

# Connectivity Scorecard 2011

## Canada



**Canada**  
**6.88**

	Score	Weight
<b>Consumer Infrastructure</b>	0.65 (0.95)*	0.13
<b>Consumer Usage and Skills</b>	0.57 (0.79)*	0.13
<b>Business Infrastructure</b>	0.76 (0.86)*	0.43
<b>Business Usage and Skills</b>	0.71 (0.83)*	0.21
<b>Public sector Infrastructure</b>	0.50 (0.79)*	0.07
<b>Public sector Usage and Skills</b>	0.62 (0.79)*	0.03

\*The score of the leading performer for this component

Table 1: Component Scores & Weights 2011

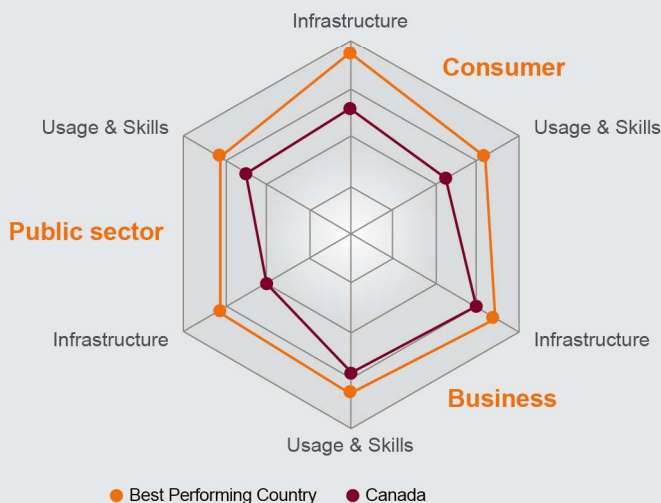


Fig 1: Component Scores 2011

### Overview

Canada scores 6.88 and climbs one place to rank 8<sup>th</sup> among the Innovation-driven<sup>1</sup> economies on the Connectivity Scorecard 2011 index. In 2010, Canada held the 9<sup>th</sup> rank with a score of 7.02.

As in previous years, Canada, Finland and the U.K. are again relatively close to each other this year; so despite Canada's lower score, its move up one place is understood, and a certain amount of position-swapping among these countries can be anticipated in future years too.

Canada performs solidly on the business-related components of the Scorecard. This performance conceals some of its deficiencies such as the substantially lower level of ICT investment per capita in Canada, especially when compared to the United States.

### Strengths

On the consumer infrastructure component, Canada scores highly in terms of fixed and mobile broadband penetration. For the consumer usage component too, it does well specially in terms of the proportion of Canadian adults using Internet services, as well as the frequency of Internet usage.

On the business infrastructure front, Canada scores highly on personal computer penetration, on business uptake of broadband, and on business uptake of mobile data services. For the business usage component, human capital quality is high when measured in terms of the proportion of the workforce with tertiary qualifications.

On the public sector or "government" components of the Scorecard, Canada scores highly on the availability of government services online, and also performs well in terms of e-Participation. Both of these measures formed part of the United Nations' E-Government ranking index.

<sup>1</sup> As defined by The World Economic Forum [www.weforum.org](http://www.weforum.org)

## Weaknesses

Canadian wireless penetration including 3G penetration remains lower than in many other innovation-driven economies. Though the low wireless penetration is hard to explain, it should be noted that there has been an increase in the share of 3G subscribers among wireless users recently. Further, while Canada's broadband speeds are higher than other Western European countries, they remain quite low when compared to countries such as Korea and Japan. Again, it's worth noting that these two countries have adopted uniquely interventionist policies with respect to the rollout of fibre networks, and the precise economic benefits of such policies are not yet apparent.

Despite the high Internet penetration in Canada, Internet-based retail is moderate. Further, coupled with a moderate performance of text messaging usage<sup>2</sup>, the result is a surprisingly moderate performance on the consumer usage component.

On the business side, one of the few weaknesses on the infrastructure component is the comparatively low score for adoption of new corporate data protocols such as Ethernet and IP VPN. This is possibly due to the presence of large installed base of legacy data protocols. On the business usage front, Canada gets relatively moderate or disappointing scores on a couple of indicators, such as corporate spending on IT services and the production rate of Science and Engineering doctorates. Surprisingly, Canada too is one of the countries that suffers from new metrics of estimated levels of ICT spending by government, healthcare and educational sectors.

## Conclusions

Canada continues to be a relatively strong performer on the Connectivity Scorecard. The country was relatively late to embrace mobile telephony due to the near universal availability of fixed line services, provision of free local calls and low residential subscription rates for these services. However, the wireless space in Canada has seen many encouraging developments in recent years, ranging from the Government's efforts to open the wireless industry to more players, to the launch of three new HSPA+ networks by the major network operators.

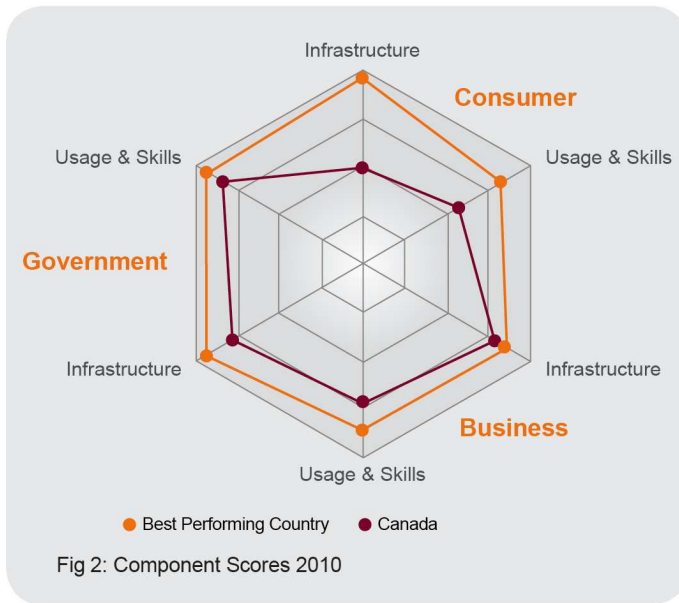
<sup>2</sup> For Canada and the United States, we divided the reported number of text messages by two to account for the fact that operators might report all billable events, which would include both incoming and outgoing messages, whereas operators elsewhere might report only outgoing messages. However, we may have penalized Canada and the United States by assuming that the number of outgoing messages and incoming messages is balanced.

Rank [n]	Country	Connectivity Score
1 [1]	Sweden	7.84
2 [2]	United States	7.82
3 [4]	Denmark	7.47
4 [5]	Netherlands	7.45
5 [3]	Norway	7.09
6 [8]	United Kingdom	7.06
7 [7]	Australia	6.93
8 [9]	Canada	6.88
9 [6]	Finland	6.78
10 [11]	Singapore	6.40
11 [15]	Belgium	6.31
12 [n/a]	Austria	6.27
13 [17]	Germany	6.27
14 [12]	Ireland	6.08
15 [18]	France	6.06
16 [10]	Japan	5.89
17 [16]	New Zealand	5.84
18 [13]	Korea	5.80
19 [20]	Spain	5.09
20 [19]	Czech Republic	4.93
21 [21]	Portugal	4.80
22 [22]	Italy	4.79
23 [23]	Hungary	4.50
24 [24]	Poland	4.26
25 [25]	Greece	4.22

\*last year's rank in parenthesis

Table 2: Connectivity Scorecard 2011 Results – Innovation-driven Economies

In the fixed broadband segment, Canada faces a tussle between the telecom firms and cable network operators over broadband speeds. Leading Canadian telecom firms such as Bell and Telus reach over 50% of their fixed-line footprints with VDSL or VDSL2 technology using fibre-to-the-node. However, upgrading to the next-generation technology for higher broadband speeds is expensive. At the same time, cable operators find it relatively less costly to upgrade their networks to offer speeds of 50 Mbps or 100 Mbps. Bell Aliant, the telecom incumbent firm in the Maritime Provinces, has responded to the cable threat with Fibre-to-the-Home (FTTH), but deployments of FTTH are still more limited in Canada than in the United States, where the decision of Verizon Communications to deploy FTTH has made all the difference. As mentioned earlier, Canada's broadband speeds are comparatively favourable—that is, Canada ranks above most Western nations, but trails Japan and Korea.



ICT policy has been a contentious area in Canada. In comparison to the U.S., Canada's ICT investments have been fairly poor - as a result the productivity gap between the two countries has grown wider. Also, Canada has room to further improve its efforts in areas that are complementary to ICT investment. For instance, Canada is not a strong producer of doctorates in Science and Engineering, although it has a generally very skilled workforce. Given the country's high level of immigration, a sensible policy might involve competing aggressively for the best and brightest from around the world. Further, restrictions that might stop talented foreign professionals from having their credentials recognised in Canada should be examined and removed. Given its stable economy and generally favourable image in the world, Canada has some unique advantages that it should use to develop a more competitive science and technology base.

### 2011 vs. 2010

Canada's score of 6.88 and 8<sup>th</sup> place this year compares with 7.02 and 9<sup>th</sup> place in 2010. As a note, this would have been the case even if the same weights were used as in 2010, with Canada finishing with a score of 6.88. As with other countries, the final Canadian score reflected a balancing of two major trends in this year's Scorecard: the inclusion of new metrics that had an equalising effect on country scores in the consumer infrastructure component, and the inclusion of new metrics that dragged down country's scores on the "government" or "public" components.

The change in most countries' consumer infrastructure

performance this year<sup>3</sup> is due to the inclusion of three indicators which equalized the countries' performance. These three indicators are (a) fixed broadband coverage, (b) 3G coverage, and (c) unique user mobile penetration. On the first two indicators, most "innovation driven" economies have at least 80% to 85% of their population covered by wireless and fixed-line broadband networks. On the third metric, most nations have at least 60% of their population that owns a mobile device, but the proportion seldom, if ever, exceeds 95%. Thus this indicator shows only limited variation. If a more conventional but less merited indicator of "SIM cards per 100 population" (which is how many agencies measure mobile penetration) were used, the "mobile penetration" metrics would have shown some more variation. The reason being that some countries have SIM card penetration rates of 150 per 100 population or more. Canada definitely benefited from the inclusion of these new measures, as its "deficit" in wireless penetration was substantially lower when assessed on the "unique user" metric compared to the alternative metric of

The decrease in many countries' government sector scores is due to the inclusion of additional metrics on public sector or quasi-public-sector investments in IT hardware, software and IT services. These new metrics had the effect of creating additional differences in country scores, with some country scores within the "public" or "government" subcategories falling substantially as a result of the inclusion of these metrics. Somewhat surprisingly, Canada was one of the countries significantly affected by this general trend as well, which served to reduce its overall score slightly (eg. in 2010, Canada scored 0.79 and 0.83 on the "public sector" or "government" components of the Scorecard). In addition Canada's business infrastructure and business usage and skills scores were also slightly lower than last year, thus providing another factor that contributed to the fall in overall score from 7.02 to 6.88. It should be remembered that the Scorecard provides a snapshot at a given moment in time as to where countries stand in relation to each other, but does not have a definite interpretation. Thus, Canada's score did not decline because Canadian connectivity fell, but it declined because this year Canada scored just a little bit lower relative to the best performing countries on each individual metric this year. The Connectivity Scorecard is based on comparative scores between countries, and, therefore, each country's performance is measured in relation to the best performing

<sup>3</sup> For more information download the Connectivity Scorecard 2011 Report from [www.connectivityscorecard.org](http://www.connectivityscorecard.org).

nation in each component at a given point of time. As with other indices of relative rankings, it is therefore hard to interpret the Scorecard in terms of absolute “improvements” or “deteriorations” and to make comparisons of scores over time.

### About Connectivity Scorecard

The Connectivity Scorecard is a global ICT index which, unlike other available research, is the first of its kind to rank countries in terms of “useful connectivity”. That is, not only on the deployment of ICT infrastructure but also to measure the extent to which consumers, businesses and the public sector “make use” of connectivity technologies to enhance social and economic prosperity. This “useful connectivity” is defined as the bundle of infrastructure, complementary skills, software and informed usage that makes ICT the key driver of productivity and economic growth.

Commissioned by Nokia Siemens Networks, the study was created by Professor Leonard Waverman, Dean, Haskayne School of Business, University of Calgary, and Fellow, London Business School. The study was

For more information on the Connectivity Scorecard, visit [www.connectivityscorecard.org](http://www.connectivityscorecard.org)

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