

RESEARCH AND DEVELOPMENT AND INNOVATION SPENDING

THE ENGINEERING PROFESSION'S POSITION

- Industry and government investment in research, development, and innovation activities contributes to both economic prosperity and quality of life.
- Engineers must be at the forefront of innovative solutions in order to help Canadians meet the environmental, social, and economic challenges of the 21st century.
- Engineers Canada supports recommendations made by the 2011 Expert Review Panel on Research and Development including two in particular:
 - Making business innovation one of the core objectives of procurement.
 - Establishing a clear federal voice for innovation and work with the provinces to improve coordination.
- Research and development which involves the practice of professional engineering requires the involvement of an engineer licensed with the appropriate provincial or territorial regulatory body.

The challenge(s)

Currently, Canada is perceived to be lagging behind other developed nations in terms of investment in research, development, and innovation. The Expert Panel on the State of Science and Technology and Industrial Research and Development in Canada (2018) characterized Canada's state of research and development efforts worrying, stating that "dwindling financial support for [research and development] across all sectors, most notably in the business sector, is of particular concern."¹ Canada's recent decline in the 2018 Bloomberg Innovation Index ranking system also delineates Canada's need to increase innovative practices, as well as support for research and development, if it is to compete on the world stage.

In instances where innovation intersects with the practice of engineering, engineers are well positioned to provide innovative ideas and expert advice in the development of new technologies to uphold public safety.

Allowing intellectual property costs to be covered by funding programs and ensuring that the other requirements do not put propriety information in the public domain before intellectual property issues are resolved,

could facilitate the commercialization of research and development work. Companies benefit from owning the intellectual property that emerges from their investments in research and development as it increases their valuation, appears as an asset on a balance sheet, and is expected by their investors and purchasers. By changing program requirements, government grants allow companies to expand commercialization and technology transfers. This results in an increased demand for science, technology, engineering, and mathematics graduates.

How Engineers Canada has contributed

In 2011, Engineers Canada released a report entitled, "Putting the Pieces Together: A Response to the Review of Federal Support to Research and Development." In this report, Engineers Canada recommended that the federal government work to ensure that the requirements to qualify for grants and incentives do not include elements or barriers that may be stifling commercialization.

Engineers Canada is supportive of and encourages government investment in research, development, and innovation in Canada, and strongly supports the streamlining

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of those funding opportunities to maximize the benefits to all Canadians. Cooperation between the engineering profession and the federal government is invaluable in accomplishing this. Federal government support for research, development, and innovation helps to ensure that adequate funds are available to support the procurement and retention of talent.

Engineers Canada has contributed expertise to:

- Meetings organized by the federal government to explore ways to improve Canada's competitiveness, output, and quality of life.
- Initiatives to develop long-term approaches for sustained growth and prosperity by supporting practices, multidisciplinary research, and new techniques.
- The Standing Committee on Finance, where in a 2012 appearance, Engineers Canada highlighted the importance of consistent and reliable research and development funding.

Recommendations to the federal government

Investing in research and development activities allows businesses and universities to develop new designs and products that improve efficiency, promote environmental stewardship, and enhance economic diversity. By providing support, the federal government can help Canadian innovators create products and businesses that promote economic growth and job creation.

The federal government must support increased target funding for research and development investments within post-secondary institutions, businesses, and institutions. Increased federal funding should be focused within science, technology, engineering, and mathematics research

fields, and specifically directed at innovation investments. The federal government should ensure that proprietary information should not be posted in the public domain before intellectual property issues are resolved. The federal government should continue to explore ways in which Canada can improve its competitiveness, output, and quality of life for all Canadians.

A clear plan is required to support research and development investments across Canada that works in partnership with non-profit organizations, post-secondary institutions, and the private sector. The federal government has a role to play in identifying and directing funding and investment to potentially high-value activities and sectors that are known to be areas of strength for Canada in the global market.

How Engineers Canada will contribute

With its network of expert volunteers, Engineers Canada will:

- Provide advice on funding priorities for research and innovation in existing and emerging disciplines.
- Participate in formal government forums, national roundtables, and appear before House of Commons standing committees to advance sound innovation policies that protect the public.
- Provide advice in the early stages and facilitate the development of legislation and federal regulatory frameworks that promote innovation.

¹Council of Canadian Academies (2018). "Competing in a global innovation economy: the current state of R&D in Canada: Expert Panel on the State of Science and Technology and Industrial Research and Development in Canada." Retrieved October 31, 2018, from: http://new-report.scienceadvice.ca/assets/report/Competing_in_a_Global_Innovation_Economy_FullReport_EN.pdf.