



The logo for the University of Guelph, consisting of the text "UNIVERSITY of GUELPH" in a white, serif font on a black rectangular background.



**Submission**

By

**Regional & Rural Broadband (R2B2), University of Guelph**  
**r2b2project@gmail.com**

**&**

**SouthWestern Integrated Fibre Technology (SWIFT)**  
**info@swiftnetwork.ca**

to

**Broadcasting and Telecommunications Legislative Review Panel**

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Submitted to:

The Broadcasting and Telecommunications Legislative Review Panel  
c/o Innovation, Science and Economic Development Canada  
235 Queen Street, 1st Floor  
Ottawa, Ontario K1A 0H5  
[ic.btlr-elmrt.ic@canada.ca](mailto:ic.btlr-elmrt.ic@canada.ca)

**Submission**

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## Executive summary

This is a submission to the Broadcasting and Telecommunications Legislative Review Panel from two collaborating organizations, SWIFT and the R2B2 Project at the University of Guelph. SouthWestern Integrated Fibre Technology Inc. (SWIFT) is an initiative by the Western Ontario Warden's Caucus (WOWC) and other communities in Southwestern Ontario and Niagara Region (the "Region") that aims to ensure everybody in the Region has equitable access to high-quality and affordable broadband Internet connectivity, regardless of the size of their community, their geographic location, their age, education, or where they work. The Regional and Rural Broadband (R2B2) project at the University of Guelph is a SWIFT research partner. The project provides geo-spatial and econometric analysis for evidence-based broadband investment decision-making and impact assessment.

This Review offers an opportunity to strengthen statutory commitments of the Federal Government in general, and the Canadian Radio-television and Telecommunications Commission (CRTC) in particular, to policies that reduce barriers to access and use of "high-speed"/broadband Internet connectivity in all regions of Canada, including both relatively low-cost/high return urban and high-cost/low return rural communities. It also creates some scope for the Parliament to centralize the concept of the general "public interest" and economic interests of consumers in guiding Canadian telecommunications policy in the future.

Nevertheless, changing old laws that have proven to be somewhat flexible and resilient for a number of decades will be a risky exercise because it creates an opportunity for private interest groups to reshape the legislative framework to serve their parochial interests vs. the general public/consumer interests. This submission outlines key opportunities and sources of risk in this integrated Review. The submission focuses primarily on Government priorities outlined in the Terms of Reference (ToR) relating to universal access, local control over passive infrastructure, and network neutrality. We ask the Panel to recommend to the Government to propose to the Parliament:

- To incorporate an explicit "public interest" mandate in the *Telecom Act* to guide the challenges in balancing competing policy objectives in a manner that makes the implementation of the *Act* more responsive to the needs of underserved communities and consumers.
- To create a more focused telecom regulatory agency by segmenting the CRTC into two parts, one for telecoms with a core mission of promoting affordability, reliability, and universality of reliable and affordable access to the open Internet, and the other for matters related to broadcasting.
- To add an explicit consumer empowerment objective, including an explicit accessibility objective and revoke/delete legacy industrial protections that contradict consumer welfare objectives.

Legislative changes that would further entrench and protect the economic interests of broadcasting and telecom industries, prioritize welfare of producers over consumers, and/or weaken the common-carrier status of telecommunications service providers as neutral conduits to Internet traffic are not likely to be in the general “public interest”.

Given the essentiality of Internet access to social and economic participation of Canadians, the CRTC should continue to have the authority and be encouraged to develop cross-subsidy mechanisms to address universal service concerns, wholesale/essential facilities obligations to promote competition and efficient investment, and retail market regulations to protect consumers against anticompetitive and abusive practices of suppliers. As the Internet becomes more of an essential utility and infrastructure markets consolidate with the deployment of next generation fibre-to-the-premises (FTTP) and 5G mobile connections (which are not likely to be duplicable/are inefficient to duplicate outside of dense urban areas<sup>1</sup>), combinations and permutations of these old regulatory instruments might be increasingly needed to counteract geospatial and socioeconomic inequities that restrict access and use of advanced Information and Communication Technologies (ICTs).

Expanding the responsibilities of the CRTC and/or adding new policy objectives such as safety, security, copyright protection, and other new functions would likely detract from improving CRTC’s effectiveness in achieving its core mission as a telecommunications regulator that promotes the general public/consumer interests and can reduce the capacity of the agency to protect Canadians’ access to the open Internet. Statutory changes that reduce municipal authority over passive infrastructure and zoning rights would not be in the public interest and would undermine public-private cooperation incentives in the efficient deployment of advanced FTTP and 5G build-outs in the future.

Accordingly, the first part of this submission discusses our motivation for this submission and some historical perspective on the design of broadcasting and telecommunication legislative frameworks. In light of this background and motivation, the second part provides some responses to specific issues raised by the Government for the Panel to consider, particularly with respect to the design of the telecommunication legislative framework and improvement that can be made to reduce affordability and service quality as barriers to the ability of Canadians to access information and communications services they need from the open Internet.

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<sup>1</sup> Rajabiun, R. and Hambly, H. (2018) Rural Fibre and 5th Generation Wireless: Substitutes or Complements? Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-2-1.pdf>

## I. Background and motivation

1. **Motivation:** Operative statutory frameworks under review in this process were adopted in the early 1900s, long before any of the wonders and opportunities enabled by access to the open Internet were even imaginable. For the most part, the CRTC has exercised substantive forbearance from regulating the retail market for Internet access services and Canadian's access to the Internet has evolved in the absence of price, quality of service, and content regulations. Since then, access to reliable and affordable high-speed/broadband Internet connectivity has become essential to social and economic participation of individuals, competitiveness of businesses, and effective delivery of other essential public services such as education and healthcare. A diverse range of personal and business application require better than "best effort" connectivity (i.e. up to xMbps), increasing demand for adoption of advanced fibre and wireless technologies, minimum service quality and warranties of reliability to reduce barriers to universal access and use of broadband.<sup>2</sup>
2. At the same time, with the growing essentiality of Internet access, sensitivity of consumers to price increases has gradually declined (i.e. lower price elasticity of demand), which enables telecommunications service providers that dominate Canada's regional markets to increase prices in a sustained manner.<sup>3</sup> Today, Canadian consumers pay some of the highest prices in advanced economies for their Internet access, for mediocre/average Internet quality/speeds and below average fibre penetration rates.<sup>4</sup> These empirical trends explain and justify concerns of Canadian consumers about universal access, reliability, and affordability of telecommunications services the Government appears to recognize in the Terms of Reference for this Review.
3. Concerns about quality and affordability of connectivity are particularly acute in remote, rural, and older/lower income urban communities where the private sector incentives to invest in advanced broadband technologies have proven to be limited and people have little option but to rely on old and slow legacy copper, fixed wireless, or satellite networks for accessing the Internet.<sup>5</sup> Market

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<sup>2</sup> Rajabiun, R., & Scurato, C. (2018). When best effort is not good enough: Incomplete contracting, risk allocation, and demand for consumer protection in the market for broadband access services. Research Conference on Communications, Information and Internet Policy, TPRC46, American University Washington College of Law, Washington DC. Available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3142048](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3142048)

<sup>3</sup> Rajabiun, R., Ellis, D., & Middleton, C. (2016). Affordability of Communications Services. Report commissioned by the CRTC. Available at: <http://www.broadbandresearch.ca/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf>; Rajabiun, R. (2017). The Rise of Broadband as an Essential Utility and Emergent Concepts in Universal Access in Advanced Economies: Perspectives from Canada. 28th European Regional Conference of the International Telecommunications Society (ITS): "Competition and Regulation in the Information Age", Passau, Germany. Available at: <https://www.econstor.eu/bitstream/10419/169494/1/Rajabiun.pdf>

<sup>4</sup> Rajabiun, R., & Middleton, C. (2017). Regulatory Federalism and Broadband Divergence: Implications of Invoking Europe in the Making of Canadian Telecom Policy. *Intereconomics*, 52(4), 217-225. Available at: [https://www.ceps.eu/system/files/IEForum42017\\_5.pdf](https://www.ceps.eu/system/files/IEForum42017_5.pdf)

<sup>5</sup> Hambly, H., Fitzsimons, J. Pant, L. & Sykanda, P. (2007). Innovations in Farm Families and Rural Communities: Capacity Development for Broadband Use in Southern Ontario. University of Guelph. Attachment 3 to this Petition. Available at: [http://swiftnetwork.ca/Rural\\_Broadband-final\\_paper.pdf](http://swiftnetwork.ca/Rural_Broadband-final_paper.pdf)

failures in the supply of network infrastructure and competitive service offerings are increasingly costly as they are detrimental to the ability of students to study, businesses to increase productivity, consumers to access goods and services, older people to live independently, and the public sector to deliver other public services in an effective manner. For example, there are significant net private benefit for telecommuters (\$/x days per week) that access to a high-quality telecommunications infrastructure enables, which increasingly motivates a rethinking of fractured regional economic planning.<sup>6</sup>

4. Unfortunately, the business case to invest in sufficient capacity and scalable technologies in many rural areas, smaller towns and hamlets, and even some older/lower income urban areas can be extremely weak (or non-existent).<sup>7</sup> Without some form of public sector subsidies or regulatory measures that promote incentives for efficient investment and technological change in a more equitable manner, Canada's growing digital divides will accentuate existing social and economic disparities. Given that Internet connectivity is now essential for social and economic participation, innovation in business, and delivery of other public services (e.g. education, healthcare), these digital divides have increasingly broad implications for the equality of opportunity in our information society.
5. **Risks and opportunities:** Given the vintage of *Telecommunications* and *Broadcasting Acts*, examining their continued relevance may seem appropriate. Reviewing the statutory frameworks creates opportunities for adjusting elements that may explain growing concerns about universal access and affordability of Internet access services. At the same time however, adjusting statutory frameworks inherently involves some risks as it opens the door for narrow special industry interests to use the opportunity to seek regulatory protections from the Government. This submission outlines key opportunities and sources of risk in this integrated Review and addresses specific questions raised by the Government to assist the Panel in its examination, particularly in the case of the *Telecommunications Act* and regulatory institutions for achieving its objectives.

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The extensive record of the extensive CRTC 2015-134 proceeding that ultimately led to the CRTC 2016-496 "basic service" decision is replete with evidence from both rural and urban communities and users groups demonstrating the magnitude of this problem. See: <https://crtc.gc.ca/eng/archive/2015/2015-134.htm>

<sup>6</sup> Hambly, H., & Lee, J. D. (2018). The rural telecommuter surplus in Southwestern Ontario, Canada.

*Telecommunications Policy*. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596118301046>

<sup>7</sup> In Southwestern Ontario for example, there are 230,000 premises (approximately 500,000 out of 3.5 million people) lacking access to broadband services with speeds that meet CRTC's 50/10 Mbps "basic service" advertised speed target. While some areas in our region have excellent connectivity, in terms of actual measured connection speeds providers deliver/users experience, in many rural areas still remain below the aspirational speed targets of 5/1 Mbps the CRTC established back in 2011. See: <https://swiftnetwork.ca/2018/12/19/swift-is-requesting-crtc-to-reconsider-its-broadband-fund-eligibility-criteria/> ; Rajabiun, R. and Hambly, H. (2018). Benchmarking Internet Access Infrastructure Quality Gaps in Southwestern Ontario (2017), Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Attachment 1 to this Petition. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-1-1.pdf>

6. **What is SWIFT:** SouthWestern Integrated Fibre Technology (SWIFT) Inc. is a municipally led broadband initiative developed by the Western Ontario Warden’s Caucus (WOWC) in Southwestern Ontario and Niagara Region (the Region). SWIFT has developed a long-term plan to aid the Region in overcoming broadband infrastructure gaps to ensure equitable access to high-quality and affordable broadband Internet connectivity by 2040.<sup>8</sup> The Regional and Rural Broadband (R2B2) project at the University of Guelph is a SWIFT research partner. Thanks to funding from different levels of government, the objective of SWIFT’s long-term infrastructure development plan is to ensure everyone in Southwestern Ontario has equitable access to ultra-high capacity fibre-optic connectivity, regardless of the size of their community, their geographic location, their age, education, or where they work.
7. Starting with growing concerns on the rural edges of the Region by family farmers in the mid 2000s about the limitations poor Internet connectivity places on their ability to innovate by adopting advanced agricultural technologies,<sup>9</sup> other stakeholders in both rural and urban parts of the Region have increasingly highlighted challenges a lack of access to high-quality and affordable connectivity places on their capacity for social and economic participation, adoption of cloud-based applications and services, and competing with other regions of Canada and globally. In response, Regional stakeholders have prioritized future proofing the Region’s broadband infrastructure and working with private sector partners to deploy advanced fibre transport and access facilities as an economic development priority
8. SWIFT represents the combined connectivity interests of 15 rural upper and single tier municipalities in Southwestern Ontario. The SWIFT network also includes the City of Orillia, Town of Caledon, Region of Waterloo, the Region of Niagara, City of London and City of Windsor as municipal partners. Additionally, Grey Bruce Health Services, Georgian College, and the Stratford Economic Enterprise Development (SEED) Corporation are non-municipal members. First Nations supporters include:
  - Beausoleil First Nation
  - Kettle and Stoney Point First Nation
  - Saugeen First Nation
  - Six Nations of the Grand River
  - Moravian of the Thames (Delaware Nation)

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<sup>8</sup> For further details see: <http://swiftnetwork.ca/> and [www.wowc.ca](http://www.wowc.ca)

<sup>9</sup> Hambly, H., Fitzsimons, J. Pant, L. & Sykanda, P. (2007). Innovations in Farm Families and Rural Communities: Capacity Development for Broadband Use in Southern Ontario. University of Guelph. Attachment 3 to this Petition. Available at: [http://swiftnetwork.ca/Rural\\_Broadband-final\\_paper.pdf](http://swiftnetwork.ca/Rural_Broadband-final_paper.pdf)

- Caldwell First Nation
- Chippewas of the Thames First Nation
- Munsee Delaware Nation

A full list of current SWIFT members can be found in the Appendix to this Petition. SWIFT is a non-profit entity that operates under the strategic direction of a Board of Directors consisting of elected municipal officials and other community leaders from across the Region.

9. **SWIFT guiding principles:** Members of SWIFT have developed our regional partnership based on a set of core principles, which we believe are relevant to consider for the Panel and the Government as they contemplate potential legislative changes pursuant to this Review:<sup>10</sup>

- Standards-based architecture: the system will interoperate with all other systems and will be easy to support;
- High availability and scalability: SWIFT will be available at any moment in time, whenever users need it and it will scale to tens of millions of user connections and applications dynamically without requiring any additional capital outlays or causing system delays;
- Neutrality and open access: there will be no barriers to entry for users and providers to access the network, levelling the playing field and ensuring that contractual mechanisms and oversight are in place to ensure the network is open and accessible to all;
- Ubiquity and equitability: the network will be physically accessible to everyone and everyone will face similar costs to provide applications and services over the system or use applications and services on the system, regardless of geographic point of ingress/egress;
- Competition and affordability: SWIFT will promote competition in services and applications by providing open access, high-availability, and a differentiated system that is affordable to users regardless of population density;

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<sup>10</sup> Intelligent Communities Forum Canada (ICF Canada) has adopted similar principles as SWIFT in its CRTC position paper, which argued for broadband to be considered a basic utility and made the case for widespread fibre diffusion as key to enabling Canada's competitiveness in the digital economy. Available at: [https://d3n8a8pro7vhm.cloudfront.net/icf/pages/391/attachments/original/1482476784/Broadband\\_Utility\\_ICF\\_Canada\\_Position\\_Paper\\_FINAL.pdf?1482476784](https://d3n8a8pro7vhm.cloudfront.net/icf/pages/391/attachments/original/1482476784/Broadband_Utility_ICF_Canada_Position_Paper_FINAL.pdf?1482476784) ; also see: <https://icf-canada.com/blogpost-update-on-crtc/>

- Broad public-sector user participation: SWIFT has received broad public-sector support from county level and municipal governments, post-secondary educational institutions, health care institutions, community networks, and other ‘MUSH’ sector organizations. The support of all Ontario Public Service (OPS) and Broader Public Sector (BPS) users are critical, as these organizations are ‘anchor tenants’ to the system and create the underlying foundation that makes it feasible to extend service to private enterprises, small and medium sized business, farmers and residents;
- Sustainability: all users will pay fees to access the network, which will be published and publicly available to ensure transparency. These fees will provide the cash flow sustainability required to support ongoing operating and capital costs, and ensure that the network will not be dependent on taxpayer subsidies in the future. After Phase 1 is complete and the network is operational SWIFT will collect a small percentage of revenue from the successful Telecom Service Providers (TSPs) from each service sold to consumers over the SWIFT Network. The residuals will be added to SWIFT’s Broadband Development Fund (BDF) along with sponsorship funds and more upper level government funding. SWIFT’s Board of Directors will use the BDF to continue to subsidize providers to build fibre-optic infrastructure until the entire region has access to fibre-based broadband.

10. These guiding principals have evolved from our recognition that if we don’t solve our own broadband infrastructure development problems through collaboration and innovation, they are not going to solve themselves. As in many other regions of Canada, access to high-quality and affordable transport capacity that aggregates traffic from dispersed rural areas has proven to be a critical barrier to the ability of municipal entities and private sector providers to improve quality and affordability of services in areas where large incumbent telecommunications providers are not very interested in serving adequately (due to relatively high cost/low expected rate of return compared to urban centres and/or other investment opportunities in other sectors through vertical integration).

11. **Laws on the books vs. regulatory incentives:** Over the past two decades, the Commission has resisted a multitude of calls from rural communities to impose essential facilities/wholesale access obligations on fibre transport facilities that aggregate traffic from dispersed settlements and enable communities prone to market failures to incentivise incumbents, attract private sector entrants satisfied with a lower rate of return than large incumbents, and/or to deploy own municipal and cooperative networks. In various wholesale decisions over the past decade (the CRTC 2008-17 and again in the CRTC 2015-326), the Commission has failed to respond to these calls.

12. This forbearance policy may be an efficient strategy in urban centres where it is economically profitable for multiple transport providers to deploy competing transport and middle mile

networks. However, this is definitely not the case in remote, rural, or even suburban areas where building multiple facilities is either not feasible at all without public subsidies and/or leads to inefficient duplication.<sup>11</sup> Similarly, the CRTC has consistently refused to consider adopting effective policies for promoting over-the-top (OTT)/"service-based" competition in fixed and mobile retail markets, despite the fact that under the current statutory framework it has the authority to address affordability concerns and reduce inefficient duplication using both wholesale and retail market policies that promote competition and efficient investment simultaneously.

13. In the context of this Review, these examples are important as they underscore the Parliament has already given the CRTC a wide-range of tools that can be theoretically employed to achieve equity and efficiency objectives it has specified in Section 7 of the *Act*, as well as those prioritized by the Government in this Review. Changing the laws on the books without reforming the CRTC in a manner that aligns agency policies with formal objectives the Parliament specifies is not likely to be a very effective way of addressing concerns about universality, reliability, affordability, and neutrality in the private provision of public access to the public Internet.
14. **Regulatory progress and resistance to reform:** Notwithstanding the above, there has been some progress in aligning CRTC policies with the will of the Parliament and expectations of the people over the past few years, at least "on paper". For example, SWIFT municipal and rural stakeholders were pleased to see that in 2016 (CRTC 2016-496) the Commission finally recognized that broadband Internet access has in fact become an essential and "basic service" required for social and economic participation and reclassified it as a "basic service" under the *Telecommunications Act* and determined that it is be time for the national regulatory agency to start developing a universal service cross-subsidy mechanism to support network infrastructure development in underserved rural communities.<sup>12</sup> The CRTC has also established minimum quality of service standards for defining what constitutes a "basic service" of sufficient quality that should be made universally available, which is particularly valuable in rural areas prone to underinvestment/oversubscription and as insurance against "basic service" quality degradation associated with growth in traffic in prioritized/sponsored "fast lanes" in the "two-tiered" Internet ecosystem that is evolving around us.
15. **Private/supplier vs. public interest/consumer welfare objectives:** Despite some signs of progress, the CRTC has so far failed to make universal service "objectives" and minimum standards binding on telecommunications service providers (i.e. "obligations"). It has also

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<sup>11</sup> Rajabiun, R., & Middleton, C. A. (2013). Multilevel governance and broadband infrastructure development: Evidence from Canada. *Telecommunications Policy*, 37(9), 702-714. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596113000724>

<sup>12</sup> Please note that the CRTC has already reversed course on a number of key determinations about the rural broadband funding model it is developing and made a number of determinations that contradict the policy objective, which SWIFT is currently trying to help address with a Petition to the Governor in Council/Cabinet. See: <https://swiftnetwork.ca/2018/12/21/swift-seeking-cabinet-to-review-how-crtcs-broadband-fund-is-delivered/>

consistently rejected calls to adopt policies that empower consumers, promote pricing discipline among the small number of large suppliers that dominate Canada's fixed and mobile retail markets, and/or adopt effective measures to restrict the scope for misleading advertising and abusive practices that adversely impact consumers' interests. Resistance of the regulatory agency to utilize its statutory powers, and in our view obligations already specified by the Parliament, partly explain why today Canadians have to pay some of the highest prices in advanced economies for their fixed and mobile connectivity and growing concerns about Canada's expanding rural-urban digital divide in quality of service and access to advanced broadband technologies.<sup>13</sup> On the other side of the same equation, large vertically integrated carriers that dominate regional markets in Canada tend to be highly profitable and provide attractive dividends to their investors.<sup>14</sup> While some legislative "modernization" may help rebalance this equation in the economic interests of consumers and underserved communities, these observed market outcomes largely reflect a relatively consistent set of policy choices and strategies by successive Governments and CRTC regimes over the past two decades.

**16. Capture vs. co-management:** Apparent success of the Federal regulatory regime to prioritize supplier/producer over consumer welfare may create the impression that the regulator has been "captured" by industrial interests it was established by the Parliament to monitor and regulate in the "public interest". While this impression is not entirely correct. As eminent scholar of CRTC decision making and the development of the statutory framework in the 1990s York University researcher, Dr. Liora Salter, highlighted at the time how the new regulatory infrastructure that was evolving was never designed to serve the general "public interest", but as an instrument for enabling industrial interests and the state to "co-manage" the industry and disruptive forces of globalization and digitization.<sup>15</sup> The existence of a plethora of provisions in both the *Broadcasting Act* and the *Telecommunications Act* that protect industry interests against competition and creative destruction, and notable absence of much emphasis on consumers and the general "public interest", substantiates this more nuanced view of the origins and objectives of the legislative frameworks under examination in this Review. This is particularly the case in the *Telecommunications Act*, which does not include an explicit "public interest" mandate for interpreting and balancing competing and somewhat confusing/complex set of policy objectives specified under Section 7

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<sup>13</sup> Given that more than 80% of Canadians live in a small number of relatively low-cost urban centres, attributing the relatively high prices Canadians have to pay for accessing application and services that meet their diverse need from the Internet.

<sup>14</sup> Rajabiun, R., & Middleton, C. (2018). Strategic choice and broadband divergence in the transition to next generation networks: Evidence from Canada and the US. *Telecommunications Policy*, 42(1), 37-50. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596117301143>

<sup>15</sup> Salter, L., & Salter, R. (1997). The new infrastructure. *Studies in Political Economy*, 53(1), 67-102. Available at: <https://www.tandfonline.com/doi/abs/10.1080/19187033.1997.11675316> ; for an updated analysis of tensions between private interests and challenges in destabilizing industrial cartels necessary for the emergence of efficiency enhancing public interest policies see: Rajabiun, R., & Middleton, C. (2015). Public Interest in the Regulation of Competition: Evidence from Wholesale Internet Access Consultations in Canada. *Journal of Information Policy*, 5, 32-66. Available at: <https://www.jstor.org/stable/pdf/10.5325/jinfopoli.5.2015.0032.pdf>

(unlike the *Broadcasting Act* for instance, which contains a lot more references to the “public” and includes a “public interest” standard in Section 3.1.n with respect to policy objectives for the governance of the Canadian Broadcasting Corporation (CBC)).

17. **Key strategic choices:** The key strategic choice available to the Panel and the Government in this Review involves maintaining the existing private interest/co-management legislative regulatory frameworks that have been, more or less, “good enough” for promoting industrial profitability and investor returns and keep legacy regulatory protections, or revoking some of the legacy regulatory protections for industry and enhance CRTC’s mandate to balanced competing objectives in the general “public interest” and to empower consumers vs. suppliers/producers in shaping the future. Reversing course from the existing approach will threaten super-normal profits of those who benefit from the status quo regime, which will make moving towards more of a “public interest”/consumer welfare legislative framework challenging for the Panel to recommend and the Government to adopt.
  
18. Another key strategic choice in this Review will be whether to maintain, and potentially strengthen, the common-carrier conceptualization of broadband Internet against efforts by certain industrial interests to conflate curated broadcasting with telecommunications. Given the apparent fears of “disruption”, breaking up the CRTC into two more focused sector specific regulatory agencies might be advisable for insuring against the risks these protectionist incentives create for the ability of Canadians to access information and communications services that meet their diverse needs from the open Internet.

## II. Responses to Terms of Reference and questions

19. In light of the above discussion of economic and legal context of this Review, this section addresses some of the key issues and questions raised in the Terms of Reference (ToR) for the Review Panel to consider:
20. **Public vs. private interests in a joint Review:** In designing the ToR for this Review the Government contends that “*it is in the **public interest** to have a joint review that considers the legislation in light of the linkages that exist*” between broadcasting and telecommunications. It justifies this choice in terms of the high-degree of vertical integration and goes on to argue that “*effective administration and governance have **considerable overlap** and the Canadian Radio-television and Telecommunications Commission (CRTC) regulates both the broadcasting and telecommunications sectors.*”<sup>16</sup> Although the Government does not explain what it means exactly or reveal what its intentions might be, it suggests “*certain issues such as **net neutrality** and **cultural diversity** can have cross-implications*”. This association raises substantive concerns about the Government’s priorities in this Review and the potential for the process to undermine common-carrier conceptualization of broadband telecom supplier as neutral conduits of communications and Canadian’s access to the open Internet.
21. In this joint Review it is critical for the Panel and the Government to recognize that legacy and new broadcasting/media represent only one in the vast range of knowledge and information and telecommunications services (ICTs) that are now delivered on top of multipurpose fixed and mobile broadband networks. The open Internet allows consumers to access this information and procure ICTs that meet their heterogeneous individual needs from competing suppliers, threatening certain narrow industry interests. These multipurpose broadband networks connect Canadians to competing sources of information, personal and business applications, and other ICTs from the global Internet that add significant economic value, create net private benefits for households and help business become more productive. In sum, multipurpose broadband networks enable digital innovation and ensure that Canada is an open and prosperous society.
22. Deprioritizing network neutrality because some stakeholders assume it may enhance Canadian “cultural diversity” is likely to actually have the opposite effect and undermine Canada’s multicultural and globally connected society, limit the scope for competition and innovation in business, and undermine efficient delivery of other public and private services advanced ICT applications enable (e.g. cloud computing, Internet of Things, eHealth, etc.).
23. Although for historical happenstance the CRTC has authority over both broadcasting and telecoms, this does not need to be, and probably should not be, the case in the future. Maintaining a unified agency with broad authority to shape Canadians’ access Internet resources is increasingly risky

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<sup>16</sup> Emphasis added.

from a general “public interest” perspective because it enables narrow industrial interests from one part of the ecosystem the opportunity to invest in convincing policymakers/regulators to adopt network control measures that help protect their interest vs. those of users/consumers. Protection generating strategies of narrow industrial interests may not be always that obvious, largely because they are typically cloaked in terms of other worthy sounding objectives, including promoting “national” economic interests, cultural identify, public safety, security, etc.

24. A notable example of the risks can be found in recent efforts led by Bell Canada Enterprises (BCE) and various other media industry interests to convince the CRTC to mandate the adoption of some sort of extrajudicial national Internet blocking scheme to be called the Internet Piracy Review Agency (IPRA).<sup>17</sup> In the name of reducing “piracy” (i.e. copyright infringement), security, and Canadian jobs in the so-called “cultural industries”, proponents of IPRA asked the CRTC to empower a third party entity to order service providers to block websites and other Internet resources suspected of involving some form of copyright infringement. Although at the end the CRTC rejected the call to establish the IPRA on jurisdictional grounds, the fact that the CRTC even decided to consider this proposal and opened it up for public comment highlights the threats that well-organized protectionist strategies pose to the freedom of Canadian consumers to access legitimate information and services that meet their needs from the open, global, Internet.
25. The puzzling association between “net neutrality” and “cultural diversity” in the ToR for this Review suggests these interests may have already succeeded to some extent in convincing the Government that weakening common-carrier/net neutrality obligations of telecommunications/Internet access providers, purportedly because it is not flexible enough already and more “flexibility” is needed. It would be a serious error for the Panel or the Government to succumb to pressures from old and resourceful industry interests accustomed to super-normal returns they can generate under status quo regulatory structures. Owners of sunset technologies and industries like traditional broadcasting and media, as well as legacy telecom network providers, tend to have strong economic incentives to invest in shaping public policy in order to minimize competition and innovation associated with technological change and “creative destruction”.<sup>18</sup>
26. Keeping both broadcasting and telecom regulatory authority under one roof can also open the door for the CRTC to impose some form of “Internet tax” to cross-subsidize “cultural industries”. Compared to funding “cultural industries” from the general budget through direct subsidies or tax

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<sup>17</sup> Rajabiun, R. & McKelvey, F. (2018). Why Canadians oppose blacklisting “pirate” websites. Policy Options. Available at: <http://policyoptions.irpp.org/magazines/march-2018/why-canadians-oppose-blacklisting-pirate-websites/>

<sup>18</sup> Grossman, G. M., & Helpman, E. (1994). Protection for Sale. *American Economic Review*, 84(4), 833-850. Available at: <http://econ2.econ.iastate.edu/classes/econ655/Lapan/Readings/Protection%20for%20Sale%20Grossman%20Helpman.pdf>

breaks, this would incur an opportunity cost in terms of achieving core universal service objectives of the *Act*, for example by using some of the profits from low-cost urban centres to improve network infrastructure in rural and remote communities where the private sector incentives to invest in network capacity and advanced telecommunication technologies are limited (or non-existent). Creating a specialized telecom regulatory agency with a clear statutory mandate to adopt policies that are in the general “public interest” and empower consumers can provide some insurance against private interest group investments that threaten the common-carrier conceptualization of multipurpose broadband networks and universal access objectives of the *Act*.

27. Needless to say, support for the arts, local culture and news, public safety, and security are worthy objectives for public policy to pursue. However, from a policy optimization perspective there are more efficient and effective ways of achieving such objectives through other agencies and instruments (e.g. direct subsidies from budget, tax breaks, grants, etc). Expanding the already complex and competing responsibilities of the CRTC and retaining regulatory authority over both broadcasting and telecom under one roof will likely further detract from the objective of improving capacity and incentives of agency to achieve its core mission as a telecom regulator responsible for ensuring reliable, affordable, and universal access to telecommunications services that enable all Canadians and empowering consumers. A key challenge for the Panel and the Government in this Review will be resisting creating a legislative framework that makes it even easier for narrow supplier/industrial interests to buy regulatory protection and helping the Parliament clarify what it expects from Canadian telecommunications policy.
28. It is notable that in the ToR, the Government uses the term “public interest” only once, and then to justify why having joint review that somehow connects net neutrality with cultural diversity is a desirable approach to this Review. This creates some doubt about the willingness of the Government to make substantive changes that might be necessary for aligning regulatory practice with the social and economic requirements of users and promoting the interest of Canadians as consumers. Hopefully this impression is incorrect and the Panel clarifies these issues and educates the Government about the likely implications of choices that are available in this Review. We do not suggest the Panel should make any recommendations about which direction the Government should go with respect to specific elements of this Review, but to provide a thorough set of options and analysis of their economic and social implications to assist elected representatives make these critical choices on behalf of Canadians as they perceive is in the “public interest”. This would ensure democratic accountability over this legislative Review.
29. **Universal access and deployment:** In the 2<sup>nd</sup> paragraph of the ToR, the Government appears to be attributing concerns about universal access and deployment of new fibre and wireless technologies somehow on failures by lower levels of government to provide carriers access to “passive infrastructure”, stating that:

*“Inefficient access can dramatically increase the cost of deployment or prevent it altogether. This importance is expected to grow with developments in 5G wireless, small cells that have equipment distributed in a much greater variety of locations and on non-traditional structures, and increasing demand for fibre optics. However, responsibilities over access to passive infrastructure are currently shared across multiple bodies and levels of government, presenting challenges for efficient and effective deployment.”*

30. This statement might seem reasonable as there are obviously some costs for building, maintaining, and accessing passive infrastructure assets. Enhanced cooperation between infrastructure suppliers and municipal/provincial authorities would reduce these costs, as can some measure of process standardization for pricing and approval of access. However, there is little empirical evidence to support that such costs represent a substantive barrier to network deployment and diffusion of new fibre-optic and hybrid fibre/wireless (i.e. “5G”) networks.<sup>19</sup> Importantly, given that lower levels of government make large investments in passive infrastructure, improving them to enable telecommunications network deployments can necessitate receiving a sufficient return on public sector investments in them. Bringing up this issue in the ToR represents a concern as it replicates standard talking points of carriers with incentives to minimize the need to consult with local authorities and pay a reasonable rate for accessing publicly funded passive infrastructure. Emphasis on this interjurisdictional issue also takes attention away from basic economic barriers to access and use of telecommunications infrastructure such as affordability and quality of service.
31. Instead of statutory changes that further erode the incentives of carriers to cooperate with lower levels of government and underserved communities, this Review provides a good opportunity for enhancing the Federal government’s commitments to a more cooperative multilevel approach to fostering market forces and efficient investment in advanced network technologies in our communities. Enhanced emphasis by the CRTC on essential facilities regulations will be particularly relevant for limiting the scope for inefficient duplication and supporting efforts by lower levels of government to promote private sector incentives to invest in ultra-high capacity fibre-to-the premises (FTTP) and hybrid fibre/wireless (i.e. “5G”) in our communities.
32. Statutory reforms that empower consumers and promote market transparency may further improve their ability to hold their providers accountable for delivering the quality and prices of service they promise and complement market forces in the provision of broadband Internet service. For instance, enhanced market transparency and quality commitments makes it easier for higher quality suppliers to signal the superiority of their offerings to potential customers in the

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<sup>19</sup> Rajabiun, R. and Hambly, H. (2018) Rural Fibre and 5th Generation Wireless: Substitutes or Complements? Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-2-1.pdf>

marketplace, enhances their expected payoff from adopting an “honesty strategy”, and incentives to invest in higher speed services and new technologies.<sup>20</sup>

**33. Q: 1.1 Are the right legislative tools in place to further the objective of affordable high quality access for all Canadians, including those in rural, remote and Indigenous communities?**

34. The word “orderly” under the current S.7.a can enable justifying conservative/reactionary policy responses in environments of technological change and disruption to old business model, which can have negative implications for both affordability and service quality. A regulatory regime that promotes “creative destruction”, rather than trying to prevent it in an “orderly” manner is more likely to serve the social and economic requirements of users and “safeguard, enrich and strengthen the social and economic fabric of Canada and its regions.” The term “orderly” can be deleted from the current S.7. a.

35. Notwithstanding the notable lack of a “public interest” mandate for interpreting conflicting Section 7 objectives of the *Act*, the Parliament has clearly mandated affordability, quality, and universality of access a priority under S.7.b:

*(b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;*

36. This objective is pretty clearly constructed in an economically sensible manner (i.e. given that prices and quality are jointly determined). Given this objective, the Parliament cannot be blamed for the fact that it is only in 2018/2019 that the CRTC is just beginning to develop a universal service subsidy mechanism to complement efforts by other federal agencies and lower levels of government trying to address quality of service and affordability concerns in rural and remote communities.

37. The Parliament has further granted the CRTC the authority to utilize a wide range of instruments, such essential facilities, wholesale, and retail market price and quality regulations that can be employed strategically to promote efficient investments in new technologies and impose pricing discipline on suppliers through over-the-top (OTT) “service based” competition.<sup>21</sup> The fact that

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<sup>20</sup> Rajabiun, R., & Middleton, C. A. (2015). Lemons on the Edge of the Internet: The Importance of Transparency for Broadband Network Quality. Available at:

[http://repec.idate.org/RePEc/idt/journal/CS9805/CS98\\_RAJABIUN\\_MIDDLETON.pdf](http://repec.idate.org/RePEc/idt/journal/CS9805/CS98_RAJABIUN_MIDDLETON.pdf)

<sup>21</sup> Van Gorp, A. F., & Middleton, C. A. (2010). The impact of facilities and service-based competition on internet services provision in the Canadian broadband market. *Telematics and informatics*, 27(3), 217-230.

Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0736585309000811>

Middleton, C., & Van Gorp, A. (2009). How competitive is the Canadian residential broadband market? A study of Canadian Internet service providers and their regulatory environment. Available at:

[http://www.dslreports.com/r0/download/1516373~f61defd15171389b2d12ab929369ef77/Appendix%203%20-%20Middleton\\_Vangorp\\_TPRC2009.pdf](http://www.dslreports.com/r0/download/1516373~f61defd15171389b2d12ab929369ef77/Appendix%203%20-%20Middleton_Vangorp_TPRC2009.pdf)

the CRTC has been both reluctant and evidently ineffective in utilizing these instruments to generate some measure of pricing discipline on suppliers of fixed and mobile services also has little to do with a lack of a statutory mandate or tools to do so, but choices it has made in the past in interpreting this mandate and shaping market forces in the absence of **a clear “public interest”/consumer welfare mandate**. Such a mandate can, and should, be added to the introductory paragraph of S.7 in order to help guide CRTC in the future to adopt and implement policies that are more effectively aligned with the general “public interest” and the will of the Parliament. For good measure, the Panel may also recommend a “public interest” interpretive standard at the end of the list of core policy objectives in S. 7 of the *Telecom Act* (for example as in Section. 3.1.n of the current *Broadcasting Act*, with respect to CBC governance only).

38. Mandating that public policy should be made in the “public interest” may not seem like a big step forward, but it can have a subtle impacts on future regulatory decisions by reminding policymakers who they work for and making it easier for public interest advocates to promote policies that promote the economic interests of users/consumers of telecommunications services (as well as counteracting bad ideas that benefit narrow special interests and disperse the cost of regulation to users/consumers).
39. Nevertheless, the Panel and the Government would likely face significant opposition if they choose to incorporate a broad public interest mandate in S. 7 of the *Telecom Act* and/or on top of S.3 of the *Broadcasting Act*. Old industrial interests accustomed to super-normal returns to investors and fearful of what the Government in the ToR calls “disruption” have strong economic incentives to invest in preventing the Government from altering the existing industry centric “co-management” regulatory model that applies to both industries via the CRTC.
40. **S. 7. b. and S. 7. h equity objectives of the *Telecom Act* are important to retain and prioritize.** Both objectives have proven to be valuable instruments in efforts over the past few years by lower levels of government and parties representing underserved communities to ultimately convince a very reluctant CRTC to recognize “high-speed” as a “basic service” (CRTC 2016-496 “basic service” decision).<sup>22</sup> References to quality and reliability in S.7.b. have further enabled underserved communities and consumer advocacy groups to motivate the CRTC to start developing minimum service quality standards for basic broadband services and its nascent universal service funding facility intended to help counteract Canada’s growing rural-urban digital divides in broadband quality and affordability. While the CRTC has incorporated some considerations about affordability in the design of its rural funding mechanism, beyond procuring

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<sup>22</sup> Rajabiun, R. (2017). The Rise of Broadband as an Essential Utility and Emergent Concepts in Universal Access in Advanced Economies: Perspectives from Canada. 28th European Regional Conference of the International Telecommunications Society (ITS): "Competition and Regulation in the Information Age", Passau, Germany. Available at: <https://www.econstor.eu/bitstream/10419/169494/1/Rajabiun.pdf>

external advice on policy design and data on pricing, it has remained reluctant to adopt concrete measures to address growing affordability concerns over the past few years.<sup>23</sup>

41. There is little reason to change the language of S.7. b and S.7.h equity objectives of the *Act* and/or the existing range of wholesale and retail market instruments that are available for achieving them. At the same time, attempting to “improve” these elements can be risky. The key to the success of this proposed statutory “modernization” process is to focus policymakers in the future on important tasks and create incentive structures that makes them more responsive to the needs of Canadians as users/consumers of communication services.
42. To this end, prioritizing the social and economic requirements of users, which is now near the bottom of the S. 7 list of policy objectives by bringing it somewhere near the top might be good first step (**e.g. move 7.h to 7. a or b instead**). As well, adding a reference to “**consumer welfare**” or “**consumer empowerment**” in S.7 (perhaps in the current S.7.h objective re being responsive to social and economic requirements, which should be moved up in the list) may further enhance policy responsiveness of future Governments and the CRTC to the economic interest of consumers/the general public interest.
43. It is important to note the adoption of mandated minimum universal service quality standards for universal broadband access (i.e. in terms of maximum latency thresholds vs. maximum aspirational speed targets) represents a significant source of consternation for legacy telecommunications providers have strong incentives to resist regulatory authority to adopt minimum Quality of Service (QoS) standards and undoubtedly will argue for removing references in S. 7. b to reliability and quality of basic services in this Review.
44. In the last legislative review in the mid-2000s, the carriers were actually successful in convincing the Telecommunications Policy Review Panel (TPRP) to recommend changing the language of S.7 to remove references to reliability and high-quality from the equation:<sup>24</sup>  
  
i.e. to change current S.7.b to a new S.7.a as: “*to promote affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas*”
45. Despite a higher emphasis on affordability, this proposed construction would have restricted the ability of the CRTC to start developing minimum QoS standards pursuant the CRTC 2016-496

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<sup>23</sup> See: Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions. Available at: <https://www.ic.gc.ca/eic/site/693.nsf/eng/00163.html>

Rajabiun, R., Ellis, D., & Middleton, C. (2016). Affordability of Communications Services. Report commissioned by the CRTC. Available at: <http://www.broadbandresearch.ca/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf>

<sup>24</sup> Telecom Policy Review Panel. Final Report (2006), 2-9. Available at: [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/tprp-final-report-2006.pdf/\\$file/tprp-final-report-2006.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/tprp-final-report-2006.pdf/$file/tprp-final-report-2006.pdf)

“basic service” decision when it reclassified “high speed” access. Thankfully the Government that received this recommendation did not adopt it. Minimum service quality standards are critical for users in rural and remote communities prone to underinvestment where private sector service providers face relatively limited competition and have limited incentives to scale network capacity as user demand grows over time. Minimum quality standards are also important for people and businesses that require better than “best effort” Internet access to deploy Internet applications and services that require low latency and symmetric connectivity to the “cloud”.

46. This legislative Review should not fall for the same trick as the 2006 Telecom Policy Review Panel and recommend a reconstruction of the objectives of the act that removes references to reliability and high-quality of services the Parliament expects policymakers help deliver, in both rural and urban parts of Canada. Minimum quality of service standards are an increasingly important tool that are being used by policymakers around the world to reduce the risks from the development of a “two-tiered” Internet on “best effort” basic service access to the open Internet. This is because on capacity constrained networks, growth in traffic in prioritized/sponsored “fast lanes” tends to degrade bandwidth available for other applications and services users/consumers might be trying to access from the open Internet (i.e. “off-net” servers delivered from a data centre in a nearby city, or far away places).<sup>25</sup>
47. National regulatory agencies in various advanced and developing countries are moving to adopt minimum service quality standards, as an instrument for addressing both universal service and network neutrality objectives. In Europe for example, minimum Quality of Service (QoS) standards are a central part of the guidelines established by the Body of European Regulators for Electronic Communications (BEREC) for the enforcement of EU network neutrality regulations (as a complement to ex ante and/or ex post behavioral remedies to restrict the scope for unjust/inefficient/unreasonable traffic prioritization/de-prioritization/blocking and price discrimination).<sup>26</sup> Given these trends, it would be a substantial error if this Review Panel and/or the Government respond to expected demands from Internet service providers/suppliers to limit the authority of the CRTC (or the new specialized telecom regulator if the CRTC is segmented) to further develop and implement verifiable minimum service quality standards as an instrument for enforcing network neutrality and universal service policy objectives.
48. **1.2 Given the importance of passive infrastructure for network deployment and the expected growth of 5G wireless, are the right provisions in place for governance of these assets?**

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<sup>25</sup> Brennan, T. J. (2011, May). Net Neutrality or Minimum Quality Standards: Network Effects vs. Market Power Justifications. In *Network Neutrality and Open Access* (pp. 61-80). Nomos Verlagsgesellschaft mbH & Co. KG. Available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1622226](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1622226)

<sup>26</sup> BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules. Paragraph 173, third bullet. Available at: [https://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/regulatory\\_best\\_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules](https://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules)

49. In general, yes, at least for now. Section 43.3 of the *Act* requires carriers or distribution undertakings to obtain “**consent**” from municipalities or other public authority with jurisdiction before constructing “*transmission line on, over, under or along a highway or other public place*”. The requirement of obtaining consent is important to maintain as it promote cooperation and efficient cost sharing between carriers that leverage publicly funded passive infrastructure assets and communities that invest in building and maintaining them.
50. One potential problem with the current S.43.3 provision is that it refers only to obtaining consent with respect “transmission line”, which may cause some confusion in a future 5G world involving a combination of “deep fibre” transmission lines and small cell antennas in close proximity to each other.<sup>27</sup> This can be resolved by adding the terms “**other network equipment**” after “**transmission lines**” in the construction of S. 43.3.
51. Aesthetic implications of affixing a large number of 5G transmitters are likely to raise concerns by residents and businesses in the vicinity whose property value may be perceived to be impacted by these antenna deployments. This problem will be particularly acute in relatively low-cost/high revenue urban centres where infrastructure providers may relatively strong incentives to deploy multiple competing small cell/5G networks. The consent requirement in S.43.3. represents an important element of the *Act* for enabling cooperation between impacted communities, lower levels of government, and infrastructure providers to arrive at mutually beneficial solutions.
52. From an economic efficiency perspective, the potential duplication of ultra-high capacity fibre and 5G access networks represents the key barrier to their development. In low-cost/high-return urban markets, it may be economically feasible and even efficient for multiple providers to deploy multiple fibre and 5G networks. This duplication however has opportunity costs in terms of foregone investments in the peripheral suburbs and relatively high-cost/low return rural areas. CRTC already has the authority to adopt public policies that reduce the potential for inefficient duplicate investments and promote efficient investment through essential facilities obligations.<sup>28</sup> Furthermore, the costs of deploying and maintaining passive infrastructure needed to support efficient investment in scalable new technologies such as fibre and 5G has to be efficiently allocated. The duty to obtain consent is particularly important for allowing lower levels of government to be able to recoup these costs from entities that wish to affix their lines and antennas to other publicly funded assets.

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<sup>27</sup> Rajabiun, R. and Hambly, H. (2018) Rural Fibre and 5th Generation Wireless: Substitutes or Complements? Policy Brief. Rural and Regional Broadband (R2B2), Ontario Agricultural College. University of Guelph. Available at: <http://www.r2b2project.ca/wp-content/uploads/2018/08/Policy-Brief-July-2018-Vol.1-Issue-2-1.pdf>

<sup>28</sup> Rajabiun, R., & Middleton, C. (2015). Regulation, investment and efficiency in the transition to next generation broadband networks: Evidence from the European Union. *Telematics and Informatics*, 32(2), 230-244. Available at: [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf/\\$FILE/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf/$FILE/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf)

53. The CRTC and the courts can play a role in addressing the small number of cases where lower levels of government and carriers cannot find cooperative solutions themselves. A centralized model where the federal regulator dictates terms and prices of passive infrastructure assets would be economically inefficient due to variation in costs and conditions at the local level across Canada's diverse communities and regions. Such a regulatory strategy would also run against the grain of Canada's unique federalist constitutional arrangements and may lead to complex and intractable litigation. While some measure of coordination and process standardization may be appropriate for reducing the costs of negotiations between lower levels of government and carriers, legislative changes that reduce the existing scope of municipal/provincial authority over passive infrastructure or rights of way, or expand CRTC's authority to impose centralized solutions, would not be in the "public interest".
54. Much like references to reliability and quality of service TPRP (2006) recommended deleting from the statutory framework, the current balance between local and national authority in S. 43 of the *Telecom Act* would have been inefficiently altered if the Government at the time had adopted TPRPs carrier friendly recommendations (i.e. long before the advent of even 4 or 5 G wireless technologies). The last time, the carriers managed to convince the TPRP to recommend a whole series of adjustments to the statutory framework that would have disempowered municipalities and communities compared to carriers and would have expanded CRTC's capacity to override municipal and provincial authority over passive infrastructure and rights-of-way.<sup>29</sup> The decision by the Government at the time not to adopt TPRP's recommendation in this area does not appear to have retarded the development of advanced 4 G/LTE networks in Canada. Keeping the existing balance is not likely to have a negative impact on 5G deployments in the future, but will force the carriers to cooperate with communities they plan to serve, pay a reasonable price for accessing public infrastructure, and potentially enhance 5G deployment incentives if municipalities are encouraged to find ways to restrict the scope for economically inefficient and unsightly duplication of 5G network assets.
55. In ToR for this Review, it appears that the carriers have been successful in directing the Government's attention back to the same issue they were pushing during the 2005-2006 TPRP Review, this time in the name of promoting 5G deployment. As in the case of efforts by suppliers to reduce the power of the CRTC to impose verifiable minimum service quality/reliability standards for "high-speed" access by removing them from Section 7 objectives of the *Act*, this Panel should avoid falling for the same trick the carriers tried, and failed, to pull in the mid 2000s. Service providers already have relatively weak incentives to cooperate with lower levels of

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<sup>29</sup> Telecom Policy Review Panel. Final Report (2006), Recommendations 5-1 to 5-8. Available at: [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/tprp-final-report-2006.pdf/\\$file/tprp-final-report-2006.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/tprp-final-report-2006.pdf/$file/tprp-final-report-2006.pdf)

government and Federal legislative framework should not be changed in a manner that accentuates this problem.

56. Doing so has the potential to undermine achieving universal access objectives of the *Act*. For example, local control over passive infrastructure and right-of-way provides municipalities with some minimal leverage that can be used to encourage infrastructure providers to deploy advanced networks in lower-income/low return neighbourhoods/areas they are reluctant to enter by granting them low-cost/easy access to public assets in high-income/high revenue areas/neighbourhoods where they have stronger incentives to deploy new technologies.

**57. 2.1 Are legislative changes warranted to better promote competition, innovation, and affordability?**

58. As noted above, the legislative framework already provides substantive authority and a wide range of instruments that could be used to promote these objectives. To better promote these objectives, a general “public interest” mandate might be helpful for reminding the CRTC that the Parliament has created to it serve the general public interest and promote consumer welfare; not to protect industries it regulates from competition and disruption associated with technological change, innovation, and “creative destruction”. As noted, deleting the term “orderly” in 7.a may also be constructive in this light.

59. It is important to note that unlike affordability, which is an objective that can be empirically measured and monitored in terms of quality adjusted prices of services, competition and innovation are vague and complex concepts that signify instruments for achieving socioeconomic objectives. Introducing concepts such as competition and innovation into the *Act*, particularly under S. 7 objectives, would be risky. For example, CRTC tends to justify its traditional regulatory forbearance strategy in terms of promoting “infrastructure competition”. In network industries where there are large economies to scale, infrastructure competition is not necessarily efficient as it causes too much duplication and overinvestment in old technologies (i.e. “sweating the copper”). In the deployment of next generation fibre and wireless networks, rather than promoting competition, public policies that actually promote cooperation and risk sharing in deploying fixed networks assets, and then enabling “service based” competition on top of that physical infrastructure might be optimal.<sup>30</sup>

60. The term innovation can also be highly confusing in its regulatory application as is vague enough to be leverage by interests with conflicting agendas. For example, in debates about network neutrality in the U.S. the terms innovation is widely used by both proponents and opponents of

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<sup>30</sup> Rajabiun, R., & Middleton, C. (2015). Regulation, investment and efficiency in the transition to next generation broadband networks: Evidence from the European Union. *Telematics and Informatics*, 32(2), 230-244. Available at: [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf/\\$FILE/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf/$FILE/DGTP-002-2015-RajabiunMiddleton-Attachment3.pdf)

rules against blocking and anticompetitive traffic shaping the FCC adopted in its 2015 Open Internet Order, and then repealed in 2017 Restoring Internet Freedom Order.<sup>31</sup> Adding objectives such as competition and innovation is unlikely to clarify the CRTC's mission as a telecom regulatory agency, but may open the door to further confusion about the objective of the law. The basic economic objectives of quality and price/affordability, universality of access in both urban and rural areas, and the need for public policy to respond to the needs of users/consumers offer both flexibility and can effectively enable policy development in a manner that serves the public interest in an efficient manner. Prioritizing concepts that signify means to achieving these more basic economic objectives in the legislative framework can be operationalized by resourceful private interests to shape future policies and to undermine those that help achieve more consumer centric objectives, such as reliable and affordable access telecommunications services that connect us the open Internet.

61. If the Government aims to promote efficient competition and network neutrality, then it might be prudent to use this Review as an opportunity to repeal some of the elements of the *Act* that restrict the scope for competition in the name of promoting Canadian ownership and control (i.e. delete S. 7. d & e). As a practical matter, anticompetitive implications of these provisions have motivated previous governments to increasingly relax them and they now effectively apply only to the largest telecom providers (i.e. “the big three”). To some extent these protections reduce the scope for competition in the market for corporate control of these firms, which may have negative implications for their efficiency and responsiveness to the needs of their customers.
62. Nevertheless, the marginal impact of removing these legacy regulatory protections in Section 7.d & e in terms of improving competition and market discipline is not likely to be that large. Particularly given the experience of Wind Mobile and strong incumbent resistant to attempts by the previous Government to convince Verizon to enter the Canadian market, external investors are likely to find it too risky to invest in our telecoms market (despite high prices that in theory can entry). Nevertheless, deleting these objectives as part of this Review would send a positive signal about the Government's commitment to promoting competition, innovation, and affordability of service that are available to Canadian consumers vs. protecting certain narrow industrial interests. Having fewer contradictory objectives may also help focus the CRTC on its equity and efficiency objectives as a telecom regulator that functions to promote the economic interests of Canadian consumers and responds to their social and economic requirements.
63. **3.1 Are current legislative provisions well-positioned to protect net neutrality principles in the future?**
64. Generally, yes. However, there is substantial doubt about the correctness of the manner in which Government's conceptualizes the terms “net neutrality” and the state of net neutrality regulatory

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<sup>31</sup> A decision now before the courts in Mozilla et al. v the FCC. USCA Case #18-1051.

framework in Canada. “Net neutrality” is a rather vague concept and only partly about “freedom of expression” and “innovation without permission”. Even without networks that help broadcast speech/expression, in relatively free and open societies like Canada people can say what they want and express themselves without restrictions from the state (unless there is some harm associated with their expression). As a “freedom of expression” issue, non-neutrality involves decisions by intermediaries as broadcasters to carry/not to carry certain expressions and content (i.e. both in traditional broadcasting and on social platforms like Facebook and Twitter). This conceptualization confuses broadcasting with the provision of telecommunications services, leading to conflation of “edge providers”, broadcasters, and suppliers of high-speed data transmission services that connect users/consumers to what they want via to the open Internet (i.e. from third party resources outside of provider networks; “off-net” servers). Although large telecom providers in Canada have decided to leverage their network assets (i.e. “sweat the copper”) and build large broadcasting and media conglomerates, there is little reason why the regulatory environment needs to confuse telecommunications and broadcasting.

65. This confusion can be particularly problematic in a market with such a high degree of vertical integration between broadcasting and telecoms. From the economic perspectives of people/users/consumers, the problem of neutrality is not about their freedom to express themselves, but about their freedom to access third party information and services in a reliable and affordable manner from the open Internet in return for their Internet subscriptions.<sup>32</sup> The development of a “two-tiered” Internet poses a risk to this access because in capacity constrained networks, growth in traffic in prioritized/sponsored “fast lanes” consumes available capacity and has the potential to degrade “basic service” capacity that remains available for accessing all other third party information services that are not prioritized/sponsored/cached by their Internet service providers. As noted earlier, this is precisely why various countries are adopting minimum quality of service standards for basic service as instrument for protecting the freedom of consumers to access information and applications that meet their individual needs. In contrast to traditional (cable TV) or modern media platforms (e.g. news/social media “feeds”) where a person or an algorithm are curating the information and push it out, from its origins the Internet was always designed as an open common-carrier telecommunications platform that efficiently scales with the addition of new user groups and over-the-top (OTT) applications.<sup>33</sup>

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<sup>32</sup> See Rajabiun, R. (2017) Consumer Perspectives on Barriers to Accessing the Open Internet: A Preliminary Analysis of Informal Consumer Complaints to the Federal Communications Commission (FCC) and Related Documents. Expert report in the matter of Restoring Internet Freedom, FCC WC Docket No. 17-108. Available at: <https://ecfsapi.fcc.gov/file/1121274019518/NHMC%20Expert%20Analysis%20of%20Open%20Internet%20Consumer%20Complaints%2011.20.2017.pdf> ; Rajabiun, R. & McKelvey (2018). Why Canadians oppose blacklisting “pirate” websites. Policy Options. Available at: <http://policyoptions.irpp.org/magazines/march-2018/why-canadians-oppose-blacklisting-pirate-websites/>

<sup>33</sup> McKelvey, F. (2018) The Internet was always a common carrier. Algorithmic Media Observatory (AMO). Concordia University. Available at: <http://www.amo-oma.ca/en/2017/09/07/the-internet-was-always-a-common-carrier/>

66. **It's plenty flexible already:** In the ToR for this Review the Government contends that “*more and more activities are shifting online and networks are carrying an increasingly diverse range of applications. Net neutrality principles must continue to be a core part of future legislation while giving the regulator the flexibility needed to consider new developments and adapt accordingly.*” This language creates the impression that the existing regime is somehow restrictive and needs to be made more flexible/less restrictive to accommodate this “diverse range” of applications. This conceptualization of the problem reflects an erroneous understanding of rules governing Internet Traffic Management Practices (ITMPs) in Canada, which actually tend to be relatively flexible compared to neutrality frameworks in many other advanced economies (including in the EU, and until last year in the U.S. before the FCC reversed course). For example, the treatment of inefficient/discriminatory “economic” ITMP’s by the CRTC has been a lot more lax than the FCC in the U.S., which enabled Canadian carriers to sustain “smart pricing” strategies via “speed tiering” (which involve service quality restrictions to move users to higher speed/more expensive plans) longer than dominant telecom and cable operators in the U.S.<sup>34</sup>
67. In contrast to various other jurisdictions that have adopted ex ante prohibitions against certain types of discriminatory traffic management practices, with the exception of blocking, the CRTC has been reluctant to do so and in fact has opted to adopt a relatively permissive ex post approach to throttling/de-prioritization and paid prioritization (vs. e.g. the U.S. FCC 2015 Open Internet Order, rules operative in some European countries under BEREC neutrality guidelines, and jurisdictions that are leading in building robust open Internet regulatory frameworks to promote competition, innovation, and access like India). The differential pricing (i.e. zero rating) framework adopted by the CRTC in Telecom Regulatory Policy CRTC 2017-104 for instance includes substantial flexibility, incorporating a large “own network”/special service exemption right at the start (noting that “*practices associated with ISPs’ own managed Internet protocol networks are not included in the analysis and determinations set out in this decision.*”). In differential pricing/zero rating decision, the CRTC also rejected calls to adopt a clear and predictable ex ante approach to substantive design, opting for a more flexible ex post approach that allows for significant flexibility.<sup>35</sup>
68. The Government’s framing of the need to examine flexibility of net neutrality framework raises concerns about its conceptualization of problem and intent in prioritizing it in initiating this Review. In order to minimize the risk of interfering with “market forces” the CRTC has in fact

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<sup>34</sup> Rajabian, R., & Middleton, C. (2018). Strategic choice and broadband divergence in the transition to next generation networks: Evidence from Canada and the US. *Telecommunications Policy*, 42(1), 37-50. Available at: <https://www.sciencedirect.com/science/article/pii/S0308596117301143>

<sup>35</sup> Even in the case of blocking, the regulatory frameworks ex post approach is sufficiently flexible, for instance to enable the voluntary Cleanfeed program in which Canadian carriers already block access to sites known to be trading in child pornography. This highlights the flexibility of the CRTC’s ex post approach that requires a complaint to start a process to examine the legality of particular deviations from common-carrier obligations of service providers and preventing exploitation of children is something people are not going to complain about. See: <https://www.cybertip.ca/app/en/projects-cleanfeed>

adopted a relatively flexible approach to “net neutrality” that allows for significant experimentation by service providers and there is little reason to think that it would somehow undermine the adoption of new technologies that require service quality differentiation. Despite what Canadian carriers are apparently telling the Government and the Panel, under the flexible ex post regime in place today there are no regulatory barriers to them delivering optimally differentiated service quality and pricing for the diverse range of Internet based services that require better than “best effort” connectivity (i.e. xMbps); as long as these practices are not applied in an exceedingly and overtly discriminatory manner.

69. This obfuscation of reality is reminiscent of the language used by the U.S. carriers and the FCC in the 2017 repeal for the 2015 FCC Open Internet Order by claiming that it is too inflexible and will inhibit investment and innovation. Much like the existing Canadian framework, the 2015 FCC had significant flexibility built in it, including “special service” exemption and reliance on an ex post rule-of-reason approach to substantive interpretation in order not to restrict the scope for innovation and differentiation (i.e. to minimize false positive errors, which may be a real possibility if the regulatory framework is too restrictive and prevents economically efficient practices).<sup>36</sup> This Panel and the Government should not fall for this trick in Canada, particularly given the high degree of vertical integration of large telecom providers into media, healthcare, contextual advertising and other ventures, which may make it profitable for them to engage in anticompetitive discrimination as “gatekeepers” of Canadians’ access to the open Internet.

70. **Protecting neutrality vs. promoting access to the open Internet:** Given the Government’s stated commitment to protecting neutrality, it is curious that Question 3.1. noted above is asking only about “protecting” network neutrality principles, not “promoting” network neutrality or Canadians access to the open Internet. The language of protect vs. promote has significant implications in interpretation of statutory objectives by regulatory and competition agencies.

71. In light of the above economic processes and policy signals, it may be appropriate for the Panel to recommend adding a new objective to Section 7 of the *Telecom Act* that makes it clear that one of the core functions of the CRTC is to:

**Open Internet/neutrality objective to be added to S.7: “To promote reliable, high-quality, and affordable access to the open Internet and empower users to access information and services that meet their social and economic requirements.”**

72. This addition would reinforce key economic elements of quality and affordability that are already specified in the current S.7.b as they relate to universal access and statutory commitments to rural

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<sup>36</sup> Rajabiun, R. (2016). Beyond Transparency: The Semantics of Rulemaking for an Open Internet. *Indiana Law Journal*, 91(5), 5. Available at: <https://www.repository.law.indiana.edu/cgi/viewcontent.cgi?referer=https://scholar.google.ca/&httpsredir=1&article=11226&context=ilj>

communities. Adding such a consumer centric “open Internet” (i.e. versus “neutrality”) provision may also make regulatory agency more responsive to monitor and address emergent barriers users may face when trying to access what they need from open Internet in a more pro-active manner as required in the future (e.g. better information collection and market surveillance re traffic management, enhanced transparency rules, ex ante behavioral restrictions on very harmful ITMPs, minimum universal/basic service quality standards, etc.).

**73. 4.1 Are further improvements pertaining to consumer protection, rights, and accessibility required in legislation**

74. Definitely yes. For reasons detailed earlier in this submission, in the early 1990s the Parliament did not develop the *Telecom Act* with the view to promote the general public interest and/or consumers’ welfare, but as a flexible tool to respond to disruption and enable “orderly development” of the new infrastructure. The fact that there are no references to public interest or consumers in S. 7 (and that economic and social requirements of users only appears at the end of the long list of objectives in the current S.7. h) is a function of this legislative history and reflects the explicit intent of the Government/Parliament at the time. This legacy gives the CRTC the authority to utilize a wide range of instruments to protect and empower consumers, including those with disabilities, if it wants to. For example, in the recent review of the Wireless Code, the CRTC refused requests by parties representing Canadians disabilities to incorporate a a non-binding “reasonable accommodation” provision in the Code, despite the fact that it had the authority to adopt such a flexible/non-restrictive approach to reducing barriers facing this group of vulnerable consumers.<sup>37</sup>

75. In addition to incorporating a broad “public interest” interpretive mandate (on top, and also potentially at the end for emphasis) in Section 7, bringing the existing S.7. h to the top of the list of objectives, and potentially adding some new language concerning consumer empowerment and accessibility, may help change these attitudes in the future. For instance:

**Public/user/consumer interest provision to be prioritized and revised: Bring existing S.7.h to top of list (new S.7.a, b, or c) and revise for example by: “to respond to the economic and social requirements of users of telecommunications services, protect and empower consumers,”**

76. A provision to enhance regulatory incentives to respond to the accessibility needs of people with disabilities can be added into this primary equity objective (e.g. by adding, “**including the requirements of persons with disabilities**”, or “**accessibility of telecommunications services**”).

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<sup>37</sup> See submissions by Media Access Canada/Access 2020 Coalition to CRTC 2016-293 proceeding. Available at: <https://services.crtc.gc.ca/pub/ListeInterventionList/Documents.aspx?ID=238194&en=2016-293&dt=i&lang=e&S=C&PA=t&PT=nc&PST=a>

Alternatively, a specific accessibility promotion mandate can be added separately as a secondary objective further down the list:

77. **Accessibility objective to be potentially added: “to facilitate access to reliable and affordable telecommunications service by persons with disabilities and ensure Canadian carriers accommodate their requirements”**

**5.1 Keeping in mind the broader legislative framework, to what extent should the concepts of safety and security be included in the *Telecommunications Act/Radiocommunication Act*?**

78. Ensuring the CRTC is sufficiently focused on its core mission as a telecom regulator is likely to be critical for enhancing its capacity to achieve affordability, universal service, and neutrality objectives the Government has prioritized in this Review. For reasons detailed earlier, to protect the common-carrier conceptualization of broadband and ensure it is not conflated with broadcasting and other services delivered on top of multipurpose broadband networks, narrowing this mission by breaking up the unified regulator into focused pieces may be helpful. For the same reasons, adding new responsibilities and objectives such as safety and security is likely to detract from the capacity of the regulatory agency to develop policies that are more efficient and effective in fostering market forces to achieve basic economic objectives of the *Act* in terms of affordability, reliability, and universality of access to basic telecommunications services. Addition of safety and security as objectives could also have perverse implications in terms of the common-carrier statutes of telecommunications providers as neutral conduits of communications, for instance next time some industry coalition proposes creating an extrajudicial national blocking system that enables the CRTC (or a surrogate private entity it creates such the proposed Internet Piracy Review Agency (IPRA) discussed earlier) to control Canadian’s access to the open Internet in the name public safety and security.
79. Given extensive control over users’ personal data by telecommunications service providers, there are good reasons for keeping S.7. i as a secondary policy objective “*to contribute to the protection of the privacy of persons*”.
80. If the legislative framework could focus the telecom regulator on its core missions of promoting network development, reducing affordability and service quality as barriers to access and use of converged communications services on top of telecommunications networks, it will be much easier to empirically measure the agency’s performance in terms of market outcome it delivers and hold it accountable for decisions it makes in the future.

**7.1 Is the current allocation of responsibilities among the CRTC and other government departments appropriate in the modern context and able to support competition in the telecommunications market?**

## **7.2 Does the legislation strike the right balance between enabling government to set overall policy direction while maintaining regulatory independence in an efficient and effective way?**

81. For reasons detailed earlier, the current responsibilities of the CRTC are too broad and enhancing policy effectiveness is likely to require creating separate telecom and broadcasting regulators. Given limited skills and resources at the CRTC needed for effective and efficient telecom regulations focusing on improvements to access, pricing, and quality of service, adding safety and security, or spectrum management would be a bad idea. If the Government is committed to moving towards a regulatory regime that is more effective in promoting the broad public/consumer interest and restrict the scope for regulatory capture by narrow industrial interests for whom it would be profitable to shape Canadians' to access the open Internet, then it is critical to go beyond altering "laws on the books" and contemplate how it can enhance the incentives and capacity of the CRTC to deliver on the mandate the Parliament specifies at the end of the Review (that is if this or the next Government choose to alter the statutes pursuant to this Review, or just keep what we have, as happened with the previous Telecom Policy Review Panel (TPRP) of the mid 2000s).
82. It is particularly surprising that given all the apparent concern from rural communities, consumers, and now the Government about affordability and quality of basic Internet access services, the Government has not issued a new Policy Direction to persuade the CRTC to start emphasizing these objectives and use instruments at its disposal to address them. The CRTC continues to rely on the 2006 Policy Direction (i.e. the Bernier Directive) as a justification for rejecting calls to adopt policy strategies that could enhance competitive pricing discipline and promote efficient investment in advanced technologies simultaneously (e.g. Layer 2 control on wholesale for fixed access, mandated Mobile Virtual Network Operators (MVNOs)). The Government has sufficient legal authority to direct the CRTC to focus on existing objectives and help the agency align its decisions with the vision of the Government.

### **8.1 How can the concept of broadcasting remain relevant in an open and shifting communications landscape?**

### **8.2 How can legislation promote access to Canadian voices on the Internet, in both official languages, and on all platforms?**

83. Rather than making broadcasting less relevant, the Internet has made the concept more relevant by enabling individuals and small organization to broadcast their expressions and content they produce using a number of new platforms (e.g. Twitter, Facebook and YouTube "channels", etc.). This decentralization in content and information production and distribution enabled by technological change disrupts legacy broadcasting models and threatens incumbents that cannot adjust to the new reality. The best way for legislation to promote access to Canadian voices is to

keep the Internet open, reliable, and affordable to access by other Canadians; the user group which is likely to have the strongest demand for Canadian content and Canadian voices (e.g. news, films, music).

84. A broad ranging and heavy handed regulatory framework that tries to prioritize certain forms of content and/or applications over others in the name of promoting Canadian cultural diversity by leveraging control over telecom infrastructure is not likely to be effective in achieving its objectives of promoting Canadian content or the cultural industries. However, as the IPRA proposal the CRTC rejected last year suggests, doing so would pose a serious risk to the freedom of Canadian consumers to access to reliable and affordable access to the world of news, media content, business applications, and other wonders of the global Internet. Legislative and institutional separation of telecoms and broadcasting is increasingly needed in order to mitigate the risks of regulatory capture of one part of this ecosystem by Interests from other parts. This would help ensure Canadian creators of all sizes and stripes can connect to and reach their target audiences at home and abroad via the Internet. It is not evident how legislative reforms or confusing telecommunications networks with what flows through them is going to help with promoting Canadian cultural diversity or Canadian content production industry.<sup>38</sup>
85. This submission is duly made to the Review with the intent to ensure the development of a focused and effective telecom regulator in Canada that helps improve affordability, service quality, and universality of Internet access. We submit that our input informs the best way for promoting Canada's cultural diversity without undermining common-carrier conceptualization of the Internet, a critical element of its successful design since its inception half a century ago.<sup>39</sup>

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<sup>38</sup> Targeted advertisement campaigns by Canadian content producers and cultural industries is likely to be the most effective method for helping people with demand for their content to find their products online.

<sup>39</sup> McKelvey, F. (2018) The Internet was always a common carrier. Algorithmic Media Observatory (AMO). Concordia University. Available at: <http://www.amo-oma.ca/en/2017/09/07/the-internet-was-always-a-common-carrier/>