

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

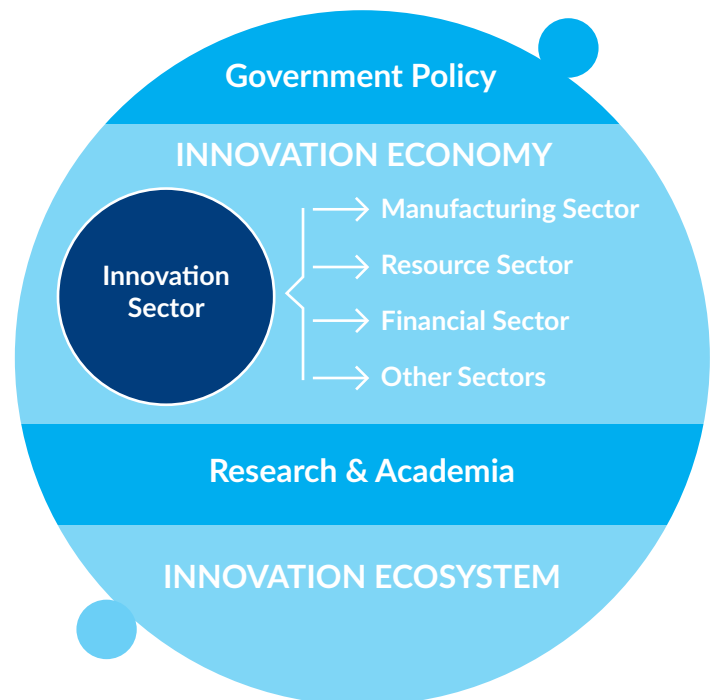
The Canadian Innovation Economy is not performing to its full potential. Despite global recognition of Canada's Innovation Ecosystem, too few companies reach significant scale compared to other ecosystems globally. The key deficiency is the significantly limited capital supply for Growth Stage companies, 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)

	Start-up	Growth	Mature		
Age	0-2 Years	3-7 Years	7+ Years		
Size	0-20 Employees	20-200 Employees	200+ Employees		
Revenue	\$0-2M	\$2-20M	\$20M+		
Capital	\$0-5M	\$5-50M	\$50M+		
	Seed/Angel	Early VC	Emerging Growth	Late Stage Growth	Private Equity

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 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 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.

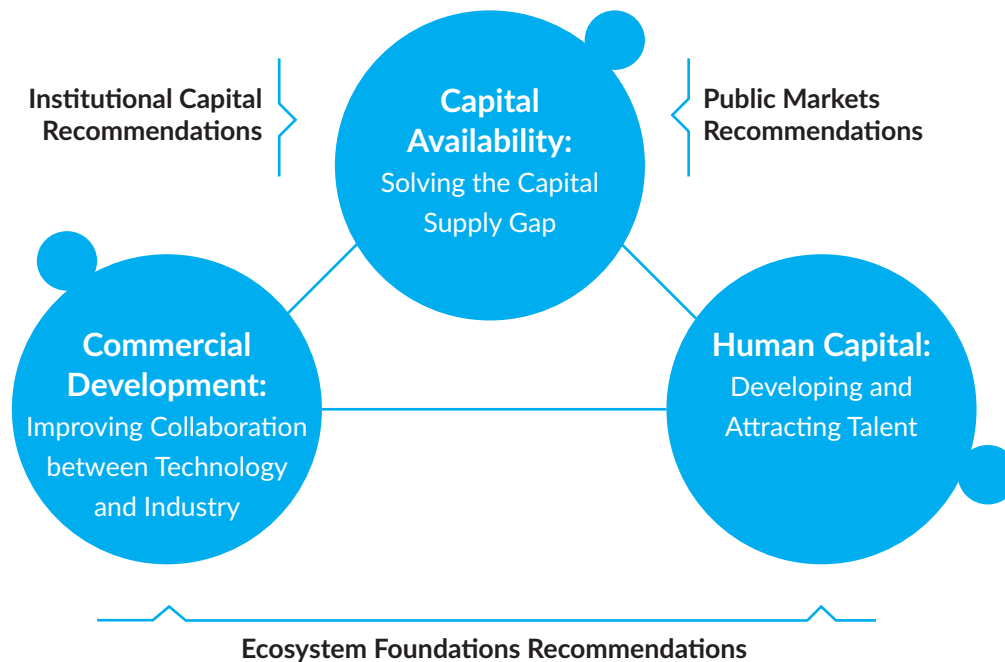
Building and cultivating a robust Innovation Economy requires the support of collaboration infrastructure. Canada's domestic industries offer a unique opportunity to develop a leadership role in technology adoption and differentiation among global peers. Improvements to the collaboration infrastructure 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.