



Telecom Notice of Consultation CRTC 2019-57

# Review of Mobile Wireless Services

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1. The Samuelson-Glushko Canadian Internet Policy & Public Interest Clinic (CIPPIC) and OpenMedia are pleased to provide their joint intervention in Telecom Notice of Consultation CRTC 2019-57, which re-examines the Commission's regulatory framework for wireless services.

2. In our respectful submissions, detailed below, the Canadian national wireless market is not sufficiently competitive to achieve the telecommunications policy objectives. Canadian wireless prices and operator revenues are extremely high when compared to their international peers, while network investment and performance remains mediocre. High retail costs are the most likely cause of Canada's dismal levels of mobile data adoption and usage.

3. More is needed. Specifically, more competition is required to address these challenges. Such competition can only come from mandated competitor access. Specifically, we suggest mandating two types of access:

- Mandated MVNO access at cost recovery-based tariff rates, crossing current and emerging technologies; and
- Mandated access to spectrum on a cost-recovery basis.

This will provide an avenue for new competitors to enter the market in a manner that is not contingent on ownership of increasingly finite spectrum.

4. We encourage the Commission to adopt these mechanisms rapidly. Without some intervention, current trends suggest that Canada will continue to fall further and further behind its peers.

5. We note as well that, in addition to this substantive submission, we have placed on the record of this proceeding 18,263 individual submissions, curated through OpenMedia's online portal. The volume and nature of these submissions, which emphasize the importance of alleviating wireless affordability challenges and clearing the way to robust and varied competition, is indicative of the level of concern over the state of mobile wireless services in Canada. Our substantive submissions are informed by these comments.

## Section 1. High Prices, Low Adoption & Usage

6. From what evidence is publicly available, there are strong indicators that Canada's wireless market is uncompetitive at a national level. Much of this evidence arises, by necessity, from international comparisons of trends in mobile investment, network development and relative cost.

### 1.1. Concentration & Market Share

7. Despite various attempts to facilitate new entrants into the Canadian mobile market, the

national wireless market remains highly concentrated. The top three national wireless providers continue to control commanding levels of revenue (91.8%) and subscriber shares (90%).<sup>1</sup>

8. Canadian wireless providers rely heavily on the use of ‘flanker’ brands as a means of market segmentation. Flanker brands operate in incumbent networks under separate branding, often for the purpose of targeting more cost-conscious market segments without compromising higher rates charged for comparable services on the incumbent’s primary brand. However, the use of flanker brands is not a meaningful replacement for competition, and the use of flanker brands should be seen as part and parcel of an exercise of market power by Canada’s national wireless providers. This is evident from a number of factors.

9. First, Canada’s world-leading ARPU is inclusive of revenue obtained through the vehicle of flanker brands. That is, Canada’s ARPU would be even higher if each national operator’s revenue and user base were calculated to the exclusion of its respective flanker brand(s).<sup>2</sup> Most flanker brands also operate on the same network as their incumbent’s primary brand, meaning that conclusions relating to incumbent capital investment, network capacity, network quality and network reach do not change as a result of the presence of flanker brands.

10. Second, the flanker brands do not exert independent competitive pressure in the same manner as external competitors. One comparative analysis found that flanker brands offered consistently higher prices than independent competitors on average, as well as across most regions and service baskets.<sup>3</sup> The study also concludes that, on the basis of an historical analysis of flanker, incumbent and independent competitor pricing trends, flanker brand pricing is converging on incumbent brand pricing while independent competitor pricing remains consistently and proportionally lower.<sup>4</sup>

## 1.2. World-leading prices

11. Based on available data, per user average revenue (ARPU), is a helpful proxy for price in the

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<sup>1</sup> CRTC, Communications Monitoring Report 2018, Figure 4.8 and p 160: “At the national level, the Top 3 continued to hold the majority of the subscriber market share at 90%, with remaining 10% divided among their competitors.”

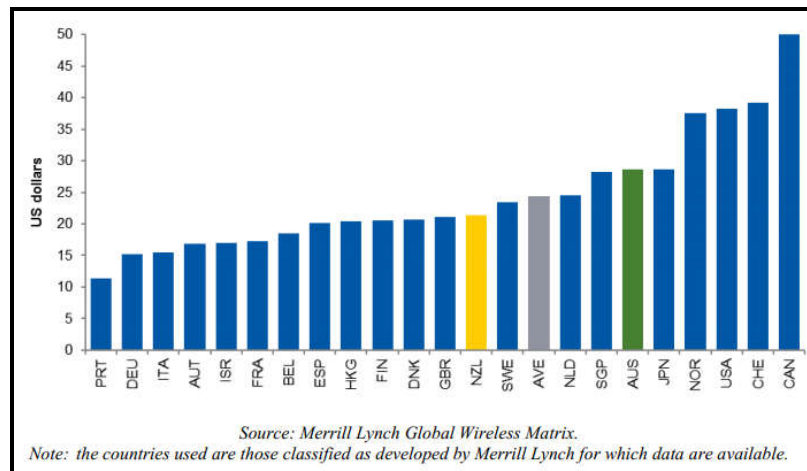
<sup>2</sup> CRTC, Communications Monitoring Report 2018, Figure 20.

<sup>3</sup> Wall Communications, “Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions”, 2018 Edition, August 29, 2018, prepared for Innovation, Science and Economic Development Canada, pp 24-25, Table 4.

<sup>4</sup> Wall Communications, “Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions”, 2018 Edition, August 29, 2018, prepared for Innovation, Science and Economic Development Canada, p 25: “As was seen last year, the price differentials between regionals and incumbent flanker brand prices have generally widened, whereas the differentials between regional and incumbent primary brand prices have largely remained unchanged. In other words, average prices offered by incumbent flanker brands rose and are now closer to those of the incumbents’ primary brands, while the regionals’ price discounts relative to the incumbents’ primary brands generally remained the same.”

mobile context, where service providers offer a broad range of price structures and services.<sup>5</sup>

12. World-leading per user revenues have been a persistent feature of the Canadian mobile marketplace. In 2014, for example, Canada led developed countries with an ARPU of \$56 USD.<sup>6</sup> Little has changed:



**Figure 1: ARPU Across 22 developed states, 2017**

As presented by NERA Economic Consulting

According to NERA, ARPU in Canada was the highest among comparable states, boasting average per user revenues that are 1.25 times higher than the next closest developed country (CHE / Switzerland) and close to double the average of 22 comparable countries classified as developed by the Merrill Lynch Global Wireless Matrix.<sup>7</sup> This suggests that the affordability gap between Canada and its peers has only grown since 2014.

13. Technological advancements associated with adoption of 4G have created network efficiencies, allowing most service providers around the world to lower the amount of revenues extracted from customers.<sup>8</sup> Mobile service providers are able to provide more voice, text and data at less cost, and this has

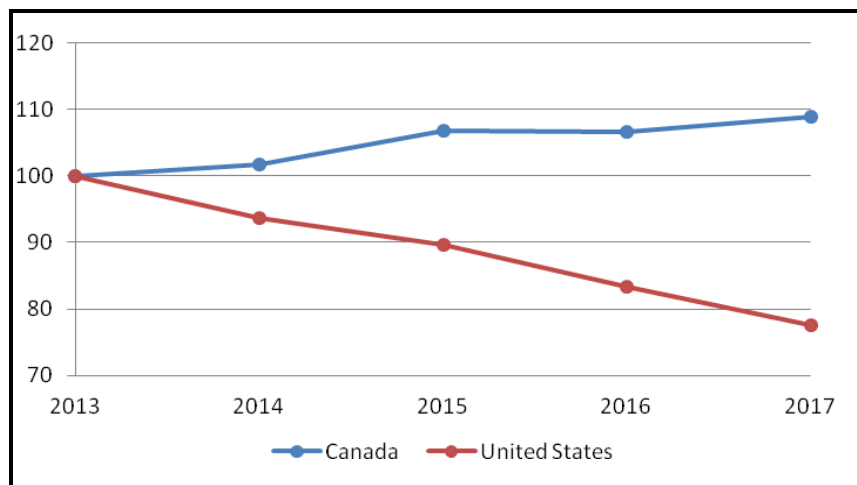
<sup>5</sup> FCC, Communications Marketplace Report, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, para 20.

<sup>6</sup> CIPPIC / OpenMedia, Review of Mobile Wireless Services, October 20, 2014, [https://cippic.ca/uploads/2014-76\\_FinalReply.pdf](https://cippic.ca/uploads/2014-76_FinalReply.pdf), p 5, Figure 2: ARPU – International Comparison. Canadian ARPU was highest amongst 23 comparable states.

<sup>7</sup> NERA Economic Consulting, “Competition in the New Zealand Mobile Market”, Public Version, *Input to Commerce Commission Mobile Market Review*, prepared for Spark New Zealand, October 26, 2018, p 18, Figure 16. ARPU in Canada is presented as about 50 USD, Switzerland is listed at about 40 USD, and the average amongst the 22 states classified as ‘developed’ by Merrill Lynch in its Global Wireless Matrix is about 25 USD.

<sup>8</sup> OECD, Digital Economy Outlook 2017, (Paris: OECD Publishing, 2017), pp 144-45: “The pricing of 4G services often differs greatly from that of 3G, taking advantage of architecture designed for IP-based traffic. In France, for example, since 2015 Iliad Free Mobile has offered 3 GB of 3G data per month but 50 GB of 4G data in a single subscription. In other words, as 4G coverage expands, so too does the opportunity to use a greater amount of data available for the same price. In other countries the same elements are evident in different aspects of tariffs but can be summarised as a trend away from charging separately for voice

allowed providers around to world to reduce the amount of revenues extracted from each mobile customer. Per user mobile revenues have, indeed, been falling in a number of comparable jurisdictions.<sup>9</sup> However, during this period, Canada has experienced persistent revenue growth. In the United States, for example, national wireless ARPU has fallen by over 6% CAGR from \$49.79 USD in 2013 to \$38.66 US in 2017. Over the same period of time, Canadian national wireless ARPU rose 2.16% CAGR:



**Figure 2: Comparative Change in ARPU, Canada vs US, 2013-2017**

DATA SOURCE: CRTC, Communications Monitoring Report 2018, Figure 6.12 National Mobile ARPU; FCC, Communications Marketplace Report, Collected Appendices, Appendix A-4 Annualized Average Revenue per Reporter Subscriber Unit (ARPU): 1993-2017. CAGR mapped to starting point of 100<sup>10</sup>

14. Similarly, the most recent installment in Wall Communications’ annual pricing study found that Canada is the most expensive or second most expensive jurisdiction of those studied across almost all examined service baskets.<sup>11</sup> Canada has consistently been one of the 3 most expensive jurisdictions across all service baskets, with Australia and European countries generally offering lower prices for comparable service packages throughout the decade in which the annual study has been conducted.<sup>12</sup>

and text (i.e. they are just included as an unmetered part of a bundle) and relying on prices that reflect data usage. In other words, if 2G and 3G were optimised for voice and 4G for data, the shifts witnessed in an increasing number of countries would not be so much “price wars” as more reflecting a combination of changes in the market that will not return to the previous status quo.”

<sup>9</sup> Analysys Mason, “Input to Commerce Commission Mobile Market Review”, Report for Trustpower, Input to (New Zealand) Commerce Commission Mobile Market Review, November 28, 2017, p 3: “ARPU has risen slightly over the last few years in New Zealand, while in a group of peer countries it has generally fallen.” See also figure 2.2, Showing that mobile ARPU has been falling in most developed states, with few exceptions.

<sup>10</sup> Data points for Canada: 2013: \$59.97 (100) | 2014: \$61.03 (100 \* 1.0177 = 101.77) | 2015: \$64.07 (101.77 \* 1.0498=106.84) | 2016: \$63.98 (106.84 \* 0.9986=106.69) | 2017: \$65.33 (106.69 \* 1.0211 = 108.94). Data points for United States (in USD): 2013: \$49.79 (100) | 2014: \$46.64 (=100\*0.9367=93.67) | 2015 \$44.65 (=0.9367 \* 0.9573=89.68) | 2016 \$41.50 (89.68 \* 0.9295 = 83.35) | 2017: \$38.66 (83.35 \* 0.9316 = 77.65).

<sup>11</sup> Wall Communications, “Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions”, 2018 Edition, August 29, 2018, prepared for Innovation, Science and Economic Development Canada, p 30, Figure 4.

<sup>12</sup> Wall Communications, “Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign

Additionally, while prices across all service baskets have decreased in Canada, these price decreases have generally occurred at a slower pace than other countries included in the annual studies, meaning that Canada is falling further and further behind its international peers.<sup>13</sup>

15. Mobile data has also consistently cost more on a per unit basis in Canada than amongst its international peers. A study by Tefficient concluded that Canada charges the most per consumed GB based on available 2017 plans and average usage scenarios by a substantial margin.<sup>14</sup> Rewheel's Digital Fuel Monitor similarly found that that per gigabyte prices in Canada, Japan and the United States are a "universe apart" from prices in comparable European and OECD markets, noting that the median Canadian smartphone plan charges 24 times more per gigabyte than the median smartphone plan in a competitive (4 network operator) European market and 10 times higher than the median OECD market.<sup>15</sup> For the price of a 4 GB monthly smartphone plan in Canada, plans of 15-500 GB per month (or unlimited usage) are available in 28 European and OECD countries.<sup>16</sup>

### 1.3. Mediocre service quality cannot explain high prices

16. Canada's exceptionally high prices cannot be attributed to exceptional service quality, usage or investment, suggesting a lack of meaningful competition as a central cause.

17. Some might argue that Canada's relatively high mobile speeds might explain this persistently high pricing. While it is true that Canada is not as much a global laggard in terms of mobile speeds as it is in terms of other metrics, its comparative performance on speed does not justify its world-leading prices. Many of Canada's peers, including Norway, the Netherlands, Spain, South Korea and, notably, New Zealand and Australia boast higher mobile speeds with far lower customer costs.<sup>17</sup>

18. More to the point, Canada's performance in terms of mobile speed and latency is not a result of comparatively high investment, but rather more appropriately attributable to lower usage and lower

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Jurisdictions", 2018 Edition, August 29, 2018, prepared for Innovation, Science and Economic Development Canada, Attachment 3, Table A3.1.

<sup>13</sup> Wall Communications, "Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions", 2018 Edition, August 29, 2018, prepared for Innovation, Science and Economic Development Canada, Attachment 3, Table A3.1. See Appendix A for visualization.

<sup>14</sup> <https://tefficient.com/wp-content/uploads/2019/01/tefficient-industry-analysis-3-2018-mobile-data-usage-and-revenue-1H-2018-per-country-final-17-Jan-2019.pdf>, p 17, Figure 15. Belgium was the only country charging rates that are close to comparable, with Germany a very distant third.

<sup>15</sup> Rewheel Research, "The State of 4G Pricing, 1H2019", *Digital Fuel Monitor*, 11<sup>th</sup> Release, April 2019, [http://research.rewheel.fi/insights/2019\\_apr\\_pro\\_1h2019\\_release/](http://research.rewheel.fi/insights/2019_apr_pro_1h2019_release/).

<sup>16</sup> Rewheel Research, "Data Caps and Prices: Country Comparison", April 2019, <http://research.rewheel.fi/prices/country/>.

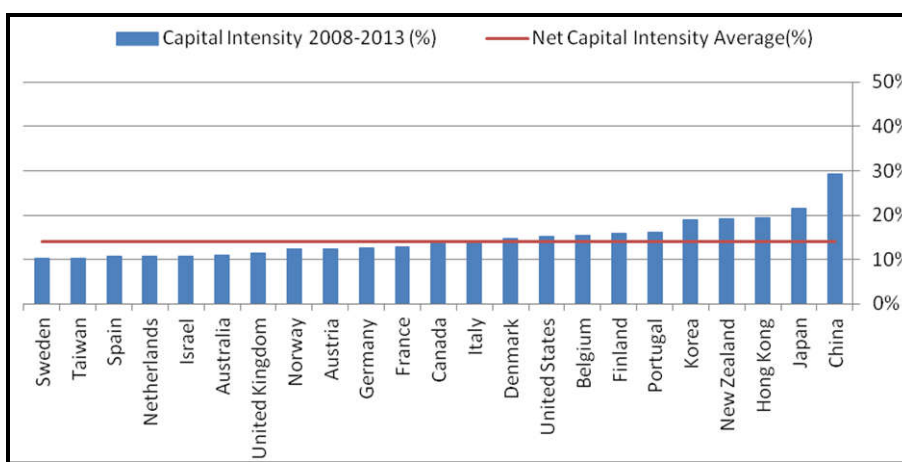
<sup>17</sup> See: Open Signal, "The State of LTE", February 2018, <https://www.opensignal.com/reports/2018/02/state-of-lte>, 4G Speed Comparison.



population density. Low population density translates into a lower mobile data load, as the same amount of spectrum can be utilized to meet the mobile data needs of a lower number of individuals.<sup>18</sup> This means that higher speeds can be achieved within a set geographic reach with the same level of investment.

19. Low population density is also sometimes pointed to as a *driver* of high consumer prices on the assumption that network operators must build more infrastructure to cover a wider geographic area. However, this assumption is not supported by the history of network investment in Canada. However, an analysis of Canadian providers’ mediocre levels of investment and tragically low levels of mobile adoption in Canada suggests that Canadian providers are exercising market power to achieve their world-leading prices and revenues.

20. Indeed, historical levels of investment by Canada’s national providers have been mediocre. Canada’s average capital intensity from 2008-2013 amounted to 13.65%, which is slightly below the average level of capital intensity amongst comparable countries for the same period of time as reported by Bank of America Merrill Lynch’s Global Wireless Matrix, 2Q14 (14.04%):



**Figure 3: Capital Intensity 2008-2013 – Global Comparison**  
**DATA SOURCE: BAML Global Wireless Matrix 2014, 2Q14. China is excluded for calculation of net capital intensity average of 14.04%, see note<sup>19</sup>**

More recently, investment levels have fallen even lower when measured as a percentage of revenues.

<sup>18</sup> Rewheel Research ranks Canada as one of the lowest amongst European and OECD countries in terms of spectrum usage (defined as MB used per Mhz of spectrum per year per population) as of 2017. As of 2017, Canada uses only 33.5 MBs per Mhz of spectrum: Rewheel Research, “Mobile Data Network Economics Metrics – 2017”, accessed May 15, 2019, <http://research.rewheel.fi/networkeconomics/>.

<sup>19</sup> Capital Intensity (2008-2013) for each country is calculated as five year total CAPEX for reported operators, divided by the total revenues for those countries. Capital intensity average for all countries is calculated as the sum of all five year capital intensity percentages for all countries divided (excluding China) divided by total number of countries (excluding China). China is excluded from the average calculation to correct for its uncharacteristically high levels of capital intensity, but included in the graph given its high number of subscribers and high average speeds.

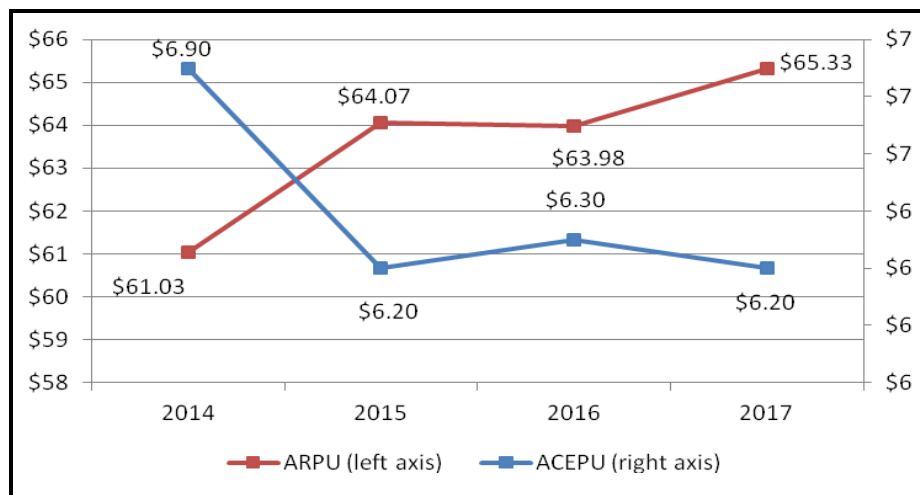
Capital intensity for Canada’s top 3 national wireless providers since 2013 has stayed in the 8-10% range.

2014	2015	2016	2017	2018	1Q2019
9.8%	9.10%	8.6%	8.10%	10.10%	8.10% [excluding Rogers]

**Table 1: Capital Intensity, Top 3 National Providers, 2014-1Q2019**

DATA SOURCE: Data for 2014-2017 from CRTC Communications Monitoring Report 2018, Figure 6.22; Data for 2018-1Q2019 is from public financial reports.

21. It is particularly notable that per-user capital expenditures have fallen since 2014, even as per-user revenues have continued to climb Canada wide:



**Figure 4: Canada-Wide ARPU vs ACEPU, 2014-2017**

DATA SOURCE: CRTC, Communications Monitoring Report 2018, Figure 6.14 Average Capital Expenditure per Mobile Subscriber per Month (ACEPU, \$/month)(right axis); Figure 6.12 National Mobile ARPU (\$/month)(left axis)

While mobile investment can be cyclical, current rates of capital intensity appear to be representative of what can be anticipated in the near future. For example, Canada’s largest mobile provider, Bell Canada, recently noted that it anticipates that it will maintain its industry-leading low 7% capital intensity even as it begins to test fifth generation network capabilities.<sup>20</sup>

<sup>20</sup> BCE, Q1 2019 Results Conference Call, May 2, 2019, p 11:

Q: Richard Choe, JP Morgan, Analyst: Given the lack of spectrum purchase in the most recent auction, do you feel comfortable with your Capex spend both on the wireless and, I guess, wireline side to support the networks and the migration to 5G?

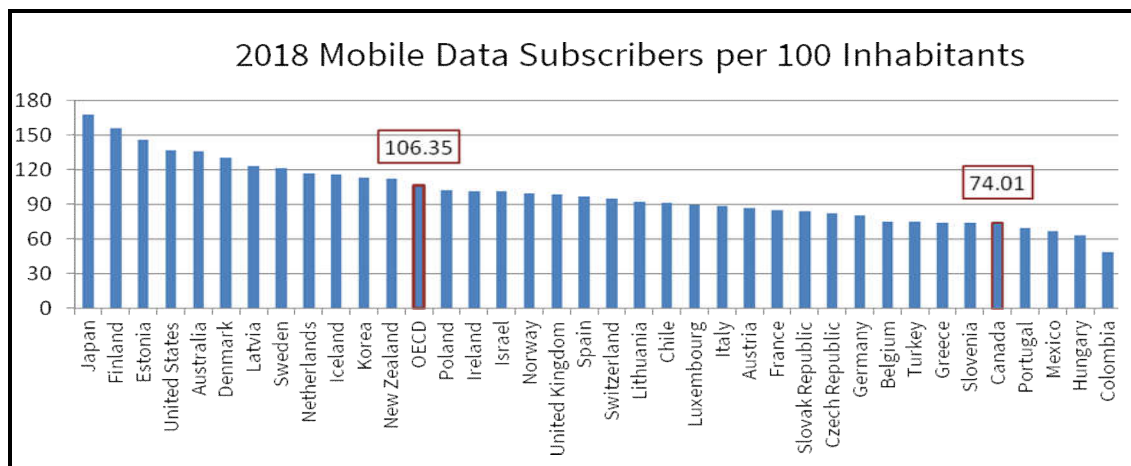
A: George Cope, President and CEO, BCE: Yes, we are very comfortable. It actually does not change our capital program, really, in any way that investors would say we have changed our capital intensity. We had actually modeled in a high likelihood that we would not participate in the auction, consistent with two of our peers in the U.S., based on the fact that doing some cell splitting, that we know we need to do in anticipation of 5G, gives us the incremental capacity, and we ran that math against this particular spectrum band. It was not for us cost-effective to purchase it versus doing cell splitting, that we knew we were going to have to

22. In summary, while Canadian network providers have succeeded in achieving a measure of national 4G / LTE mobile coverage, this has been achieved with at best modest levels of investment. Moreover, as outlined in more detail in the following section, this network is greatly under-utilized, in that Canada’s mobile adoption and per-individual data usage remains extremely low.

## 1.4. High Costs are deterring network adoption & use

23. The high costs of Canadian wireless services have resulted in extremely low mobile adoption and usage. On the one hand, the resulting under-utilization contributes to a misperception that relatively high mobile speeds are a result of robust networks. On the other hand, it suggests that service providers are adopting poor strategies in an attempt to maximize per-customer profits to the detriment of network adoption and use.

24. Despite wide-ranging geographic coverage, Canada has remained a laggard in terms of mobile adoption. Canada ranked 33<sup>rd</sup> out of 37 OECD countries in 2018, with only 74 mobile subscriptions per 100 inhabitants. This is well below the OECD average of 106 mobile data subscribers per 100 inhabitants.



**Figure 5: Mobile Broadband Subscribers per 100 inhabitants in OECD countries, 2018 Q2**

DATA SOURCE: OECD, Broadband Portal, 1.5 Historical Time Series, Fixed and Mobile Broadband Penetration, June 2018, <https://www.oecd.org/sti/broadband/broadband-statistics/>

Analysis by the Canadian Media Concentration Project suggests that this low adoption is closely tied to cost, with low income being a significant factor guiding low adoption in Canada.<sup>21</sup> This is

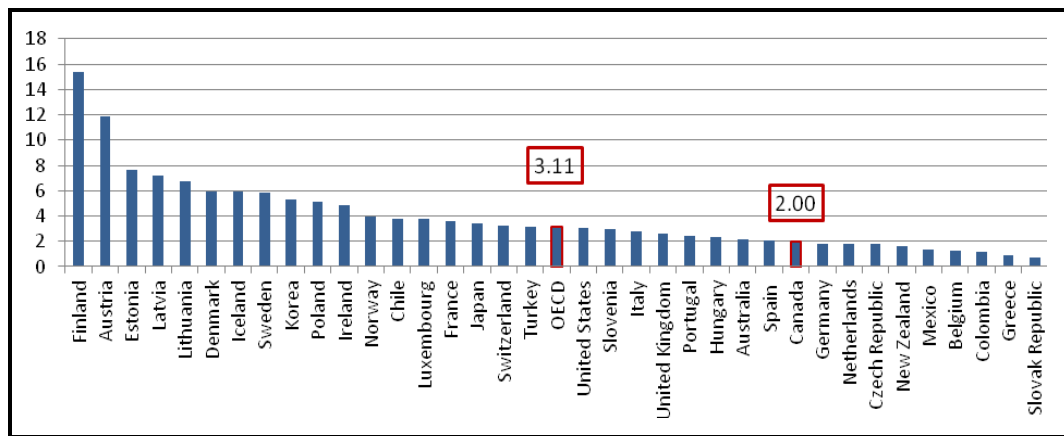
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do, and of course, we would probably beat a dead horse on this, but with the fibre piece in the position in the marketplace already, that helps us evolve from an intensity perspective.

<sup>21</sup> Canadian Media Concentration Project, “The Growth of the Network Media Economy in Canada, 1984-2017”, November 2018 (updated January 2019), <http://www.cmcrp.org/wp-content/uploads/2019/01/The-Growth-of-the-Network-Media-Economy->

unsurprising in light of the high comparable costs of Canadian services.

25. Among subscribers, data usage remains extremely low as well, with Canada ranking 27<sup>th</sup> out of 36 OECD countries.



**Figure 6: Average Data Usage per User in OECD Countries, 2017 (GB / Month / Subscriber)**  
DATA SOURCE: OECD, Broadband Portal, 1.13, Mobile Data Usage per Mobile Broadband Subscription, 2017

Canada’s reported per user monthly data usage represented a meager 64% of the OECD average of 3.11 GB per user per month. OECD leaders such as Finland (15.41 GB/user/month) and Austria (11.9 GB/user/month) demonstrate average monthly usage scenarios that are well out of reach for Canada, while subscribers in the top 10 OECD countries used an average of 7.71 GB/month, amounting to almost 4 times average Canadian usage.

26. These low levels of utilization are not only important context for assessing the quality of Canada’s wireless networks in light of the residential prices charged by Canadian providers. They also amount to a serious policy challenge. The Canadian market has simply failed to provide the robust and highly utilized mobile ecosystem that Canadians require.

## Section 2. Limited Choices

27. Canada’s mobile market has not adopted many of the service package innovations that have emerged in other jurisdictions. This is especially the case in relation to service package innovations that are designed to encourage network usage by customers.

28. The OECD’s 2017 Digital Economy Outlook 2017 outlines the emergence of several capacity-

based plans in a number of jurisdictions, including Finland, Switzerland and Latvia.<sup>22</sup> These plans seek to differentiate on the basis of speed tiers, rather than solely on the basis of data usage allotments, allowing for greater availability of unlimited services and higher monthly data allotments.<sup>23</sup> This development appears to have contributed to Finland's OECD-leading per user monthly usage rate, and the OECD directly associates adoption of these innovative service options with a substantial year over year increase in monthly usage that occurred in Latvia in 2015-16.<sup>24</sup>

29. Another innovative development that is becoming common in other jurisdictions is the use of data rollovers, which allow customers to transfer unused monthly data allowances to subsequent months.<sup>25</sup> More generally, unlimited plans remain a widely available option in other jurisdictions even amongst major providers, whereas in Canada they remain exceedingly rare.<sup>26</sup> Indeed, all United States incumbent providers now offer unlimited mobile plans, and all but T-Mobile offer multi-line unlimited plans.<sup>27</sup>

### Section 3. Mandated Access is Necessary

30. To remedy these shortcomings, more competitors are required. In particular, spectrum is an essential input into the operation of any mobile service.<sup>28</sup> But spectrum is, in the long term, a finite resource. True and enduring competition will be dependent on creating mechanisms for facilities-based competition that is not spectrum-dependent and can leverage existing network sites around the country. Such competitors are only likely to emerge if a mandated access regime is put in place.

31. We recommend that the Commission mandate access further to two separate types of tariffs. First, a virtual tariff is required so that full service Mobile Virtual Network Operators are able to enter the Canadian market without the need to duplicate mobile network infrastructure. Second, we recommend that access to incumbent spectrum be mandated, so that entities wishing to develop non-duplicative facilities in order to reach customers over finite spectrum will be able to do so as well.

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<sup>22</sup> OECD, *Digital Economy Outlook 2017*, (Paris: OECD Publishing, 2017), p 145.

<sup>23</sup>

<sup>24</sup>, p 145.

<sup>25</sup> FCC, *Communications Marketplace Report*, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, footnote 44.

<sup>26</sup> FCC, *Communications Marketplace Report*, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, para 15: "In 2017, service providers continued the trend of offering unlimited data plans, 43 with major providers adding tiers to their unlimited data plans."

<sup>27</sup> FCC, *Communications Marketplace Report*, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, p 17, Figure A-10.

<sup>28</sup> FCC, *Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Seventeenth Report, WT Docket No. 13-135, DA 14-1862, December 18, 2014, para 92: "... robust competition depends critically upon the availability of spectrum as a necessary input in the provision of mobile wireless services."

## 3.1. Mandating facilities-based access to spectrum

32. Mandated facilities-based wholesale access can play a significant role in providing a long-term solution to competition in wireless networks. In particular, cost-based wholesale network access will allow and encourage companies to invest in regional footholds that would not otherwise develop. This can not only assist with general competition, but also greatly enhance rural investment. For example, under its LRA program (LTE in Rural America), Verizon partnered with 21 small network operators in 15 states.<sup>29</sup> Verizon allowed these partners to develop LTE networks in their respective rural regions that use Verizon-owned spectrum.<sup>30</sup> Customers on these networks can then roam on Verizon's primary network when outside the local footprint of their regional provider. In return, Verizon customers can roam on the rural partner networks when travelling through their respective geographic areas. No such comparable program has developed organically in Canada, but imposing cost-based roaming and facilities-based access obligations would open the door to such regional rural development initiatives.

## 3.2. Cultivating a Robust MVNO Presence

33. Mandating virtual access to incumbent mobile networks is a critical means of instilling competition in the mobile context.

34. The low entry costs associated with MVNOs allow for a multiplicity of market players, while also leading to lower risk aversion in terms of market entry as well as service differentiation. This leads not only to *more* operators (and, by extension, more competition), but also to a greater diversity of operators, including service providers that are not dedicated telecommunications companies, operate under distinct branding and are generally guided by different incentives.<sup>31</sup> MVNO markets are also characterized by high entry/exit activity, as the lower up-front costs allow for market entry in spite of higher risk. The resulting providers cater to market segments with niche offerings that are not otherwise fully utilized,<sup>32</sup> or generate innovative types of services that a facilities-based provider may

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<sup>29</sup> FCC, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Sixteenth Report, WT Docket No. 11-186, March 21, 2013, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-13-34A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-13-34A1.pdf), para. 395.

<sup>30</sup> <https://www.telecompetitor.com/all-21-verizon-rural-lte-carriers-have-deployed-service/>.

<sup>31</sup> OECD, Communications Outlook 2013, July 11, 2013, <[http://www.oecd-ilibrary.org/science-and-technology/oecd-communications-outlook-2013\\_comms\\_outlook-2013-en](http://www.oecd-ilibrary.org/science-and-technology/oecd-communications-outlook-2013_comms_outlook-2013-en)>, p. 32.

<sup>32</sup> FCC, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services, Sixteenth Report, WT Docket No. 11-186, March 21, 2013, [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-13-34A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-13-34A1.pdf), para. 31.

never consider.<sup>33</sup>

35. A number of jurisdictions have found relied upon MVNOs as a means of addressing competition problems. In Austria, for example, mandated MVNO access was imposed as a condition of a merger between two of Austria's key wireless service providers.<sup>34</sup> Immediately following the merger, prices rose precipitously in Austria relative to seven of its peers. Two years following the merger, once MVNOs took advantage of the mandated market access, prices began to drop back in line with the seven control group peer countries being studied. BEREC attributes this normalization to the effects of MVNO entry at the beginning of 2015.<sup>35</sup> (Note that in its post-merger assessment of a comparable merger in Ireland, BEREC concluded that the subsequent option of MVNO access had yet to demonstrate significant market impact, as the two MVNOs that had entered the market post-merger had not yet acquired significant market share. BEREC noted that such an impact might still emerge over time).<sup>36</sup>

36. In a recent submission to regulatory proceedings in New Zealand, Analysys Mason pointed to a number of examples that support the use of MVNOs as an important competitive tool. The study points to Denmark, where a relatively high number of MVNOs operate and which has mobile broadband prices well below the European average. The study also points to the Netherlands, where the European Commission has pointed to a robust MVNO presence as an important factor in countervailing an anticipated loss of competition following a reduction in the number of facilities-based competitors.<sup>37</sup>

37. It is particularly important that MVNO access be mandated on a capacity basis. This will allow MVNOs sufficient flexibility to instill some service innovation, allowing for creative offers such as speed tiers and data rollovers. MVNOs are also better able to offer voice and SMS services over data, allowing them to compete more meaningfully.<sup>38</sup> While incumbent service providers will surely object to the freedom and innovation potential offered by a capacity-based tariff to their would-be virtual competitors, capacity-based MVNO wholesale arrangements are also helpful for the wholesaler, as

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<sup>33</sup> OECD, Communications Outlook 2013, July 11, 2013, <[http://www.oecd-ilibrary.org/science-and-technology/oecd-communications-outlook-2013\\_comms\\_outlook-2013-en](http://www.oecd-ilibrary.org/science-and-technology/oecd-communications-outlook-2013_comms_outlook-2013-en)>, pp. 21-22.

<sup>34</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany", June 15, 2018, BoR(18)119, p 18.

<sup>35</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany", June 15, 2018, BoR(18)119, pp 2 and 18.

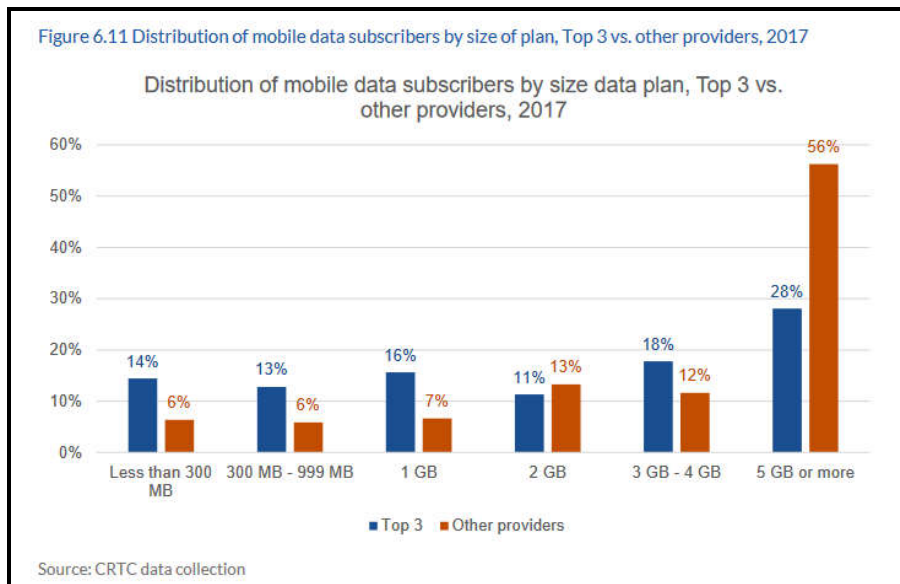
<sup>36</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany", June 15, 2018, BoR(18)119, p 2.

<sup>37</sup> Analysys Mason, "Input to Commerce Commission Mobile Market Review: MVNO Aspects of the Commission's Mobile Market Review", Report for Trustpower, Input to (New Zealand) Commerce Commission Mobile Market Review), October 25, 2018, p 17.

<sup>38</sup> Analysys Mason, "Input to Commerce Commission Mobile Market Review", Report for Trustpower, Input to (New Zealand) Commerce Commission Mobile Market Review, November 28, 2017, p 33.

they “ensure[] a constant and reasonably guaranteed source of income for a certain proportion of [the wholesaler’s] network capacity.”<sup>39</sup>

38. In the Canadian context, it appears as though non-incumbent competitors are responsible for a disproportionately high percentage of high-usage plans, which are otherwise lacking:



**Figure 7: Mobile Data Subscribers by Size of Plan & Type of Provider, 2017**

DATA SOURCE: CRTC, Communications Monitoring Report, 2018, Figure 6.11 Distribution of Mobile Data Subscribers by Size of Plan, Top 3 vs Other Providers, 2017

39. BEREC notes that the use of capacity-based mandated MVNO access (which has been imposed by regulators in two European countries as a condition of merger) can have an impact on the speed in which MVNOs enter a market as well.<sup>40</sup> BEREC credits the slow, if ultimately successful, entry of MVNOs into the Austrian market on the fact that a per-unit based tariff was employed in lieu of a capacity-based tariff.<sup>41</sup> By contrast, MVNO entry into Germany following the adoption of mandated capacity-based capacity based access was rapid.<sup>42</sup> However, the adoption of a capacity-based MVNO mandate

<sup>39</sup> Analysys Mason, “Input to Commerce Commission Mobile Market Review”, Report for Trustpower, Input to (New Zealand) Commerce Commission Mobile Market Review, November 28, 2017, p 34.

<sup>40</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany”, June 15, 2018, BoR(18)119, p 41.

<sup>41</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany”, June 15, 2018, BoR(18)119, p 41.

<sup>42</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany”, June 15, 2018, BoR(18)119, p 41.



in a third jurisdiction was ambiguous in terms of incentivizing speedy entry of new competitors.<sup>43</sup>

40. Additionally, a robust MVNO market can spur innovation or cater to market segments that existing providers have neglected. For example, MVNOs will often expand prepaid markets through better branding, more competitive prepaid pricing and innovative service packaging. Canadian providers have substantially neglected pre-paid service markets,<sup>44</sup> even as pre-paid offerings in other jurisdictions have evolved to match the types and quality of service available in post-paid.<sup>45</sup> Canada currently has a relatively small pre-paid market, down to 17% of all subscribers in 2013,<sup>46</sup> and could benefit from more carefully tailored prepaid offerings. Moreover, new MVNO models are developing that provide unique solutions to challenges such as international roaming and specific machine-to-machine implementations. Truphone, for example, operates a global MVNO network that spans 66 countries, letting customers keep their home phone number and device while travelling abroad.<sup>47</sup>

41. Finally, the decision to mandate access must be forward-looking. It should guarantee access to all technological speed tiers, so that market entrants need not fear being locked out of future technological developments as these emerged. While some pricing adjustments must inevitably occur as new generations of mobile network access become available, the principle of cross-technology access must be firmly embedded in the underlying wholesale regulatory regime.

### 3.3. Ensuring Wholesale Costs are Accurately Calculated

42. We note that the success or failure of any wholesale solution will depend to a great degree on the ability to ensure wholesale rates are accurately calculated. This has been challenging, as the underlying basis for rate calculations is treated as confidential information by incumbents in the tariff-setting process.

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<sup>43</sup> BEREC, Report on Post-Merger Market Developments: Price Effects of Mobile Mergers in Austria, Ireland and Germany”, June 15, 2018, BoR(18)119, p 41.

<sup>44</sup> CRTC, Communications Monitoring Report 2018, p 165: “Both the Top 3 and the other providers have consistently and successfully positioned their plans to encourage their customers to favour postpaid instead of pre-paid subscriptions. As a result, in 2017, 88% of all subscribers were reported as postpaid subscribers, compared to 83% in 2013. The shift from prepaid to postpaid subscribers resulted in higher overall revenues and higher revenues per subscriber.”

<sup>45</sup> FCC, Communications Marketplace Report, FCC-CIRC1812-07, GN Docket No 18-231, November 21, 2018, para 17: “As postpaid offerings have shifted away from term contracts and equipment subsidies, service providers have adopted pricing plans and promotions for their high-end prepaid monthly service offerings that are similar to their postpaid offerings.”

<sup>46</sup> CRTC, Communications Monitoring Report 2018, p 165: “Both the Top 3 and the other providers have consistently and successfully positioned their plans to encourage their customers to favour postpaid instead of pre-paid subscriptions. As a result, in 2017, 88% of all subscribers were reported as postpaid subscribers, compared to 83% in 2013. The shift from prepaid to postpaid subscribers resulted in higher overall revenues and higher revenues per subscriber.”

<sup>47</sup> MVNO Dynamics, “Truphone Redefines Local”, October 20, 2014, <http://www.mvnodynamics.com/2014/10/20/truphone-redefines-local/>.

43. We would therefore suggest that, in addition to the two wholesale mechanisms outlined above, that the Commission exercise its power under section 70 of the *Telecommunications Act*,<sup>48</sup> to establish an inquiry body empowered and mandated to test incumbent cost assertions. This entity should be able to audit incumbent providers if it is deemed this is necessary to assess the accuracy of a given rate. The option of using administrative monetary penalties for inflated rates should also be considered.

## Section 4. Conclusion

44. In conclusion, this holistic review of the Commission's approach to the mobile market is timely. Canada's mobile services are increasingly critical to the general public, and the ability to use data on the move is becoming central to daily life. Mobile data will be increasingly essential to a range of upcoming innovations as well.

45. Yet Canada remains one of the costliest jurisdictions in the developed world, a condition that continues to discourage mobile adoption and usage. Recent data suggests that we are falling even further behind our global peers. Bold and rapid action is required if we are to reverse this trend.

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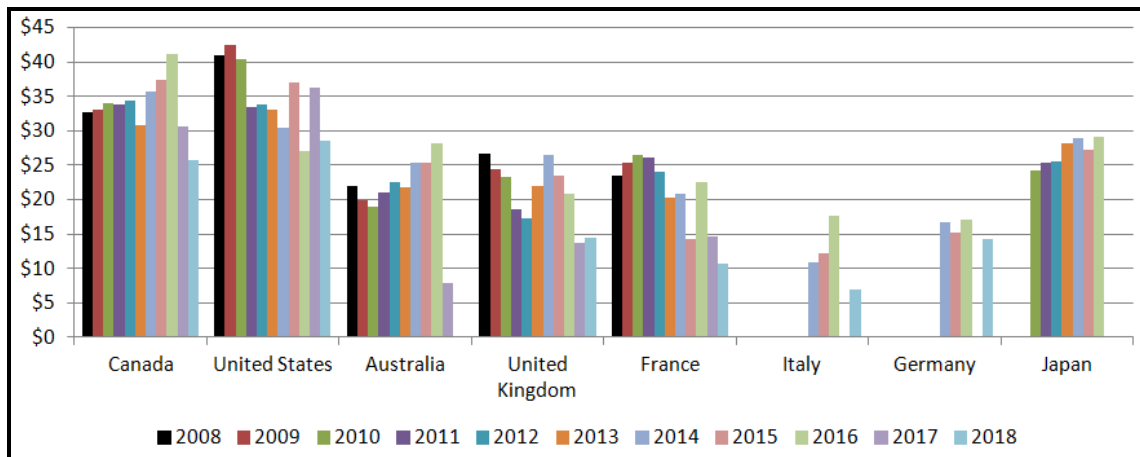
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<sup>48</sup> SC 1993, c 38.

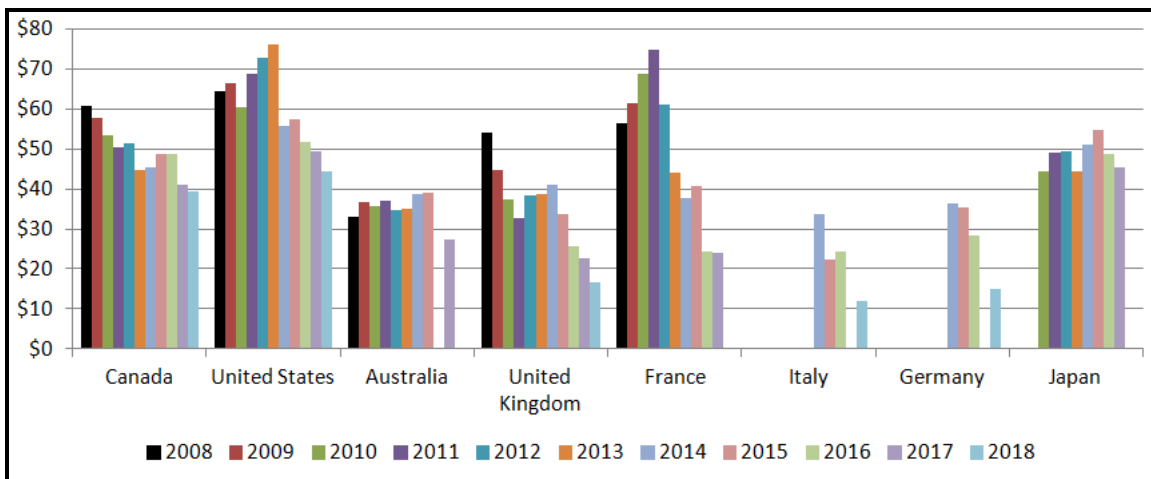
## Appendix A: International Pricing Comparisons

### SOURCE: Wall Communications 2018

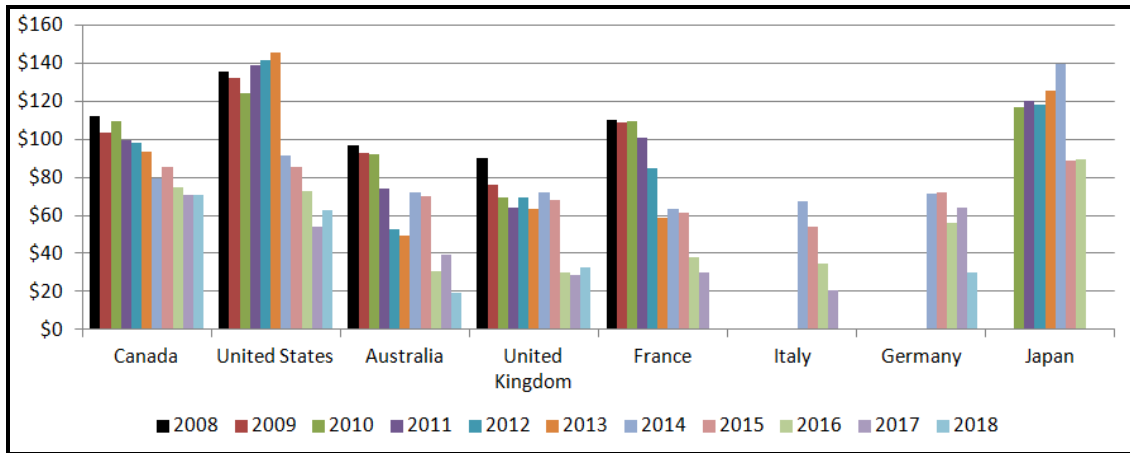
DATA SOURCE: Wall Communications, Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions, August 29, 2018, Attachment 3, Table A3.1  
 Pricing baskets are described in Attachment 1, Table A1.2



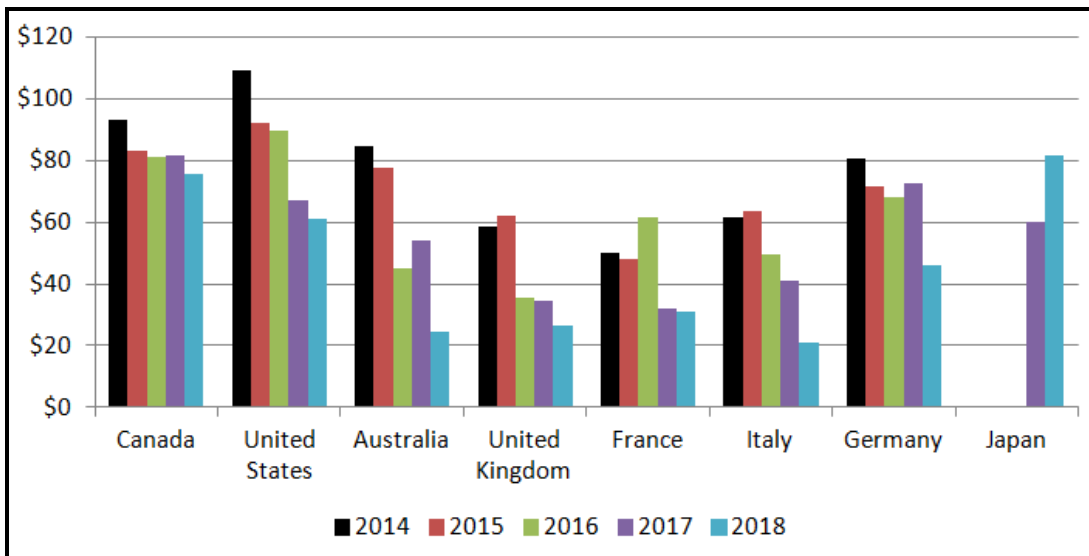
**Mobile Wireless Level 1 (PPP Adjusted)**



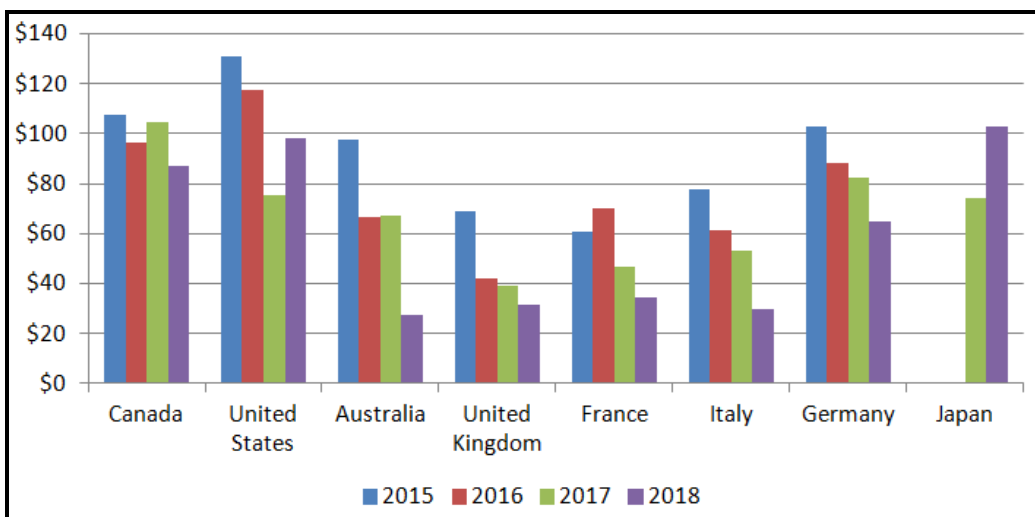
**Mobile Wireless Level 2 (PPP Adjusted)**



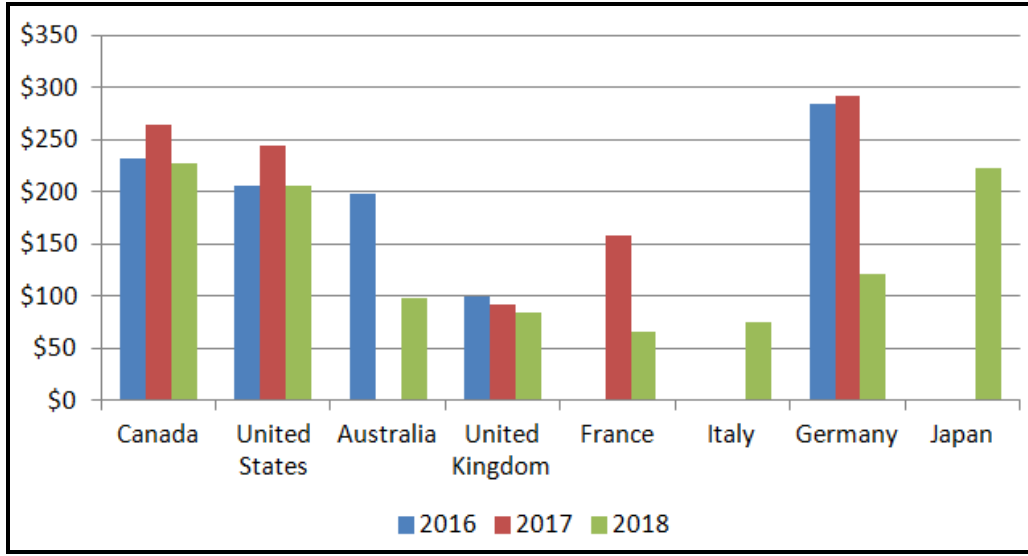
**Mobile Wireless Level 3 (PPP Adjusted)**



**Mobile Wireless Level 4 (PPP Adjusted)**



**Mobile Wireless Level 5 (PPP Adjusted)**



Mobile Wireless Level 6 (PPP Adjusted)

Fin.