



Connectivity Scorecard 2009

Canada – Strength in business but broadband deficit a growing concern

Overview

Canada remains a respectable performer in Connectivity Scorecard 2009, maintaining a position in the top nations in the innovation-driven¹ economies ranking, although it has slipped to seventh from its lofty fourth position in 2008, largely as a result of the changes in some of the data used to compile the Scorecard and the addition of new countries.²

Nonetheless Canada's overall score of 6.15, while leaving it somewhat distant from the neighboring United States which tops the ranking with 7.71, leaves it exceeding the performance of many of its peers in the G8 group of leading economies, including Germany, Italy, France and Japan.

It shows a strong and consistent performance in five of the six sub-components of the Scorecard, and in particular in the business environment. Only a weak performance in the consumer infrastructure segment held the Canadian performance back

Strengths

While Canada is out-performed in many business infrastructure measures by the United States, it remains a very strong performer in a category in which it scores a very high 0.77 out of 1. (The US records the highest score with 0.89.)

	Score	Weight
Consumer Infrastructure	0.38 (0.88)*	0.12
Consumer Usage & Skills	0.49 (0.69)*	0.12
Business Infrastructure	0.77 (0.89)*	0.27
Business Usage & Skills	0.60 (0.72)*	0.40
Government Infrastructure	0.71 (0.93)*	0.03
Government Usage & Skills	0.75 (0.94)*	0.05

* The score of the leading performer for this component

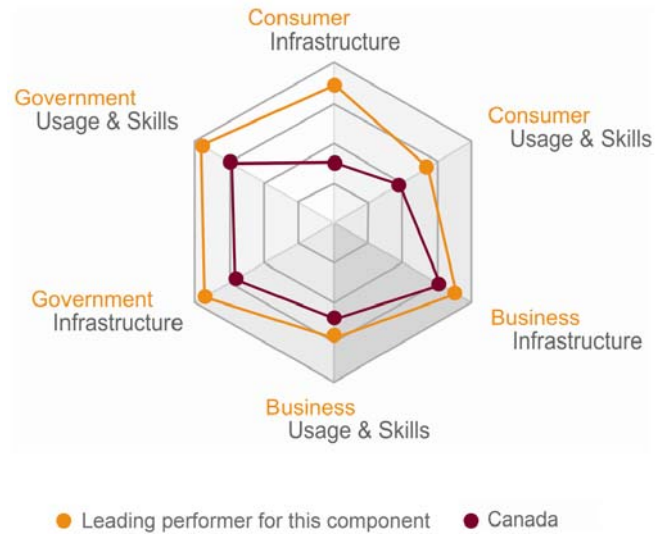
¹ As defined by the World Economic Forum

² For a full explanation of the changes affecting Canada between 2008 and 2009, please see the note in the "2009 compared to 2008" section of the appendices below.



Within the business usage and skills area, Canada is near the top in terms of the proportion of businesses that use the Internet to purchase goods. Canada also scores highly on measures of ICT (Information and Communications Technology) user skills in the workforce.

Canada performs well on the “government” part of the Scorecard, particularly in terms of the proportion of population using online services. This is not surprising as most international surveys find that Canadians are very Internet-oriented. Canadians, for example, are among the heaviest users of social networking sites.



Unsurprisingly this openness to technology also results in a good score in the consumer usage and skills sub-component. Canadian Internet usage is among the highest in the OECD, and while voice usage is moderate compared to the United States, it is higher than in many European nations. SMS usage seems rather low, however, although both Canada and the US were latecomers to the SMS phenomenon. In part, the historic strength of Canadian fixed-line telephony may have created more resistance to the full embrace of wireless that happened in most European countries at an earlier date than in Canada.

Weaknesses

Canada's only glaring weakness is fully reflected in a consumer infrastructure score of just 0.38 out of 1 (in comparison to the top performer which scores 0.88).

This poor performance is motivated by the following factors: (a) Canada has rather low 3G penetration, (b) Canada has not yet moved to deploying ultra-broadband fixed-line networks as has its neighbor, the United States, (c) there is yet to be a major Canadian announcement of a FTTH (Fiber-To-The-Home) or other NGA (Next-Generation Access) deployment, although some Canadian cable operators are moving in this direction. Canada continues to score relatively highly for broadband penetration, but its edge may be eroding. To put matters in perspective, the Canadian market has many “difficult” characteristics, and it is hard for Canadian firms to realize the same economies of scale and scope as their counterparts in more densely populated countries.

Analysis

Canada is a particularly interesting study for the Scorecard because the nation has had a significant policy debate regarding its productivity performance, which has lagged behind US productivity for several years, raising fears about Canada's relative standard of living compared to the US. ICT has been part of that debate, and in 2005, there was a major review of telecommunications policy, under the aegis of the Telecommunications Policy Review Panel (TPRP).

As part of the TPRP's remit, there were several submissions by participants in the Canadian telecommunications sector. Bell Canada submitted a paper by Professors Waverman³ and Fuss which attributed about 50 percent of the productivity differential (the difference in GDP per hour worked) to

³ Co-author of the Connectivity Scorecard as well as Dean of the Haskayne School of Business at the University of Calgary and Professor of Economics at the London Business School



ICT.⁴ At the time, available data appeared to show that Canada lagged the US significantly in personal computer penetration, and that the deficit lay mainly in business and government usage of PCs.

Connectivity Scorecard 2008 and Connectivity Scorecard 2009 utilized different data sources that appear to show a smaller gap in business usage than the pre-2004 evidence appeared to suggest. In particular, the gap in personal computer penetration between the US and Canada appears to have closed. Prior to 2004, Canada led the US in terms of residential penetration of PCs, but significantly lagged in business and government adoption of PCs.

Consequently, ICT policy and measures to boost ICT penetration have been at the forefront of the policy agenda in Canada. The TPRP marked the end of a period in which Canadian telecommunications regulation (spearheaded by the Canadian Radio-Telecommunications Commission, or CRTC) had concentrated on promoting competition, and began a new era in which policy focused on promoting innovation and investment.

In terms of concrete policy recommendations, Canada has already made some of the obvious policy changes required to incentivize ICT investment. The country has achieved impressive levels of broadband penetration. However, deployment of Next-Generation networks utilizing technologies such as Fiber-to-the-Premises (FTTP) or DOCSIS 3.0⁵ appears less advanced in Canada than in the United States, where telecom operators and cable companies are competing to provide higher speeds to end-users. As a result, there is a real danger that Canada's impressive performance in the early days of broadband (which are now ending) may not translate as well into Next-Generation broadband. Policy should focus on incentivizing the development of higher-speed broadband networks, particularly in core metropolitan areas where business users are concentrated.

It may be that Canada needs to follow the US example of deregulation to ease private-sector-led investment in Next-Generation broadband, while also following the more recent US emphasis on broadband deployment in rural areas partly funded by public spending and partly by incentive schemes.

Canada's performance on "corroborative" measures of the knowledge economy is moderate. The overall conclusion is that Canada is not doing a sufficiently good job at investing in knowledge. It might be true, however, that some existing metrics such as the share of ICT investment in total investment "punish" Canada because the Canadian economy has a large "natural-resource"-driven component to it. There is no reason for Canada to not make full use of what it has, so one could argue that the relative importance of these relatively ICT-"non-intensive" industries could be distorting the true Canadian picture. Against this, Australian investment in ICT is a much higher share of the country's total investment, and Australia too has a large natural resources sector.

⁴ Submitted as Appendix E-1 to Bell Canada's submission to the TPRP.

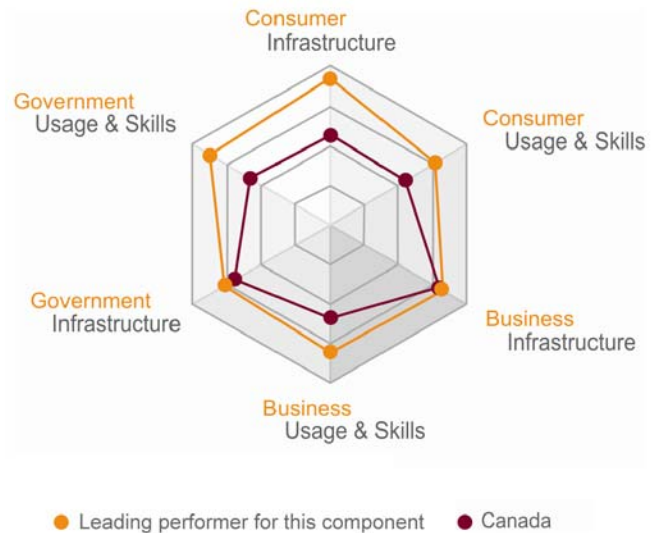
⁵ Data Over Cable Service Interface Specification (DOCSIS) is an international standard developed by CableLabs and a number of contributing companies. As DOCSIS permits the addition of high-speed data transfer to an existing Cable TV system, it is used by many cable television operators to provide Internet access over their existing hybrid fiber coaxial infrastructure.



APPENDICES

2009 compared to 2008

The Connectivity Scorecard is based on comparative scores between countries and therefore each country's performance is measured in relation to the best performing nation in each segment. The addition of new countries to the Scorecard in 2009 has therefore had an impact on the scores of all countries. At the same time, some data sources used in 2009 are different from those used in 2008, which also results in some changes. How these have affected the Canada score is explained below (for Canada's 2008 performance see also comparative star diagram at right).



We have repeatedly stressed the fact that the Connectivity Scorecard is designed to provide a comparison of how countries rank in relation to each other at a given point in time. As with other indices of relative rankings, it is hard to interpret absolute scores and it is hard to make comparisons of absolute scores over time.

In addition, we substantially expanded and revamped the information base for the current version of the Scorecard and we also expanded greatly the list of countries that we included for consideration in 2009. These factors mean that it is not possible to generate very direct comparisons between absolute scores over time and to easily interpret these as "improvements" or "deteriorations."

Canada's performance in 2009 has been adversely affected by the following factors:

- the inclusion of metrics such as deployment of fiber networks and the presence of "ultra-broadband" offerings by incumbents,
- the inclusion of countries such as the Netherlands, Norway and Denmark that score higher than Canada on broadband penetration, which was an area of its strength in the previous Scorecard,
- the lowered emphasis on main fixed telephone lines, which had previously helped Canada to stand out in terms of provision of consumer infrastructure. Thus Canada has fallen off significantly in the score it receives on consumer infrastructure.
- the inclusion of a set of highly-connected Northern European nations of comparable affluence to Canada. This has, although to a lesser extent, impacted the Canadian score on consumer usage.

About Connectivity Scorecard

Connectivity Scorecard is a global ICT index, which measures the extent to which governments, businesses and consumers make use of connectivity technologies to enhance social and economic prosperity. Unlike other research available, Connectivity Scorecard also measures “usage and skills,” such as literacy, the use of enterprise software and the accessibility of women to ICT.

Nokia Siemens Networks has commissioned the study, which is the first of its kind to rank countries not only on their deployment of ICT infrastructure but also on the extent to which people, governments and businesses put this infrastructure to economically productive use.

The study is created by Leonard Waverman, Fellow of the London Business School and Dean and Professor at the Haskayne School of Business at the University of Calgary, and conducted under his direction by international economic consulting firm LECG.

For more information on Nokia Siemens Networks’ Connectivity Scorecard, visit

www.connectivityscorecard.org

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