

Telecoms Policy in Canada

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Abstract

This paper provides an introduction to telecommunications policy in Canada, outlining the regulatory and legislative environment governing the provision of telecommunications services in the country and describing basic characteristics of its retail telecommunications services market. It was written in 2017 as one in a series of papers describing international telecommunications policies and markets published in the *Australian Journal of Telecommunications and the Digital Economy* in 2016 and 2017. Drawing primarily from regulatory and policy documents, the discussion focuses on broad trends, central policy objectives and major players involved in building and operating Canada's telecommunications infrastructure. The paper is descriptive rather than evaluative, and does not offer an exhaustive discussion of all telecommunications policy issues, markets and providers in Canada.

Introduction

In 2017, Canada's population was estimated to be above 36.5 million people (*Statistics Canada, 2017* ^[5]). Although Canada has a large land mass and low population density, more than 80% of Canadians^[6] live in urban areas, the majority in close proximity to the border with the United States (*Central Intelligence Agency, 2017* ^[7]). Telecommunications services are easily accessible for most, but not all, Canadians. Those in lower-income brackets and/or living in rural and remote areas are less likely to subscribe to telecommunications services than people in urban areas or with higher incomes, and high-quality mobile and Internet services are simply not available in some parts of the country (*CRTC, 2017a* ^[8]). On average, Canadian households spend more than \$200 (CAD) ^[9] per month to access mobile phone, Internet, television and landline phone services (2015 data, cited in *CRTC, 2017a* ^[8]).

Legislation governing the provision of telecommunications services in Canada

The provision of telecommunications services in Canada is governed by the Telecommunications Act/Loi sur les t?l?communications (*Canada, 1993* ^[10]). (Laws, regulations and policy documents are published in both of Canada's official languages.) Spectrum licensing and regulation of radio apparatus for telecommunications services are governed by the Radiocommunication Act/Loi sur la radiocommunication (*Canada, 1985b* ^[11]), ^[iii] ^[12] The Telecommunications Act defines various duties for the Canadian Radio-television and Telecommunications Commission (CRTC, which has been Canada's telecommunications regulator since 1976), notes the powers of the Minister of Industry^[iv] ^[13] and the Governor in Council^[v] ^[14] in matters of telecommunications policy, and establishes requirements for operating telecommunications services in Canada and internationally. ?Eligibility to operate? rules require that telecommunications carriers operating in Canada be Canadian-owned and controlled. Since 2012, new entrants (companies generating telecommunications revenues in Canada that are less than 10% of Canada's total telecommunications revenues) are exempt from these Canadian ownership and control requirements (*Canada, 2012a* ^[15]). In the 2017 budget (*Canada, 2017* ^[16]) the Government of Canada announced that it intends to ?review and modernize? the Telecommunications Act and the Broadcasting Act, with details of the review to be announced at a later date.

Telecommunications policy objectives

The Telecommunications Act affirms that telecommunications ?performs an essential role in the maintenance of Canada's identity and sovereignty,? and can ?safeguard, enrich and strengthen the social and economic fabric of Canada and its regions? (*Canada, 1993* ^[10], 7 (a)). Among other objectives, the Telecommunications Act calls for telecommunications policy in Canada to ?render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada? and to encourage increased reliance on market forces (i.e. competition) rather than on regulation to deliver telecommunications services (see Section 7 of the Act for the complete list of objectives). The Telecommunications Act states that where regulation is required it is to be ?efficient and effective.? Given the policy objective of relying upon market forces in the provision of telecommunications services, the provision of retail telecommunications services is not regulated across most of the country. Regulation does apply to retail Internet services provided in parts of Canada's north (*CRTC, 2015c* ^[17]).

Government departments involved in telecommunications policy

From 1969 to 1993^[vi] ^[18] the federal Department of Communications was responsible for developing broadcasting and telecommunications policy, industry regulation, and advancing the availability of broadcasting and telecommunications services across the country (*Telecommunications Policy Review Panel, 2006* ^[19]). In 1993 the Department of Canadian Heritage assumed responsibility for broadcasting and cultural policy (*Canada, 1995* ^[20]) and it is through the Minister of Heritage that the CRTC reports to the federal Parliament (*CRTC, 2017c* ^[21]). At the same time, the Department of Industry (now Innovation, Science and Economic Development or ISED) assumed responsibility for telecommunications policy, including spectrum regulation and licensing. When the current ISED Minister was appointed in 2015, the Prime Minister indicated that one of the Minister's top priorities was to ?Increase high-speed broadband coverage and work to support competition, choice and availability of services, and foster a strong investment environment for telecommunications services to keep Canada at the leading edge of the digital economy? (*Office of the Prime Minister, 2015* ^[22]). Actions by the Minister, other levels of government, or by the regulator are called for when the market (as created by the telecommunications services providers discussed below) fails to deliver reliable, affordable, high-quality telecommunications services.

Canada's telecommunications regulator

Canada's telecommunications (and broadcasting) system is regulated by the Canadian Radio-television and Telecommunications Commission. The CRTC is an administrative tribunal with a mandate to serve the public interest, operating according to the terms of the CRTC Act/Loi sur le conseil de la radiodiffusion et des t?l?communications canadiennes (*Canada, 1985a* ^[23]), the Bell Canada Act/Loi sur Bell Canada (*Canada, 1987* ^[24]), the Broadcasting Act/Loi sur la radiodiffusion (*Canada, 1991* ^[25]) and the Telecommunications Act (*Canada, 1993* ^[10]). It functions at arm's length from the federal government to ?develop, implement and enforce regulatory policies on the Canadian communications system? (*CRTC, 2017c* ^[21], p. 1), with a mission of ensuring Canadians have access to a ?world-class? communication system.

The CRTC outlines its anticipated priorities and provides advanced notice of proposed public consultations in a rolling three-year plan, updated annually (CRTC, 2017c [21]).[vii] [26] It publishes an annual report on the communications market, providing a comprehensive overview of telecommunications services pricing and availability across the country and describing the competitive landscape (CRTC, 2017a [8]).

The CRTC consults with stakeholders and gathers evidence to inform its policy decisions, guided by formal rules of practice and procedure (Canada, 2015 [27]). In recent years, the CRTC has expanded the ways in which Canadians can interact with the Commission in response to its notices of consultation. In addition to soliciting written submissions, the CRTC has collected opinions through online channels, accepted submissions in sign language, and enabled participation in public hearings through video-conferencing (Blais, 2016 [28]). For each policy proceeding, the Commission deliberates over the evidence on the record and in due course publishes a decision (in both official languages). The consultation process can generate enormous volumes of evidence from a wide variety of stakeholders including telecommunications services providers, public interest advocacy groups, academics, individual citizens and others (e.g. see Rajabiun & Middleton, 2015 [29], for a discussion of the interveners in a consultation examining wholesale access to telecom services). For complex matters, the entire process can take many months to reach a conclusion (for instance, a consultation on Basic Telecommunications Services was initiated in April 2015 and the resulting policy decision was announced in December 2016, see CRTC, 2015d [30]).

Policies are also developed in response to applications requesting consideration of issues not covered in a notice of consultation. ?Part 1? applications can be filed by anyone and are open to public comment and applicant response. Decisions (including decisions to take no action) are based on these written submissions (CRTC, 2015b [31]). Additionally, the CRTC must respond to orders from the Governor in Council (Forsey, 2006 [32]) regarding telecommunications policy objectives (Canada, 1993 [10], 8). Policy decisions can be reviewed, varied or rescinded by the CRTC as outlined in the Telecommunications Act (Canada, 1993 [10], 62) or challenged in court. The Governor in Council, acting in response to a petition (Mackwood, 2016 [33]), or on the advice of the federal cabinet (e.g. Privy Council, 2017 [34]), may also vary or overturn decisions, or return them to the CRTC for reconsideration (Canada, 1993 [10], 12 (1)).

The competition regulator

Canada's Competition Bureau[viii] [35] administers the Competition Act, the federal law governing most business activities in Canada. A recommendation from the 2006 Telecommunications Policy Review Panel (Telecommunications Policy Review Panel, 2006 [19]) to establish a Telecommunications Competition Tribunal to facilitate the application of competition law to the telecommunications sector has not been implemented. Agreements between the CRTC and the Competition Bureau (Competition Bureau, 2001 [36]; CRTC & Competition Bureau, 2013 [37]) outline the jurisdiction of each agency, acknowledge that each agency has an important role to play in Canada's telecommunications and broadcasting industries, and commit the agencies to cooperate with each other wherever possible.

The Competition Bureau investigates complaints and has the power to impose penalties regarding competitive practices of companies in the telecommunications sector (e.g. Competition Bureau, 2015b [38]; Competition Bureau, 2015c [39], 2016a [40]). It also has the authority to review mergers and acquisitions (Competition Bureau, 2011 [41], 2015a [42]). Telecommunications industry transactions involving foreign companies are also subject to review by the CRTC to ensure compliance with Canadian ownership regulations as set out in the Telecommunications Act. In recent years, the Competition Bureau has invoked its role as ?an advocate for the benefits of competition? (Competition Bureau, 2013 [43]) to intervene in CRTC consultations on fixed and mobile wholesale markets (Competition Bureau, 2014a [44], 2014b [45]), the development of the Wireless Code of Conduct (Competition Bureau, 2013 [43]), and differential pricing of Internet services (Competition Bureau, 2016b [46]).

The evolution of telecommunications markets in Canada

Babe (1990 [47]) and Winseck (1998 [48]) offer comprehensive descriptions of the development and evolution of telephone services in Canada. As they note, from the very early days of telephony, there were multiple telephone companies operating in Canada. Over time, the ownership of various telephone companies shifted back and forth between provincial governments and the private sector, with different ownership patterns in different regions. By the early 1990s however, government ownership was on the decline and Canada was moving towards a liberalised telecommunications market, in which competition was to play a more central role.

A 1989 Supreme Court decision had determined that Canada's major telephone companies would be subject to federal regulation (prior to this decision some companies were regulated provincially), facilitating the development of the federal 1993 Telecommunications Act (Janisch, 1993 [49]). The Act provided the CRTC the power to forbear from regulation. The CRTC's 1994 regulatory framework review outlined criteria to be used in determining which markets were deemed to be sufficiently competitive and eligible for regulatory forbearance (CRTC, 1994 [50]). Competition was introduced to the long distance telephone market in 1992 (CRTC, 1992 [51]) and local telecommunications markets in 1997 (CRTC, 1997b [52]), setting the stage for a converged environment in which telephone companies would enter the television market and vice versa (CRTC, 1995 [53]). Mobile phone services were launched in the mid-1980s, with spectrum licences granted to regional telephone companies and to a competing company called Cantel (partially owned by cable operator Rogers Communications). Two additional national competitors entered the mobile market in 1995 when awarded licences to operate PCS networks (Industry Canada, 2010 [54]).

In the late 1990s Canada's telephone and cable companies were among the first in the world to roll out DSL and cable broadband Internet services (Lie, 2003 [55]), establishing the practice of facilities-based competition that continues to this day. The CRTC also requires facilities-based operators to provide wholesale access to their networks to allow market entrants to offer competitive services, and increase provider choice for Canadians (CRTC, 2008b [56], 2010a [57], 2015f [58]).

The evolution of Canada's telecommunications markets and regulatory environment was examined in a 2005-2006 review of telecommunication policy. The review panel recommended ?significant changes? and offered a number of detailed recommendations to ensure that all Canadians would have access to affordable telecommunications services, to enhance the efficiency of telecommunications markets and to enhance social well-being and inclusiveness. The panel recommended the separation of policy making and regulation, calling for Industry Canada (now ISED) to transfer its regulatory responsibilities (e.g. spectrum regulation) to the CRTC, but this has not happened. The panel also recommended strengthening the policy making capacity of Industry Canada, and encouraged the government to be more proactive in setting policy by means of Governor in Council orders (Telecommunications Policy Review Panel, 2006 [19]). In response to the panel's recommendations, in 2006 the federal government issued a policy directive requiring the CRTC to rely on market forces ?to the maximum extent feasible? when developing telecommunications policy. In instances where regulation is deemed to be necessary it must be ?efficient and proportionate? (Privy Council, 2006 [59]). The CRTC developed several action plans to review its regulatory measures following this directive (CRTC, 2007b [60], 2008c [61], 2010b [62]).

While the guiding principle for achieving Canada's telecommunications policy objectives is to encourage competitors to provide the affordable, high quality communications services Canadians need, the CRTC does intervene when it determines that market forces alone are insufficient to achieve policy objectives. In recent years, regulation has addressed issues like defining basic telecommunications services (CRTC, 2016e [63]), developing competitive wholesale markets for the provision of fixed and mobile telecommunications services (CRTC, 2015e [64], 2015f [58], 2017e [65]), developing a policy framework for network neutrality (CRTC, 2017g [66]), and advancing awareness of consumer rights (CRTC, 2013b [67], 2017h [68]).

Telecommunications service providers in Canada

Fixed line services

In Canada, fixed line telecommunications infrastructure for telephone and Internet services is owned by different providers in different parts of the country. Each geographic market is served by a monopoly telephone network operator (telco) and a monopoly cable network operator (cableco), with no single telco or cableco offering service across the entire country. While these technology-centric descriptors are becoming obsolete as both cablecos and telcos upgrade their legacy networks to extend the reach of fibre-optical infrastructure, they do help to explain the evolution of the market. Telcos operated copper telephone networks and continue to deliver services using this infrastructure. Cablecos operated cable television networks and were the primary distributors of television services. They entered the telecommunications market in the 1990s.[ix] [69] offering broadband Internet services over their hybrid-fibre coaxial (HFC) cable infrastructure. Cablecos also offer telephone services in competition with the telcos.[x] [70] Telcos now compete with cablecos to provide television service, with telcos delivering television via Internet protocol (IPTV) or satellite. Additional competition in provision of television services comes from online content providers (CRTC, 2017b [71]). In regulatory documents, the CRTC calls former telco monopolies ?incumbent providers? and former cable monopolies ?cable-based carriers? (CRTC, 2017a [8], Appendix 8) and this terminology is used here.

In 2017 the incumbent provider in the provinces of British Columbia and Alberta (western Canada) is TELUS. In Saskatchewan, the incumbent provider is SaskTel, which is the sole

Crown corporation (i.e. government-owned company) remaining among Canada's large incumbent providers.[xi] [72] Manitoba's incumbent provider, Manitoba Telecom Services (MTS), was acquired by Bell in 2017 and now operates as Bell MTS (BCE, 2017 [73]). Bell is the incumbent in Ontario. Bell and its subsidiary T?bec are the incumbent providers in Qu?bec (with T?bec offering services to smaller communities). Bell is also the incumbent in Atlantic Canada, where it operates as Bell Aliant. Bell subsidiary Northwestel is the incumbent in Canada's North. There are a few small incumbent providers serving small geographic areas scattered across the country, including municipally-owned or co-operative providers, but the vast majority of Canadians are served by the large incumbent providers.

Canada's dominant cable-based carriers are Shaw (serving British Columbia, Alberta, Saskatchewan and Manitoba), Rogers and Cogeco (serving Ontario but not in competition with each other), Vid?otron (owned by Qu?becor and serving Qu?bec) and Eastlink (owned by Bragg Communications and serving Atlantic Canada). The cable-based carriers' operating territories are not as neatly divided as those of the incumbent providers (e.g. Eastlink and Shaw serve some communities in Ontario, and Cogeco offers service in parts of Qu?bec) but cable-based carriers do not compete with each other.

Most Canadian households can choose to purchase their fixed line telecommunications services from an incumbent provider or a cable-based carrier (CRTC, 2017a [8], p. 278). These companies compete directly with each other within their operating territories (e.g. Bell competes with Rogers in Ontario; TELUS competes with Shaw in Alberta). The incumbent providers and cable-based carriers collectively dominate the market, with the largest five incumbent providers earning 59% of retail telecommunications revenues in 2016, and the five largest cable-based carriers earning a further 35% (CRTC, 2017a [8], p. 222).[xii] [74] While some consumers buy services from both the incumbent provider and the cable-based carrier (e.g. demonstrating a preference for the reliability of a copper telephone line, but wanting the speed of cable Internet), the majority of Canadians choose to purchase their telecom services in bundles from a single provider (getting at least two of landline, internet and television services from either the cableco or the telco, CRTC, 2017a [8], p. 45).

With mandated wholesale network access (CRTC, 2015f [58]) providers who do not own their own facilities are able to offer retail services over existing copper, cable and fibre networks. In 2016 almost 50% of wholesale broadband Internet connections used cable-based carriers' networks (CRTC, 2017a [8], p. 345), reflecting a different market dynamic than in most other countries where wholesale access to cable networks is not mandated (Hou, Valcke, & Stevens, 2013 [75]).

While some rural households have access to fibre to the home (typically provided by small local providers), [xiii] [76] about a third of rural households in Canada have no access to any type of fixed line broadband Internet service and are served by fixed wireless providers (CRTC, 2017a [8], p. 281). Some fixed wireless providers hold licences to deliver services over unused television broadcasting spectrum, operating what are known as Remote Rural Broadband Systems (RRBS). Although RRBS operators offer high quality affordable service, they cannot operate within 121 kilometres of the US border or close to major urban centres (thereby excluding much of the Canadian population from their potential customer base). There is a moratorium on new RRBS licences while decisions are pending as to the repurposing of the 600 MHz spectrum band (Industry Canada, 2015 [77]), and the number of operators and customers is in decline (Taylor, 2017 [78]).

A company called Xplornet offers Internet and telephone services by fixed wireless and direct-to-home satellite and advertises that it can provide service 'everywhere in Canada' (Xplornet, 2017 [79]). Satellite services are also available through a community aggregator model, in which a satellite connection is made to an earth station in a community and services are delivered using a local distribution network. In some communities a local provider offers satellite services, others are served by companies like Bell Aliant or NorthwestTel (CRTC, 2014 [80]). Local providers can offer services specifically tailored to the needs of community members. For instance, K-Net, a First Nations owned and operated company, offers mobile phone services and online community applications (video-conferencing, tele-medicine) using satellite connectivity (Beaton, Burnard, Linden, & O'Donnell, 2015 [81]). About 1.5% of Canadian households get Internet service through a satellite provider (CRTC, 2017a [8], p. 281).

Availability of gigabit networks

Gigabit networks offer broadband Internet services at download speeds of at least one gigabit per second (Gbps, 1 Gbps is equal to 1000 Mbps). These speeds can be offered over fibre-optical networks or upgraded cable networks. Enabling access to gigabit connectivity is a policy objective in some countries and regions, as a means of ensuring the full economic and social benefits of digital society can be realised (European Commission, 2016 [82]; Government Offices of Sweden, 2016 [83]; iN2015 Steering Committee, 2006 [84]; Ministry of Business Innovation & Employment & Crown Fibre Holdings, 2017 [85]). There is no policy explicitly calling for gigabit connectivity to be made available to Canadians. The 2016 universal service decision (CRTC, 2016e [63], discussed below) calls for broadband Internet services offering download speeds of 50 Mbps and upload speeds of 10 Mbps to be available to all. While noting that networks that can provide these speeds are 'generally scalable' to gigabit speeds, the CRTC does not mandate provision of gigabit speeds as a basic service. As of 2016 however, 83% of Canadian households could access broadband networks offering 100 Mbps or higher Internet speeds, although fewer than 20% of Internet users chose to subscribe to services at these speeds (CRTC, 2017a [8], p. 282 and p. 271).

The large incumbent providers are rolling out fibre across their networks (as detailed in their annual reports, e.g. BCE Inc., 2016 [86]; TELUS, 2016 [87]), allowing them to compete with the cable-based carriers offering gigabit services using DOCSIS 3.1 technology (e.g. Rogers Communications Inc., 2017 [88]). As a result, many Canadian households will eventually have access to two gigabit networks, and will have additional choice in service providers once wholesale access to these networks is available. The CRTC mandated wholesale access to fibre networks in 2015, using a phased implementation approach (CRTC, 2015f [58]). At the time of writing, interim access provisions are in place in Ontario and Qu?bec (CRTC, 2017f [89]) but no service providers are offering gigabit speeds using wholesale access to cable or fibre networks as yet.

A small number of Canadian households now have access to gigabit-capable broadband Internet from a provider other than an incumbent provider or cable-based carrier. For instance, residents of Olds, Alberta, have access to a fibre network, O-Net, that is owned by the community. Residents in some condominiums in Vancouver and Toronto can get fibre from new entrants (e.g. Beanfield in Toronto and Urbanfibre in Vancouver), and some utility companies are building fibre to the home networks (e.g. Lakeland Networks in the Muskoka region in Ontario). Some Canadians who live in parts of the country where competition between incumbents and cable-based carriers is unlikely to deliver gigabit service may get access to gigabit speeds through projects developed within their communities and funded through the Government of Canada's Connect to Innovate program (Innovation, Science and Economic Development Canada, 2017a [90]; Matawa First Nations, 2017 [91]) or the CRTC's broadband funding regime (CRTC, 2016b [92], described below). Gigabit connectivity will also be enabled by projects like the SWIFT network (<http://swiftnetwork.ca> [93]), which is extending a fibre backbone network into Southwestern Ontario, through a partnership funded by the federal, provincial and municipal levels of government.

Wireless services

The market for wireless services (mobile voice, SMS and data products, i.e. mobile Internet) in Canada is dominated by the 'Big Three' mobile network operators (Bell, Rogers and TELUS).[xiv] [94] Mobile network operator Freedom (formerly WIND Mobile) was purchased by Shaw Communications in 2016 and offers wireless services in major cities in British Columbia, Alberta and Ontario. SaskTel competes with the Big Three in Saskatchewan as does Vid?otron in Qu?bec. The recent Bell MTS merger in Manitoba removed MTS as a competitor to the Big Three but as a condition of the merger a new entrant to the wireless market, rural broadband Internet provider Xplornet, is to begin offering wireless services in the province by 2018 (Competition Tribunal, 2017 [95]). Eastlink offers wireless services in Atlantic Canada.

4G LTE coverage is available to 98.5% of the population, with LTE-Advanced available to 83% (CRTC, 2017a [8], p. 328). There are however vast regions of the country with very low population densities and minimal network coverage. Nevertheless, most Canadians do have a choice of four mobile network operators, and have an additional choice as to whether to subscribe to an MNO's primary brand (e.g. Bell, Rogers, TELUS) or to subscribe to a 'flanker' brand (e.g. Virgin, Fido or Koodo). Flanker brands offer service using the primary brand's network infrastructure with different marketing and lower pricing (CRTC, 2017a [8], p. 58). Wireless services are also offered by other resellers, but wholesale access to mobile networks is not mandated (CRTC, 2015e [64]). There are very few mobile virtual network operators (MVNOs) in the Canadian consumer market (CRTC, 2016a [96]).

In 2012, the CRTC declared that the market for wireless telecommunications services was competitive and did not require regulation, but decided that consumers would benefit from a better understanding of service contracts (CRTC, 2012 [97]). After a public consultation, the CRTC implemented the Wireless Code of Conduct in 2013. The Code is intended to bring greater clarity to consumers as they negotiate their service contracts, and to encourage a more dynamic market (CRTC, 2013b [67]). A 2017 update to the Code requires that new wireless devices provided by mobile network operators in Canada be unlocked (meaning that such devices can be used on any mobile operator's network) and that customers' devices locked prior to the Code update be unlocked free of charge upon request (CRTC, 2017h [68]). The Code is administered by the Commissioner for Complaints for Telecommunications-Television Services (CCTS), as discussed below.

Canada's universal service obligation

Telecom Regulatory Policy CRTC 2016-496 (CRTC, 2016e^[63]) establishes the universal service objective that “Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks.” The policy indicates that the “broadband portion” of the universal service objective will be achieved when fixed broadband Internet services offering minimum 50 Mbps (download) and 10 Mbps (upload) speeds and including an option for unlimited data are available to all Canadian premises, and when “the latest generally deployed mobile wireless technology” is available to premises and as many major roads and highways as possible. The CRTC expects fixed broadband services meeting these criteria will be available to 90% of premises by 2021, and to the remainder of premises “within 10 to 15 years,” and as part of the implementation process for this policy, the CRTC will establish metrics and methods to assess network quality of service.

The policy also calls for the focus of regulatory action to become broadband-centric rather than voice-centric. The CRTC will phase out subsidies^[xv]^[98] for providing access to voice services (although it retains the obligation for incumbent providers to provide voice service) and establish a new broadband funding mechanism with mandatory contributions from telecommunications services providers. To access this funding, applicants must invest in the project themselves and have funding from a government entity. The fund will allocate no more than \$750 million in its first five years, with up to 10% reserved to meet the needs of satellite-dependent communities (CRTC, 2016b^[92]). The CRTC decision explicitly notes that this new funding mechanism is a complement to investments by the private sector and governments, and observes that “The widespread availability and adoption of broadband Internet access services are issues that cannot be solved by the Commission alone.” At the time of writing a consultation was underway to determine how this fund will operate (CRTC, 2017d^[99]). While the decision addressed funding to extend broadband networks, it does not offer any direct mechanisms to address the affordability of retail telecommunications services.

The policy establishing the new universal service obligation directs mobile network operators to offer service packages that meet the needs of Canadians with disabilities and to publicise these packages on their websites. Canada’s major telecommunications service providers must also file a report with the Commission outlining their plans to invest in improving the accessibility of telecommunications services. Additionally, providers offering fixed broadband Internet access must ensure that their service contracts are written in plain language, offer information on how much data is used by common online activities and provide tools for data consumption monitoring. These actions are designed to ensure inclusive access to communication systems, and align with similar requirements for mobile broadband Internet providers established in the Wireless Code.

The state of competition in Canada’s telecommunications markets

In various decisions, the CRTC has ruled that retail markets for telecommunications services in Canada are competitive, and it forbears from regulating them. There are however concerns, expressed by government ministers (Bains, 2017a^[100]; Joly & Bains, 2017^[101]), the head of Canada’s Competition Bureau (Pecman, 2017^[102]), citizens and public interest advocacy groups (see for example the records of the CRTC consultations on Basic telecommunications services^[xvi]^[103] and the Review of the Wireless Code of Conduct^[xvii]^[104]), and a former CRTC chair (Blais, 2017^[105]), that Canadian consumers have not seen the full benefits expected to result from competition, for instance the development of innovative products and lowering of prices.

In the fixed line Internet market, incumbent providers (the operators of the copper telephone network) told the CRTC that they would reduce or delay investment in fibre networks if they were required to provide wholesale access to these networks (see the record of the 2013-2014 Review of wholesale services^[xviii]^[106] and Bell’s petition to the Governor in Council (Bell Canada, 2015^[107]) requesting that the CRTC’s decision to impose access requirements be overturned). The decision to mandate access was not overturned (Bains, 2016^[108]) and incumbents are now increasing investment in fibre to the home connectivity. While access to fibre networks was not mandated until 2015 (CRTC, 2015f^[58]), a wholesale regime has been in place for decades to “facilitate competition in retail markets to provide Canadians with increased choice” (CRTC, 2013a^[109]). As of 2016, 13% of fixed Internet subscribers got service from providers other than incumbent telcos or cable-based carriers (CRTC, 2017a^[8], p. 258). These alternative providers (resellers) generally offer more affordable services (Nordicity, 2017^[110]).

In the wireless market, successive federal governments have tried to increase competition to Canada’s Big Three carriers (Klass, 2015^[111], discusses these efforts). Set-asides were used to allow new entrants to purchase spectrum in a 2008 auction (Industry Canada, 2007^[112]), the market was opened to foreign investors in 2012 (Canada, 2012b^[113]) and spectrum caps were applied to the 2014 700 MHz and 2500 MHz spectrum auctions (Industry Canada, 2012^[114]). While spectrum set-asides did facilitate market entry, the three new entrants not affiliated with existing telecommunications providers (Mobicility, Public Mobile and WIND Mobile) struggled to establish themselves as strong competitors after purchasing spectrum in 2008. By 2015, Mobicility and Public Mobile had been acquired by Big Three carriers and only WIND remained as an independent competitor, operating in three provinces (Alberta, British Columbia and Ontario). With cable-based carriers Eastlink and Vidéotron offering wireless services in their home territories (Atlantic Canada and Québec respectively) and provincial incumbent carriers SaskTel and MTS also operating wireless services, most Canadians had a choice of four carriers, which was the federal government’s desired outcome. Nevertheless, the Big Three’s market share remained at 89% in 2016 (CRTC, 2017a^[8], p. 301), down just 5% from 2007 (CRTC, 2008a^[115], p. 227).

In its 2017 investigation of Big Three carrier Bell’s proposed merger with Manitoba’s incumbent carrier MTS, the Competition Bureau found that “as a result of coordinated behaviour among Bell, TELUS and Rogers, mobile wireless prices in Canada are higher in regions where Bell, TELUS and Rogers do not face competition from a strong regional competitor” (Competition Bureau, 2017^[116]). It is difficult to reconcile this conclusion with the government’s statement, upon approving the merger (with a condition that a new entrant with no experience providing mobile services would enter the Manitoba market), that the deal would increase choice and bring about more competitive prices in the province (Innovation, Science and Economic Development, 2017b^[117]). Elsewhere in the country however, regional competitors Vidéotron, Eastlink and Freedom Mobile (formerly WIND, and now owned by cable-based carrier Shaw) are challenging the Big Three with more competitive pricing, and Freedom Mobile is strengthening its competitiveness by upgrading its LTE-Advanced network.

As indicated by the discussion above and the earlier description of Canada’s fixed line and wireless telecommunications markets, Canadians do have some choice of service providers. But Canada’s market is strongly vertically and diagonally integrated, and prices for many communications services in Canada are higher than in other G7 countries (Nordicity, 2017^[110]). In 2016, 94% of telecommunications revenues (from the sale of voice, data, Internet and wireless services) were generated by the top 5 incumbent providers and the top 5 cable-based carriers. The CRTC observed that “that companies which operated in multiple sectors continue to have clear competitive advantages relative to those who are less integrated” (CRTC, 2017a^[8], p. 222). Vertical integration is “extremely high” in Canada, as compared to other countries and has increased over time, with Canada’s dominant telecommunications providers also owning all the private television networks (Canadian Media Concentration Research Project, 2017^[118]).

Diagonal integration refers to the ownership of distribution networks. In Canada, the dominant telecommunications providers own the Internet networks, wireless networks and television distribution networks. All mobile network operators are affiliated with a cable-based carrier or incumbent service provider. There are few resellers and large international MVNOs (mobile virtual network operators) common in other countries do not operate in Canada. At the government’s request however, the CRTC is currently reconsidering a decision that could allow mobile operators to provide service using a combination of Wi-Fi and roaming access to existing mobile networks (CRTC, 2017e^[65]). Citing a similar approach in the US, the government believes enabling a “Wi-Fi first” model would increase choice and affordability (Bains, 2017a^[100]). The government is also consulting on the rules for the upcoming 600 MHz spectrum auction, and has proposed a set-aside for regional carriers to ensure that their efforts to obtain more spectrum are not blocked by the Big Three (Innovation, Science and Economic Development Canada, 2017c^[119]). In their responses to this consultation, the Big Three make the case that set-asides are ineffective and increase the price of spectrum (Bell Mobility Inc., 2017^[120]; Rogers Communications Canada Inc., 2017^[121]; TELUS Communications Inc., 2017^[87]). The release of millimetre wave spectrum for 5G mobile services provides another opportunity to support increased competition in the wireless market, as noted by ISED in a 2017 consultation paper on this issue (Innovation, Science and Economic Development Canada, 2017d^[122]).

Protecting and Advocating for Consumers

Network Neutrality

Canada’s Telecommunications Act states that no Canadian carrier shall “unjustly discriminate or give an undue or unreasonable preference toward any person, including itself, or subject any person to an undue or unreasonable disadvantage” when it is providing a telecommunications service (Canada, 1993^[10], 27 (2)). The CRTC has established network neutrality rules to interpret this provision of the Act and to counter vertical and diagonal integration in the Canada telecommunications market.

The Internet traffic management practices (ITMP) framework (CRTC, 2009^[123]) requires Internet service providers to be transparent when applying any traffic management practices. It encourages investment in network capacity as the primary remedy for network congestion issues and favours the use of economic practices (e.g. consumption-based pricing) rather than technical ones (e.g. managing congestion by slowing down certain types of traffic “peer-to-peer file transfers being one example). Where traffic management

practices are applied they must address a defined need and be carefully designed to avoid incurring unjust discrimination.

The 2015 mobile television decision (CRTC, 2015a [124]; upheld by the Federal Court of Appeal, 2016 [125]) determined that mobile network operators could not exempt their mobile television offerings from data charges. Following additional complaints about differential pricing practices (e.g. zero-rating? traffic by not counting it against a consumer?s data cap, or discounting certain types of data), the Commission determined that these practices generally have a negative impact on competition and their continued application would not benefit consumers (CRTC, 2017g [66]). The evaluation framework for differential pricing practices (on a complaints-based, ex post basis) will rely primarily upon whether data is treated agnostically (noting that zero-rating is likely? to raise concerns whereas pricing based on time-of-day is not), but will also consider whether an offering is exclusive, whether there is financial compensation involved and whether a practice creates barriers to entry for content providers or reduces innovation. The framework does not apply to services offered on Internet service providers? (ISPs) managed Internet protocol networks (e.g. Internet of Things products used by businesses).

In the CRTC?s view, the best approach to achieve Canada?s telecommunication policy objectives and to ensure competition in the provision of retail Internet services is for ?ISPs [to] compete and differentiate their services based on their networks and the attributes of the services on those networks, such as price, speed, volume, coverage, and the quality of their networks? (CRTC, 2017g [66], 46). Following the United States Federal Communications Commission 2017 decision to overturn US network neutrality rules (Federal Communications Commission, 2017 [126]), the Canadian government and opposition parties reiterated their support for Canada?s network neutrality regime (Bains, 2017b [127]; Singh, 2017 [128]; Stone, 2018 [129]).

The Commissioner for Complaints for Telecom-Television Services

The 2006 Telecommunications Policy Review Panel recommended the creation of an agency to handle consumer complaints about telecommunications services (Telecommunications Policy Review Panel, 2006 [19], Recommendation 6-3). The Commissioner for Complaints for Telecommunications Services (CCTS)[xix] [130] was established by the telecommunications industry in 2007 as a federal not-for-profit corporation (Commissioner for Complaints for Telecommunications Services, 2016 [131]). The CCTS operates as a self-funding independent body, with its mandate and structure subject to approval by the CRTC. All telecommunications services providers are required to participate in the CCTS (as per conditions set out in CRTC, 2016c [132]).

The CCTS investigates and resolves consumer complaints about telecommunications services within its mandate,[xx] [133] through a ?fair, impartial and independent review? of issues (Commissioner for Complaints for Telecommunications Services, 2010 [134]). Its annual reports offer a detailed review of complaints received in the previous year, noting the most common issues faced by consumers and profiling the performance of service providers in responding to complaints (Commissioner for Complaints for Telecommunications Services, 2017 [135]). The CCTS reported that it was able to resolve 91% of complaints received in 2016-17, but research commissioned by the CRTC indicates that most Canadians do not take their complaints to the CCTS because they do not know it exists (TNS Canada, 2016 [136]).

The CCTS is responsible for administering the Wireless Code of Conduct, which was created by the CRTC in 2013 to ?make it easier for individual and small business consumers to get information about their contracts with wireless service providers and about their associated rights and responsibilities, establish standards for industry behaviour, and contribute to a more dynamic marketplace? (CRTC, 2013b [67]). In 2017, the CCTS also assumed responsibility for dealing with complaints relating to television services, as administrator of the Television Service Provider Code of Conduct (CRTC, 2016d [137]) and is now called the Commission for Complaints for Telecom-Television Services.

Consumer advocacy organizations

There are a number of non-profit organizations in Canada that champion consumer interests in the telecommunications sector. The Public Interest Advocacy Centre (PIAC, <http://www.piac.ca> [138]) has worked to advance affordable access to high quality telecommunications services since 1976 (Public Interest Advocacy Centre, 2001 [139]). PIAC intervenes in regulatory consultations and produces policy briefs and research reports (see for example Bishop & Lau, 2016 [140]; De Santis, 2010 [141]; Janigan, 2010 [142]; Lawford & Lau, 2015 [143]) ?to ensure that government and the private sector consider the public interest, consumer rights, as well as values like diversity and equal opportunity, when making decisions about public services that are vital to participation in society? (Public Interest Advocacy Centre, 2016 [144]). PIAC acted as counsel for a group of consumer interest organizations that formed the ?Affordable Access Coalition? to participate in the CRTC?s consultation on basic telecommunications services.

The Union des consommateurs (<http://uniondesconsommateurs.ca> [145]) ?represent[s] and defend[s] the rights of consumers, with special emphasis on the interests of low-income households? (Union des consommateurs, 2015a [146], p. 4). Priority issues for the Union des consommateurs? (UC) research, action and advocacy work include telephone, television and Internet access. The UC participated in CRTC consultations on basic telecommunications services and the development of a Wireless Code of Conduct, and has produced many reports offering recommendations on how to improve the provision of telecommunications services for Canadian consumers (Union des consommateurs, 2013 [147], 2014 [148], 2015a [146], 2015b [149]). These reports, as well as the reports by PIAC noted above were funded by the Government of Canada?s Office of Consumer Affairs Contributions Program, established to enable the production of ?high quality, independent and timely research on consumer issues? (Office of Consumer Affairs, 2016 [150], p. 3). Canada?s Internet registry authority, CIRA, also funds research and community projects that contribute to a ?a stronger, safer and more accessible Internet for all Canadians? through its Community Investment Program (<https://cira.ca/community-investment-program> [151]).

Numerous other non-profit organizations are working to make telecommunications services more accessible to Canadians, through interventions to the CRTC [xxi] [152] and publication of independent research. These include OpenMedia (?a community-driven organization that works to keep the Internet open, affordable, and surveillance-free?, <https://openmedia.org/en/how-we-work> [153]), Media Access Canada (representing disability organizations and advocating for fully accessible media and communication services, Media Access Canada, 2016, <http://www.mediacan.ca/> [154]), and the First Mile Connectivity Consortium (which works to develop evidence-based policies to meet the telecommunications needs of First Nations communities in rural and remote Canada, <http://firstmile.ca/fmcc-2> [155]). Representatives of ?a group or a class of subscribers? interested in the outcome of a consultation can apply for reimbursement of the costs of participating in the consultation. The CRTC assesses cost applications according to the criteria set out in its Rules of Practice and Procedure (Canada, 2015 [27]) and determines the share of the award to be paid by each cost respondent (cost respondents are the telecommunications services providers who have actively participated in the consultation and have a significant interest in its outcome).

Summary of Key Policy Approaches

This paper describes the policy environment in which telecommunications services were provided to Canadians in 2017. While this paper does not evaluate policy decisions, the upcoming review of the Telecommunications and Broadcasting Acts will provide an opportunity for assessment of the effectiveness of Canada?s telecommunications policy approach, with changes likely to be incorporated into updated legislation. At present, telecommunications policy in Canada is to rely upon market forces to create a competitive environment in which providers will offer reliable, affordable, high quality services. In circumstances where market forces do not deliver these outcomes and regulation is warranted, it must be efficient and effective. The 2016 universal service objective calls for all Canadians to have access to fixed and mobile wireless voice and Internet services, and sets a target for fixed Internet speeds of 50 Mbps (download) and 10 Mbps (upload). It is recognised that ongoing investment is needed from multiple levels of government to ensure that these services are available in rural and remote Canada. A scheme is being established in which telecommunications services providers will be mandated to contribute a portion of their revenues to a fund to extend broadband networks.

The retail markets for fixed and wireless service are generally forborne from regulation. Facilities-based competition dominates, with the majority of consumers having a choice between two fixed line service providers (one being the incumbent provider, or former telephone company, the other being the cable-based carrier). Competition in the fixed line market is regionally based, whereas competition for wireless services is national. Most Canadians have a choice among four mobile network operators with regional mobile network operators now providing some competitive discipline to the Big Three. Despite ongoing efforts to increase competition for wireless services and to reduce prices, the market is still strongly concentrated and further policy action to encourage competition is possible (e.g. there may be a set-aside of spectrum in an upcoming auction for regional competitors).

Wholesale access to fixed broadband networks is mandated, with cable broadband serving close to half of the wholesale market. Wholesale access to fibre networks was granted in 2015, but access seekers have not yet launched services using fibre. Wholesale access to wireless networks is not mandated, and there are very few mobile virtual network operators (MVNOs) operating in Canada. Foreign control of telecommunications service providers in Canada was not allowed prior to 2012, and there are no international companies operating mobile networks in Canada. A network neutrality framework governs Canada?s telecommunications service providers, and the practice of zero-rating certain types of data is generally considered discriminatory and therefore disallowed.

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Canada's telecommunications policy environment is complex, with many regulatory nuances. The information provided in this paper is drawn from the original source documents as referenced throughout, and is offered to provide a high-level overview of the policy environment. Any errors and omissions in interpretation are the responsibility of the author. Original source documents provide definitive guidance on Canada's telecommunications policy regime.

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Endnotes

- [i] ^[279] Note the term "Canadians" is used throughout this paper to refer to people living in Canada regardless of their citizenship.
- [ii] ^[280] At the time of writing the Canadian dollar was trading slightly higher than the Australian dollar, and worth about \$0.78 USD. <https://www.bankofcanada.ca/rates/exchange/monthly-exchange-rates/> ^[281]
- [iii] ^[282] Official publications regarding spectrum management and telecommunications in Canada are posted online at http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf01841.html ^[283]. Radiocommunications publications are online at https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf01847.html ^[284].
- [iv] ^[285] In 2015 the Government of Canada changed the name of Industry Canada to Innovation, Science and Economic Development (ISED) but the Telecommunications Act continues to refer to the Minister of Industry.
- [v] ^[286] Canada's Governor General is the Governor in Council, and acts in this capacity on the advice of federal Cabinet (Parliament of Canada, 2017 ^[287]).
- [vi] ^[288] The political decision to dissolve Canada's Department of Communications was made in 1993 but the legislation to enact the change was not in force until 1996 (Innovation, Science and Economic Development Canada, 2017e ^[289]).
- [vii] ^[290] See archived plans at <http://crtc.gc.ca/eng/publications/> ^[291]
- [viii] ^[292] <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/home> ^[293]
- [ix] ^[294] See CRTC (1995 ^[53], 1997a ^[295]) for discussion of changes to the policy environment intended to facilitate competition between facilities-based providers.
- [x] ^[296] For instance, Rogers was the first cable company in North America to offer a broadband service, launching service in 1995 (Rogers, 2016 ^[297]). It launched a telephone service in 2005.
- [xi] ^[298] In 2017, the Saskatchewan government passed a bill allowing it to sell up to 49% of its Crown corporations, and has considered the impact of selling a portion of SaskTel (CBC News, 2017 ^[299]).
- [xii] ^[300] Note that these figures include revenues from wireless services, which now make up more than 50% of retail revenues.
- [xiii] ^[301] For instance there are several such providers in Southwestern Ontario, including Quadro Communications Co-op and Hay Communications.
- [xiv] ^[302] Regarding terminology describing Canada's wireless industry, the CRTC generally refers to the "mobile wireless" market. Mobile network operators are referred to as Wireless Service Providers or WSPs and are also known in the industry as wireless carriers.
- [xv] ^[303] Telecommunications service providers generating more than \$10 million in annual revenues contribute a small portion of their revenues to the National Contribution Fund, which subsidises the provision of telephone service in high-cost serving areas (CRTC, 2007a ^[304]). In 2016, the subsidies totalled \$105 million (CRTC, 2017a ^[8], p. 231).
- [xvi] ^[305] CRTC Notice of Consultation 2015-134. https://services.crtc.gc.ca/pub/instances-proceedings/Default-Default.aspx?lang=eng&YA=2015&S=C&PA=t&PT=nc&PST=a&_ga=2.195174244.977489263.1509156492-289795852.1503252536-2015-134 ^[306]
- [xvii] ^[307] CRTC Notice of Consultation 2016-293. <https://services.crtc.gc.ca/pub/instances-proceedings/Default-Default.aspx?lang=eng&YA=2016&S=C&PA=t&PT=nc&PST=a-2016-293> ^[308]
- [xviii] ^[309] CRTC Notice of Consultation 2013-551. <https://services.crtc.gc.ca/pub/instances-proceedings/Default-Default.aspx?lang=eng&YA=2013&S=C&PA=t&PT=nc&PST=a-2013-551> ^[310]
- [xix] ^[311] <https://www.ccts-cprst.ca/> ^[312]

[xx] ^[313] <http://www.ccts-cprst.ca/about-ccts/mandate/> ^[314]

[xxi] ^[315] See for example the interventions regarding the CRTC's Review of Basic Telecommunications Services, at <https://services.crtc.gc.ca/pub/instances-proceedings/Default-Default.aspx?lang=eng&YA=2015&S=C&PA=t&PT=nc&PST=a - 2015-134> ^[316]

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