



Competing in a Global Innovation Economy: The Current State of R&D in Canada



CONVENE EXPERTS

ASSESS EVIDENCE

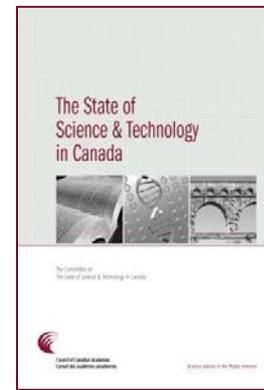
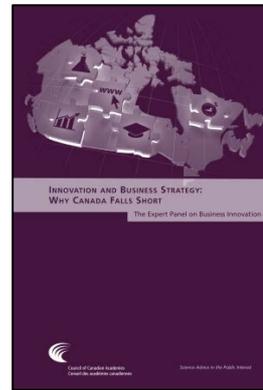
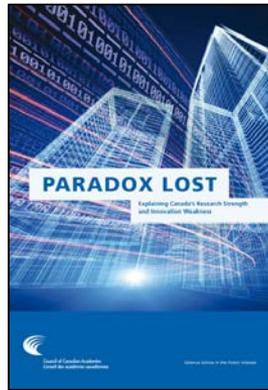
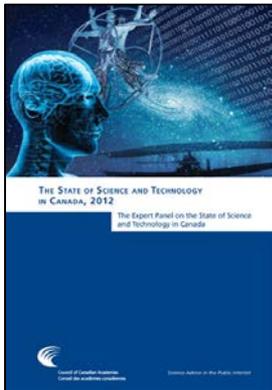
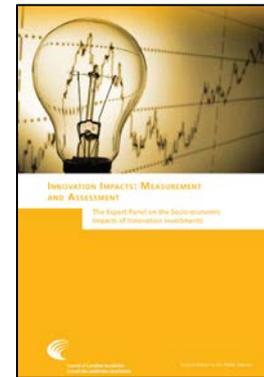
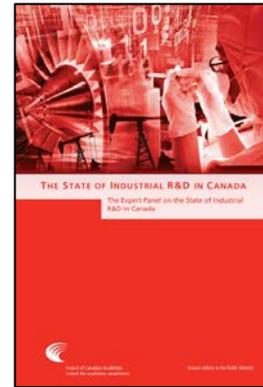
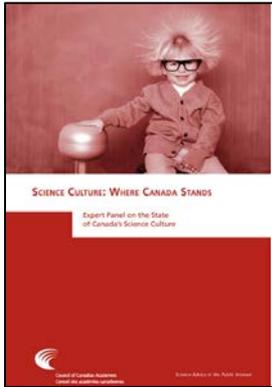
INFORM DECISIONS

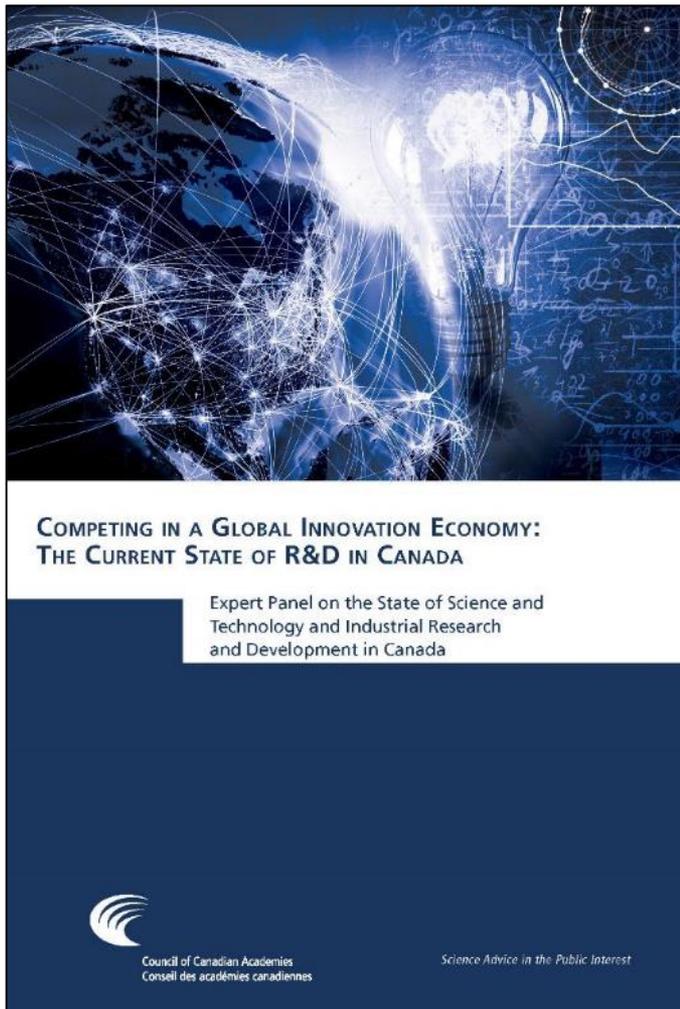
Why this report?

"Since 1916...the main objective of Canadian science policy has been to promote technological innovation in industry...Almost every decade since the 1920s has witnessed renewed attempts by successive Canadian governments to achieve it, but on the whole they have all failed."

-Senate Special Committee on Science Policy, 1970







- Latest statistics and data
- Review literature
- Bibliometrics
- Technometrics
- Survey of top-cited researchers from around the world

The Expert Panel



Overall

Canada has deep pools of research talent and remains a leading global contributor to research...but **other countries are now outpacing Canada in R&D investment**, ultimately putting the country's prosperity at risk.

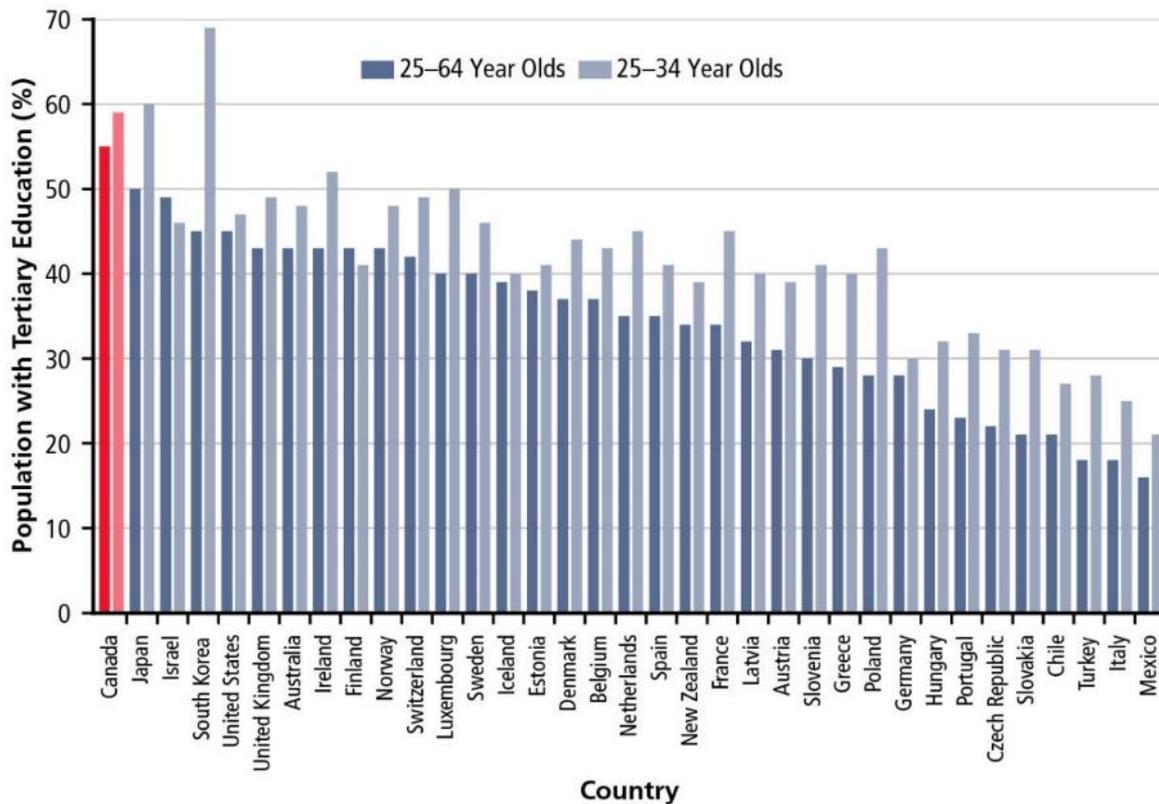
In addition, **too many** of Canada's **tech start-ups seek their opportunities for growth elsewhere**, leading to a loss of economic and commercial benefits for Canadians.



➤ Assessing Canada's R&D Capacity: People, Infrastructure, and Investment



People

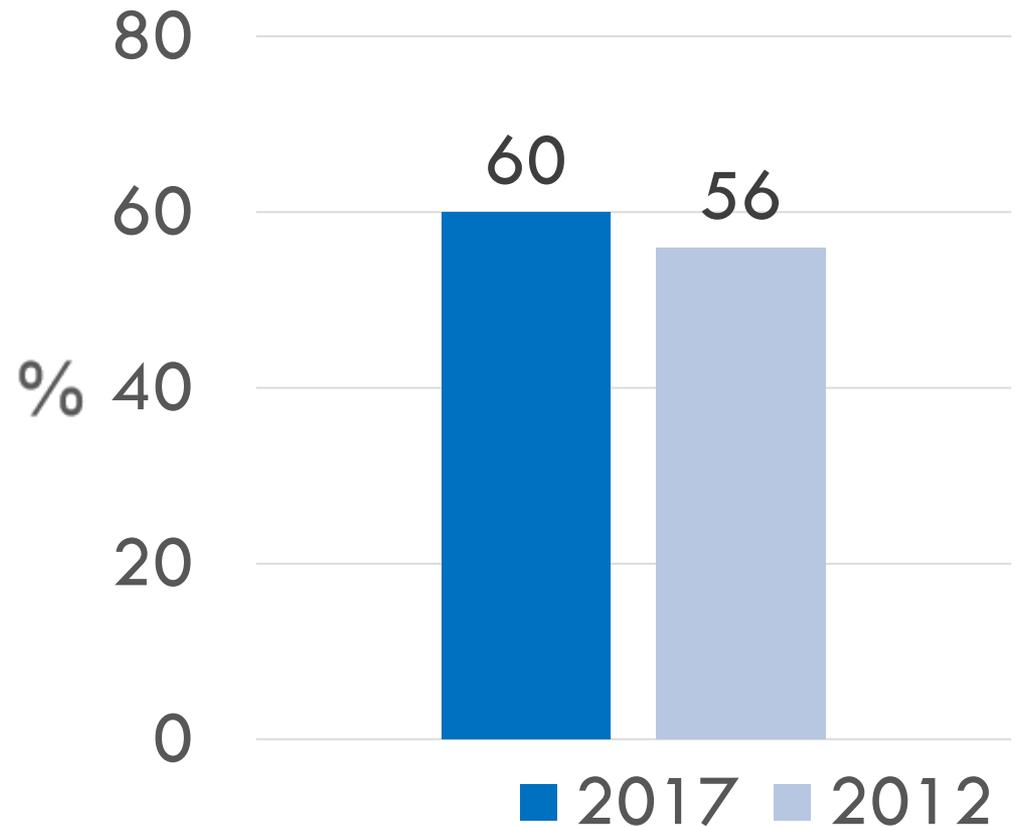


Canada has the highest level of educational attainment in the OECD, and compares well on most measures of research skills and education.



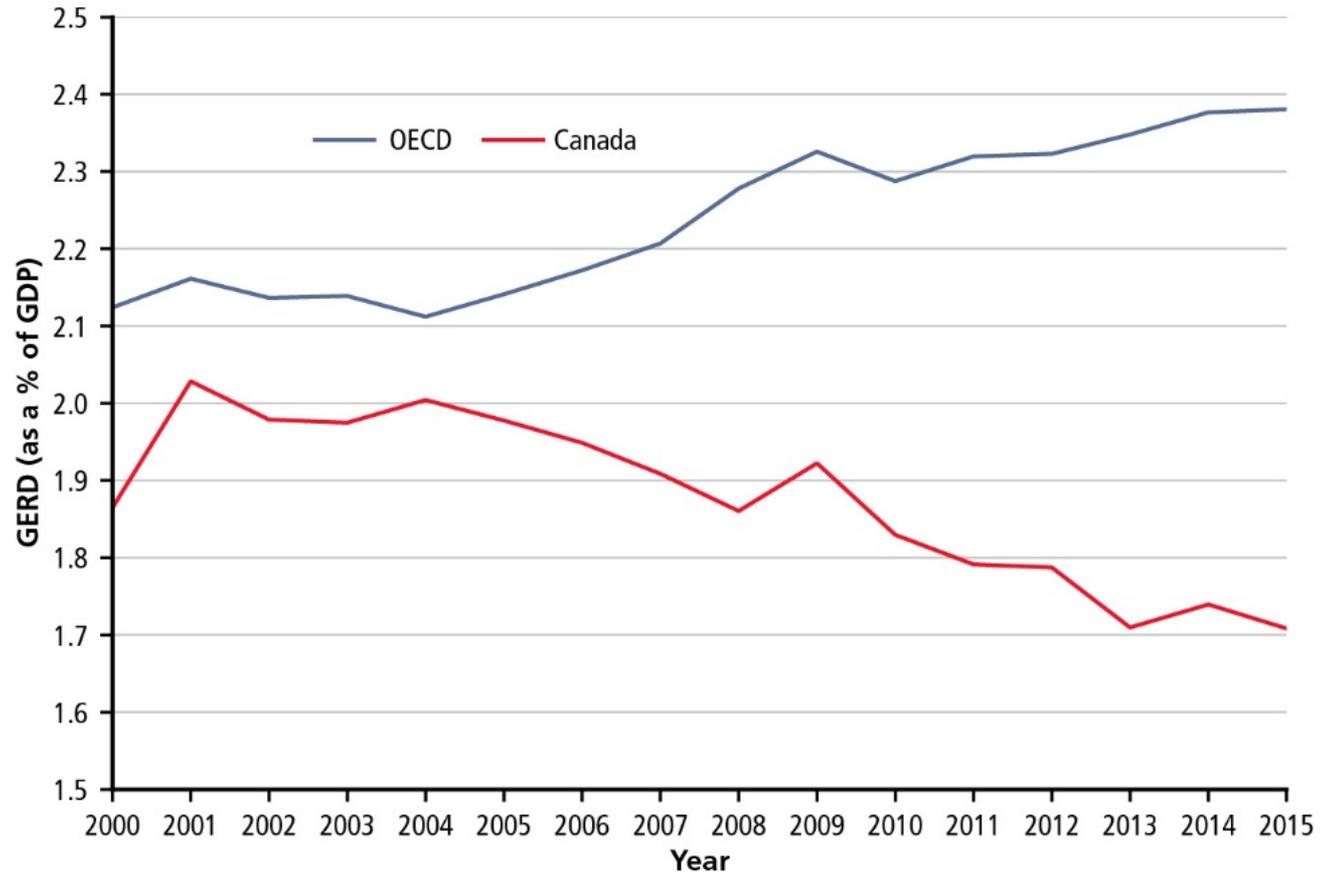
Infrastructure

60% of top-cited researchers report that Canada hosts world-leading infrastructure or programs in their field



Investment

Canadian R&D intensity has steadily declined since 2001, and is now well below the OECD average.

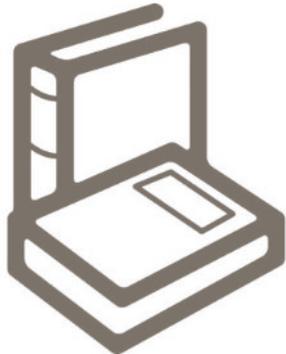


➤ Assessing Canada's Publication Research: Output and Impact

Published Research Output

Canada's published research output has kept pace with other developed countries in recent years.

3.8%



26%

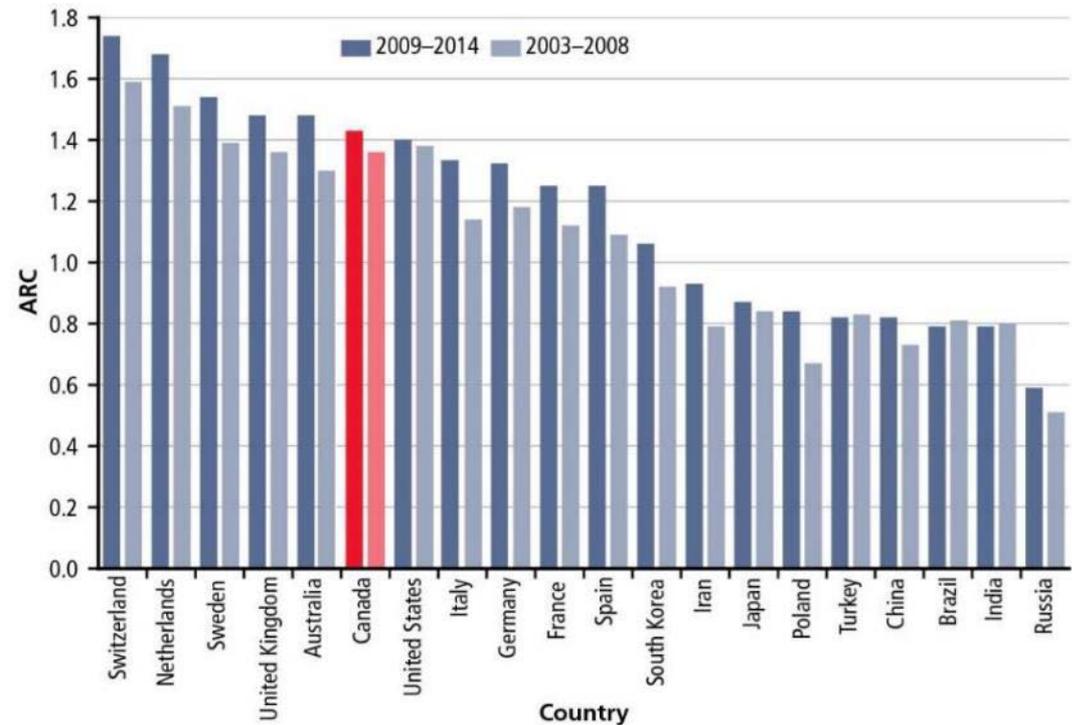


45%



Research Impact

Canada has also maintained its standing in published research impact at sixth place, though data suggests that Canada is *not* a world leader in research on most enabling and strategic technologies.



Canada's Publication Research Strengths

Based on indicators of *magnitude*, *impact*, and *growth*, Canada excels in:



Clinical Medicine



Public Health and
Health Services



Psychology and
Cognitive Sciences



Philosophy and
Theology

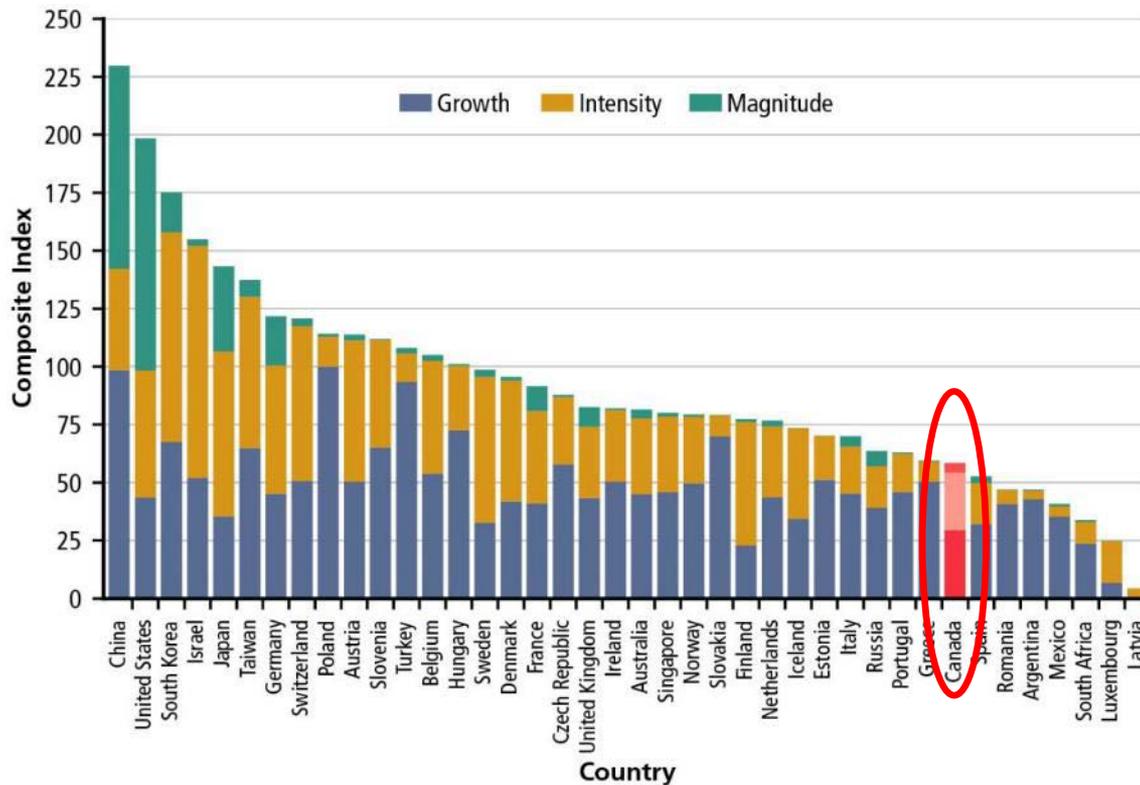


Visual and
Performing Arts



➤ Trends in Industrial R&D

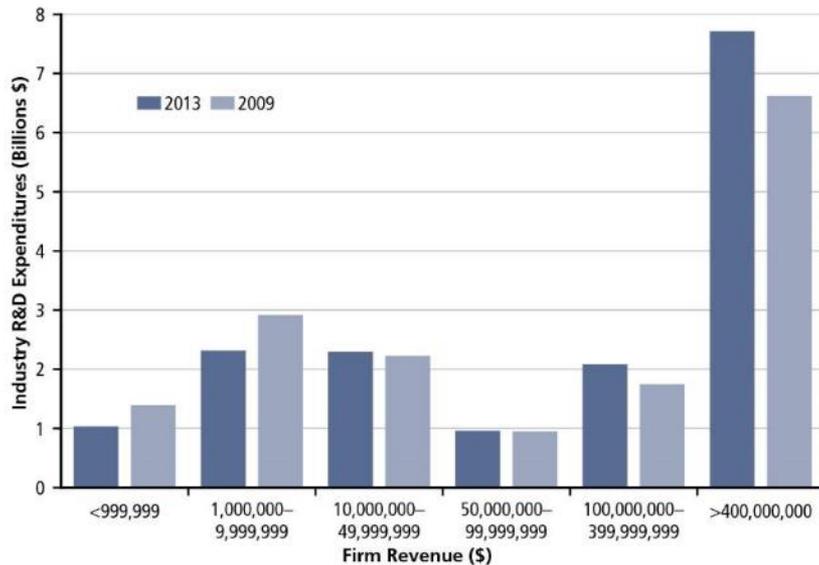
Comparing Industrial R&D Across Countries



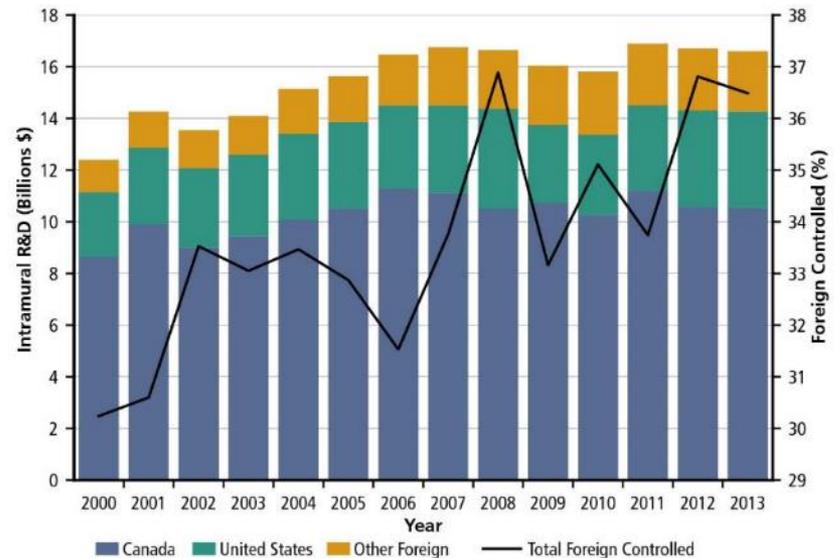
Canada ranks 33rd out of 40 countries on a measure of industrial R&D growth, intensity, and magnitude.

The Evolving Industrial R&D Landscape

R&D is shifting towards larger firms in Canada....



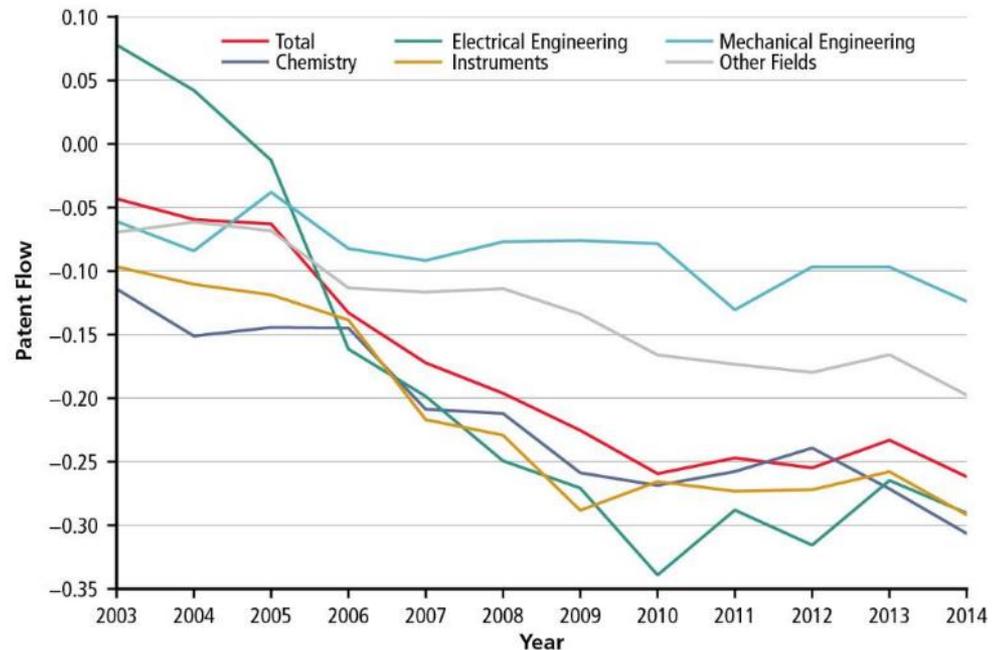
...and the share of foreign controlled R&D is increasing.



Intellectual Property

Canada is now a net exporter of patents, and the outflow of patents is accelerating.

In 2003, approximately 96% of the patents *invented* in Canada were *owned* in Canada. By 2014, that figure had dropped to 74%.



Industrial R&D Strengths

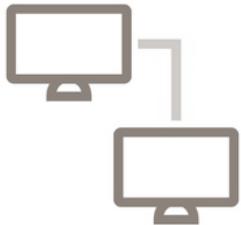
The Panel classified four sectors of R&D strength:



Scientific Research &
Development Services



Communications &
Equipment Manufacturing



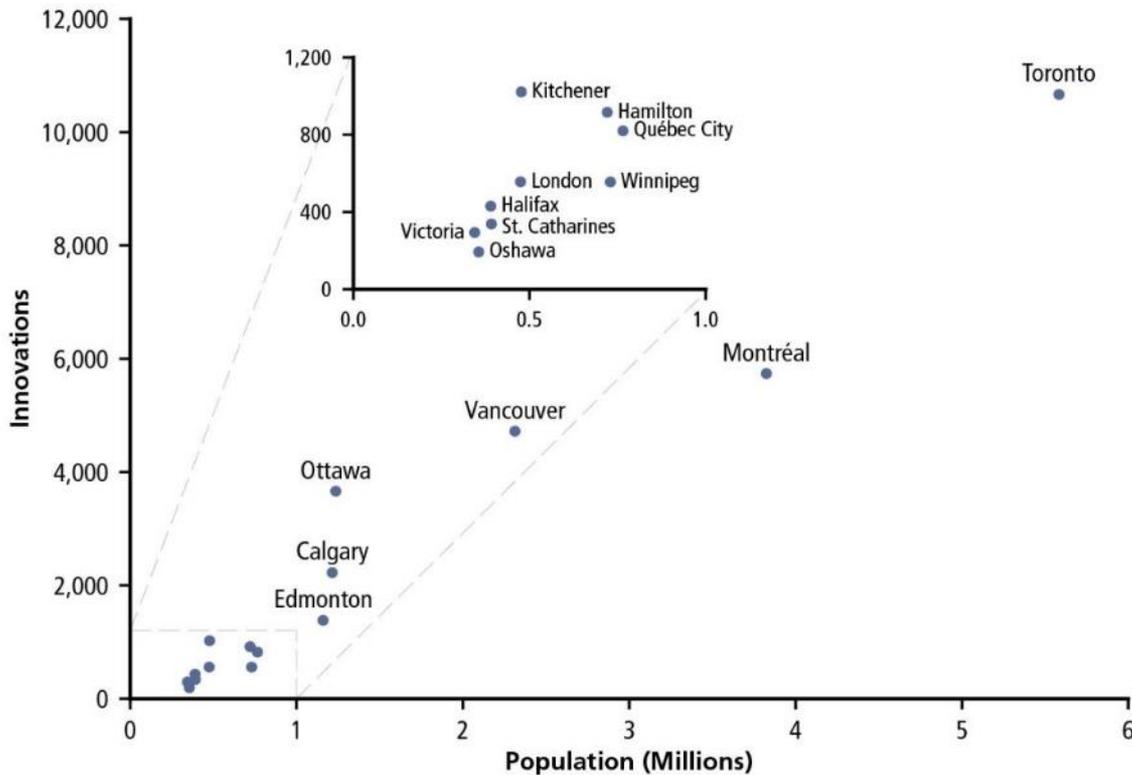
Computer Systems
Design



Aerospace products &
parts manufacturing



R&D across Canada



Data Source: Spencer (2014) and Panel Calculations

Tremendous research diversity exists across provinces, however R&D activity clusters around large cities

R&D, Innovation, and Wealth Creation



Few barriers impede the translation of R&D into technological innovation in Canada, but significant barriers prevent translation of technological innovation into wealth creation.

The Bottom Line

- Canada remains a leading global contributor to research in a wide range of fields and is home to world-leading talent and infrastructure.
- However, this international standing is at risk because of a sustained decline in R&D investment, especially in industry.
- Since technology start-ups struggle to scale, and IP is increasingly held and mobilized outside, Canada fails to capture the full economic and social benefit of the country's research capacity.



The Bottom Line (cont.)

- The trajectory of Canada's R&D capacity is the reverse of our competitors and it is a growing concern as the global economy becomes increasingly driven by technology.
- Momentum and reputation drive talent and money. It is time to act!



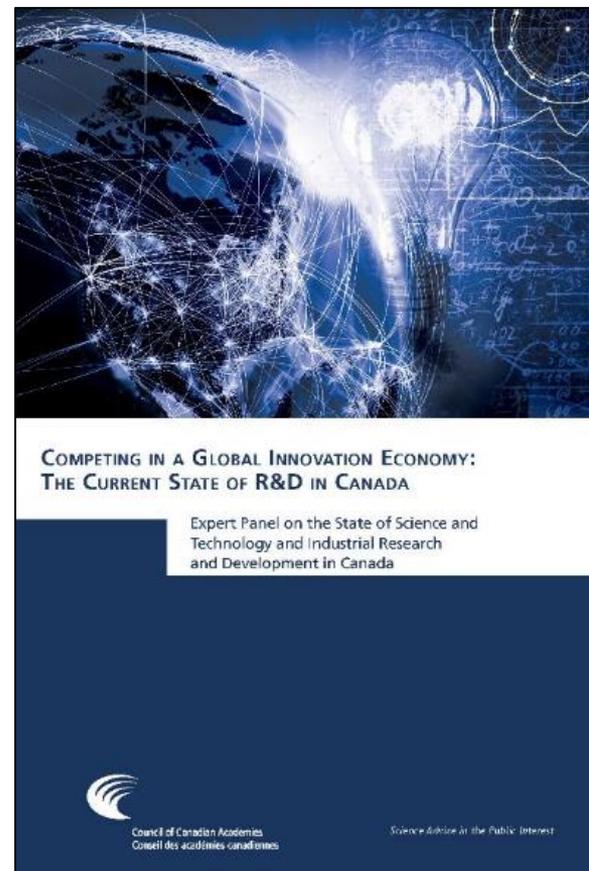
Released April 10, 2018

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