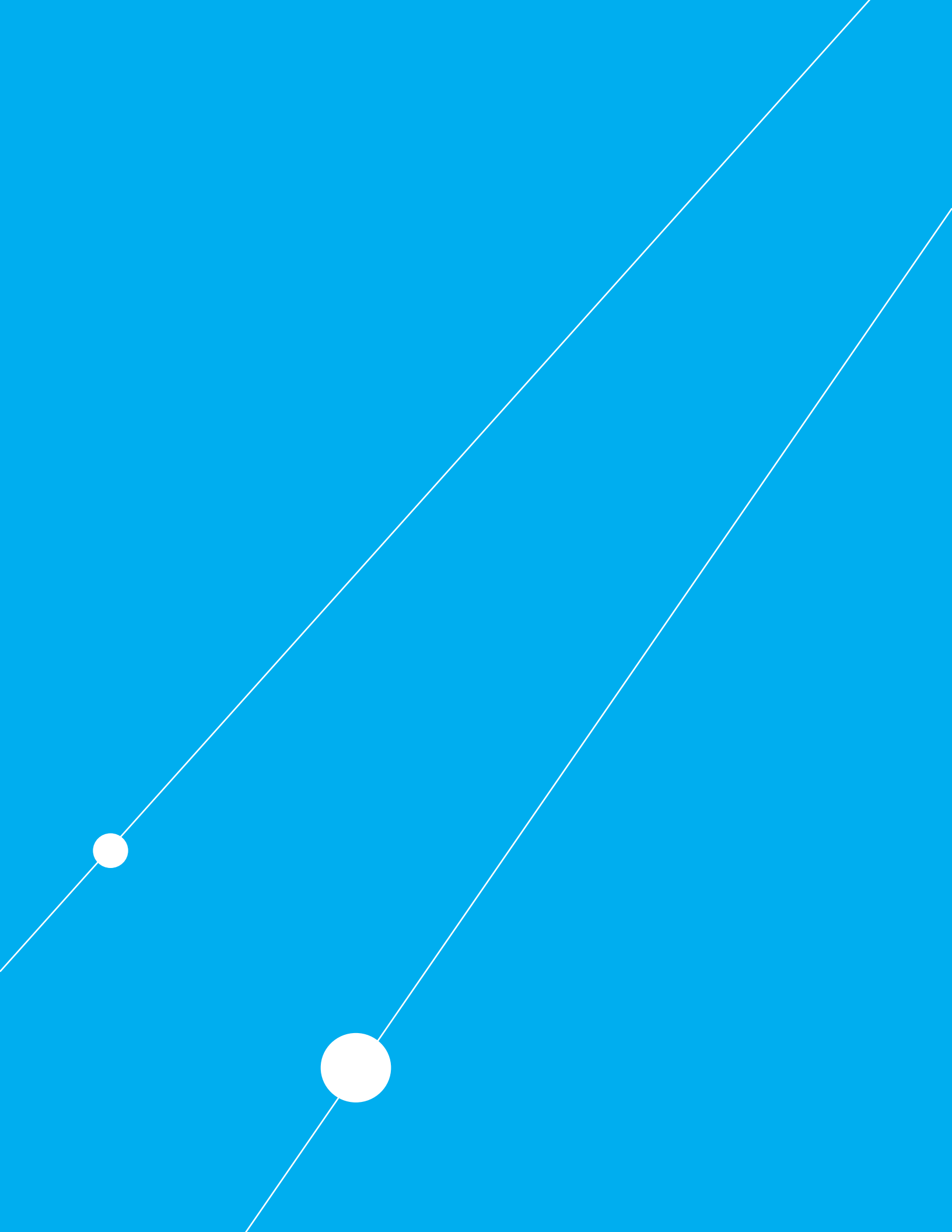
Advancing
INNOVATION
Roundtable

AN INITIATIVE OF TMX

UNLOCKING GROWTH OPPORTUNITIES FOR CANADA'S INNOVATION ECONOMY

FEBRUARY 2017



FOREWORD

By Salil Munjal, ICD.D
Chair, Advancing Innovation Roundtable

Wayne Gretzky once quipped about the different skills of hockey players: good players play where the puck is, *great players* play where the puck is going to be. From an investment perspective, this adage is employed in the disciplined, fundamental frameworks utilized by top institutional investors who seek to profit from opportunities where future performance is not reflected in today's price. From a country-building and economic development perspective, this maxim holds true when today's decisions help position the country to lead and prosper in the face of future uncertainty in the global economy.

These are the unspoken goals of the Advancing Innovation Roundtable, a private sector-led initiative focused on providing actionable solutions to help Canada capitalize on the possibilities enabled by its rich technology and knowledge assets, while also ensuring our country's future economic success and global leadership.

Innovation and invention are often used interchangeably, but they are distinct from one another. Invention is the creation of new technology, whereas innovation is the economic application of technology. Invention is often a disruptive source, but innovation is what ultimately transforms industries and improves economies. Now more than ever, innovation is impacting all aspects of the economy. For example, traditionally core Canadian sectors of manufacturing, resources, energy, and agriculture are all being impacted by innovation. Clean technologies are yielding newfound efficiencies, software-based systems are improving productivity, and next generation processes are being introduced through automation. As history has routinely shown, these transitions are swift, resetting the globally competitive landscape into leaders and followers, haves and have-nots.

Indeed, the *innovation economy* is integral to today's modern economic system. While direct economic contributions can be easily measured from innovation sector companies, the cross-sector productivity impact of technology adoption is rapidly becoming a strategic source of competitive advantage for global economies. In effect, innovation is not only a sector but an economy in itself, expanding on the ever-improving base of invention, intellectual capital and technology assets, while also redefining economies and industries.

Canada's Innovation Economy presents a phenomenal opportunity to reap the rewards for all stakeholders. Our country is recognized worldwide for its skill and expertise in research and technological development, yet it currently faces a multi-billion-dollar gap in capital availability precisely at the stage where innovation companies can be most impactful for the economy. To ensure long-term sustainability, we also need to improve the foundations of the Innovation Ecosystem to ensure all Canadians capture the generational benefits derived from our efforts.

Rare is the moment where long-term need, immediate impact, and alacrity to act intersect. Canada is faced with that opportunity today: to act first and take a leadership role in the future identity of the country and its standing in a competitive global economy. The prospects of success afford the private sector the uncompromising privilege to raise its hand first. This is our call to action.

I would like to extend my deepest gratitude to many people and organizations that supported the work of the Advancing Innovation Roundtable.

This initiative would not have been possible without the resources provided by Lou Eccleston, CEO of TMX Group. Lou's deep understanding of the Innovation Economy and the synergistic role of public and private capital was invaluable to me during the preparation of this report. In addition, I wish to thank the leadership team at TMX who facilitated our work: Cheryl Graden, Nick Thadaney and Ungad Chadda. I also wish to recognize Mathieu Labrèche from TMX who assisted the Roundtable with communications and logistics throughout.

I extend sincere thanks to all members of the Roundtable for their dedication and commitment through the fall of 2016. We met across the country, typically convening in the evenings as a group, with several additional one-on-one meetings in between. In particular, I wish to recognize Geoff Beattie and Hugh O'Reilly, both of whom started this journey with me before the Roundtable was convened, and whose energy on the topic of Canadian leadership in innovation is truly remarkable. I thank them for their friendship and for the many hours of debate. I also wish to thank Michael Denham for the strategic insights he shared with me throughout, and for his support with both resources and data from the Business Development Bank of Canada. In addition, I want to recognize the commitment of Helen Beck, Lisa Porlier and Gerry Pond, each of whom assumed lead roles for key topic areas of our work, and whose analysis was invaluable as we framed our recommendations. I am also grateful to each of Paul Desmarais III and Kevin Uebelein for their considered views and for making members of their respective organizations available for the Roundtable.

This report and the analysis that underpins it could not have been possible without Eric Bukovinsky, one of my partners at Yaletown Partners. He has helped me throughout with his knowledge and advice, and has been tireless in his analysis, often until the early morning hours framing the research questions. I could not have prepared this report in our tight timeframe without his steadfast support.

Others I wish to thank are Kevin Morris, Senior Partner, Torys LLP for his wise counsel and his helpfulness in connecting with me with leaders across the financial community; Gary Clifford, Managing Director, Pragmus Capital, a leading investor in innovation companies across the globe; Tony Pampena, Senior Partner, EY; Susan Bishop, Partner and National Leader, SR&ED, EY; Dr. Jack Mintz, National Policy Advisor to EY; Tom Birch, Vice President, Funds, and Caroline Côté, Director, Funds, Caisse de dépôt et placement du Québec; Adam Felesky, President and Managing Partner, Portag3 Ventures; Alistair Mitchell, Managing Partner, Generation Ventures; Netila Demneri, Research Consultant, Russell Reynolds Associates; James Chew, former interim CEO, Business Growth Fund; Michelle Scarborough, Senior VP, Kensington Capital; Thomas Park, Director of Strategy, BDC; and Richard Remillard, President, Remillard Consulting Group.

Most importantly, I wish to thank my wife, Anna, for giving me the space and support to work on this report, and our children, Ava and Reed.

THE ADVANCING INNOVATION ROUNDTABLE

The Advancing Innovation Roundtable is a 12-member independent working group representing the finance, investment and capital formation institutions across Canada, including pension plans, banks, endowments, venture capital firms, private equity funds and capital markets. The core objectives of the Advancing Innovation Roundtable include:

1) Delivering actionable recommendations for increasing access to growth capital for Canadian Innovation Economy companies as they grow beyond seed and start-up stages, while also improving the ecosystem foundations for the long-term benefit of the Canadian economy.
2) Fostering greater alignment on long-term investment in the Canadian Innovation Economy amongst the broader Canadian investment community of pension plans, banks, endowments, insurers, funds and private capital.

The collective input and strategic insights of the Advancing Innovation Roundtable help inform ongoing national conversations regarding the development of Canada's Innovation Economy, and contribute to building an effective strategy to enable the country's Innovation Sector companies to achieve long-term success.

The Roundtable is chaired by Salil Munjal, Managing Partner at Yaletown Partners, a leading private investment firm focused on financing Growth Stage technology companies. Mr. Munjal was the lead growth equity investor in Bit Stew Systems, Canada's largest venture-backed exit in 2016. He also has unique expertise as a public and private market investor and as an operator. Previously, he was President & COO of Leitch Technology Corporation, a TSX-listed company he helped grow to over 1,000 employees in six offices globally.

The Advancing Innovation Roundtable is distinct from other initiatives addressing innovation in Canada in the following ways:

1) The Roundtable is an independent, private sector, investor-led initiative bringing together leaders across the entire spectrum of Canada's financial services industry.
2) The Roundtable focuses on solutions sourced from both the public and private markets, addressing the current capital gap faced by Growth Stage Canadian Innovation Sector companies, and the ecosystem foundations for the long-term sustainability of the Canadian Innovation Economy.

The views reflected in this report are those of the chair, Salil Munjal, formed in consultation with the Roundtable and through outreach with numerous stakeholders. The recommendations do not necessarily reflect the views of the organizations represented by individuals at the Roundtable.

Members of the Roundtable

Geoffrey Beattie	Chief Executive Officer, Generation Capital; Chairman, Relay Ventures; Member of the Board of Directors at General Electric, Royal Bank of Canada and Maple Leaf Foods
Helen Beck	Senior Vice-President, Canadian Equities and Indexed Management, Equity Markets, Caisse de dépôt et placement du Québec
Michael Denham	President and Chief Executive Officer, Business Development Bank of Canada
Paul Desmarais III	Vice-President, Power Financial and Power Corporation; Member of the Board of Directors of Great-West Life and Investors Group (Québec)
Lou Eccleston	Chief Executive Officer, TMX Group
Stephen Forbes	Executive Vice-President and Chief Commercial Officer, CIBC
Salil Munjal	Chairman, Advancing Innovation Roundtable and Managing Partner, Yaletown Partners
Hugh O'Reilly	President and Chief Executive Officer, OPTrust
Gerry Pond	Chairman and Co-Founder, Mariner Partners Inc. and Co-Founder, The Pond-Deshpande Centre of Innovation and Entrepreneurship at the University of New Brunswick
Lisa Porlier	Lead (Technology Sector) and Deputy Country Manager, Russell Reynolds Associates
Kevin Uebelein	Chief Executive Officer, AIMCo
Tamara Vrooman	President and Chief Executive Officer, Vancity Credit Union

Executive Summary

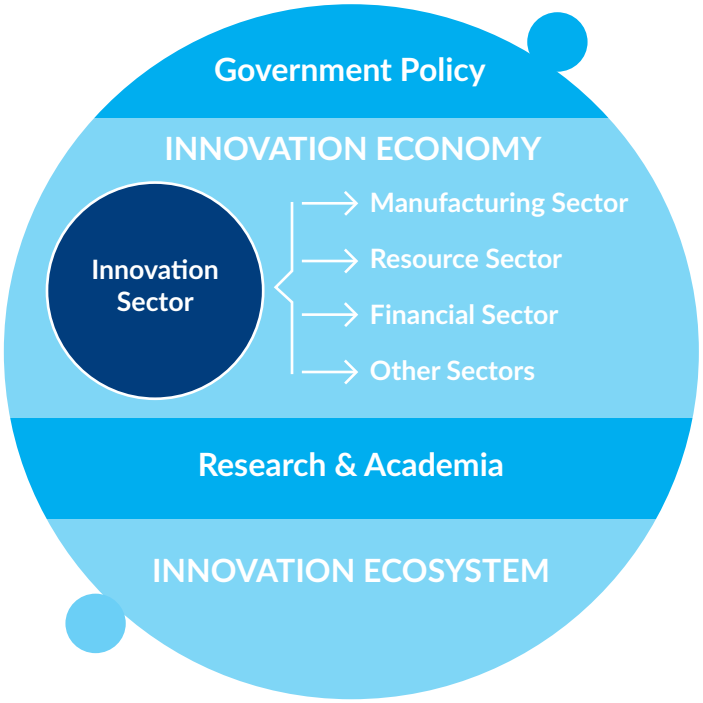
The Canadian Innovation Economy is not performing to its full potential. Despite global recognition of Canada's Innovation Ecosystem, too few companies reach significant scale compared to other ecosystems globally. The key deficiency is the significantly limited capital supply for Growth Stage companies, particularly for those transitioning from early and start-up stages. This specific gap in capital supply is estimated at $4 billion and growing. In addition, the ecosystem's foundations are not currently optimized or equipped to address the long-term sustainability of the Innovation Economy.

These issues are a part of a larger discourse to improve Canada's economy. The Canadian federal and provincial governments should be commended for their catalytical role in facilitating input and their recognition of the opportunity to make the country a leader in innovation. This report represents the Advancing Innovation Roundtable's contribution to the conversation. The cumulative work by the Roundtable outlines specific recommendations and proposals to resolve the growth capital gap and to strengthen the foundations of the Innovation Ecosystem.

Framework of Report

The Innovation Sector, the Innovation Economy and the Innovation Ecosystem can be viewed as concentric circles. The Innovation Sector represents the economic activities of technology companies. The Innovation Economy includes the Innovation Sector and productivity impact on other sectors within the economy as technology adoption increases. The Innovation Ecosystem expands on the definition of the Innovation Economy to incorporate foundational pillars that support sustainability and the growth of the system, including infrastructure such as governmental policy frameworks and the research, academic and education institutions.

Figure 1:
Illustrative Relationship of the Innovation Sector, Innovation Economy and Innovation Ecosystem



Innovation Sector companies typically go through three stages of growth during their lifecycle: Start-up, Growth and Maturity. The Start-up Stage encompasses idea generation, product development and initial commercialization. The Growth Stage is defined by product maturity, rapid customer adoption and revenue growth, and is often correlated with the highest impact in the Innovation Economy. The Maturity Stage is characterized by companies transitioning to become large anchor tenants, helping shape and define their technology and industry groups.

Figure 2:
Illustrative Stages of Innovation Sector Companies (M= million)

Canadian Innovation in the Global Context

The Canadian Innovation Sector's diversity and expertise has garnered global recognition. The sector is a material contributor to the country's gross domestic product (GDP), representing seven percent of total output in 2015.[1] The sector's output growth is consistent as well, proving to be less influenced by normal business cycles. The Innovation Sector employs more than 850,000 people, or approximately 5.6 percent of the total Canadian workforce, and innovation employees are also typically younger than the working population in other industry sectors.[2]

Comparing Canada's Innovation Sector on the global stage, however, the results are less sanguine. Growth investment and financing activity, despite recent improvement, still materially lags that of global peers. Investment in the Canadian Innovation Sector as a percentage of GDP is less than a third of the levels in the United States (US) and in Israel.[3] Canadian investment levels rank even lower when looking at investment in later-stage companies, where it is outpaced by countries such as the United Kingdom (UK).[4] As a result, Canada's once lauded ecosystems have ceded pole positions to newer, more rapidly growing technology centres elsewhere across the globe.

The Growth Capital Gap

While early-stage activity levels compare positively, Canada's underinvestment in Growth Stage Innovation Sector companies has led to fewer large, mature companies.

Large financings in Canada and have not kept pace with the US or the UK since 2012. For instance, financings greater than $50 million occur one-sixth as frequently in Canada as in the US, and one-third as frequently as in the UK on a GDP-normalized basis.[5] Growth in large financings has been linear in Canada, while both the US and UK have observed a more than ten-fold increase since 2010.[6]

Across all financings, Canadian Innovation Sector companies raise one-third the amount compared to their counterparts in the US.[7] The difference is even more stark in later stage financings where Canadian companies raise less than one-quarter the amount of their American counterparts.[8] Growth-Stage financings occur at lower rates than the US and often happen later in a company's development. Innovation Sector companies in the US are 2.6 times more likely to raise growth capital at their point of transition beyond early and start-up stages.[9] In Canada, venture capital-backed exits of greater than $500 million occur less than one-tenth as often as in the US on a normalized basis.[10] Mid-sized venture capital exits between $50 and $250 million are equally as common in the US as in Canada; however, Canadian exits occur on half as much capital and take roughly two years longer.[11]

Intensifying the problem for the foreseeable future is the high rate of early stage and start-up stage activity in Canada. The funnel is getting increasingly filled at the top while the growth financing pinch point remains in place further along the maturity cycle. Canada ranks second only to Israel in terms of its early stage activity, and financings at this stage have increased by almost 2.5 times since 2010 in Canada, nearly double the growth rate in the US.[12]

Capital gaps emerge when there is insufficient capital supply to meet demand, often resulting in a market equilibrium that is suboptimal. The performance of Canada's Innovation Sector is symptomatic of a capital gap at the point of transition from early and start-up stages to the Growth Stage. Closing the capital gap can yield significant improvements to the market as whole, thereby attracting additional capital at the later stages, increasing the size of outcomes and the development of large, mature innovation companies in Canada.

The growth capital gap can be viewed in two parts: a "current deficit" component and a "cumulative debt" component. The current deficit is the portion of the capital gap facing companies transitioning from start-up and early stages to the Growth Stage today. The cumulative debt is the historical portion of the growth capital gap facing older companies related to the years of underfunding.

The size of the growth capital gap in Canada is currently estimated at $4 billion. Of that total, $1 billion is needed simply to fund the current wave of companies moving beyond early and start-up stages at the long-term historical rates observed in Canada. This gap is expected to grow by at least $250 million per year due to significantly higher early and start-up stage activity, potentially doubling in size to $2 billion within three to five years. An additional $3 billion is needed to address the capital gap for older, active companies who have been growing sub-optimally due to limited access to growth capital. Further details can be found in the Canadian Growth Capital Gap section of the report.

The Role of Public Markets

Canada's leading stock exchanges, Toronto Stock Exchange (TSX) and TSX Venture Exchange (TSXV), are globally recognized as strong growth platforms for companies at all stages of development, from small and early-stage to mid and large cap. TSX and TSXV have a long and successful track record for attracting risk capital, particularly for the resource and mining sectors. However, in recent years, the technology and innovation sectors have experienced upward momentum in in terms of capital raised, number of listings and total market capitalization.

The public markets play a key role in addressing the growth capital gap. Innovation Sector companies have raised over $30 billion on TSX and TSXV since 2010, nearly tripling their contribution to all capital raised across all sectors on both exchanges.[13] In particular, the average financing size for TSXV-listed companies compares with that of private financings, at about two-thirds their size on average. There is, however, less cross-over activity by private and public market investors in Innovation Sector companies.

TSXV is a uniquely Canadian platform for the incubation and growth of emerging companies, including Innovation Economy companies. The public venture market works both in conjunction with, and instead of, private growth capital. TSXV serves the role exceptionally well for the resource sector and can perform in the same fashion for Innovation Economy companies. Since 2000, 630 companies have graduated from TSXV to TSX, representing more than $130 billion in market capitalization.[14] Three companies included in the S&P/TSX 60 Index are TSXV graduates, and about 20 percent of the S&P/TSX Composite Index had their start on TSXV.[15]

From a regulatory and economic perspective, TSXV can improve its alignment with private capital markets to expand its reach as an alternative financing platform. Accordingly, the TSXV platform and its regulations, rules and associated ecosystem would more directly assist Innovation Sector companies as they scale up, including attracting renewed retail investor interest. For example, a lack of independent research has created increased liquidity challenges for issuers delaying institutional support and increasing the cost of capital. Institutionally-backed Innovation Sector companies are also reluctant to go public due to structural costs and different tax treatments versus remaining private. As discussed further in the Recommendations, to fully utilize TSXV as a source of capital for Innovation Economy companies, the Exchange may wish to consider further tailoring its offerings to fit the various stages of an issuer's lifecycle.

Ecosystem Foundations for Long-Term Sustainability

Canada's Innovation Economy has tremendous opportunity but is not reaching its full potential due to the capital gap for Growth Stage companies. Unlike Silicon Valley, it is also still a maturing ecosystem. A comprehensive approach to strengthen the Canadian ecosystem's foundations is needed to better compete with global technology powerhouses, such as the US and Israel, both now and in the future. Failing to address and improve the ecosystem's foundations creates the risk that the Innovation Economy continues to underperform its full potential.

Beyond the capital shortfall, Canada struggles to obtain, retain and develop managerial and commercialization talent. Structural limitations for attracting high-skill immigrants combined with an underdeveloped domestic education infrastructure for sales and managerial training have all contributed to a talent gap. Canada must also assert a global leadership role in fostering strategic differentiation of skills, expertise for the next-generation technology development.

In addition, Canada's digital infrastructure, which serves as the backbone for product development, ranks low particularly when compared to other developed economies. Investment on specialization in keys areas, such as cybersecurity, data privacy, Internet of Things enablement and artificial intelligence (AI), would help create competitive advantages for Canada's Innovation Economy. For example, developing a robust Internet of Things ecosystem would require investment across multiple aspects of the country's digital infrastructure including communications, data privacy and management, and cybersecurity.

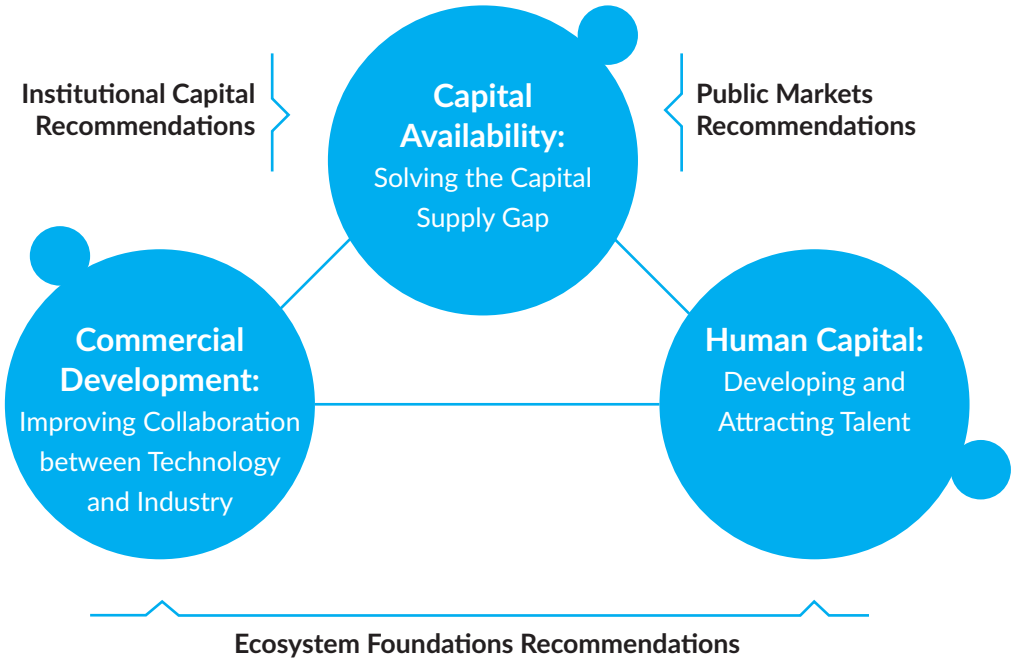
Building and cultivating a robust Innovation Economy requires the support of collaboration infrastructure. Canada's domestic industries offer a unique opportunity to develop a leadership role in technology adoption and differentiation among global peers. Improvements to the collaboration infrastructure and Canada's governmental procurement processes are needed to not only maintain comparable levels with other countries, but also to put Canada in a position of strength.

The Advancing Innovation Roundtable Recommendations

The Advancing Innovation Roundtable is focused on solutions involving both the public and private markets that address the immediate and long-term issues facing the country's Innovation Economy and Innovation Ecosystem. The $4 billion-and-growing growth capital gap is currently constraining Innovation companies, limiting their potential as well as the potential of the Innovation Economy. The foundations that support the country's Innovation Ecosystem require continuous improvement, further investment and a long-term view to support a growing, robust and sustainable future for innovation in Canada.

The Roundtable's recommendations are organized into three key categories: 1) Institutional Capital Recommendations, 2) Public Markets Recommendations and 3) Ecosystem Foundations Recommendations. Institutional Capital and Public Market Recommendations go to directly target today's $4 billion capital supply gap for Innovation Economy companies in Canada. The Ecosystem Foundations Recommendations champion the need to invest in the infrastructure to support the Innovation Economy of the future, ensuring Canada can maximize the economic returns from innovation. Each recommendation is supported by specific proposals that are actionable immediately.

Figure 3:
Illustrative of the Advancing Innovation Roundtable's Recommendations for the Innovation Ecosystem



Category	Recommendation	Proposals
Institutional Capital	Canadian pension funds adopt a target allocation of the lesser of 0.1 percent of assets under management or $100 million for the Innovation Economy. Institutions that constitute the regulated financial sector, including banks, credit unions, and insurers, allocate up to $100 million based on assets. Combined, up to $2 billion in new capital is unlocked for investment in Innovation Economy companies.	• Support the renewal of the Venture Capital Action Plan to provide institutions indirect fund of funds vehicles for investment. • Support the creation of a private sector Innovation Growth Fund to permit institutions to invest in a dedicated vehicle. • Support the adoption, by institutions with sufficient resources and expertise: a direct investment program into Innovation Sector companies; an indirect investment program of investing in venture capital funds; or a comprehensive program with both direct and indirect components.
Public Markets	Increase public market investor access to expertise, information and investments available to institutional capital.	• Support the development and creation of a retail, publicly traded co-investment fund for the IGF, subject to a maximum investment amount by an individual investor
	Address the disincentives to list, including structural costs and liquidity issues, for companies accessing public capital.	• Support the introduction by TSXV of a regulatory, rules and ecosystem framework to ensure that it is responsive to where a company is in its lifecycle. • Support the introduction of self-serve data products to increase information availability and research on public Innovation Sector companies. • Support the accommodation by TSXV of a variety of capitalization structures often used in private Innovation Sector companies. • Support the equal treatment for public and private SMEs under the SR&ED tax program.
Ecosystem Foundations	Address access to and the development of managerial and commercial talent.	• Support the introduction of the “Global Skills Visa” to facilitate the immigration of high-skilled workers to fill talent gaps.
	Treat digital infrastructure and technologies as strategic and mission-critical national infrastructure.	• Support the inclusion of digital infrastructure for project eligibility with the new Canada Infrastructure Bank.
	Lower the barriers for productivity and technology adoption within the Innovation Economy through collaboration between Innovation Sector companies and Canada’s strategically important industries.	• Support the revamping of the Build in Canada Innovation Program. • Support the development of collaboration and acceleration infrastructure with a focus on Growth Stage companies addressing strategically important industries for Canada.

Key Terms

Innovation is the economic application of technology. Invention of new technology is often a disruptive source, but innovation is what ultimately transforms industries and improves economies.

Innovation Sector represents the economic activities of technology companies and includes the following industry groups: information technology, clean technology, life sciences, healthcare technology, advanced manufacturing, industrial technology, financial technology, and media and communications.

Innovation Economy includes the Innovation Sector and productivity impact on other sectors, such as manufacturing, within the economy as technology adoption increases.

Innovation Ecosystem expands on the definition of the Innovation Economy to incorporate foundational pillars that support sustainability and the growth of the system, including infrastructure such as governmental policy frameworks and the research, academic and education institutions.

Start-up Stage is the initial stage of company development that encompasses idea generation, product development and initial commercialization. Companies at this stage typically have raised some angel capital or completed an early-stage venture capital round up to $5 million to finance their activities.

Growth Stage is the middle phase of company development. The post Start-up Stage is defined by product maturity, rapid customer adoption and revenue growth, and is often correlated with the highest impact in the Innovation Economy. Growth Stage companies are often initially financed with smaller emerging-growth venture capital rounds of $5-25 million before accessing large, late-stage growth capital greater than $25 million.

Maturity Stage is a phase of company development characterized by a transition to a large company, helping shape and define their technology and industry groups. Many companies at this stage are often still growing rapidly and access late-stage growth capital or private equity, typically greater than $50 million.

Emerging-Growth Financing is a growth-style financing for companies not large enough for traditional late-stage capital. The sizes of these financings are typically between $5-25 million.

Late-Stage Growth Financing is a growth-style financing for companies large enough to accommodate $25 million or more in new capital for growth equity or private equity sources.

The Canadian Innovation Sector

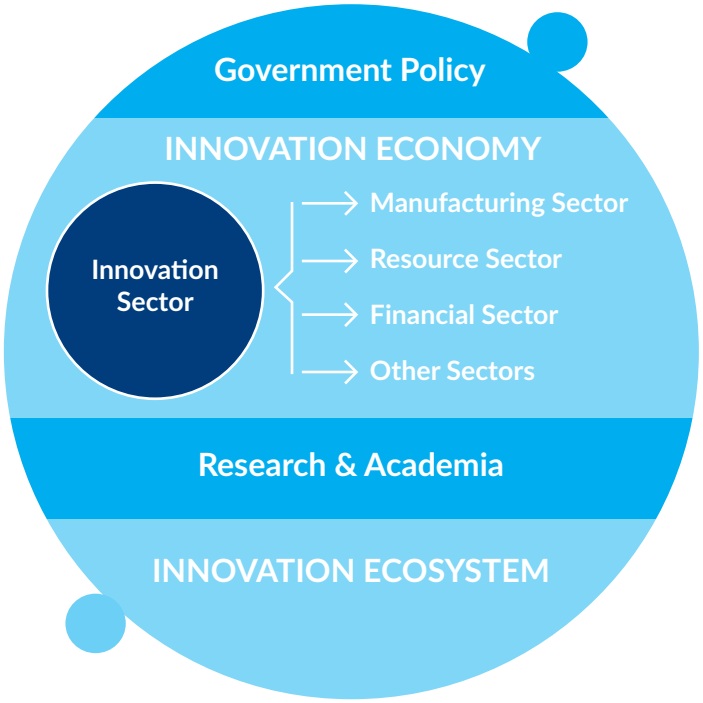
Defining the Innovation Sector, the Innovation Economy and the Innovation Ecosystem

Many definitions are used to describe the term "innovation ecosystem". Within a Canadian context, an August 2013 Conference Board of Canada report offers a particularly accurate, comprehensive description:

> ***The innovation ecosystem is the environment formed by the community of organizations, corporations, governments, and academia. As well, this includes the innovation-influencing factors within the ecosystems, including policy and education systems. This ecosystem plays an essential role in improving Canada's global competitiveness by driving growth and increasing productivity.***[16]

Starting with the definition provided by the Conference Board of Canada, the Innovation Ecosystem can be refined further to establish two additional terms used extensively by the Roundtable throughout this report: Innovation Sector and Innovation Economy. The Innovation Sector represents the economic activities of technology companies, whereas the Innovation Economy includes the Innovation Sector and productivity impact on other sectors within the economy as technology adoption increases. The Innovation Ecosystem expands on the definition of the Innovation Economy to include foundational pillars supporting sustainability and growth of the system as a whole, such as governmental policy frameworks and the research, academic and education infrastructure.

Figure 4:
Illustrative Relationship of the Innovation Sector, Innovation Economy and Innovation Ecosystem



The Innovation Sector includes the following industry groups: information technology, clean technology, life sciences, healthcare technology, advanced manufacturing, industrial technology, financial technology, and media and communications. The industry groups of the Innovation Sector are dynamic and evolve over time based on the productivity of the Innovation Economy. For example, the healthcare technology industry group evolved over the last several decades as the productivity gains and needs of technology adoption within the healthcare sector reached critical mass. Looking to the future, advanced manufacturing is an example of a new industry group growing in parallel with the adoption of technology within the traditional manufacturing sector.

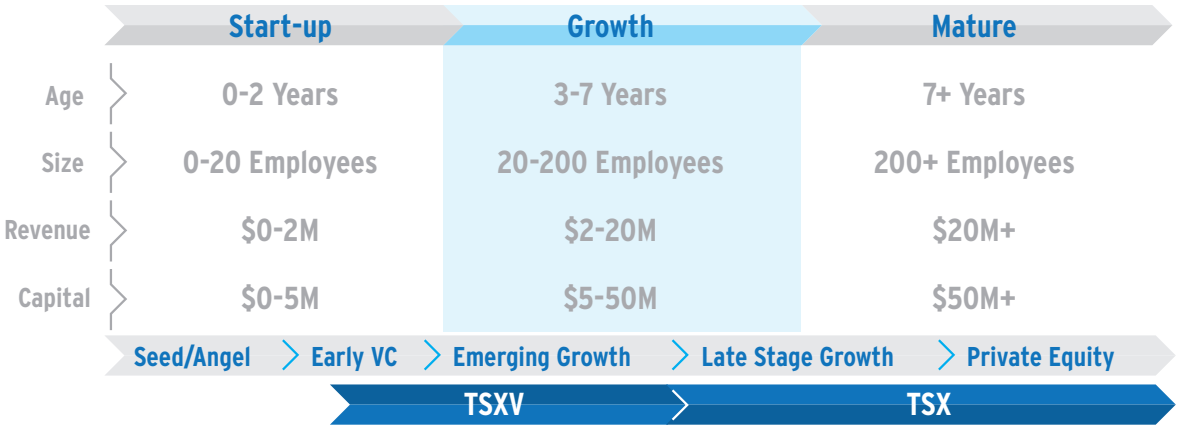
Innovation Sector companies typically go through three stages of growth during their lifecycle: Start-up, Growth and Maturity. The Start-up Stage encompasses idea generation, product development and initial commercialization. The Growth Stage is defined by product maturity, rapid customer adoption and revenue growth, and is often correlated with the highest impact in the Innovation Economy. The Maturity Stage is when companies transition to become large anchor tenants, helping shape and define their technology and industry group. Figure 5 below illustrates the characteristics commonly observed for Canadian companies in each stage according to age, size, revenue and capital, as well as the main sources of financing used to fuel their growth.

Start-up Stage Innovation Sector companies are typically younger than two years old and have up to 20 employees. They are focused on developing products and solving how to commercialize them. Companies at this stage typically have raised some angel capital or completed an early-stage venture capital round up to $5 million to finance their activities. Some companies access TSX Venture Exchange (TSXV) for capital as an alternative to private capital options.

Growth Stage Innovation Sector companies are typically three to seven years old, employ up to 200 people, and are focused on rapid revenue growth and customer acquisition. Companies transitioning from Start-up Stage are often initially financed with smaller emerging-growth venture capital rounds of $5-25 million before accessing large, late-stage growth capital greater than $25 million. Growth Stage Innovation Sector companies also may access capital from the TSXV and occasionally access Toronto Stock Exchange (TSX) for growth capital formation.

Mature Stage Innovation Sector companies are typically more than seven years old, have hundreds of employees, and generate tens of millions to hundreds of millions in revenue. Many companies at this stage are often still growing rapidly and access late-stage growth capital or private equity, typically greater than $50 million. Public Mature Stage Innovation Sector companies are regularly listed on TSX.

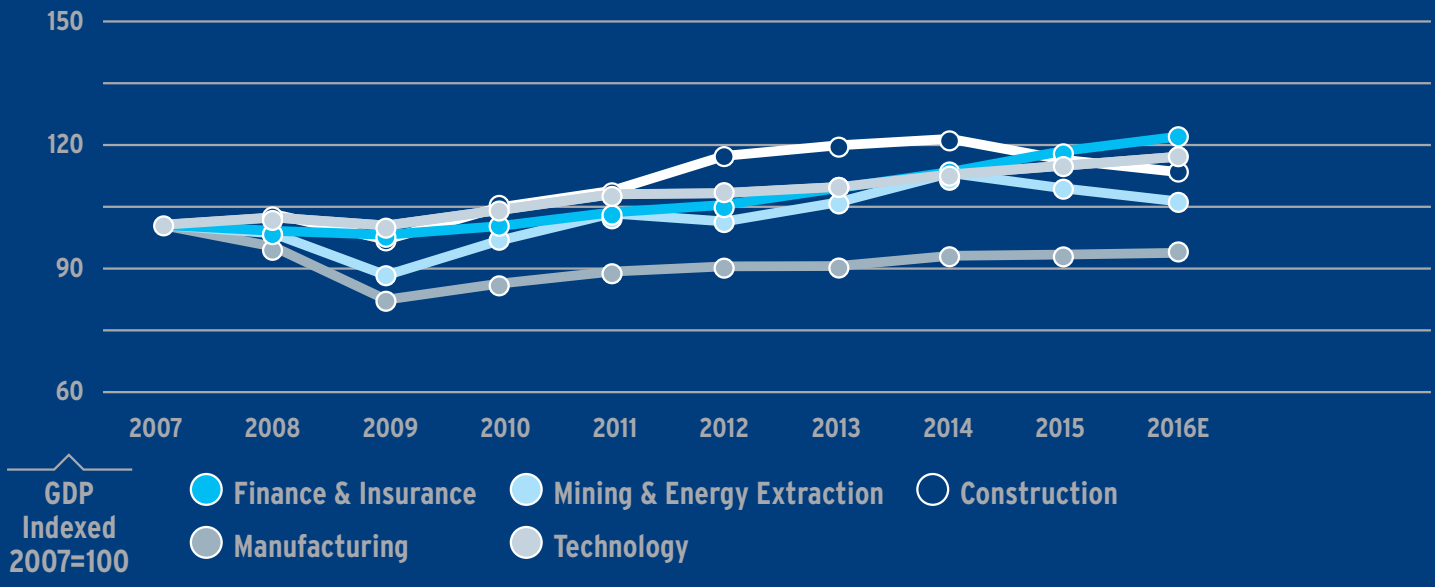
Figure 5:
Illustrative Stages of Innovation Sector Companies (M= million)



Contribution to the Canadian Economy

The Innovation Sector is a significant contributor to economic growth in Canada, representing 7 percent of total gross domestic product (GDP) output in 2015.[17] It leads all other domestic industries in the amount of research and development (R&D) expenditure, having invested $9 billion in 2015 to explore, generate and commercialize new ideas for new or improved products or services.[18]

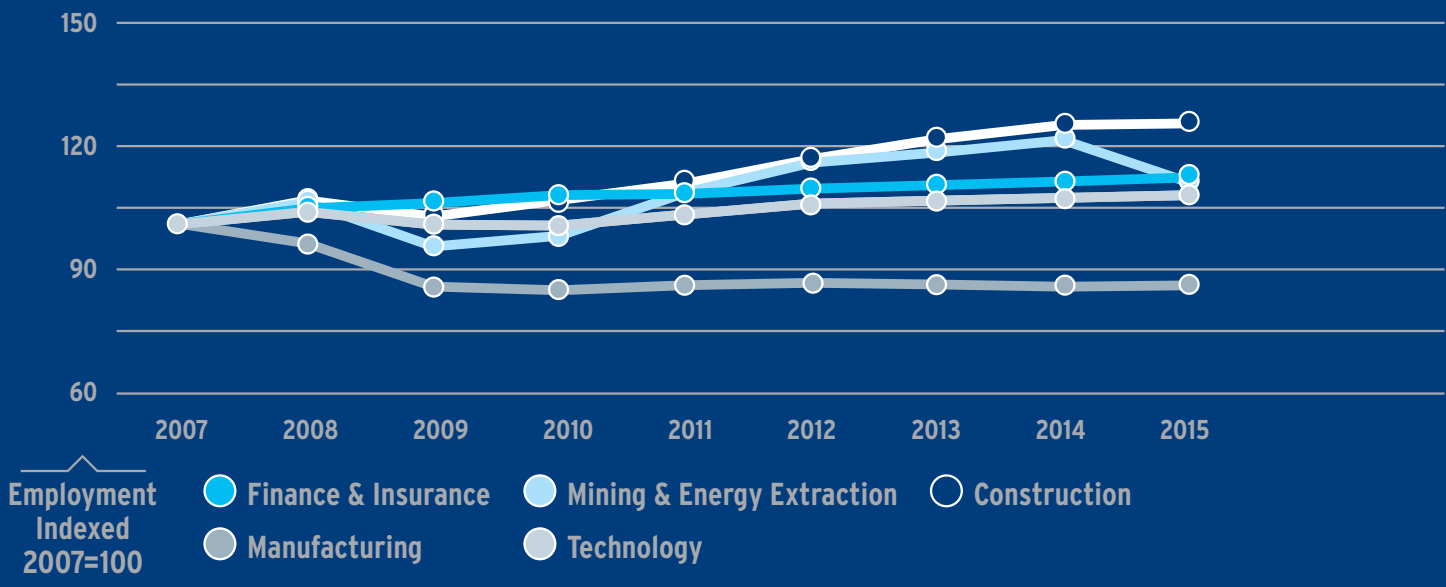
Figure 6:
Gross Domestic Product Growth by Sector since 2007



Source: Brookfield Institute, Statistics Canada

The Innovation Sector is also an important contributor to job creation and overall employment in Canada. Per 2015 data, the sector employs more than 850,000 people, representing approximately 5.6 percent of the total Canadian workforce.[19] In addition, 51 percent of those employed by Innovation Sector companies are university educated, have an average annual salary of $67,000, and are typically younger than the working population in other industry sectors.[20]

Figure 7:
Growth in Employment by Sector since 2007



Source: Brookfield Institute, Statistics Canada

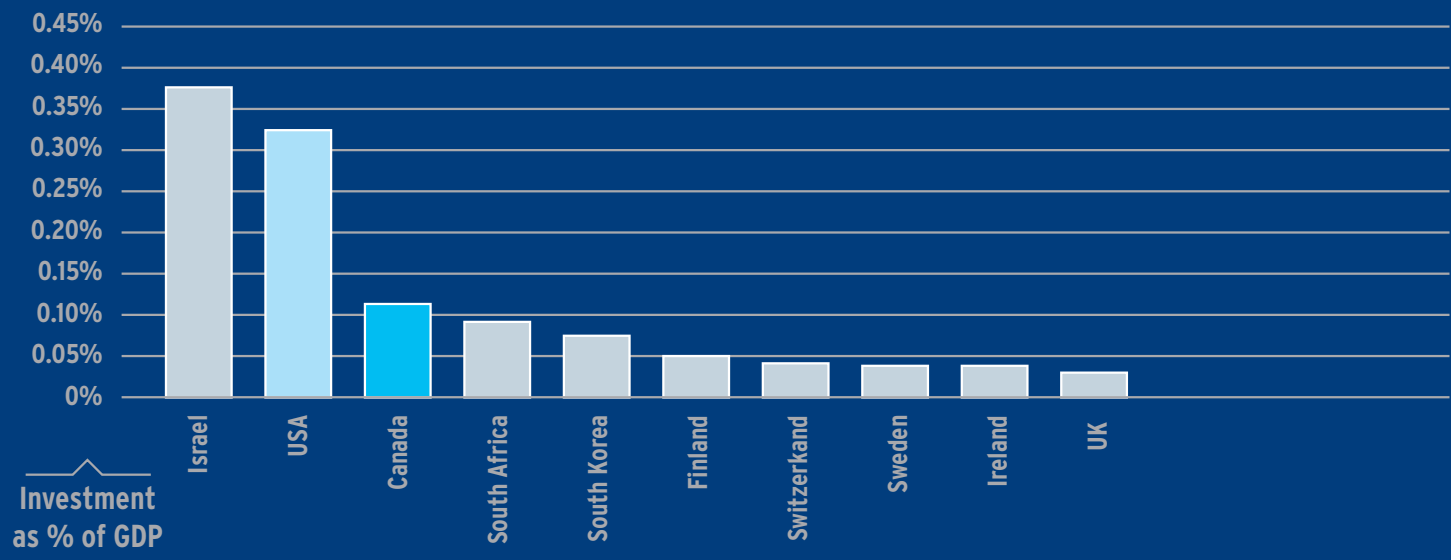
Comparing Canada's Innovation Ecosystem on a Global Stage

The results are less sanguine when comparing Canada's Innovation Sector on the global stage. A research paper ranking the top ecosystems globally found both Toronto and Vancouver in the top 10 in 2012. In the updated report in 2015, while Montréal made the list for the first time at 20th, Toronto and Vancouver fell out of the top 10 to 17th and 18th respectively.[21] The key reason: access to capital.

"Most experts agree that access to seed and Series A funding are less of a concern as established angel communities exist and government programs supported the development of institutional investment firms. However, startups have been strongly dependent on U.S. VC firms for later-stage investments."[22]

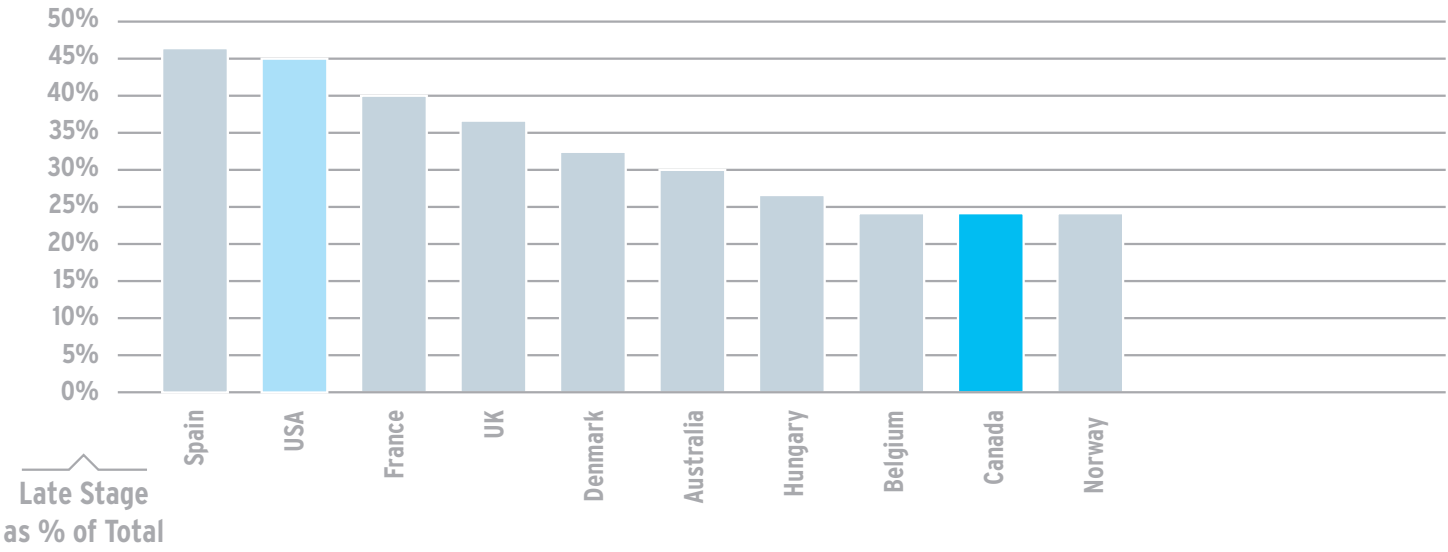
Investment in the Canadian Innovation Sector as a percentage of GDP is less than a third of the levels in the US and in Israel.[23] The Canadian investment levels also rank lower when looking at the percentage of venture capital investment in late stage companies. In addition, more than half of the invested capital in Canada's Innovation Sector is sourced internationally from the US and other countries, making the sector particularly dependent on foreign capital.[24]

Figure 8:
2015 Venture Capital Investment as a percent of GDP by Country



Source: OECD

Figure 9:
2015 Late Stage Investment as a percent of Total Venture Capital Investment



Source: OECD

The Canadian Growth Capital Gap

While early-stage activity levels compare positively to other countries, Canada's underinvestment in Growth Stage Innovation Sector companies has led to fewer large, mature companies.

Large financings in Canada have lagged significantly compared with its international peers, and large, venture capital-backed exits are particularly infrequent compared to the US. While Canada compares well with the US on mid-sized exits, the same Canadian exited companies receive half as much capital and are roughly two years older. Across all financings, Canadian companies raise materially less capital, and Growth Stage financings occur at lower rates than the US, often happening later in a company's life.

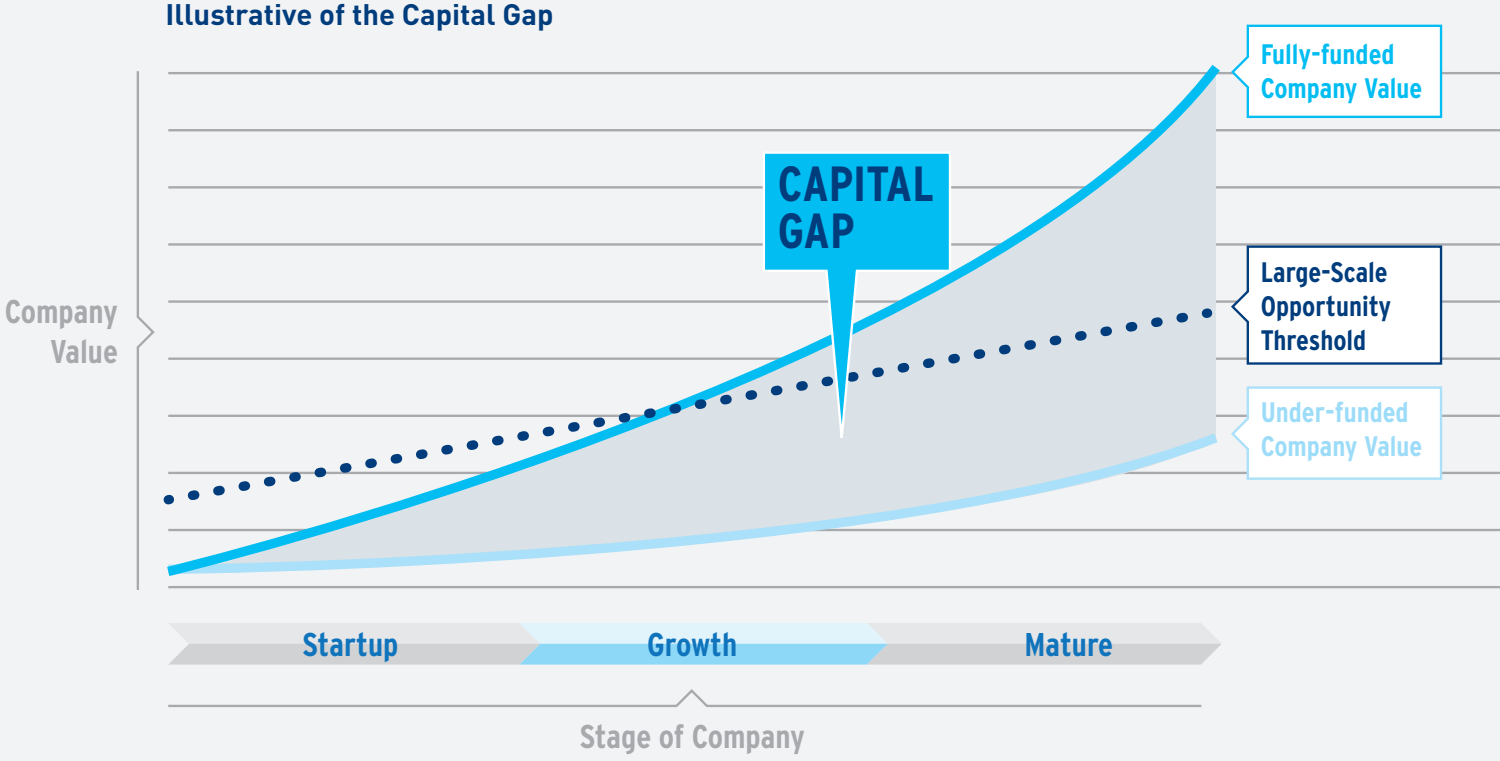
Capital gaps emerge when there is insufficient capital supply to meet demand, often resulting in a market equilibrium that is suboptimal. The performance of Canada's Innovation Sector is symptomatic of a capital gap at the point of transition from start-up and early stages to the Growth Stage. Closing the capital gap can yield disproportionate improvements to the market as a whole, thereby attracting additional capital at the later stages for Innovation Sector companies, increasing the volume and size of outcomes and the development of large, mature companies in Canada.

The growth capital gap can be viewed in two parts: a "current deficit" component and a "cumulative debt" component. The current deficit is the portion of the capital gap facing companies transitioning from start-up and early stages to the Growth Stage today. The cumulative debt is the historical portion of the growth capital gap facing older companies related to the years of underfunding.

The size of the growth capital gap in Canada is currently estimated at $4 billion. Of that total, $1 billion is needed to fund the current wave of companies moving beyond early and start-up stages at the long-term historical rates observed in Canada. This gap is expected to grow by at least $250 million per year due to significantly higher early and start-up stage activity, potentially doubling in size to $2 billion within three to five years. An additional $3 billion is needed to address the capital gap for older, active companies who have been growing sub-optimally due to limited access to growth capital.

Defining the Capital Gap

Figure 10:
Illustrative of the Capital Gap



As an innovation company advances through the Start-up, Growth and Mature Stages it regularly follows exponential growth and value curves supported by proper access to capital, and, if successful, can create the option to become a large-scale, mature company. Conversely, a company without access to proper funding is restricted to more linear growth and value curves, taking longer to transition between stages and lowering the likelihood for becoming a large-scale, mature company.

The supply of capital varies and is interdependent across stages. Growth Stage capital is dependent on the early and seed stage financing activity at the Start-up Stage as well as the later-stage and public financing activity at the Mature Stage. For example, a weak initial public offering (IPO) market has a dampening effect on growth financings and, to a lesser extent, early and seed stage financings. In addition, companies may approach growth less aggressively at the later stages while otherwise attractive IPO candidates may seek mid-sized exits. The key characteristics indicating the presence of a capital gap include:

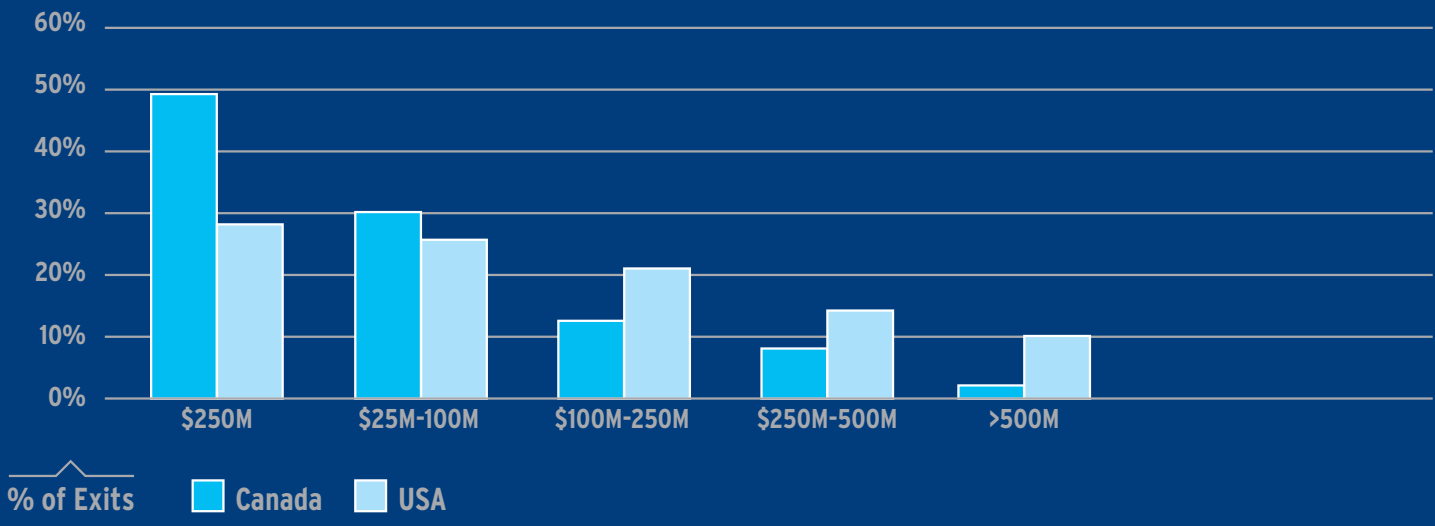
1) An imbalance of financing activity at stages before and after the capital gap, with particularly lower activity in the subsequent stages; and
2) An imbalance of exit activity at stages before and after the capital gap, with particularly higher activity in earlier stages and lower activity in subsequent stages.

The Canadian market currently exhibits the signs of a significant capital gap for Growth Stage financings, particularly for those companies transitioning from the Start-Up Stage to the Growth Stage. The current market is defined by high levels of early stage financing activity and comparatively lower later-stage financing activity when benchmarked against other markets. Moreover, exit activity for smaller and earlier outcomes is relatively higher, while large-scale outcomes are significantly less frequent than Canada's peer countries.

Few Large, Mature Companies

Canada has not produced large scale outcomes at the same rate as other countries. Venture capital-backed exits below $500 million occur less than one-tenth as often as in the US on a normalized basis.[25] Canada compares well with the most common exit sizes seen south of the border ($25-250 million), and accounts for approximately 40 percent of outcomes in each country.[26] However, Canadian companies take nearly two years longer to exit, and do so on half as much capital.[27]

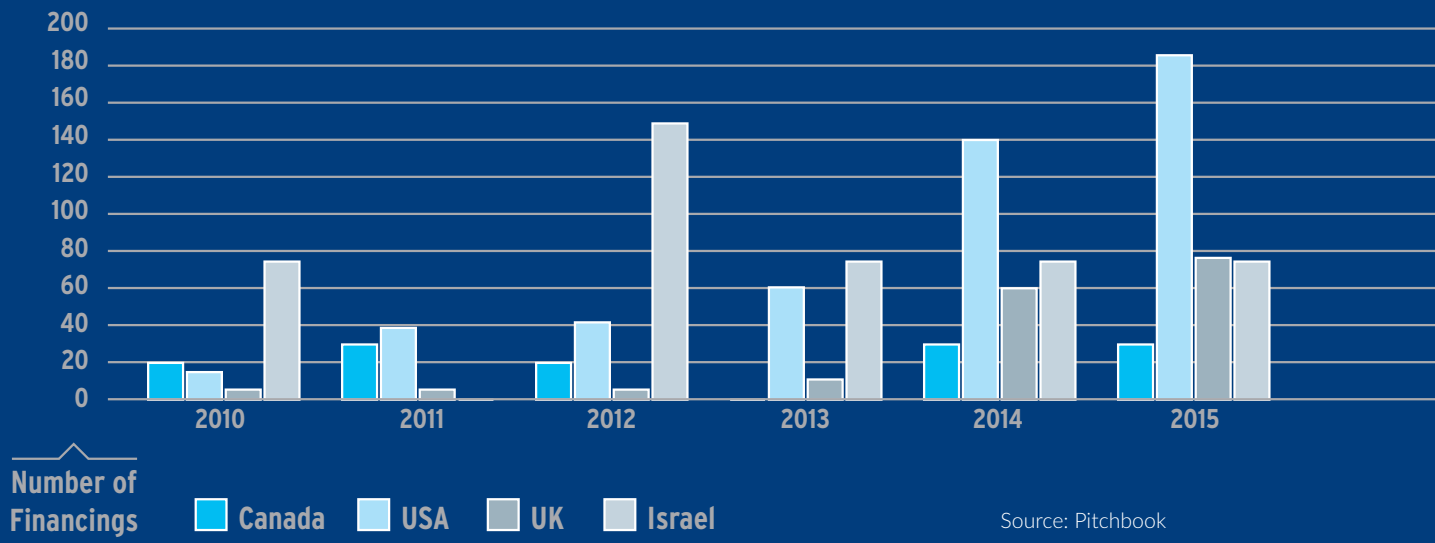
Figure 11:
Distribution of Venture Capital-backed Exits with Disclosed Valuations Since 2000



Source: Yaletown Partners; see Note in Citations.

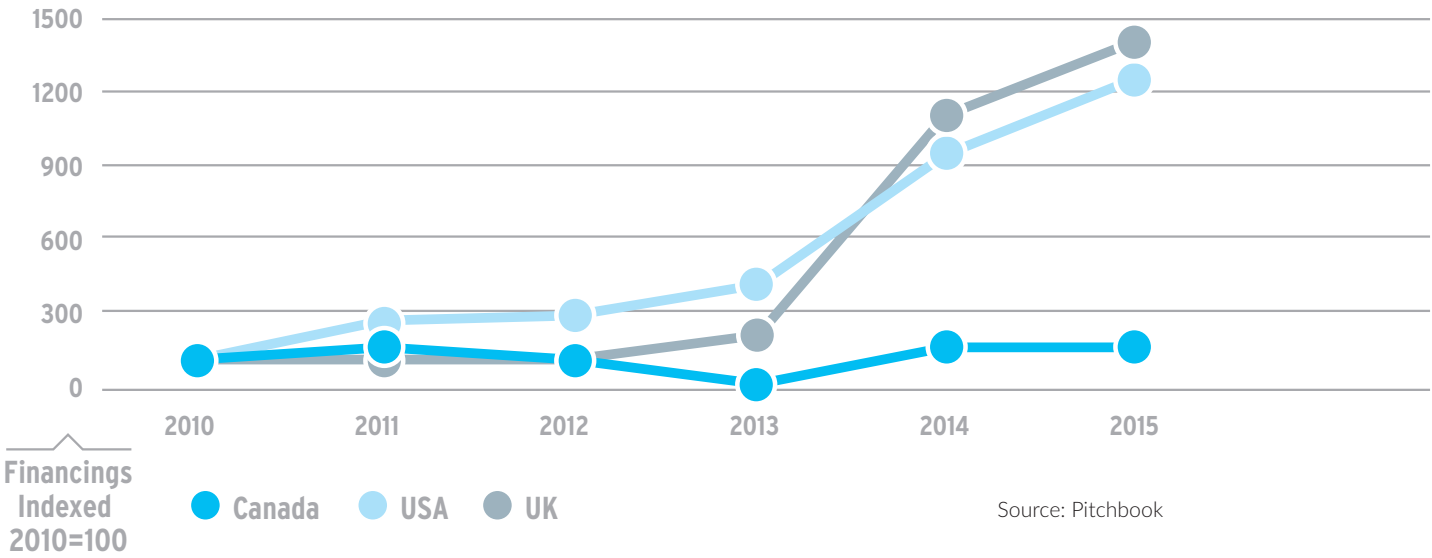
Large financings have lagged in Canada and, in particular, have not kept pace with the US or the UK since 2012-13. Large financings over $50 million occur one-sixth as frequently as in the US, and one-third as frequently as in the UK on a normalized basis.[28] Growth in large financings over $50 million in Canada has remained flat, while the trend in the UK has grown at the same pace as the US. In addition, the private and public markets interact much more frequently in the US than in Canada. Approximately 75 percent of technology IPOs in the US have been financed by traditional venture and growth capital sources, versus 40 percent in Canada.[29]

Figure 12:
Number of Private Financings under $50M by Country Normalized for GDP



Source: Pitchbook

Figure 13:
Change in the Number of Private Financings under $50M by Country Since 2010



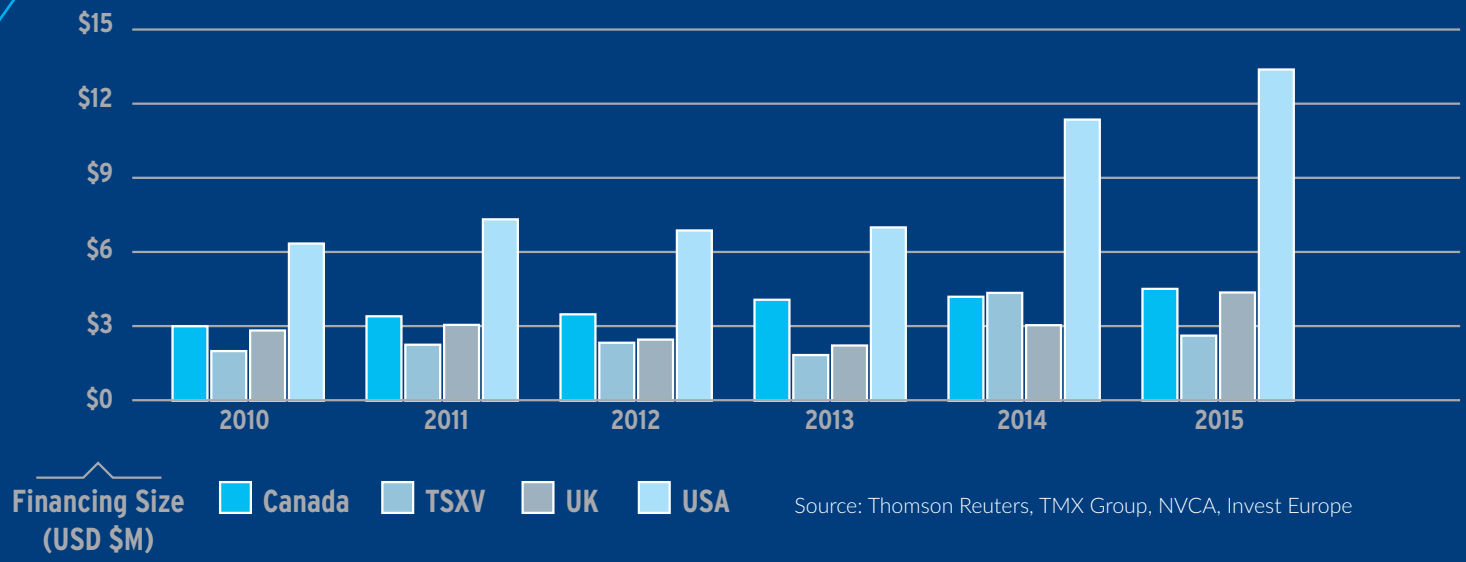
Source: Pitchbook

Scarce Growth Capital Supply

The average amount raised by Canadian Innovation Sector companies lags significantly compared to the US. The difference is even more pronounced once early-stage activity is removed and focuses specifically on the later stage. The key point of divergence is the amount raised and the rate at which companies access the first stage of growth capital identified in Figure 5 as "emerging growth capital." In this regard, the rates of occurrence in Canada relative to the US have widened significantly since 2012.

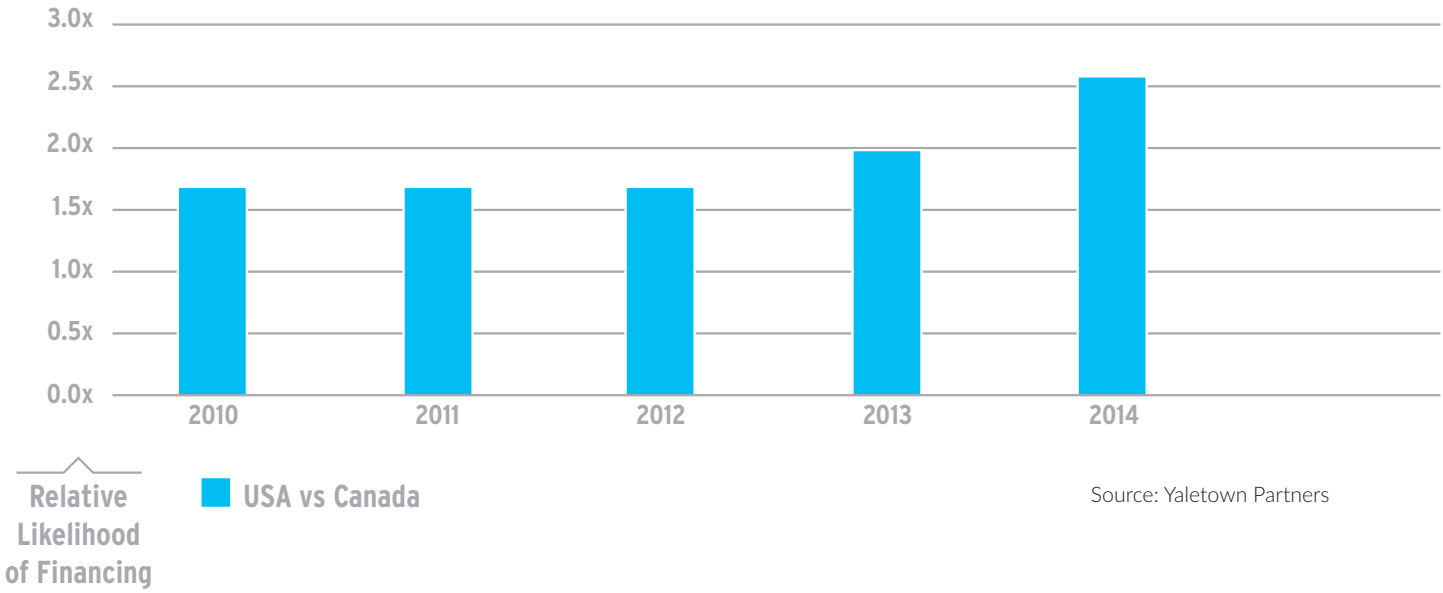
Canadian companies raise one-third the amount compared to US companies on average across all financings.[30] The difference is driven by a gap in later stage financings, where Canadian companies raise one-fourth the amount compared to US firms.[31] Overall, US companies are 2.6 times more likely to raise emerging-growth capital than Canadian companies.[32]

Figure 14:
Average Financing Size by Country



Source: Thomson Reuters, TMX Group, NVCA, Invest Europe

Figure 15:
Relative Likelihood of Post Start-up Stage Companies Raising Emerging-Growth Capital in the US versus Canada

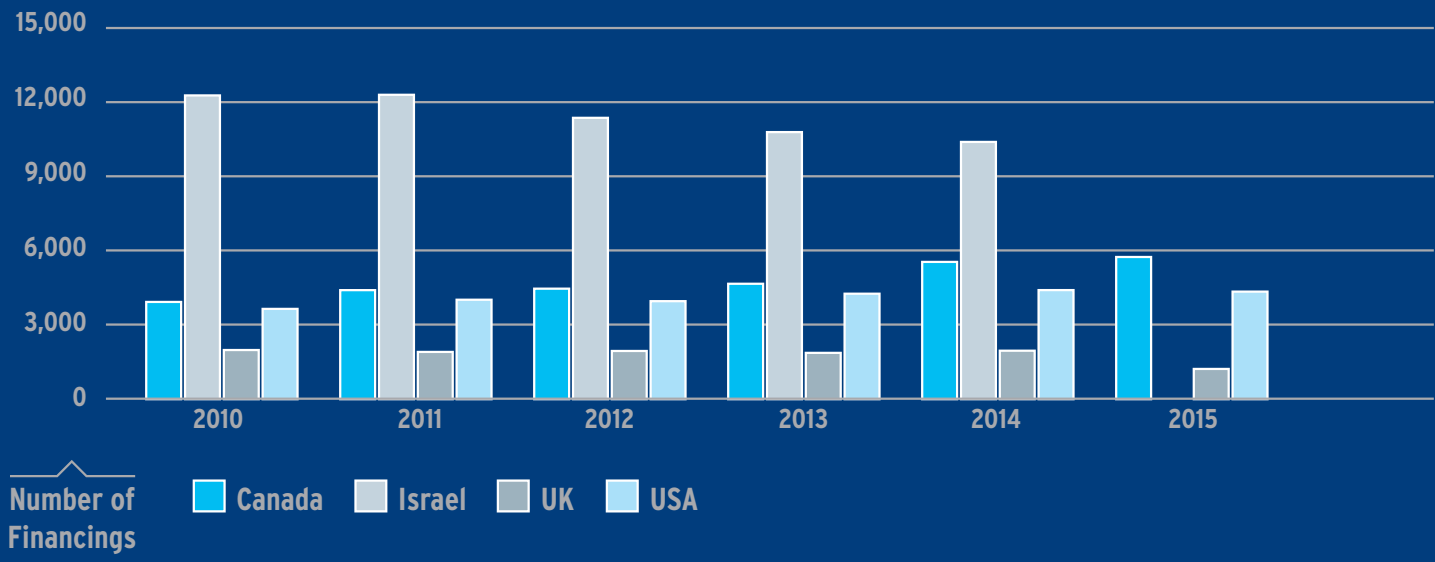


Source: Yaletown Partners

Activity Focused on Start-up and Early Stage

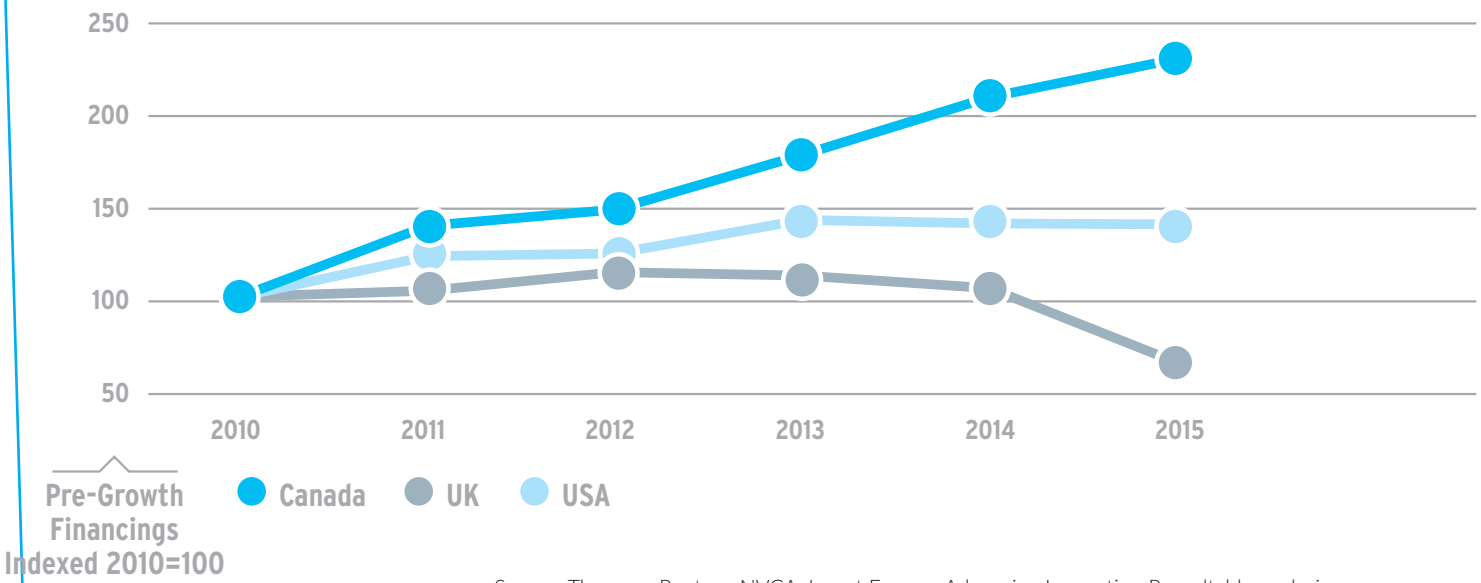
Canada continues to produce a high level of early stage and start-up stage companies – second only to Israel. The country now funds 30 percent more companies than the US on a GDP-normalized basis, and growth in Canadian innovation financing rates have outpaced other key innovation economies.[33] The growth in total financings is driven by start-up stage companies which have increased 2.5x in last five years, thereby creating increased future demand for Growth Stage capital.[34]

Figure 16:
Number of Financings by Country, Normalized for GDP



Source: Thomson Reuters, NVCA, Invest Europe, PWC MoneyTree, Advancing Innovation Roundtable analysis

Figure 17:
Change in the Number Early Stage Financings by Country Since 2010



Source: Thomson Reuters, NVCA, Invest Europe, Advancing Innovation Roundtable analysis

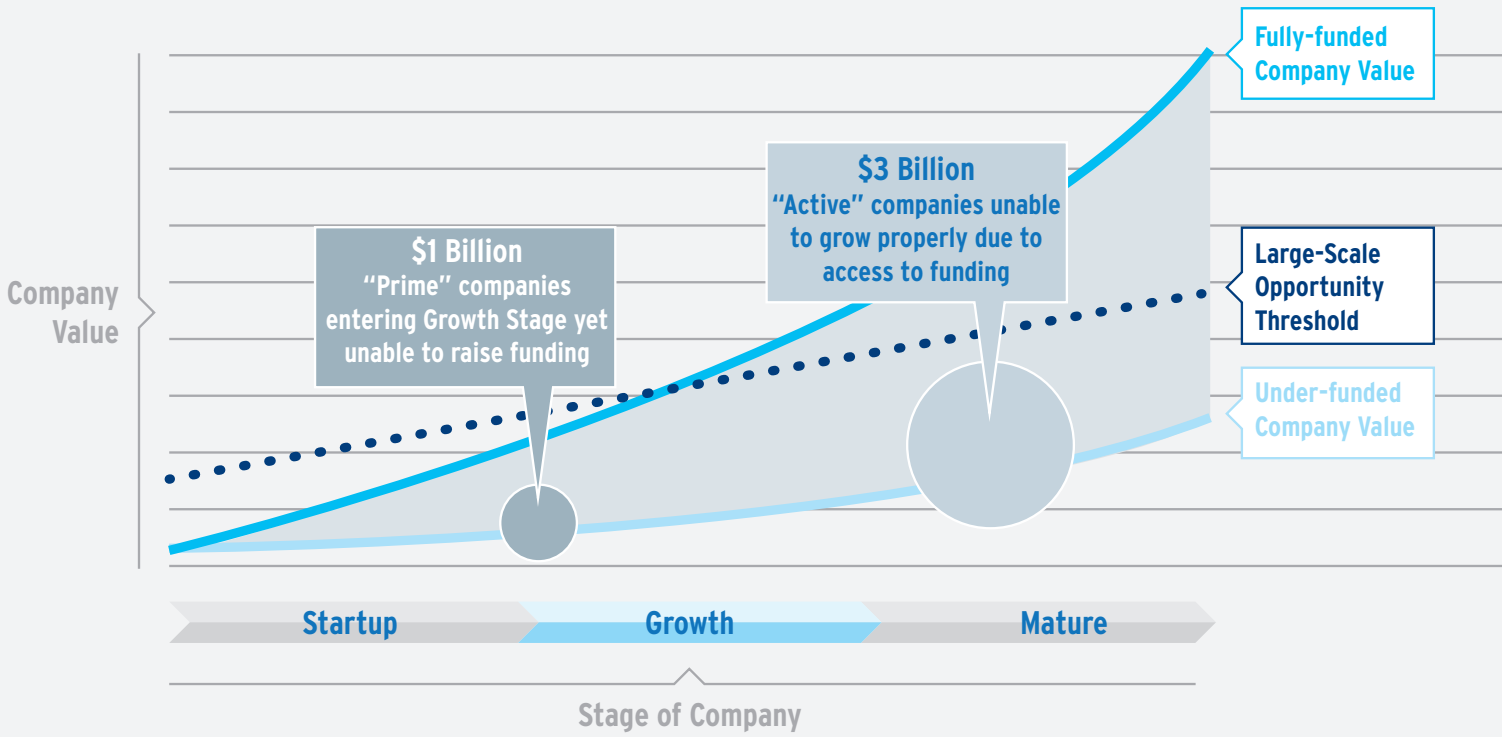
The Size of the Growth Capital Gap

The size of the growth capital gap is based on the research and analysis of the Canadian and US financing activity for companies founded in the past decade. The data included over 25,000 financings and 12,000 companies. For each founding year cohort, the average probability of receiving various types of financings was analyzed benchmarking Canada and the US. Notably, Canadian and US financing rates are not the same, though they historically have maintained stability in their relative differences. However, a sizable and expanding gap was observed in the rates of $5-25 million emerging growth financings providing evidence of a significant growth capital gap.

The growth capital gap can be viewed in two parts: a "current deficit" component and a "cumulative debt" component. The current deficit is the portion of the capital gap facing "prime" companies three-to-five years of age transitioning from start-up and early stages to the Growth Stage today. The cumulative debt is the historical portion of the growth capital gap facing the forgotten cohort of older companies unable to grow properly due to years of underfunding.

Based on the analysis, the total current growth capital gap in Canada is approximately $4 billion. Of that, $1 billion is required to normalize to historical levels the rate of emerging growth financings for today's cohort of companies entering the Growth Stage. This gap is expected to grow by at least $250 million per year due to significantly higher early and start-up stage activity, potentially doubling in size to $2 billion within three to five years. Beyond that, $3 billion is required address the large number of older companies who are active but unable to raise the proper amounts of growth capital to sustain their growth trajectory.

Figure 18:
Illustrative of the Size of the Growth Capital Gap



The $1 billion gap is the total amount needed to return the US-Canadian relative likelihood of raising emerging growth financing to its historical average of 1.7 times for the current cohort of companies. Applying the same analysis and incorporating the recent growth in early stage activity in Canada, the $1 billion total is expected to double within five years. The $3 billion additional gap is the total amount needed to normalize growth financing rates for the forgotten cohort of active older companies. For companies more than five years old, approximately 30 percent have not yet accessed growth capital despite having raised initial capital typically available for start-up and early stage companies. Up to half of these companies would otherwise receive either emerging-growth or later-stage financing.

The Public Markets' Role in the Growth Capital Gap

The Canadian public markets play a key role in addressing the growth capital gap and have been a source of capital for Growth Stage financings for Innovation Economy companies. Public venture capital can be used in conjunction with, or in substitution of, private capital. Both public venture capital and private capital are needed in Canada to address the growth capital gap. However, there are structural disincentives for a Growth Stage company choosing to go public that need to be addressed.

Public Markets Participation in Growth Stage

Capital raised by public Innovation Sector companies has increased 3x in the last three years and now consists of approximately 14 percent of all capital raised on TSX and TSXV, Canada's leading equity markets.[37] While the public markets have been taking an increasingly active role in Innovation Economy company financings, more capital needs to find its way to new listings.

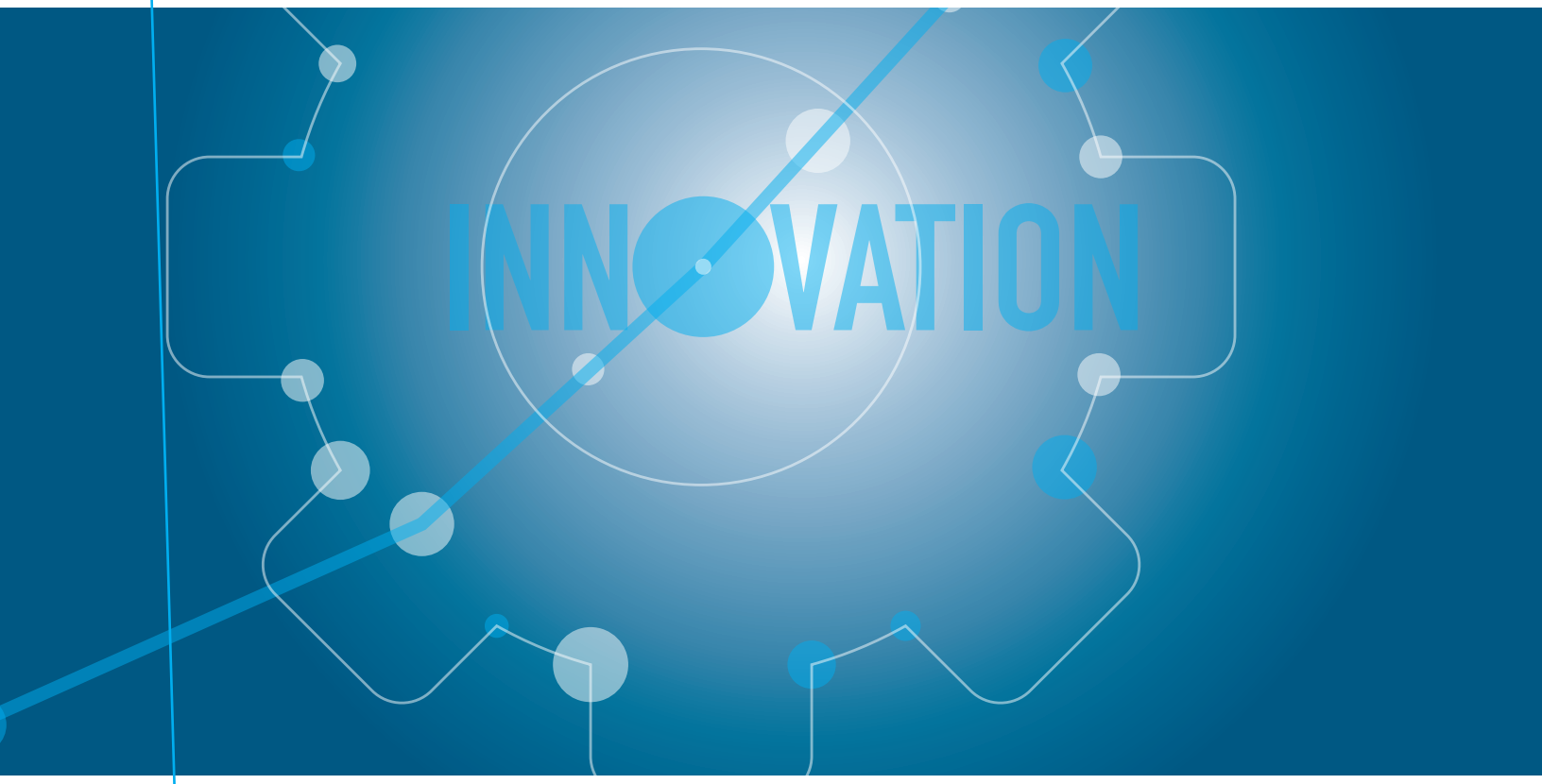
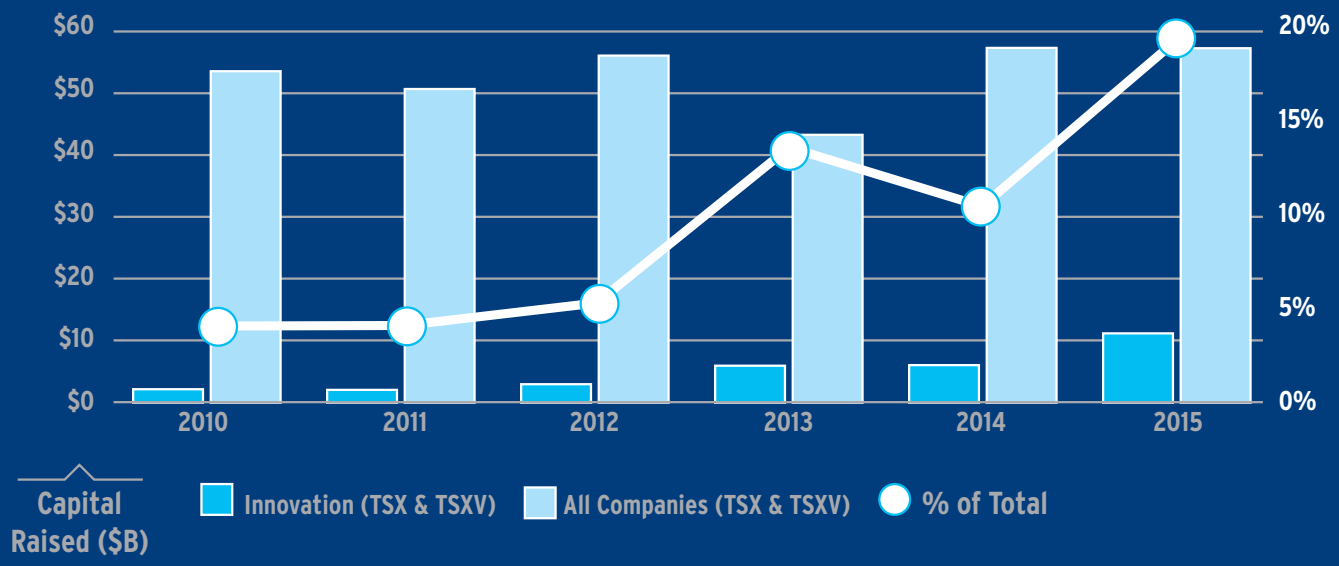


Figure 19:
Total Capital Raised by Public Companies on TSX and TSXV

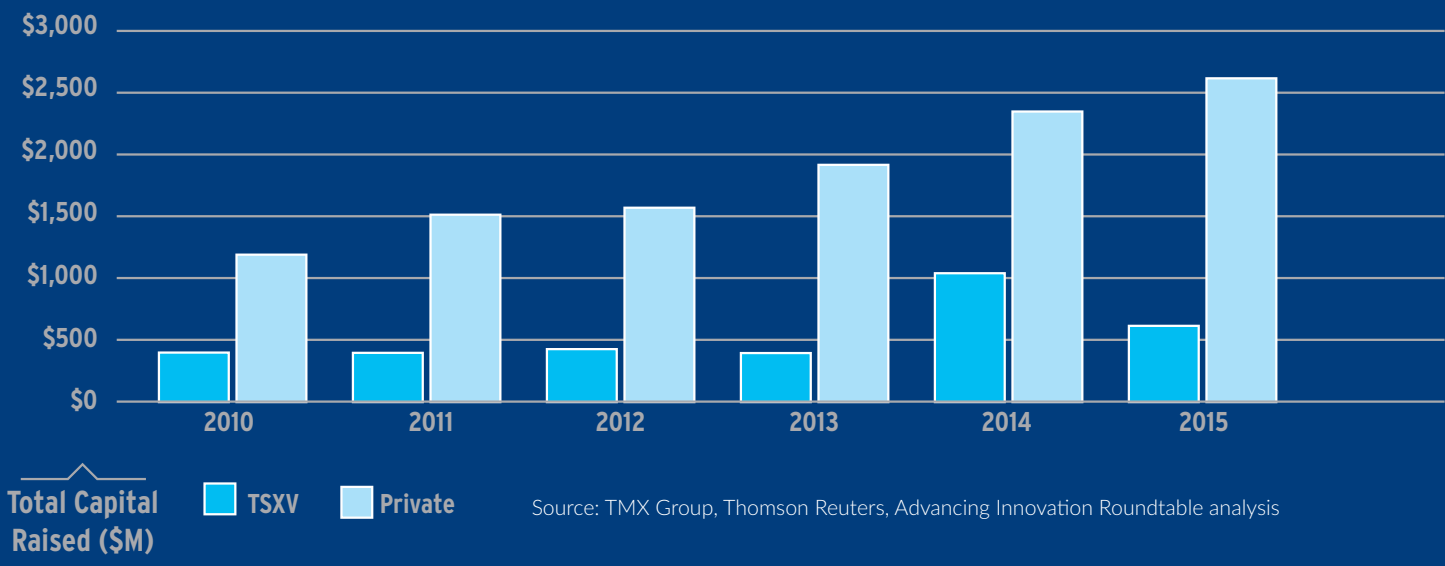


Source: TMX Group

TSXV, Canada's public venture equity market, is a major contributor to early stage and emerging growth financings, making up approximately 30 percent of the private activity and tracking closely to the financing sizes seen in the private markets.[38] Average financing size for TSXV-listed Innovation Sector companies is approximately 65 percent of the average size observed for private financings.[39] Accordingly, other than the corporate structure distinction (private versus public), TSXV financings look very similar to private financings in terms of size and stage of company and use of proceeds.

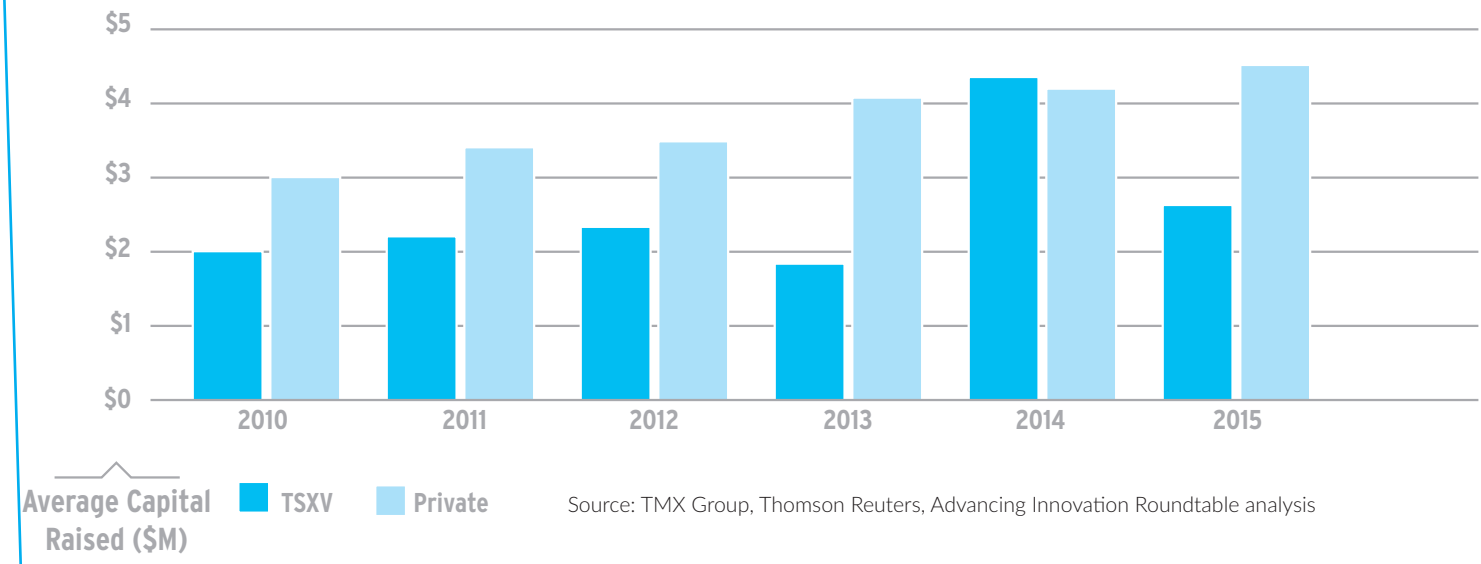
The success of TSXV-listed companies, has had an enduring positive impact on the Canadian economy and job creation in the country. Since 2000, more than 630 companies have graduated from TSXV to TSX, representing over $130 billion in market capitalization. Three companies included in the S&P/TSX 60 Index are TSXV graduates, and about 20 percent of the S&P/TSX Composite Index had their start on the venture exchange.[40] TSXV is a key part of the Canadian entrepreneurship ecosystem and should continue to be considered a strong growth platform for Start-up Stage and Growth Stage Canadian Innovation Sector companies. As at December 31, 2016, there were 494 non-resource companies listed on TSXV operating in diverse sectors including technology, life sciences, clean technology and renewable energy.[41] Many of these companies have been successful and benefited from accessing Canada's public venture market to fund their growth plans. It is vital that we continue to attract innovation companies to our public markets.

Figure 20:
Total Capital Raised by TSXV-listed and Private Innovation Sector Companies



Source: TMX Group, Thomson Reuters, Advancing Innovation Roundtable analysis

Figure 21:
Average Financing Size for TSXV-Listed and Private Innovation Sector Companies



Source: TMX Group, Thomson Reuters, Advancing Innovation Roundtable analysis

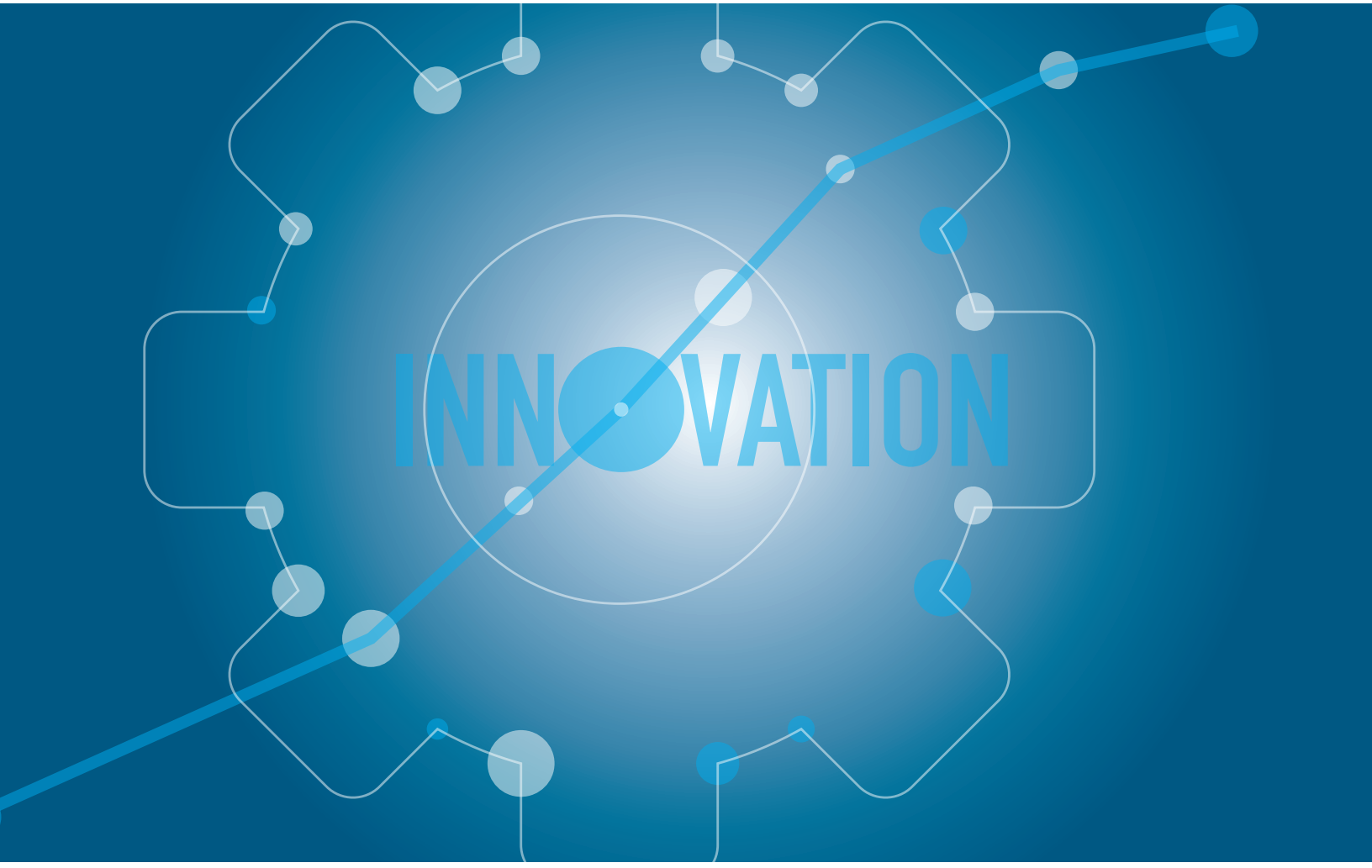
Participation of Retail Investors

For the junior public markets to be more relevant in addressing the capital needs of growing Innovation Sector companies, participation by retail investors must improve. Increasing public market investor access to expertise, information and investments of the type available to institutional capital would assist in re-catalyzing the retail investor. In addition, lack of independent research for small and microcap companies has hindered these companies by further exacerbating liquidity challenges thereby delaying institutional support. More retail investors would likely participate in the public venture market if additional tools and information were available to help them identify and better understand investment opportunities on TSXV.

Disincentives for Innovation Companies to Go Public

Inherent in the system we have today is a bias for Growth Stage companies to remain private longer as opposed to using the public equity markets to further fuel their development. To fill the capital gap, we need both the private and public markets to work together along a capital formation continuum. If the public markets are to play a greater role in Growth Stage financing, the regulatory, rules and ecosystem frameworks should be reviewed to ensure they meet the needs of Innovation Sector companies at all stages of their lifecycle. Capitalization structures used for private financings are not easily admissible into the public markets without modification requiring considerable time and expense.

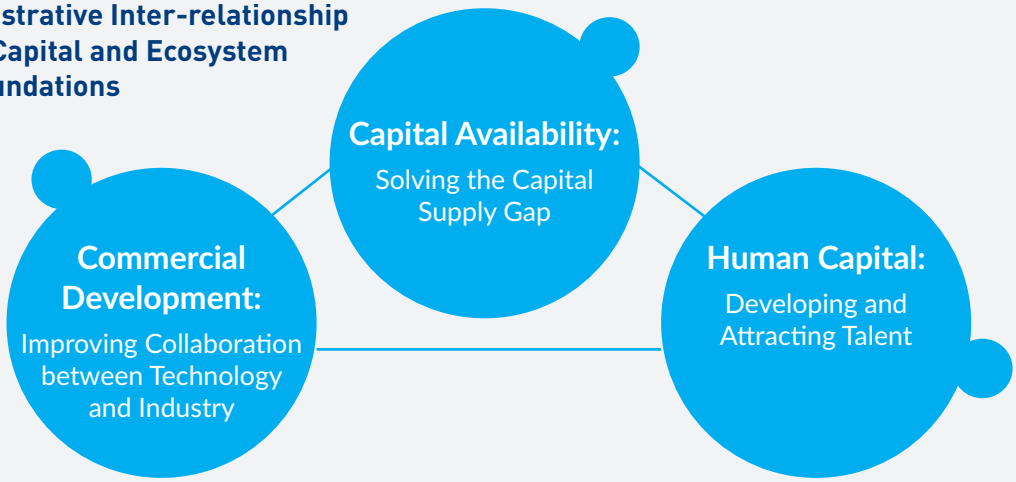
From a taxation perspective, there is an uneven playing field for the same Growth Stage company if it is public versus private. Specifically, private companies eligible for the Scientific Research & Experimental Development (SR&ED) tax program have access to an enhanced, refundable 35 percent investment tax credit, whereas public companies of the same size and stage of development have access to a 15 percent non-refundable tax credits. The need to create a level playing field under SR&ED will be discussed in detail in the Recommendations section of this report.



Ecosystem Foundations for Long-Term Sustainability

Canada's Innovation Economy has tremendous opportunity but is not reaching its full potential due to the capital gap for Growth Stage companies. Unlike Silicon Valley, it is also still a maturing ecosystem. A comprehensive approach to strengthen the Canadian ecosystem's foundations is needed to better compete with global technology powerhouses, such as the US and Israel, both now and in the future. Failing to address and improve the ecosystem's foundations creates the risk that the Innovation Economy continues to underperform its full potential.

Figure 22:
Illustrative Inter-relationship of Capital and Ecosystem Foundations



Beyond the capital shortfall, Canada struggles to obtain, retain and develop managerial and commercialization talent. Structural limitations for attracting high-skill immigrants combined with an underdeveloped domestic education infrastructure for sales and managerial training have all contributed to a talent gap. Canada must also assert a global leadership role in fostering strategic differentiation of skills, expertise for the next-generation technology development.

In addition, Canada's digital infrastructure, which serves as the backbone for product development, ranks low particularly when compared to other developed economies. Investment in specialization for key areas, such as cybersecurity, data privacy, Internet of Things enablement and artificial intelligence (AI), would help create competitive advantages for Canada's Innovation Economy.

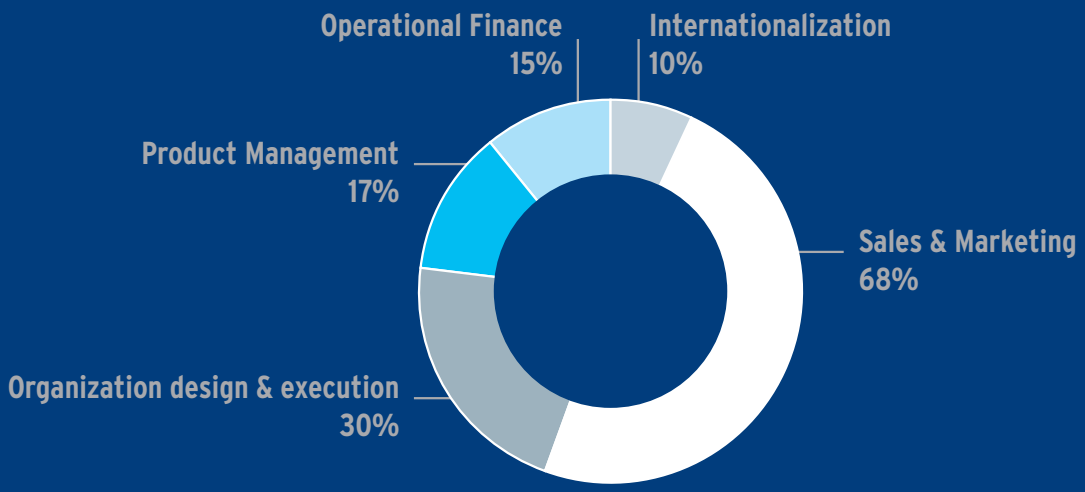
Building and cultivating a robust Innovation Economy requires the support of collaboration infrastructure. Canada's domestic industries offer a unique opportunity to develop a leadership role in technology adoption and differentiation among global peers. To that end, improvements to the collaboration infrastructure and Canada's governmental procurement processes are needed to not only maintain comparable levels with other countries, but also to put Canada in a position of strength.

Talent Access and Development

Canada's immigration policies are challenged to deliver on the needs of Growth Stage companies. Work permits, which apply generally across the economy, are lengthy to process and quite complex. The federal government's Start-Up Visa Program is under-utilized and focuses on early stage entrepreneurship, requiring entry requirements through the country's accelerator infrastructure. Neither are particularly tailored to expediting access to experienced talent.

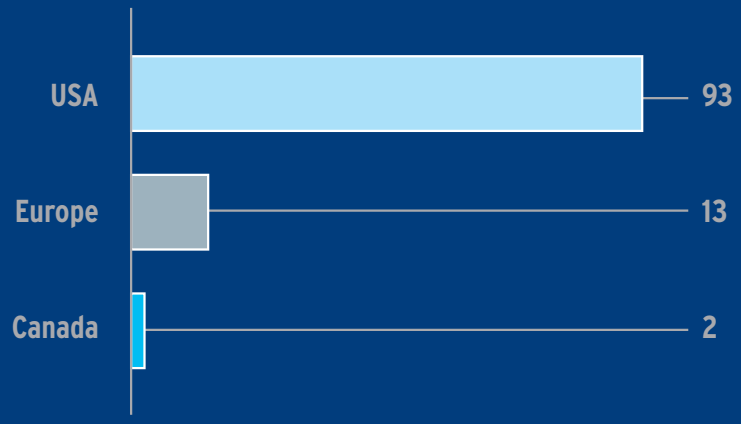
Capital access and talent access are related: lack of capital leads to management flight and the inability hire top tier managerial and commercial talent. Furthermore, while successful in developing technical talent, Canadian universities can do better at developing commercial and managerial talent. One in four US business programs offer a dedicated sales curriculum and 15 US-based MBA programs offer post-graduate curriculum in sales, whereas only two Canadian academic institutions offer certificate programs.[42] In a review undertaken by the Lazaridis Institute for the Management of Technology Enterprises at Wilfrid Laurier University, it was determined that the single largest executive competency Canadian technology firms lack is sales and marketing skills.[43]

Figure 22:
Key Management and Executive Competencies Tech Firms Struggle to Obtain



Source: Lazaridis Institute

Figure 24:
Number of University-level Sales Programs by Country and Region



Source: Sales Education Foundation, Advancing Innovation Roundtable analysis

Digital Infrastructure

Digital infrastructure is competitively as important as physical infrastructure for the Innovation Economy by enabling the productivity benefits afforded by technology adoption. For example, healthcare, retail and transportation sectors are reliant on data, software and communications infrastructure to deliver electronic health records, e-commerce, and navigation and tracking solutions. Per the Organization for Economic Co-operation and Development (OECD):

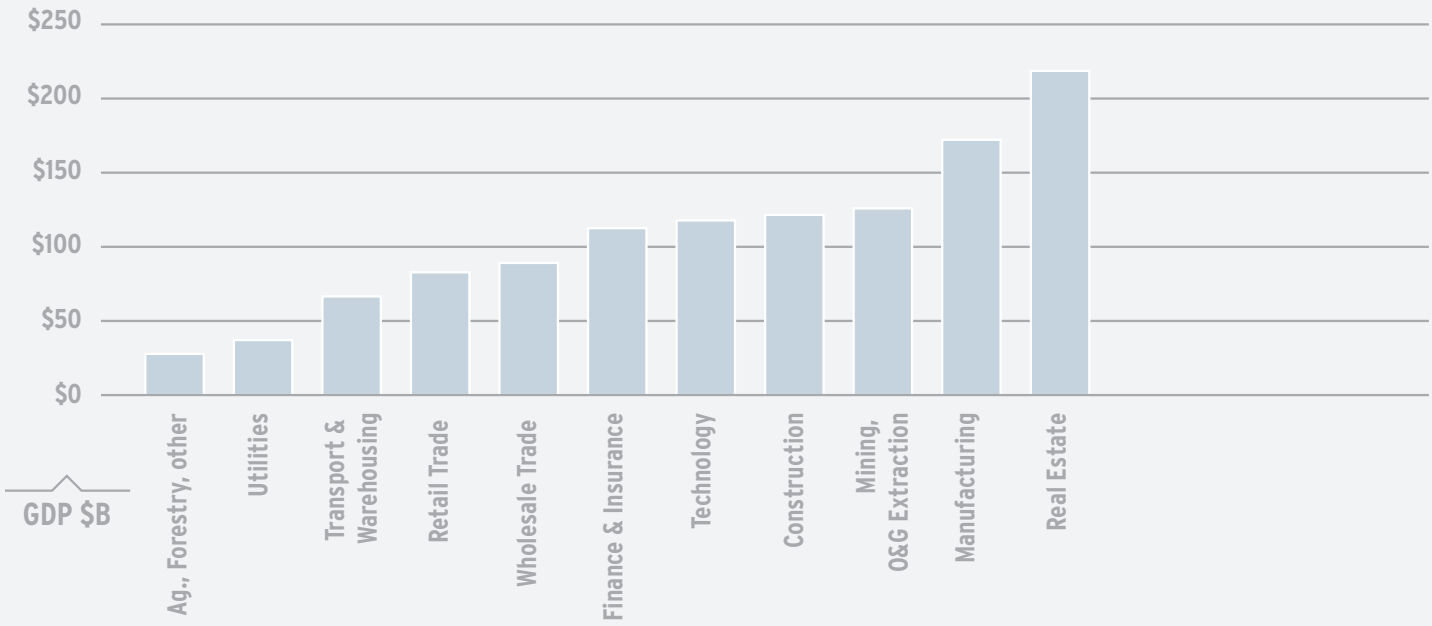
> ***"The convergence of fixed, mobile and broadcast networks, along with combined use of machine-to-machine (M2M) communication, the cloud, data analytics, sensors, actuators and people, is paving the way for machine learning, remote control, and autonomous machines and systems. Devices and objects are becoming increasingly connected to the Internet of Things, leading to convergence between ICTs and the economy on a grander scale"[44]***

Canada is not a leader among OECD countries in digital infrastructure. While investment to improve Canada's core information and communications foundations is needed, a focused approach to develop and increase competitive advantages by specializing in key areas would create unique benefits Innovation Economy. For example, developing a robust Internet of Things ecosystem would require investment across multiple aspects of the nation's digital infrastructure including communications, data privacy and management, and cybersecurity.

Strategic Industry Collaboration

Canada's accelerator network for commercial and industry collaboration is largely focused on seed and early stage companies, while there is a lack of a comparable network for collaboration between Growth Stage companies and Canada's largest sectors. Collaboration can improve an innovation company's understanding of the customer needs of large corporations, enable a forum to trial new technologies and learn the business model challenges of these large customers, including pricing, sales and channel strategies. We are, however, seeing it in pockets – which is an excellent sign. For example, the GE Customer Innovation Center in Alberta is focused on collaboration in the oil and gas sector. Typically, sector collaboration is centered around the technology sector, not large strategic industries to Canada. Thus, the top four sectors by GDP could greatly benefit from having a much higher level of interaction with the Innovation Economy.

Figure 25:
Canadian GDP by Sector in 2015



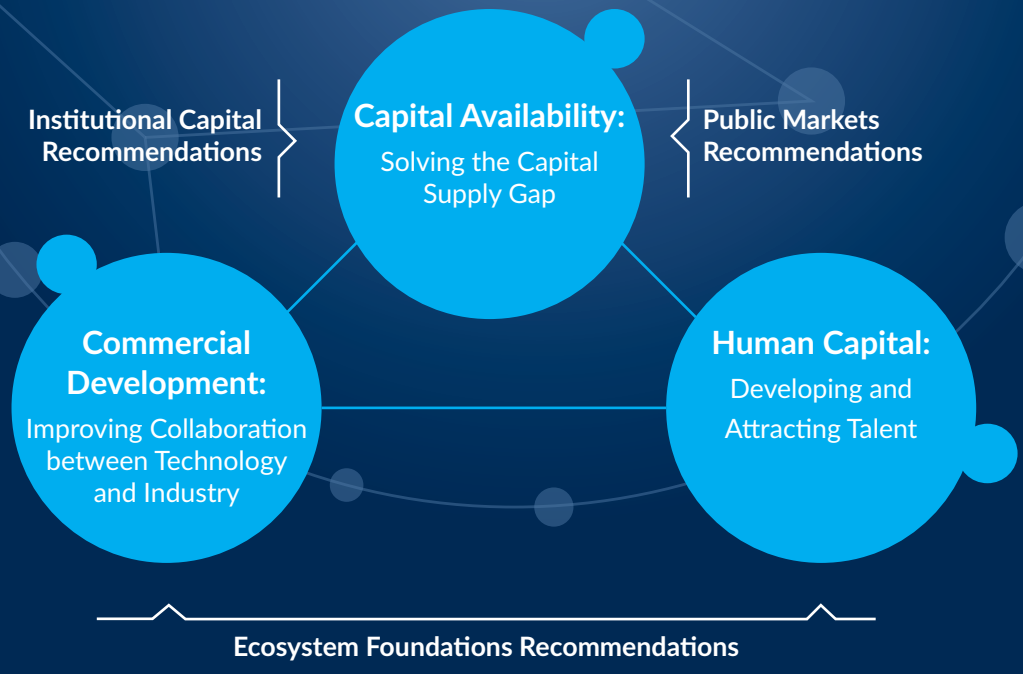
Source: Brookfield Institute, Statistics Canada

THE ADVANCING INNOVATION ROUNDTABLE RECOMMENDATIONS

The Advancing Innovation Roundtable is focused on solutions involving both the public and private markets that address the immediate and long-term issues facing the nation's Innovation Economy and Innovation Ecosystem. The $4 billion-and-growing growth capital gap is currently constraining Innovation companies, limiting their potential as well as the potential of the Innovation Economy. The foundations that support the country's Innovation Ecosystem require continuous improvement, further investment and a long-term view to support a growing, robust and sustainable future for innovation in Canada.

The Roundtable's recommendations are organized into three key categories: 1) Institutional Capital Recommendations, 2) Public Market Recommendations, and 3) Ecosystem Foundation Recommendations. Institutional Capital and Public Market Recommendations go to directly target today's $4 billion capital supply gap for Innovation Economy companies in Canada. The Ecosystem Foundation Recommendations champion the need to invest in the infrastructure to support the Innovation Economy of the future, ensuring Canada can maximize the economic returns from innovation. Each recommendation is supported by specific proposals that are actionable immediately.

Figure 26:
Illustrative of the Advancing Innovation Roundtable's Recommendations for the Innovation Ecosystem



Institutional Capital Recommendations

Recommendation #1: Canadian pension funds adopt a target allocation of the lesser of 0.1 percent of assets under management or $100 million for the Innovation Economy. Institutions that constitute the regulated financial sector, including banks, credit unions and insurers, would adopt a target based on their size as set out below

Total Assets ($ billion)	Target Allocation ($ million)
Greater than 300	100
100 – 300	50
Less than 100	20

The $4 billion growth capital gap can be addressed with a private market solution designed to create sustained, long-term support for the Innovation Economy. Collectively, the top 10 (by size) Canadian pension funds represent approximately $1.1 trillion.[45] Indeed, a recent study estimated the aggregate assets under management by all Canadian pension funds at US$1.6 trillion.[46] As a group, these sophisticated investors allocate long-term, patient capital globally across a wide range of assets.

Given the risk-adjusted returns achievable in the Growth Stage, the Roundtable recommends a call to action for Canadian pension funds to achieve a target allocation of 0.1 percent of assets under management up to $100 million to invest in the Canadian Innovation Economy, targeting Growth Stage companies. Doing so would invite greater participation by institutional investors, the most patient cohort of the investment community, where in the aggregate these 10 basis points represents approximately $1.5-2 billion of potential investment and would have an immediate and material impact on addressing the current capital gap. In addition, with participation by banks, insurers and others, another $1 billion of potential investment would be available.

To achieve the target, the Roundtable supports three proposals to ensure maximum potential investment, each able to address the differences in size, resources and expertise of the individual institutions. The options include:

1) Renewal of the Venture Capital Action Plan, providing institutional investors with an indirect investment through external funds of funds.

2) Establishment of an Innovation Growth Fund, providing institutional investors with an indirect investment through an external dedicated fund.

3) Support for direct fund investments as a limited partner, including fund of funds investment vehicles; direct, internally managed investments into Innovation Economy companies, managed by an internal team, such as at OMERS Ventures; or a comprehensive direct and indirect strategy as adopted by the Caisse de dépôt et placement du Québec in its “Direct Active Portfolio” model.

Proposal #1: Support the renewal of the Venture Capital Action Plan to provide institutions indirect fund of funds vehicles for investment.

The renewal of the Venture Capital Action Plan (VCAP) provides institutional investors with an indirect investment vehicle through external funds of funds. This provides a low overhead option for participation in the Canadian Innovation Economy through a program with an existing track record for institutions seeking indirect investment, institutions with limited capacity for risk capital allocations, and institutions with limited internal resources or expertise to manage such investments.

The Government of Canada established VCAP in the 2012 federal budget as a $400 million vehicle to help increase private sector investments in early-stage venture capital, and to support the creation of large-scale venture capital funds. Following government-led consultations with various stakeholders, in January 2013 VCAP was launched, making available:

- $250 million to establish new, large, private sector–led national funds of funds;
- up to $100 million to recapitalize existing large private sector–led funds of funds; and
- aggregate investment of up to $50 million in three to five existing high-performing venture capital funds in Canada.

The VCAP program is an indirect investment vehicle whereby private sector fund of funds are recipients of the $400 million. They, in turn, invest in venture capital funds across Canada which deploy the capital into companies.

As at June 30, 2016, total aggregate committed capital for the 20 Canadian funds supported under VCAP was $2.8 billion: $600 million from the VCAP program and $2.2 billion from other LPs.[47] As at March 31, 2016, the funds had invested $453 million in 126 Canadian companies, and the program was 59 percent committed. VCAP is expected to be fully committed in 2017.[48]

The VCAP program has had significantly positive impact on the Innovation Economy and, given the established management and implementation infrastructure in place by the Business Development Bank of Canada (BDC), the program it is "shovel ready" to permit capital to be deployed quickly. We encourage the federal government to renew the program with a focus on the scale-up ecosystem.

VCAP's $400 million initial contribution to the four fund of funds was integral to their success in attracting the additional $935 million from private funds. Its continued support of the Canadian venture capital ecosystem at a critical point in the development cycle is crucially important. In short, one cycle is not sufficient to build a sustainably self-funding industry.

Proposal #2: Support the creation of a private sector Innovation Growth Fund to permit institutions to invest in a dedicated vehicle.

The creation of an Innovation Growth Fund (IGF) provides Canadian institutional investors with an indirect investment vehicle through an external dedicated fund. The option provides the ability for institutions with infrastructure to manage external funds, but who do not necessarily possess sector or risk capital expertise to immediately participate in the Innovation Economy. Based on the template of the UK Business Growth Fund (BGF), the IGF should be specifically focused on Growth Stage investments in the Innovation Economy: Innovation Sector companies or companies transforming their industries using innovative technologies, for instance, clean technologies or advanced manufacturing. The IGF should have geographic regional coverage across Canada, be returns-driven, and have the ability to invest in both public and private Growth Stage companies.

The BGF was launched in 2011 to fulfill one of seventeen recommendations of a 2010 Business Finance Task Force that included CEOs of the largest British banks along with representation from the British Bankers Association.[49] The BGF is a £2.5 billion committed capital pool funded by five of Great Britain's largest banks providing patient investments as minority equity and equity-like loans, totalling £2 million to £10 million to businesses with revenues of between £5 million and £100 million per year for growth, acquisitions and shareholder buyouts.

BGF investments are typically provided by way of preferred shares and unsecured notes with equity options. Investee companies have access to a talent network of more than 3,000 board-level contacts across all sectors of the UK's industrial base. In addition, the UK banks backing the BGF have secured favourable regulatory treatment for the committed and funded capital with the UK government.

In the Canadian context, the IGF would provide the country with benefits from the three key successes of the British experience: a material increase in capital invested in growth businesses in need of it, with rapid deployment, while also facilitating a resultant expansion in revenues and employment within the target companies. Were it to be funded to the $1 billion level, it could close 25 percent of the $4 billion capital gap currently estimated for this cohort.

Under an IGF model, companies with strong growth potential would be vetted by an independent board and have access to direct equity investment for a minimum 10 percent ownership averaging over five-year horizon and, where appropriate, working capital financing. To deliver efficiency and enable rapid analysis and monitoring of relevant information, new investment data tools and warehousing, hosted by independent institutions acting as repositories, would develop and permit access to standardized private company data.

To tailor the program to Canadian needs, the following elements need to be included in the proposed IGF:

1) Investment focus exclusively on the Innovation Economy: including Innovation Sector companies or companies transforming traditional industries using new technologies.
2) Strong regional coverage across Canada.
3) Designed to be "shovel ready" and scalable to permit large numbers of investments on an annual basis.
4) Able to invest in both private and public companies in the Innovation Economy that meet investment criteria.
5) Managed by a team with experience investing in Growth Stage companies.
6) To maximize the number of participants and address operating costs associated with regulatory limitations for financial institutions, agreements regarding certain regulations may be required.

Proposal #3: Support the adoption by institutions with sufficient resources and expertise: a direct investment program into Innovation Sector companies; an indirect investment program of investing in venture capital funds; or a comprehensive program with both direct and indirect components.

Facilitating and supporting the approach by institutions with the expertise and resources to pursue a broad-based set of investments is the long-term answer to the growth capital gap. Institutions can participate in the Innovation Economy by directly investing in Innovation Sector companies, by investing indirectly through venture capital funds, or by combining the two in a portfolio strategy.

Some of Canada's largest institutions are already implementing such approaches. For example, the Ontario Municipal Employees Retirement Systems (OMERS) has successfully developed the team and the expertise to directly invest into companies from its in-house venture capital fund, emulating its private equity strategy.

The Caisse de dépôt et placement du Québec's "Direct Active Portfolio" strategy is a well proven institutional framework for investment in the Innovation Economy and should serve as a model for institutions targeting a comprehensive approach. The Caisse's technology investments include $600 million in start-up, growth and mature companies for which it follows a three-step process:

1) Research a sector by investing in funds of funds, venture capital funds and private equity funds.

2) Track funds and co-invest with the best managers.

3) Expand co-investment team and apply knowledge to convert LP-GP deals into strategic partnerships.

The knowledge gained through the process of investing in the Innovation Ecosystem provides the Caisse with unique benefits. It gains a portfolio-level perspective on risk and return profiles for public investments, giving it an edge in its direct investment portfolio. It also provides the ability to effectively "look ahead" at a portfolio level to develop the next generation of large, investable assets, thereby providing an implicit risk hedge.

Public Market Recommendations

Recommendation #1: Increase public market investor access to expertise, information and investments available to institutional capital.

The retail public market investor in micro-cap and small-cap Innovation Sector companies is becoming a rarer breed of investor. Ways to increase participation of the retail investor and the depth and quality of the information they receive on micro-cap and small-cap Innovation Sector companies should be explored.

Proposal #1: Support the development and creation of a retail, publicly traded co-investment fund for the IGF, subject to a maximum investment amount by an individual investor.

As an extension of the institutionally focused IGF, we support the creation of a retail, publicly traded co-investment fund. This retail fund would invest *pro rata* and *pari passu* with the IGF in any investment, thereby providing retail investors with access to the same investment strategy enjoyed by the institutional shareholders in IGF. With a target objective of $500 million to $1 billion, such a fund would expand the potential capital pool while also re-energizing the retail channel and independent dealer sector. A maximum amount that could be invested by any retail investor would be established.

Recommendation #2: Address the disincentives to list, including structural costs and liquidity issues, for companies accessing public capital.

TSXV should consider becoming more closely aligned with private capital markets from a regulatory and economic perspective. This recognizes that the junior markets are less about an "exit" event and more about an alternative financing platform to the private markets. Accordingly, the TSXV platform and its regulations, rules and associated ecosystem would more directly assist Innovation Sector companies as they scale up.

Proposal #1: Support the introduction by TSXV of a regulatory, rules and ecosystem framework to ensure that it is responsive to where a company is in its lifecycle.

The needs of Innovation Sector companies are unique. The pace of growth can be much faster than a typical industrial company, however Innovation Sector companies may list much earlier stage in their development lifecycle. The regulations and rules applicable to such companies must consider where a company is in its lifecycle including, for example, a more aggressive sliding scale for fees dependent on the size of a company, and an easier regime for accredited investors to invest directly into a company using digital tools.

Proposal #2: Support the introduction of self-serve data products to increase information availability and research on public Innovation Sector companies.

Small-cap and micro-cap companies are hindered by the dearth of independent research, limiting investor interest, exacerbating liquidity challenges and delaying institutional support. Both Start-up and Growth Stage financings as well as analyst coverage are mostly the domain of the smaller investment banks that cater to this scale of company. In recent years, however, the independent dealer community in Canada has been challenged, resulting in a significant change in the capital markets ecosystem. While we support a healthy independent dealer sector, additional self-serve and easy to use tools and information should be made available to help retail investors better identify and understand investment opportunities on TSXV, thereby generating greater participation in Canada's public venture market.

Proposal #3: Support the accommodation of a variety of capitalization structures often used in private Innovation Sector companies.

Capitalization structures used in private financings by venture capital and private equity firms are not easily admissible into the public markets without modification requiring considerable time and expense. TSXV should explore mechanisms to accommodate such structures. For example, the structures could be listed for a period of time, after which they must be collapsed after listing. This would encourage more venture capital-backed and other privately-backed firms to use the public venture markets as an alternative to private growth rounds.

Proposal #4: Support the equal treatment for public and private SMEs under the SR&ED tax program

The objective of the Scientific Research and Experimental Development (SR&ED) tax credit is to encourage Canadian businesses of all sizes and in all sectors to conduct R&D in Canada that will lead to new, improved or technologically advanced products or processes. The SR&ED program is particularly important to emerging growth companies in the Innovation Economy whose major challenges remain access to capital and wider commercial adoption of products. The SR&ED program is needed to assist Canadian firms compete with companies in other jurisdictions who have access to similar, and in some cases stronger support. In many cases, SR&ED funding provided to emerging growth companies with early revenues is a significant component of overall operating funding.

Broadly there are three groups of businesses that are eligible for the SR&ED program:

1. Canadian controlled private corporations (CCPCs)
2. Other corporations (such as public companies)
3. Proprietorships, partnerships and trusts

The SR&ED investment tax credit (ITC) is earned at a basic rate of 15 percent on qualified expenditures, however a company that qualifies as a CCPC may earn an ITC at an enhanced rate of 35 percent, up to a maximum of $3 million. Importantly, the ITC for CCPCs is fully refundable regardless of taxable income, whereas for other corporations it is non-refundable. This distinction provides a disincentive for emerging growth companies to publicly list since they lose full benefits under SR&ED. This pre-supposes that once a company goes public it has a certain level of profitability and cash flow, and may not need to rely on SR&ED to the same extent as CCPCs. However, as the data shows, emerging growth CCPCs and TSXV-listed companies are similar in stage of development, value and financing needs. Given the scope of the growth capital gap, Canada needs to fully utilize all sources of capital, both public and private as well as private subsidiaries of foreign corporations.

We recommend removing the CCPC restriction for SR&ED refundable credits, whilst maintaining other eligibility requirements including taxable income and taxable capital. The CCPC restriction for refundability is counterproductive to the aims of the SR&ED program – to encourage Canadian-based R&D. Instead, the entitlement should be based on maintaining certain levels of business activity and/or employees in Canada rather than on Canadian control, ownership or corporate form. Accordingly, tax benefits would be afforded to those entities that provided a material economic benefit to Canada. As has been noted by others over a decade ago, including Canada's biotechnology community in a submission to the Canada Revenue Agency on improving SR&ED, companies are portable - especially early stage companies - and Canada risks losing out to competing jurisdictions that do not impose similar CCPC type restrictions. Canada's interest should be to focus on having the R&D activity, with the employment and investment it brings, located in Canada. For example, the UK eliminated any "CCPC" type ownership requirements.[50]

Ecosystem Foundation Recommendations

Recommendation #1: Address access to and the development of managerial and commercial talent.

Canada's immigration policies are challenged to deliver what Growth Stage companies need. Work permits, which apply generally across the economy, are lengthy to process and complex. The Start-Up Visa Program is under-utilized and we believe is too focused on early stage entrepreneurship, requiring entry requirements through the country's accelerator infrastructure. Neither immigration policies overall nor the Start-Up Visa Program are particularly tailored to expediting access to experienced talent from around the world.

Engaging the domestic institutions charged with developing the next generation managerial and commercial talent is key to long-term success. Canadian universities produce excellent technical talent but develop far less commercial and managerial talent due to the limited number of training programs available. Continuous review and improvement to the Canadian education system is beyond the scope of this report and its proposals, however the Roundtable encourages focus on post-secondary training for managerial and commercial talent.

Proposal #1: Support the introduction of the "Global Skills Visa" to facilitate the immigration of high-skilled workers to fill talent gaps.

The Roundtable supports Canada's Global Skills Strategy as announced in the federal government's Fall Economic Update 2016. The "Global Skills Visa" addresses the concerns around timelines and complexity by targeting a two-week standard processing for visas and work permits for low-risk, high-skill talent. The initiative helps fill labour gaps for companies doing business in Canada who create jobs and invest in the Canadian economy. The short-duration work permit will also assist Canadian-based multinational Innovation Sector companies by eliminating structural impediments for a variety of activities, including centralized training and education. The revamped ranking system to improve Express Entry for management positions and qualified offers of employment has the potential to service the specific skills gaps identified in this report.

Recommendation #2: Treat digital infrastructure and technologies as strategic and mission-critical national infrastructure.

The productivity benefits afforded by technology adoption make digital infrastructure as important as physical infrastructure for the Innovation Economy. However, Canada lags other OECD member countries in digital infrastructure development. While investment to improve Canada's core information and communications foundations is needed, a focused approach to develop and increase competitive advantages by specializing in keys areas, such as cybersecurity, data privacy, Internet of Things enablement and artificial intelligence, would create unique benefits as well as differentiation for the Canadian Innovation Economy.

Proposal #1: Support the inclusion of digital infrastructure for project eligibility with the new Canada Infrastructure Bank.

Digital infrastructure is as important as physical infrastructure. As such, digital infrastructure projects should be included in the mandate of the Canada Infrastructure Bank announced by the federal government as part of the Fall Economic Update 2016. The Canada Infrastructure Bank is expected to take shape in 2017 and we recommend that improvements to digital infrastructure merit inclusion alongside other physical infrastructure projects. Of high importance would be projects that help position Canada as a leader in key areas such as cybersecurity, data privacy, Internet of Things enablement and AI.

Recommendation #3: Lower the barriers for productivity and technology adoption within the Innovation Economy through collaboration between Innovation Sector companies and Canada's strategically important industries.

Canada's accelerator network for commercial and industry collaboration is largely focused on seed and early stage companies. There is a lack of a comparable network for collaboration between Growth Stage companies and Canada's largest sectors so that these companies can better understand the customer needs of large corporations, have a forum to trial new technologies, and understand the business model challenges of these large customers, including pricing, sales and channel strategies. In addition, the federal and provincial government role as a commercialization partner can be improved and expanded.

Proposal #1: Support the revamping of the Build in Canada Innovation Program.

The Build in Canada Innovation Program (BCIP) is designed to have the government serve as the bridge for pre-commercialization technologies for Innovation Sector companies by testing, evaluating and potentially providing a first reference sale. Revamping the BCIP to enable the government to procure as general reference customer for commercial products and services, not just as a first reference customer for technologies that meet the mandated priority areas, will allow significant new revenue opportunities for Growth Stage Innovation Sector companies. It would also improve the federal and provincial governments as the pathways for commercialization by making them more effective customers. Moreover, a revamped BCIP would assist governments by becoming closer and better aligned with the needs of industry as the benefits of the Innovation Economy increase, and facilitating technology adoption while maintaining focus on strategically competitive areas of expertise.

The Roundtable also supports the development of infrastructure within provincial and federal governments for corporate "first buyer" programs to accelerate technology adoption. Infrastructure can include the development of early adopter programs, establishing advisory boards and professional services engagements, and validating market analysis and use cases. Given the compound benefit to both the growth of the Innovation Economy, any modest incentives that may be required for Canadian corporates to participate should be offered. In late December 2016, the Minister of Innovation, Science and Economic Development indicated in an interview with the Globe and Mail that his department was designing a program to support procurement by the federal government from companies that are scaling-up.[51] We were pleased with this direction and await the details of the program.

Proposal #2: Support the development of collaboration and acceleration infrastructure with a focus on Growth Stage companies addressing strategically important industries for Canada.

The diverse industries that inspire and are served by the Innovation Economy are important to ensuring its success. As such, we support the federal and provincial governments adopting measures that bring traditional manufacturing, transportation, oil and gas, mining, construction, health care, finance and energy sectors together with the technology companies working to improve and transform them. Just as accelerators and incubators across the country have fostered a dynamic start-up ecosystem, we believe the next focus should be greater collaboration between the sectors discussed above, which are all important drivers of economic development, and the technology companies that are focused on making them "cleaner," more efficient and more globally competitive. This would involve creating dedicated hubs to permit better and quicker piloting of new technologies with a focus on commercial applications. Having a central point of collaboration and learning can prove invaluable in informing product development, market and customer understanding, ultimately accelerating sales and improving cycle time for product iterations.

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Note on Yaletown Partners Research

Yaletown Partners aggregated data from Pitchbook, Thomson Reuters and CVCA to create a dataset of over 25,000 financings and 12,000 companies in the US and Canada. The results of the analysis by Yaletown Partners, initially published in summary for the 2016 paper, have been disclosed in more detail for this report.

Endnotes

[1] Lamb, et al., 2016, p. 15.

[2] Ibid., p. 20.

[3] See Figure 8, OECD, 2016, p. 137.

[4] See Figure 9, OECD, 2016, p. 139.

[5] See Figure 12, Pitchbook; Advancing Innovation Roundtable analysis.

[6] See Figure 13, Pitchbook; Advancing Innovation Roundtable analysis.

[7] See Figure 14, Yaletown Partners, 2016; TMX; Invest Europe, 2016; Advancing Innovation Roundtable analysis. See Note in Citations.

[8] Yaletown Partners, 2016, p. 5. See Note in Citations.

[9] See Figure 15, Yaletown Partners, 2016, p. 5. See Note in Citations.

[10] See Figure 11, Yaletown Partners, 2016, p. 8. See Note in Citations.

[11] Yaletown Partners, 2016, p. 7. See Note in Citations.

[12] See Figure 17, Thomson Reuters, NVCA, Invest Europe, 2016; Advancing Innovation Roundtable analysis.

[13] TMX; Advancing Innovation Roundtable analysis.

[14] TMX; Advancing Innovation Roundtable analysis.

[15] TMX; Advancing Innovation Roundtable analysis.

[16] Dimick and Kabilan. "Supporting an Innovation Ecosystem to Build Canadian Competitiveness", Conference Board of Canada, August 16, 2013.

[17] Lamb, et al., 2016, p. 15.

[18] Ibid., p. 27.

[19] Ibid., p. 20.

[20] Ibid., p. 42-43.

[21] Compass.co, 2015, p. 24.

[22] Ibid., p. 112.

[23] OECD, 2016, p. 137.

[24] Thomson Reuters, 2016, p. 11.

[25] Yaletown Partners, 2016, p. 8. See Note in Citations.

[26] Ibid., p. 8. See Note in Citations.

[27] Ibid., p. 7. See Note in Citations.

[28] Pitchbook; Advancing Innovation Roundtable analysis.

[29] Pitchbook; Advancing Innovation Roundtable analysis.

[30] Yaletown Partners, 2016, p. 4. See Note in Citations.

[31] Ibid., p. 5. See Note in Citations.

[32] Ibid., p. 5. See Note in Citations.

[33] Ibid., p. 3. See Note in Citations.

[34] See Figure 17; Thomson Reuters; NVCA; Invest Europe, 2016; Advancing Innovation Roundtable analysis.

[35] Yaletown Partners analysis combining data from Pitchbook, Thomson Reuters and CVCA. See Note in Citations.

[36] Yaletown Partners analysis. See Note in Citations.

[37] TMX; Advancing Innovation Roundtable analysis.

[38] TMX; Advancing Innovation Roundtable analysis.

[39] See Figure 21; TMX, Thomson Reuters Advancing Innovation Roundtable analysis.

[40] TMX; Advancing Innovation Roundtable analysis.

[41] TMX; Advancing Innovation Roundtable analysis.

[42] Sales Education Annual, 2015, p. 7.

[43] Lazaridis Institute, 2016, p. 12.

[44] OECD, 2015, p. 16.

[45] Boston Consulting Group, 2015, p. 3.

[46] Willis Towers Watson, 2016, p. 6.

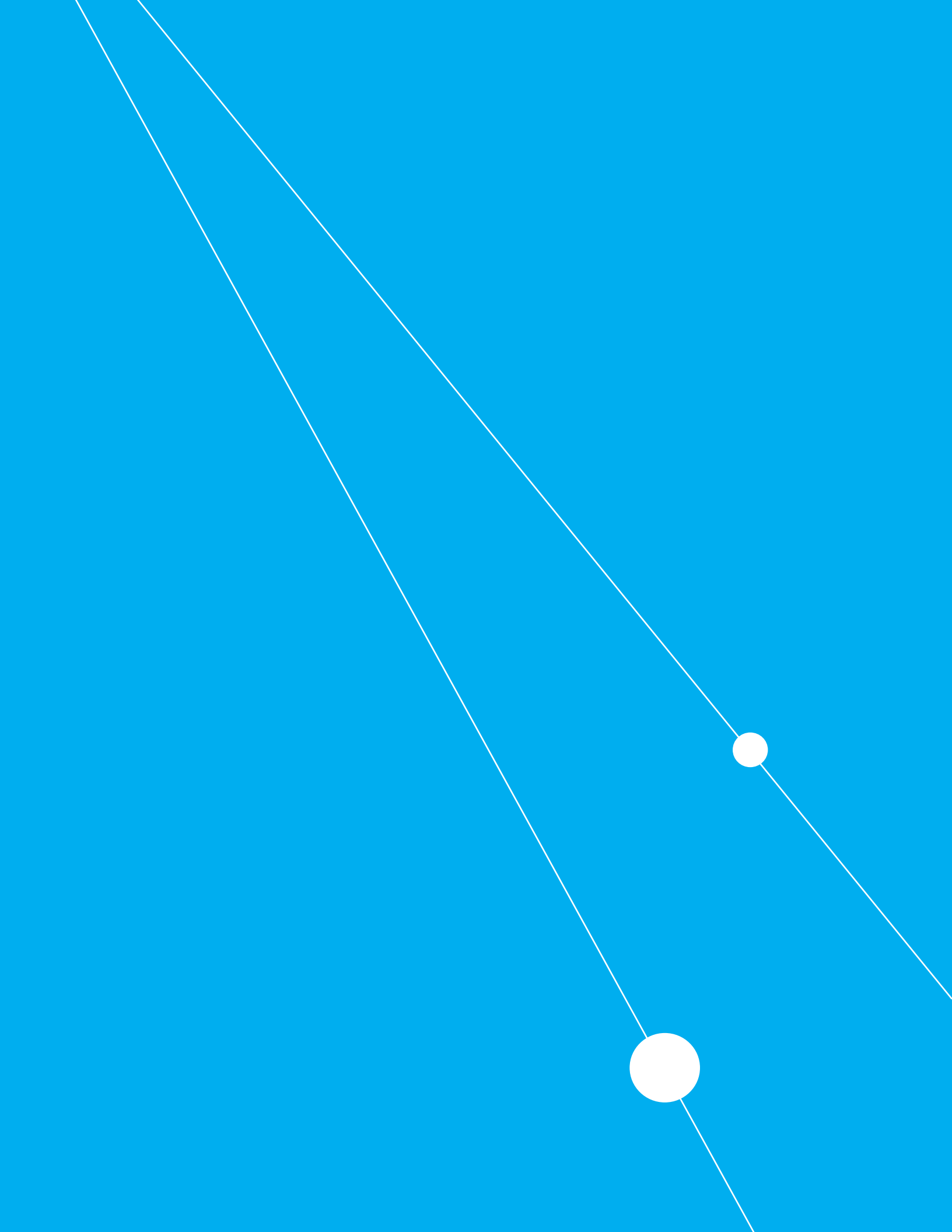
[47] CVCA, 2016, p. 19.

[48] Ibid., p. 19.

[49] Business Finance Taskforce, 2010.

[50] BIOTECanada, 2007; Hurwitz, 2007.

[51] Silcoff, 2016.



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