CANADIAN SCIENCE POLICY CENTRE
CENTRE SUR LES POLITIQUES SCIENTIFIQUES CANADIENNES

NATIONAL CONVERSATION ON CANADA'S INNOVATION STRATEGY

Towards an Innovation Strategy for Canada – An Overarching Synthesis Report of CSPC's Virtual Innovation Strategy Series

Canadian Science Policy Centre &
Global Advantage Consulting Group

About this Report

In collaboration with Global Advantage Consulting group, this report synthesizes insights from the CSPC's National Conversation on Canada's Innovation Strategy.

The *National Conversation on Canada's Innovation Strategy* is a multi-year initiative launched in 2024 and continuing through 2025. This initiative aims to bring the private sector perspectives to inform Canada's innovation strategy in the context of geopolitical uncertainty, economic transition, and technological change. It convened private sector association consultation sessions, virtual panel sessions , and Innovation Policy Symposia. Additionally - complementing insights presented in this report is a suite of editorials and opinion pieces published as part of CSPC's 2025 editorial series, which provided contextual commentary on emerging trends, strategic imperatives for Canada's innovation agenda.

This report draws on insights generated through a series of virtual panel discussions that convened private sector representatives from five different sectors; including high tech and digital, agriculture and agrifood, life sciences, advanced manufacturing, and natural resources. These discussions generated a wide range of perspectives, recommendations, and reflections on barriers to innovation and opportunities for strategic alignment.

This report represents a synthesis of those discussions rather than a verbatim record. Using a structured analytical approach, the context for each sector as well as key themes, points of consensus, and areas of divergence were identified across sessions. The resulting synthesis highlights overarching findings, recurring challenges, and strategic considerations that emerged across the conversation.

The Innovation Policy Symposium, held during the 17th Canadian Science Policy Conference in Ottawa, expanded the discussion to include a broader community of participants. The symposium provided an opportunity to integrate and validate insights obtained from the virtual panels through live conversation, enabling participants to reflect on emerging themes, identify areas of convergence, and explore actionable policy directions. Together, these engagements produced a rich qualitative evidence base capturing both sector-specific insights and system-level considerations for Canada's innovation strategy.

It is important to note that CSPC serves as a neutral convener. All materials presented under recommendations have been put forward by private-sector participants and should not be considered CSPC recommendations.

I would like to thank all individuals who helped with the innovation strategy project and this report specifically. Their names are listed below.

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Executive Summary

This report provides an overarching synthesis of the 2025 Canadian Science Policy Centre (CSPC) virtual innovation strategy consultations, which convened experts across five key sectors: Agriculture and Agri-Food, Life Sciences, Advanced Manufacturing, Natural Resources, and Digital & High Tech. The findings present a stark consensus: Canada faces a persistent and critical "innovation gap," not from a lack of ideas, but from an inefficient process to commercialize them.

This "innovation gap" is the report's central diagnosis. While Canada ranks well on innovation "Inputs" (e.g., research and talent), it performs exceptionally poorly on "Outputs" (e.g., commercialization), ranking 123rd globally on the World Intellectual Property Organization (WIPO) Input-Output Conversion Rate. This underperformance is rooted in a "uniquely imbalanced" ecosystem. Unlike its Group of Seven (G7) peers, Canada's higher education R&D intensity is exceptionally high, while R&D in the business and government sectors are critically low. This structural issue has contributed to a $26.1-billion annual R&D gap compared to an average performer of an Organisation for Economic Co-operation and Development (OECD) country, directly threatening the nation's long-term productivity, particularly as the sectors of focus for this report account for approximately 40% of the Canadian economy and millions of jobs.

Our cross-sector analysis and synthesis identified five systemic barriers that stakeholders reported as the primary impediments to innovation and growth:

1. **Fragmented Regulation and Policy:** A complex, slow, and misaligned regulatory system in Canada (ranking 35th of 38 in the OECD) that deters investment and creates uncertainty for innovators.
2. **Dearth of Late-Stage Capital:** A "valley of death" for scaling companies. A shallow domestic capital pool for Series B and C funding causes many promising Canadian firms to be acquired by foreign entities or to move abroad to grow.
3. **Risk-Averse Procurement:** A public and private sector culture that often prioritizes established vendors over new technologies from domestic companies, failing to use our immense purchasing power as a "first customer" to catalyze commercialization of domestic innovations.
4. **Weak Links from Research to Market:** Poor connections between Canada's world-class public research institutions and the private sector, resulting in a low rate of intellectual property (IP) commercialization and lost economic value.
5. **A Low Risk-Tolerance Culture:** A pervasive "fear-of-failure mindset" that dampens bold entrepreneurship and encourages cautious corporate investment in R&D and technology adoption.

To address these deep-rooted challenges, this report synthesizes the collective call from stakeholders for a new level of national alignment. The key recommendations, gleaned directly from the innovation strategy consultations, do not call for incremental change, but for a fundamental strategic shift. They are:

1. **Adopt a Mission-Driven Innovation Strategy** to focus national R&D, investment, policy and regulatory efforts on solving "grand challenges".
2. **Modernize and "De-Risk" Procurement** by shifting policies from "upfront price" to "total value," using government purchasing power as a strategic tool to build domestic anchor companies.
3. **Establish Long-Term Outcome Metrics** focused on outputs (e.g., business R&D intensity, number of scale-ups) rather than inputs (e.g., program spending) to ensure accountability and drive tangible results for Canadians.

In addition to sector-specific panels, CSPC organized a culminating symposium at the CSPC 2025 Conference - providing a forum to reflect on the preceding panel discussions and further advance the emergent themes by focusing on: (a) selecting the most impactful interventions, and (b) identifying implementation pathways. The insights were generated through a structured, multi-sectoral discussion process. After a presentation of key findings from the panel series, each group was asked to prioritize key innovation challenges and identify 2–3 targeted actions, specifying who should act, why action is needed, and within what timeframe. The resulting synthesis reflects the areas of strongest convergence across otherwise distinct sectors, revealing systemic constraints that recur regardless of industry context.

Taken together, the findings pointed to deeply interconnected structural barriers that continue to limit Canada's innovation performance despite strong research capacity and talent. The issues are not primarily technological; rather, they are rooted in policy design, governance coordination, institutional risk culture, and long-term strategic alignment. The convergence across sectors indicates that incremental, siloed reforms will be insufficient. What is needed is a coordinated reset of how innovation is regulated, financed, governed, and sustained over time. Such coordination, it was proposed, can be manifested, in part, through informed industrial innovation strategies and sustained efforts to reduce systemic fragmentation at both sectoral and cross-sectoral levels.

Résumé

Ce rapport présente une synthèse globale des consultations virtuelles sur la stratégie d'innovation menées en 2025 par le Centre sur les politiques scientifiques canadiennes (CPSC) sur la stratégie d'innovation virtuelle, qui a réuni des experts de cinq secteurs clés : l'agriculture et l'agroalimentaire, les sciences de la vie, la fabrication de pointe, les ressources naturelles et le numérique et les hautes technologies. Les conclusions présentent un consensus frappant : le Canada est confronté à un « déficit d'innovation » persistant et critique, non pas par manque d'idées, mais en raison d'un processus inefficace pour les commercialiser.

Ce « déficit d'innovation » est le diagnostic central du rapport. Si le Canada se classe bien en matière d'innovation « en amont » (par exemple, la recherche et les talents), il obtient des résultats exceptionnellement médiocres en matière d'innovation « en aval » (par exemple, la commercialisation), se classant au 123e rang mondial selon l'Organisation mondiale de la propriété intellectuelle (OMPI) en termes de taux de conversion des intrants en extrants. Cette sous-performance trouve son origine dans un écosystème « particulièrement déséquilibré ». Contrairement à ses homologues du Groupe des Sept (G7), le Canada affiche une intensité de R&D dans l'enseignement supérieur exceptionnellement élevée, tandis que la R&D dans les secteurs privé et public est extrêmement faible. Ce problème structurel a contribué à un écart annuel de 26,1 milliards de dollars en matière de R&D par rapport à un pays moyen de l'Organisation de coopération et de développement économiques (OCDE), ce qui menace directement la productivité à long terme du pays, d'autant plus que les secteurs visés par le présent rapport représentent environ 40 % de l'économie canadienne et des millions d' emplois.

Notre analyse et notre synthèse intersectorielles ont permis d'identifier cinq obstacles systémiques que les parties prenantes ont signalés comme étant les principaux freins à l'innovation et à la croissance:

1. **Réglementation et politiques fragmentées** : un système réglementaire complexe, lent et mal harmonisé au Canada (classé 35e sur 38 dans l'OCDE) qui décourage les investissements et crée de l'incertitude pour les innovateurs.
2. **Pénurie de capitaux en phase avancée** : une « vallée de la mort » pour les entreprises en phase d'expansion. Le manque de capitaux nationaux pour le financement des séries B et C pousse de nombreuses entreprises canadiennes prometteuses à être rachetées par des entités étrangères ou à s'installer à l'étranger pour se développer.
3. **Approvisionnement prudent** : une culture des secteurs public et privé qui privilégie souvent les fournisseurs établis plutôt que les nouvelles technologies proposées par les entreprises nationales, ne tirant pas parti de notre immense pouvoir d'achat en tant que « premier client » pour catalyser la commercialisation des innovations nationales.
4. **Des liens faibles entre la recherche et le marché** : Faiblesse des liens entre les établissements de recherche publics canadiens de calibre mondial et le secteur privé, ce qui se traduit par un faible taux de commercialisation de la propriété intellectuelle (PI) et une perte de valeur économique.
5. **Une culture peu tolérante au risque** : une « mentalité de peur de l'échec » omniprésente qui freine l'esprit d'entreprise audacieux et encourage les entreprises à investir avec prudence dans la R&D et l'adoption de technologies.

Pour relever ces défis profondément enracinés, le présent rapport synthétise l'appel collectif des parties prenantes en faveur d'un nouveau niveau d'harmonisation nationale. Les principales recommandations, tirées directement des consultations sur la stratégie d'innovation, ne préconisent pas un changement progressif, mais un changement stratégique fondamental. Elles sont les suivantes :

1. **Adopter une stratégie d'innovation axée sur les missions** afin de concentrer les efforts nationaux en matière de R&D, d'investissement, de politique et de réglementation sur la résolution des « grands défis ».
2. **Moderniser et « réduire les risques » liés aux achats** en faisant passer les politiques du « prix initial » à la « valeur totale », en utilisant le pouvoir d'achat du gouvernement comme un outil stratégique pour créer des entreprises nationales de référence.
3. **Établir des indicateurs de résultats à long terme** axés sur les résultats (p. ex. intensité de la R-D dans les entreprises, nombre d'entreprises en expansion) plutôt que sur les intrants (p. ex. dépenses du programme) afin d'assurer la reddition de comptes et d'obtenir des résultats tangibles pour les Canadiennes et les Canadiens.

En plus des panels sectoriels, le CPSC a organisé un symposium de clôture lors de la conférence CPSC 2025, offrant ainsi un forum pour réfléchir aux discussions des panels précédents et approfondir les thèmes émergents en se concentrant sur : (a) la sélection des interventions les plus efficaces et (b) l'identification des voies de mise en œuvre. Les conclusions ont été tirées à l'issue d'un processus de discussion structuré et multisectoriel. Après une présentation des principales conclusions de la série de tables rondes, chaque groupe a été invité à hiérarchiser les principaux défis en matière d'innovation et à identifier deux ou trois actions ciblées, en précisant qui doit agir, pourquoi une action est nécessaire et dans quel délai. La synthèse qui en résulte reflète les domaines de convergence les plus forts entre des secteurs par ailleurs distincts, révélant des contraintes systémiques qui se répètent quel que soit le contexte industriel.

Dans l'ensemble, les conclusions ont mis en évidence des obstacles structurels profondément interconnectés qui continuent de limiter les performances du Canada en matière d'innovation, malgré une forte capacité de recherche et un vivier de talents. Les problèmes ne sont pas principalement d'ordre technologique ; ils trouvent plutôt leur origine dans la conception des politiques, la coordination de la gouvernance, la culture institutionnelle du risque et l'alignement stratégique à long terme. La convergence entre les secteurs indique que des réformes progressives et cloisonnées seront insuffisantes. Ce qu'il faut, c'est une refonte coordonnée de la manière dont l'innovation est réglementée, financée, gouvernée et maintenue dans le temps. Une telle coordination, a-t-on proposé, peut se traduire, en partie, par des stratégies d'innovation industrielle éclairées et des efforts soutenus pour réduire la fragmentation systémique aux niveaux sectoriel et intersectoriel.

National Context and Framework

Canada's innovation landscape is defined by an ongoing productivity challenge and a significant innovation gap. This is not a failure of ideation, but of commercialization and scale-up. The Global Advantage Consulting Group (GACG)'s R&D/Innovation Report Card highlights this contradiction: while Canada ranks 13th on "Inputs" such as talent and research, it ranks 20th on "Outputs", and a critically low 123rd on the "Input-Output Conversion Rate". This problem is rooted in chronic underinvestment in R&D, which has created a $26.1 billion annual R&D gap compared to the OECD average. The ecosystem is uniquely imbalanced; Canada is an outlier in the G7, with its Higher Education R&D spending 44% above the OECD average, while its Business R&D is 46% below and Government R&D is 52% below their respective OECD averages.

Within this context, CSPC organized and conducted five virtual innovation strategy consultations in 2025, which convened experts across the following five key sectors of the Canadian innovation economy: Agriculture and Agri-food, Life Sciences, Advanced Manufacturing, Natural Resources, and Digital & High Tech. They represent a large portion of the national economy: collectively, these sectors account for approximately 40% of Canada's GDP, 6.5 million jobs, and more than $900 billion in exports[1].

The sessions generated valuable insights into the challenges, barriers, and opportunities, while providing options for government and industry responses, as well as recommendations. This overarching synthesis report provides cross-sector qualitative and quantitative analyses in order to identify common challenges, opportunities, and enablers across Canada's key economic sectors that were consulted, inform evidence-based policy and investment decisions, and highlight pathways to strengthen innovation, productivity, and competitiveness within the national economy.

The report synthesizes qualitative feedback from panel discussions, including in the form of summaries generated by an artificial intelligence (AI) tool after optimization steps (full summaries included in Appendix 2), identifying top five systemic barriers to innovation shared across all sectors. First, panelists identified fragmented regulation and policy misalignment; Canada's regulatory system is "fragmented and reactive" ranking 35th out of 38 OECD countries for regulatory burden.[2] Second, a lack of late-stage capital creates a "valley of death" for scale-ups, as the existing shallow domestic capital pool forces promising firms to seek foreign investment, be acquired as they scale up, or move abroad to grow. Third, procurement practices, especially in the public sector, favor lower-cost bids and established vendors, acting as a major barrier rather than a "first customer" for innovators. Fourth, weak links from research to market mean that high-quality public research is not effectively translated into commercial applications, often resulting in foreign ownership of Canadian intellectual property (IP). Finally, stakeholders pointed to a pervasive low risk-tolerance culture, a "fear-of-failure mindset" that dampens entrepreneurial success and leads to cautious corporate investment.

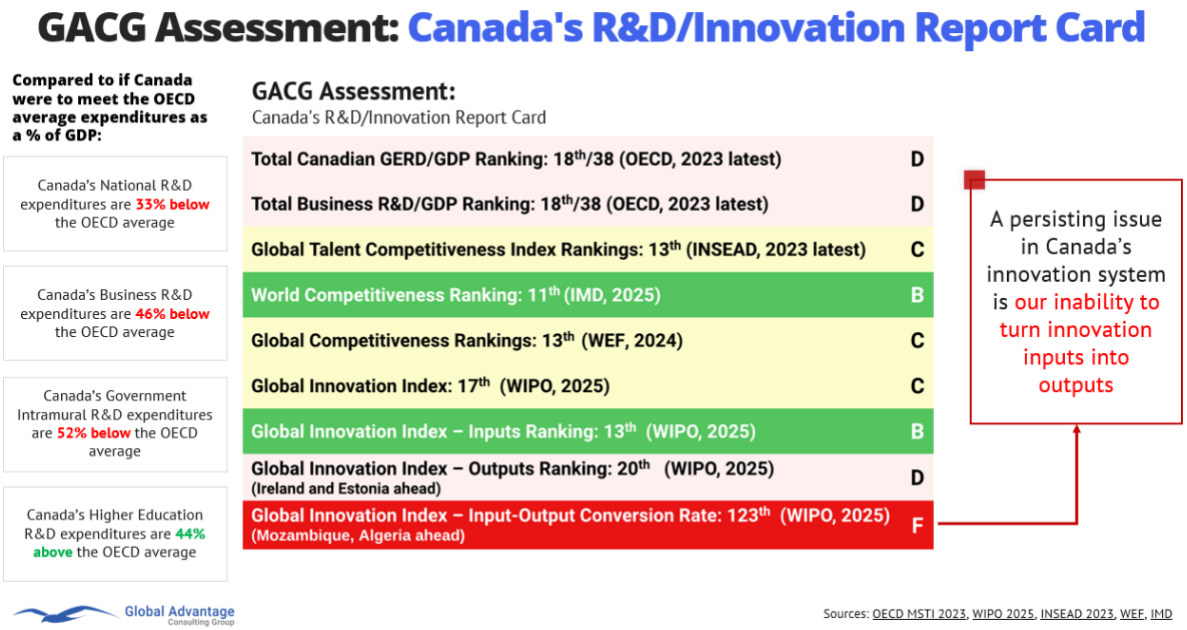
[1] GDP, employment, and export values are sums of individual sectoral statistics derived from various reputable data sources (please see Overarching Statistics Table on page 10 below).
[2] Treasury Board of Canada Secretariat – Evaluation of the Centre for Regulatory Innovation

To address these barriers, three overarching recommendations included enabling policies such as adopting a mission-driven innovation strategy focused on "grand challenges"; modernizing procurement to focus on "total value" to Canada instead of just "upfront price"; and establishing long-term innovation outcome metrics, such as business R&D intensity, to ensure enhanced innovation and productivity gains.

Canada's Innovation Landscape

Canada's innovation ecosystem in the first half of the 2020s has been characterized by various productivity challenges.[3] Canada is one of the only OECD nations to see R&D investment decline as a share of GDP over the past two decades, alongside a steady drop in the number of firms performing R&D.[4] Canada ranks 17th out of 139 countries in the WIPO Global Innovation Index 2025.[5] However, this ranking has decreased in recent years. If unaddressed, these trends threaten to erode Canada's competitiveness and living standards.

The R&D/Innovation Report Card below highlights a central contradiction. While Canada ranks well on "Inputs" such as talent and research, it performs poorly on "Outputs", in the form of commercialized projects and services that convert those inputs into tangible economic outcomes that improve prosperity and opportunities for Canadians.

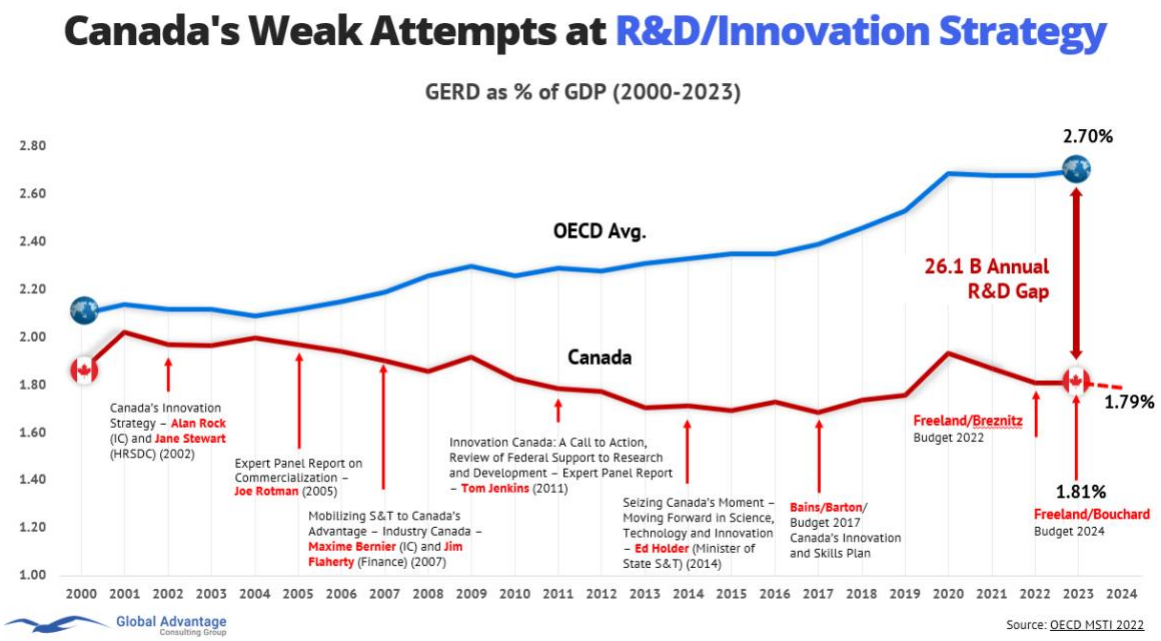


This failure to commercialize is a long-standing issue and is likely both a cause and consequence of other macro-issues. Despite the overall ranking of 11th in International Institute for Management Development (IMD) World Competitiveness Ranking 2025, a closer look at the components of those ranking reveals weaknesses: Canada sits at 40th in real GDP growth

[3] School of Public Policy – Canada's Productivity Challenge
[4] A Blueprint for the Canada Innovation Corporation
[5] WIPO Global Innovation Index

(1.5%), 41st in current account balance (–0.5%), and 47th in unemployment rate (6.3%) globally. [6]

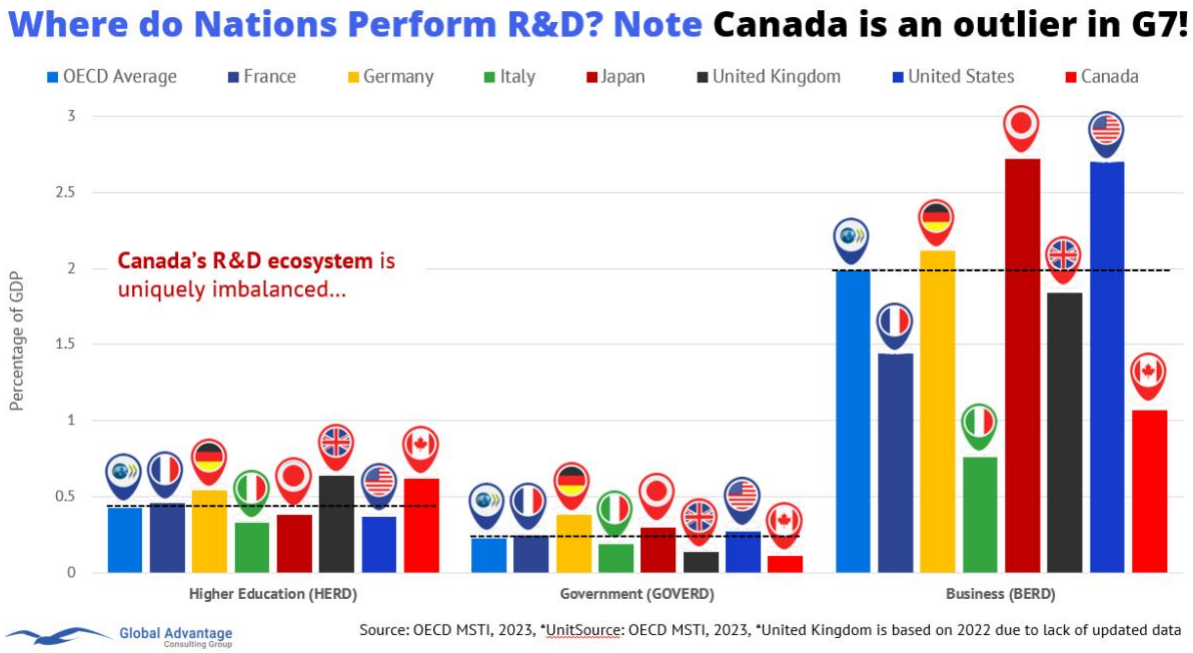
The following chart illustrates how Canada's Gross Domestic Expenditures on R&D (GERD) as a percentage of GDP has stagnated or fallen over the past two decades and a half, while the OECD average has climbed. This divergence has created a **$26.1 billion annual R&D gap** compared to the OECD average.



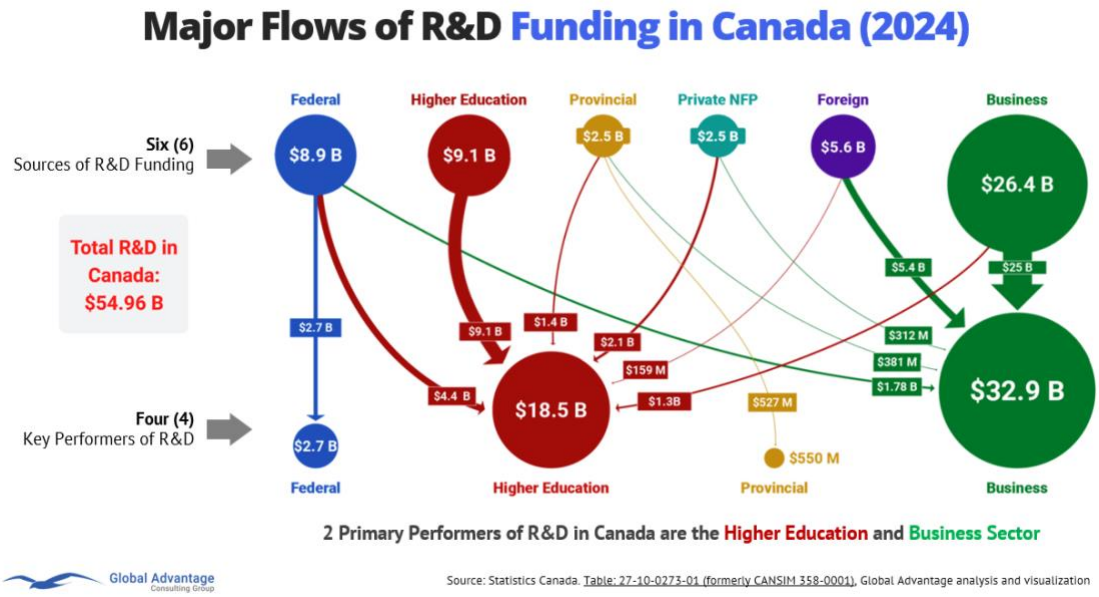
Gross Domestic Expenditures on R&D
GERD: $55 B (2023, StatsCan)
GERD/GDP: 1.81% (2023, OECD)
R&D Expenditure per Capita: $1,325 (2024)
OECD average: 2.7% (2023)
OECD GERD/GDP Ranking: 18th/31 (2023)

A structural imbalance in who performs R&D is a key driver of this persistent gap. Canada is an outlier in the G7: our R&D ecosystem is dominated by the Higher Education sector, while our Business and Government sectors are critically lagging global peers.

[6] Canada - IMD World Competitiveness Ranking 2025



A strong research base exists in Canada, but commercialization and scale-up remain elusive. Canada has world-class universities, public research institutions, and high science, technology, engineering, and mathematics (STEM) graduation rates. The following diagram shows the major flows of R&D funding, reinforcing that the Higher Education and Business sectors are the two primary performers of R&D in Canada.



This imbalance, where small firms dominate the Canadian economy but lack scale-up capacity, while foreign firms account for most R&D investment and IP exploitation, is a key challenge to be addressed. Strategic reform and targeted investments in Canada are urgently needed to compete globally and enhance resilience. Canada must adopt a coherent mission-driven innovation strategy, increase federal and provincial R&D funding, and close coordination gaps across governments, academia, and business. Emphasis needs to be placed on scaling domestic firms, diversifying export markets, and aligning talent and workforce policies with economic, social, and environmental goals.

The recent years also brought unique opportunities for innovation, spurring several key initiatives. The COVID-19 pandemic highlighted the importance of domestic capabilities in areas like vaccines, biomanufacturing, and digital services. It prompted the federal government to launch major initiatives, from a $2.2 billion Biomanufacturing and Life Sciences Strategy[7] to rebuild vaccine and therapeutics production, to accelerated programs for business digitization and clean technology adoption. Global developments such as supply chain disruptions and climate commitments have spurred Canada to pursue an innovation agenda to seize new opportunities (e.g. in electric vehicle batteries, hydrogen, critical minerals) while addressing long-standing structural barriers.

The following sections will quantify the economic importance of the aforementioned sectors and detail the specific, cross-cutting barriers that must be overcome.

Economic Relevance

Canada's key economic sectors show a diverse but uneven pattern of contribution across output, employment, and innovation activity. Among the sectors of focus, the Natural Resources sector remains the largest contributor to GDP at 11.3%, employing 1.7 million people and generating $422 billion in exports, though its R&D investment of $2.8 billion is relatively modest compared to its scale. Advanced Manufacturing follows with a 9.5% share of GDP, employing 1.7 million workers, producing roughly $400 billion in exports, and housing about 95,000 firms, supported by $12.8 billion in R&D spending, which is a strong indicator of its innovation capacity. The Agriculture and Agri-Food sector, while accounting for about 7% of GDP and employing 2.3 million Canadians, invests only $829 million in R&D, despite sizable $99 billion exports. The Digital and High-Tech sector, contributing 5.5% to GDP with 803,000 employees and $48.1 billion in exports, leads these five sectors in innovation investment at $15 billion. Finally, the Life Sciences sector, though smaller at ~3% of GDP and 220,000 employees, invests heavily relative to its size with $3.2 billion in R&D, signaling strong research intensity and potential for growth in commercialization. Collectively, these overarching statistics and figures illustrate a Canadian economy where traditional sectors dominate in scale and exports, but newer technology-driven industries are the key engines of innovation.

[7] Life Sciences British Columbia

Sector[8]	GDP Share	Employment	Exports	Number of Firms	R&D Investment
Agriculture & Agri-Food [9] [10]	~7%	2.3 M	$99 B[11]	39,879 [12]	$829 M
Life Sciences	~3%[13]	220,000 [14]	$ ~12 B[15]	3,819 [16]	$3.2 B [13]
Advanced Manufacturing [17]	~9.5%	1.7 M [18]	$ ~380 B [19]	~95,000[20]	$12.8 B [21]
Natural Resources[22]	11.3%[23]	1.7 M	$422 B	30,165 [24]	$2.8 B [25]
Digital & High Tech [26]	5.5%	802,913	$ ~48.1 B	48,393	$15 B

**The data presented in the table above has been compiled from the most relevant and up-to-date sources. For a detailed explanation of the data collection methods and source materials, please refer to the footnotes.*

Cross Sector Analysis

This section transitions from the high-level macroeconomic context into the core qualitative findings of the virtual innovation strategy consultations. The primary purpose of this chapter is to fill a critical analytical gap: identifying and examining the systemic, cross-sectoral challenges, opportunities, and policy levers that emerged consistently from the stakeholder feedback across all five key sectors. While each sector faces unique circumstances, this analysis demonstrates that their most significant and persistent barriers to innovation are deeply interconnected and shared.

It is essential to clarify the nature of these findings. The challenges and recommendations detailed in this chapter are not recommendations of the reports' authors. Rather, this section presents cross-sector qualitative analysis of the extensive input, insights, and proposed

[8] Sector definitions and statistics are acquired from original sources listed below.
[9] AAFC - Overview of the Canadian Agri-food System
[10] Digital Journal - $829 M from AAFC Funding
[11] Canadian Federation of Agriculture – International Trade
[12] StatCan – Canadian Business Counts, with employees, June 2025
[13] Innovative Medicines Canada
[14] RBC - Canada's Biotech Reboot Report
[15] Government of Ontario
[16] Biotech Gate - Life Science Trend Analysis – Number of Biotech Companies by Sector
[17] CM&E – Manufacturing Canada's Future (No reputable advanced manufacturing data available)
[18] TD Economics - Sector Data
[19] Destination Canada – Advanced Manufacturing – Based on StatCan and Trade Data of the Federal Government
[20] ISED – Canadian Industry Statistics
[21] ISED – Advanced Manufacturing
[22] Natural Resources Canada. According to Natural Resource Canada, the natural resource sector is defined as Energy, Forest, Minerals and Metals
[23] StatCan – Natural Resource Indicators, Second Quarter 2025
[24] ISED – Canadian Industry Statistics
[25] StatCan – Business Energy-related R&D Expenditures, 2022
[26] ISED – Canadian ICT Sector Profile 2024 – Business R&D Spending on ICT

solutions provided directly by industry associations, innovation intermediaries, and other expert stakeholders during the consultations.

To complement this qualitative analysis and provide a robust evidence base, additional analysis of relevant data has been integrated. This mixed-method approach adds complementary value by substantiating the stakeholder inputs with quantitative metrics, ensuring that challenges and opportunities identified are supported by both qualitative and quantitative evidence.

This cross-sectoral analysis is structured into the following four (4) key subsections, aligned with the consultation framework and the questions used in the sessions:

Key Challenges Identified: This subsection details the top five systemic barriers that stakeholders reported as hindering innovation at scale, ranging from fragmented regulation and policy alignment to a pervasive low risk-tolerance culture.

Shared Opportunities: This part provides the top five opportunities that stakeholders reported as responding to the common challenges, while manifesting in specific sectoral contexts and identifying where unique comparative advantages exist.

Enabling Policies and Mechanisms: The existing and emerging policy tools that stakeholders identified as critical enablers for success, including public-private co-investment models, talent strategies, and R&D incentive reforms.

Toward a National Innovation Alignment: Finally, this subsection synthesizes the collective consultation feedback into overarching, actionable recommendations for building a more coherent, mission-driven, and effective national innovation strategy.

As a reference to support this cross-sector analysis, AI-generated summaries of the individual consultation inputs for each of the five sectors are included in the **Annex** of this report.

Key Challenges Identified

During the sessions, expert participants were asked *"What are the top three challenges currently hindering innovation in your sector?".* Responses revealed a striking convergence across industries, with five key challenges consistently identified as barriers to innovation. These cross-cutting issues such as fragmented regulation and policy alignment, Lack of Late-Stage Capital for Scale-Up, risk-averse procurement and adoption, weak links from research to market, and a low risk-tolerance culture reflect systemic constraints that transcend individual sectors.

The table below presents these shared challenges alongside several sector-specific barriers that emerged during discussions. While the top five are cited across all sectors, additional challenges, such as an aging workforce, insufficient lab and good manufacturing practice (GMP) scale-up space, narrow policy perspectives in agriculture, and market concentration risks in digital and advanced manufacturing sectors, offer a more granular view of the unique constraints shaping each sector's innovation landscape.

Key Challenges	Agriculture and Agri-Food	Life Sciences	Advanced Manufacturing	Natural Resources	Digital & High Tech
Fragmented Regulation and Policy Alignment	✓	✓	✓	✓	✓
Lack of Late-Stage Capital for Scale-Up	✓	✓	✓	✓	✓
Risk-Averse Procurement and Adoption	✓	✓	✓	✓	✓
Weak Links from Research to Market	✓	✓	✓	✓	✓
A Low Risk-Tolerance Culture	✓	✓	✓	✓	✓
Aging Workforce	✓		✓	✓	
Insufficient lab and GMP scale-up space		✓			
Narrow policy lens on agri-food as farming, not full value chain	✓				
Data sovereignty and vendor lock-in risk		✓			✓
US market concentration and tariff exposure	✓		✓	✓	
Small domestic market limits first-revenue scale for deep tech		✓			✓

Challenge #1: Fragmented Regulation and Policy Alignment

Canada ranks close to the bottom within the OECD in terms of regulatory burden (35th out of 38 countries) and produces less innovation output than other G7 countries. Treasury Board of Canada (TBS) Secretariat, through the evaluation of the Centre for Regulatory Innovation, reported that "regulatory innovation and experimentation require a skill set that is not common in the Government of Canada" and that "Canada's regulatory system that does not often encourage innovation or taking risk".[27]

Across the sectors, misaligned or outdated regulations often slow innovation adoption. For example, in Agri-Food, promising products like novel plant-based proteins and fermentation-derived ingredients fall into regulatory "gray zones." Companies face unclear pathways on whether a new food is classified as a "novel food" requiring pre-market approval, a process described by entrepreneurs as opaque and unpredictable.[28] This uncertainty adds cost and delay. Some food tech firms even skip the Canadian market initially in favor of countries with clearer, more unified rules.

Similarly, in Life Sciences, innovators note that Canada's health regulatory and reimbursement processes can be slower or more fragmented than international best practices, reducing patients' timely access to cutting-edge therapies.[29]

In Advanced Manufacturing and Natural Resources, differing provincial permitting regimes and standards make scaling a new process or product nationally a complex endeavour. In short, Canada's regulatory domain remains fragmented and reactive, rather than strategically aligned with innovation objectives.[30]

Challenge #2: Lack of Late-Stage Capital for Scale-Up

Despite a vibrant start-up scene, Canadian innovators face a financing gap at later stages of growth. Simply put, the pool of domestic capital available for large-scale commercialization and expansion is shallow. Many Canadian ventures struggle to secure the Series B, C or later funding needed to become globally competitive firms. By the time a company reaches scale-up phase, it often must turn to foreign (especially U.S.) investors for major injections of capital, or risk stagnation. A recent analysis by the Canadian Venture Capital and Private Equity Association found that U.S. investors play an outsized role in scaling Canadian startups, due to a shortage of large domestic funds, and called for a deeper Canadian growth capital pools are needed.[31] For transactions under 5 million dollars, Canadian-only investor participation ranged from 59.2% to 83.7% between 2013 and 2024, averaging 68.3% over that period. Participation declines sharply as deal sizes grow, averaging 40.5% for rounds between 5 and 20 million

[27] Evaluation of the Centre for Regulatory Innovation - Canada.ca
[28] Policy Options
[29] ISED – Report From Canada's Economic Strategy Tables: Health and Biosciences
[30] Policy Options
[31] CVCA Analysis: Foreign Investor Participation in the Canadian VC Ecosystem

dollars, 30.8% for rounds between 20 and 50 million dollars, and just 13.9% for rounds above 50 million dollars.

In contrast, when U.S. investors joined Canadian syndicates, their involvement rose consistently with deal size, averaging 18.7% in rounds under 5 million dollars, 39.5% in rounds between 5 and 20 million dollars, 47.4% in rounds between 20 and 50 million dollars, and 66.0% in rounds exceeding 50 million dollars.

For H1 2025, CVCA reports that while total investment was 2.9 billion (CAD) across 254 deals, early-stage funding (pre-seed/seed) still made up a large share of deal count but a small share of dollars, suggesting fewer large rounds overall.[32]

The consequences of this capital gap are evident in high-tech sector. Canadian life sciences start-ups, for example, excel at early R&D (often backed by public grants and angel funding), but when it comes to expensive Phase III trials or building manufacturing capacity, they struggle to raise funds domestically. This has led to promising biotech firms being acquired by larger foreign pharma or relocating to the U.S. to access venture funding. Policy papers state that life sciences sector's greatest hurdle is attracting investment. Although there is a strong venture capital market in the sector, private companies still require greater financing. Government involvement is essential for the fund to succeed.[33]

Challenge #3: Risk-Averse Procurement and Adoption

The risk aversion in Canada's public and institutional procurement processes is frequently cited as an impediment to innovation diffusion. Governments and large public-sector organizations are often important first customers for new technologies, or could be, if procurement policies encouraged innovation. In Canada, however, public procurement tends to favor established vendors and lowest-cost bids, with complex rules that de facto exclude many start-ups and novel solutions. In the healthcare sector, fragmentation and lack of standardization is widely cited as the single biggest challenge. Canada does not have one national procurement system; instead, it's a patchwork of 13 provincial/territorial systems, which are further fragmented into individual health authorities and even single hospitals. Each entity may have its own procurement rules, request for proposal processes, and technical standards. This creates a complex, high-barrier market for suppliers, which can stifle competition, deter innovative new companies (especially smaller ones), and prevent the cost savings that come from large-scale bulk purchasing. A 2023 review of procurement practices at Health Canada (HC) and the Public Health Agency of Canada (PHAC) highlighted inconsistencies. In a selected review of 40 procurement files, 7 out of 34 applicable files (20.5%) had mandatory criteria that were not clear, measurable, or demonstrable, making it difficult for bidders to compete on a level playing field.[34]

This challenge is not limited to healthcare. Innovative products in advanced manufacturing and cleantech face similar procurement inertia. Government fleets and infrastructure projects, for instance, tend to stick with traditional suppliers, rarely giving emerging Canadian clean-tech or

[32] CVCA H1 2025
[33] BIOTECanada
[34] Office of the Procurement Ombud

Industry 4.0 firms an early opportunity. Still, systemic change in procurement culture is needed. Canada could leverage its significant public spending to pull more homegrown innovations into the marketplace by shifting from a pure cost-minimization mindset to a value-based, capacity-building, and innovation-spurring approach.

Challenge #4: Weak Links from Research to Market

Another cross-cutting issue is the persistent gap between research and commercial application. Despite a decline in global research intensity, Canada remains a strong performer in knowledge generation. Canada punches above its weight in knowledge generation. Our universities, colleges and government labs produce high-quality research and IP. However, mechanisms to translate those outputs into market-ready innovations remain underdeveloped and inconsistent across sectors. One indicator is business R&D expenditure, which, as noted, is very low relative to our public-sector R&D. The innovation system has often been described as siloed: academic and industry collaboration is improving but still less frequent than in top-performing countries. Many entrepreneurs lament difficulties in accessing or licensing university-developed IP, and academic inventors often have little incentive or support to commercialize their work.

In Agriculture, federal and provincial research programs develop advanced crop varieties and agri-technologies, but extension and commercialization services are fragmented and under-resourced, meaning many farmers never see these innovations in practice. In natural resources, Canada has world-leading R&D in areas like mining automation and clean tech, yet those prototypes often stall at the pilot stage without industry uptake. A concerning outcome highlighted by analysts is that many Canadian inventions end up owned by foreign companies. The federal government recognizes this gap: it is attempting to establish new structures specifically to help businesses turn inventions into innovations and protect IP so companies can scale in Canada, yet their implementation and effectiveness remain a challenge. Strengthening these research-to-market links through better industry-academic collaboration, more effective technology transfer and IP strategies, and support for later-stage development is essential for all five sectors to fully leverage Canadian ingenuity.

Challenge #5: A Low Risk-Tolerance Culture

Finally, Canada's innovation culture has long been described as risk-averse, and this remains a systemic headwind. Culturally and economically, there is a tendency in Canada to avoid bold bets in favor of safety and stability. Surveys consistently find that a majority of Canadians see our society as risk-averse: about 2 in 3 Canadians believe we are not inclined to take risks and have a fear-of-failure mindset.[35] This conservative attitude can dampen entrepreneurship and intrapreneurship. For instance, compared to the U.S., fewer Canadians start new businesses, and those who do often aim for moderate success or a quick sale rather than pursuing aggressive growth.

In corporate Canada, managers have historically under-invested in R&D and technology; many Canadian firms prefer to be fast followers rather than first movers in innovation, which indicates a lower appetite for risk and experimentation.[36] In agriculture, family farms and agri-businesses

[35] Rideau Hall Foundation – Canada's Culture of Innovation Report
[36] Information Technology & Innovation Foundation

may be hesitant to adopt unproven techniques (like AI-driven precision farming or new biotech crops) without seeing them validated elsewhere, slowing domestic innovation adoption. In manufacturing, SMEs often stick with legacy equipment rather than invest in automation or Industry 4.0 tools due to uncertainty about returns.[37] In the natural resource industries, a traditionally risk-averse management culture means innovative processes can face internal resistance. And in life sciences, a fear of failure can translate into underfunding truly novel, high-risk research in favor of incremental projects.

On the finance side, Canadian investors have also been cautious. Canadian VC funds historically delivered middling returns, reinforcing caution among limited partners. The net effect is a cycle of caution: fewer wild ideas get funded, fewer scale-ups become global leaders, and Canada's innovation ecosystem remains moderate in its ambitions. Changing this cultural inertia is challenging, but crucial, especially since Canada has lacked initiatives targeting "culture", aimed at building a robust national culture of risk-taking, innovation, and entrepreneurship. It requires sustained nation-building effort, celebrating successful risk-taking, tolerating failure as a learning step, and perhaps offering incentives for institutions to take promising risks on Canadian innovations. Only with a shift in risk tolerance will the bold decisions needed to drive innovation across sectors materialize.

Key Opportunities Identified

During the sessions, participants were asked *"What new opportunities or comparative advantages can Canada exploit?".* Discussions across sectors revealed a strong alignment around five overarching opportunity areas that position Canada to strengthen its innovation capacity and global competitiveness. These include accelerating technology adoption and digital transformation, scaling domestic testbeds and procurement pathways, capturing value from global supply-chain shifts, branding around trust and ethics, and leading on sustainability and climate solutions. Together, these shared priorities highlight Canada's potential to leverage its research excellence, natural resource base, and policy stability to drive inclusive and future-oriented growth.

The table below presents these five cross-cutting opportunities, along with several sector-specific areas of advantage identified during the sessions. These include expanding onshore agri-food processing capacity, developing a national clinical-trials network, advancing the blue economy, integrating critical minerals into the mobility value chain, and scaling mass timber and bioeconomy solutions. Together, they paint a picture of how Canada's diverse innovation ecosystems can capitalize on global shifts while addressing domestic needs for resilience, sustainability, and competitiveness.

[37] ISED - Report from Canada's Economic Strategy Tables: Advanced Manufacturing

Key Opportunities	Agriculture and Agri-Food	Life Sciences	Advanced Manufacturing	Natural Resources	Digital & High Tech
Accelerate tech adoption, AI, automation, and advanced platforms	✓	✓	✓	✓	✓
Scale domestic testbeds, pilots, and first-customer procurement	✓	✓	✓	✓	✓
Capture value from supply-chain reconfiguration and market diversification	✓	✓	✓	✓	✓
Brand with trust, stability, and ethics	✓	✓	✓	✓	✓
Compete on sustainability and climate solutions	✓	✓	✓	✓	✓
Scale mass timber and the bioeconomy for housing and wildfire mitigation			✓	✓	
Integrate critical minerals into the mobility value chain			✓	✓	✓
Establish a national clinical-trials network and interoperable health data		✓			✓
Launch biodefense and health-security missions	✓	✓			
Advance the blue economy and marine renewables with			✓	✓	✓

transmission and offtake					
Build sovereign data and compute platforms with open standards		✓			✓
Expand onshore agri-food value-added processing and toll capacity	✓		✓		

Opportunity #1: Accelerate tech adoption, AI, automation, and advanced platforms

Across all five sectors, technology adoption has been expressed in various context-specific ways as a top opportunity area for Canada. Adoption speed is the unlock for productivity and developing exportable capability, better products and services for domestic and global markets. Experts urged the ecosystem to support companies to integrate AI, robotics, digital twins, and data platforms into operations. In agriculture, that means routing AI crop analytics and farm robotics into real fields, then lifting interprovincial frictions so solutions can scale. In manufacturing, it means pushing robot density and additive manufacturing into SME production cells, paired with employer-led training so change management can stick. In life sciences, AI-driven discovery and data platforms can compress timelines if paired with trial readiness and lab capacity. Resource firms are already using automation and analytics in operations, and digital and high tech can accelerate these initiatives forward through platform tools and shared services.

Agri-food start-ups are facing hardware scale and trust hurdles, so harmonized rules and ag-tech scale-up support would speed robotics and analytics on the farm. In advanced manufacturing, lagging robot adoption and skills shortages are real, which is why low-risk pilots in test cells matter before factory-wide rollouts. Life sciences adoption is slowed by procurement and late-stage capital, therefore pairing AI discovery with trial facilitation is helpful. Digital firms face a domestic demand gap, yet they can be the enabler for every other sector, for example cybersecurity for manufacturers, Internet of Things (IoT) in mines, analytics in food processing. Cross sectoral adoption opportunities are abundant. The panels called for visible adoption by incumbents, better translational funding, and management capacity to integrate tech, all to convert R&D into productivity, exports, and scale.

Opportunity #2: Scale domestic testbeds, pilots, and first-customer procurement

Every session emphasized that Canada needs more places to prove, buy, and scale homegrown solutions. Living labs, clinical and industrial testbeds, and the U.S. Small Business Innovation Research (SBIR)-style purchasing were cited as practical ways to create bankable

demand, reduce perceived risk, and accelerate time to market. The natural resources sector operates pilots with clear offtake and transmission plans in order to ensure projects do not stall after demonstrations. Life sciences experts pushed for a coordinated national clinical-study environment and faster review tracks in a way that builds and leverages Canadian data and Canadian IP. Digital and high tech called for government as an active first adopter, faster procurements, and mission-led buys in defence and resilience. Advanced manufacturing participants highlighted defence and sovereignty projects as demand anchors for industrial R&D and automation investments.

For instance, CAN Health shows how health authorities can become reference customers. Innovative Solutions Canada and mission procurement give digital firms early market validation. Manufacturers benefit when they can pilot robotics in low-risk environments, then lock in adoption through procurement tied to national programs. In agri-food, bridging the pilot-to-commercial gap, for example toll processing and large buyer commitments, can keep value and IP in Canada. The sessions were clear, procurement and testbeds are not side projects, they are the market signal that turns prototypes into exportable solutions.

Opportunity #3: Capture value from supply-chain reconfiguration and market diversification

Global supply chains are being rebuilt. The panels saw opportunities in reshoring, North American integration, and targeted diversification overseas, along with more domestic processing to keep value at home. For advanced manufacturing, this includes precision niches, aerospace and space heritage, and EV-related systems where Canada can be an integrated North American partner. Manufacturing leaders called out reshoring and a North America focus as windows Canada can capture if policy and actions move quickly. Resource panels cited critical minerals tied to advanced manufacturing, and marine renewables where place-based infrastructure is a key enabler for exports. In resources, this means balancing extraction with higher-value processing across critical minerals and bioeconomy inputs, linked to clean manufacturing.

In agri-food, increasing domestic value-added processing and regulatory alignment beyond the United States can reduce tariff exposure and retain IP in finished foods and ingredients. In life sciences, attracting late-stage trials, biomanufacturing, and platform firms can root supply chains in Canada, as long as capital and procurement line up. Life sciences participants as well pointed to a window to attract companies and talent given global volatility. These should not be one-offs; they must be coordinated within a deliberate strategy to retain more value in Canada while expanding diversified market access.

Opportunity #4: Brand with trust, stability, and ethics

Canada's soft-power advantage came up in every session, a reputation for trustworthy governance, sustainability, and ethical AI. In agri-food, Canada is a reliable supplier with climate-friendly practices and food safety, which matters in a challenged world. In resources, environmental stewardship and good human rights record can differentiate Canadian energy and minerals as lower risk inputs. In life sciences, ethical AI and data governance can make Canada a preferred location for AI-enabled discovery and trials particularly if combined with predictable regulation. In advanced manufacturing and digital technologies, political stability and

effective rule of law attract firms seeking resilient, compliant supply chains and partners who respect privacy and security. The opportunity is to make the Canadian brand explicit in trade, procurement, and investment dialogues, then back it with predictable timelines and service levels in policy and regulation.

Farmers and food processors can leverage a "trusted supplier" signal while adopting ag tech to prove both sustainability and productivity. Manufacturers can market a "safer, sustainable" base for advanced production. Life sciences can couple ethical AI leadership with a streamlined and simpler trial environment to pull firms and talent. Canadian digital firms can incorporate trust and sovereignty into offers for governments and critical infrastructure buyers. At the same time, the panels cautioned that brand without delivery erodes quickly; therefore, faster reviews, clear implementation, and coordinated national messages are part of the Canadian brand promise.

Opportunity #5: Compete on sustainability and climate solutions

Panels consistently framed climate and sustainability as a growth market where Canada can lead. Opportunities included mass timber and bio-based materials that link forestry to housing, bioenergy that reduces wildfire risk while creating fuel, and marine renewables that power communities if transmission and purchase commitments are addressed. Resource industries highlighted critical minerals and low-emissions production as export propositions. Manufacturers see competitive advantage in clean, automated plants and components for clean tech systems. Life sciences pointed to biodefense, health security, and safety-centered platforms that align with public missions. Digital and high tech have a role in climate analytics, grid intelligence, and resilience tools, which public sector organizations are increasingly seeking out.

Regenerative agriculture, novel proteins, and farm robotics contribute to lower emissions and higher yields. Clean manufacturing and worker-centred automation reduce energy consumption per unit while boosting quality. For instance, Mines to Mobility, projects by the Clean Resource Innovation Network (CRIN), discussions on Small Modular Reactors (SMRs), and smart grids show how resource innovation can be both greener and more competitive. In life sciences, framing investments as health and national security can create durable support for platforms that pay off in both economic and social terms. The sessions urged moving from pilots to scaled deployments with measurable emission reduction and export outcomes, which is where procurement, tax credits, and public-private investment come together.

Enabling Government and Industry Responses

During the sessions, participants were asked *"How should government and industry respond to enable long-term innovation and competitiveness?".* The discussion revealed many responses; particularly five key enablers were consistently highlighted across all sectors as essential to strengthening Canada's innovation performance. These include a coordinated and durable industrial policy, public–private co-investment and risk-sharing mechanisms, modernized R&D and fiscal incentives, integrated innovation governance and regulatory coordination, and workforce and skills development. Together, these responses call for a shared vision for a more agile, collaborative, and mission-driven innovation ecosystem.

The table below summarizes these cross-cutting enablers, along with sector-specific subtleties that were identified as important for advancing competitiveness and long-term growth. Several

recent initiatives and emerging policy directions show promise in addressing these needs, including enhanced industrial strategy, co-investment models, and targeted talent attraction programs. Taken together, these responses suggest that aligning industry and government efforts around common priorities can unlock greater value from Canada's existing assets while building resilience for the future economy.

Top Common Enablers	Agriculture and Agri-Food	Life Sciences	Advanced Manufacturing	Natural Resources	Digital & High Tech
Coordinated and Durable Industrial Policy	✓	✓	✓	✓	✓
Public–Private Co-Investment and Risk-Sharing Mechanisms	✓	✓	✓	✓	✓
Modernized R&D and Fiscal Incentives	✓	✓	✓	✓	✓
Integrated Innovation Governance and Regulatory Coordination	✓	✓	✓	✓	✓
Workforce and Skills Development	✓	✓	✓	✓	✓

Enabler #1: Coordinated National Industrial Strategy

Across all sectors, panelists called for a long-term, whole-of-government industrial strategy that aligns research, trade, talent, procurement, and fiscal levers under clear national priorities. Participants in the Life Sciences, Advanced Manufacturing, and Natural Resources sessions repeatedly emphasized the need for durable, predictable policy signals to guide large capital investments and to prevent "start-stop" funding cycles that erode investor confidence.

Agriculture and Digital panels echoed this theme, urging government to establish "North Stars" and mission-driven frameworks that unite fragmented programs into a shared vision for competitiveness. Examples include proposals for an Office for the Blue Economy (by Natural Resources) and mission-based procurement for Arctic and defence technologies (by Digital and High Tech). This industrial-strategy approach ensures that innovation spending aligns with measurable goals, supply-chain needs, and long-term national capabilities in order to help Canada move from ad hoc initiatives to sustained, strategic industrial development.

Enabler #2: Public–Private Co-Investment and Risk-Sharing Mechanisms

Each sector underscored the importance of co-investment vehicles that mobilize private capital while sharing risk with governments. This approach aims to address the chronic late-stage funding gap that leaves many Canadian innovations stuck on the shelf.

Programs such as the Strategic Innovation Fund (now Strategic Response Fund) and the Innovation Superclusters Initiative were noted to embody this model, blending public and private funding to de-risk R&D and accelerate commercialization. Panelists across sectors from agri-food to digital advocated scaling these models and improving their coordination to attract institutional and pension-fund investment.

In the Natural Resources and Advanced Manufacturing discussions, participants highlighted that such mechanisms are crucial to anchor IP, jobs, and economic value domestically. By sharing both risk and reward, Canada can build globally competitive anchor firms, strengthen industrial clusters, and move from pilot projects to full-scale production.

Enabler #3: Modernized R&D and Fiscal Incentives (SR&ED and Beyond)

A universal call across the five sectors was to update and sharpen R&D incentives to reward commercialization and scale. The Scientific Research and Experimental Development (SR&ED) program, while providing over $4 billion annually in tax credits, was consistently criticized for complexity, limited accessibility for large firms, and insufficient linkage to outcomes.

Panelists across Life Sciences, Advanced Manufacturing, and Agri-food urged modernization to make SR&ED simpler, more flexible, and more commercialization-focused. They also recommended complementary tools such as targeted tax credits (for clinical trials, clean manufacturing, or automation) and the use of procurement as a market-making instrument to create early demand for domestic innovation.

A goal shared by several participants is to shift fiscal support from early-stage research toward the "valley of death", bridging prototype to market. By reforming SR&ED and linking incentives to later-stage outcomes, Canada can better translate its strong research base into productivity gains and exportable technologies.

Enabler #4: Integrated Innovation Governance and National Coordination

Fragmentation in Canada's innovation ecosystem spread across multiple departments, programs, and jurisdictions and is a recurring frustration in every panel. Participants urged the creation of coherent, cross-departmental governance structures that align regulatory, funding, and program delivery mechanisms.

The establishment of the Canada Innovation Corporation (CIC) in 2023 was cited as a step in the right direction, introducing an agile, outcome-driven model to fund business R&D. In the Life Sciences and Natural Resources sessions, experts proposed cross-sector task forces and

secretariats to streamline complex regulatory and data-sharing processes (e.g., for clinical trials or ocean technologies).

A coordinated governance approach would enable mission-oriented innovation policy, reduce approval delays, and ensure that federal, provincial, and industry efforts move in concert. Ultimately, governance modernization is about creating a system that acts at the speed of innovation rather than the pace of bureaucracy.

Enabler #5: Workforce and Skills Development

All sectors recognized that human capital is the foundation of innovation. Panels emphasized the need for employer-led training, stronger academia–industry linkages, and targeted talent programs to address the ageing workforce and skills gaps in technical and emerging fields.

Life Sciences and Advanced Manufacturing specifically highlighted immigration pathways for mid-career and specialized technical talent, while Agriculture and Digital focused more on nurturing domestic skills through partnerships with colleges and polytechnics as well as incubators and accelerators.

Canada's broader tech talent strategy, which included fast-tracked work permits for U.S. H-1B visa holders and expansion of the Start-Up Visa program, illustrates how immigration and training policies can complement one another. Going forward, a focus on retaining international talent including STEM graduates and better integrating highly educated immigrants into their fields will further boost Canada's human capital for innovation. This dual approach ensures that Canada's innovation ecosystem has both the domestic and global expertise required to compete.

Key Recommendations[38]

To overcome systemic barriers and fully unlock cross-sector opportunities, Canada needs bold, coordinated action on multiple fronts. Three cross-cutting recommendations* emerged from the sessions and analysis:

1. Adopt a Mission-Driven Innovation Strategy
2. Modernize and De-Risk Procurement for Innovation
3. Establish Long-Term Outcome Metrics and Accountability for Innovation

These key recommendations and next steps are to boost private-sector R&D investment in Canada and to strengthen Canada's innovation ecosystem as a whole

Recommendation #1: Adopt a Mission-Driven Innovation Strategy

Canada should articulate clear national missions to focus innovation efforts across sectors. A mission-driven approach would rally public and private players around grand challenges such as achieving net-zero emissions, building climate-resilient agriculture, advancing precision health care, or winning in the digital economy. By setting specific objectives, government can then

[38] These synthesized recommendations are based on panelist discussions and are not CSPC recommendations.

align policies, regulations, and funding to support solutions to those challenges. This breaks down silos: for instance, a mission on sustainable agriculture would spur collaboration between agriculture firms, AI tech companies, and energy providers. Mission-oriented programs tend to be cross-sector by nature. They encourage Agriculture, Natural Resources, Manufacturing and Tech sectors to work jointly on problems like climate-smart food production or renewable resource extraction. Canada has begun moving in this, but a more cohesive national innovation strategy built around 4–5 big missions would provide vision and continuity. It would also signal to researchers, businesses, and international partners what Canada is prioritizing, thereby attracting investment and talent in those domains. Crucially, missions must be backed by high-level political commitment and coordinated governance, so they outlast individual election cycles. Embedding long-term missions into the mandates of existing agencies and aligning provincial efforts with them will ensure all oars are rowing in the same direction.

Recommendation #2: Modernize and "De-Risk" Procurement for Innovation

Reforms to Canada's procurement frameworks are urgently needed to turn procurement from a barrier into a driver of innovation. Concretely, this means updating procurement rules at all levels of government to allow for greater flexibility, experimentation, and value-based selection. Governments should expand initiatives that procure R&D and prototypes so that every department dedicates a portion of its purchasing to innovative Canadian solutions. Large public entities could adopt innovation-friendly procurement tools, for example, challenge-based solicitations that specify a problem and invite creative solutions, rather than overly prescriptive specs; phased contracts that start small and scale up if milestones are met; and innovation test beds that give new technologies a chance to prove themselves. Additionally, simplifying the patchwork of procurement would help young firms scale. A cultural shift is required in procurement offices: rewarding calculated risk-taking and training procurement professionals to evaluate total value instead of just upfront price. The federal Competition Bureau has even suggested pro-competitive procurement policies to give new entrants a fair shot[39]. Implementing these changes will require high-level directives and perhaps changes to procurement regulations, but the payoff is large. When the public sector becomes an early adopter of Canadian innovations, it not only helps that innovation succeed, but also delivers better services to Canadians. In sum, procurement reform is one of the most potent levers for scaling innovation and should be a top priority in a national innovation alignment strategy.

Recommendation #3: Establish Long-Term Innovation Outcome Metrics and Accountability

You can't improve what you don't measure. Canada should institute a robust set of innovation outcome metrics to gauge progress and hold policymakers accountable for results. Traditionally, Canada has focused on input metrics like dollars spent on R&D or number of programs launched. We need to shift focus to outcomes that matter: for example, business R&D intensity (BERD as % of GDP) is one critical metric where an ambitious goal is needed. Other outcome metrics could include: the number of Canadian firms scaling past $1B in revenue; commercialization rate of public research; growth in high-value patents held by Canadian

[39] Competition Bureau Canada - Improving Health Care Through Pro-competitive Procurement Policy

companies; adoption rates of key technologies by SMEs; improvements in productivity or carbon efficiency in each sector due to innovation; and Canada's rank on international innovation and competitiveness indices. These metrics should be reported annually in a "State of Innovation" report to Parliament to ensure continuity. Moreover, tying some federal funding or incentives to the achievement of outcome targets can create accountability. For instance, federal-provincial transfer programs related to innovation could include performance indicators. By setting clear targets and timelines, Canada can sustain focus on the endgame: not just doing more innovation activity but yielding more innovation impact. Over time, these metrics will inform what policies are working and where course corrections are needed, creating a cycle of evidence-based improvement in innovation strategy. Crucially, a long-term perspective is needed, since building an innovative economy is a marathon, not a sprint.

Symposium – Thematic Summary

Below is a summary of key themes that emerged from the Innovation Symposium at CSPC 2025. The discussions were framed based on findings from preceding panel discussion that had taken place over the previous 10 months. Each theme includes key challenge areas that are common to most sectors analyzed and discussants' suggestions on action(s) on who should do what, why, and when. What is notable from the symposium discussions, as well as original panel sessions, is the high degree to which key challenges are shared across sectors. Key findings align well with the findings of the individual panels and are as follows.

Regulation Is Slow, Fragmented, and Misaligned with Innovation

Nature of the Issue: Across most sectors, regulation is consistently described as outdated, overly complex, or poorly aligned with modern technologies. Regulatory uncertainty suppresses investment, delays commercialization, and reinforces risk aversion across the innovation ecosystem. Front-line regulators are seen as under-equipped to keep pace with rapid technological change, while fragmented interprovincial rules further weaken market scale.

Who Should Do What, Why, and When: Federal and provincial governments (particularly Health Canada, Agriculture Canada, and regulators) should lead a comprehensive regulatory reset, tying performance metrics to innovation outcomes rather than procedural compliance. Regulators should receive structured training in emerging technologies, supported by industry case studies. Reviews should begin immediately, with 18 months for system-level reform and 4–6 months for early implementation pilots, as identified in the cross-sector timelines.

Scale-Up Capital and Infrastructure Are Structurally Weak

Nature of the Issue: All major sectors report a persistent "valley of death" between research and commercial scale, driven by limited access to late-stage capital and insufficient shared pilot and demonstration infrastructure. Fragmented facilities, underutilized academic infrastructure, and weak coordination between regions prevent promising technologies from reaching

production scale. This results in lost IP, delayed market entry, and firms relocating abroad to scale.

Who Should Do What, Why, and When: Federal agencies, regional development organizations, industry, and non-profits should co-develop a national scale-up infrastructure strategy, including shared pilot facilities and coordinated investment platforms, where appropriate. A national gap analysis and infrastructure coordination plan should be completed within 6–8 months, with funding mechanisms aligned in the following federal budget cycle.

Risk Aversion Suppresses Transformational Innovation

Nature of the Issue: Risk aversion is embedded in funding models, regulatory approval cultures, and investment expectations, with many programs demanding unrealistically high success rates. This suppresses bold experimentation and favors incremental innovation over transformative advances. Multiple sectors emphasized that failure is structurally penalized rather than treated as a learning mechanism.

Who Should Do What, Why, and When: Federal departments, funding agencies, and Crown corporations (e.g., development and innovation funders) should adopt stage-gated funding models and moderate expectations for success rates. Government should act as a risk underwriter, and early purchasers, particularly for manufacturing, life sciences, and climate-related technologies, to unlock private capital. These changes should be explicitly tied to the next federal budget cycle (within 12 months).

Fragmentation Across Governments, Sectors, and Regions Undermines Impact

Nature of the Issue: The innovation ecosystem is widely described as fragmented across ministries, jurisdictions, funding programs, and infrastructure platforms. Data systems are not interoperable, regional priorities are poorly aligned, and organizations operate in silos with limited shared strategy. This fragmentation weakens scale, slows execution, and prevents coherent national innovation missions from emerging.

Who Should Do What, Why, and When: Federal, provincial, and municipal governments—working with industry associations—should establish a formal cross-jurisdictional coordination mechanism focused on innovation scale-up and regulatory alignment. Initial governance structures should be in place within 6–12 months, with full multi-level alignment targeted over the following 18–24 months.

Talent Systems and Industrial Strategy Lack Long-Term Alignment

Nature of the Issue: Workforce shortages, weak retention of highly qualified talent, misalignment between education outputs and industry needs, and short-term policy cycles all point to the absence of a coherent long-term industrial strategy. Life sciences, manufacturing,

and digital sectors all noted that Canada lacks a stable 10–20-year national innovation vision. This policy volatility discourages institutional investment and undermines sustained capacity building.

Who Should Do What, Why, and When: The federal government, in consultation with industry and sector councils, should lead the development of a non-partisan industrial and talent strategy anchored in long-term missions. This should include labor market forecasting, entrepreneurship education, and talent transition pathways between academia and industry. Initial strategic framing should occur within 6 months, with full institutional alignment unfolding over a 5-10-year horizon.

Conclusion

The 2025 CSPC virtual innovation strategy series and symposium, synthesized in this report, delivered a clear and consistent diagnosis of Canada's core economic challenge: a persistent innovation gap driven not by a lack of commercializable ideas, but by a systemic failure to commercialize them. The issues are not primarily technological; rather, they are rooted in policy design, governance coordination, institutional risk culture, and long-term strategic alignment.

Across all five key sectors, Agri-Food, Life Sciences, Advanced Manufacturing, Natural Resources, and Digital & High Tech, stakeholders converged on five cross-cutting barriers: fragmented rules, financing gaps, cautious & undirected procurement, weak commercialization links, and a risk-averse culture. Stakeholders called for Canada to adopt a cohesive, mission-driven innovation strategy focused on "grand challenges" like health resilience and climate security. The clear consensus was that incremental siloed changes would be insufficient, calling instead for a bold, mission-driven national industrial innovation strategy to overcome these structural impediments. Such a strategy must be underpinned by efforts to track and enhance long-term innovation metrics such as business R&D intensity and the number of scale-ups to ensure accountability and shift the national focus from inputs to results. Informed industrial innovation strategies and sustained efforts to reduce systemic fragmentation at both sectoral and cross-sectoral levels could enhance the coordinated reset of how innovation is regulated.

The federal government's Budget 2025[40] makes inroads in addressing some of the highlighted challenges with a new industrial strategy, albeit in a more limited scale and scope that is needed. Where this report identified fragmented regulation, the budget establishes a Major Projects Office to streamline approvals for nation-building projects. Where stakeholders lamented public procurement, the budget introduced a new "Buy Canadian Policy" and a Defence Industrial Strategy. To address the critical "scale-up" capital gap, the new Venture and Growth Capital Catalyst Initiative is designed to mobilize private and pension funds to support high-growth firms. To strengthen research-to-market links, the budget introduces significant enhancements to the SR&ED program and new funding to protect Canadian intellectual property. Finally, to incent investment, a new Productivity Super-Deduction will provide immediate spending for new capital, machinery, and technology.

[40] Budget 2025

Building on this momentum, with purposeful, aligned, and collective action, Canada can overcome its innovation inertia. The challenges and solutions proposed in this report are tightly aligned with previous reports looking into the science, technology and innovation landscape in Canada. It is time for bold leadership and action to secure Canada's competitiveness in the global knowledge economy.

Annex

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Appendix 2: AI Summaries from the CSPC Innovation Virtual Series

Advanced Manufacturing

Summary

This virtual panel convened sector experts to diagnose barriers to innovation and recommend policy and industry actions to strengthen Canada's competitiveness. Panelists identified three dominant, interlocking challenges: volatile global capital flows and heightened international competition that reduce investment predictability; an acute shortage of sustained late-stage and institutional capital that forces value and exits offshore; and regulatory and infrastructure constraints—slow approvals, fragmented clinical-trial and data systems, limited lab and scale-up capacity, and shortages of experienced executives. Participants also highlighted workforce ageing and skills gaps that undermine scale-up.

To address these, the panel recommended a coordinated, durable industrial strategy that aligns R&D, procurement, trade, talent, fiscal tools. Specific proposals included catalytic public co-investment vehicles to attract pension and institutional capital; expanded non-dilutive translational funding to bridge the "valley of death"; and modernization of fiscal supports (e.g., SR&ED and clinical-trial incentives). Panelists urged protecting and streamlining regulatory review capacity through faster review tracks and regulatory incentives, and using procurement as a market-maker to anchor domestic demand.

Industry actions identified included investing in differentiated platforms, accelerating AI adoption discovery and development, and speeding clinical-trial operations. Opportunities for Canada emphasized by the panel were leveraging world-class AI and ethical AI reputation, unlocking province-spanning health data for trials, doubling down on niche strengths in biologics and medtech, and using defence and sovereignty projects as demand anchors. The discussion closed with a call for near-term pilots (catalytic funds and procurement trials) and a two-year roadmap with measurable targets to retain IP, jobs, and economic returns in Canada.

Q — What are the top three challenges currently hindering innovation in your sector?

- **Trade & geopolitical shocks creating extreme unpredictability** — panelists described heavy reliance on the U.S. market (example: one speaker noted ~94% of a sub-sector's exports to the U.S.), which makes firms vulnerable to sudden tariff or trade changes.
- **Insufficient and uneven investment (esp. long-term / scale capital)** — participants flagged under-investment per worker versus peer countries and difficulties attracting late-stage/pension/institutional capital to keep industrial returns and IP anchored domestically.
- **Regulatory uncertainty and red-tape burden** — speakers emphasised that unpredictable regulation (trade, carbon, other rules) and lengthy regulatory processes

deter long-lived capital spending (example: investments like furnaces have 60–70 year horizons).

- **Workforce and skills shortages plus an ageing labour pool** — the sector skews older, with imminent retirements and large hiring/training needs; panelists stressed employer-led training and stronger ties with colleges/unions to close gaps.
- **Low digital / automation adoption and infrastructure gaps** — Canada lags in robot adoption and automation (low robot-to-worker ratios), limiting competitiveness versus low-cost rivals; also noted: constrained lab/production capacity in some segments.

Q — How should government and industry respond to enable long-term innovation and competitiveness?

- **Create clear, fast industrial policy and durable signals for investment** — panelists asked for decisive, time-bound policy direction (not multi-year uncertainty) so firms can commit capital (industries want "speed of need" similar to pandemic responses).
- **Share risk via targeted public-private mechanisms** — speakers recommended catalytic public capital, co-investment models, and programs that share downside risk so firms will invest in advanced manufacturing and scale-up.
- **Invest in workforce (training + immigration) and worker-centred automation** — suggestions included more STEM and trade modernization, employer-led upskilling, union partnerships, and immigration routes for mid-career talent to fill immediate technical roles.
- **Modernize fiscal & program levers (SR&ED, SIF, procurement)** — expand and sharpen commercialization-focused supports (examples mentioned: Strategic Innovation Fund, SR&ED) and use procurement/sovereignty projects as demand signals.
- **Reduce regulatory friction and improve predictability** — call for revisiting how regulation is made (better cost-benefit and economic mandates) so long-lived capital decisions aren't undermined by shifting rules.

Q — Key recommendations / next steps to boost private-sector R&D investment in Canada

- **Focus supports on scaling & commercialization, not just discovery** — expand programs that help firms move from prototype to production and secure first commercial revenues (panelists cited gaps where incubator/accelerator innovations fail to reach market).
- **Use catalytic public capital to attract private co-investment** — create co-investment vehicles or carve-outs to bring pension funds and institutional capital into domestic industrial R&D and scale-ups.
- **Prioritize predictability for long-horizon assets** — clarify carbon, trade and sector mandates (example: EV glide-path clarity requested) so firms will commit to CAPEX and R&D with multi-decade payback profiles.

- **Strengthen industry-academia-government partnerships and regional incubator learning** — embed R&D into production environments, learn from successful incubators/accelerators, and scale employer-led commercialization supports.
- **Invest in targeted infrastructure & platforms (automation, robotics, additive manufacturing)** — deploy strategic funding for automation, co-bots, AMRs, 3D printing and centres of excellence that raise productivity and export competitiveness.

Q — What new opportunities / comparative advantages can Canada exploit?

- **Leverage a strong manufacturing + space / aerospace base** — Canada already has deep strengths (space heritage, manufacturing competence) that can be doubled down on through targeted investment and procurement.
- **Use nation-building / defence projects as anchors** — speakers noted defence, sovereignty and critical-minerals projects (and NATO commitments) create near-term demand signals to scale domestic industrial R&D.
- **Capitalize on a "safer, sustainable" brand to attract investment** — Canada's political stability, labor/environment standards and education system make it attractive as a base for firms seeking resilient, ethical supply chains.
- **Win by accelerating automation and advanced-manufacturing niches** — focus on robotics/AI-enabled manufacturing, precision manufacturing (e.g., advanced vehicles, satellite components) and centres of excellence to create exportable know-how.
- **Exploit supply-chain reconfiguration (reshoring / north-America focus)** — as firms rethink north-south supply chains, Canada can position to capture more domestic sourcing and North American integrated production—if policy/skills/investment align quickly.

Agriculture and Agrifoods

Summary

This panel discussion highlighted significant hurdles to innovation within the agri-food sector, alongside strategic opportunities for Canada. A primary concern was the **complex and unpredictable regulatory environment**, which deters investment and slows progress. Panelists also pinpointed a critical **innovation infrastructure gap**, particularly between pilot-scale development and commercialization, often leading to drain of intellectual property and companies to other countries. **Access to late-stage capital** for scaling innovations was identified as another major challenge, despite the availability of early-stage funding. Finally, **fragmentation in collaboration** across the agri-food value chain was seen as hindering effective innovation.

In response, panelists urged the government to **streamline regulations**, making them more predictable and transparent. They also called for **coordinated industry requests** to ensure a unified voice in advocating for necessary changes. Targeted **investment in R&D infrastructure** was recommended to bridge the pilot-to-commercial gap. To enhance private sector R&D, suggestions included **revamping tax incentives** like the SR&ED program to better support small businesses and strengthening **industry-academic partnerships**. Initiatives to create **accessible capital pools** were also proposed to address funding shortages.

Looking ahead, Canada has a strong opportunity to emerge as a **trusted global supplier**, leveraging its sustainable agriculture practices and commitment to food security amidst shifting geopolitical landscapes. Embracing **technological advancements** like AI and robotics in agriculture and strategically **prioritizing the agri-food sector** for investment were also emphasized as key to future success.

Q — What are the top three challenges currently hindering innovation in your sector?

- **Regulatory Burden and Uncertainty:** Panelists frequently emphasized that Canada's regulatory framework is not predictable, transparent, or science-based, hindering innovation and investment. Examples include Canada's low ranking in OECD countries for regulatory performance and significant delays in approvals for new products (e.g., PMRA Category A products). This uncertainty often drives companies to seek approval and commercialization in other countries.
- **Lack of Scale-Up Infrastructure and Access to Late-Stage Capital:** There is a critical gap between pilot processing and commercial scale, with facilities for "toll processing" often located in the United States. This forces Canadian innovators to commercialize their intellectual property elsewhere. Additionally, while early-stage innovation receives some support, there is insufficient late-stage capital for significant investments like "brick and steel in the ground," leading companies to leave Canada.
- **Industry Fragmentation and Lack of Coordinated Collaboration:** The agri-food sector is highly fragmented, making it difficult for the industry to present a unified voice and clear priorities to the government. This siloed approach to innovation across the

value chain, from genetics to farm gate to finished food processing, limits overall effectiveness and competitive standing.

- **Geopolitical Uncertainty and Tariffs:** Shifting geopolitical dynamics and the threat of tariffs (such as the "Trump tariffs") create "chaos" and unpredictability. This significantly disrupts small businesses and farmers, leading to frozen investment and venture capital as organizations become hesitant to deploy funds without clear "rules of engagement."
- **Limited Government Understanding of the Agri-Food Sector:** Some panelists noted that federal and provincial governments often perceive the sector narrowly as "agriculture" (farming) rather than a comprehensive "food system." This limited understanding hinders the development of holistic policies, investment strategies, and regulatory frameworks that recognize and support the entire supply chain and its full economic contribution.

Q — How should government and industry respond to enable long-term innovation and competitiveness?

- **Regulatory Reform and Mindset Shift:** Panelists emphasized the need for a predictable, transparent, and science-based regulatory framework. This includes updating regulations to keep pace with new advances in products and processes. Ian Affleck highlighted that regulatory agencies, while prioritizing safety, should also consider economic impact and operate with a "safety first in the mission of delivering food security" approach. Kathleen Sullivan added that addressing the underlying "sentiment of distrust" towards industry within government and fostering a less risk-averse culture is crucial.
- **Enhanced Collaboration and Integrated Systems Approach:** Innovation was repeatedly described as a "team sport." Panelists called for reimagining collaboration across the entire agri-food value chain—from genetics to farm gate to processing—rather than operating in fragmented silos. Steve Webb suggested a "what's in it for us" mindset, fostering partnerships between academia, government, and industry (e.g., the yellow peas consortium or Gifts bridging role) to drive innovation and close the $44 billion food export gap. Tiffany Stevenson stressed the importance of the industry coordinating its "ask" to government more effectively.
- **Strategic Investment and Capital Flow:** There is a critical need for government and industry to ensure access to late-stage capital for commercialization and "brick and steel in the ground" investments, as current facilities for scale-up are often in the United States. Kathleen Sullivan pointed out the disproportionately low funding for the agri-food sector compared to others (e.g., a $200 million fund for food processing versus $2 billion for the auto industry). Rodney Byerhusen advocated for revamping tax credit programs, such as "shred tax," to better support small to medium-sized businesses that are key innovators.
- **Clear Government Direction and Long-Term Execution:** Panelists urged the government to establish clear, high-level "North Stars" or strategic priorities for the sector, which would guide policy, regulatory frameworks, and funding decisions. Steve Webb and Kathleen Sullivan noted that while reports (like the Barton report) have identified opportunities, there's a consistent lack of sustained commitment to

implementation and execution. Joe Dales added that the system needs to "unlock the power of our smart people" and get out of their way, supporting young entrepreneurs and innovators with an ecosystem approach, rather than through slow, cumbersome government processes.

Q — Key recommendations / next steps to boost private-sector R&D investment in Canada

- **Create a Supportive Regulatory and IP Environment:** To encourage R&D, Canada's regulatory systems must keep pace with new advances in products, processes, and equipment, providing a clear and accepting framework. Furthermore, improving the intellectual property (IP) environment and educating the entire ecosystem (academia, government, industry) on the "path to impact" for research findings is crucial for commercialization.
- **Enhance Access to Strategic Capital and Tax Credits:** Beyond early-stage funding, there is a critical need for late-stage capital to support commercialization and "brick and steel in the ground" investments for R&D scale-up, as current facilities are often outside Canada. Revamping programs like SR&ED tax credits to better suit small to medium-sized businesses, which are key innovators, is also essential, as current large grants like SIF are inaccessible to most food manufacturers.
- **Foster Cross-Sectoral and Industry-Academia Collaboration:** Encouraging "team sport" innovation by fostering partnerships between academia, government, and industry is vital for translating R&D into market-impacting innovations. This includes supporting models like the Fraunhofer Institutes for applied science and scale-up, and building an ecosystem that connects young entrepreneurs (even from non-agricultural backgrounds) with farmers and resources.
- **Leverage Canada's Global Advantages for R&D Attraction:** Canada can capitalize on its reputation as a stable, climate-friendly, and sustainable food producer to attract R&D investment. Proactively accelerating bilateral regulatory harmonization with other international markets can signal Canada as a science-based regulatory environment, making it an attractive destination for global intellectual capacity and labs.
- **Establish Clear, Executable "North Stars" for the Sector:** Government needs to provide clear strategic priorities or "North Stars" that align all policy, regulatory frameworks, and funding programs towards enhancing R&D and innovation. A consistent commitment to execution, learning from past reports like Barton, is necessary to translate vision into sustained R&D growth and competitive advantage.

Q — What new opportunities / comparative advantages can Canada exploit?

- **Exploiting Canada's "Trusted Supplier" Status and Sustainable Production:** Panelists highlighted Canada's stability, climate-friendly agriculture, and sustainable practices as significant advantages in a globally uncertain landscape. This positions Canada as a preferred and reliable source, attracting renewed international interest for its products and ingredients.

- **Harnessing Emerging Technologies and Nurturing Tech Talent:** There is a substantial opportunity to leverage cutting-edge technologies like artificial intelligence, robotics, data analytics, and the Internet of Things. This requires building an ecosystem that supports young, innovative entrepreneurs—including those from non-agricultural backgrounds—by providing capital, R&D support, and direct connections to farmers.
- **Increasing Domestic Value-Adding and Processing:** To mitigate vulnerability to geopolitical shifts and tariffs (e.g., "Trump tariffs" or China's actions), Canada should focus on increasing domestic processing and adding value to raw commodities. By selling finished goods rather than bulk products, the sector can create more intellectual property and retain greater economic benefit within Canada.
- **Strategic International Regulatory Alignment:** Given potential future instability in traditional trading relationships (e.g., with the US), Canada has an opportunity to proactively accelerate bilateral regulatory harmonization with other international markets. This would streamline market access and signal Canada as a stable, science-based regulatory environment, attracting global intellectual capacity and investment.
- **Adopting an Integrated "Team Sport" Approach and Executing a Clear Plan:** The agri-food sector must overcome its historical fragmentation and adopt a more unified, collaborative approach across the entire value chain (from genetics to processing). This internal alignment, combined with a clear, long-term strategic plan (like the Barton report's vision) and a strong commitment to its execution, is essential for Canada to regain and enhance its global competitive standing.

Life Sciences

Summary

The virtual panel brought together sector experts to identify obstacles and propose actionable policy and industry responses. Panelists highlighted three primary challenges: volatile global capital flows and intensified international competition that reduce investment predictability; a persistent shortage of sustained late-stage and institutional capital that often sends value abroad; and regulatory and infrastructure constraints — slow approvals, limited regulatory capacity, fragmented clinical-trial systems, and shortages of lab space and experienced scaling talent.

Recommended responses focused on coordinated, long-term public-private action. Panelists urged the development of a durable national industrial strategy aligning R&D, procurement, trade, talent policies; catalytic public capital and structured mechanisms to mobilize pension funds and institutional investors; and expanded non-dilutive translational funding to bridge the "valley of death." They also recommended protecting and modernizing regulatory review capacity with faster review tracks and regulatory incentives, reforming fiscal tools such as SR&ED and clinical-trial tax credits, and removing interprovincial frictions for trials and health data.

Industry steps include investing in differentiated platforms, adopting AI across discovery and development, and accelerating trial operations. Panelists identified Canada's comparative advantages — world-class AI research and an ethical AI reputation, under-connected but valuable health data, strengths in biologics and medtech, and geopolitical neutrality that can attract firms.

The discussion concluded with a call for next steps: create a cross-jurisdictional task force, pilot catalytic co-investment funds, and set measurable targets to anchor innovation, IP, and economic returns in Canada. Priority timeline: pilots within 12 months, and formal strategy within 24 months, with clear metrics.

Q — What are the top three challenges currently hindering innovation in your sector?

- A global **"whiplash" in investment and intense international competition**: panelists repeatedly described rapid geopolitical shifts that have made capital flows uncertain and created a scramble among jurisdictions to attract life-sciences investment. This reduces predictability for Canadian firms.
- **Insufficient, uneven access to capital (especially late-stage)**: speakers emphasized a gap in sustained venture and growth capital in Canada; large deals and exit value are often driven by international investors so much of the economic return leaves the country. Pension funds and institutional investors were flagged as under-allocated to domestic life-sciences.
- **Regulatory performance and slow approvals**: delays and capacity constraints in regulatory review were named as a persistent barrier to launching innovations and attracting investment; panelists urged protecting/augmenting regulatory capacity to

reduce delays from 3 years to a months when the approval has already been given in one of the ICH countries.

- **Talent and infrastructure bottlenecks (lab space, experienced executives)**: early-stage companies often struggle to find ready-to-move-into lab space and "been-there-done-that" executive talent to scale companies.
- **Lack of a cohesive long-term industrial strategy / low R&D intensity**: several panelists pointed out Canada's low R&D as % of GDP and the absence of a multi-decade industrial strategy, which undermines consistent signals to investors and talent.

Q — How should the government and industry respond to enable long-term innovation and competitiveness?

- **Signal quickly and decisively — champion life sciences as a national priority**: panelists urged governments to send unequivocal signals (strategy + budget) so Canada is seen as "open for business" for life sciences investment. Short-term gestures won't suffice — they want a durable commitment.
- **Create and fund a cohesive industrial strategy that ties R&D, trade, talent and procurement together**: recommendations included a 10–20 year plan, clear sector targets, and aligning procurement to industrial objectives so government becomes an early adopter and market-maker. Examples were given of other small countries that adopt this model.
- **Mobilize patient capital (pension funds / co-investment) and expand non-dilutive tools**: panelists proposed mechanisms to bring Canadian pension funds and institutional investors in (co-syndication, dedicated funds, carve-outs) plus strengthen non-dilutive programs (IRAP, grants) to improve funding across stages.
- **Streamline and protect regulatory capacity; use regulatory incentives**: protect Health Canada's review capacity, introduce or modernize incentive regimes (e.g., orphan-drug-style incentives, fee waivers, faster review tracks) to make Canada a faster launch market.
- **Industry should build platforms, adopt AI, and speed trials**: private sector actions include investing in differentiated platforms (human-cell/organoid models, data-generating platforms), adopting AI for drug discovery, and accelerating clinical trial operations (citing examples of fast local trial timelines).

Q — Key recommendations and next steps for enhancing private-sector R&D investment in Canada

- **Attract and retain late-stage capital (create Canadian vehicles / incentives for pension funds)**: propose dedicated Canadian science/innovation funds or a percentage-pledge from large pension pools, to keep returns and reinvestment domestic. Incentive to VC will be required to support this requirement to increase ROI of pension funds. Panelists stressed leverage effects — public catalytic capital attracts larger private co-investments.

- **Modernize fiscal tools — SR&ED, clinical-trial credits, patent incentives**: update SR&ED, introduce targeted tax credits (clinical trials), and consider patent-box or other IP incentives so finance levers better reward R&D and scale-ups.
- **Expand non-dilutive translational funding and carve-outs**: increase and tailor grants/programs for the translational "valley of death" (bench→clinic), and consider specific carve-outs in VC programs to seed life-sciences growth.
- **Make Canada an easier place to run complex clinical studies and commercialize**: reduce administrative friction across provinces (data portability/interprovincial barriers), speed trial start-up timelines, and promote domestic clinical trials tied to Canadian IP (panelists noted only a small share of trials originate from Canadian innovation).
- **Targeted infrastructure and platform investments**: invest in next-gen lab/platform infrastructure (organoids, organ-on-a-chip, human-derived models, data platforms, new equipment generating new types of data) that generate novel data as a competitive differentiator.

Q — What new opportunities or comparative advantages can Canada exploit?

- **Ethical AI leadership and AI-accelerated drug discovery**: Canada's strong AI research base and reputation for ethical AI can be leveraged to accelerate drug discovery and data analytics — panelists urged faster private-sector adoption and rapid investment to capture first-mover advantages.
- **Health-system data and a coordinated national clinical-study environment**: panelists pointed to Canada's rich (but siloed) health data as a potential competitive asset if provinces reduce barriers and Canada builds an easy, unified environment for complex trials.
- **Biodefense / dual-use tech as national-security rationale for funding**: framing life sciences investment as part of health and national security (biodefense, pandemic preparedness) opens additional funding and policy channels. Examples were given of companies that pivoted to pandemic response via existing government partnerships.
- **Niche platform leadership (precision biologics, medtech, smart implants)**: Canada can double down where it's already strong — biologics, precision medicine, certain medtech — and act as an early adopter (procurement) to scale those wins (example: data-rich smart implant case cited).
- **A window to attract companies and talent amid global shifts**: with geopolitical uncertainty elsewhere, Canada's neutral reputation and high-education talent pool create a timely opportunity to attract companies, Canadian ex-pat entrepreneurs to bring or run their (next) company in Canada and create anchor jobs — but speed and clear policy signals are essential.

Natural Resources

Summary

This virtual panel convened sector experts to diagnose barriers to innovation and propose practical responses to strengthen Canada's competitiveness. Panelists identified three interlocking challenges: geopolitical and trade volatility that undermines export markets and investment predictability; a persistent scaling gap where early-stage research fails to reach commercialization due to insufficient late-stage and institutional capital; and regulatory and infrastructure friction—slow, fragmented approvals and constrained scale-up capacity. Workforce ageing, cultural adoption barriers, and climate-related infrastructure risks were also noted.

Recommended public responses emphasize a durable, coordinated industrial strategy and targeted de-risking instruments: sustained co-investment vehicles to attract pension and institutional funds; rebalanced public funding toward later-stage commercialization and cluster scale-up; modernization of fiscal supports and tax incentives; and use of procurement as a market-making tool. Strengthening regulatory capacity, clarifying timelines, and creating faster review tracks were highlighted.

Industry steps include investing in differentiated platforms, accelerating adoption of AI and automation where appropriate, and using living labs and public testbeds to validate technologies. Panelists urged stronger industry-academia partnerships and employer-led training to address skills gaps.

Opportunities for Canada noted by the panel include exporting sustainably produced energy and critical minerals, scaling a bioeconomy (mass timber, biomass), developing offshore and community-scale marine renewables, and leveraging Canada's reputation for trustworthy governance. The discussion closed with calls for near-term pilots for co-investment and procurement and a two-year roadmap with measurable targets to retain IP, jobs, and economic value domestically. Plus clear accountability and timelines for delivery. Panelists recommended pilots within twelve months and formal strategy.

Q — What are the top three challenges currently hindering innovation in your sector?

- **Geopolitical and trade volatility that undermines investment decisions.** Panelists described acute tariff shocks and shifting trade priorities (e.g., recent U.S. anti-dumping/countervailing duties and a Section 232 action on lumber) that create uncertainty about export markets and slow firms' willingness to invest.
- **A persistent "scaling gap": strong early-stage research but weak commercialization and scale-up finance.** Several speakers said Canada funds a lot of research but spends far less on commercialization, causing many innovations to "die on the shelf." Public-private co-investment was portrayed as critical to close that gap.
- **Regulatory uncertainty and friction (need for predictable, integrated rules).** Large, multi-billion projects (e.g., carbon capture in oil sands, or major offshore wind) require regulatory and policy certainty; fragmented or slow approval processes deter investment.

- **Cultural and adoption bottlenecks — slow industry uptake of available tech.** The transcript flagged a "culture problem" where abundant existing tech isn't adopted quickly enough; SMEs do most innovation but face integration barriers into incumbent operations.
- **Sector-specific constraints (infrastructure, workforce, climate risks).** Examples: offshore renewables need transmission and clear offtake arrangements; forestry must contend with wildfire-driven biomass challenges; mining faces ageing workforce and legacy production platforms.

Q — How should government and industry respond to enable long-term innovation and competitiveness?

- **Provide clear, durable policy and regulatory signals for large projects.** Panelists called for predictable rules and timelines so investors will commit to long-horizon CAPEX (ten-digit projects such as major emissions-reduction builds).
- **Use public-private risk-sharing (co-investment, longer funding horizons).** Speakers recommended scaled co-investment, cluster funding, and sustained multi-year programs (not short 1-year grants) so industry retains "skin in the game" while risk is de-risked.
- **Create integrated, cross-departmental coordination for complex sectors.** Example: an "Office/Secretariat for the Blue Economy" to coordinate Transport, Environment, Fisheries, etc., to reduce friction for ocean tech deployment.
- **Speed commercialization by enabling living labs, testbeds and clearer market signals.** Faster access to real-world pilots, procurement commitments (Buy-Canada style signals) and streamlined approvals will let firms validate and scale technologies domestically.
- **Invest in workforce and place-based partnerships (including Indigenous equity partnerships).** Recommendations included employer-led training, targeted immigration for mid-career talent, and true Indigenous equity partnerships in energy/community projects to support local deployment and skills development.

Q — Key recommendations & next steps to boost private-sector R&D investment in Canada

- **Shift funding emphasis toward later-stage commercialization and scale.** Multiple panellists urged rebalancing public funding from discovery research toward 3–5-year commercialization support so prototypes actually reach market.
- **Expand and rationalize public programs that de-risk first commercial projects.** Examples: more sustained cluster funding, expanded Strategic Innovation-style programs, and pragmatic co-funding for techno-economic assessments to screen early-stage vendors.
- **Create clearer, aggregated funding pathways for community-scale pilots.** For remote/Indigenous communities (e.g., tidal/wave pilots), panellists recommended resource assessments and consolidated capital programs so projects aren't left cobbling many small grants.

- **Leverage procurement and government demand as market-making tools.** Using procurement (or contracts for difference for electricity) to guarantee offtake was offered as a practical way to make projects bankable and attract private R&D capital.
- **Target tax and incentive fixes for sectoral opportunities (e.g., biomass inclusion).** The forestry sector suggested including biomass in existing clean-tech manufacturing / electricity tax credits to unlock bioeconomy investments and reduce wildfire risk.

Q — What new opportunities or comparative advantages can Canada exploit?

- **International reputation and trust as a soft power advantage for market entry.** Panelists said Canadian firms and experts are welcomed globally — that goodwill can be leveraged to export tech and secure partnerships.
- **Position Canada as a sustainable, low-risk supplier (energy and resources).** Canada's emphasis on regulatory standards, human rights and environmental stewardship was presented as a selling point for sustainably produced hydrocarbons and minerals.
- **Mass-timber, bioenergy and the bioeconomy — link to housing and wildfire mitigation.** Forestry can help address affordable housing (mass timber/modular construction) and convert low-grade biomass into heat/energy, if incentives and markets align.
- **Offshore and community-scale marine renewables as place-based opportunities.** Atlantic offshore wind and tidal/wave for remote communities were highlighted — but only realizable with transmission, clear buyers and streamlined project packaging.
- **Critical minerals, advanced manufacturing and cleantech finance—a moment to capture global capital.** With global industrial policy elsewhere, Canada can leverage critical-minerals supply, advanced manufacturing capacity, and a strong cleantech ecosystem to attract investment—if it moves quickly.

Digital and High-Tech

Summary

The panel discussion explored the barriers and opportunities shaping Canada's innovation landscape across key technology and industrial sectors. Panellists identified persistent structural challenges: slow and risk-averse public procurement that limits early market validation for domestic firms; a lack of patient capital for deep-tech ventures; and a research culture that prioritizes discovery over commercialization. These challenges are compounded by regulatory and procedural hurdles, a small domestic market, and growing concerns about data sovereignty and vendor lock-in.

To strengthen long-term innovation and competitiveness, panelists emphasized the need for government to act as a first adopter and catalyst for emerging technologies—through faster, mission-driven procurement and clear spending mandates that favour Canadian innovators. They recommended reforming funding models to provide larger, patient, and non-loan-based investments, and expanding collaborative cluster programs that bring buyers, researchers, and SMEs together under performance-driven outcomes. Strengthening industry–academia linkages and aligning incentives for commercialization were also viewed as essential.

Panelists agreed that private-sector R&D investment can be accelerated through targeted partnerships with incumbents, outcome-focused cluster programs, and competition or tax measures that reward commercialization. Canada's comparative advantages lie in mission-driven innovation—particularly in Arctic, defence, and climate resilience technologies—coupled with its trusted governance, scientific excellence, and ethical brand.

Ultimately, the discussion underscored that unlocking Canada's innovation potential requires aligning public demand, patient investment, and regulatory agility to build globally competitive companies capable of delivering value both domestically and internationally.

Q — What are the top three challenges currently hindering innovation in your sector?

- Slow / misaligned public procurement and lack of "first-customer" adoption — panelists said government contracting timelines and rules don't fit startup realities so early market validation is missed; this was flagged as especially acute for nascent deep-tech firms.
- Insufficient patient capital for deep tech — the VC market was described as risk-averse (avoids hardware, dual-use, long timelines), so many deep-tech firms depend on public funding that is often fragmented, small, or loan-based. This drives early exits or relocation.
- Overemphasis on research outputs vs. value creation/commercialization — multiple speakers argued Canada often prizes publications and research process over market outcomes, leaving utility and industry formation under-prioritised.
- Cultural and regulatory friction that slows adoption — a tendency to confuse process with outcome, plus heavy regulation and procedural hurdles, choke small companies' ability to bring products to market and for adopters to try them.

- Small domestic market and weak local demand signals — the panel emphasised Canada's ~40M market limits "test and scale" opportunities compared with larger markets, making it harder to build reference customers and raise growth capital.
- Data/technology sovereignty and vendor lock-in concerns — worries about where compute and data reside, vendor lock-in, and the monetization of user data were raised as strategic challenges to domestic control of innovation.

Q — How should government and industry respond to enable long-term innovation and competitiveness?

- Government as active first adopter & faster procurement (SBIR-style approaches) — panelists urged government to buy domestic solutions, use targeted programs where funds must be spent (example: SBIR-like 2% budget idea) and shorten adoption timelines so Canadian firms can scale.
- Incentivize local demand and procurement of Canadian solutions — intentionally prefer/try Canadian adopters first so companies acquire reference customers at home before exporting; clusters and consortia were presented as mechanisms to do this.
- Create mission-driven public R&D/defence purchases to pull industry forward — tie applied R&D to clear national missions (e.g., Arctic, NORAD modernization) to align researchers, startups, and defence/public procurement. This was singled out for quantum.
- Reform public funding to be more patient, bigger, and less fragmented — replace many small/loan programs with larger, mission-oriented, non-loan investments suitable for pre-revenue deep tech.
- Use cluster/collaborative models to accelerate adoption — regional cluster programs that place buyers and builders together (with rapid project turnover and competitive pipelines) were cited as delivering strong ROI and faster commercialization.
- Industry–academia translation incentives — change incentives so academic outputs are also rewarded for commercial uptake (not just publications), and support spin-offs to shift from lab culture to business models.

Q — Key recommendations / next steps to enhance private-sector R&D investment in Canada

- Mobilize patient capital and adapt funding instruments for deep tech — establish or scale funds that accept longer timelines, and reduce loan-heavy supports for pre-revenue firms so they can scale without early sell-offs.
- Make procurement a lever (mandates + incentives) — introduce spending or procurement goals that direct a meaningful share of government buying to domestic innovators (and penalize slow uptake); use rapid pilot/scale pathways so adopters move from meeting to deployment faster.

- Encourage strategic partnerships between incumbents and startups — incentivize large firms to co-fund pilots and adopt solutions (large firms get R&D exposure; startups get customers and scale references).
- Scale cluster models and outcome-focused programs — expand cluster/collaborative programs that connect buyers, researchers, and SMEs with performance-based funding (panel cited cluster ROI and product counts as evidence).
- Target under-investing incumbents with competition / adoption signals — address sectors that under-invest in R&D (e.g., telecom, airlines, energy) through competition policy, tax incentives tied to commercialization, or public-private demo programmes.
- Promote national narratives & celebrate scale-ups — build a culture that celebrates grown-and-scaled companies (not only startups) to create urgency and pride that fuels private R&D and risk-taking.

Q — What new opportunities or comparative advantages can Canada exploit?

- Mission-driven leadership in niche/high-impact areas (e.g., Arctic quantum) — panelists argued Canada can be world-leading by aligning national missions (Arctic security, NORAD modernization, climate resilience) with applied quantum and other deep tech.
- Leverage strong research + trusted governance as a brand — Canada's rule-of-law, human-rights focus and research excellence can attract partners and customers seeking ethical, stable tech partners (compare to "look east / diversify beyond the US").
- Healthcare and education as big domestic testbeds — examples: rapid deployment of an AI "telewound" solution during COVID and clinical AI tools (skin-cancer triage) show Canada can scale patient-led and system-level solutions—if adopters in Canada buy them.
- Resource & mining tech (e.g., Earth X-ray) — Canadian research adapted into the world's first "Earth X-ray" now used by major miners; this shows a clear exportable strength in resource-sector instrumentation and analytics.
- Turn constraints into advantages via alliances — being a smaller market forces creative international partnerships (co-development with friendly countries) and specialization; panelists recommended optimizing partnerships rather than trying to compete head-on with very large players.