company growth across all sectors of Calgary's economy.

1.2) Background

CED clients surveyed in late 2005 stated that part of the organization's mandate should be to attract capital resources in support of sector development. The statement was made that, especially in non-energy sectors, Calgary is lagging behind Toronto, Vancouver, Montreal and Ottawa from an access to capital perspective. And in CED's business survey of 2006, access to venture capital was one of the key challenges raised. When discussing access to capital, the industries that come to mind as most requiring financing for growth are knowledge based industries (KBIs) in the information technologies and life sciences sectors. But more traditional industries such as manufacturing and other emerging industries like aerospace also require capital to grow and conduct research and enable technology commercialization leading to new, advanced and value-added products, processes or services.

The issue is of particular importance now that Alberta's economy is leading the nation in economic performance. Currently, Calgary ranks first among Canadian cities in Real GDP growth, with an estimated 6.9% in 2006 and 4.2% in 2007. Calgary's GDP is forecasted to remain among the top cities from 2008-2011, with an annual Real GDP growth rate of 3.8%. Calgary also leads the nation in retail sales, building permits, and employment growth. While energy has long been the pillar of Calgary's economy, other sectors of the economy also have an important role to play. With the energy sector generating record profits, other industries are looking for trickle down benefits in capital investment, human capabilities and innovative activity. In talking to people for this study, the comment was made consistently that capital itself is not an issue in Calgary – there is plenty of money in this city and there are lots of good deals being carried out. The two biggest concerns were: 1) there is not enough publicity surrounding the financial activity of deals outside the energy sector; and 2) there is a lack of awareness on both sides of the deal about what is to be expected and what kind of possibilities exist in Calgary. Thus this paper will not only examine the nature of equity capital, but it will also try to identify ways to increase knowledge surrounding deal activity in the city, in an effort to fully understand access to capital issues.

One of the keys to strengthening Calgary's economic base is the continued strengthening of its sectors and strategic diversification of the economy. Many firms in industries such as manufacturing, information technology and life sciences, believe that their growth and success is being impeded by their inability to access capital. Individuals and establishments that provide this kind of equity see the opposite problem – while they feel there is plenty of money and are willing to invest in start-up companies, the belief exists

that there aren't enough good ideas with strong commercialization prospects that are worth investing in. The differing of opinions regarding the availability of capital on the one hand, and the quality of investments on the other, indicates that there is a gap between what the entrepreneurs feel is investment opportunity and the expectation of the investment quality by investors.

Calgary's energy sector is healthy and well financed, but there is a perception of a lack of capital for non-energy sectors. The belief exists that if Alberta, and by extension Calgary, does not address the access to capital issues facing all sectors of the economy, there is a risk of falling behind other jurisdictions in providing innovative products and services. Thus the need for this kind of study – to understand what policies need to be in place and what kind of environment needs to be fostered to avoid being left behind and to ensure economic prosperity into the future.

1.3) Methodology

Information for this report was gathered from a variety of sources. The best and most comprehensive source of data relating to private equity is from Thomson Financial (formerly Thomson Macdonald), which has developed the most comprehensive database of venture capital (VC) and private equity activity in Canada. Statistics Canada also provides information about investment activity in all Canadian regions and across industry sectors. Beyond these sources, there is very little systematic information about equity investments. One of the challenges in analyzing capital markets is a lack of comprehensive quantitative data. Reporting requirements for private investments is voluntary and until recently there was no consistent methodology for reporting on investments. Larger pools of capital funds (i.e. family funds) tend to keep their investment information private, and information about early stage funding (i.e. love money or angel investors) is also not readily available.

Another challenge when examining the full spectrum of access to capital issues is that much of the research and literature on the subject concentrates on early-stage capital, in high-tech industries in particular. Because of the value inherent in venture capital and angel investments, both in their return on investment and the business acumen they provide, along with the importance they play in the success of KBI firms, more time and energy has been spent examining this type of capital. Additionally, when talking to people involved in Calgary's capital markets, the conversation inevitably turns towards how public policy can supplement early-stage financing, which is reflective of the domination of this type of financing in the private equity market. Thus while this report has as a goal to include all stages of capital and examine all sectors of the economy seeking investment, due to the nature of the information available, this is not always possible. While the purpose of the paper is to examine access to capital issues in Calgary, a significant amount of information about Canada and Alberta is also included, as most of the legislation and policies regarding capital markets are set by the federal and provincial governments.

Finally, to supplement the quantitative data and existing literature, key individuals and organizations in Calgary's investment community, individual business owners seeking capital, and private and public organizations with an interest in fostering innovative growth were also interviewed.

Throughout our research, it became evident that an increase in capital is not necessarily the panacea that many think it is – it is merely one tool of many required for business success. Venture capital, angel investors, research and development support, commercialization processes, public policies, and business networks are all part of an ecosystem that supports the development of a new concept to a ready for market product or process. Therefore, this report will examine access to capital issues within the context of this broader ecosystem. The key issues to be discussed include:

- Existing types of capital;
- The stages of company growth that require investment;
- Types of capital which are unavailable or underdeveloped in Calgary;
- The sectors for which access to capital is an issue;
- How investors and entrepreneurs work together;
- The barriers and challenges they both face;
- Research, development and commercialization challenges;
- Selected policies and successes of other jurisdictions;
- Public policy affecting capital growth, and;
- Government or private initiatives that encourage innovation and facilitate investments.

PART II – CAPITAL MARKETS OVERVIEW

Most start-up companies require substantial capital for growth. Once personal savings and bank loans have been exhausted, an entrepreneur must seek outside financing, from a source willing to take a chance on a firm with intangible assets or unproven technologies. Angel investors, venture capitalists, and other private funds fill the gap left between institutional loans and government grants, playing a significant role in providing finance and expertise to encourage the growth of innovative firms. The importance of private equity in stimulating the development of the knowledge based economy cannot be discounted.

2.1) Types of Capital

Generally speaking, when talking about access to capital, the types of capital an entrepreneur or business owner is seeking are the following:

- **Informal investment (retained earnings, love money):** Informal investment is what turns research and development into the successful businesses that banks, institutions, public investors and venture capitalists can finance.¹ Retained earnings are also known as self-financing; entrepreneurs and business owners invest large portions of their own cash to finance the fundamental research and creation of a business plan. Love money is the second most popular source for business start up money and comes from family, close friends and business associates. Retained earnings and love money are essential but insufficient for fast growth, hence the need for outside investment.
- **Angel investments:** Another type of informal investment, angel investors are individuals with a high net worth who are active in venture-type financing and who invest in shares of private companies using their own money. Angels usually invest at an early stage and do not require a controlling share in the company.
- **Venture Capital (VC):** A specialized form of private equity, characterized chiefly by high risk investment in new or young companies following a growth path in technology and other value added sectors.² This type of financing is a long-term, hands-on equity investment made by professional investors, so venture capitalists usually like to see a business fully operating before investing. The investors generally get involved as a company seeks to expand and will command an equity position, staying involved until a company goes public. Beyond individuals, venture capital funds also play a role in the Canadian market, be it in the form of a private firm's fund or Labour Sponsored Venture Capital Corporations (LSVCCs) which are provincially regulated and explored later in this paper.
- **Institutional financing/lending:** This type of financing is characterized by term loans, mortgages or lines of credit backed up by personal guarantees and/or collateral security from chartered banks, treasury boards or specialized financial companies. Loans of this type can provide short-term capital to cover start-up expenses or can be longer term loans to help with initial costs such as equipment.

- **Government financing:** Most governments (federal and provincial) provide specialized loans for SMEs (Small and Medium Sized Enterprises). For example, Industry Canada administers the Small Business Financing Program, which provides loans to for-profit SMEs in Canada with growth revenues or projected revenues of less than 5 million dollars. Generally speaking, government financing programs are limited and variable depending on the current government priorities, regulations and budget restraints.
- **Large institutional investors (pension funds, insurance companies):** Pension funds are the largest pool of capital in Canada after the banking sector, but are not fully utilized in the venture capital market.³
- **Passive institutional investors (limited partnerships, mutual funds, etc):** A large portion of investments made in the private equity market are facilitated by intermediaries on behalf of institutional investors. Institutional investors act as limited partners in an investment and the professional investment managers are the general partners. Professional management is provided by the limited partners and investments are made in both publicly and privately held corporations.⁴
- **IPOs (Initial Public Offerings):** IPOs are the sale or distribution of the treasury or secondary stock of a Portfolio Company on public markets for the first time. This is a common exit mechanism for private equity funds, especially venture capital funds. The cost of capital in the public market is better than in the private and companies will often turn toward the public market as they expand their operations. Because of a lack of large pools of money within the Canadian marketplace, an IPO allows for significant cash flow to companies.



2.2) Stages of Company Growth and Financial Needs

As a company grows and develops a product which requires financing, it generally follows these stages:

- **Idea:** The basic concept around which a company’s product development will be based.
- **Fundamental research:** Also called basic research, it has as its primary objective the advancement of knowledge. It is usually exploratory and conducted without any practical end in mind and through theory generation, fundamental research provides the foundation for further research.
- **Applied research:** Usually carried out in academic or industrial institutions, applied research is done to solve specific or practical questions that arise out of previous fundamental research. It is usually easier to get funding for applied research.
- **Pre-commercial:** The pre-commercialization funding gap, sometimes known as the valley of death, is the funding shortage that occurs between government or corporate funding of R&D and just before a new company is large enough to attract financing from banks, institutions, public investors or venture capitalists.⁵
- **Commercial:** Commercialization is everything a firm does to transfer knowledge and technology into new goods, processes or services to satisfy market demands.⁶
- **Profit Stage:** This occurs once a company has become established and starts its expansion.

TABLE 1 – TYPE OF INVESTMENT BY STAGE OF DEVELOPMENT

Stage	Fundamental Research/ Seed Stage	Applied Research	Pre-Commercial	Commercial/ Start-Up	Revenue Stage	Growth
Financing	Up to \$100,000	\$100,000 – \$500,000	\$500,000 - \$1 million	\$1 to \$2 million	\$2 to \$4 million	\$4 million and above
	Retained Earnings Friends & Family	Government Loans (SMEs) Friends & Family	Government Loans (SMEs) Angel Investments Friends & Family	Angel Investments R&D Credits Venture Capital	Venture Capital Institutional Investors	Institutional Investors IPOs
SOURCE OF FINANCING						
<p><i>*Please note that this table is a general overview of trends in Calgary – the types of investment by stage and source of financing are variable.</i></p>						

PART III – CAPITAL MARKETS IN CANADA



In 2006, the Milken Institute ranked Canada fourth on its Capital Access Index. The Index ranks 122 countries in terms of the financial infrastructures that support entrepreneurial activity by providing access to capital. Countries are scored based on factors such as their: macroeconomic environment; economic institutions; financial and banking institutions; equity market development; bond market development; alternative capital; and access to international capital. The Milken Institute sees the Index as a tool for measuring how countries can act to reduce more fully their financing barriers, allowing for firms to access capital and in turn implement innovative ideas and contribute to technological advancement, job creation, and overall quality of life.⁷ In 2005, Canada had been ranked tenth, and its rise to fourth was due to its high scores for lending rates, corporate and personal tax rates, alternative sources of capital and access to international capital.

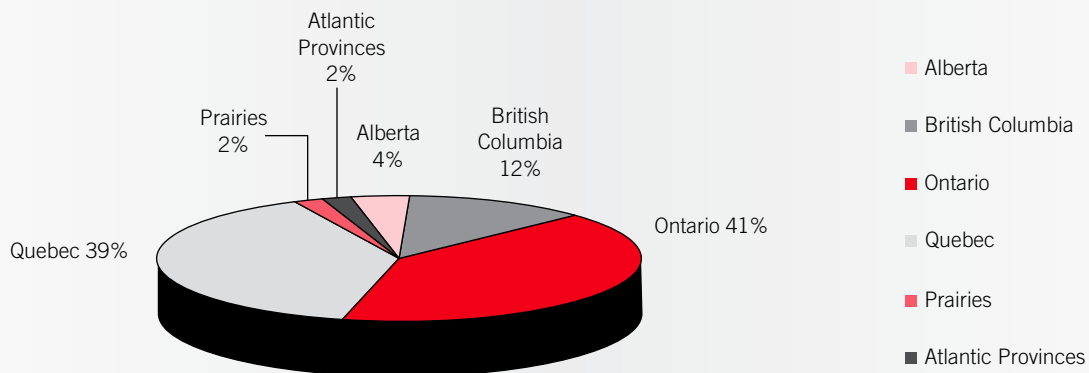
Despite being ranked behind only Hong Kong, Singapore and the UK, and one rank above the United States, many people still believe that Canada is falling behind in ensuring access to capital for its innovative firms. The next section will explore why this continues to be an issue, especially when it comes to venture capital and angel financing.

3.1) Venture Capital in Canada

Venture capital is the most well known type of early-stage equity capital and is endlessly studied and coveted by entrepreneurs, but less than one firm in a thousand wins venture capital support. It is vitally important in the growth of a company as it injects early capital allowing for expansion, and the hands on role played by fund managers also provides expertise to a company as it grows.

Between 1998 and 2001, investment activity in Canadian venture capital and private equity markets amounted to approximately 0.38% of the country's GDP, compared to 0.63% in the United States.⁸ Within Canada, Ontario and Quebec are the big players, with a market share of 80%, as shown in the table below. In comparison, in 2005, Alberta's private markets accounted for only 4% of venture capital and private equity in Canada.⁹

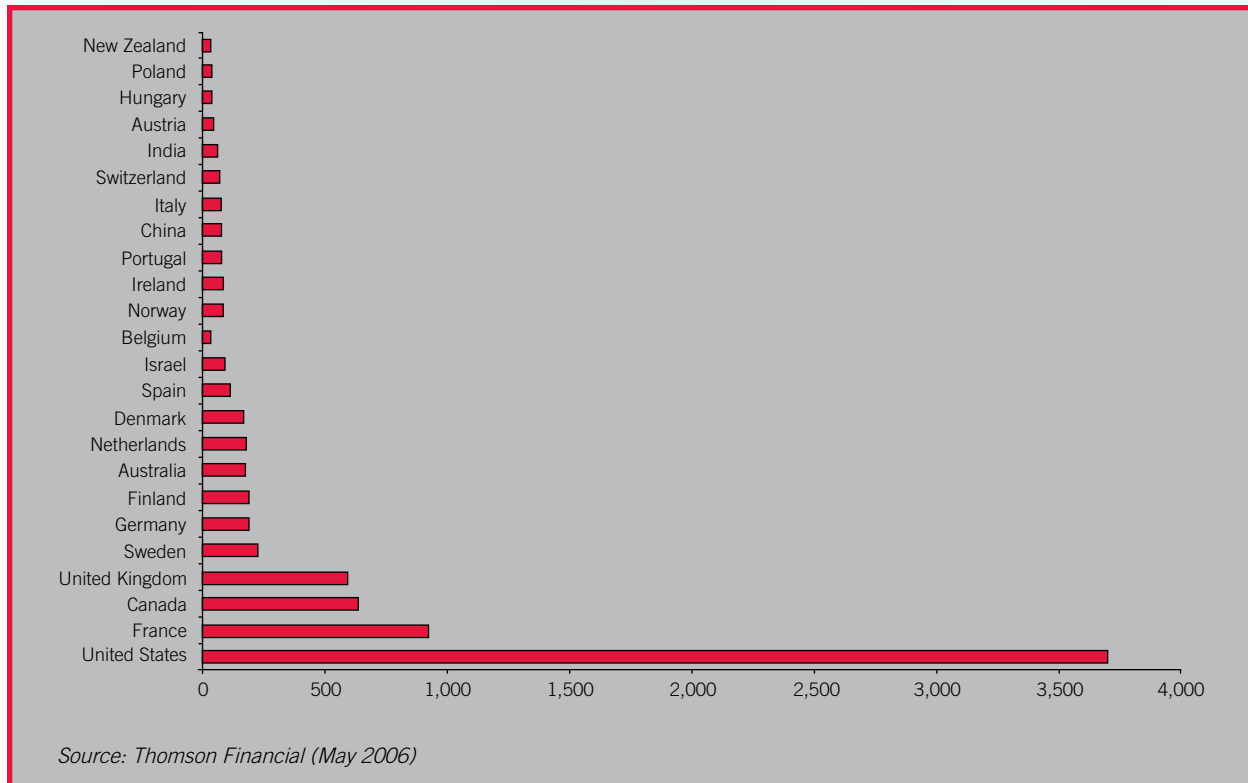
CANADIAN PRIVATE EQUITY – DOLLARS INVESTED BY REGION (2005)



Source: Canadian Venture Capital Association, 2005 Overview

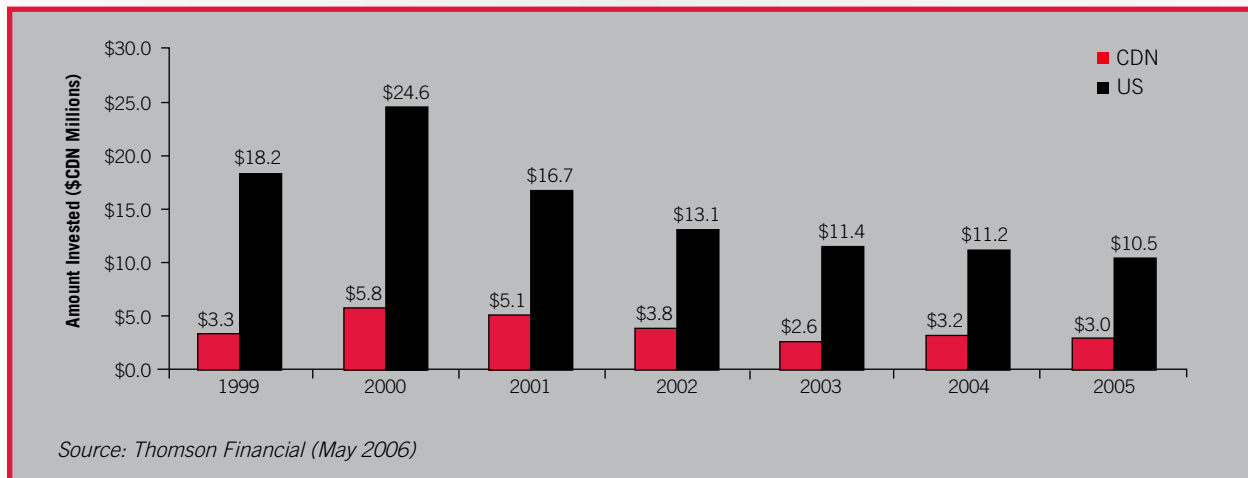
According to Thomson Financial, just 591 Canadian firms received VC funds in 2005, with amounts totaling \$1.83 billion.¹⁰ This is down from 631 deals made in 2004. And while this number seems low, it should be noted that in 2004, Canada was ranked 3rd among industrialized nations in number of VC deals. According to Thomson Financial, only the United States with 3,688 and France, with 921 deals, surpassed Canada.¹¹

NUMBER OF VC DEALS BY NATION (2004)



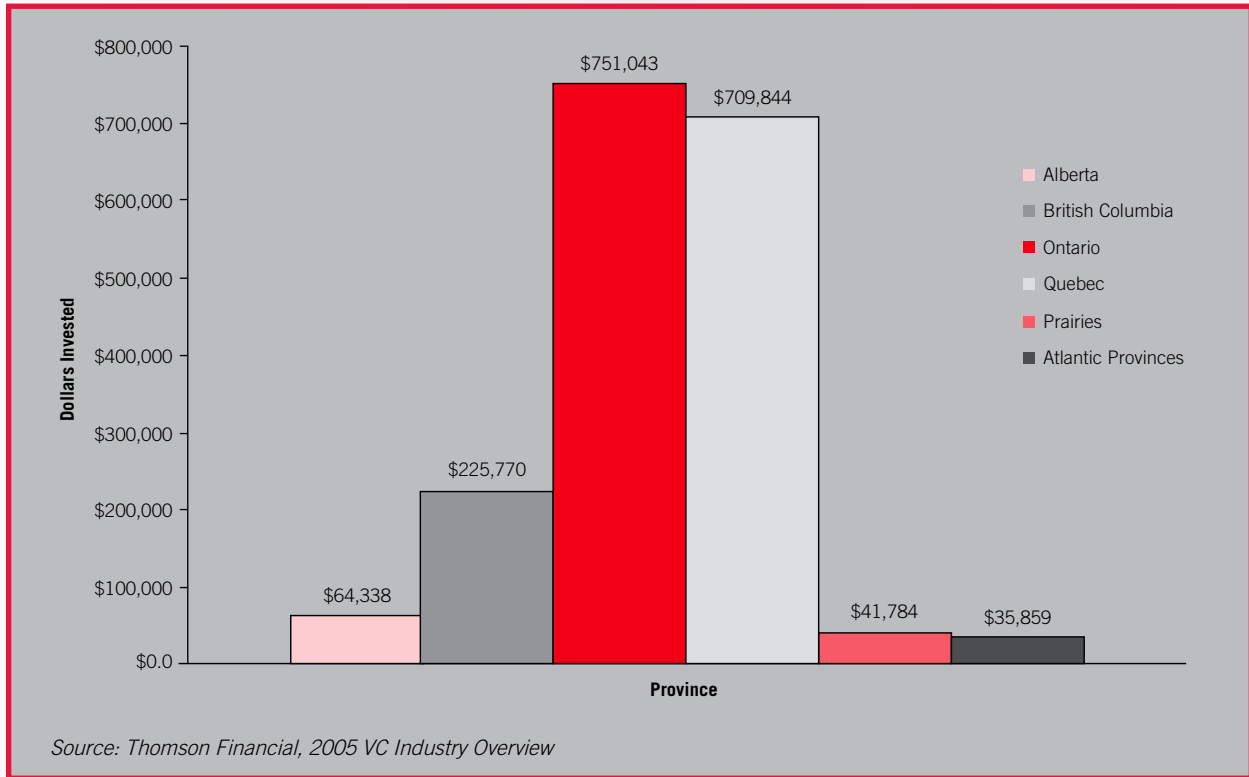
Despite such a high ranking in deals being made, Canada lags behind in the average deal size by nation, ranked 24th with smaller deal sizes than the US, the UK, Ireland and New Zealand. When compared to the United States, the small volume of capital in the marketplace and the amount of VC invested per company in Canada is particularly apparent. In the US market, venture capital firms and individuals invest 3.5 times more in their firms than Canadian VCs do.

VC AMOUNTS INVESTED PER COMPANY, CANADA & US



Within Canada, Alberta ranks 4th in venture capital dollars disbursed with \$64 million, which is 3.5 times less than BC at \$226 million and far behind Quebec (\$710 million) and Ontario (\$751 million),¹² both of which saw venture capital investments ten times more than in Alberta.

VENTURE CAPITAL – TOTAL DOLLARS INVESTED (IN CDN MILLIONS) 2005



With less venture capital activity in Alberta, fewer deals are being done here. Quebec’s total number of deals (657) is sixteen times the amount of Alberta (41). Ontario and British Columbia have twelve times and almost five times more deals being made respectively.¹³ Additionally, of the top fifty venture capital deals in Canada in 2005, only one Alberta-based company made the list.¹⁴

VENTURE CAPITAL – NUMBER OF DEALS 2005



The Alberta government is not directly involved in the marketplace. Other provinces, namely Ontario, Quebec and British Columbia have deemed a role for government in capital markets. Through government Research and Development (R&D) tax credits and Labour Sponsored Venture Capital Corporations (LSVCCs) these provinces have successfully stimulated investments in emerging sectors. With no similar program in Alberta, the province and its major cities consistently rank behind these other jurisdictions in venture capital activity.

All Canadian provinces (except Alberta and PEI) have legislation allowing for Labour Sponsored Venture Capital Corporations (LSVCCs), which encourage retail investment. Also known as a Retail Venture Capital Fund (when not sponsored by a labour union), RVCs are professionally managed, private equity funds that raise capital on a retail basis from individual Canadians, with the benefit of federal and provincial government tax credits. To encourage retail investors to invest in venture capital, a tax credit of 15% is given by the federal government and a matching tax credit is given by the provincial government (if that province enables a specific type of legislation). Investors can then hold the fund in an RRSP, RRIF or non-registered account and must hold it for a certain number of years.

Created in the 1980s to encourage investment during more difficult economic times, LSVCCS were designed to encourage job creation, spur economic development, and increase the participation of retail investors in small and medium sized companies. Currently, labour sponsored funds are the largest venture capital investor category in Canada, with \$572 million invested in 2005, representing 31% of total venture capital.¹⁵

The LSVCC program has been criticized for having too many small funds which spread the available capital too thinly to effectively fund new ventures.¹⁶ In the 2005 Ontario budget, the government announced that the labour fund tax credit would be eliminated because the venture capital market was healthy enough without government incentives, and the government plans to spend more time focusing on other priority areas, such as research and commercialization. The credit is being reduced incrementally in the years 2009 and 2010, and will be eliminated entirely by 2011. Further discussion of LSVCCs and government-run funds can be found in Part VIII of this report.

Alberta did at one time have a government sponsored venture capital corporation – Vencap – which was liquidated in 1998. Vencap was not labour sponsored, but it was enabled by specific government legislation. It was thought that the administrative costs were too high and the return on investment too low. Since Vencap was shut down, no new government sponsored equity financing initiative has stepped in to fill the financing gap. One of the guiding principles behind public-sponsored equity funds is that they leverage private financing. By moving away from being actively involved in the marketplace, the Alberta government provides no leverage for increased activity in the private equity market.

According to the Provincial Access to Capital Task Force, an advisory committee supported by both Alberta Economic Development Authority (AEDA) and the Alberta Science and Research Authority (ASRA), there are very few venture capital firms headquartered in Alberta, and those that do exist are very small.¹⁷ The report states that a lack of a strong local venture capital community hampers the ability of individual investors to form relationships with new and emerging companies. This reflects the sentiments of those people interviewed for this report. The point was made that there are no true VC firms in Calgary, as most major financiers are better described as angel investors or are funds that focus almost exclusively on financing oil and gas ventures.

3.2) Angel Investments in Canada

Angel investors are individuals with a high net worth who are active in venture financing and who invest in shares of private companies using their own money. Angels usually invest at an early stage and provide some mentorship and management expertise. Also, angels tend to invest in firms because they have some knowledge within the particular industry, have some connection with the management team, or believe in their capabilities. Increased investment of this type is important because it helps smaller, younger companies grow to a size which is attractive to venture capitalists. Venture capitalists are looking for companies which will provide strong returns. Angels come in and fill the gap between start-up financing and venture capital. They play a vital role, ensuring transition between early stage love money that funds initial research, and later stage financing which comes when a firm shows commercial potential.



According to a 2001 Industry Canada survey, angels invest in the very early stage of a company's development: 53% of respondents made investments during the seed stage, while 64% did so during the start-up stage. The average angel investment is \$100,000 per venture and more than two-thirds of angels invest in companies within 50 kilometres of their home or office.¹⁸ As angel investments are informal ones, there is very little hard data on this type of investment. That said, the role they play and the capital they provide is significant – according to the National Angel Organization (NAO), angels invest in more than 60% of business start-ups, and the amount invested is at two to three times the total invested by VC funds, putting it at \$4 to \$6 billion.¹⁹

Angels take risks which aren't always successful, and working on their own, angels sometimes get lost in the investment landscape. In the past decade, various angel networks have been created throughout the country to consolidate investment efforts. Generally angel networks allow investors to meet to discuss new deals and learn about the best business opportunities that exist in the region. Angel networks work to build early-stage capital capacity, increasing the number and amount of equity investments. They also act as umbrella organizations to provide services, resources and strategies to both the investment community and entrepreneurs through various forums and workshops.

Alberta has two main angel networks, although they are not located in Calgary. Calgary does not have a successful record when it comes to angel networks – once established, they do not seem to last long. The Calgary Angel Network merged with the Edmonton-based Deal Generator. It does have a satellite office in Calgary (part of Calgary Technologies Inc.). Another Calgary angel group, Keiretsu Forum, has recently been re-branded as Venture Alberta and also has its main office in Edmonton. There are also some informal angel networks, but as their name implies, they are informal, not publicized and may not be visible to entrepreneurs looking for their help. And while previous models may not have been successful, Calgary has enough wealth and a strong enough financial base that it should conceivably be able to support a local angel investment network. The lack of a true Calgary-based angel network means that emerging firms are missing out on opportunities for mentorship and business training, and investors have one less device allowing them to connect and cooperate.

3.3) Public Equity in Canada

Canadian firms raise public equity by offering their company's shares to the public and becoming listed on a stock exchange. An Initial Public Offering (IPO) is the process whereby a company offers securities from the company's treasury to the public for the first time. IPO's supply growth capital and provide exit avenues for venture capitalists and other early-stage investors. The Canadian IPO market is dominated by small issues – 61% of Canadian IPOs are worth \$5 million or less. These, however, attract only 3% of the overall capital in the market, with larger issues gaining the lion's share of the funds available. The average gross proceeds of a Canadian IPO (excluding demutualizations of insurance companies and privatizations of existing companies) is \$2.5 million.²⁰

A private company might also acquire public capital and a CDNX exchange listing by being purchased by a Capital Pool Corporation (CPC) (formerly referred to as Junior Capital Pool companies on the Alberta Stock Exchange). CPCs are shell companies, devoid of all assets except cash, which are allowed to register on the CDNX for the sole purpose of raising public capital in order to purchase other companies. The founders of the CPCs must initially fund the companies with \$100,000 - \$500,000 and may raise with their offering between \$200,000 - \$2,000,000. They are required to complete a “Qualifying Transaction” (generally a purchase of a company which would qualify to be listed on the CDNX) within 18 months from the time of the initial offering. By these means, the CPC’s capital is injected into a company with assets but in need of funding and the previously privately-held company’s securities become publicly traded.²¹

Calgary has the advantage of being the headquarters for the TSX Venture Exchange, which provides access to capital for companies at the early stages of their growth while offering investors a well-regulated market for making venture investments. TSX Venture listed companies are active primarily in the mining, oil and gas, manufacturing, technology and financial services sectors. The TSXV offers an alternative form of capital to private funds and plays a major role in the success of small Canadian companies. In 2006, the TSX Venture Exchange helped raise \$7.9 billion for small companies nationally. As of October 2005, there were 2,003 companies listed on the TSX Venture, with 397, or 20% of them located in Alberta.²²



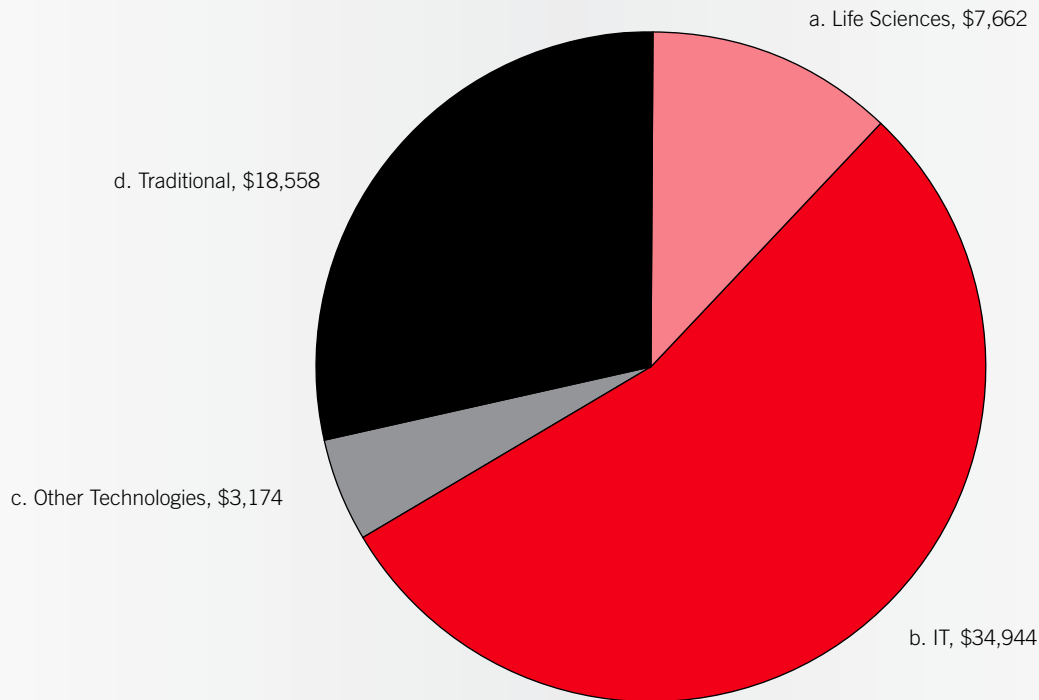
SUMMARY

Venture capitalists and angel investors fill a much needed financing gap in the growth of a company. They also play a significant role in providing management expertise to encourage successful firm growth. The Canadian provinces which have implemented legislation enabling retail venture capital funds have managed to capture the majority of the venture capital dollars and far more significant deals than are happening in Alberta.

PART IV – RAISING CAPITAL ACROSS SECTORS

All sectors of the economy need capital to help their growth. The chart below provides a snapshot of sectors seeking venture capital financing. Emerging technologies and life sciences combine to account for more than 50% of venture capital investment activity in Alberta.

ALBERTA VC INVESTMENT ACTIVITY BY SECTOR (IN CDN MILLIONS) 2005



Source: Thomson Financial, 2005 VC Industry Overview

4.1) Knowledge Based Industries

The sectors that are most often seeking venture capital and angel financing in Calgary are knowledge based industries (KBIs). The term KBI usually refers to those industries relying heavily on technology and human capital. Industry Canada does not have a single definition for KBI, rather it has a two-tiered categorization of industries: Tier I is a narrow band of science and technology-based firms composed of knowledge producers; and Tier II is a broad band of “high knowledge” firms that, based on measures of research and development and knowledge worker inputs, could be considered to be business innovators and high-knowledge users. RBC Royal Bank uses the term KBI as an umbrella term for companies in emerging market sectors which are highly innovative, heavily R&D oriented, have high growth potential, have global opportunities, and have intellectual property as their primary asset.

Generally speaking KBIs fall into two broad categories – Information and Communications Technology (ICT) and Life Sciences. In Calgary, the technologies and services in these sectors include, but are not limited to: advanced materials, aerospace, digital media, electronics, alternative energy, geomatics, hardware, industrial manufacturing, nanotechnology, e-health technology, biotechnology, new media, nutraceuticals, software, and telecom.

The fact that KBIs have intellectual property as their primary asset means that it is people (and their ideas) not products that form the basis of early stage development. KBIs are also highly mobile and have intangible products, making them a risky prospect for individuals or funds looking for a sure return on their investment. A recent Ernst & Young survey of Alberta technology firms found that the number one competitive disadvantage of doing business in Alberta is the lack of availability of financing from either equity markets or government – 42% indicated that this was the case.²³ And as venture capital is most often cited as the most important source of financing for knowledge-based companies, this type of challenge could hurt the further development of these sectors. The survey also found that almost half of the surveyed firms would move out of the province if access to financing doesn't improve, although there is no evidence showing that companies are following through on the statement that they would leave Alberta.²⁴ There is no comparative report for other provinces however, so whether this is an Alberta-centric problem is not known.

Much time and energy has been spent on lobbying the Provincial and Federal governments for more money and access to early-stage capital, and numerous publications have studied this topic.²⁵ Yet technology companies still indicate that they struggle with accessing capital. Additionally, many focus heavily on venture capital while not taking into account the other funding and programs available to them – according to the Ernst & Young survey, only one third of respondents accessed funds through the Industrial Research Assistance Program (IRAP) and fewer than half took advantage of the Scientific Research and Experimental Development (SR&ED) tax credits.²⁶ Whether this was because the programs don't fit their need, or that companies don't understand how the programs work or are unaware of the programs, was not explored in the survey.

There is no doubt that the innovation inherent in the services and products developed by KBIs will play an important role in Alberta's future, and the disconnect between investor and entrepreneur means that Calgary is lagging behind in the development of new technologies and services, and is potentially missing out on the chance to become a leader in emerging knowledge based industries. Possible strategies to bridge this gap can be found in Part VIII of this document.

4.2) Non-KBI Sectors

More traditional sectors like energy, manufacturing and real estate also require capital to help grow their business, and have mixed results and needs when it comes to accessing capital. In today's economy, energy and real estate entrepreneurs in Calgary seem to have little problem raising money. Real estate development is reaching new heights in Calgary, with the city accounting for 45% of all new office space construction in Canada in 2006. Financing does not appear to be an issue for firms operating in the energy sector of Calgary's economy, as current rates of return are very high. Additionally, many growth companies in other sectors indicated that they believe that funds that could have possibly developed into a broader venture capital industry are simply going straight into the oil and gas industry, because of the relatively steady returns involved in such an established sector. While in other jurisdictions, investing in the technology and life sciences sectors may provide the road to wealth, in Calgary the oil and gas industry has proven itself to be worth the risk.

Firms working in other sectors like manufacturing and aerospace do not tend to access traditional venture capital financing. The majority of start-up companies in these sectors are known as SMEs (Small or Medium-sized Enterprises) and their financing usually comes from personal savings and money raised from friends and family. They also rely on loans or debt financing to finance their business assets. Most of their add-on financing comes in the form of internally generated revenue, along with government research funding or tax credits. In interviews for this report, many companies in these sectors indicated that they feel neglected by the continued focus by governments and other agencies in spending time and money on studies aimed at understanding the nature of venture capital, something that is not necessarily relevant for their continued growth.



Their financial and investment needs should not be ignored however, as research has shown that these businesses are key drivers of productivity in Canada.²⁷ As such, it is important to consider non-KBI financing when analyzing any aspect of the private equity market. In order for these firms to increase their productivity, they require capital for investment in new processes and practices. These investments lead to innovative capabilities for their firms, either from the development of new technology through their own research, or from the adoption of new technologies from work done elsewhere.²⁸ They also require capital to purchase new machinery, to hire new staff, or invest in their infrastructure. While risk capital is not necessarily appropriate for their needs, non-KBI firms still need a policy environment that allows them to access R&D funding and enables investment across all stages of development and all sectors of the economy.



SUMMARY

One of the main concerns raised by both KBIs and non-KBIs alike is that a significant challenge they face in raising money is identifying what type of capital they need, figuring out how to attract it and getting it at the right time for the company's growth. From those surveyed for this report, it became clear that this challenge is part of the disconnect that exists between the information on the company side and the knowledge that is provided by the investing community. The lack of education and awareness about what type of capital companies require, along with a lack of familiarity regarding investment opportunities across all sectors, is impeding deal flow in Calgary's capital market.

PART V – INNOVATION, RESEARCH AND COMMERCIALIZATION

Traditionally, government has a large role to play in creating an economic climate that is open to new investment. Beyond direct policy intervention in capital markets (as discussed in Part VIII of this document), governments can facilitate business development by creating the environment for and investing in innovation, research and commercialization. The development of a new product or process from the stage of conception to a ready for market entity takes more than just an infusion of cash from venture capitalists and angel investors. There is no value for private equity investors unless the business idea is an innovative one that has commercialization potential.

While those interviewed for this report confirmed that a lack of a true VC community was hurting their growth, they also emphasized that private equity is not the only tool that affects company development. Funding for research and commercialization plays an equally important role in their ability to develop innovative concepts and products. Thus, almost all indicated that while focusing on encouraging the growth of Calgary's venture capital community is of vital importance, equal value should be given to implementing policies allowing for more funding for research, development and commercialization.

By funding research, providing tax incentives, financing commercialization programs, and facilitating an overall environment of innovation and investment, governments can increase the chances for small firms to grow and expand. Recognizing that the global economy is now one based on knowledge and innovation, the Canadian and Albertan governments have committed to investing in technology, innovation, creativity and human ingenuity, all of which add to the environment that supports growth companies. Research and commercialization are linked to technological innovation and by extension, economic growth.

5.1) Innovation

Innovation comes in all forms – products, processes, organization and marketing – and it is a key source of productivity growth. The Conference Board of Canada defines innovation as a process through which economic and social value is extracted from knowledge – through the generation, development and implementation of ideas – to produce new or improved products or processes.²⁹

Investing in innovation increases employment, contributes to export development, and increases productivity levels.³⁰ While innovative ideas and products often arise out of the business community, public policy has an important role to play. By increasing funds for new research, structuring tax policy and setting targets for innovation, governments are able to create a more conducive environment for innovative ideas to flourish.

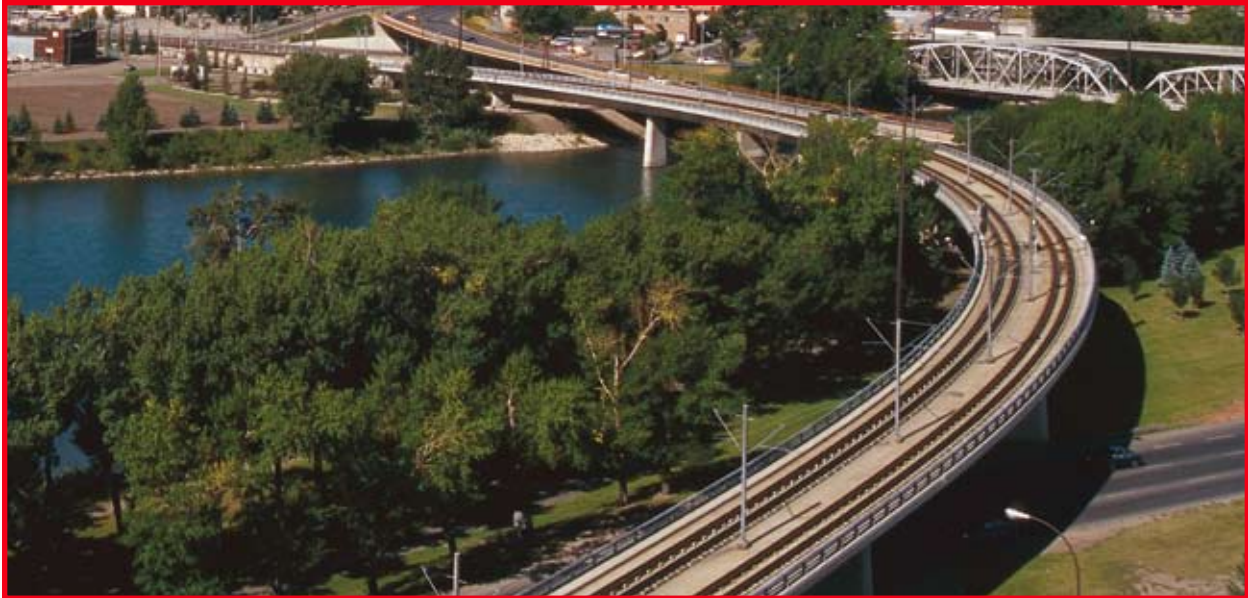
In the past decade, governments have come to recognize the importance of innovation in knowledge based industries and the role this plays in economic development. As a follow up to the research investment they made in 1997, the Canadian government launched Canada's Innovation Strategy in 2002. As part of the Knowledge Performance Challenge of this strategy, the federal government proposed a target of 2010 for Canada to rank among the top five countries (from a rank of 15) in the world in terms of R&D performance.³¹

As part of Alberta's innovation strategy, the Province established the Alberta Science and Research Authority (ASRA), which does not invest directly in research, but functions as the senior science and research advisor to the provincial government. Its mission is to enhance the contribution of science and research to the sustainable prosperity and quality of life of all Albertans, and works to:

- Stimulate research and development and related scientific activities;
- Develop science and research policies and priorities compatible with economic and social priorities of the government; and
- Encourage Alberta's science and research sector to attain international competitiveness and recognition as a leader.

The following bodies operate under ASRA's banner:

- Alberta Agricultural Research Institute – AARI is the primary agency for funding, coordinating and promoting strategic agricultural initiatives in research, development and technology transfer for the agriculture and agri-food sector.
- Alberta Energy Research Institute – AERI provides strategic direction to position Alberta for the future in energy development and invests in research and technology to enhance the sustainable development of the province's energy resources.
- Alberta Forestry Research Institute – AFRI supports research and development initiatives that support sustainable forest management, enhance and diversify the forestry value chain and encourage the development of innovative new products and processes.
- Alberta Information and Communications Technology Institute – AICTI provides strategic advice and policy recommendations and set priorities for research, and will expand and update the province's existing ICT research and innovation strategy to provide direction for public investment in research and development activities.
- Alberta Life Sciences Institute – ALSI provides strategic advice to the government on expanding the province's bio-economy and focuses on expanding the knowledge of living organisms and using that knowledge to improve lives.



As part of the 2007 provincial budget, Alberta will spend \$559 million over the next three years on initiatives related to the 5 sectors as listed above.³²

Other provincial bodies dedicated to the support of innovative activities include:

- Alberta Research Council – ARC works with industry and government to take technologies from the laboratory to the field, strengthening their competitiveness and sustainability and accelerating the development of products, processes and services in the energy, life sciences, agriculture, environment, forestry and manufacturing sectors.
- Alberta Informatics Circle of Research Excellence (iCORE) – iCORE's mandate is to attract and grow a critical mass of outstanding researchers in the fields of computer science, computer engineering, physics, mathematics and other ICT-related disciplines.

The Province also recently announced the establishment of a Regional Innovation Support Initiative which will fund local innovation support services that help entrepreneurs through different phases of the innovation process. In the Calgary Region, the initiative has provided \$1 million to a joint proposal for technology commercialization funding from Calgary Technologies Inc. (CTI), University Technologies International Inc. (UTI) and SAIT.³³

5.2) Research and Development

As part of Canada's Innovation Strategy, the federal government supports research and development, either through tax credits or direct investments into universities and research institutes. Since 1997, Canada has doubled its investment in support for university and hospital-based research – an increase of more than \$13 billion.³⁴ Some of the more high profile provincial and federal research funding programs include:



- The Canadian Foundation for Innovation (CFI) – CFI was created in 1997 with a \$3.65 billion grant by the federal government.³⁵ CFI's mandate is to strengthen the capacity of Canadian universities, colleges, research hospitals, and non-profit research institutions in an effort to strengthen Canada's capacity for innovation, attract and retain highly skilled research personnel in Canada and ensure that Canada can compete in the global, knowledge based economy. CFI will normally fund up to 40% of a project's infrastructure costs (i.e. equipment, building, laboratories, and databases) in partnership with eligible institutions and their partners. By 2011, CFI, the research institutions and their partners will have invested \$11 billion total capital to enable innovation in Canada.
- The Alberta Ingenuity Fund – the Alberta Ingenuity Fund was created by the Alberta government to support science and engineering research to maintain the competitiveness of Alberta's universities, colleges and technical institutes. It also serves to help recruit new researchers and encourage scientific leaders to stay in the province.³⁶ The Fund operates like a trust fund, drawing funding from a \$1 billion endowment established by the Provincial government.
- The Alberta Heritage Foundation for Medical Research (AHFMR) – AHFMR was established by the Alberta government in 1980 to support biomedical and health research at Alberta universities, affiliated institutions, and other medical and technology-related institutions.³⁷ An initial investment of \$300 million has grown to approximately \$1.2 billion. The foundation has contributed more than \$780 million to the scientific community and supported more than 8,500 research positions since its formation. Grants and awards include personnel awards and establishment grants for senior scientists, training awards for students, infrastructure grants, and special initiative funding in health research.

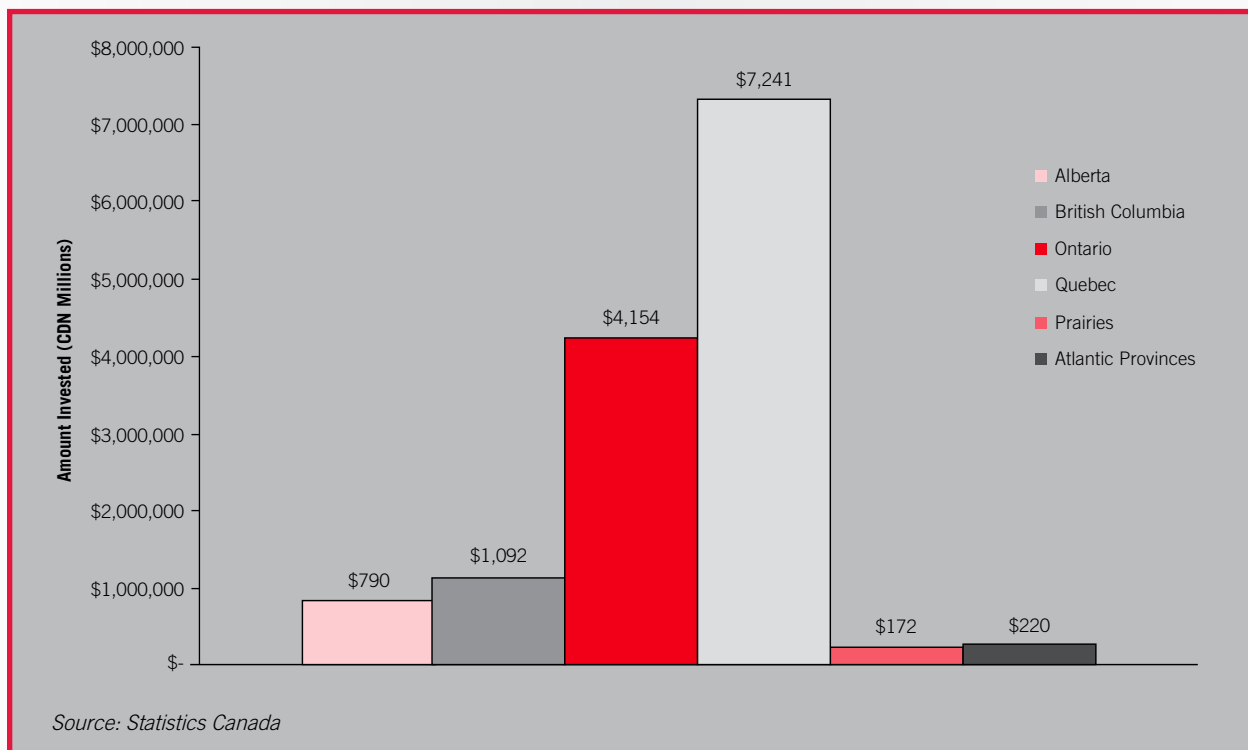
INDUSTRIAL RESEARCH

Of equal importance to university and publicly funded research, is research done in a business or industrial setting. While universities are designed to conduct primary, fundamental or “curiosity-driven” research, research conducted by businesses is considered to be more applied, thereby also contributing to the diffusion and transformation of knowledge.³⁸ In this way, private sector research is more directly linked to economic growth than public research.

Canadian businesses’ research investments lag behind those of other OECD countries. Studies have shown that the most successful countries have investment ratios on the order of 3:1 (private/public R&D funding), while Canada’s current ratio is 1:18 and dropping.³⁹ The OECD estimates that a 1 percentage point increase in the research investment undertaken by the private sector as a proportion of GDP could increase the average level of GDP per capita by as much as 12% in the long term.⁴⁰

When it comes to business R&D intensity, Alberta again lags behind other jurisdictions. An Alberta Economic Development report which measures Alberta’s economic and innovative performance against selected Canadian, US and European jurisdictions shows that while Alberta is a leader in economic performance, it continues to lag behind the other benchmarked jurisdictions in terms of innovation performance. Business funded R&D as a percentage of GDP is only 0.5% in Alberta, far below the national rate of 0.9%.⁴¹ Ontario companies spend on average nine times more and Quebec companies five times more on industrial research and development than do Alberta companies.

INDUSTRIAL R&D EXPENDITURES, BY PROVINCE (2003)



In a recent listing of Canada's corporate innovation leaders, only one Calgary-based company (Suncor Energy Inc.) was among the top twenty corporate R&D spenders, and it was ranked only 19th. In fact, only seven Calgary-based companies made the top one hundred, and six of these were energy-based companies.⁴² This should cause some concern as beyond the direct benefits to a firm's bottom-line and competitiveness when they generate new and improved products and processes, there are community benefits as well. Industrial R&D makes an important contribution to economic development, as it has spillover effects on other businesses and industries, as well as on consumers, citizens and employment.⁴³

In order to encourage industrial R&D, there are a number of federal R&D focused grants that can provide Calgary-based companies funding for applied or basic research. These programs provide companies or research personnel funding or credits that offset costs that otherwise would be incurred in conducting research and development activities:

- The National Research Council Industrial Research Assistance Program (NRC-IRAP) provides a range of technical and business advisory services, including potential financial support, to growth oriented Canadian small and medium sized enterprises (SMEs). NRC-IRAP provides non-repayable contributions to Canadian SMEs interested in growing by using technology to commercialize services, products and processes in Canadian and international markets. NRC-IRAP also provides mentoring support and invests, on a cost-shared basis, in research and pre-competitive development technical projects, upon assessment of a project and firm by a team of Industrial Technology Advisors. Depending on the specifics of the proposed project, NRC-IRAP is able to invest up to 50% of eligible project costs to a maximum of \$500,000. NRC-IRAP also delivers two youth initiatives on behalf of the Government of Canada's Youth Employment Strategy that provide financial support to hire post-secondary graduates.
- The Natural Sciences and Engineering Research Council of Canada (NSERC) supports the development of highly qualified Canadians in the natural sciences and engineering through a number of scholarship and fellowship programs. Companies may propose a research project and nominate recent doctoral graduates to undertake research for which NSERC will provide financial assistance in support of researcher salaries.



RESEARCH TAX CREDITS

Another way of promoting industrial research and development is through tax credits. The Federal government recognizes the importance of industrial R&D and provides tax credits which help fund or enable research. Canada has one of the most generous tax credit and grant programs of OECD member countries.⁴⁴

The Scientific Research and Experimental Development (SR&ED) program is the primary tax incentive program offered by the Federal government and administered by the Canada Revenue Agency. The program is designed to encourage Canadian businesses to conduct research and development in Canada that will lead to new, improved, or technologically advanced products or processes. The SR&ED program is the largest single source of Federal government support for industrial research and development. And while not all companies need tax credits to perform research, it is one of the most common ways for a jurisdiction to attract investment and stimulate innovation. As with most programs, this fund is limited in scope and has restrictive eligibility requirements. Almost all Canadian provinces have either improved or added to the SR&ED tax incentive.⁴⁵ Once again Alberta is the exception – currently Alberta has no parallel provincial incentive program to encourage local research and innovation.

In 1998, the Alberta government commissioned a tax review committee which recommended that the province introduce a modest tax credit to parallel federal R&D tax credits as a transitional and limited program to attract and retain R&D investment. This recommendation was never implemented, and instead the Provincial Treasury continued its broad tax policy of low personal and corporate taxes overall, relying on the “Alberta Advantage” to foster the development of innovative industries.

Instead of R&D tax credits, the Alberta government is working towards encouraging research and innovation through funding and commercial initiatives, such as the following measures announced as part of the 2006 provincial budget:

- \$30 million one-time grant to AVAC Ltd for the IVAC technology commercialization initiative.
- \$2 million for new technology commercial initiatives.
- \$5 million for identifying and pursuing priority research interests, in particular those in energy and life sciences.
- \$9 million for the Alberta Research Council (\$7 million for research activity funded by contracts with the private sector and \$2 million in core research funding).

Individuals interviewed for this report appreciated the amount of money being invested in R&D, but they emphasized that too much goes into research, and not enough into development. The comment was made that Alberta is essentially drowning in research. The Provincial and Federal innovation strategies are making Canada into a huge think tank – full of great people and ideas but without the capability to make these successes into something tangible. Thus more money, along with a concerted strategy should be directed at commercialization.

5.3) Commercialization

Innovation and research are inextricably linked to commercialization. The products and processes developed through industrial innovation or public research are of limited economic value and use to society without commercialization. The Conference Board of Canada defines commercialization as a process through which economic value is extracted from knowledge through the production and sale of new or significantly improved goods and services.⁴⁶

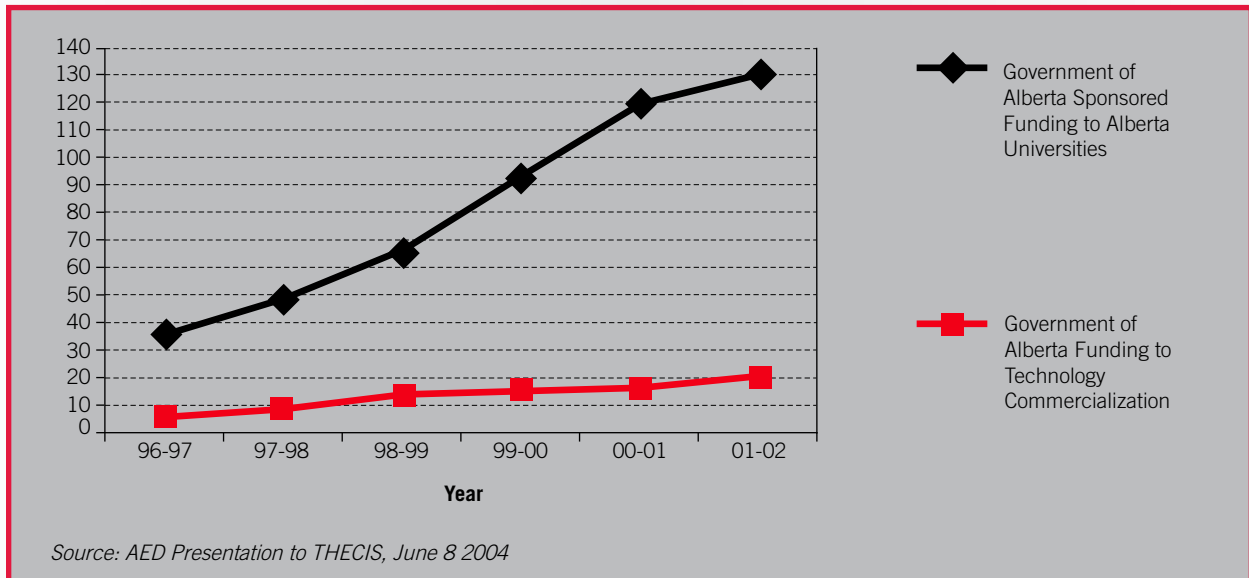
Commercialization is important as it drives competitiveness and prosperity. The spin-off companies that result from the commercialization of research contribute to the economy through the formation of jobs, the sharing of new technology and wealth creation. Both the government and the private sector are beginning to recognize that the gap that results when money is poured into research without thought to how to transfer it to useful technology or product is detrimental to Canada's ability to compete in a knowledge-based economy. Thus in the past few years various organizations have launched discussions on how best to close this commercialization gap. Two of the more notable are initiatives led by Industry Canada and the Conference Board of Canada and are detailed below.

In May 2005, the Federal Minister of Industry appointed an Expert Panel on Commercialization, which was asked to identify how the Canadian government could help ensure continuous improvement in Canada's commercialization performance. Specifically the panel was asked to examine how to transform knowledge and technologies into new products, services and processes in response to market opportunities; how to ensure that new knowledge and technologies generated using public funds will lead to practical applications; and whether Canada has created the right business environment for commercialization.⁴⁷ The panel's main recommendation is the creation of an industry-led Commercialization Partnership Board. The board would act as an advisory body to the Minister of Industry, providing guidance on changes to existing government programs, the creation of new ones, as well as conduct policy-oriented research on key long-term challenges relating to taxation, regulation, intellectual property and competition. As of May 2007, the Federal government has not yet acted on this recommendation.

In 2004, the Conference Board of Canada launched a Leaders' Roundtable on Commercialization (LRTC) which brought together industry leaders, university presidents and deputy ministers to address Canada's commercialization challenges. Over a two-year period, members participated in round-table discussions, interviews and working groups, coming up with a six-part strategy to ensure that by 2016, one half of all sales by Canadian businesses will come from new or significantly improved goods or services. The final report, published in April 2006 contained a comprehensive, long-term strategy to foster innovation-based commerce in Canada. It is hoped that both the government and private industry will take the recommendations to heart and work to ensure the outcomes.

The commercialization of research in Alberta continues to be challenging, as exemplified by the Ernst & Young Technology survey which found that commercialization from universities and research institutions is underused, with only 20% of technology companies resulting from spin-outs from research institutions.⁴⁸ The gap between research funding and commercialization is exemplified in the chart below. From 1996 to 2002, the Government of Alberta invested almost seven times more money into research than into commercialization. While commercialization cannot happen without the research that precedes it, the gap that exists between the two means that innovation is not always contributing to the economic development of the province.

TECHNOLOGY AND COMMERCIALIZATION FUNDING IN ALBERTA



Calgary’s main commercialization and technology transfer organization is University Technologies International (UTI). Launched by the University of Calgary in 1989, UTI’s mandate is to provide services on all matters related to technology transfer, incubation and commercialization. UTI’s clients include researchers in post-secondary institutions, government research laboratories, industrial researchers and private facilities. UTI offers a number of programs and services including technology assessments, intellectual property protection, executives-in-residence, licensing technology, creating start-up companies and post-agreement management. Since its inception, UTI has developed or assisted in the creation of 41 spin-off companies.⁴⁹ If creators choose to work with UTI, the organization will pay for the up front costs of commercialization, (i.e. intellectual property protection, marketing studies and legal fees) and any revenues as a result of these activities are allocated based on the University’s Intellectual Property policy.



SUMMARY

When thinking about the processes of innovation, research and commercialization, it is important to note that they do not exist in a vacuum. A complete innovation eco-system needs to be in place that supports the development of a new concept for a ready-for-market product or process. Government policies towards research, development and commercialization play a large role in creating an innovative environment. This environment facilitates a higher quality of entrepreneurial firms, which have strong ideas and an advanced level of sophistication. With this higher level of quality and sophistication, the firms have a better chance at attracting private equity financing and the expertise that comes along with it. All of this has as an end goal to lead to a more effective capital market system and a more supportive environment for innovative growth companies.

Despite the Alberta government's investment in research, the effectiveness of its capital market is still in question. The issue of a better balance of funding between research and commercialization was one that was raised by many people interviewed for this report. Comments like "Alberta is drowning in research" or "Canada is effectively a think tank for other countries" are indicative of the frustration felt by business owners and investors alike. No matter how many new technologies are produced in Alberta as a result of increased research funding, if there is no money invested in commercializing capabilities, there is no way to absorb these technologies.

PART VI – CALGARY PERSPECTIVES AND PROGRAMS

6.1) Calgary Advantages

By all economic measures, Calgary's economy is leading all major Canadian cities. Calgary ranks first among Canadian cities in economic growth, with an estimated 6.9% Real GDP growth rate in 2006 and 4.2% in 2007. Calgary is forecasted to remain among the top cities throughout 2008-2011 with an annual real GDP growth rate of 3.8%. Calgary also leads the nation in employment growth, with a total employment growth of 38.8% over the past ten years (1997-2006), and had the lowest unemployment rate in 2006, at 3.4%.

The credo "go west young man" was not originally written about Calgary, but it does capture the spirit of adventure and opportunities that the city has to offer. Calgary has long been known as an entrepreneurial city; it has the largest concentration of small businesses among Canadian cities on a per capita basis at 40.2 per 1,000 population. It also has the most businesses with fewer than 5 employees (22.7) and the most firms without payrolls (56.9) per 1,000 population.

Calgarians are also known for their strong work ethic. Calgary has consistently had the highest rate of labour force productivity over the past ten years. In 2005, Calgary boasted the highest labour force productivity in Canada, with \$76,961 Real GDP per worker. Calgary also has the most highly educated population in the country, with 73% of its population aged 25-64 having attended a post-secondary institution. With a well-educated population, comes a high quality of workers. People surveyed for this report consistently praise the quality of Calgary's workforce. The city's human capital is seen as one of Calgary's biggest strengths. Especially in more established industries like energy and manufacturing, Calgary has a deep pool of qualified managers and entrepreneurs. The business acumen they acquire makes them excellent mentors for new start-up companies in those particular sectors.



Finally, thanks to the growth of the energy sector, Calgarians are also among the most affluent Canadians. Calgary has the most millionaires per capita, at 116 per 100,000 population, ahead of all other major cities, including Toronto and Vancouver. Additionally, Calgary experienced the highest total 10 year growth in millionaires in Canada, at 336% from 1995-2004.⁵⁰ Over 40% of Calgarian households have Calculated Financial Assets (the estimate of total dollars invested in either interest-bearing investment vehicles or in dividend-generating Canadian corporations). Over 200,700 Calgary households invested a total of \$99.2 billion in 2004, averaging \$494,166 per family, which is above both the provincial (\$381,375) and national (\$251,762) averages.⁵¹ Beyond the individual wealth, there is a sense of community wealth, one which allows for a certain amount of deal flow. For the time being though, this deal flow appears limited to the energy sector.

Calgary is well known for its history of entrepreneurship, innovation, and work ethic – all of which helped build Calgary into the world class city that it is today. The innovation and entrepreneurship that has taken place within the oil and gas sector in particular is evident. Within this sector, successful company owners are continually reinventing themselves, often by cashing out and starting a new junior company. These individuals have been through the establishment and are ready to start the process again, often with untested entrepreneurs. Often known as “grey hairs,” they provide their expertise, their working experience, and sometimes even their own money, to help get a new company off the ground. What is needed to make companies in other sectors more attractive is to transfer this pattern from the energy sector to all sectors of the economy, especially in emerging technology companies within the life sciences and ICT sectors.

SUMMARY

Calgary has many advantages that should make it attractive for increased investment activity. With the strongest economic engine in the country, a low unemployment rate, a strong entrepreneurial spirit, a talented and driven work force, and an established energy sector that has matured thanks to a history of innovation, one would assume that there would be plenty of entrepreneurial activity occurring and that investors would be jumping at the chance to invest in Calgary. Yet access to capital remains an issue for entrepreneurs, and investors continue to bemoan the lack of quality ideas, specifically in non-energy sectors. The key challenges for both sides are explained below.

6.2) Challenges for Calgary Investors

For this report, investors and entrepreneurs across a variety of investment categories, sectors and stages were interviewed for their perspectives on access to capital issues in Calgary. Their opinions are reflected in this section.

Calgary investors emphasized the lack experienced managers on both sides of the investment deal. On the investment side, they stated that there are few truly experienced venture capital fund managers in the city. Because of this, they feel that no true, formal VC community is being cultivated. On the business side, they are of the opinion that there is not a large enough pool of senior management talent with experience in successful firms outside of the energy sector, who can provide management skill and advice to start-up firms.



These opinions are reflective of a Thomson Macdonald (now Thomson Financial) survey from 2005. In the study, professional managers in the VC industry were surveyed for their biggest challenges. The top five were: too few venture fund managers with adequate skills and experience; early-stage venture capital pools are too small; early-stage firms are undercapitalized relative to competitors; too few venture capital funds focused on early-stage; and too few experienced business managers for company building.⁵²

With the exception of the energy sector, those surveyed for CED's report see a dearth of successful entrepreneurs and investors who have had success in new ventures willing to re-invest their time and money into developing new firms. Additionally, many of the investors consulted for this report emphasized that there is little confidence in the abilities of managers working in emerging technologies and life sciences companies. Because of the lack of a mature high-tech industry in Calgary, there are fewer mentors and serial entrepreneurs. Unlike the energy sector, a true community of seasoned experience and expertise to grow and lead these types of companies has not yet developed around these sectors. In contrast to the energy sector where managers are continually re-inventing their careers by starting new companies or engineers who return to the drawing board in search of new technologies, re-investments and re-entrances are not being made in Calgary's emerging sectors.

Calgary's energy sector is the city's most mature sector. As such it is the most dominant, with the most sophistication and has the largest pool of experienced managers and entrepreneurs. Interviews with venture capitalists and other investors suggest that the energy sector is not only attracting most of the money, it also attracts workers and technology that might otherwise flourish in secondary sectors. As Calgary's most mature and successful sector, and one in which profits are soaring, investors are of the belief that deals made in this dominant industry generally pay high and fast returns.

The ICT, life sciences and other KBI sectors are far less mature and therefore the capital markets are affected by this. Currently, they can't compete with the energy sector. Thus there is a need to expedite or increase support for maturation in order to facilitate capital market development and allow them to have access to a greater amount of resources than are currently available now.

Additionally, higher salaries in the industry are managing to attract skilled workers who would normally find employment in other sectors. For example, according to the 2005 Alberta Wage and Salary Survey, engineers working in the oil and gas sector have higher annual salaries than engineers whose specialties fall under other industry sectors.⁵³ A mechanical engineer working in Calgary has an average annual salary of \$99,734, while a petroleum engineer has an average annual salary of \$87,341. These are much higher than engineering salaries in other areas of expertise. In comparison, a civil engineer has an average annual salary of \$80,212, an electrical engineer makes an average of \$73,786 and industrial and manufacturing engineers make an average of \$52,014 per year. The comment has been made that because of these salary variances, and other compensation offered by the energy sector, engineers, scientists and technicians who would traditionally work in the ICT or life sciences sectors are being drawn into the web of the energy sector instead.

Another major impediment to improving access to capital for all sectors in Calgary is a lack of provincial legislation making investment across all industries more attractive. The general consensus is that the flow-through shares available in the energy sector are hurting other sectors and make for an un-level playing field. The fact that Alberta does not provide a provincial R&D tax credit has also been cited as a detriment to accessing available capital.

Investors also bemoaned the lack of high quality deals. Venture capitalists and angel investors often see hundreds of proposals a year, while only a few will be investment worthy. Generally speaking, these comments are reflective of the managerial experience of firms or the quality of the idea, not necessarily the innovative and entrepreneurial talent behind them. People involved in deal financing in Calgary are aware of the quality of the talent that exists in Calgary. The problem is that entrepreneurial firms looking for capital are not experienced enough; with little management expertise they do not recognize the types of ideas that investors are looking for and don't have adequate business plans to attract investments. Additionally, non-energy entrepreneurs with good ideas have to compete with those ideas coming out of the energy sector. Because of the expertise and track record of innovations in this sector, potential investors may not give other sectors as much consideration.

These opinions might be attributed to market failures caused by information asymmetries, where the party benefiting from the investment has much greater knowledge about the investment than does the party providing it. Researchers have suggested that these asymmetries may cause a gap in the venture capital markets, due to the fact that investors are unable to adequately determine the value of a given venture. As such, a reduced number of transactions will take place in the market. Additionally, this phenomenon significantly increases transaction costs for those deals that do take place.⁵⁴ Because Calgary's doesn't have enough experienced and fully educated non-energy investors, the result is an awareness gap in the private equity market. This asymmetry exists as well with those seeking money as they are unclear on what a VC is looking for in a proposal for financing.

Individuals interviewed for this report stated that Calgary does not really have a traditional venture capital market. Without a large base of venture capital firms, Calgary entrepreneurs are forced to look elsewhere for money (i.e. Ottawa, Boston or San Jose). The problem with this is that many investors are looking to invest in enterprises in their own backyard. Emerging companies thus have to compete with firms that are already in the investors backyards. Calgary companies will then be competing with innovative firms in those jurisdictions, but they will have the competitive advantage. Thus the need is there to create our own backyard. Additionally, the point was made that there are no true VC firms, as most major funders are better described as angel investors. And while there may be individual angels out there, the lack of an established network hurts Calgary's entrepreneurial community. Without a true investment network there is not a way to fully exploit the private equity pools in existence. Calgary is lacking a strong network to share best practices and investment methodologies to provide the local private equity market with an influx of cash and deal flow.

Additionally, the investors interviewed for this report felt that there is a lack of publicity surrounding Calgary's existing investment community. While a traditional VC market may not exist, deals are still being done, but nobody is talking about the success of ventures that are getting money. While not every idea is a world class one, those that are great are receiving investments. But a lack of publicity means that there is no "envy factor" to draw investors from outside the city to invest in Calgary, making for a fairly stagnant venture capital community.

Finally, beyond attracting the knowledge worker to create the innovative concept, Calgary needs to attract the money managers to finance it. Those people interviewed who work in the city's business and financial services sector are of the opinion that Calgary has the potential to become Canada's financial centre. Energy is one of the most capital-intensive industries in the world, and as Calgary is the centre of Canada's oil and gas industry, much of this capital is circulating here. Within that industry, retail investors, the angel community and fund managers all work very well together, creating an investment model that is world-class. Currently there is no way to transfer that model to other sectors of the economy, but if this can occur, and the success of the energy investment model is better leveraged, those interviewed felt that Calgary's financial community would be able to support increased investment across all sectors. Once the financial community is recognized as being first-rate, the rest (i.e. experienced asset managers, foreign VC funds, and other institutional funds) will follow.

SUMMARY

The challenges most often cited by investors working in Calgary's capital markets are that there are not enough true VC managers with sufficient expertise, that there is a lack of high quality deals, mainly because of concerns with the business and management experience of the seekers, and that there is a lack of information about what type of companies are seeking financing. Investors interviewed for this report also stated that the domination of the energy sector means that not only is this sector attracting most of the emerging talent, it is also keeping its experienced managers, making investment in this sector more attractive.

6.3) Challenges for Calgary Borrowers/Recipients

People looking for financing are more than just entrepreneurs – they are also innovators, managers and owners. The capital they seek to access might be used to start a new enterprise, expand a promising line of business, or restructure a large multi-industry firm.⁵⁵

Business owners face several challenges when it comes to raising money. Before they can even access financing, they have to come up with an innovative idea, a viable business plan, and the people to make it work. Once that is in place, they can seek funding from banks, SME financing programs, and R&D funding programs. Once these options are exhausted, the business owner will turn to private equity. Venture capital should come last in their search, because this type of equity takes the most risk and expects the most in return.

Generally speaking, a common concern amongst business owners looking for money is that there are not enough investors willing to finance their ideas. That said, some of the entrepreneurs (successful and not) interviewed for this report are of the belief that the money is out there, but entrepreneurs need to do more to find the right type of financing for each particular venture. In their opinion, finding private financing is a full time job. Business owners should spend quality time perfecting their business plans and honing their presentation skills to convince venture capitalists that their concept is worth the investors' time and money. If the deal is worth investing in, it should attract financing.



If the deal is good enough to attract financing, small business owners still point out that they don't know where to look for this financing. They comment that there are not enough mentorship programs or forums allowing them to connect with investors. Once their business plan and concept are solid, they point to two main hurdles in attracting financing: a lack of information for entrepreneurs on how to properly approach investors and a lack of information on the availability of these investors. While there are programs in Calgary to assist companies obtain financing, there is obviously a need to expand the awareness and delivery of these programs.

Successful entrepreneurs who also work as mentors point out that they have seen many great ideas come across their desk from smaller companies looking for guidance, and made the point that while the ideas are innovative and interesting, they don't necessarily have much practical use. Without demonstrating a purposeful use or customer base for their product, there is a limited chance of a deal being done.

Individuals and companies looking for financing echoed investors comments that Calgary does not really have a traditional venture capital market. They made the point that there are no true VC firms in Calgary, as most major financiers are better described as angel investors. The comment has been made that much of the wealth in Calgary is concentrated in the hands of relatively few, who while they may be active, are also fiercely private. They do not seek public attention, are not fond of government intervention and tend to invest together with the same management teams, in similar opportunities over and over again. The lack of a true venture capital community means that it is hard for entrepreneurs to determine where to start when it comes to seeking financing. The lack of an established VC community also means that seasoned fund managers with a true understanding of sector development and the risks that are worth taking, are hard to find and often aren't even located in Calgary.

SUMMARY

Business owners surveyed for this report stated that the most common challenges for entrepreneurs are finding the right type of investors and understanding what it is exactly that investors are looking for. The lack of a true venture capital community and what they see as un-level playing field, because of both the tax incentives that exist in the resource industry and the familiarity that many individual investors have with resource industry are additional hurdles that they must face when competing with the energy sector.

6.4) Working Together

There are various programs in place that support capital market development in Alberta. The existing infrastructure has as a goal to connect entrepreneurs with investors through mentorship programs, angel networks, incubators and so on.

Various organizations within the Calgary area provide mentoring to entrepreneurs with the end goal of securing early-stage financing:

- Calgary Technologies Inc. (CTI) is a joint partnership with the City of Calgary, the Calgary Chamber of Commerce and the University of Calgary, a sister agency to Calgary Economic Development (CED), with the lead mandate to support commercialization amongst Calgary's economic development efforts. CTI works with technology and life sciences companies and entrepreneurs to develop and expand their operations in Calgary. CTI is a single point of contact for investment in the high-tech industry and a doorway to a comprehensive range of information, resources and services in Calgary and across the province. CTI's building also works as incubator, offering space to innovative entrepreneurs at market rates. They also offer an Entrepreneur-in-Residence program which assists small and medium sized technology businesses by connecting them with an experienced technology entrepreneur who is on staff and can share expertise and real business advice. The program's focus is coaching and discussion is open to any topic. Additionally, the Calgary Innovation Centre at CTI is a mentoring service established to help early-stage companies grow revenue and address business problems. CTI also offers two programs designed to assist technology companies to obtain necessary financing:
 - Financing Your Vision: A two-day workshop to explore the pros and cons of different financing options for start-up companies. Topics include: earnings-based growth, debt equity, granting agencies and public offerings.
 - Concept to Capital program: An intensive 12 week program designed to help emerging technology companies refine their winning business plan presentation and secure early-stage financing from investors. This program is open to companies working in the areas of information and communication technologies, biosciences and advanced engineering sciences.

- The Business Link was established to provide individuals with access to useful and authoritative information for launching a business in the Calgary region. The Business Link is a not-for-profit organization, supported by Western Economic Diversification (WED) and Alberta Employment, Immigration and Industry (AEII) and is a member of the Canada Business Network. The Business Link offers information about everything from start-up, regulations, marketing, and financing/loan programs to exporting, importing, e-business, Aboriginal business, and government programs and services.
- Westlink Innovation Network works to address Canada's innovation gap, by connecting publicly funded research and educational organization members with industry experts through a range of programs and services. Through networking events, technology commercialization programs, and consulting services, Westlink programs are aimed at connecting academia and industry to accelerate collaboration and the movement of innovation from early stages to final marketplace ready products.
- AVAC Ltd. is a not-for-profit private company that was created by the Provincial government to help foster the accelerated growth of value added agriculture in Alberta. If an idea or project has the potential to increase Alberta Agrivalue, AVAC can help share in the early-stage development risk. AVAC helps entrepreneurs, new venture developers and researchers develop their ideas towards commercialization by providing coaching, knowledge, contacts and financial resources. Since the fall of 2006, AVAC has administered the newly funded IVAC initiative, which will encourage new businesses in information and communications technology, life sciences and other industrial technology ventures by assisting with the start-up and early-stage growth of companies. Exact details on how this program will function have not yet been finalized.
- Alberta Deal Generator works to facilitate investment in high-growth Alberta technology companies by using screening processes to connect technology firms that are "investment-ready" with a network of angel investors, venture capital firms and other investment groups in special presentation forums. Alberta Deal Generator has established the largest network of accredited investors in Canada who are actively pursuing opportunities in Alberta's early and growth-stage companies. Alberta Deal Generator is a joint venture of TEC Edmonton and CTI and was established as a result of the Edmonton Economic Development Corporation's Greater Edmonton Competitiveness Strategy.
- VentureAlberta assists companies in finding the right investor so entrepreneurs can decrease the amount of time they spend looking for capital. VentureAlberta provides services such as business model assistance, seminars, conferences and venture forums for both investors and entrepreneurs.

- University Technologies International (UTI) is part of the University of Calgary and has as a mandate to provide services on all matters related to technology transfer and commercialization. UTI's clients include researchers in post-secondary institutions, government research laboratories, industrial researchers and private facilities. UTI offers a number of programs and services such as technology assessments, intellectual property protection, executive-in-residence, licensing technology, creating start-up companies and post-agreement management.
- Business Development Bank of Canada (BDC) is a federal government owned institution that provides financial and consulting services to Canadian small and medium-sized businesses. BDC is a major venture capital investor, active at every stage of the company's development cycle, from seed through expansion.
- TSX Venture Exchange (TSXV) is the result of the merger of the Vancouver and Alberta exchanges. Serving the public venture equity market, the exchange provides access to capital for companies at the early stages of their growth while offering investors a well-regulated market for making venture investments.⁵⁶ TSX Venture complements the activities of angel investors and venture capitalists and bridges the gap between private and public financing. It has its head office in Calgary, but also has a presence in other cities across Canada.

Other organizations and programs that offer support in business expansion, mentoring expertise and strategic growth include the following:

- The Banff Venture Forum occurs every fall and is designed to showcase emerging firms specializing in energy and technology services. The forum provides insights into key financing issues and provides networking opportunities with the ultimate goal of matching investors and entrepreneurs.
- The Association for Corporate Growth is a global association for professionals involved in corporate growth, corporate development, and mergers and acquisitions. The Calgary chapter was established in 2003 and currently has 72 members. In North America there are over 10,000 members from corporations, private equity, finance, and professional service firms. ACG offers services such as Deal Exchange where members can post live deals and Knowledge Exchange which provides current content from business journals related to corporate growth, mergers and acquisitions.
- The National Angel Organization (NAO) is the national of organization of Canadian Angel investors dedicated to promoting best practices and public policy advocacy in relation to innovation and early-stage capital formation in Canada. The NAO serves as an advisor when called upon by both the federal and provincial governments; increases network opportunities for investors; seeks to support the establishment of local Angel investor deal flow groups; and has plans to roll-out a comprehensive education strategy and best practices resources for Angel investors.

- Western Economic Diversification Canada (WED) has as its mandate to promote the development and diversification of the economy of Western Canada and advance the interests of the West in national economic policy. WED's entrepreneurship initiatives support a network of community-based organizations such as community futures development corporations that offer business information, small loans or assist with access to small business financing.
- Community Futures Development Corporations (CFDCs) have as a mandate to aid community and business development in rural communities. Community Futures offices provide a variety of services ranging from strategic economic planning, technical and advisory services to businesses, loans to small and medium-sized businesses, self-employment assistance programs, and services targeted to youth and entrepreneurs with disabilities.
- The Venture Capital Association of Alberta (VCAA) works to enhance the sharing of information and promote excellence among key participants in Alberta's venture capital industry. VCAA offers membership to providers of venture capital and public equity.

SUMMARY

In looking at all the organizations and the programs they offer, it looks as if Alberta has all the supports in place to facilitate an effective capital market system. Yet as shown by the interviews conducted for this report and the statistics about investment activity, there is still a disconnect between entrepreneurs and investors – both an expectation disconnect and an information disconnect. The two groups don't seem to be able to exchange information effectively about what the one side is seeking and what the other is willing to invest and therefore make deals happen.

As previously mentioned, one of the biggest issues on both sides is that there is a lack of education about what is to be expected and what kind of possibilities exist in Calgary. Entrepreneurs expect investors to jump at the chance to invest in their product, without necessarily understanding the risk they are taking. Investors consistently responded that most companies presenting to them were vastly under-prepared with a very weak management plan and un-realistic financial expectations. Business owners stated that in energy dominated Calgary, many local investors are not knowledgeable enough about other sectors, and are therefore averse to making large investments. What seems apparent is that there is a need to better address the disconnect that still exists.

PART VII – OTHER JURISDICTIONS GOVERNMENT INCENTIVES AND PROGRAMS



It should be noted that Canada and Alberta are not the only jurisdictions in which a lack of venture capital, research funding and commercialization capabilities are perceived to exist. The European Union, many of its individual member countries, and other jurisdictions, such as Norway and New Zealand, have all recently examined the state of their equity capital markets and research funding sources.⁵⁷ These jurisdictions also struggle to foster innovation within their own public policy framework and in a manner consistent with the most beneficial use of public resources.

7.1) International Jurisdictions

What follows is a summary of selected incentives and programs put in place by several foreign jurisdictions to support private equity activity and the research and development of knowledge-based economic activity in their regions. The focus here is on government programs to leverage private investment, rather than on current private equity activity in the selected jurisdictions.

IRELAND

Both Ireland and Alberta boast world-leading economies. In Ireland, government intervention played a large role in providing support for the increase in knowledge-based economic activity. As a part of its holistic Strategy for Science, Technology, and Innovation⁵⁸ the Irish government created Enterprise Ireland to provide funding and support for startup companies, as well as research and development and other innovative activities. Enterprise Ireland's non-financial support includes providing assistance with business development and creation. Financial support is provided mainly through a program called Funding for High Potential Start Ups (HPSUs), which provides equity or a mixture of equity and grant financing for investment in R&D, training, job creation and capital assets for qualifying start ups. Emphasis is placed on companies with high growth prospects which use technological innovation and have export potential.

The Enterprise Ireland funding must be matched by some form of private investment, however, under “exceptional circumstances” where sufficient private equity is unavailable for the earliest stages of company development, Enterprise Ireland will provide equity investment in a company for the purposes of supporting R&D.

Enterprise Ireland also directs funds towards innovation being conducted by established companies through grants or repayable grants for R&D, and other funding for projects intended to increase a company’s productivity, or increase exports. Additional R&D funding is available for “strategic R&D” (which is determined on a project-by-project basis).

Nonprofit organizations also serve a role in the Irish venture capital industry through the Irish Venture Capital Association. The government, however, also provides direct support to enterprises by providing contact information for and introductions to venture capitalists. Intertrade Ireland also provides a venue for sharing information and networking between companies.

SINGAPORE

Singapore has done much work to match investments in an effort to leverage private financing and encourage innovative activity. The Singapore Economic Development Board (EDB)⁵⁹ has several inter-linked programs to leverage private venture capital for Singapore-based companies, including:

- a. Startup Enterprise Development Scheme (SEEDS) which matches private equity invested into a qualifying start-up company engaged in innovation, either in a product or a business model. EDB holds an equity stake in the beneficiary company commensurate with its level of funding.
- b. Once a company has a viable product, further funding may be provided by the Growth Financing Programme on a private equity matching basis in exchange for a portion of the company’s shares. It appears that funding is also available for companies who had not received SEEDS financing at their initial start-up.
- c. The Business Angel Scheme (BAS) encourages private investors to commit funds towards a Business Angel Fund. Provided the fund is approved by the EDB, the fund’s investments in start-ups will be matched by SEEDS funding with both the fund and SEEDS taking equity stakes in the company.

In addition to the programs involving direct equity injection, the EDB also has the Enterprise Investment Incentive (Technopreneur) Scheme which provides loss insurance for investors in startups. There is also a reimbursement for cost program, the Innovation Commercialization Scheme (ICS), which is disbursed on a project-by-project basis and is intended to encourage development and commercialization of Singapore-based innovations.

ISRAEL

Israel had the highest level of venture capital as a share of GDP of the OECD countries, between 1998 and 2001.⁶⁰ Credit is given to the Israeli government for the achievement of the relatively high level of development in this market, as the government-led initiatives undertaken in the 1990s successfully leveraged foreign capital to catalyze both the venture capital market and the high tech industries benefiting from its investment. Programs instituted in Israel since the early 1990s include:

- a. The YOZMA group programs operated from 1993 – 1998 and injected capital into Israeli markets using two methods. Firstly, the government took minority equity stakes in individual firms which were at an early stage of development and had a potential for high growth (there was a particular emphasis placed on firms within the ICT and biotech/life sciences sectors). Secondly, YOZMA created a number of public/private venture capital funds which matched foreign investments with government funding which would then provide funding to various start-ups. The YOZMA programs were deemed no longer necessary in the latter part of the 1990s and the government assets were substantially privatized and sold in 1998.
- b. The INBAL Programme was established in 1991 and encouraged venture capital investment by guaranteeing up to 70% of investments in local venture capital funds. The program has since been phased out.
- c. After the phase-out of YOZMA, a Seed Fund was created to leverage private capital in a manner similar to, but on a smaller scale than, YOZMA. The government takes up to 50% of the equity of the start-up firms, but does not participate in the management or directorship of same.
- d. There is currently a grant and tax incentive regime to encourage investment in Israel, with emphasis on hi-tech and research and development. Projects which qualify for the program (a designation which seems to be made on a company-by-company basis) may be given grants for certain real capital investments (based on the region they are located in) and/or lower tax rates (based on a sliding scale where the size of the tax break is positively related to the level of foreign ownership of the company).
- e. Foreign “angel” investors are also sought by granting tax incentives and by providing support in the form of “initiating programs”.

It should be noted that Israel's venture capital support programs are specifically directed at attracting foreign investment. Domestic investment in venture capital funds and enterprises is granted less generous incentives and may even be restricted or prohibited from venture capital funds and enterprises. The bias towards foreign support for this market continues at the exit stage of the investment. Due to the low capitalization of the Tel Aviv Stock Exchange, foreign stock markets (particularly those in the U.S.) are mostly responsible for providing the capital to pay out the venture capital funds and garner most of the IPO offerings from Israel. Companies also turn to these foreign markets if additional funding is required once they have reached later stages of development.

Israel also supports start-up companies by providing non-equity assistance in the form of management training by the Authority for Small and Medium Sized Businesses in Israel (ISMEA), Israeli Industry Centre for Research and Development (MATIMOP), Israel Export Institute, and the Israeli Idea Promotion Center (MESSER). According to the OECD, this type of training assists in the attraction of angel capital by making Israel an attractive place to invest.

NEW ZEALAND

Similar to Alberta, companies seeking capital in New Zealand pointed to a gap in the provision of capital and expertise to early stage companies with high growth potential. In response, the government set up the New Zealand Venture Investment Fund (VIF) in 2002, with \$160 million (NZ dollars) of committed capital.⁶¹ It operates as a crown corporation with an independent board of directors and is structured as a fund-of-funds equity investment program alongside private sector co-investors in a series of privately managed venture capital investment funds. The fund invests with the following specifications:

- a. VIF will invest up to one third of the total capital for each venture capital fund, but will normally invest no more than \$25 million in any individual fund. The privately managed funds will select, invest in and assist the growth of innovative young companies. Finally, VIF invests with private investors on a sliding scale: 1:1 for seed and start-up stages, 1:2 for early expansion, 1:4 at the expansion stage and 1:5 at the late expansion stage.
- b. The VIF also co-manages the \$40 million Seed Co-investment Fund program, aimed at small to medium-sized businesses with strong growth potential at the seed and start-up stage of development.

A recent study examining the efficiency and capability of New Zealand's venture capital market stated that the NZVIF has played a positive and important role in catalyzing innovation and the development of the venture capital sector.⁶²

HOUSTON

Houston, like Calgary, is most commonly known as an oil and gas centre. Houston bills itself as the Energy Capital of the World, with 47% of the region's economic base employment related to energy.⁶³ Yet Houston is fast developing a reputation as a centre with strong biotechnology and life sciences sectors. Various local and state initiatives have created an active capital market environment for sector development and could provide some examples for Calgary.

The Greater Houston Partnership, which is the agency responsible for economic development in the Greater Houston Region, was instrumental in establishing the Houston Technology Center (HTC). The HTC is an accelerator that brings together entrepreneurs, investors, existing businesses and the local workforce to expand the critical mass needed to generate new businesses in emerging technologies.⁶⁴ Something new

in HTC's mandate is the co-direction, along with the Partnership, of the recently established Gulf Coast Regional Center for Innovation and Commercialization (GCRCIC). The GCRCIC is part of a new "deal opening" program entitled the Texas Emerging Technology Fund. Enacted in 2005 by the Texas Legislature, with the support of the Greater Houston Partnership, the fund was established with the broad purpose of developing and diversifying the Texas economy by: expediting innovation and commercialization of research; attracting, creating, or expanding private sector entities that will promote a substantial increase in high-quality jobs; and increasing higher education applied technology research capabilities.⁶⁵ The fund is financed bi-annually at \$200 million. Companies applying for emerging technology grants are reviewed by an advisory committee which is made up of Texas industry leaders and nationally recognized researchers. In addition to awarding emerging companies with start-up financing, the Fund also provides workforce support.

7.2) Canada

Within Canada, there are several jurisdictions which have programs and infrastructure in place that encourage private investment and participation in research and innovation. While they are not all necessarily direct intervention measures, they are programs which support a more mature capital market.

ONTARIO

The Ottawa Capital Network assists in creating efficiencies in the capital market through programs aimed at educating the entrepreneurial community, creating linkages among the investment community and providing knowledge and support to the business community. The network has been in operation since 1992 and is funded by the city, the province and local industry partners. As part of the Ottawa Centre for Research and Innovation (OCRI), which is the Ottawa region's economic development agency, the Ottawa Capital Network offers a website with tools and information and consulting services for investors. Ottawa also benefits from the technology cluster that already exists there. With a tradition of large returns on risk capital investments, experienced management and serial entrepreneurs, access to VC and angel investors is much more attainable. Even though Ottawa has a relatively healthy private investment environment, OCRI still plays an active role in lobbying the government to make sure a high rate of activity continues. An example of this is the paper OCRI published in conjunction with the Information Technology Association of Canada (ITAC) which pushes for changes to Federal SR&ED program for increased productivity, as well as various Federal Budget submissions urging the government to increase programs targeting innovation, research and commercialization, and access to capital.⁶⁶

In September 2005, Communitech, the Waterloo Region Technology Association published a report showcasing the investment and entrepreneurial potential of Waterloo. Called "Making Magic in Waterloo Region," the document highlights the growth of the local technology sector and quantifies the investment activity in the region.⁶⁷ The report aims to show why Waterloo Region is the best community in the country to start and grow a successful business. Included in the analysis are statistics showing that technology

companies in that region create more shareholder wealth than other major tech centres, that it can be counted among the top five Canadian IT investment markets, and that its community celebrates and supports entrepreneurs.

An important asset in Toronto is the MaRS Discovery District, which is a “convergence innovation centre” located in two square kilometers in the downtown core.⁶⁸ Funded by all three levels of government and institutional and individual private sector donors, MaRS works to foster collaboration between Toronto’s science, business and capital communities. It provides specialized research and a business incubation facility, co-located professional services firms and investors, and has the advantage of being located near research and educational facilities, as well as within the downtown core.

Also in Toronto is the Toronto Region Research Alliance (TRRA). The TRRA was created in 2005 by all levels of government, industry, research and innovation organizations to introduce new forms of association and innovative organizations that can catalyze the latent potential in a region by introducing new synergies across disciplines, professions and sectors, in an effort to unite diverse but necessary ingredients for innovation and eliminate barriers to collaboration.⁶⁹ The TRRA works with industry, government and the research community to understand how to remove barriers to the Toronto region’s success and to align key players in support of opportunities for growth and development. Its Board of Directors is made up of university presidents, industry CEOs, financial institutions and government observers, all with an interest in regional innovation where companies, workers, research institutions, government and financial organizations work together. Having one voice that can come together to lobby the government for more attention is key in presenting a unified message.

When Ontario announced that it was phasing out labour sponsored venture capital funds, it also stated that it would re-direct its resource to other priority areas, such as the commercialization of research. Government programs announced to support research innovation in the absence of LSVCCs included a new research council of Ontario and a commercialization network, linking 11 regional innovation networks across the province. In July 2006, the Ontario government also announced a four-year, \$46 million Market Readiness Program to assist the commercialization of new discoveries and technologies.⁷⁰ Highlights of the funding include:

- The Investment Accelerator Fund (IAF) is a \$29 million fund which finances eligible knowledge-based companies to test and develop their new technology in early stages and also provides companies with business mentorship and entrepreneurial know-how to take the idea closer to marketplace.
- The Business Mentorship and Entrepreneurship Program, which received \$17 million to enable entrepreneurship training in the form of peer-to-peer mentoring and training courses. Included in this funding is \$2.5 million to foster the formation and growth of Ontario angel networks.

The Ontario government also offers an Innovation Demonstration Fund which supports innovative companies and a \$90 million Early Stage Venture Capital fund which will invest in early stage Ontario-based firms in partnership with venture capital funds, pension funds and the federal government.

SASKATCHEWAN

The government of Saskatchewan provides a mix of direct investment programs, tax credits and research and commercialization support to encourage innovation and increase access to capital. Investment Saskatchewan is a crown corporation which provides direct investment (through both equity and debt) to various enterprises based in Saskatchewan at all levels of development. Accordingly, this is not a strictly venture capital enterprise, as more developed enterprises might also receive financing from the corporation. Invest in Saskatchewan is a labour-sponsored capital corporation with a mandate to allow Saskatchewan residents to invest in small and medium-sized business (no more than 500 Saskatchewan employees). The province provides a 20% provincial tax credit on top of the federal 15% tax credit for investment in these programs. Saskatchewan also provides a non-refundable tax credit amounting to 15% of research and development expenditures (qualified under the same criteria as under the federal SERD credit). Additionally, expenditures related to research and development can be deducted from taxable income.

BRITISH COLUMBIA

While the B.C. government does not directly provide networking support to start-up companies in the province, there are a large number of industry associations, networking organizations, and similar establishments that provide networking and resource to fledgling firms. These generally operate as non-profit organizations, and as such, can receive support from various provincial and federal government agencies, with additional funding provided directly by the venture capital industry. The two most prominent such organizations operating in the Vancouver area are the Vancouver Angel Technology Network (Vantech), which is sponsored by the Vancouver Enterprise Forum, and the Angel Forum (Vancouver).

Educational institutions provide further support to technology commercialization through their institutions; for example, the University of Victoria launched the University of Victoria Innovation and Development Corporation and leads the Vancouver Island Technology Park. The latter is an office campus for technology companies, which works with various government agencies and non-profit associations to place innovative companies in close proximity to one another and to allow for easy access to needed resources.

The University of British Columbia created the W. Maurice Young Entrepreneurship and Venture Capital Research Centre at the Sauder School of Business. The centre promotes learning and research related to entrepreneurship and encourages dialogue and cooperation between the university, business, policy makers and other stakeholders. The centre shares its research through workshops, symposia and internship programs, and has an advisory board that includes an entrepreneur-in-residence, various industry leaders and key government players.

SUMMARY

The selected programs listed above are all tools used by other jurisdictions aimed at increasing innovation and technology commercialization by focusing on investment in research, education, and cooperation to increase the level of capital available for investment. In all cases the funding available for research and development is more than just a one-time grant – it is linked to a broader innovation system. For example, both Israel and Ireland have ensured that the financing available is linked with commercialization. Also, the programs designed specifically for capital investment aim to leverage private activity, as exemplified by the policies of Singapore and New Zealand, which encourage investors to commit private equity funds that are then matched by a crown corporation. Therefore any strategies that Alberta installs should reflect these two key features: system based funding which sees things through to commercialization and a system that encourages private investment.

PART VIII – CHANGING THE LANDSCAPE



Based on the discussions completed for this paper, along with the research available, it has become clear what the issues affecting access to capital are, and what they are not. Calgary's particular issues are not:

- the lack of existing pools of capital;
- a scarcity of wealthy investors;
- a talented and innovative workforce;
- a stagnant economy; or,
- the shortage of entrepreneurial spirit.

That said, they are:

- cross-sectoral access to the existing pools of capital;
- a lack of awareness by successful investors about opportunities outside the energy sector;
- doubts about the management ability of entrepreneurs; and,
- the availability of policy tools which support the expansion of the capital pool for non-energy investments.

This section will examine policies and programs currently underway in other jurisdictions, in an effort to determine if any of the tools they have enabled could be applicable to Calgary's situation and work towards addressing the issues affecting Calgary's and change the investment and innovative landscape.

8.1) Lessons for Calgary from Other Jurisdictions

Looking at other jurisdictions for evidence on how they have introduced programs to provide tools that have helped stimulate investment is not a new concept; various Alberta-based studies over the years have highlighted programs in British Columbia and Ontario or co-investment funds like the New Zealand Venture Investment Fund.⁷¹

This concept of a co-investment fund or a fund-of-funds is one that has been studied before in Alberta, and is further explored in the next section of this document. Many of the people interviewed for this report acknowledged that a quasi-public fund is worth more study, as it could help introduce the tools that could lead to a larger pool of capital and a larger pool of experienced venture fund managers. A fund-of-funds equity investment program could also persuade more private investors into the market and contribute to Alberta's innovation system. Some people interviewed for this document however, were wary of such a fund. They are of the belief that any provincial fund would crowd out, rather than attract, private investors. As such, any movement forward with this type of fund would have to be studied from all sides. This is why lessons learned from Singapore, which focuses on private equity funds first, with matching funds as a secondary tool, are important when considering how best to approach any model in Alberta.

Within Canada, the recent activity in Ontario is worth examining more closely, especially as the government has moved away from one form of intervention (LSVCCs) to another (commercialization networks and an early stage venture fund). The new "Ideas to Market" strategy is the result of various reports on risk capital and commercialization, along with a Provincial Risk Capital Working Group.⁷² The concept behind the new strategy is to encourage early investment along with management expertise for entrepreneurs working in Ontario. The idea is that once a firm receives help with early-stage financing and gains management experience, later-stage investment, especially of the private equity kind, will come more easily and the innovative products they create will stay within Ontario.

Moving away from the previous concept that tax incentives for retail investors will enable private equity and economic development, Ontario is now looking to leverage more private investment from venture capitalists and angel investors. The combination of mentorship and entrepreneurship programs, funding for more angel networks and a venture capital fund based on a partnership between private and public financing, all contribute to a more holistic approach to increasing access to capital in Ontario. The additional assets of the Centres of Excellence, the Ontario Research Commercialization Program, the linking of the innovation networks, and MaRS Discovery District, also contribute to catalyzing capital availability in the province. This concept that research, innovation, commercialization, angel investments and venture capital are all tools that have an important role in business development is one that is important to remember when examining access to capital issues in Alberta.

Additionally, innovation as a key word needs to be used not only in science and technology, but in business practices and government policy. Key players in the venture capital and government financing circles have consistently stated that access to capital has been discussed for years, yet the same problems exist. New strategies and different attitudes are needed. Policy makers should recognize that innovation is not owned by KBIs, it is also something that can be applied to all sectors of the economy, including government. Increasing investments in poor practices will not produce better results, rather innovative practices from across Canada and the globe should be examined to ensure that new investments produce returns that can support continued prosperity. Consultations with a variety of stakeholders have made it clear that what is currently in place is not enough – more innovative networks and greater knowledge support need to be put in place to provide greater competitive advantage for Alberta companies.

Improving links between Canadian universities and firms should allow the private sector to take advantage of university-based research. The Toronto Region Research Alliance (TRRA) is an interesting model as it brings together industry, government and universities to unite diverse but necessary ingredients for innovation and eliminate barriers to collaboration. Promoting ingenuity through cooperation is important to human and economic progress and is necessary for Calgary to stay competitive in a knowledge-based economy.

In the post-secondary world, the Haskayne School of Business at the University of Calgary has a program focused on entrepreneurship, but it is geared towards smaller family business and doesn't necessarily focus on major financing issues or how to become a successful manager for an innovative growth company. The school used to have an entire MBA program devoted to entrepreneurship called the Enterprise MBA. Currently, the business school does have a specialization called Entrepreneurship and Innovation (ENTI) at both the BComm and MBA levels, but without a full entrepreneurship program or research group specifically dedicated to examining the issues of the capital and innovation ecosystem, as other Canadian universities do, the city is lacking not only an important tool in the education of business managers, but a way to attract the best and brightest students and potential future managers. The introduction of a new venture or enterprise MBA could fill a strategic niche in the city's need for better educated managers.

The "Making Magic" report created by the Waterloo Region Technology Association is another example of an important tool in attracting capital investment to a region. Increasing awareness about investment successes is just as important as the successes themselves. People interviewed for this report consistently mentioned that no one is keeping track of, or publicizing, the successful investment activity in Calgary. In particular, now that Calgary is receiving plenty of attention due to its robust economic activity, the opportunity exists to promote the message that viable companies are attracting financing and this financing is providing innovative, value-added products and concepts.

From these examples it is evident that increasing access to capital is combination of public policy, the implementation of new investment models and education to increase awareness about investment activity and ensure the capabilities of entrepreneurs and investors. These three needs are discussed in more detail below.

8.2) Policy Needs

As exemplified by the programs from international jurisdictions, quite often direct policy intervention is needed to increase capital investment in an economy. But generally speaking, Alberta's government is not in the business of doing business. That does not mean that the government is not aware that access to capital is an issue – in a series of speeches in January 2005, then premier Ralph Klein spoke of diversifying the economy and encouraging innovation by “looking at ways to further foster the development of knowledge-based industries by improving access to venture capital and equity capital ... and creating competitive tax strategies that support research and development, improve global market access, and attract new investment.”⁷³ In March 2007, current premier Ed Stelmach announced the formation of a Value-Added and Technology Commercialization Task Force which will “capture the knowledge of individuals with expertise in value-added products and technology commercialization [in order to] identify the critical actions necessary to accelerate growth in this area and build a stronger Alberta.”⁷⁴ The task force will be explore opportunities to:

- encourage value-added growth and productivity in sectors;
- encourage investment and research in knowledge-based industries;
- encourage the growth of venture capital in Alberta;
- support the development of Centres of Excellence in commercialization; and,
- develop new markets for value-added products.



In the interim, there is no active equity capital program, as the province relies on low business and personal income tax rates to stimulate economic growth. Within the private equity market though, a lack of governmental incentives makes it more difficult to leverage private capital and the “Alberta Advantage” is not necessarily enough incentive to lure entrepreneurs and investors from other provinces.

Capital markets play an important role in a city's economy because of the part they play in stimulating innovation. Venture capital, angel investments and other forms of private equity are the main backers of innovation and innovation is a key driver of economic growth. For this reason, governments need to consider how to be more supportive of capital markets. That said, there is a fine line of support for governments to be aware of in order not to interfere too heavily with the private equity market.

A truly successful capital market is one with a minimum of government intervention. The government's role should complement private funding, not replace it. Rather than dominate the private equity market, policies should be directed at facilitating its existence. Public policy ought to address gaps in capital markets and work within the existing ecosystem to fill the holes in order to ensure that the ecosystem remains self-sufficient. It should be strategic, focused and concentrate on adding value. To do this, governments should not necessarily interfere with the market; they simply need to encourage initiatives allowing for a strong capital market to develop. Possible initiatives include research and development tax credits, flow through shares, creation of early stage fund-of-funds, greater investment in entrepreneurial skills development programs, and an established organization linking angel investors, VC fund managers and institutional investors. All of these initiatives would encourage deal flow and allow for the capital market to develop naturally into a more robust, dynamic and mature segment of the economy.

TAX POLICY

One of the most important tools available to governments in encouraging investment in innovation is tax policy. The flow-through shares and tax subsidies utilized in the Canadian resource industry (i.e. oil and gas) have allowed that sector to flourish. Similar schemes could be used to encourage growth in the technology or life sciences sectors. This concept came up consistently in discussions with Calgary investors.

A majority of the people we spoke to mentioned that the flow-through share tax model gives the mining and oil and gas companies an unfair advantage when it comes to raising money. Flow-through shares are tax advantaged investments that were introduced by the federal government in the early 1950s to encourage exploration for Canada's natural resources. A full exploration of the nature of this tax structure is beyond the scope of this paper, but a basic explanation is that flow-through shares are common shares of Canadian resource companies issued on the basis that the money raised must be spent on exploration and the tax deductions from the exploration expenditures must be transferred to the purchasers of the shares.⁷⁵ There are several benefits for individuals to invest in flow-through shares, the most common ones being that investors are able to both reduce and defer their taxes.

The National Angel Organization (NAO) has proposed another type of tax policy, which they have labeled the Innovation and Productivity Tax Credit (IPTC), which would encourage Canadians to invest directly in start-up and early stage companies as individual or angel investors. The IPTC would define eligible companies and allocate a specific tax credit allotment. Upon investing, investors would apply for a 30% refundable tax credit, which would be funded 50/50 by the federal government and participating provinces.⁷⁶ This tax credit would be similar to one already in place in British Columbia – the Equity Capital Program (ECP) which provides support for equity investment in small BC businesses through a 30% refundable tax credit for eligible investments.

Alberta did at one time have a program targeted at helping businesses access capital through tax credits. The Small Business Corporations Act, which was in existence through the 1980s and early 1990s offered a 30% tax credit for direct investments into eligible small business or indirectly through Small Business Equity Corporations [SBEC]. The highest amount of capital budgeted to be raised each year was \$61 million and by the time the program was cut, 273 SBECs were registered and they had raised a total of \$203 million in equity investment.⁷⁷ By 1994 the program was closed down due to administration and compliance problems, which were costing the government too much. The argument has been made though that any costs to the government as a result of tax credits pay for themselves through increased taxes resulting from increased productivity, jobs and salaries.⁷⁸

In 1998, a Tax Review Committee was asked to evaluate options for the province's income tax system, and it did consider the role and mechanisms of government for knowledge-based industry tax policy.⁷⁹ The committee reviewed issues related to access to venture capital and concluded that the province should not introduce tax incentives to encourage this type of investment. But the majority of the people interviewed for this report are of the belief that a provincial research and development tax credit would enhance Alberta's competitive position, in attracting and maintaining commercially directed research and development. They felt that an R&D tax credit would level the playing field with other jurisdictions in attracting new external investment to the province, and enhance existing Alberta based investment. A publicly-run tax credit program could also be used as leverage for add-on private investment. The credit would complement the federal SR&ED program, and could be directed towards firms of all sizes working on innovative products, rather than just smaller companies (as directed by SR&ED). Many of the people spoken to for this report had a similar view – the lack of a provincial research and development tax credit is hurting innovation and commercialization capabilities in Alberta.

Beyond the establishment of a provincial research tax credit or the introduction of a flow through share tax model across other industries, a continual refrain from both investors and business owners, was that federal corporate taxes need to be reduced. Everyone insists that by reducing corporate taxes, Canada and its cities and provinces will become more competitive, more attractive to foreign investments, and will ensure continued economic growth. A reduction on capital gains taxes is also frequently mentioned as a step to creating a more favourable climate for investment and innovation.

PUBLIC POLICY CHALLENGES

It is often said that Alberta's capital market is not large enough or efficient enough to respond to the demands of the new knowledge-based economy. In addition, there does not appear to be much confidence among investors and entrepreneurs that the market will continue to develop without some sort of government intervention. The reasoning goes that those jurisdictions which have a more developed venture capital industry, aided along by their governments, will attract more financing, produce the most deal flow, and as a result will account for most of the deal activity. As these funds are committed elsewhere, opportunities in Alberta will receive less interest.

It should be noted though that any of these public policies must refrain from interfering in private markets to such an extent that distortions are created or that economic resources are used in an inefficient manner. While the correction of market failures, such as a less than optimal return on research investments, or the continued inability of quality projects to obtain financing at a reasonable risk-adjusted cost, constitute an accepted focus of public policy, it must first be established that such a failure exists, something that has not necessarily been proven. As noted by Industry Canada, there is currently little research completed which would establish the "real" demand for venture capital in Canada.⁸⁰

Echoing the statements made by the Industry Canada report, the OECD also takes a cautious approach to perceived gaps in Canadian capital markets. According to a June 2006 policy brief by the OECD, there is no evidence that Canadian venture capital flows are hindering financing for innovation. The report states that the tax advantage given to LSVCCs should be removed as they have lowered the average quality of deals and have crowded out other venture capital deals. It is the opinion of the OECD that giving the advantage to certain types of funds hampers the venture capital market's ability to play an effective role in innovation. The report also states that there is little evidence that access to finance is a binding constraint on innovation in Canada and that no clear policy gap needs to be addressed.⁸¹ Thus, moving beyond direct policy intervention, there are a variety of investment models that can also be utilized to encourage more capital investment.





8.3) New Investment Models

To improve access to capital issues in Calgary, there is a need to look at new investment models. The success of the American venture capital industry could provide some clues and the programs in place in Toronto or New Zealand also offer lessons on how to successfully boost investment and increase cooperation among business owners and fund managers.

INSTITUTIONAL FUNDS

A 2004 study entitled “Finding the Key: Canadian Institutional Investors and Private Equity” found that in comparison to the United States, Canada lags far behind in institutional investments. South of the border, 80% of private equity funds are based on institutionally supplied limited partnerships, whereas such funds only account for 25% of the Canadian industry.⁸² And, except for public sector pension funds, investments by other institutional organizations (i.e. endowment funds or corporate pension funds) are basically non-existent in Canada.

As part of its year-end review of investment activity, Thomson Financial surveys senior Canadian professional managers in an effort to identify emerging trends and obstacles within the private equity market. In 2005, for the third year in a row, survey respondents indicated that the most important obstacle to the growth of the private equity market in Canada was the limited participation of pension funds, endowments and foundations, insurance companies and other institutional investors.⁸³

VENTURE CAPITAL

Another resource provided by the US is that country's model of venture capital investing – while the US market is more mature and has more available capital, generally speaking fewer deals are made. Rather, more money is given to fewer firms. The success of this model shows that maybe Canadian investments could be more focused. People interviewed for this report mentioned that not enough is being done with the small amounts of money being invested. In 2004, Canada ranked 5th in VC disbursements by nation, with \$1.8 billion. The United States led all nations with \$35.8 billion.⁸⁴ If fewer companies get more money and are successful, the revenue and publicity they generate, along with the managerial experience that results could provide a positive impact on the market.

GOVERNMENT PARTICIPATION IN VENTURE CAPITAL FUNDS

As previously mentioned, publicly sponsored funds are the largest venture capital investor in category in Canada. The provinces which have made the most use of them (Ontario and Quebec) have the greatest amount of venture capital activity in Canada. One of the outcomes of these programs is that Montreal, Ottawa, and Toronto all have thriving private equity markets, with strong venture capital activity and established angel networks. But as shown by various provincial studies, and confirmed by those surveyed for this report, Alberta does not have true venture capital community, and many of those interviewed for this report are of the belief that without some kind of incentive, there is no way of attracting VCs. This in turn, affects the sophistication and maturity of emerging firms across all sectors of Calgary's economy.

That said, government participation in the market is a controversial issue. Most of the individuals consulted for this report did not necessarily support a direct government role in a venture capital fund. Much of the criticism directed at government venture funds is based on the performance of the labour sponsored models that exist outside Alberta. Investors and entrepreneurs alike did not see much value in establishing a fund similar to the LSVCC model from other Canadian provinces, for the following reasons:

- While they do provide a forum by which regular Canadians can make a managed investment, LSVCCs don't necessarily have the best returns. As part of their mandate, LSVCCs require that their capital be invested over a certain period, with the result that companies are being financed at higher valuation, producing lower returns.⁸⁵
- The sheer size of the funds also has some in the private sector saying that this large pool of capital may act as an overhang in the VC market and potentially limit the growth of new VC funds.⁸⁶
- In addition, LSVCCs have faced criticism as there is a perception that they crowd out private investments because this type of investment can obtain lower-cost capital. According to an OECD report, the presence of LSVCCs has lowered the average quality of deals and crowded out other venture capital funds.⁸⁷

A recent New Zealand study on venture capital identified the LSVCC model as an illustration of the counter-productive effects of poorly designed policies.⁸⁸ According to the authors, the tax incentives provided by LSVCCs led to an influx of inexperienced investors, crowded out private sector investment, wasted resources and led to the flight of many experienced investors, including valuable US pension funds. The problems associated with LSVCCs are not unique amongst government-run programs aimed at increasing venture funds.

As previously mentioned, the Labour Sponsored Investment Model (LSIF, LSVCC or Retail Venture Capital) model has come under scrutiny, mainly because some funds have failed to perform as they were supposed to. Defenders of the model point out that the legislation enabling these types of investment is a broad one that captures many forms of retail venture capital, and while not all funds have performed to their capacity, others have provided much-needed capital across a variety of industries.⁸⁹ The failures should remind investors and advisors of the need for due diligence, and rather than avoid retail funds in the future or call for them to be dismantled, investors, policy-makers and those companies that benefit from them should look to the lessons provided by the disappointments, learn where mistakes were made and craft policies that will encourage the creation of high-performance funds.

The second main criticism leveled at the LSVCCs is that they have “crowded out” other forms of venture capital. Advocates of the retail venture capital model insist however that the rules which limit the maximum amount an individual can invest mean that retail investors work in concert with other established venture capitalists, not in competition with them. In Ontario, Quebec and BC for example, the investment tax incentives provided by the labour sponsored model provide have created a new and larger supply of venture capital, both on the retail and institutional side.

The labour sponsored model seems to provide a new supply of funds for companies looking for support for both growth and risk capital. While the model is not without its risks, if the legislation is crafted properly, taking into account the mistakes that have been made previously, and if the funds are managed professionally with set targets for size, efficiency and performance, the introduction of retail venture capital could have a positive and major impact on Alberta’s private equity market, and in turn, on the innovative capacity of firms operating in the province.



By not implementing legislation allowing for the creation of a retail venture capital pool, Alberta has not enabled one of the tools that allows the private equity market to thrive. The impact of having no true private equity community in Calgary is two-fold; first young firms have limited access to financing opportunities that could enable faster growth; and secondly there are fewer opportunities for mentorship and business training. Without these two key activities, Calgary firms are at a competitive disadvantage with firms based outside Alberta from the early stages of their growth.

Another policy implement that has surfaced repeatedly is a fund-of-funds model. This form of investment could be beneficial in increasing access to capital. Fund-of-funds have the ability to pool assets and have access to in-house expertise which allows for the selection of funds with strong track records. This takes management out of the investors' hands, circumventing the problem of lack of management skills in the VC industry that has been noted by many.



The fund-of-funds model is also attractive for government as investment decisions are made by private fund managers, which allows government officials to put a distance between themselves and any commercial decision making, ensuring that investments are made solely on market conditions and not through government bias. For a fund-of-funds to be successful, strict performance measures and clear objectives need to be outlined from the outset. For example, the fund should be limited to a certain stage of investment (i.e. seed-stage capital) so as not to interfere with private equity firms already operating successfully in other investment stages. Additionally, there would be a need to mimic the risk that is inherent in private equity fund investment which should then encourage more successful investment. Generally, fund-of-funds allow for more due diligence, performance requirements, better certification and better guarantees than other investment models (i.e. the LSVCCs that exist in other Canadian provinces).

In 2003, a fund-of-funds model was recommended by the Alberta Access to Capital Task Force.⁹⁰ The task force recommended that the government invest up to \$250 million from the Alberta Heritage Savings Trust Fund (AHSTF) in venture capital activity, in the form of a fund called the Alberta Venture Investment Fund (AVIF). Venture capital dollars from the fund would be released on a matched, one-to-one basis, by private dollars placed in venture capital pools. Rather than make direct equity investments, the Task Force recommended that the financial assets of the fund be used proactively to support the formation of local venture capital pools in the private sector.⁹¹

Through various models, (i.e. labour sponsored investment funds, fund-of-funds, or a flow-through tax structure) the government is making an investment either through deferred tax revenue or in relying on direct investment from retail or institutional investors. The problem inherent in government intervention, which was the experience in particular of the LSVCC experiment in Ontario, was that there ended up being a surplus of money in localized areas too quickly, with investment deadlines impairing deal quality and forcing valuations. The main lesson learned from this model is that before a government intervenes in the private equity market, the vehicle it uses should rely on careful stewardship based on commercial acumen rather than public policy needs.

8.4) Opportunities for Calgary Investors and Entrepreneurs

Looking back at the opinions expressed in Section VI by those interviewed for this report, one can see that that despite the gaps that exist in the capital market and the difficulties in connecting the two sides of the investment coin, there are still many opportunities for both investors and entrepreneurs in Calgary.

People interviewed for this report saw the continued growth of Calgary's energy sector as a double edged sword. While it provides for great wealth and opportunity, its success also means that it garners most of the attention. At the same time, people involved in non-oil and gas ventures do not begrudge the success of the energy sector. They understand that the capital being generated today is the result of work that began in earlier generations. The profitability of the oil sands for example, is based on work that began over forty years ago.

What they do acknowledge is that non-energy firms looking for capital should be able to better take advantage of the strong knowledge base, access to expertise, and global contacts that have been made in the oil and gas sector. In particular, emerging technologies should try to learn from the oil and gas industry, and utilize the successful financing and commercialization mechanisms that enabled this sector's success. Non-energy companies looking for financing are aware that they should be trying to use this success to their advantage, they are just not sure how. This speaks to a need for better collaboration and improved networking capabilities across Calgary's sectors.

In talking to numerous people for this report, one thing that became clear is that Calgary needs to build on its current strengths. The innovative capacity built by the city's oil and gas sector is transferable into other emerging sectors and the opportunity exists for Calgary companies to become world-class leaders in these fields. In particular, interviewees mentioned alternative energy, geomatics and aerospace as being the sectors where Calgary has the ability to lead the way.

Calgary's resource-based companies are responding to the world's growing demand for affordable, renewable and environmentally friendly energy. Industry is engaging in research and development to find innovative ways to use abundant and renewable resources to lessen their environmental impact. In the geomatics sector, Calgary companies are leading the way in GPS technology which has uses across a variety of sectors, including agriculture and oil and gas. Finally, the recent announcement by the Calgary Airport Authority that it is establishing the Canadian Centre for Aerospace Development, which will include both a centre for aircraft certification as well as a test centre for unmanned vehicle systems, will greatly expand knowledge, expertise and opportunity in Calgary's aerospace sector. The opportunities that exist in these emerging sectors will require an influx of capital to continue to grow and local companies will need to find ways to engage financial firms which have not traditionally invested in their sectors.

A result of the success of the energy sector is that most major Canadian financial institutions and lenders have a presence in Calgary, along with a growing list of international financial groups. The opportunity exists to encourage these institutions to move beyond serving just the oil and gas, and diversify across all of Calgary's major industries. People interviewed for this study felt that there is no reason why financial firms serving the oil and gas sector couldn't broaden their presence to address the capital needs of all sectors of the economy. The energy sector is one of the most capital intensive sectors of any economy and as a result all major Canadian financial institutions, and a growing number of global organizations have offices in Calgary. What is needed is way to take the successful model from the oil and gas industry (on both the investment and business-owner sides) and apply it in other industries.

Beyond this local opportunity, the oil and gas sector also presents a global opportunity. Thanks to the international reach of the oil and gas sector, Calgary now has a presence on the world stage, and other sectors have an opportunity reach out to more foreign investment. The activity of the energy sector could be used as a magnet to attract more investments across all of Calgary's sectors.

Just as oil and gas companies have an international reach, Calgary companies working in other sectors should have a similar global view and look for global capital sources. Companies should recognize that they are no longer competing locally and so do not need to only seek advice and financing from local sources. In the same way that oil and gas companies in other jurisdictions look to established Calgary companies for guidance, local firms across all sectors need to identify which regions in North America have the expertise and possibly the financial wherewithal to provide support.

A common reflection from those interviewed for this report was that the domination of the oil and gas sector makes Calgary's economy unique among other Canadian cities. By focusing on financing in this particular sector, other sectors of the economy are underserved. As a result, there is a feeling that Calgary's private equity market is not as mature as that of other cities within Canada, most notably Toronto, Montreal or Ottawa. That said there is nothing impeding the city from catching up with these industry leaders. All of the studies examining access to capital in Alberta recognize that a strong capital market requires the following⁹²:

- government support for research, development and commercialization;
- strong private sector investment in research, development and commercialization;
- a skilled, productive and innovative workforce;
- high quality post-secondary graduates;
- entrepreneurs with quality ideas for knowledge based industries;
- a strong local economy with a global focus;
- active angel investors;
- venture capital activity; and
- a strong financial services sector.

Calgary has all these requirements to a varying degree. While some (i.e. innovative workforce and high quality graduates) are more developed than others (i.e. venture capital activity), the basis for a strong capital market exists. Participation from all levels of government and industry, coupled with Calgary's history of innovation and creativity, its risk-taking and entrepreneurial population, its potential pool of educated and wealthy investors, and record of successful industry development, should allow for greater access to capital. As Calgary's economy continues to grow, the city should attract more capital, more experienced investment managers and entrepreneurs, and create more investment opportunities.



8.5) Education and Awareness

If both the OECD and a federal report say that there is no clear evidence that Canada's capital market system is underdeveloped and affecting innovation, and that government intervention is not necessarily the panacea that some think it is, what then should be done? As mentioned at the beginning of this report, the two biggest criticisms made by those canvassed for this report were that there is not enough publicity surrounding the financial activity of deals outside the energy sector, and that there is a lack of education on both sides of the deal about what is to be expected and what kind of possibilities exist in Calgary. On the investment side, there is a lack of awareness about the types of deals that are available, and on the business side, there is a lack of awareness of what is needed to attract money and how to find that money.

One point raised by some of the interviewees is that the programs aimed at teaching future business owners how to become true entrepreneurs and how to raise capital are too focused on how to "pitch" a deal. While knowing how to speak the same language as a financier and understanding what they are looking for when they seek investment opportunities is important, even more important is understanding that before the idea can be pitched, it needs to be fully developed. More time and effort needs to go into developing programming on how to build a company, design a product, build customer support capability, develop on Intellectual Property (IP) strategy, etc. Focusing on the development of the business idea will go further in the creation of better business managers and marketers, something that many say is lacking in Calgary. This in turn will allow companies to have a better chance at attracting capital.

As previously mentioned, on the investment side there is a lack of understanding about investment opportunities outside oil and gas. This is not only the result of the dominance of this industry, but also the result of a less mature venture capital industry. One of the results of the LSVCC programs in Ontario and Quebec is that there are now hundreds of professionals in those jurisdictions who are properly educated in how to invest money. Thus, whether it be through the introduction of a fund-of-fund model, or through more targeted programs at the business schools, more time needs to be spent teaching people how to invest in this asset class.

This type of programming gap is not one that can be filled with an influx of cash or a change in the way that money is invested; rather it is a non-financial gap that hampers deal flow. It is under this umbrella that CED could add the most value. Specific strategies for bridging this education gap are listed in the next section.

PART IX – STRATEGIES FOR DISCUSSION

After examining the issues of private equity, research, commercialization, public policy interventions, and programs aimed at connecting entrepreneurs and investors, it is evident that there is no one explanation for Alberta's competitive weakness when it comes to accessing capital. In order to fully address issues relating to access to capital, there is a need to move away from focusing simply on a perceived financing gap, and look towards addressing the other gaps within the innovation ecosystem that exacerbate the financing issues. The following elements combine to form a platform that enables diversification and work together to ensure a well-functioning environment enabling company growth:

PEOPLE AND PARTNERS

- Investors, entrepreneurs and policy makers are generally not on the same page when it comes to funding and financing priorities. All three groups bring a particular expertise and experience to be considered. There is a need for continued collaboration on both sides of the deal and with the government, to ensure that all priorities are considered when determining policy and programs aimed at ensuring a well-functioning and accessible capital market for all sectors of the economy. Additionally, more work needs to be done to encourage cross-sectoral partnerships.

EDUCATION AND AWARENESS

- The current gaps occur when the sources of supply (investors) are unaware of the activity occurring on the demand side (entrepreneurs); when there is a lack of information and expertise which prevents investors from sufficiently assessing the risks and benefits; and when there is a lack of information and communication regarding the types of programs available to start-up companies. More effort needs to be put into increasing awareness and mentorship efforts to connect emerging companies with successful investors, especially in non-oil and gas sectors.

POLICY INITIATIVES

- Policy issues that affect capital market development include the gaps in research and commercialization funding and legislation encouraging more private equity investment in Calgary. The Alberta government has refrained from interfering with the private marketplace, but as a result the province is lagging behind in both research and traditional venture capital financing. There is a need to enact policies that will enable the tools to stimulate investment across all stages of development and in all sectors of Calgary's economy.

In the end, investors, entrepreneurs and policy makers are all working towards the same outcome – enabling quality deals to be made to further the ability of companies to have sufficient capital to make the decisions and investments that will make them successful and therefore spur economic growth. What follows are some strategies and best practices to fill the existing gaps and help facilitate a well functioning capital market ecosystem.

PEOPLE AND PARTNERS

1) Collaboration

As discussed throughout the report, the issue of accessing capital is one that has been studied at length by a variety of agencies. As a result, there is a sense that despite all this work, no real progress has been made. Some have said that this is because previous work has started with government, rather than with industry. In particular, the comment was made that there needs to be more private sector involvement and leadership. Especially in Calgary, experience has shown that when the private sector is engaged, issues tend to get resolved. This issue of stakeholder engagement has to be considered when examining access to capital issues. There is a need for continued collaboration on both sides of the deal and with the government, to ensure that all priorities are considered when determining policy and programs aimed at ensuring a well-functioning and accessible capital market for all sectors of the economy.

2) Forums and Networks

Another collaborative opportunity would be to leverage a new network with an already successful enterprise. Calgary has several successful forums, but the majority of them focus on one sector only (i.e. high tech or energy). To support and leverage what already exists, there is a need to facilitate more networking events throughout the year, albeit on a smaller scale, to assist in the sharing of experiences, topical ideas and best practices.

To make this a truly value added experience, as opposed to a re-tread of already established networks, it would be important to ensure that participants truly represent all of Calgary's main industries. It is not enough for technology entrepreneurs to be meeting with technology financiers. Instead, investors involved in every sector of Calgary's economy should be meeting with business start-ups in varied industries like technology, life sciences, manufacturing, real estate, oil and gas, and so forth. Financiers are not informed enough about cross-sectoral opportunities. There is a lack of engagement and awareness about potential business ventures outside the energy and real estate sectors. In the more established sectors, retail investors, the angel community and fund manager all work well together and have created an investment model that is world-class. Currently there is no way to transfer that model to other sectors of the economy, but if this can occur, and the success of the energy investment model is better leveraged, those interviewed felt that Calgary's financial community would be able to support increased investment across all sectors. There is a need to encourage the participation of Calgary's more established sectors (energy and real estate) in forums and networks to lend their business expertise and investment experience to help the maturation of the other, less developed sectors.



EDUCATION AND AWARENESS

3) Development and Mentorship

As previously mentioned, one of the biggest concerns for Calgary investors is the lack of management ability in sectors other than oil and gas. In their view, young firms lack a sufficient business strategy and seasoned management to lead them. They feel that there is a continued need to educate entrepreneurs on how to truly create a viable business venture and properly manage their business and how to create an investment ready business.

Despite the programs and organizations already in place, there is still a large gap between the developed state of start-up companies and what entrepreneurs expect; and what investors are seeking or are willing to invest. Thus public sector agencies, post-secondary institutions and private industry need to work more collaboratively to improve management skills and educate entrepreneurs on what investors are looking for. There is a need for increased collaboration between government agencies, post-secondary institutions and private industry to improve education, development, coaching and mentorship of entrepreneurs about building and managing a successful company.

4) Identification of Financing Requirements

Nobody has truly dissected Calgary's investment and entrepreneurial community to identify the specific type of companies that need financing or looked beyond local experience to identify possible foreign jurisdictions which could provide the right type of financing to match their needs. While it has already been mentioned that there is a need to better engage the energy sector with the local venture capital community across all sectors, this is not the only solution. There should also be more publicity about the successes of Calgary's financial and entrepreneurial communities. There is a need to bridge the gap between what is happening in Calgary and the possibility that investment communities in foreign jurisdictions with specific sector experience could be engaged to fill the local financing gap. This strategy focuses on a better identification of the financing requirements of local firms in an effort to diagnose the needs of Calgary companies and possible global jurisdictions that could fill the gap. Once again, there is no clear model for how this can be done, but the concept of diagnosing and quantifying this type of information is one which needs to be examined further.

5) Awareness and Promotion

In keeping with the need for a true diagnosis of Calgary's capital needs, there is currently no system that captures and qualifies the deal flow in Calgary and Alberta. No one is keeping track of large amounts of money being raised (beyond traditional venture capital), of commercialization practices, or successful exits. There is a need for a structured way of sharing information amongst entrepreneurs, investors and interested agencies. The lack of awareness around the sophistication of Calgary's capital market is concerning.

A result of this lack of awareness about the investment community is a lack of promotion about firms which have become successful thanks to private equity investment. Beyond the successes of energy sector firms and the occasional technology firm, there is little publicity surrounding the activities of start-up companies in other sectors. Everyone spoken to for this report made the point that great things are going on across all sectors of Calgary's economy – the people doing the innovative activity and the people who support it financially are having great success, yet people not involved in this deal flow are totally unaware that it is occurring. Part of building awareness about the sophistication of Alberta's capital market would be to showcase Calgary firms who have been successful in creating ground-breaking products and services through research and commercialization funding, venture and angel financing and working within Calgary's existing innovation infrastructure. Currently plenty of time and effort is being spent assessing the barriers to investment, but no one is working as an advocate. A communications program showcasing Alberta's capital markets and innovation network could do much to promote and encourage more investment activity.



POLICY INITIATIVES

6) New Tax Models

Similar to the recommendation put forward by the Access to Capital Task force in 2003, many of the people interviewed for this report were interested in a further examination of whether a fund-of-funds model would be viable in the province and how it could help grow Alberta's venture capital industry. The theory behind such a fund is that a joint public/private venture capital investment fund would enable a stronger and more sophisticated provincial venture capital industry, and would help businesses attract more financing. It would be necessary though that the fund be administered by a board of directors, operate at arms-length from the government, be dictated by market forces, and have as one of its goals to leverage private investment. Additionally, further study would be required before implementation to ensure that a such a fund wouldn't interfere or distort private investment.

Another possible strategy for improving capital accessibility is the introduction of a new tax model. Many of the people interviewed mentioned that the tax policies supporting the resource industry should be applied to other industries in the province. Those surveyed for this report pointed out that the flow-through shares that are utilized in the resource industry have given the mining and oil and gas sectors an advantage over other sectors. This type of tax structure was initially introduced to encourage investment in the resource sector over 50 years ago. Currently, the resource sector is thriving and doesn't necessarily require this kind of tax incentive, thus why not explore the idea that a similar tax structure be applied to other industries like manufacturing or communication technologies. Calgary investors in particular are very familiar with this type of tax deferral process and one would assume that they would be willing to utilize the flow through share tax structure across all industries. Thus, there is a need to explore whether the flow-through share tax model would be viable in industries other than mining and oil and gas.

While the labour-sponsored venture capital model has been the subject of much criticism, legislation allowing this type of investment has substantially increased the pool of available venture capital. Provinces like Ontario and Quebec, which have enabled legislation encouraging the participation of retail investors, have a much more mature private equity market. As a result, more deals are getting done, more entrepreneurs are gaining valuable experience managing viable companies, more innovative companies are being developed, and more fund managers are learning how to navigate the competitive private equity market. Recognizing that mistakes have been made in these types of funds in the past and that there are valuable lessons to be learned from other jurisdiction's experiences, there should be further exploration as to whether the retail venture capital model could work in Alberta.



7) Research, Development and Commercialization

Options to be considered around research, development and commercialization are two-fold. The first strategy would be to consider the introduction of a provincial research and development tax credit. The majority of people interviewed for this report are of the belief that a provincial research and development tax credit would enhance Alberta's competitive position by attracting and maintaining commercially directed research. A publicly-run tax credit program could also be used as leverage for add-on private investment.

Secondly, more thought needs to be given to strengthening Alberta's commercialization capabilities. Thanks to both the federal and provincial government's innovation strategies, research spending has increased, but commercialization has not kept pace. The financing gap is not the only issue; the commercialization gap is of equal importance. Commercial success from knowledge learned in universities and research institutions is as necessary as the financing that gets the commercial product to market. It seems that once a product or service reaches the commercial phase, the government views it as part of private enterprise, and takes away all funding mechanisms. But if an innovative product or process is to be commercially viable, the funding support still needs to be in place. The best way for this to occur is still not clear, but many of the people interviewed for this report think that a specific amount of research funding should be re-directed towards increasing commercialization capabilities.

In summary, the specific strategies are:

1. Increased collaboration on both sides of the deal and with the government, to ensure that all priorities are considered when determining policy and programs aimed at ensuring a well-functioning and accessible capital market for all sectors of the economy.
2. The establishment of a new type of investment network that engages experienced managers from Calgary’s more established sectors to lend their business expertise and investment experience to help the maturation of the other, less developed sectors.
3. Increased collaboration between government agencies, post-secondary institutions and private industry to improve education, development, coaching and mentorship of entrepreneurs about building and managing a successful company.
4. Better identification of the financing requirements of local firms in an effort to diagnose the needs of Calgary companies and identify possible global jurisdictions that could fill the gap.
5. A vehicle to capture investment activity in Calgary and a communications program showcasing the innovative activity and success of the local capital market.
6. The examination of a variety of tax policy initiatives to increase the pool of capital in the Province.
7. The implementation of a Provincial R&D tax credit and an exploration of how a specific amount of research funding could be re-directed towards commercialization.

Calgary Economic Development is well positioned to play a key role in advancing the strategies listed above. By either partnering with other agencies interested in access to capital issues, or by communicating with the province on issues of innovation, growth and diversification, CED can build on the conclusions of this paper to ensure the creation of a successful financing environment that supports company growth.

Strategy	Potential role for CED
People and Partners	Partner with other agencies and organizations (both public and private) to work towards increasing the amount and type of resources available to increase cooperation between sectors. Potential collaborators include the Banff Venture Forum, ACG, CTI, WD, U of C and VCAA.
Education and Awareness	Advocate for more programs aimed at educating entrepreneurs about management and promote awareness of investment opportunities across all sectors of Calgary’s economy.
Policy Initiatives	Act as an advocate by encouraging the new Provincial government to explore the viability of a new tax model to encourage more investment in both venture capital and research, development and commercialization.

PART X – CONCLUSION

Well functioning capital markets are vital to the health and efficiency of Calgary's economy and play a major role in its global competitiveness and prosperity. But it is important to acknowledge that they do not exist in a vacuum – programs aimed at stimulating research and development, venture capital investment and any related business development, need to be coordinated. In addition, any direct intervention by the government or other public agencies needs to be framed so that it responds to what the market requires and acts as a catalyst for private investors. An excess amount of capital could flood the market and affect deal quality.

One of the aims of this report was to look beyond the common perception that there is not enough venture capital in Calgary. It also had as a goal to look beyond the criticism that there aren't enough good deals worth investing in. Instead, it is necessary to acknowledge both sides and look for some middle ground in an effort to come up with some models for change.

In talking to people involved in private equity in the city, it has become apparent that there is little true venture capital activity in Calgary, and that despite this, good deals are getting done. Financing comes from a variety of sources – friends and family, angels, VCs, government programs, etc – and this system is enabling viable deals to be made.

Instead of focusing solely on increasing the amount of venture capital activity in Calgary, entrepreneurs, investors and policy makers alike should be encouraged to think about more than just an influx of cash. Access to capital issues should be looked at within a broader context that includes: venture capital and angel financing; research and development funding; commercialization capabilities; government initiatives to leverage private investment; mentoring networks; and communication programs to promote knowledge about successful companies and financings. All of the above form an environment that supports diverse and innovative company growth.

- ¹ National Angel Organization, www.angelinvestor.ca
- ² Thomson Financial, www.canadavc.com
- ³ Baygan, Günseli, "Venture Capital Policy Review: Canada" STI Working Paper, OECD (2003)
- ⁴ Prowse, Stephen D, "The Economics of the Private Equity Market," The Federal Reserve Bank of Dallas, Economic Review (Third Quarter 1998)
- ⁵ National Angel Organization, "Solving the Pre-commercialization Gap in Canada" Submitted to Industry Canada's Expert Panel on Commercialization (August 2005)
- ⁶ Industry Canada, "People and Excellence: The Heart of Successful Commercialization," Volume 1: Final Report of the Expert Panel on Commercialization (April 2006)
- ⁷ Milken Institute, "2006 Capital Access Index – Best Markets for Business Finance," December 2006
- ⁸ Boissonneault, Gordon, "The Relationship Between Financial Markets and Economic Growth: Implications for Canada" Research Study Prepared for the Wise Persons Committee on Canadian Securities (October 2003)
- ⁹ Canadian Venture Capital Association, 2005 Overview
- ¹⁰ Thomson Financial, www.canadavc.com
- ¹¹ Thomson Financial, Canadian Venture Forum Presentation (May 2006)
- ¹² Thomson Financial, Canadian Venture Forum Presentation (May 2006)
- ¹³ CVCA, 2005 Overview
- ¹⁴ FP500 Database, (2005). INVIDI Technology Corporation from Edmonton was ranked #10.
- ¹⁵ CVCA, 2005 Overview
- ¹⁶ Cumming, Douglas and Jeffrey J. MacIntosh, "Crowding Out Private Equity: Canadian Evidence" (August 2002); Ayayi, Ayi, "Good News, Bad News: Ten Years' Lessons from the Canadian Labour-Sponsored Venture Capital Corporations" (November 2002); Lerner, Josh, David Moore & Stuart Shepherd, "A study of New Zealand's venture capital market and implications for public policy" (September 2005); and Ontario Ministry of Finance (<http://www.fin.gov.on.ca>)
- ¹⁷ Access to Capital Task Force, "Capturing the Power of Innovation: Improving access to capital in Alberta" (March 2003)
- ¹⁸ Ministry of Economic Development, Ontario Business Report (November 2002)
- ¹⁹ National Angel Organization, "The Primer for Angel Investment in Canada" (2004), and Profit Magazine, "2006 Financing Guide: Get Cash Now" (March 2006)
- ²⁰ Carpentier, Cecile, Maher Kooli, Jean-Marc Suret, CIRANO and Université Laval, "Initial Public Offerings: Status, Flaws and Dysfunctions," Prepared for Industry Canada (April 2003)
- ²¹ Lang Mitchener LLP "Going Public in Canada". Updated January 2006.
- ²² Presentation to Calgary Economic Development by Linda Hohol, President, TSX Venture Exchange "TSX Venture Exchange's Successful Market Model" (January 2006)
- ²³ Ernst & Young, Alberta Technology Report (2006)
- ²⁴ Ernst & Young, Alberta Technology Report (2006)

- ²⁵ Selected documents include: Alberta Economic Development & Tourism, “Labour-Sponsored Venture Capital in Alberta – An Assessment of Opportunities” (April 1996); AED, “Access to Equity Capital Issues: Equity Capital and the Commercialization of Early Stage Technology in Alberta” (April 2002); ITAC, “Silicon Valley North: The Formation of the Ottawa Innovation Cluster” (October 2002); Traroe, Namtie, “Access to Financing Capital by Canadian Innovative Biotechnology Firms,” Statistics Canada (April 2005); Industry Canada, “Canadian Venture Capital Activity: An Analysis of Trends and Gaps, 1996-2002” (2004)
- ²⁶ Ernst & Young, Alberta Technology Report (2006)
- ²⁷ Canadian Federation of Independent Business (CFIB), “Building Business Success: A Survey of SMEs on Productivity” (April 2007)
- ²⁸ CFIB (April 2007)
- ²⁹ Conference Board of Canada, 7th Annual Innovation Report, “Lessons in Public-Private Research Collaboration: Improving Interactions Between Individuals” (June 2006)
- ³⁰ Numerous research studies have shown how innovative activity contributes to economic activity. See Josh Lerner and Samuel Kortum, “Assessing the Contribution of Venture Capital to Innovation (2000); Thomson Financial, “Growing the businesses of Tomorrow: Challenges and Prospects of Early Stage Venture Capital Investment in Canada (2005); and Josh Lerner, David Moore & Stuart Shepherd, “A study of New Zealand’s venture capital market and implications for public policy” (September 2005)
- ³¹ www.innovationstrategy.gc.ca
- ³² Government of Alberta News Release, “Budget 2007 addresses Alberta’s price of prosperity,” April 19, 2007.
- ³³ Government of Alberta News Release, “Regional innovation support to help spur the growth of Alberta’s knowledge-based sector,” April 17, 2007.
- ³⁴ National Angel Organization, “Solving the Pre-Commercialization Gap,” Submitted to Industry Canada’s Expert Panel on Commercialization (August 2005)
- ³⁵ www.innovation.ca
- ³⁶ www.albertaingenuity.ca
- ³⁷ www.ahfmr.ab.ca
- ³⁸ Conference Board of Canada, “Exploring Canada’s Innovation Character: Benchmarking Against Global Best” (June 2004)
- ³⁹ Conference Board of Canada, “Leaders Roundtable on Commercialization” (April 2006)
- ⁴⁰ Department of Finance, “A Plan for Growth and Prosperity” (November 2005)
- ⁴¹ Alberta Economic Development, “Benchmarking Alberta in the Knowledge-Based Economy” (December 2005)
- ⁴² Research Infosource, “Canada’s Corporate Innovation Leaders,” (2006)
- ⁴³ European Commission, “Monitoring Industrial Research: The Annual Digest of Industrial R&D,” (2006)
- ⁴⁴ OECD, “Economic Survey of Canada” (June 2006)
- ⁴⁵ ITAC-OCRI, “Improving Productivity Through Changes to the Federal SR&ED Tax Program” (June 2006)
- ⁴⁶ Conference Board of Canada, “Leaders’ Roundtable on Commercialization” (April 2005)
- ⁴⁷ Industry Canada, “People and Excellence: The Heart of Successful Commercialization, Volume 1: Final Report of the Expert Panel on Commercialization” (April 2006)
- ⁴⁸ Ernst & Young, Alberta Technology Report (2006)
- ⁴⁹ University Technologies Inc., Annual Report (2005)

⁵⁰ Statistics Canada, 2004

⁵¹ Statistics Canada, 2004

⁵² Thomson Financial, "Growing the businesses of tomorrow" (2005)

⁵³ 2005 Alberta Wage and Salary Survey, <http://www.alis.gov.ab.ca/wageinfo>

⁵⁴ Carpentier, Cecile Jean-Marc Suret "The Indirect Costs of Venture Capital in Canada", Cirano, (June 2005)

⁵⁵ Milken Institute, Capital Access Index (2005) www.milkeninstitute.org

⁵⁶ http://www.tsx.com/en/about_tsx/corporate_information/index.html

⁵⁷ Commission of the European Communities "Implementing the Community Lisbon Programme: Communication from the Commission to the Council, the European Parliament, the European Economic & Social Committee and the Committee of the Regions" (2005); Enterprise Ireland "A Guide to Achieving Growth in World Markets"; Günseli Baygan, OECD, "Venture Capital Policy Review: Sweden", STI Working Paper 2003/11 Industry Issues; Günseli Baygan, OECD, "Venture Capital Policy Review: Norway", STI Working Paper 2003/17 Industry Issues; Josh Lerner, David Moore & Stuart Shepherd, "A study of New Zealand's venture capital market and implications for public policy" (2005)

⁵⁸ <http://www.entemp.ie/science/technology/sciencestrategy.htm>

⁵⁹ http://www.edb.gov.sg/edb/sg/en_uk/index.html

⁶⁰ Baygun, Günseli, "Venture Capital Policy Review: Israel STI Working Paper 2003/3" Prepared for the OECD

⁶¹ www.nzvif.com

⁶² Lerner et al, "A study of New Zealand's venture capital market and implications for public policy" (September 2005)

⁶³ www.houston.org

⁶⁴ www.houston.org It should be noted that these emerging technologies are very focused on energy related innovations.

⁶⁵ www.governor.state.tx.us

⁶⁶ <http://www.ocri.ca/about/publications.asp>

⁶⁷ Communitech and Price Waterhouse Coopers, "Making Magic in Waterloo Region: A Report on the Exceptional Investment and Entrepreneurial Potential of Canada's Hottest High-Tech Location" (September 2005)

⁶⁸ www.marsdd.com

⁶⁹ www.trra.ca

⁷⁰ Ontario Ministry of Research and Innovation, Backgrounder "Ideas to Market Strategy and The Market Readiness Program," (July 2006) and the National Angel Organization, Press Release "NAO Backs Ontario Angel Funding Program" (October 2006)

⁷¹ Alberta Economic Development & Tourism, "Labour-Sponsored Venture Capital in Alberta – An Assessment of Opportunities" (April 1996); AED, "Access to Equity Capital Issues: Equity Capital and the Commercialization of Early Stage Technology in Alberta" (April 2002); Access to Capital Task Force, "Capturing the Power of Innovation: Improving access to capital in Alberta" (March 2003)

⁷² Ontario Ministry of Research and Innovation, Backgrounder "Ideas to Market Strategy and The Market Readiness Program," (July 2006)

⁷³ Ralph Klein "The Next Alberta" (January 12, 2005) and "Young Professionals and Entrepreneurs Conference" (January 19, 2005)

⁷⁴ Alberta Advanced Education and Technology News Release, March 26, 2007.

⁷⁵ www.middlefield.com

⁷⁶ www.angelinvestor.ca

⁷⁷ Brander, James, Edward J. Egan and Anthony E. Boardman, "The Equity Capital Program in British Columbia: An assessment of capital availability, program efficiency, and policy alternatives" (April 2005)

⁷⁸ Alberta Tax Review Committee – Phase 1 (May 1998)

⁷⁹ Alberta Tax Review Committee – Phase 1 (May 1998)

⁸⁰ Industry Canada, "Canadian Venture Capital Activity: An Analysis of Trends and Gaps, 1996-2002" (2004)

⁸¹ OECD, "Economic Survey of Canada" (2006)

⁸² Thomson Financial (formerly Macdonald & Associates), "Finding the Key: Canadian Institutional Investors and Private Equity" (2003)

⁸³ Goodman & Carr LLP, "Private Equity in Canada 2005, Volume 1" (2006)

⁸⁴ Thomson Financial, Presentation to the Canadian Venture Forum (May 2006)

⁸⁵ Cumming, Douglas and Jeffrey J. MacIntosh, "Crowding Out Private Equity: Canadian Evidence" (August 2002)

⁸⁶ Industry Canada, "Canadian Venture Capital Activity: An Analysis of Trends and Gaps, 1996-2002" (2004)

⁸⁷ OECD Policy Brief, Economic Survey of Canada (June 2006)

⁸⁸ Lerner et al, "Access to Finance: A Study of New Zealand's Venture Capital Market and Implications for Public Policy" (2005)

⁸⁹ The most obvious example of a failed Labour Sponsored Investment Fund is Manitoba's Crocus Fund, which halted trading in 2004 and was investigated by the province's auditor general and securities commission in 2005. It was determined that over a 5-year period, the fund had operating losses of \$36 million and was risking running out of cash. Additionally, the investigation found that there was: a lack of oversight by the fund's board of directors; flaws in the fund's investment procedures; abuse of the fund's travel and expense policy; and the value of the fund's assets appear to have been overstated. The fund has since gone into receivership. (see www.cbc.ca, May 30, 2005 and www.crocusfund.com)

⁹⁰ Access to Capital Task Force, "Capturing the Power of Innovation: Improving access to capital in Alberta" (March 2003)

⁹¹ Access to Capital Task Force, "Capturing the Power of Innovation: Improving access to capital in Alberta" (March 2003)

⁹² Alberta Economic Development and Tourism, "Labour Sponsored Venture Capital in Alberta – An Assessment of Opportunities," KPMG Consulting (April 1996); Alberta Science and Research Authority, "Barriers to Technology Commercialization in Canada," Bruce Healy, Davitech Consulting Inc. (July 1996); AED, "Access to Equity Capital Issues" (April 2002); Access to Capital Task Force, "Capturing the Power of Innovation: Improving access to capital in Alberta" (March 2003)

APPENDIX 1 – REFERENCES



- Access to Capital Task Force, “Capturing the Power of Innovation: Improving access to capital in Alberta.” (March 2003)
- Alberta Economic Development, “Access to Equity Capital Issues: Equity Capital and the Commercialization of Early Stage Technology in Alberta.” (April 10, 2002)
- -----, “Benchmarking Alberta in the Knowledge-Based Economy.” (December 2005)
- Alberta Economic Development & Tourism, “Labour-Sponsored Venture Capital in Alberta – An Assessment of Opportunities,” Prepared by KPMG Consulting. (April 1996)
- Alberta Science and Research Authority, “Barriers to Technology Commercialization in Canada,” Prepared by Davitech Consulting Inc. (July 1996)
- Alberta Tax Review Committee – Phase 1 (May 1998)
- Ayayi, Ayi, “Good News, Bad News: Ten Years’ Lessons from Canadian Labour Sponsored Venture Capital Corporations.” (November 2002)

- Baygan, Günseli, “Venture Capital Policy Review: Canada,” OECD – Directory for Science, Technology and Industry. (January 2003)
- Boissonneault, Gordon, “The Relationship Between Financial Markets and Economic Growth: Implications for Canada,” Research Study prepared for the Wise Persons’ Committee on Canadian Securities. (October 2003)
- Brander, James, Edward J. Egan and Anthony E. Boardman, “The Equity Capital Program in British Columbia: An assessment of capital availability, program efficiency, and policy alternatives,” Sauder School of Business – UBC. (April 2005)
- Canadian Venture Capital Association, 2005 and 2006 Overviews.
- Canadian Federation of Independent Business, “Building Business Success: A Survey of SMEs on Productivity.” (April 2007)
- Carpentier, Cecile, Maker Kooli, & Jean-Marc Suret, “Initial Public Offerings: Status, Flaws and Dysfunctions,” Prepared for Industry Canada. (April 2003)
- Carpentier, Cecile & Jean-Marc Suret, “The Indirect Costs of Venture Capital in Canada.” (June 2005)
- Communitech and Price Waterhouse Coopers, “Making Magic in Waterloo Region: A Report on the Exceptional Investment and Entrepreneurial Potential of Canada’s Hottest High-Tech Location.” (September 2005)
- Conference Board of Canada, “Six Quick Hits for Canadian Commercialization,” Leaders Roundtable on Commercialization. (April 2005)
- -----, “Picking a Path to Prosperity: A Strategy for Global-Best Commerce,” Leaders Roundtable on Commercialization. (April 2006)
- -----, “Lessons in Public-Private Research Collaboration: Improving Interactions between Individuals,” 7th Annual Innovation Report. (June 2006)
- -----, “Exploring Canada’s Innovation Character: Benchmarking against Global Best.” (June 2004)
- Cumming Douglas, and Jeffrey J. MacIntosh, “Crowding Out Private Equity: Canadian Evidence” (August 2002)
- Ernst & Young, “Alberta Technology Report.” (2006)
- European Commission, “Monitoring Industrial Research: The Annual Digest of Industrial Research and Development.” (2006)

- Goodman & Carr LLP, “Private Equity in Canada 2005, Volume 1” (2006)
- Industry Canada, “People and Excellence: The Heart of Successful Commercialization,” Volume 1: Final Report of the Expert Panel on Commercialization. (April 2006)
- ----- “People and Excellence: The Heart of Successful Commercialization,” Volume 2: Supporting Material. (April 2006)
- ----- “Small and Medium Sized Enterprise Financing in Canada.” (2003)
- ----- “Canadian Venture Capital Activity: An Analysis of Trends and Gaps, 1996-2002. (2004)
- Information Technology Association of Canada, “Silicon Valley North: The Formation of the Ottawa Innovation Cluster.” (October 2002)
- Information Technology Association of Canada-Ottawa Centre for Research and Innovation, “Improving Productivity Through Changes to the Federal SR&ED Tax Program.” (June 2006)
- Lang Michener LLP, “Going Public in Canada.” (January 2006)
- Lerner, Josh, David Moore & Stuart Shepherd, “A study of New Zealand’s venture capital market and implications for public policy.” (September 2005)
- Lerner, Josh & Samuel Kortum, “Assessing the Contributions of Venture Capital to Innovation.” (2000)
- Milken Institute, “2005 Capital Access Index – Best Markets for Entrepreneurial Finance.” (December 2005)
- ----. “2006 Capital Access Index – Best Markets for Business Finance.” (December 2006)
- National Angel Organization, “Solving the Pre-commercialization Gap in Canada,” Submitted to Industry Canada’s Expert Panel on Commercialization. (August 2005)
- ----- “The Primer for Angel Investment in Canada.” (April 2004)
- Organization for Economic Co-operation and Development (OECD), “Economic Survey of Canada,” Policy Brief. (June 2006)
- Ontario Ministry of Economic Development, Business Report, November 2002.
- Ontario Ministry of Research and Innovation, Background, “Ideas to Market Strategy and the Market Readiness Program.” (July 2006)

- Profit Magazine, “2006 Financing Guide: Get Cash Now.” (March 2006)
- Thomson Financial, Canadian Venture Forum Presentation. (May 2006)
- -----. “Growing the businesses of Tomorrow: Challenges and Prospects of Early Stage Venture Capital Investment in Canada.” (2005)
- -----. “Finding the Key: Canadian Institutional Investors and Private Equity.” (2003) Published under the name Macdonald & Associates.
- Traroe, Namtie, “Access to Financing Capital by Canadian Innovative Biotechnology Firms,” Report prepared for Statistics Canada. (April 2005)

This report has been compiled by: Calgary Economic Development

Author: Katie Emond
Research Manager
Calgary Economic Development
katie@calgaryeconomicdevelopment.com

CALGARY
ECONOMIC
DEVELOPMENT



731 – 1st Street S.E.

Calgary, Alberta

Canada

T2G 2G9

Phone: 403-221-7831

or toll-free: 1-888-222-5855

Fax: 403-221-7828

Email: info@calgaryeconomicdevelopment.com

www.calgaryeconomicdevelopment.com