FEDERALISM-E

The Impacts of Canadian Federalism on Telecommunications Infrastructure Development

William L. Chen

University of British Columbia

Federalism-E is founded by the Royal Military College of Canada and the Institute of Intergovernmental Relations at Queen's University - ISSN 2562-3435

Federalism-E Vol. 21, No.2 (2020)
10.24908/fede.v21i1.13849

Federalism-e is an electronic student journal about federalism, multi-level governance, and intergovernmental relations put forth in collaboration between Queen's University and the Royal Military College of Canada. This annual journal will publish papers by undergraduate students, which are reviewed by an editorial board composed of their peers, in both English and French languages. It is a bilingual, undergraduate electronic journal with a mandate to provide a forum to encourage research and scholarly debate with respect to a wide variety of issues concerning federalism both within Canada and abroad.

Federalism-e est un journal électronique sur le fédéralisme, la gouvernance à plusieurs niveaux et les relations intergouvernementales, élaboré en collaboration avec l'Université Queen's et le Collège militaire royal du Canada. Ce journal annuel publiera des articles d'étudiants de premier cycle, qui seront examinés par un comité de rédaction composé de leurs pairs, en anglais et en français. Il s'agit d'un journal bilingue de premier cycle dont le mandat est de fournir un forum pour encourager la recherche et les débats universitaires sur une grande variété de questions relatives au fédéralisme au Canada et à l'étranger.

Editors-in-Chief/redacteurs en chef:

Officer Cadet/élève-officier Daniel Walcott, Royal Military College of Canada
Naval Cadet/aspirant de marine Jack Murphy, Royal Military College of Canada

Associate Editors/rédacteurs associés:

Officer Cadet/élève-officier Damien McCracken, Royal Military College of Canada
Charmaine Lee, University of British Columbia
Jenna Mohammad, University of Toronto
Srjan Sahu, University of Toronto
Mduduzi Mhlanga, University of Toronto
Reeba Khan, University of Toronto
Joyce Le-Yi Yang, University of Toronto
Hollis MacKenzie, University of British Columbia

Faculty Advisor/conseiller de la faculté:

Dr. Christian Leuprecht, Royal Military College of Canada, Institute of Intergovernmental Relations at Queen's University

Contact Information:

Email/courriel – federalismeditors@gmail.com
Website/site web – <https://ojs.library.queensu.ca/index.php/fede>
Address/adresse – Royal Military College of Canada
13 General Crerar Cres
Kingston, ON
K7K 7B4

Federalism-E is founded by the Royal Military College of Canada and the Institute of Intergovernmental Relations at Queen's University - ISSN 2562-3435

Federalism-E Vol. 21, No.2 (2020)
10.24908/fede.v21i1.13849

In the 21st century, telecommunications and access to broadband internet has been declared to be a basic service.¹ In 2018, 91% of Canadians² reported that they used the internet,³ and Canadian businesses, organizations and governments rely heavily upon the internet to engage in e-Commerce, service delivery, and civil society activities. Both the federal government and provincial governments of Canada have an incentive to invest in high-quality broadband internet because it reduces costs for the service delivery of public goods such as healthcare and education⁴, and produces significant economic value for communities across Canada.

However, to what extent do competing governments in Canada's decentralized federal system play a role in broadband telecommunications infrastructure development in Canada? This paper will argue that despite the Canadian federal government's near-exclusive regulatory control in the telecommunications sector, telecommunications infrastructure development has become the domain of provincial governments, who engage in a regime of competitive federalism and province-building, and assert their right to provide and withhold right-of-way for new telecommunications infrastructure development. This paper will also discuss the devolution of telecommunications development responsibilities from the Canadian federal government to provincial and municipal governments in the absence of meaningful fiscal and collaborative federalism.

Path Dependency and the Division of Powers

The Constitution of Canada does not explicitly assign the regulation and legislation of the telecommunications sector to provincial or federal governments. In theory, this is a shared responsibility between provinces and the federal government. The federal government has broad jurisdiction in interprovincial trade (and the internet is of course, a global phenomenon not constrained to a certain province) and telegraph lines "extending beyond the Limits of the Province", whereas provincial governments have authority over local works, property rights and

¹ Canadian Radio-television and Telecommunications Commission, "CRTC Establishes Fund to Attain New High-Speed Internet Targets," news releases, gcnews, December 21, 2016.

² Aged 15 or older.

³ "The Daily — Canadian Internet Use Survey," October 29, 2019, <https://www150.statcan.gc.ca/n1/daily-quotidien/191029/dq191029a-eng.htm>.

⁴ Reza Rajabiun and Catherine A. Middleton, "Multilevel Governance and Broadband Infrastructure Development: Evidence from Canada," *Telecommunications Policy*, Papers from the 40th Research Conference on Communication, Information and Internet Policy (TPRC 2012), 37, no. 9 (October 1, 2013), <https://doi.org/10.1016/j.telpol.2013.05.001>, 704.

municipal institutions.⁵ Both levels of government have a vested interest in telecommunications development, and in theory, would work together under a regime of collaborative federalism to shape national telecommunications policy together to meaningfully leverage the toolbox of the other.⁶

The Constitution of Canada is particularly significant in this discussion because it pre-empted the Parliament of Canada to have greater powers over telecommunications than provincial legislatures since the beginning of confederation through its ability to regulate interprovincial trade and telegraph lines. In contrast, the United States Constitution does not make explicit mention of whether the federal government or state governments have the power to regulate telecommunications. Despite the similar structures of federalism present in both countries, US states asserted their right to regulate the telecommunications sector, leading to a path dependency that favoured deregulation,⁷ while the Canadian constitution centralized regulatory and legislative authority of the telecommunications sector largely in the hands of the federal government.

The Modern Telecommunications Regulatory Regime

In practice, the Canadian federal government has broad authority to regulate, legislate and exercise its authority over the telecommunications sector. In *Téléphone Guèvremont Inc. v. Quebec* and *Alberta Government Telephones v. Canadian Radio-television and Telecommunications Commission*, the Supreme Court of Canada found that because telephone operators (the precursors of modern telecom carriers) interconnected between provinces and countries to provide far-reaching service, telecommunications was of federal jurisdiction even when a telecom operated within the limits of one province.⁸ Thus, by 1994, it seemed apparent

⁵ “Constitution Acts, 1867 to 1982” (1867), secs. 91–92, <https://laws-lois.justice.gc.ca/eng/Const/FullText.html>.

⁶ David Cameron and Richard Simeon, “Intergovernmental Relations in Canada: The Emergence of Collaborative Federalism,” *Publius: The Journal of Federalism* 32, no. 2 (January 1, 2002), <https://doi.org/10.1093/oxfordjournals.pubjof.a004947>, 54-55.

⁷ Barbara A. Cherry, “Technology Transitions within Telecommunications Networks: Lessons from U.S. vs. Canadian Policy Experimentation under Federalism,” *Telecommunications Policy*, Special Issue on ITS 2013 Florence, 39, no. 6 (July 1, 2015): <https://doi.org/10.1016/j.telpol.2015.02.001>, 465, 472, 473.

⁸ Peter Hogg, “Jurisdiction Over Telecommunications: *Alberta Government Telephones v. CRTC*,” *McGill Law Journal/Revue de Droit de McGill*. Volume 35, Number 2 (1990), p. 480-489., January 1, 1990, https://digitalcommons.osgoode.yorku.ca/scholarly_works/1113; *Téléphone Guèvremont Inc. v. Quebec (Régie des télécommunications)*, 1 SCR 878 (Supreme Court of Canada 1994).; *Alberta Government Telephones v. (Canada) Canadian Radio-television*

that the federal government had gained authority to regulate nearly all telecom carriers, including telecom carriers that only conducted activities within a single province, with some exception for resellers of wholesale broadband infrastructure.⁹

The federal regulatory framework for telecommunications is primarily manifested through the Canadian Radio-television and Telecommunications Commission (CRTC), which similar to other federal quasi-judicial bodies, is somewhat regionally representative. Up to 13 commissioners exist at any time, appointed on advice of the prime minister for five-year terms, of which 10 regional commissioners represent their individual jurisdictions (which may also include representing the territories or broad regions such as Atlantic Canada).¹⁰

As a shared responsibility, the Telecommunications Act dictates that the federal government will notify each provincial government and offer an opportunity to consult before issuing an order-in-council affecting telecommunications regulation¹¹, but in practice, this is observed more as a formality rather than a clear legal requirement.

The case study of the entry of Globalive into the Canadian telecommunications market showcases the fragility of collaborative federalism in telecommunications regulatory policy. Globalive sought to form Wind Mobile¹² as a competitor to existing cellular providers with the extensive financial backing of Orascom, an Egyptian multinational telecommunications company. Section 16(1) of the Telecommunications Act indicates that telecom carriers are only permitted to operate in Canada if they are Canadian-owned and abide by the laws of a Canadian governmental jurisdiction.¹³ The CRTC thus objected to the entry of Globalive on the basis that it did not meet Section 16(1) of the Telecommunications Act, and required “that Globalive reorganize its corporate holdings, as well as eliminate or lessen the relationship with Orascom, to

and Telecommunications Commission, 2 SCR 225 (Supreme Court of Canada 1989).; *Téléphone Guèvremont Inc. v. Quebec (Régie des télécommunications)*, 1 SCR.

⁹ Michael R. Ryan, “Telecommunications and the Constitution: Re-Setting the Bounds of Federal Authority,” *Canadian Bar Review* 89, no. 3 (2010): 702–9.

¹⁰ Kyle Falk-Varcoe, “An Institutional Analysis of the Canadian Radio-Television and Telecommunications Commission” (University of British Columbia, 2015), 17–18, <https://doi.org/10.14288/1.0166705>.

¹¹ “Telecommunications Act” (1993), sec. 13, <https://laws-lois.justice.gc.ca/eng/acts/t-3.4/page-2.html>.

¹² Wind Mobile was rebranded Freedom Mobile after it’s acquisition by Shaw Communications in 2016

¹³ Telecommunications Act.

ensure that at least 66.67% of the issued and outstanding vote shares are owned and controlled by Canadians.”¹⁴ However an order-in-council, demanding a new interpretation of foreign investment by the CRTC, was issued by the federal government without having met the pre-requisite requirement to notify and consult with provincial ministers. This failure to consult was not penalized by the courts, showing how telecommunications policy is “susceptible to centralized dominance” in the Canadian federal system.¹⁵ Furthermore, it confirmed that while the CRTC had the appearance of being a regionally representative regulatory body, it is at heart a body of federal actors who are ultimately accountable to the federal government.¹⁶

The Globalive case study strongly reflects the general tendency of the Canadian federal government to emphasize bigger picture market-driven regulatory solutions, such as increasing competition in the Canadian telecommunications market, rather than coordinating with provincial governments on a national on-the-ground approach to telecommunications infrastructure development.

Right-of-Way: An Uneven Playing Field

The internet relies on so-called “internet backbones”, or expansive telecommunications networks that centralize and interconnect a vast number of other networks. For example, an internet backbone (ISP 2) would allow an internet user in Vancouver who connects to ISP 1, connect to a government datacentre in Halifax that connects to ISP 3 by providing a mutual network to connect between (ISP 2). The United States has 5 Tier-1 internet backbones¹⁷, while other highly developed countries such as Germany or France generally have at least one. Canada does not have a clear incumbent internet backbone, and like many lesser-developed countries, is very reliant on foreign internet backbones, leading to concerns of compromised telecommunications sovereignty and the inefficiency of internet connections that must boomerang from Canada, to the United States, back to Canada.¹⁸

¹⁴ Falk-Varcoe, “An Institutional Analysis of the Canadian Radio-Television and Telecommunications Commission,” 27.

¹⁵ Ibid., 32.

¹⁶ Ibid.

¹⁷ CenturyLink, GTT Communications, Inc, Verizon Enterprise Solutions, Zayo Group, AT&T.

¹⁸ Andrew Clement and Jonathan A. Obar, “Canadian Internet ‘Boomerang’ Traffic and Mass NSA Surveillance:: Responding to Privacy and Network Sovereignty Challenges,” in *Law, Privacy and Surveillance in Canada in the Post-Snowden Era*, ed. Michael Geist (University of Ottawa Press, 2015), 13–44.

The prospect of a Canadian national internet backbone has been hindered by a diversity of factors, such as Canada's geography, market forces, and its federal governance structure. In particular, the possibility of building a Canadian national internet backbone is greatly complicated by the uneven implementation of right-of-way access policies between provinces.

Telecommunications, while forming a considerable expanse of infrastructure across a vast geography, is not like laying down an oil pipeline that goes from Point A to Point B. Telecommunications development often relies on piggybacking upon existing infrastructure, and this means that the most cost-effective ways of building telecommunications infrastructure are oftentimes alongside "roads, utility poles [and] bridges". Telecommunications is often a passive aspect of other larger infrastructure undertakings.¹⁹ Provincial regulators charge rates, often vastly divergent, for access to new and existing infrastructure projects²⁰, giving them significant leverage and control over telecommunications development, and creating an uneven playing field for telecommunications development between provinces in Canada. Decentralized federalism and the extensive authority of provinces to regulate right-of-way, in other words, present quagmires for organizations seeking to build a national internet backbone.

The closest equivalent to a national internet backbone in Canada is the National Research and Education Network (NREN), which is run by CANARIE, a non-profit organization primarily funded by the Canadian federal government. NREN connects many Canadian universities, colleges, government research labs and research hospitals together. However, even NREN itself is a patchwork of provincially operated research and educational internet networks such as BCNET (British Columbia), Cybera (Alberta), Orion (Ontario) and risq (Quebec).²¹ This patchwork is held together by mutual provincial and national interests in delivering public goods such as education and healthcare. NREN is ultimately the product of coordinated provincial undertakings, although it does provide some hope for the emergence of collaborative federalism in telecommunications infrastructure development.

¹⁹ Susan Hart, "Industry Committee on Nov. 23rd, 2017," § Industry Committee (2017), <https://openparliament.ca/committees/industry/42-1/85/susan-hart-18/>.

²⁰ "Broadband Connectivity in Rural Canada: Overcoming the Digital Divide : Report of the Standing Committee on Industry, Science and Technology" (Ottawa: House of Commons = Chambre des communes Canada, 2017), 18.

²¹ Kathryn Anthonisen, "Canada's National Research and Education Network (NREN)" (Ottawa, March 2020), <https://www.canarie.ca/wp-content/uploads/NREN-Deck-Jan-2020-v.4.pdf>; "BGP Network Information (AS6509 Canarie Inc)," BGPView.io, accessed March 24, 2020, <https://bgpview.io/asn/6509#peers-v4>.

Municipalities and the Last Mile: the final hurdle

Much of the challenges surrounding telecommunications development in Canada involve so-called last-mile connectivity. Last-mile connectivity is similar to the connection between a home and a watermain or an electrical substation – it is not enough to build a large backbone, but requires the challenging and arduous task of linking homes and businesses to the backbone itself.

Within the Telecommunications Act, municipalities are expressly delegated the right to give and withhold consent to the construction of telecommunication lines upon highways and other public places.²² This may even extend to near-exclusive access to infrastructure on the basis of cost, such as Freedom Mobile's cellular infrastructure within the Toronto subway system. Thus, municipalities are given broad discretion to negotiate what telecommunications infrastructure can be built within their municipal boundaries, and what infrastructure telecom carriers can access based on their own priorities. This right to provide and withhold consent is generally free-standing and is not often contested, leading to a great degree of respect for the bargaining powers of municipalities in negotiating municipal access agreements by telecom carriers. However, this contributes significantly to the great variability in cost and requirements for constructing telecommunications infrastructure throughout Canada.

The broad authority of municipalities to provide and withhold access to right-of-way within their communities further complicates the previous quagmire of vastly divergent costs for right-of-way by introducing new political actors with their own divergent approaches towards telecommunications infrastructure development.

Powerful but timid: Fiscal Federalism

As a basic service, telecommunications is in many cases an imperative need across the country, as well as a paramount need necessary to further the national interest. Telecommunications is a building block for industry, business, and an informed citizenry, and with the broad authority and regulatory powers of the federal government in telecommunications, the federal government would be heavily incentivized to promote a national approach to telecommunications infrastructure development on other fronts.

With provincial governments possessing strong powers over local works and right-of-way, the federal government would need to use its broad taxation and spending powers if it sought to create a consistent telecommunications infrastructure development regime, conducive to fiscal federalism. In this model, the federal government would fund aspects of telecommunications infrastructure development if they aligned to certain national objectives.

However, the federal government has been relatively constrained in its exercise of fiscal federalism in telecommunications infrastructure development. The federal government has primarily focused on advancing telecommunications infrastructure development through market-driven regulatory reform (i.e. by promoting competition), as exemplified in the Globalive case

²² Telecommunications Act, sec. 43(3).

study and the creation of the independent ISP regime²³, and through addressing market failures in rural broadband development through direct grants and contributions programs.²⁴ The Canadian federal government has seemingly taken a hands-off approach, placing the onus on the private sector to work with provincial and municipal governments to advance telecommunications infrastructure development on a localized level. This approach devalues the significance of the federal government's role in building and fostering interprovincial works such as telecommunications.

The limited exercise of fiscal federalism by the federal government has led to deeply divergent policy approaches surrounding telecommunications infrastructure development between provinces, and for provinces to fill the void of a purposely-weak centralized force using their own means. This further compounds upon the existing weak structures of collaborative federalism, as exemplified by the Globalive case study.

Laboratories of Telecommunications

Telecommunications development between provinces is not held together by a meaningful, structured national policy approach. This has led to a variety of attempts to redress the need for telecommunications infrastructure development through provincial policy frameworks. Provinces have an inherent desire to tackle the challenges associated with telecommunications infrastructure development because they must compete with other provinces for business investment, an efficient working population and general prosperity. Provinces do so by producing favourable market conditions and through the effective delivery of public goods, creating some degree of competitive federalism.²⁵

Federalism, in other words, has created “laboratories of democracy”, where provinces can attempt to implement novel policy experiments to produce favourable market conditions and

²³ Canadian Radio-television and Telecommunications Commission (CRTC) Government of Canada, “Internet - Our Role,” Consumer information, January 12, 2016, <https://crtc.gc.ca/eng/internet/role.htm>.

²⁴ Michael B. McNally et al., “Ongoing Policy, Regulatory, and Competitive Challenges Facing Canada’s Small Internet Service Providers,” *Journal of Information Policy* 8 (2018), <https://doi.org/10.5325/jinfopoli.8.2018.0167>, 72; “High-Speed Access for All: Canada’s Connectivity Strategy - Get Connected” (Innovation, Science and Economic Development Canada, June 27, 2019), https://www.ic.gc.ca/eic/site/139.nsf/eng/h_00002.html.

²⁵ Richard Simeon, Ian Robinson, and Jennifer Wallner, “The Dynamics of Canadian Federalism,” in *Canadian Politics, Sixth Edition*, ed. James Bickerton and Alain-G. Gagnon, 6th Revised ed. edition (Toronto: University of Toronto Press, Higher Education Division, 2014), 75–78.

support their respective missions of province-building.²⁶ This has produced very salient results for telecommunications infrastructure development across Canadian provinces, with divergent results and successes.

The most successful of these efforts include spurring competition through the use of crown corporations, including the notable case study of the SaskTel corporation in Saskatchewan. As a public firm, SaskTel plays a dominant role in terms of province-building in Saskatchewan, and receives a variety of opportunities unavailable to private firms in the competitive market as a result of its provincial backing. It contributes a great deal of dividends to the Government of Saskatchewan, and its corporate structure ensures that it concentrates its wealth within Saskatchewan.²⁷ SaskTel has created unusually competitive market conditions within the province of Saskatchewan, with rural internet service being the cheapest in the Canada (as of 2017)²⁸. However, SaskTel is an outlier, with other equivalent provincial crown corporations (Manitoba Telecom Services, BCTel, etc.) having been privatized²⁹ for a variety of reasons.

Alberta redressed the need for telecommunications development by establishing its own regional internet backbone, known as Alberta SuperNet. Alberta's SuperNet reflects a rare public undertaking of telecommunications infrastructure building and resultantly, province-building. SuperNet was envisioned as an opportunity to bridge the digital divide between rural and urban Alberta, and to address market failures by bringing broadband to communities with insufficient population densities while equalizing broadband pricing³⁰ through the wholesale resale of internet service by independent internet service providers (ISPs). SuperNet is less successful than

²⁶ Hannah J. Wiseman and Dave Owen, "Federal Laboratories of Democracy," *U.C. Davis Law Review* 52, no. 2 (2019 2018): 1119–92.

²⁷ Benjamin Sipple, "SaskTel: How Ownership Impacts Behaviour in a Competitive Market" (University of Regina, 2015), <https://ourspace.uregina.ca/handle/10294/5828>, ii.

²⁸ Statistics Canada, "Household Spending by Household Income Quintile, Canada, Regions and Provinces," December 12, 2018, <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110022301>; Government of Canada, "Communications Monitoring Report 2019," Reports (Canadian Radio-television and Telecommunications Commission Search website, July 12, 2019), <https://crtc.gc.ca/eng/publications/reports/policymonitoring/2019/cmr1.htm>, 34.

²⁹ Catherine Middleton, "Canada's Telecommunications Policy Environment," *Telecommunications Journal of Australia* 61, no. 4 (November 15, 2011), <https://doi.org/10.7790/tja.v61i4.273>, 4.

³⁰ Aaron Braaten, "The Anticipated Effect of the SuperNet on Alberta's Media Industry," *Growth and Dynamics of Maturing New Media Companies*, 2005, 41.

other provincial policy responses, with small ISPs heralding it as a good idea in theory, but problematic in practice, with challenges in pricing, performance and governance of the backbone.³¹ Alberta SuperNet is an ambitious project, but it was an undertaking limited to the province of Alberta that did not affect telecommunications development in the rest of the country, and thus the project's risks were largely contained to Alberta.

British Columbia, has leveraged strategic public procurement,³² whereas Ontario and Quebec have solely focused on addressing market failures in rural and remote communities. Most provinces have some form of grant or contribution program to support telecommunications development in Canada³³, especially in terms of addressing market failures or providing limited capital to new regional internet service providers, complimentary to pre-existing federal telecommunications development strategy.³⁴

The various approaches taken by provincial governments to redress the need for telecommunications infrastructure development showcase the fragmented nature of the federal system in experimenting with policy options, despite the federal government's supposedly all-encompassing regulatory powers. Provincial policy responses have provided several case studies of policy experiments in telecommunications development, with varying degrees of success and investment, allowing provinces to manifest themselves as laboratories of democracy. Consequently, provincial policy frameworks and competitive federalism have ultimately persevered in the context of telecommunications infrastructure development in recent times, across Canada.

Conclusion and Discussion

This paper argues that despite the extensive centralization of telecommunications regulatory powers at the federal government level in Canada, and the accepted notion that telecommunications infrastructure is an interprovincial work, the federal government has chosen not to leverage fiscal or collaborative federalism to advance telecommunications infrastructure development by preferring unilateral market-oriented regulatory solutions. Provinces and municipalities are also asserted to have broad authority and discretion in terms of telecommunications infrastructure development through their ability to provide and withhold access to pre-existing infrastructure and right-of-way. As a consequence, competitive federalism has prevailed, and provincial governments have led the way in telecommunications infrastructure

³¹ McNally et al., "Ongoing Policy, Regulatory, and Competitive Challenges Facing Canada's Small Internet Service Providers," 184–85.

³² Rajabiun and Middleton, "Multilevel Governance and Broadband Infrastructure Development," 707–8.

³³ Rajabiun and Middleton, 706–7.

³⁴ "High-Speed Access for All: Canada's Connectivity Strategy - Get Connected."

development by creating their own provincial policy frameworks, filling the void posed by weak centralization of telecommunications infrastructure development policy.

Telecommunications infrastructure development provides a unique opportunity to consider how a federal government may choose to exclusively focus on bigger-picture regulatory solutions and addressing market failures, and consequently yield the actual challenges associated with on-the-ground infrastructure development through subsidiarity. It further confirms that should a federal government choose not to meaningfully wield the powers associated with them to advance the national interest, provincial governments by default will seek to redress the need for infrastructure development in the context of their own province-building, with divergent results.

Telecommunications is becoming an increasingly essential fixture in the lives of Canadians and the Canadian marketplace. Canada has relatively low to average rate plans in basic³⁵ broadband service, which can be partly attributed to the collaborative objectives of provincial and federal governments in addressing market failures. However, Canada's high-speed broadband³⁶ rate plans are among the highest in the world, posing challenges for the competitiveness of Canada's highly advanced economy. This appears to originate from the lack of coordinated investment by federal and provincial governments in quality high-speed broadband capacity³⁷ and impetus for a national internet backbone.

The entrenched decentralization of telecommunications infrastructure development within the Canadian federation may pose to be an irreconcilable challenge in creating a national public telecommunications utility³⁸, should the federal government ever need to directly take control of the increasing digital divide between Canada and the rest of the world. After all, the digital divide is no longer being interpreted in the binary lens of those who have internet access and those who do not, but rather to what extent nations can integrate digital advancements into their economic and societal fabric.

³⁵ Defined as broadband plans offering 3-100mbps download speed.

³⁶ Defined as broadband plans offering 101-500mbps download speed.

³⁷ Wall Communications Inc., "Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions (2019 Edition)," Policies; Legislation and Regulations, Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions (Innovation, Science and Economic Development Canada, November 7, 2019), <https://www.ic.gc.ca/eic/site/693.nsf/eng/00182.html#4.3>, 54-55.

³⁸ Zane Schwartz, "Canada Infrastructure Bank Explored Launching Public Utility to Compete with Rogers, Bell and Telus | Financial Post," October 21, 2019, <https://business.financialpost.com/technology/canada-infrastructure-bank-explored-launching-public-utility-to-compete-with-rogers-bell-and-telus>.

Bibliography

- Alberta Government Telephones v. (Canada) Canadian Radio-television and Telecommunications Commission, 2 SCR 225 (Supreme Court of Canada 1989).
- Anthonisen, Kathryn. "Canada's National Research and Education Network (NREN)." Ottawa, March 2020. <https://www.canarie.ca/wp-content/uploads/NREN-Deck-Jan-2020-v.4.pdf>.
- BGPView.io. "BGP Network Information (AS6509 Canarie Inc)." Accessed March 24, 2020. <https://bgpview.io/asn/6509#peers-v4>.
- Braaten, Aaron. "The Anticipated Effect of the SuperNet on Alberta's Media Industry." *Growth and Dynamics of Maturing New Media Companies*, 2005, 41–54.
- "Broadband Connectivity in Rural Canada: Overcoming the Digital Divide : Report of the Standing Committee on Industry, Science and Technology." Ottawa: House of Commons = Chambre des communes Canada, 2017. <https://www.ourcommons.ca/DocumentViewer/en/42-1/INDU/report-11/page-5>.
- Cameron, David, and Richard Simeon. "Intergovernmental Relations in Canada: The Emergence of Collaborative Federalism." *Publius: The Journal of Federalism* 32, no. 2 (January 1, 2002): 49–72. <https://doi.org/10.1093/oxfordjournals.pubjof.a004947>.
- Canadian Radio-television and Telecommunications Commission. "CRTC Establishes Fund to Attain New High-Speed Internet Targets." News releases. gcnews, December 21, 2016. <https://www.canada.ca/en/radio-television-telecommunications/news/2016/12/crtc-establishes-fund-attain-new-high-speed-internet-targets.html>.
- Cherry, Barbara A. "Technology Transitions within Telecommunications Networks: Lessons from U.S. vs. Canadian Policy Experimentation under Federalism." *Telecommunications Policy*, Special Issue on ITS 2013 Florence, 39, no. 6 (July 1, 2015): 463–85. <https://doi.org/10.1016/j.telpol.2015.02.001>.
- Clement, Andrew, and Jonathan A. Obar. "Canadian Internet 'Boomerang' Traffic and Mass NSA Surveillance:: Responding to Privacy and Network Sovereignty Challenges." In *Law, Privacy and Surveillance in Canada in the Post-Snowden Era*, edited by Michael Geist, 13–44. University of Ottawa Press, 2015. <https://www.jstor.org/stable/j.ctt15nmj3c.5>.
- Constitution Acts, 1867 to 1982 (1867). <https://laws-lois.justice.gc.ca/eng/Const/FullText.html>.
- Falk-Varcoe, Kyle. "An Institutional Analysis of the Canadian Radio-Television and Telecommunications Commission." University of British Columbia, 2015. <https://doi.org/10.14288/1.0166705>.

Government of Canada. “Communications Monitoring Report 2019.” Reports. Canadian Radio-television and Telecommunications Commission Search website, July 12, 2019.
<https://crtc.gc.ca/eng/publications/reports/policymonitoring/2019/cmr1.htm>.

Government of Canada, Canadian Radio-television and Telecommunications Commission (CRTC). “Internet - Our Role.” Consumer information, January 12, 2016.
<https://crtc.gc.ca/eng/internet/role.htm>.

Hart, Susan. Industry Committee on Nov. 23rd, 2017, § Industry Committee (2017).
<https://openparliament.ca/committees/industry/42-1/85/susan-hart-18/>.

“High-Speed Access for All: Canada’s Connectivity Strategy - Get Connected.” Innovation, Science and Economic Development Canada, June 27, 2019.
https://www.ic.gc.ca/eic/site/139.nsf/eng/h_00002.html.

Hogg, Peter. “Jurisdiction Over Telecommunications: Alberta Government Telephones v. CRTC.” *McGill Law Journal/Revue de Droit de McGill*. Volume 35, Number 2 (1990), p. 480-489., January 1, 1990.
https://digitalcommons.osgoode.yorku.ca/scholarly_works/1113.

McNally, Michael B., Dinesh Rathi, Kris Joseph, Jennifer Evaniew, and Amy Adkisson. “Ongoing Policy, Regulatory, and Competitive Challenges Facing Canada’s Small Internet Service Providers.” *Journal of Information Policy* 8 (2018): 167–98.
<https://doi.org/10.5325/jinfopoli.8.2018.0167>.

Middleton, Catherine. “Canada’s Telecommunications Policy Environment.” *Telecommunications Journal of Australia* 61, no. 4 (November 15, 2011).
<https://doi.org/10.7790/tja.v61i4.273>.

Rajabiun, Reza, and Catherine A. Middleton. “Multilevel Governance and Broadband Infrastructure Development: Evidence from Canada.” *Telecommunications Policy*, Papers from the 40th Research Conference on Communication, Information and Internet Policy (TPRC 2012), 37, no. 9 (October 1, 2013): 702–14.
<https://doi.org/10.1016/j.telpol.2013.05.001>.

Ryan, Michael R. “Telecommunications and the Constitution: Re-Setting the Bounds of Federal Authority.” *Canadian Bar Review* 89, no. 3 (2010): 695–728.

Schwartz, Zane. “Canada Infrastructure Bank Explored Launching Public Utility to Compete with Rogers, Bell and Telus | Financial Post,” October 21, 2019.
<https://business.financialpost.com/technology/canada-infrastructure-bank-explored-launching-public-utility-to-compete-with-rogers-bell-and-telus>.

Simeon, Richard, Ian Robinson, and Jennifer Wallner. “The Dynamics of Canadian Federalism.” In *Canadian Politics, Sixth Edition*, edited by James Bickerton and Alain-G. Gagnon, 6th

- Revised ed. edition., 65–91. Toronto: University of Toronto Press, Higher Education Division, 2014. <https://www.atlas101.ca/pm/concepts/competitive-federalism/>.
- Sipple, Benjamin. “SaskTel: How Ownership Impacts Behaviour in a Competitive Market.” University of Regina, 2015. <https://ourspace.uregina.ca/handle/10294/5828>.
- Statistics Canada. “Household Spending by Household Income Quintile, Canada, Regions and Provinces,” December 12, 2018. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110022301>.
- Telecommunications Act (1993). <https://laws-lois.justice.gc.ca/eng/acts/t-3.4/page-2.html>.
- Téléphone Guèvremont Inc. v. Quebec (Régie des télécommunications), 1 SCR 878 (Supreme Court of Canada 1994).
- “The Daily — Canadian Internet Use Survey,” October 29, 2019. <https://www150.statcan.gc.ca/n1/daily-quotidien/191029/dq191029a-eng.htm>.
- Wall Communications Inc. “Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions (2019 Edition).” Policies; Legislation and Regulations. Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions. Innovation, Science and Economic Development Canada, November 7, 2019. <https://www.ic.gc.ca/eic/site/693.nsf/eng/00182.html#4.3>.
- Wiseman, Hannah J., and Dave Owen. “Federal Laboratories of Democracy.” *U.C. Davis Law Review* 52, no. 2 (2019 2018): 1119–92.