

Canada on the Global Stage The State of Science and Technology in Canada, 2012

Canadian science and technology is healthy and growing in both output and impact. With less than 0.5 per cent of the world's population, Canada produces 4.1 per cent of all research papers and nearly 5 per cent of the most frequently cited papers. Canada produced 59 per cent more papers in 2005-2010 than in 1999-2004 – the only G7 country with an increase in output above the world average.

Canada is ranked sixth in the world for overall impact of its science and technology, as measured by the frequency of citation of publications. It is among the 5 leading countries in 7 of 22 fields of research, and among the 10 leading countries in another 14 fields.

Reputation: Throughout the world, Canadian science and technology is highly regarded

- The panel surveyed more than 5,000 of the world's top-cited researchers, including Canadians. Thirty-seven per cent of respondents identified Canada as one of the five leading countries in their field. This placed Canada fourth overall behind the United States, the United Kingdom, and Germany.
- Two-thirds of respondents stated that Canadian research was strong in their own research field compared to other advanced countries. Forty-two per cent evaluated Canada as very strong.
- Canada ranked second in the world in agriculture, fisheries and forestry research. It ranked third in economics and business; philosophy and theology; psychology and cognitive sciences; public health and health services; and social sciences.
- In fields such as natural sciences, engineering, and health sciences, the percentage of survey
 respondents who identified Canada in the top five in the world is highly correlated with Canada's
 share of the world's top one per cent of papers in the field. In fields of the humanities, arts and
 social sciences, there is a lack of similar correlation. This observation suggests that international
 reputation in these fields is largely dependent on other factors, such as books and book chapters.

Capacity: Canada does well in international comparisons

- Half of Canadian adults between the ages of 25 and 64 have completed a post-secondary education, placing Canada first among comparator countries and ahead of both G7 and OECD averages. This provides Canada with a solid basis of educated people to train in advanced degrees.
- Between 2005 and 2009, the number of doctoral graduates from Canadian universities had the largest percentage growth among selected OECD countries.
- On a per capita basis, Canada has a similar number of researchers to the United States and the United Kingdom, but fewer than Japan, Norway, and Sweden.

• More than half of respondents to the survey of top-cited international researchers thought Canada had world-leading research programs or infrastructure in their particular field of study, with the highest percentages in the visual and performing arts (75 per cent); mathematics and statistics (66 per cent); and physics and astronomy (66 per cent).

Destination: Canada is attractive to both students and researchers and for research collaborations

- Between 2000 and 2009, there was a steady increase in the percentage of international graduates at all program levels. In 2009, international students comprised 12 per cent of all graduates at the master's level and 11 per cent at the doctoral level, demonstrating the attractiveness of advanced research programs in Canada. The fields with the largest proportion of international doctoral students included enabling and strategic technologies; earth and environmental sciences; mathematics and statistics; agriculture, fisheries, and forestry; and physics and astronomy.
- In 2008, faculty on work visas at Canadian colleges and universities accounted for 6 per cent of total faculty members, an increase of 21 per cent compared to 2004.
- Science and technology is a collaborative effort, and Canada is actively collaborating with the most scientifically advanced countries in the world. Research collaborations are strong with, but not limited to, the United States, the United Kingdom, France, Germany, China and Japan.
- Canada is an attractive destination for researchers. Between 1997 and 2010, a sample showed that Canada experienced a positive migration flow of researchers. Overall, Canada is maintaining its share of talent in a highly competitive global environment.

Detailed information regarding highly qualified and skilled personnel can be found in Chapter 8 of the report. Results from the international survey of the top cited international researchers are available in Chapter 5.

Report and related products:

- The State of Science and Technology in Canada, 2012 (full report)
- Executive Summary
- Report in Focus
- Appendices
- News Release
- Media Primers
 - o Canada on the Global Stage
 - o Science and Technology across Canada
 - o Understanding the Expert Panel's Methodology