

# COUNTRY: CANADA

## SCORE: 79.98 | RANK: 7/24

Canada’s data protection regulations are compatible with globally recognized frameworks that facilitate international data transfers. In 2015, Canada also ratified the Council of Europe Cybercrime Convention and implemented computer crime legislation that apply to most cybercrimes, although there are some limitations. Canada’s Cyber Security Strategy, however, is not considered to be current and is undergoing review.

In 2014, Canada ratified the WIPO Copyright Treaty, sealing a recent period of improved copyright regulation and enforcement in areas relevant to cloud computing. However, Canada’s results in this section are somewhat affected by the limited protection offered to trade secrets.

Canada also achieves strong results in the sections covering international standards and the promotion of free trade.

Finally, Canada scores well in the information technology (IT) infrastructure section of the scorecard. In December 2016, the Canadian Radio-television and Telecommunications Commission issued a policy declaring high-speed broadband as an essential service. According to the policy, by 2021 90 percent of premises are to have access speeds of at least 50 Mbps download and 10 Mbps upload and unlimited data allowance. The remaining 10 percent of premises are to achieve this target by 2026–2031. This universal goal has been supplemented by a fund to pay for relevant projects.

There were very few changes in Canada’s results from the previous Scorecard. The minor difference in Canada’s position in the rankings — a slide from fourth to seventh — was caused not by policy changes in Canada but by the rebalancing of the Scorecard methodology.

# CANADA	RESPONSE	EXPLANATORY TEXT
<b>DATA PRIVACY (SCORE: 12/12.5   RANK: 1/24)</b>		
1. Is a data protection law or regulation in place?	✓	The Personal Information Protection and Electronic Documents Act (PIPEDA) 2000 is in place.
2. What is the scope and coverage of the data protection law or regulation?	Comprehensive	Canada has national data protection legislation covering both the public and private sectors. Provincial legislation is also in place in some jurisdictions.
3. Is a data protection authority in place?	✓	The Office of the Privacy Commissioner of Canada (OPCC) <www.priv.gc.ca> acts as the national regulator. Several other privacy regulators have been established at the provincial level.
4. What is the nature of the data protection authority?	Sole commissioner	The Office of the Privacy Commissioner of Canada (OPCC) <www.priv.gc.ca> is an independent regulatory office built around a single commissioner.
5. Is the data protection authority enforcing the data protection law or regulation in an effective and transparent manner?	✓	The Canadian data protection authorities (federal and provincial) have a reputation as innovative and active regulators. They have numerous processes for engaging with business and consumer stakeholders, and offer detailed and transparent information on their activities.
6. Is the data protection law or regulation compatible with globally recognized frameworks that facilitate international data transfers?	APEC framework & EU framework	Canadian privacy legislation has been formally assessed as “adequate” by the EU, meaning that personal information can be transferred from EU members to Canada without further measures to ensure the data is protected (e.g., contractual arrangements). Canadian privacy law closely mirrors the EU Data Protection Directive.  Canada is a member of the Asia Pacific Economic Cooperation (APEC), and its legislation is compatible with the APEC privacy principles. Canada is an active participant in several APEC privacy initiatives and the Office of the Privacy Commissioner of Canada (OPCC) <www.priv.gc.ca> is a member of the APEC cross-border Privacy Enforcement Arrangement (CPEA) <www.cbprs.org>.
7. Are data controllers free from registration requirements?	✓	There are no registration requirements under Canadian privacy legislation.

# CANADA	RESPONSE	EXPLANATORY TEXT
8. Are there cross-border data transfer requirements in place?	Detailed requirements	There are specific rules, in the Personal Information Protection and Electronic Documents Act (PIPEDA) 2000 applying to the cross-border transfer of data. These rules require businesses to ensure that data will be subject to “comparable” protection in the target country. The commissioner has published Guidelines for Processing Personal Data Across-Borders (January 2009) < <a href="http://www.priv.gc.ca/en/privacy-topics/personal-information-transferred-across-borders/gl_dab_090127">www.priv.gc.ca/en/privacy-topics/personal-information-transferred-across-borders/gl_dab_090127</a> > to assist businesses meet these obligations.
9. Are cross-border data transfers free from arbitrary, unjustifiable, or disproportionate restrictions, such as national or sector-specific data or server localization requirements?	📌	<p>Canada has an organization-to-organization approach for cross-border data transfers that is different to the rules imposed in many other jurisdictions. Organizations are held accountable for the protection of personal information transfers under each individual outsourcing arrangement.</p> <p>Principle 1 of the Personal Information Protection and Electronic Documents Act (PIPEDA) 2000 states:</p> <p>“An organization is responsible for personal information in its possession or custody, including information that has been transferred to a third party for processing. The organization shall use contractual or other means to provide a comparable level of protection while the information is being processed by a third party.”</p> <p>In practice this rule, complemented by the Guidelines for Processing Personal Data Across-Borders (January 2009) &lt;<a href="http://www.priv.gc.ca/en/privacy-topics/personal-information-transferred-across-borders/gl_dab_090127">www.priv.gc.ca/en/privacy-topics/personal-information-transferred-across-borders/gl_dab_090127</a>&gt;, has allowed a flexible approach to develop regarding cross-border data transfers.</p> <p>Canada’s national privacy laws do not include any data localization requirements. However, provincial laws in British Columbia (Freedom of Information and Protection of Privacy Act 1996) and Nova Scotia (Personal Information International Disclosure Protection Act 2006) require personal information collected by government agencies to be stored on servers located in Canada. These laws have acted as a barrier to the use of some cloud services and products.</p>
10. Is there a personal data breach notification law or regulation?	✔	Canada’s Digital Privacy Act 2015 introduced a breach notification requirement with an amendment to the Personal Information Protection and Electronic Documents Act (PIPEDA) 2000.
11. Are personal data breach notification requirements transparent, risk-based, and not overly prescriptive?	✔	<p>The data breach notification requirement applies in any circumstance where a data security breach has created a risk of “significant harm” to an individual. Both the individual in question and the Privacy Commissioner of Canada &lt;<a href="http://www.priv.gc.ca">www.priv.gc.ca</a>&gt; must be notified by the organization. This notification must occur as soon as feasible and the Privacy Commissioner has the power to fine organization for failing to comply with the requirement.</p> <p>In addition to the notification requirements, the law also requires organizations to maintain a record of all data security breaches that involve personal information. This record can be accessed by the Privacy Commissioner at any time upon request.</p>
12. Is an independent private right of action available for breaches of data privacy?	✔	The privacy legislation in Canada is principally based on complaints to the Privacy Commissioner, which will usually be settled through a dispute resolution process. However, individuals have a right to pursue matters to the Federal Court, which can make a range of orders including compensation (under Section 11, PIPEDA).
<b>SECURITY (SCORE: 8.5/12.5   RANK: 13/24)</b>		
1. Is there a national cybersecurity strategy in place?	✔	<p>Canada’s Cyber Security Strategy was released in 2010 &lt;<a href="http://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/cbr-scrty-strty">www.publicsafety.gc.ca/cnt/rsrscs/pblctns/cbr-scrty-strty</a>&gt; and is focused on three broad areas:</p> <ol style="list-style-type: none"> <li>(1) Securing Government systems;</li> <li>(2) Partnering to secure vital cyber systems outside the federal government;</li> <li>(3) Helping Canadians to be secure online.</li> </ol>
2. Is the national cybersecurity strategy current, comprehensive, and inclusive?	✘	<p>Canada’s Cyber Security Strategy was published in 2010 and is not considered to be current.</p> <p>In mid-2016, the Government of Canada commenced a review of cybersecurity policy &lt;<a href="http://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2016-scrty-prsprty">www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2016-scrty-prsprty</a>&gt;. The Review discussion paper flagged five broad principles for a renewed future cybersecurity approach:</p> <ol style="list-style-type: none"> <li>(1) Protect the safety and security of Canadians online and of Canada’s critical infrastructure;</li> <li>(2) Promote and protect rights and freedoms online;</li> <li>(3) Recognize and encourage the importance of cybersecurity for business, economic growth, and prosperity;</li> <li>(4) Collaborate and coordinate across jurisdictions and sectors to collectively increase Canada’s cybersecurity;</li> <li>(5) Adapt to respond to emerging technologies and changing conditions.</li> </ol>

# CANADA	RESPONSE	EXPLANATORY TEXT
3. Are there laws or appropriate guidance containing general security requirements for cloud service providers?	❌	Canada has not yet issued any formal guidelines, standards, or regulations regarding cloud computing security. However, there are certain data security practices outlined in the Personal Information Protection and Electronic Documents Act (PIPEDA) 2000 that may apply to cloud computing, and Canadian organizations may be influenced by relevant standards being developed by the National Institute of Standards and Technology (NIST) <www.nist.gov> in the United States.
4. Are laws or guidance on security requirements transparent, risk-based, and not overly prescriptive?	✅	Canada does not have specific security rules in place, but the Canadian Privacy Commissioner has taken an active role in enforcement of security best practice. For example, the Commissioner made detailed findings on security in the high-profile Ashley Madison case in 2016 <www.priv.gc.ca/en/opc-news/news-and-announcements/2016/nr-c_160823>. In that case, the Commissioner issued significant sanctions and penalties for breaches of security that affected consumers.
5. Are there laws or appropriate guidance containing specific security audit requirements for cloud service providers that take account of international practice?	❌	Government agencies in Canada are covered by a range of laws, policies, standards, and guidelines relating to information security.  The Policy on Government Security (April 2012) allows the Secretary of the Treasury Board to order a security audit in limited circumstances, and requires agencies to develop internal audit plans. <www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=16578>  The private sector is subject to limited security requirements in relevant privacy legislation. However, these security requirements are very generic and there are no customized audit rules for cloud computing.
6. Are international security standards, certification, and testing recognized as meeting local requirements?	✅	Canada is a Certificate Authorizing Member of the Common Criteria Recognition Agreement (CCRA) <www.commoncriteriaportal.org> and it is typical, although not always mandatory, for government procurement requirements to include certification against the Common Criteria.
<b>CYBERCRIME (SCORE: 9.5/12.5   RANK: 15/24)</b>		
1. Are cybercrime laws or regulations in place?	❌	Canada has comprehensive computer crime laws in place that will apply to most cybercrimes. However, there are well recognized limitations in Canada's laws relating to a lack of online investigation and enforcement tools.
2. Are cybercrime laws or regulations consistent with the Budapest Convention on Cybercrime?	✅	Canada signed the Council of Europe Cybercrime Convention in 2001 and ratified the Convention in 2015.
3. Do local laws and policies on law enforcement access to data avoid technology-specific mandates or other barriers to the supply of security products and services?	❌	Law enforcement agencies can generally seek a warrant to access encrypted data in Canada. The exact circumstances in which such a warrant will be granted remain unclear, and this issue is the subject of significant debate and controversy in Canada.  The legal requirements are scattered in several pieces of legislation, including: <ul style="list-style-type: none"> <li>• Bill C-55, 2013 that ensures the legality of a police officer to intercept private communication under certain limited circumstances; and</li> <li>• Bill C-13, 2014 that allows police to demand that certain data is preserved.</li> </ul> In addition, some mobile telecommunications providers are caught by the Solicitor General's Enforcement Standards (SGES).  Standard 12 states: <p>"[I]f network operators/service providers initiate encoding, compression or encryption of telecommunications traffic, law enforcement agencies require the network operators/service providers to provide intercepted communications en clair."</p> The annotation for this standard reads: <p>"Law enforcement requires that any type of encryption algorithm that is initiated by the service provider must be provided to the law enforcement agency unencrypted. This would include proprietary compression algorithms that are employed in the network. This does not include end to end encryption that can be employed without the service provider's knowledge."</p> These standards are controversial in Canada, partly because they have been in force for decades, but were only exposed to public scrutiny in 2013.
4. Are arrangements in place for the cross-border exchange of data for law enforcement purposes that are transparent and fair?	✅	In Canada, the Mutual Legal Assistance in Criminal Matters Act 1985 allows legal authorities to obtain court orders on behalf of countries that are parties to mutual legal assistance agreements with Canada. These include bilateral treaties and multilateral conventions containing provisions for mutual legal assistance. Canada has signed dozens of MLATs and other agreements on the exchange of data.

# CANADA	RESPONSE	EXPLANATORY TEXT
<b>INTELLECTUAL PROPERTY RIGHTS (SCORE: 9.5/12.5   RANK: 10/24)</b>		
1. Are copyright laws or regulations in place that are consistent with international standards to protect cloud service providers?	✓	Canada passed the Copyright Modernization Act (CMA) in 2012 and generally follows international standards.  Canada does not have traditional copyright "safe harbor" protection in place for intermediaries such as cloud service providers. Instead, Canada's Copyright Act contains a broad exemption from liability when organizations act strictly as intermediaries in communication, caching and hosting activities (Section 31). The law also includes a "Notice and Notice" process that merely requires the intermediary to pass on warnings to users who have generated copyright infringing material (Section 41).
2. Are copyright laws or regulations effectively enforced and implemented?	✓	Canada's legal environment for copyright has improved significantly since the passage of the Copyright Modernization Act (CMA) in 2012, and Canada has been removed from most international watch lists regarding copyright infringement. Levels of online copyright infringement have fallen. Canada's Copyright Act was scheduled to be the subject of a full review, including an evaluation of enforcement, in late 2017.  Canada's law on intermediary liability for intellectual property infringement works as a de facto "safe harbor" for most cloud computing activities.
3. Is there clear legal protection against misappropriation of trade secrets?	ⓘ	In Canada, there is no specific provincial or federal law on trade secrets. Some limited protection is available under common law, for example, by launching lawsuits based on unjust enrichment, breach of confidence, or breach of contract.
4. Is the law or regulation on trade secrets effectively enforced?	✗	It can be difficult and expensive to pursue trade secrets cases in Canada. The Canadian Intellectual Property Office <www.cipo.gc.ca> warns organizations that legal remedies are limited and encourages other forms of protection (such as security monitoring).
5. Is there clear legal protection against the circumvention of Technological Protection Measures?	✓	In 2012, the Copyright Act was amended to include provisions outlining prohibitions for circumventing technological protection measures (TPMs).
6. Are laws or regulations on the circumvention of Technological Protection Measures effectively enforced?	✓	The 2017 decision of Nintendo of America Inc. v. King, (2017 Federal Court of Canada 246), applied Canada's provisions relating to technological protection measures (TPMs). The high-profile decision demonstrated a broad reading of the TPM provisions. The court awarded significant damages for TPM circumvention.
7. Are there clear legal protections in place for software-implemented inventions?	✓	In Canada, computer-implemented or computer-related inventions can be patented, but, as in other markets, an invention that is only a computer program cannot be patented. This distinction has led to some complexity in case law, but most computer-related inventions have been successfully patented in Canada.
8. Are laws or regulations on the protection of software-implemented inventions effectively implemented?	✓	Protection of computer-related inventions in Canada is considered to be complex and expensive, but most inventions eventually receive appropriate protection under patent law.
<b>STANDARDS AND INTERNATIONAL HARMONIZATION (SCORE: 12.5/12.5   RANK: 1/24)</b>		
1. Is there a regulatory body responsible for standards development for the country?	✓	The Canadian Standards Association <www.csagroup.org> is responsible for standard setting and management.
2. Are international standards favored over domestic standards?	✓	Canada uses international standards in the digital economy sector when such standards are available. Canada is a strong supporter of international standards.
3. Does the government participate in international standards setting process?	✓	Canada is an active participant in international standards setting processes and is a participant in the top-level ICT standards committee (JTC-1) <www.iso.org/isoiec-jtc-1.html>.
4. Are e-commerce laws or regulations in place?	✓	The Canadian Uniform Electronic Commerce Act (UECA) 1999.
5. What international instruments are the e-commerce laws or regulations based on?	UNCITRAL Model Law on E-Commerce	The Canadian legislation is based on the UN Model Law on E-Commerce. Canada was also actively engaged in developing the UN Convention on Electronic Contracting. However, Canada has not yet signed the Convention because of concerns over the differences between local legislation and the Convention regarding electronic signatures.
6. Is there a law or regulation that gives electronic signatures clear legal weight?	✓	The Canadian Uniform Electronic Commerce Act (UECA) 1999, adopting the principles of the UN Model Law on E-Commerce, implements electronic signature provisions across all provinces and territories of Canada and the federal government. The use of electronic signatures is defined and permitted in Canada's primary privacy law, the Personal Information Protection and Electronic Documents Act (PIPEDA) 2000. The Secure Electronic Signature Regulations 2005 establish additional rules for digital signatures.
7. Are cloud service providers free from mandatory filtering or censoring?	✓	Internet content is not censored in Canada, although some specific local laws may apply to online content (e.g., race hate sites). A voluntary filtering service is available from most ISPs to filter out a small list of child pornography sites only.

# CANADA	RESPONSE	EXPLANATORY TEXT
<b>PROMOTING FREE TRADE (SCORE: 11/12.5   RANK: 1/24)</b>		
1. Is a national strategy or platform in place to promote the development of cloud services and products?	✓	The Government of Canada released an official Cloud Adoption Policy in 2016 < <a href="http://canada.ca/en/treasury-board-secretariat/services/information-technology/cloud-computing/government-canada-cloud-adoption-strategy.html">canada.ca/en/treasury-board-secretariat/services/information-technology/cloud-computing/government-canada-cloud-adoption-strategy.html</a> >. This policy includes detailed provisions on the promotion of a cloud workforce, the identification of cloud leaders, and the recognition of international security certifications for cloud service providers.
2. Are there any laws or policies in place that implement technology neutrality in government?	✓	Canada is a signatory to the APEC Technology Choice Principles (2006), under which each of the member economies agreed to “promote technology neutral policies and regulations that allow flexibility in the choice of technologies in order to ensure competition, maximize benefits for governments, businesses, and consumers, and bridge the development gap.” Canada has implemented these commitments in several key government policies, including procurement policy.
3. Are cloud computing services able to operate free from laws or policies that either mandate or give preference to the use of certain products, services, standards, or technologies?	✓	Canada has an open, transparent, and non-discriminatory approach to public procurement, and there are no laws, preferences, or other restrictions or requirements for the use of mandatory technologies relevant to cloud computing.
4. Are cloud computing services able to operate free from laws, procurement policies, or licensing rules that discriminate based on the nationality of the vendor, developer, or service provider?	✓	Canada has a non-discriminatory policy in place for procurement, with only a few minor exceptions relating to defense and national security. Some limited domestic preferences also appear in regional and provincial tenders.
5. Has the country signed and implemented international agreements that ensure the procurement of cloud services is free from discrimination?	📌	Canada is a full member of the WTO plurilateral Agreement on Government Procurement < <a href="http://www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm">www.wto.org/english/tratop_e/gproc_e/gp_gpa_e.htm</a> >.
6. Are services delivered by cloud providers free from tariffs and other trade barriers?	✓	Canada has not imposed any tariffs or trade related barriers on digital data or cloud-related services.
7. Are cloud computing services able to operate free from laws or policies that impose data localization requirements?	📌	Canada’s national privacy laws do not include any data localization requirements. However, provincial laws in British Columbia (Freedom of Information and Protection of Privacy Act 1996) and Nova Scotia (Personal Information International Disclosure Protection Act 2006) require personal information collected by government agencies to be stored on servers located in Canada. These laws have acted as a barrier to the use of some cloud services and products.
<b>IT READINESS, BROADBAND DEPLOYMENT (SCORE: 17/25   RANK: 8/24)</b>		
1. Is there a National Broadband Plan?	By 2021: • Universal broadband of 50/10 Mbps and unlimited data to 90% of premises  By 2026–2031: • Coverage to remaining 10% of premises	In December 2016, the Canadian Radio-television and Telecommunications Commission (CRTC) released Modern Telecommunications Services — The Path Forward for Canada’s Digital Economy (Telecom Regulatory Policy CRTC 2016-496) < <a href="http://www.crtc.gc.ca/eng/archive/2016/2016-496.htm">www.crtc.gc.ca/eng/archive/2016/2016-496.htm</a> >. This policy sets a universal service objective and declares high-speed broadband as an essential service. A fixed broadband goal is set that by 2021, 90% of premises are to have access speeds of at least 50 megabits per second (Mbps) download and 10 Mbps upload and unlimited data allowance. The remaining 10% of premises are to achieve this target by 2026–2031. The goals are ambitious and reflect a 10 times increase on the 2017 broadband targets set by CRTC in 2014. The goals for mobile coverage are less specific, calling for the latest mobile wireless technology to be made available in homes and businesses and along as many major transportation roads as possible in Canada.
2. Is the National Broadband Plan being effectively implemented?	✓	The universal broadband goal announced by the CRTC in December 2016 has been supplemented by a fund for projects to assist in closing the broadband gap < <a href="http://www.crtc.gc.ca/eng/Internet/Internet.htm">www.crtc.gc.ca/eng/Internet/Internet.htm</a> > with the following features: • CAD\$750 million (approximately US\$550 million) over the first five years; • Complement existing and future private investment and public funding; • Focus on underserved areas; and • Managed at arm’s length by a third party.  Although the revised national broadband plan and supporting fund is recent, Canada has a track record of monitoring, measuring, and reporting on broadband Internet performance < <a href="http://www.crtc.gc.ca/eng/Internet/proj.htm">www.crtc.gc.ca/eng/Internet/proj.htm</a> >.

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3. Are there laws or policies that regulate "net neutrality"?	Extensive regulation	Canada developed one of the first policy frameworks that specifically enshrines net neutrality. This was established in the November 2009 Canadian Radio-television and Telecommunications Commission (CRTC) Telecom Regulatory Policy (CRTC 2009-657) < <a href="http://www.crtc.gc.ca/eng/archive/2009/2009-657.htm">www.crtc.gc.ca/eng/archive/2009/2009-657.htm</a> >.  In 2017, the Framework has been clarified and strengthened by the publication of a formal Decision on Differential Pricing Practices < <a href="http://www.crtc.gc.ca/eng/Internet/diff.htm">www.crtc.gc.ca/eng/Internet/diff.htm</a> >. The combination of the Policy and the 2017 Decision establish strong safeguards against net neutrality violations.
4. Base Indicators		
4.1. Population (millions) (2015) • Total for all countries in this scorecard: 4,700 million	36	In 2015, the population of Canada increased by 1%.  [International Telecommunication Union (ITU), World Telecommunication/ICT Indicators Database (Dec. 2016) < <a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a> >]
4.2. Urban Population (%) (2015) • Average for all countries in this scorecard: 73%	82%	In 2015, the urban population of Canada increased by 0.2%.  [World Bank, Data Catalog, Indicators, Urban Population (Jan. 2017) < <a href="http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS">data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS</a> >]
4.3. Number of Households (millions) (2015) • Total for all countries in this scorecard: 1,249 million	14	In 2015, the number of households in Canada increased by 1%.  [International Telecommunication Union (ITU), World Telecommunication/ICT Indicators Database (Dec. 2016) < <a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a> >]
4.4. Population Density (people per square km) (2015) • Average for all countries in this scorecard: 471	4	In 2015, the population density of Canada increased by 0.9%.  [World Bank, Data Catalog, Indicators, Population Density (Jan. 2017) < <a href="http://data.worldbank.org/indicator/EN.POP.DNST">data.worldbank.org/indicator/EN.POP.DNST</a> >]
4.5. Per Capita GDP (US\$ 2015) • Average for all countries in this scorecard: US\$ 22,649	\$43,249	In 2015, the per capita GDP for Canada increased by 1.1% to US\$ 43,249. This was above the five-year compound annual growth rate (CAGR) from 2010–2015 of -1.8%.  This ranks Canada 5th for value of per capita GDP and 16th for growth (CAGR) for this indicator in this scorecard.  [World Bank, Data Catalog, Indicators: GDP Per Capita, Current US\$ (Jan. 2017) < <a href="http://data.worldbank.org/indicator/NY.GDP.PCAP.CD">data.worldbank.org/indicator/NY.GDP.PCAP.CD</a> > and GDP Growth, Annual % (Jan. 2017) < <a href="http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG">data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG</a> >]
4.6. ICT Service Exports (billions of US\$) (2015) • Total for all countries in this scorecard: US\$ 978 billion	\$32	In 2015, the value of ICT service exports for Canada decreased by 12.9% to US\$ 31.83 billion. This was below the five-year compound annual growth rate (CAGR) from 2010–2015 of -0.6%.  This ranks Canada 10th for value of ICT service exports and 16th for growth (CAGR) for this indicator in this scorecard.  [World Bank, Data Catalog, Indicators: ICT Service Exports US\$ (Jan. 2017) < <a href="http://data.worldbank.org/indicator/BX.GSR.CCIS.CD">data.worldbank.org/indicator/BX.GSR.CCIS.CD</a> >]
4.7. Personal Computers (% of households) (2015) • Average for all countries in this scorecard: 63%	85%	In 2015, 85.1% of households in Canada had personal computers. This is an increase of 0.9% since 2014 and ranks Canada 23rd out of 236 countries surveyed. The growth from 2014 is above the five-year compound annual growth rate (CAGR) from 2010 to 2015 of 0.6%.  This ranks Canada 5th for the number of personal computers (as a % of households) and 21st for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), World Telecommunication/ICT Indicators Database (Dec. 2016) < <a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a> >]
5. IT and Network Readiness Indicators		
5.1. ITU ICT Development Index (IDI) (2016) (score is out of 10 and covers 175 countries) • Average for all countries in this scorecard: 6.58	7.62	Canada's ITU ICT Development Index (IDI) for 2016 is 7.62 (out of 10), resulting in a rank of 25th (out of 175 economies). The 2016 IDI for Canada increased by 0.9%, and the IDI ranking declined by 2 from a rank of 23rd since 2015.  This ranks Canada 9th in the ITU ICT Development Index and 16th for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), Measuring the Information Society (Dec. 2016) < <a href="http://www.itu.int/net4/ITU-D/idi/2016">www.itu.int/net4/ITU-D/idi/2016</a> >]

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5.2. World Economic Forum Networked Readiness Index (NRI) (2016) (score is out of 7 and covers 139 countries) • Average for all countries in this scorecard: 4.77	5.56	Canada has a Networked Readiness Index (NRI) score of 5.56 (out of 7), resulting in a rank of 14th (out of 139 economies) and a rank of 12th (out of 32) in the High income: OECD grouping of economies. The 2016 NRI for Canada increased by 0.6% and declined by 3 places from a rank of 11th since 2015.  This ranks Canada 6th in the ITU ICT Development Index and 20th for growth (CAGR) for this indicator in this scorecard.  [World Economic Forum, Global Information Technology Report (2016) <reports.weforum.org/global-information-technology-report-2016>]
6. Internet Users and International Bandwidth		
6.1. Internet Users (millions) (2015) • Total for all countries in this scorecard: 2,330 million	32	[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]
6.2. Internet Users (% of population) (2015) • Average for all countries in this scorecard: 67%	88%	In 2015, 88% of the population in Canada used the Internet, resulting in a ranking of 21st out of 236 countries surveyed by the ITU. This is an increase of 1.5% since 2014 and is below the five-year compound annual growth rate (CAGR) from 2010–2015 of 2%.  This ranks Canada 4th in the proportion of the population using the Internet and 18th for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]  Note: There may be some variations as to how countries calculate this. Some countries base this upon all or part of the population — such as between 16 and 72 years of age.
6.3. International Internet Bandwidth (total gigabits per second (Gbps) per country) (2015) • Total for all countries in this scorecard: 117,736 Gbps	4,300	Canada has increased its international Internet bandwidth by 8% since 2014 to 4,300 Gbps and is ranked 9 out of 236 countries surveyed by the ITU. The growth from 2014 is below the five-year compound annual growth rate (CAGR) from 2009–2014 of 23.4%.  This ranks Canada 8th for total international Internet bandwidth and 14th for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]
6.4. International Internet Bandwidth (bits per second (bps) per Internet user) (2015) • Average for all countries in this scorecard: 97,747 bps	135,496	The international Internet bandwidth (per Internet user) of Canada has increased by 5% since 2014. The growth from 2014 is below the five-year compound annual growth rate (CAGR) from 2010–2015 of 19.9%.  This ranks Canada 4th for international Internet bandwidth per user and 13th for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]
7. Fixed Broadband		
7.1. Fixed Broadband Subscriptions (millions) (2015) • Total for all countries in this scorecard: 697 million	13	Canada has increased the number of fixed broadband subscribers by 4% since 2014 to 13.03 million, and is ranked 14th out of 236 countries surveyed by the ITU. The growth from 2014 is close to the five-year compound annual growth rate (CAGR) from 2010–2015 of 3.8%.  This ranks Canada 14th for the number of fixed broadband subscriptions and 18th for growth (CAGR) for this indicator in this scorecard.  [International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]
7.2. Fixed Broadband Subscriptions (% of households) (2015) • Average for all countries in this scorecard: 63%	96%	[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) <www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx>]  Note: This may be skewed by business usage in some countries.

# CANADA	RESPONSE	EXPLANATORY TEXT
<p>7.3. Fixed Broadband Subscriptions (% of population) (2015)</p> <ul style="list-style-type: none"> <li>• Average for all countries in this scorecard: 21%</li> </ul>	36%	<p>Canada has increased its fixed broadband subscriptions (as a % of the population) by 2.7% since 2014, which is below the five-year compound annual growth rate (CAGR) from 2010–2015 of 2.8%. This ranks Canada 21st out of 236 countries surveyed by the ITU.</p> <p>This ranks Canada 5th for the number of fixed broadband subscriptions (as a % of the population) and 20th for growth (CAGR) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p> <p>The Organisation for Economic Co-operation and Development (OECD) figures below present a breakdown of the type of fixed broadband connections in Canada as of June 2016.</p> <p>In the OECD, Canada was ranked 11th (out of 35) for fixed broadband subscribers as a percentage of population [OECD Broadband Subscribers (Feb. 2017) &lt;<a href="http://www.oecd.org/sti/broadband">www.oecd.org/sti/broadband</a>&gt;]</p> <ul style="list-style-type: none"> <li>• DSL: 13.1%</li> <li>• Cable: 19.2%</li> <li>• Fiber/LAN: 2.9%</li> <li>• Satellite: 0%</li> <li>• Fixed wireless: 1.6%</li> </ul> <p>Total: 36.8% (13.2 million subscriptions), which is above the OECD June 2016 average of 29.8%.</p> <p>This reflects a small decrease in DSL subscriptions and moderate increases in cable and fiber connections.</p> <p>The fixed broadband growth for the June 2015–2016 period was 2.76% (ranked 24 out of 35 for growth), below the OECD average growth of 3.42%.</p> <p>In Canada, fiber makes up 7.9% of fixed broadband subscriptions (ranked 25 out of 35), below the OECD average of 20.1%. The growth in fiber subscriptions for the June 2015–2016 period was 55.1% (ranking Canada 6 out of 35 for growth) and significantly above the OECD average of 15.94%.</p> <p>Note: From July 2015, OECD adjusted its definitions of fixed and mobile broadband by transferring the categories Satellite and Fixed Wireless from Mobile to Fixed Broadband.</p> <p>Note: Fiber subscriptions data includes FttH, FttP, and FttB, and excludes FTTC.</p> <p>Note: There may be minor variations in the ITU and OECD subscriber totals due to definition or timing differences.</p>
<p>7.4. Fixed Broadband Subscriptions (% of Internet users) (2015)</p> <ul style="list-style-type: none"> <li>• Average for all countries in this scorecard: 29%</li> </ul>	41%	<p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p>
<p>7.5. Average Broadband Data Connection Speed (total megabits per second (Mbps) per country) (Q1 2017)</p> <ul style="list-style-type: none"> <li>• Average for all countries in this scorecard: 12 Mbps</li> <li>• Average peak for all countries in this scorecard: 70 Mbps</li> </ul>	16	<p>In Canada the Q1 2017 average broadband data connection speed was 16.21 Mbps and is ranked 24th out of 239 countries measured by Akamai.</p> <p>This ranks Canada 6th for average broadband data connection speed in this scorecard.</p> <p>Additional connection metrics for Q1 2017 in Canada include:</p> <ul style="list-style-type: none"> <li>• Average peak broadband connection speed: 78.67 Mbps (ranked 26th globally and 7th in this scorecard)</li> <li>• Above 4 Mbps: 90% (ranked 44th globally and 10th in this scorecard)</li> <li>• Above 10 Mbps: 61% (ranked 25th globally and 6th in this scorecard)</li> <li>• Above 15 Mbps: 40% (ranked 19th globally and 7th in this scorecard)</li> <li>• Above 25 Mbps: 16% (ranked 17th globally and 6th in this scorecard)</li> </ul> <p>[Akamai, The State of the Internet (1st Quarter, 2017) &lt;<a href="http://www.akamai.com/us/en/about/our-thinking/state-of-the-internet-report/">www.akamai.com/us/en/about/our-thinking/state-of-the-internet-report/</a>&gt;]</p>
8. Fiber-to-the-home/building (FttX)		
<p>8.1. Fiber-to-the-home/building (FttX) Internet Subscriptions (millions) (2015)</p> <ul style="list-style-type: none"> <li>• Total for all countries in this scorecard: 258 million</li> </ul>	0.7	<p>Canada has increased the number of FttX subscribers by 14% since 2014 to 0.676 million, and is ranked 27th out of 236 countries surveyed by the ITU.</p> <p>This ranks Canada 15th for the number of FttX subscriptions and 17th for growth (from 2014) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p>



# CANADA	RESPONSE	EXPLANATORY TEXT
8.2. Proportion of Fiber-to-the-home/building (FttX) Internet Subscriptions (% of households) (2015) <ul style="list-style-type: none"> <li>Average for all countries in this scorecard: 18%</li> </ul>	5.0%	<p>Canada has increased the proportion of FttX subscribers to households by 14% (since 2014) to 4.96%.</p> <p>This ranks Canada 14th for the proportion of FttX subscriptions to households and 17th for growth (from 2014) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p> <p>Note: This may be skewed by business usage in some countries.</p>
8.3. Proportion of Fiber-to-the-home/building (FttX) Internet Subscriptions (% of fixed broadband subscriptions) (2015) <ul style="list-style-type: none"> <li>Average for all countries in this scorecard: 23%</li> </ul>	5.2%	<p>Canada has increased the proportion of FttX subscribers to fixed broadband subscribers by 14% (since 2014) to 5.19%.</p> <p>This ranks Canada 16th for the proportion of FttX subscriptions to fixed broadband subscriptions and 17th for growth (from 2014) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p>
9. Mobile Broadband		
9.1. Mobile Cellular Subscriptions (millions) (2015) <ul style="list-style-type: none"> <li>Total for all countries in this scorecard: 4,823 million</li> </ul>	30	<p>In 2015, Canada increased the number of mobile cellular subscriptions by 3.4% since 2014, which is above the five-year compound annual growth rate (CAGR) from 2010–2015 of 2.9%. Canada is ranked 42nd out of 236 countries surveyed by the ITU. The number of subscriptions account for 83% of the population.</p> <p>This ranks Canada 23rd for the number of mobile cellular subscriptions and 16th for growth (CAGR) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p> <p>Note: This figure may be inflated due to multiple subscriptions per head of population, but excludes dedicated mobile broadband devices (such as 3G data cards, tablets, etc.).</p>
9.2. Number of Active Mobile Broadband Subscriptions (millions) (2015) <ul style="list-style-type: none"> <li>Total for all countries in this scorecard: 2,506 million</li> </ul>	22	<p>In 2015, Canada has increased the number of active mobile broadband subscriptions by 14%, which is below the five-year compound annual growth rate (CAGR) from 2010–2015 of 17.1%. Canada is ranked 28th out of 236 countries surveyed by the ITU.</p> <p>This ranks Canada 22nd for the number of active mobile broadband subscriptions and 14th for growth (CAGR) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p>

# CANADA	RESPONSE	EXPLANATORY TEXT
<p>9.3. Active Mobile Broadband Subscriptions (% of population) (2015)</p> <ul style="list-style-type: none"> <li>Average for all countries in this scorecard: 77%</li> </ul>	61%	<p>Canada has increased the number of active mobile broadband subscriptions (as a % of the population) by 13% since 2014, which is below the five-year compound annual growth rate (CAGR) from 2010–2015 of 15.9%. Canada is ranked 66th out of 236 countries surveyed by the ITU.</p> <p>This ranks Canada 17th for the number of active mobile broadband subscriptions (as a % of the population) and 15th for growth (CAGR) for this indicator in this scorecard.</p> <p>[International Telecommunication Union (ITU), World Telecommunication/ICT Indicators Database (Dec. 2016) &lt;<a href="http://www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx">www.itu.int/en/ITU-D/Statistics/Pages/publications/wtid.aspx</a>&gt;]</p> <p>Note: This refers to the sum of standard mobile broadband and dedicated mobile broadband subscriptions to the public Internet. It covers actual subscribers, not potential subscribers, even though the latter may have broadband enabled-handsets.</p> <p>The OECD figures below present a breakdown of the type of mobile broadband connections in Canada as of June 2016.</p> <p>In the OECD, Canada was ranked 27th (out of 35) for mobile wireless broadband subscribers as a percentage of population [OECD Broadband Subscribers (Feb. 2017) &lt;<a href="http://www.oecd.org/sti/broadband">www.oecd.org/sti/broadband</a>&gt;]</p> <ul style="list-style-type: none"> <li>Standard mobile broadband subscriptions: 58.5%</li> <li>Dedicated mobile data subscriptions: 5.4%</li> </ul> <p>Total: 63.9% (22.9 million subscriptions), which is well below the OECD June 2016 average of 95.1%.</p> <p>Mobile broadband growth in Canada for the June 2015–2016 period was 17% (ranked 7 out of 35 for growth), above the OECD average growth of 10.7%.</p> <p>Note: From July 2015 OECD adjusted its definitions of fixed and mobile broadband by transferring the categories Satellite and Fixed Wireless from Mobile to Fixed Broadband.</p> <p>Note: The OECD wireless broadband figure includes both data and voice subscriptions (referred to as Standard Mobile Broadband) and data-only subscriptions (referred to as Dedicated Mobile Data).</p> <p>Note: The OECD figures include mobile data subscriptions, which are not as consistently reported in the ITU indicators.</p>
<p>9.4. Average Mobile Data Connection Speed (total megabits per second (Mbps) per country) (Q1 2017)</p> <ul style="list-style-type: none"> <li>Average for all countries in this scorecard: 11 Mbps</li> </ul>	10	<p>In Canada the Q1 2017 average mobile data connection speed was 10.3 Mbps and is ranked 33rd out of 70 countries measured by Akamai.</p> <p>This ranks Canada 11th for average mobile data connection speed in this scorecard.</p> <p>[Akamai, The State of the Internet (1st Quarter, 2017) &lt;<a href="http://www.akamai.com/us/en/about/our-thinking/state-of-the-internet-report/">www.akamai.com/us/en/about/our-thinking/state-of-the-internet-report/</a>&gt;]</p>