



Improving Innovation Through Better Management

ANNUAL DEANS CONFERENCE, CFBSD

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CCA AND ITS PROCESS

Tijs Creutzberg, PhD.

Director of Assessments

Council of Canadian Academies

COUNCIL OF CANADIAN ACADEMIES

- Not-for-Profit organization
- Created in 2005
- Three founding Member Academies
- Board of Governors, Scientific Advisory Committee, professional staff

RSC
The Royal Society of Canada
The Academies of Arts,
Humanities and Sciences
of Canada



SRC
La Société royale du Canada
Les Académies des arts,
des lettres et des sciences
du Canada

THE CANADIAN ACADEMY
OF ENGINEERING
*Leadership in Engineering Advice
for Canada*



L'ACADÉMIE CANADIENNE
DU GÉNIE
*Chef de file en matière d'expertise-conseil
en génie pour le Canada*

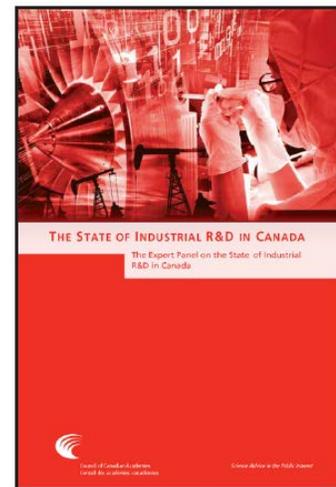
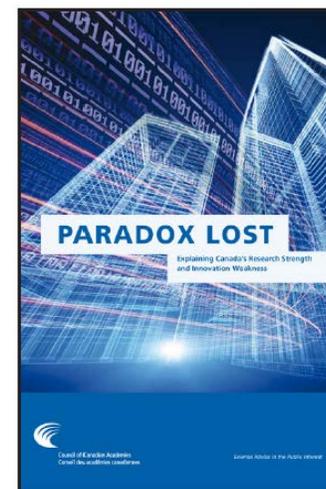
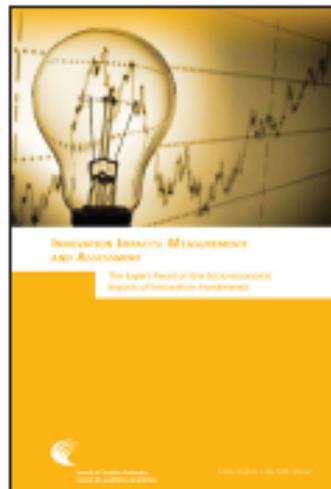
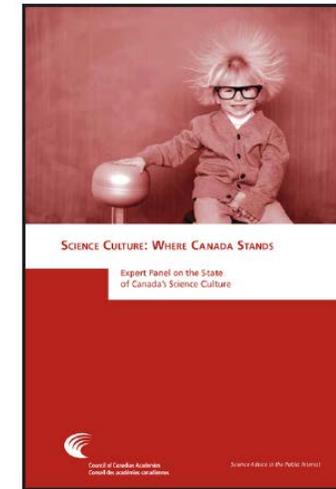
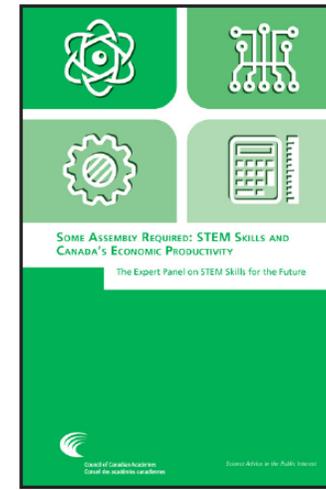
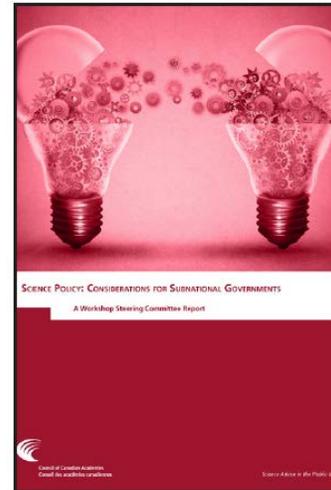
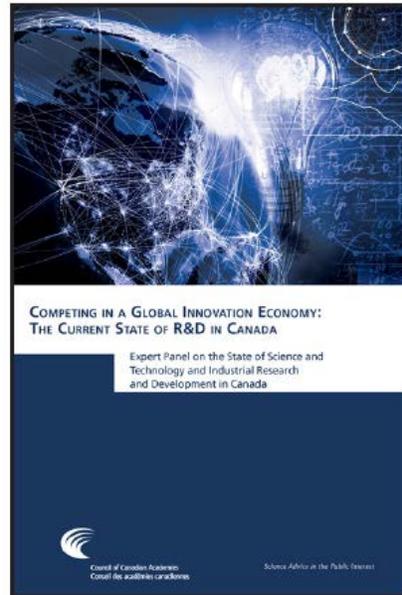


Canadian Academy of Health Sciences
Académie canadienne des sciences de la santé

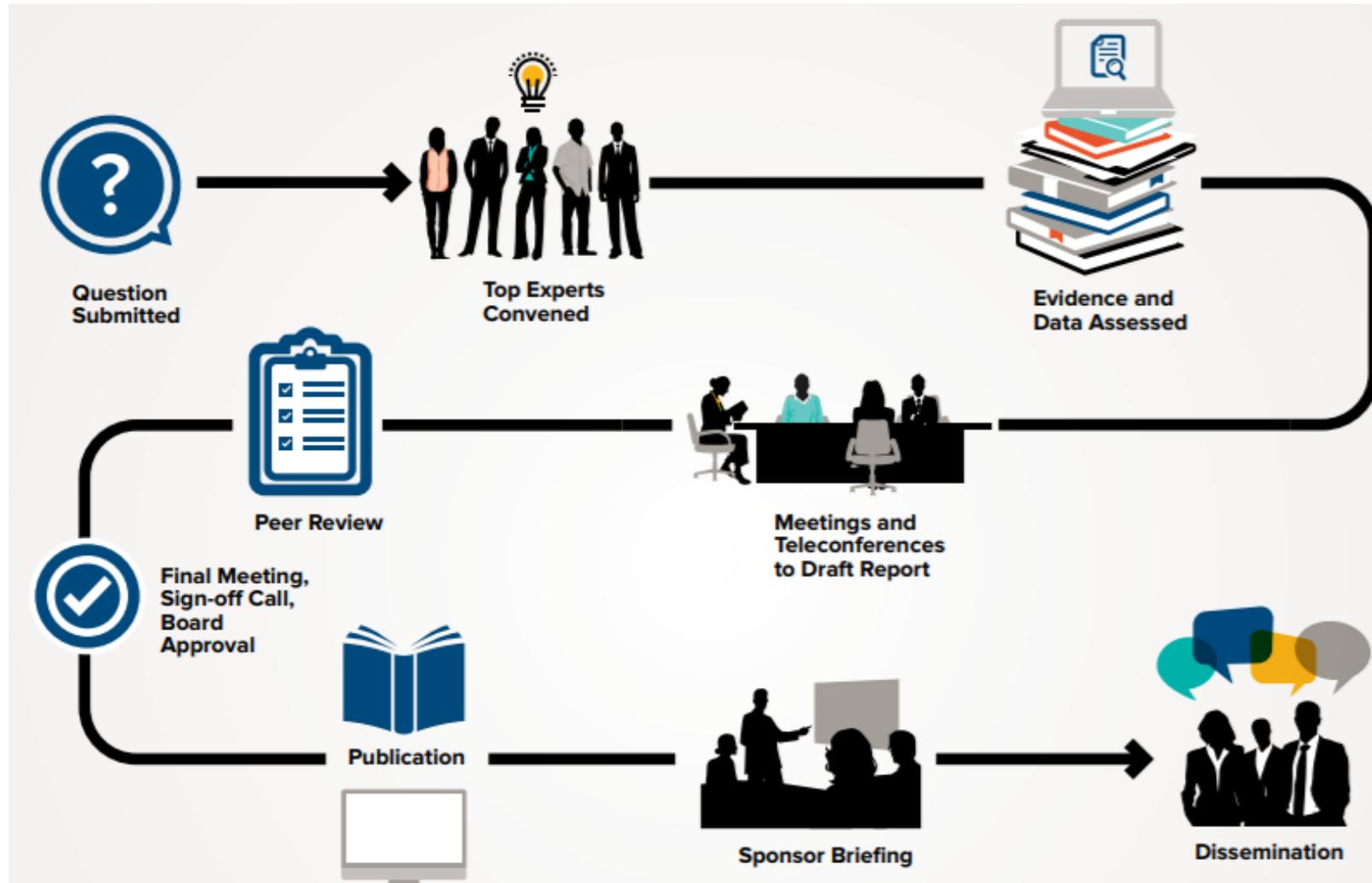
CONTEXT FOR REPORT

- CCA has been addressing issues at the intersection of S&T, and Innovation from its inception
- Recent 2018 report, *Competing in a Global Economy*

RECENT S&T AND INNOVATION REPORTS



PANEL PROCESS



OVERVIEW OF PANEL FINDINGS

John McDougall, FCAE
Chair, Expert Panel on
Innovation Management Education and Training

WHY THIS REPORT?

- Relatively few Canadian technology companies grow and mature into global entities, despite world-class research and thriving technology start-ups.
- This cycle — invent and sell, invent and sell — allows other countries to capture much of the economic and social benefit.
- Effective innovation managers have the potential to help escape this cycle.
- But identifying where and how innovation managers are best educated and trained has been understudied.

CHARGE TO CCA FROM ISED

1. What are the key skills (including traits, behaviours, and practices) required to manage innovation?
2. What are the leading practices for teaching these skills in business schools, other academic departments, colleges/polytechnics, and industry?

THE EXPERTS



EVIDENCE & METHODS

- Literature review of innovation management
- Survey of programming offered at leading Canadian and international business schools and academic institutions
- Survey of Canadian business school deans
- Interviews with innovation management experts
- Two-day facilitated workshop with 20 experts in innovation management

REPORT SCOPE

- Provides an initial exploration of innovation management training in Canada and abroad.
- Looked at leading courses, learning experiences, teaching practices, and programs.
- Not a comprehensive review of innovation management curricula; does not evaluate programs or institutions.
- Does not recommend particular programs or methods.

3 HIGHLIGHTS

1. Beyond Business Schools

Business schools offer a significant opportunity for teaching Innovation Management; but IM can also be taught at STEM institutions and innovation intermediaries.

2. Competency Based Education Approach

Innovation Management Competencies (IMCs) include not just knowledge, but also skills and attitudes; brings IM in line with other professional programs (e.g. medicine).

3. IMCs & Career Stage

Where/how IMCs are taught differs for early, mid-career, or executive.

THE OPPORTUNITIES

- 64 business schools in Canada; 333,000+ business students per year

Innovation management is not often part of core undergraduate business school or MBA curricula; But elective courses have grown more than four-fold over the last decade.

- STEM programs at universities and colleges

- Innovation Intermediaries

Ranked as the most important place for learning innovation management by business school deans.

- Companies, on-the-job training



FINDINGS

FIVE INNOVATION MANAGEMENT COMPETENCIES

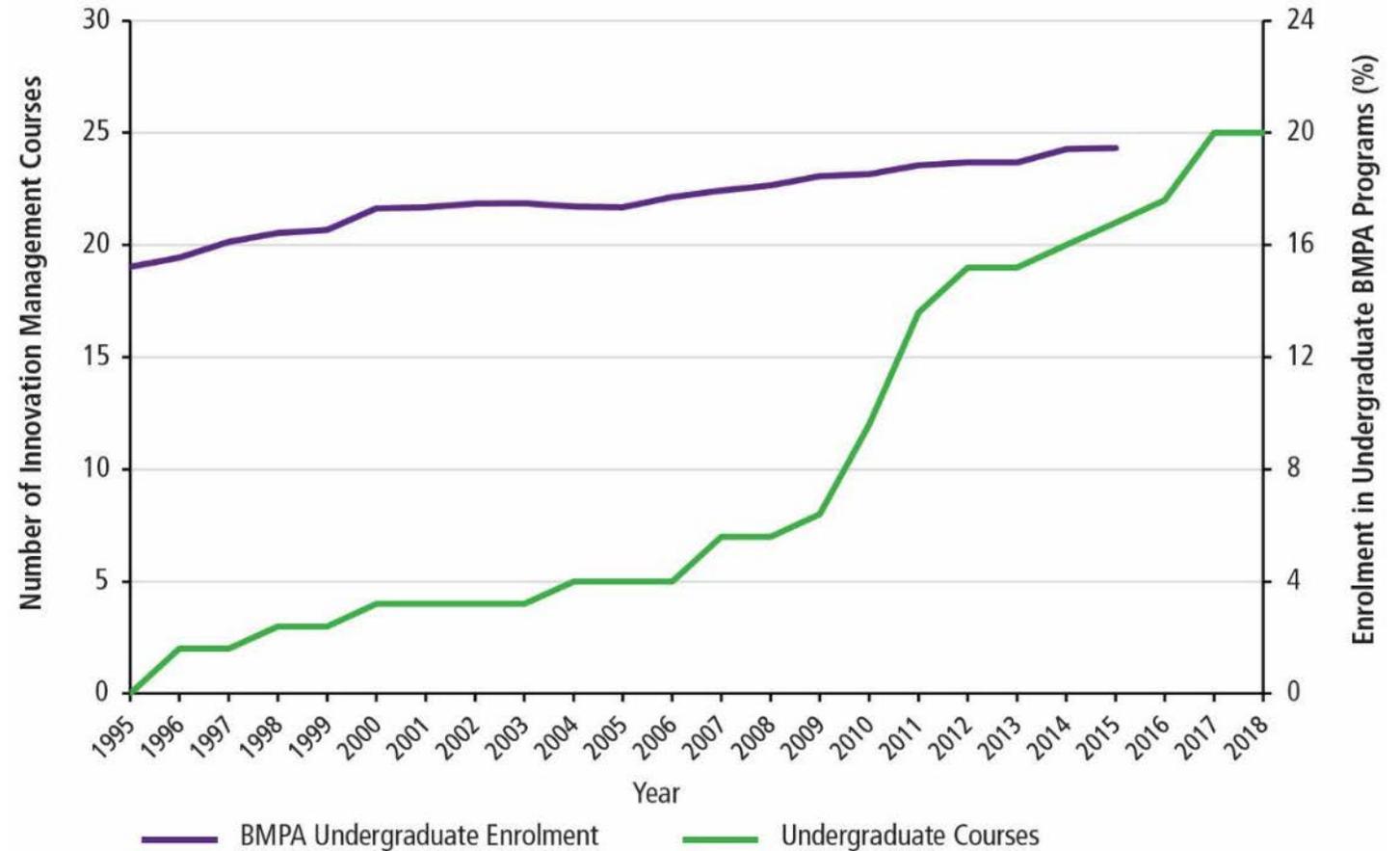
- Finding Opportunities
- Commercializing Opportunities
- Managing Diverse Teams
- Leveraging Innovation Ecosystems
- Leadership

A COMPETENCY APPROACH TO INNOVATION MANAGEMENT

- IMCs provide a useful way to re-think innovation management education.
- The relative value of each IMC varies across a manager's career, depending on their role, company, and industry.
- But there is no overall hierarchy of IMCs, they are reinforced and refined throughout a career.
- Many ways to conceptualize IMCs – the Panel's approach is a first take, not a definitive one.

COURSES FOR EARLY-CAREER STUDENTS

The number of innovation management undergraduate courses offered in Canada has increased four-fold during the last decade



THREE PRINCIPLES – EARLY CAREER STUDENTS

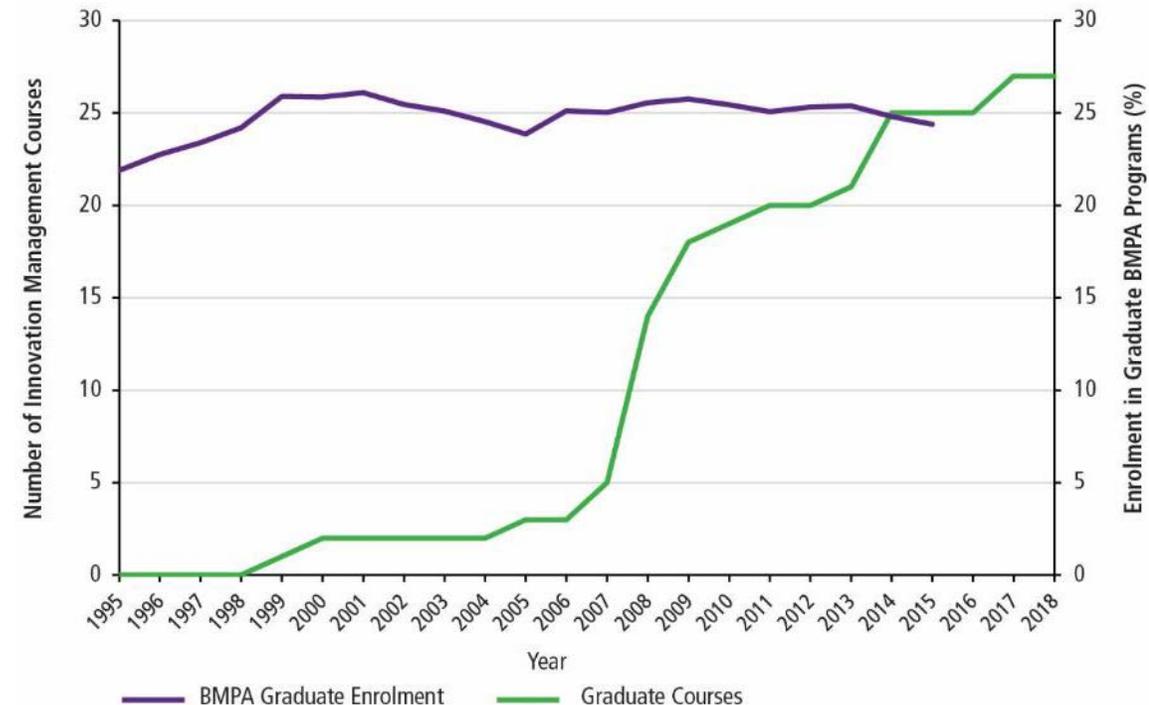
1. Joint courses and programs that expand access to the teachers, theory, learning experiences, and innovative culture housed in business schools to a greater number of students.
2. Innovation management education that provides students with experiential learning opportunities.
3. Effective teachers that expose students to leading-edge theory and meaningful experiences. Communities of practice among teachers, researchers, and practitioners that encourage innovation in curricula and diffusion of leading practices.

LEADING PRACTICES – EARLY CAREER STUDENTS

Type	Name	Contribution to IMC Education & Training
Undergraduate Business Course	Babson College Foundations of Management and Entrepreneurship course	Mixes theory and practice: students learn entrepreneurship fundamentals and attempt their own entrepreneurship
Experiential Learning	Sloan School of Management Action Learning Labs	Devotes staff and resources to encouraging and developing action learning within the business school
Undergraduate Certificate	SFU Charles Change Certificate in Innovation and Entrepreneurship	Exposes non-business students to management training
Joint Programs Between Disciplines	UofC combined B.Sc. Engineering and B.Comm. program	Exposes non-business students to management training
Community of Practice	European Commission Knowledge Alliances	Brings schools and companies together to improve innovation education both in and out of higher education

COURSES FOR MID-CAREER STUDENTS

- Canadian innovation management graduate courses have increased five-fold over the last decade.
- MBA elective courses focus on 3 of 5 IMCs — finding opportunities, commercializing opportunities, and leveraging innovation ecosystems — with gaps in managing diverse teams and leadership.



THREE PRINCIPLES – MID-CAREER STUDENTS

1. Specialized graduate programs that target students planning to manage innovation in the next stage of their career with in-depth education that cannot be provided in more general MBA programs.
2. Innovation management education that provides students with opportunities to take risks and allows for failures.
3. Innovation intermediates that contribute to innovation management training through mentoring and networking.

LEADING PRACTICES - MID-CAREER STUDENTS

Type	Name	Contribution to IMC Education & Training
MBA Core Course	Harvard Business School The Entrepreneurial Manager	Teaches an innovation management in the core curriculum
Experiential learning	Stanford University Lean Launchpad course	Offers practical experience in developing innovations in a team as well as to take risks and fail
Specialized MBA	Ted Rogers School of Management MBA in Management of Technology and Innovation Beedie School of Business Management of Technology MBA	Develops IMCs in targeted MBA programs
Specialized MSc	HEC Montréal MSc Entrepreneurship, Intrapreneurship & Innovation; Imperial College MSc Innovation, Entrepreneurship & Management	Provides targeted academic education in innovation management
Innovation Intermediary Training	Creative Destruction Lab (University of Toronto) Volta Labs	Offers mentorship by experienced innovators and a range of courses and learning opportunities

COURSES FOR EXECUTIVE STUDENTS

- Canadian business schools offer fewer executive courses in innovation management than their U.S. counterparts.
- Executive students would benefit from expanded access to innovation management education in competencies such as leadership, but also in more specialized areas of particular national weakness such as scaling.
- Excellence in innovation management requires lifelong learning, refining and reinforcing competencies throughout a career.

THREE PRINCIPLES – EXECUTIVE STUDENTS

1. Specialized training in how to scale high-tech companies.
2. Innovation management education that provides students opportunities to reflect on their experiences.
3. Laddered courses and programs in business schools that encourage students to supplement on-the-job training with more formal innovation management education.

LEADING PRACTICES – EXECUTIVE STUDENTS

Type	Name	Contribution to IMC Education
Executive Masters	Lazaridis Institute Executive Master's in Technology Management	Provides targeted training in leadership and other IMCs
Specialized training in scaling	Lazaridis Institute Scale-Up Program, MIT REAP Norway University Consortium Accelerator Scale-Up Program	Provides targeted and tailored mentorship and training in scaling, teachers include academics and practitioners
Reflection-Oriented Executive Education	International Masters Program for Managers	Emphasizes reflection and learning from peers
Company-Based Training Approach	Shopify Talent Acceleration team	Uses workshops and mentorship in on-the-job training for low- and high-level management skills
Laddered Programs	Beedie School of Business' laddering of its Invention to Innovation certificate and Management of Technology MBA	Provides a steady, easy way to continually gain more IMC training over a career

➤ CONCLUSIONS

OPPORTUNITIES FOR ACADEMIC INSTITUTIONS

- MBA programs can offer more innovation management courses, preparing their students to manage in an innovation-driven economy.
- Joint programs can expand access to innovation management education to early-career students outside of business schools.
- Specialized master's programs can provide in-depth training to mid-career students and focused training in scaling high-tech companies to executives.

OPPORTUNITIES FOR INDUSTRY

- Companies can support lifelong learning, providing employees with professional development opportunities and mentors.
- They can develop IMCs in employees through in-house training and with more formal education provided by academic institutions or innovation intermediaries.
- Executives can co-teach or guest lecture in undergraduate and graduate classrooms and mentor start-ups and scale-ups through innovation intermediaries and professional networks.

OPPORTUNITIES FOR GOVERNMENTS

- Policies and programs that support innovation management education and training within innovation ecosystems (e.g., superclusters).
- Educational partnerships between academic institutions, innovation intermediaries, and companies.
- Programs that help industry establish long-term training opportunities (e.g., Mitacs fellowships, NSERC CREATE).

FINAL REFLECTIONS FROM THE PANEL

- Support for strengthened IMCs is one step to address the priority of scaling and growing companies in Canada.
- Education and training that is integrated throughout the innovation ecosystem will help expand the pool of innovation management talent in Canada.
- As a source of competitive advantage, inclusive innovation can underpin both the theory and practice of Canadian innovation management.

➤ **QUESTIONS?**



IMPROVING INNOVATION THROUGH BETTER MANAGEMENT

The Expert Panel on Innovation Management Education and Training



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