

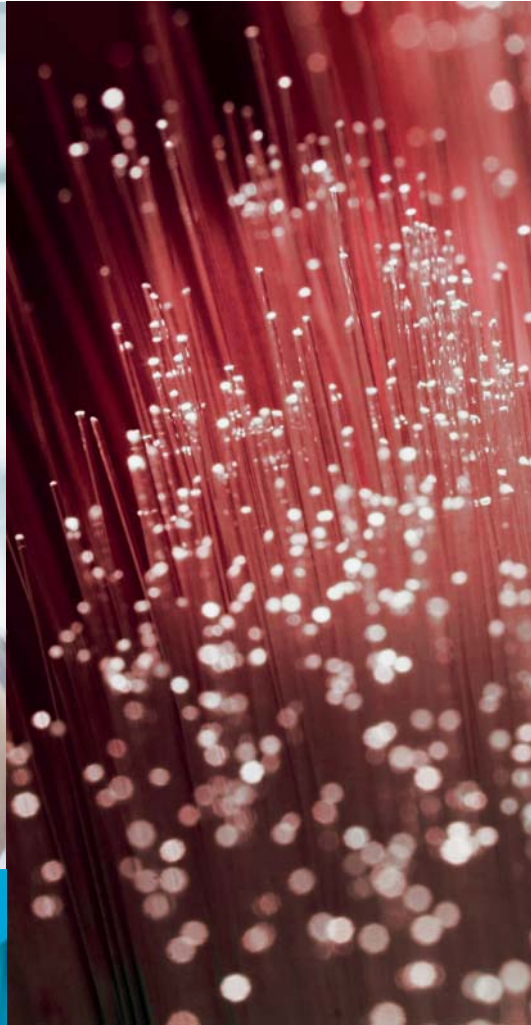


MEI

Ideas for a
More Prosperous
Society



**RESEARCH
PAPERS**



MAY 2015

THE STATE OF COMPETITION IN CANADA'S TELECOMMUNICATIONS INDUSTRY – 2015

By Martin Masse and Paul Beaudry



MEI Ideas for a
More Prosperous
Society

910 Peel Street, Suite 600
Montreal (Quebec)
H3C 2H8 Canada

Phone: 514-273-0969
Fax: 514-273-2581
Website: www.iedm.org

The Montreal Economic Institute is an independent, non-partisan, not-for-profit research and educational organization. Through its publications, media appearances and conferences, the MEI stimulates debate on public policies in Quebec and across Canada by proposing wealth-creating reforms based on market mechanisms. It does not accept any government funding.

The opinions expressed in this study do not necessarily represent those of the Montreal Economic Institute or of the members of its board of directors. The publication of this study in no way implies that the Montreal Economic Institute or the members of its board of directors are in favour of or oppose the passage of any bill.

Reproduction is authorized for non-commercial educational purposes provided the source is mentioned.

©2015 Montreal Economic Institute
ISBN 978-2-922687-59-0

Legal deposit: 2nd quarter 2015
Bibliothèque et Archives nationales du Québec
Library and Archives Canada
Printed in Canada

**Martin Masse
Paul Beaudry**

The State of Competition in Canada's Telecommunications Industry – 2015

Montreal Economic Institute

•
May 2015



MEI

Ideas for a
More Prosperous
Society

TABLE OF CONTENTS

HIGHLIGHTS.....5

INTRODUCTION.....7

CHAPTER 1 – HOW DOES CANADA MEASURE UP?9

CHAPTER 2 – AN UPDATE ON WIRELESS COMPETITION
IN CANADA.....23

CHAPTER 3 – MANDATORY SHARING OF BROADBAND
NETWORKS: FOSTERING OR HINDERING INNOVATION?31

CHAPTER 4 – THE IMPACT OF TECHNOLOGICAL CHANGES ON
COMPETITION IN THE TELECOMMUNICATIONS SECTOR39

CONCLUSION – ENDANGERED BENEFITS45

ABOUT THE AUTHORS 49

HIGHLIGHTS

The 2014 edition of this report attempted to dispel the notion that Canadians pay uncompetitive prices for low quality telecommunications services, and argued that interventions aiming to increase the number of players through subsidies and mandated access were not likely to have the intended effects and might instead jeopardize investments and innovation. Here are some highlights from this year's edition.

Chapter 1 How Does Canada Measure Up?

- Canadians continue to be among the biggest consumers of telecommunications services in the world, an indication that we enjoy competitive, quality services. Only broadband Internet services leave something to be desired compared to other countries.
- The penetration rates of the latest wireless technologies in Canada are among the highest for industrialized countries.
- Canadians actually benefit from one of the most advanced and efficient wireless networks in the world.
- As for the prices Canadians pay for wireless services, they remain generally higher than in Europe (where low prices have been correlated with falling capital expenditures and a lagging deployment of new technologies) but lower than in the United States or Japan.

Chapter 2 An Update on Wireless Competition in Canada

- Despite implementing policies aimed at increasing the number of competitors in the wireless market since 2007, Bell, Telus and Rogers still dominate the Canadian wireless market, and the provinces of Ontario, Alberta and British Columbia still lack a solidly established fourth wireless player.
- Since the federal government eased foreign ownership restrictions in 2012, no well-established foreign player has entered the Canadian market, despite the federal government's courting of two American wireless providers in 2013.
- Over the past year, the government has reiterated its support for preferential spectrum auctions, and has passed legislation aimed at capping the roaming fees that large wireless carriers can charge small ones.



- Since last year's edition of this report, Germany and Ireland have been added to the list of countries with only three national players, and ongoing transactions in Italy, the UK and Denmark may lead to more mergers in the coming months.
- WIND Mobile is the only pure-play new entrant whose fortunes have brightened since last year, acquiring additional spectrum in the March 2015 auction, although it now has to invest significant sums to deploy that spectrum, and it is still uncertain whether it can secure the funding to do so.
- Investments in wireless infrastructure in Europe have declined by 3% between 2007 and 2013, whereas they grew by 74% in the United States and by 21% in Canada.
- The government and the CRTC should stop emulating the failed policies of Europe and revive Canada's historically less interventionist wireless regulation, which has served consumers well.

Chapter 3 Mandatory Sharing of Broadband Networks: Fostering or Hindering Innovation?

- The CRTC is expected to issue a decision shortly on whether there is a need for mandatory wholesale access with respect to fibre-to-the-premises facilities (FTTP), which are replacing copper technology with optical fibre that runs directly to the homes and businesses of customers.
- Proponents of mandatory network sharing contend that it is necessary because certain elements of telecommunications networks are difficult to replicate, or cannot be replicated economically.

- Small, independent Internet service providers (ISPs), whose business model relies solely on the use of the large providers' infrastructure at below-market rates, have fared well under the current regulatory environment.
- However, the presence of these additional competitors is artificially supported by the CRTC, not by actors in the marketplace. In attempting to strike a balance between the interests of the large companies and those of small ISPs, the CRTC has interfered with all market participants' incentives to innovate and invest in advanced networks and equipment.
- The proportion of Canadians subscribing to mobile broadband in 2013 was 50.2%, as opposed to 32.8% for fixed broadband, due to the growing popularity of smartphones and tablets. This provides an additional and much more potent source of competition in the broadband sector.
- The stark contrast between the U.S. and European approaches regarding mandatory access should give pause to proponents of generous mandated access policies.

Chapter 4

The Impact of Technological Changes on Competition in the Telecommunications Sector

- There are two visions of competition: the "static" vision of perfect competition, which continues to influence decision makers and the general public even though it has fallen out of favour in the field of economics; and the "dynamic" vision that takes into account the rapid evolution of markets, and in particular the potential impact of new, disruptive technologies.
- Those who favour the static vision generally advocate government intervention to increase competition, either by regulating prices or by promoting and subsidizing the entry of additional players, but the static model is of limited relevance to the analysis of an industry like telecommunications, which has undergone substantial and rapid changes thanks to technology.
- In contrast, a good illustration of the relevance of the dynamic model is that over the past quarter of a century, new technologies have gradually eroded the former telephone monopolies' dominant market positions: first, through the provision of telephony services by

cable providers, and then through the substitution of wireless telephone services for traditional wireline services.

- In 2013, cable providers accounted for 33% of all revenues from local residential telephony services.
- Households are increasingly deciding to abandon their residential telephones and keep just their wireless subscriptions: In 2013, 21% of Canadian households had decided to "cut the cord"—including 60% of young households.
- The potential competitors of today—which have no market share and which consequently are not considered relevant according to the static approach—are the ones that might revolutionize the industry of tomorrow.

INTRODUCTION

Last year, the first edition of *The State of Competition in Canada's Telecommunications Industry* assessed how Canada measured up with other jurisdictions regarding the quality and pricing of its telecommunications services. The report also evaluated how competition was faring in key areas of the Canadian telecommunications market, and provided a critical assessment of Canada's legislative and regulatory framework for this industry.

One of the primary motivations for the publication of this report was that many Canadians were, in our opinion, under the mistaken impression that Canada's telecommunications industry compared poorly with that of other jurisdictions. The report attempted to dispel the notion that Canadians pay uncompetitive prices for low quality services. It also argued that the federal government's and the CRTC's interventions in the wireless and wireline sectors aiming to increase the number of players through subsidies and mandated access were not likely to have the intended effects and might jeopardize investments and innovation. Instead of these interventions, the report argued that the government should liberalize its policy on spectrum transfer and open up the market completely to foreign ownership.

This year's edition continues to explore these themes. Chapter 1 provides updated statistics regarding the performance of the Canadian telecommunications industry compared with other jurisdictions. Chapter 2 describes the current state of Canada's wireless market, with a look at spectrum auctions and CRTC decisions on tower sharing and roaming fees. Chapter 3 discusses the mandatory sharing of broadband networks and the impact of such a policy on investment decisions. Finally, Chapter 4 explores the role of innovation in assessing the level of competition that exists in a dynamic market.

CHAPTER 1

How Does Canada Measure Up?

The criticism most often heard regarding the telecommunications industry in Canada, and especially wireless services, is that Canadians pay a lot more than people in other countries for lower quality services. It is this criticism that is used to justify the federal government's numerous interventions these past few years aimed at promoting more competition in the wireless sector. Is this actually true?

It is difficult to form a perfectly clear and objective picture of the situation, not only because circumstances (like geography and types of regulation) vary from one country to the next, but also because of the use of different research methodologies. The available data, however, do not support such a conclusion.

The charts that follow come from the main organizations that publish international rankings related to various aspects of the telecommunications industry.

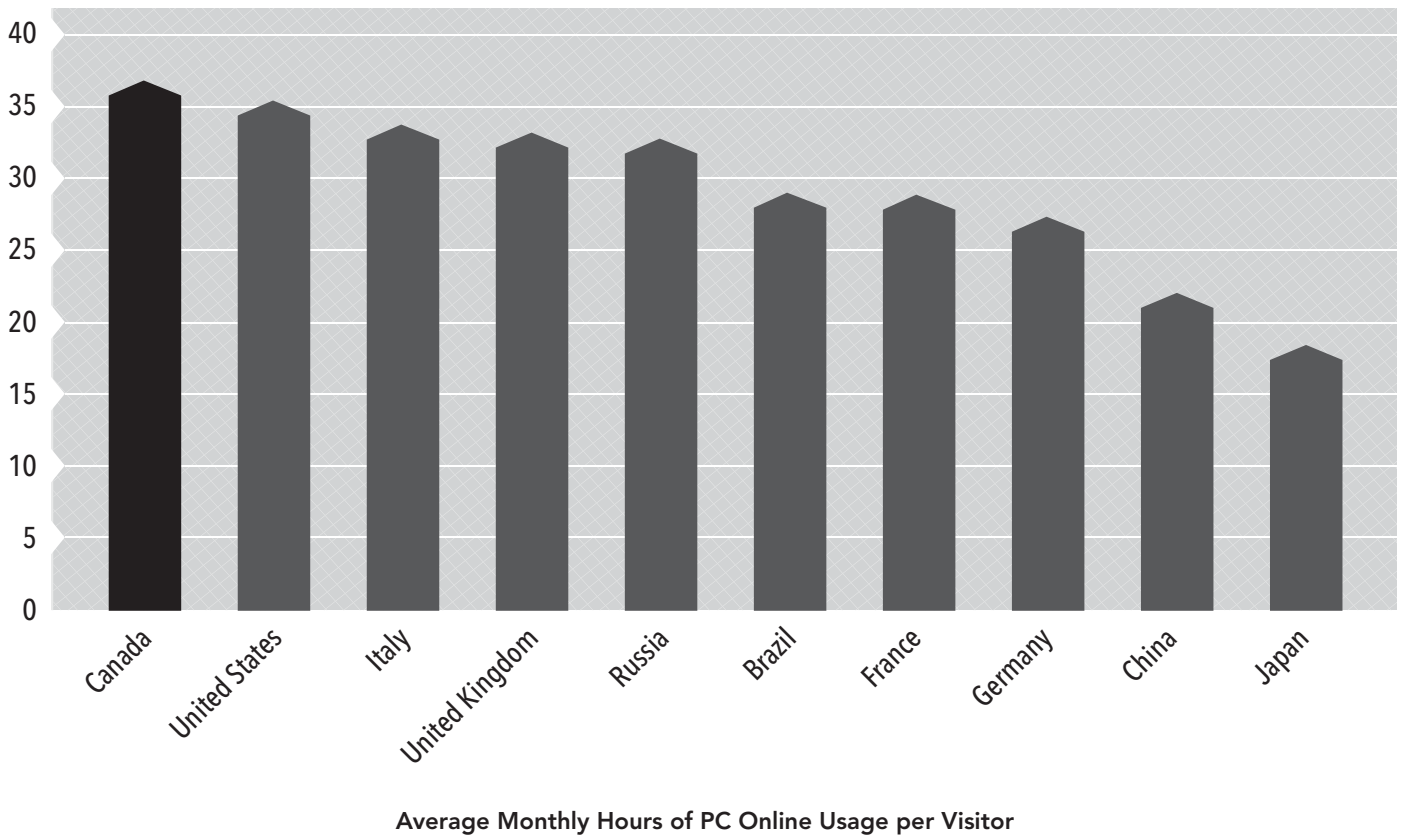
As in last year's edition of this report, the picture that emerges from these data is first of all that Canadians are among the biggest consumers of telecommunications services in the world. This does not constitute a proof, but it is certainly an indication that Canadians enjoy competitive, quality services. Another indication is that the penetration rates of the latest wireless technologies are also among the highest for industrialized countries.

In terms of the quality of services, the data indicate that Canadians actually benefit from one of the most advanced and efficient wireless networks in the world. Only broadband Internet services leave something to be desired compared to other countries.

As for the prices Canadians pay for wireless services, they are generally higher than in Europe, but lower than in the United States or Japan. These low prices are not necessarily a positive sign for the European telecommunications industry, however. In recent years, they have been correlated with falling capital expenditures and a lagging deployment of new technologies.

Figure 1-1

PC Online Usage

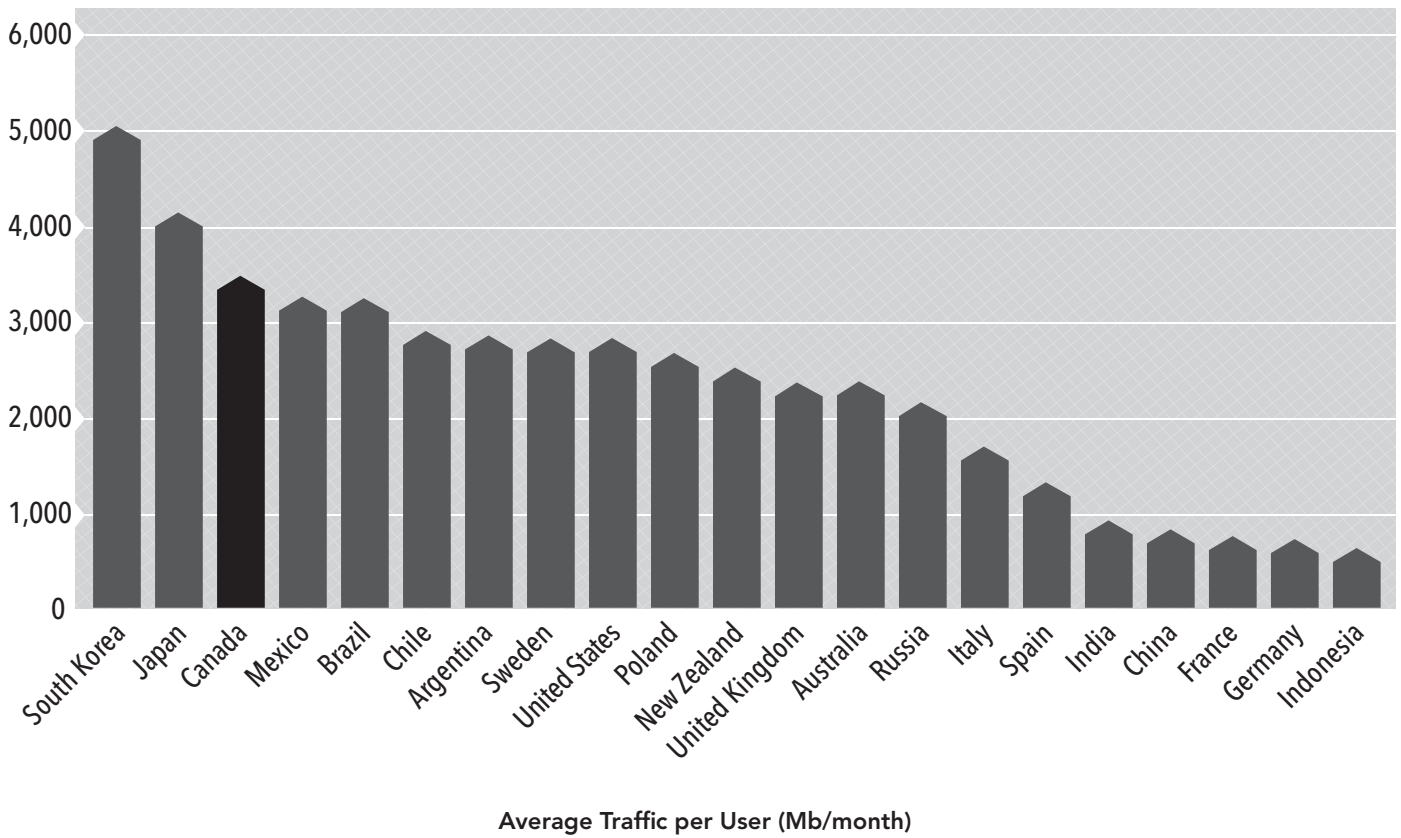


Source: comScore, *Canada Digital Future in Focus 2015*, March 27, 2015.

In the sample selected by comScore, Canada is ranked 1st (as opposed to 3rd last year) in terms of the number of hours visitors spend online on average every month. This is a reminder that Canadians are among the biggest data users in the world.

Figure 1-2

Tablet Usage

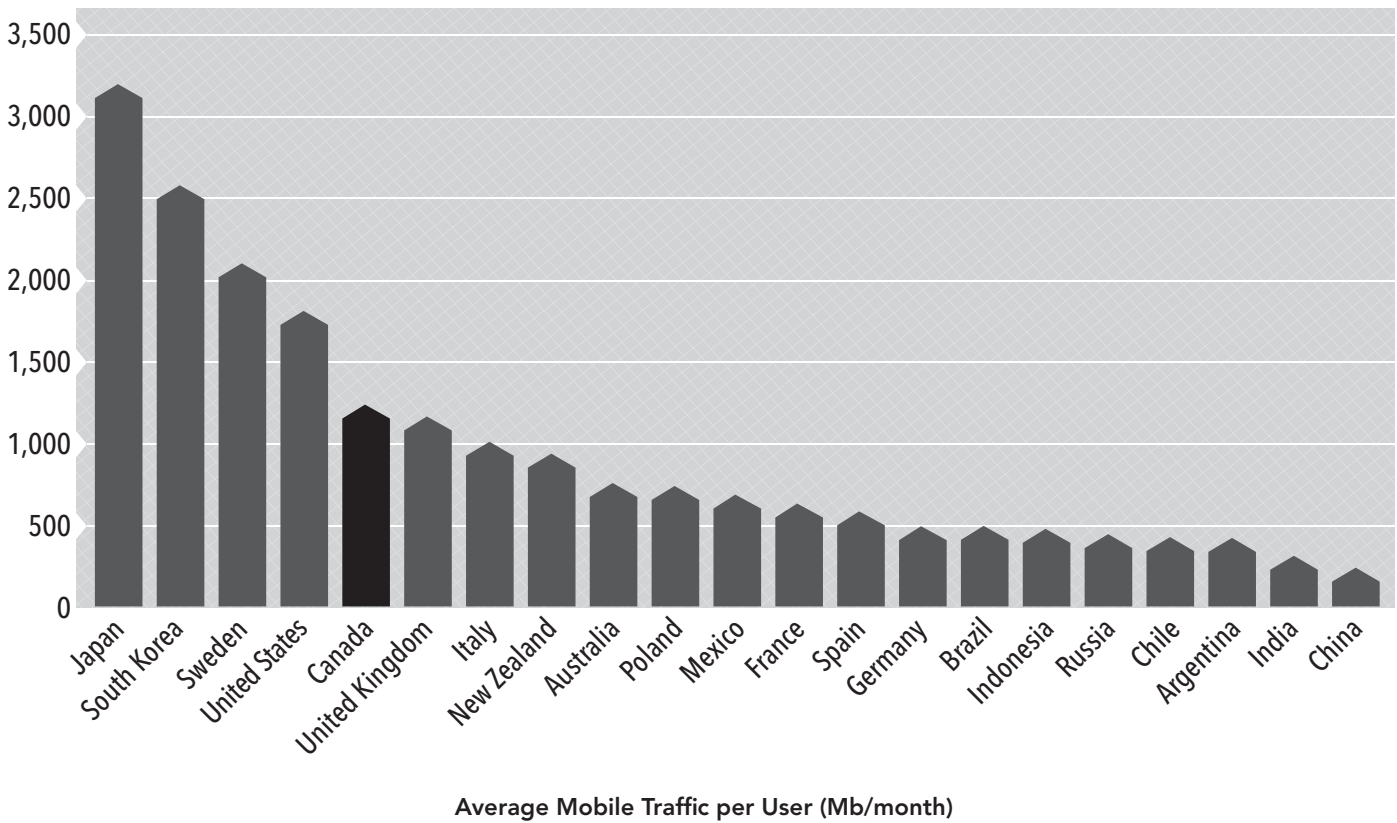


Source: Cisco, VNI Mobile Forecast Highlights 2014-2019, 2014.

In regard to tablet usage, Canadians use on average 3,400 Mb per month. Canada is ranked 3rd among the countries where data was available.

Figure 1-3

Smartphone Usage

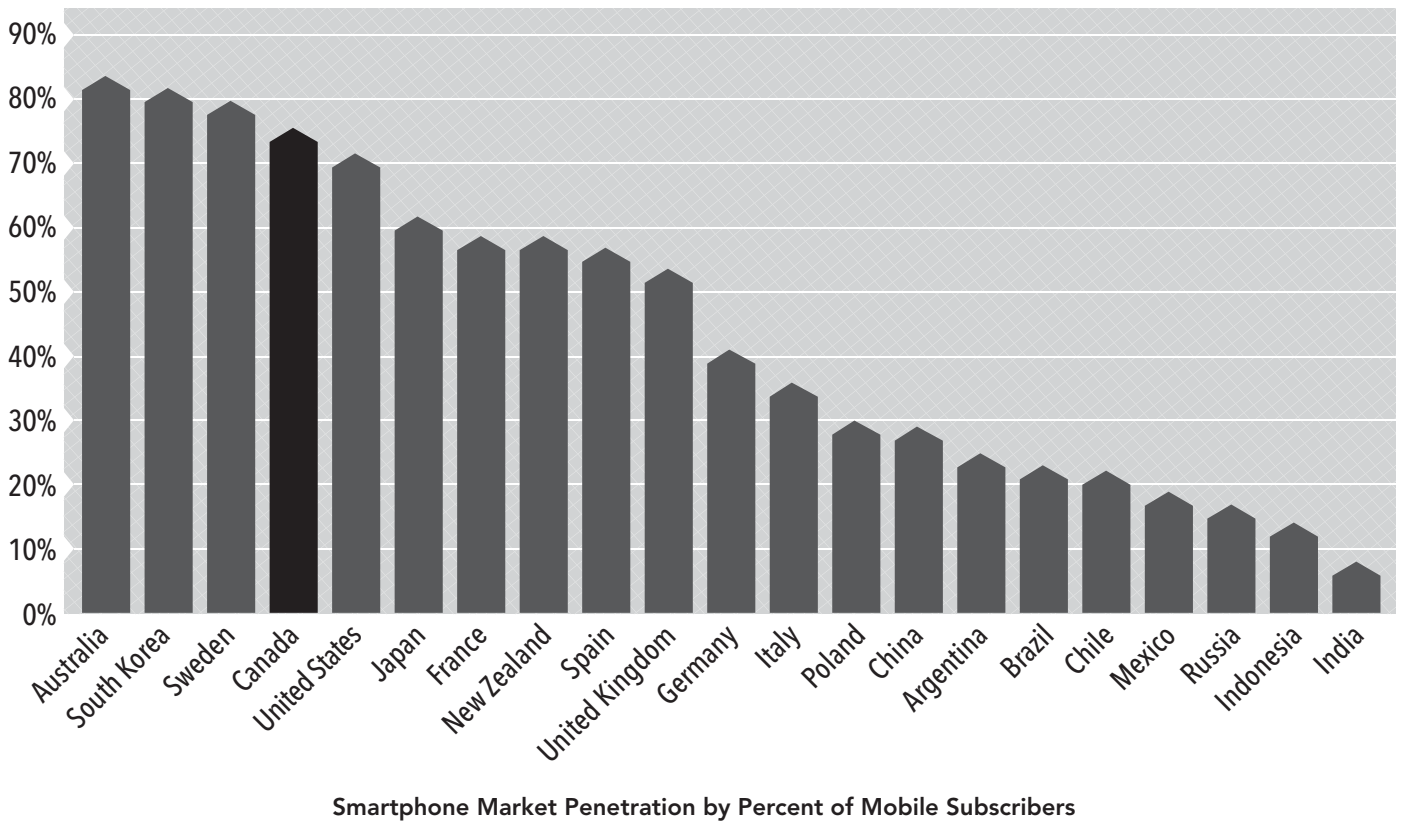


Source: Cisco, VNI Mobile Forecast Highlights 2014-2019, 2014.

In terms of smartphone usage, Canadians use on average a little more than 1,200 Mb per month. Such a level of consumption means Canada ranks 5th among Cisco's sampled countries.

Figure 1-4

Smartphone Market Penetration

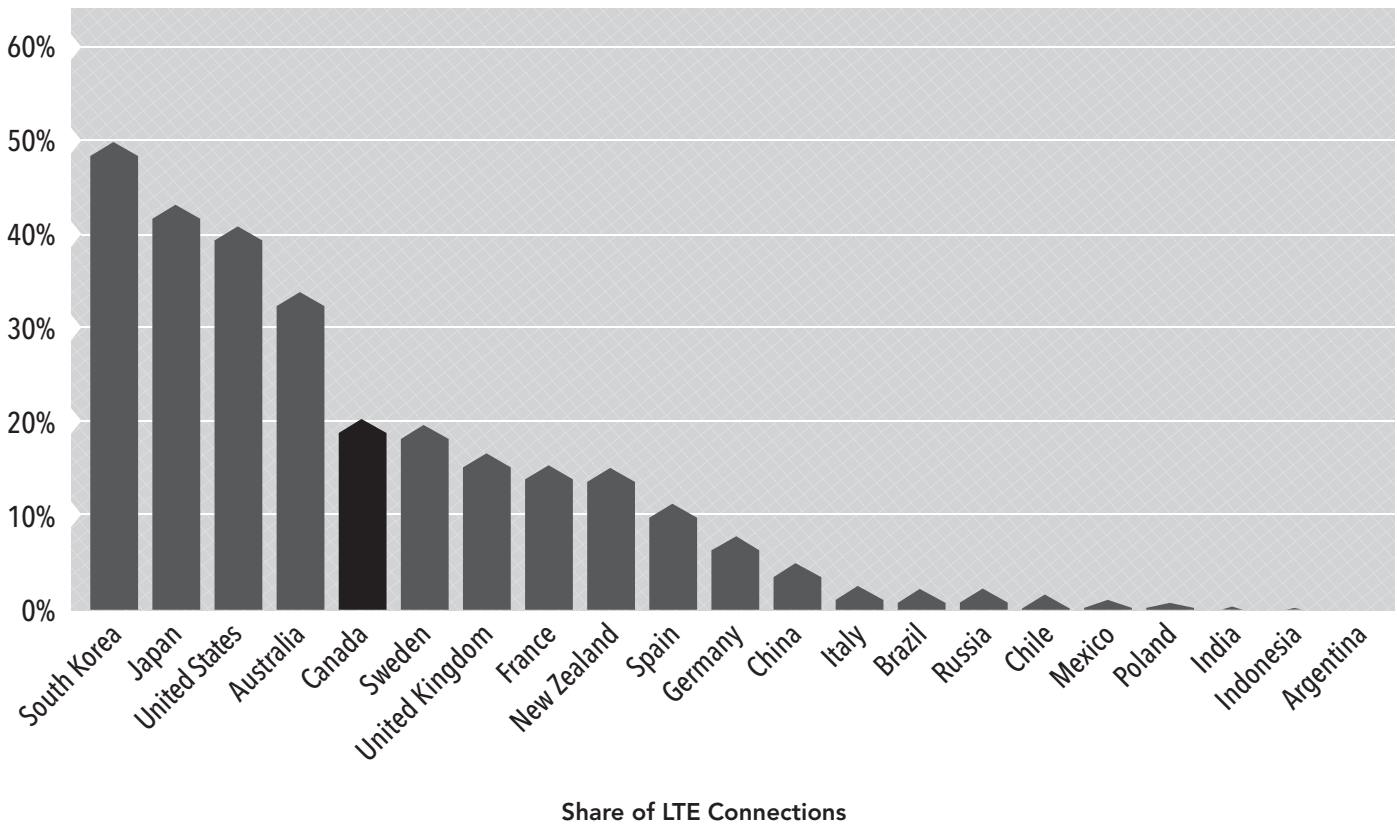


Source: Cisco, VNI Mobile Forecast Highlights 2014-2019, 2014.

In terms of smartphone market penetration, Canada ranks 4th, with a total of 76% of its mobile subscribers using smartphones.

Figure 1-5

LTE Connections as a Ratio of Total Connections

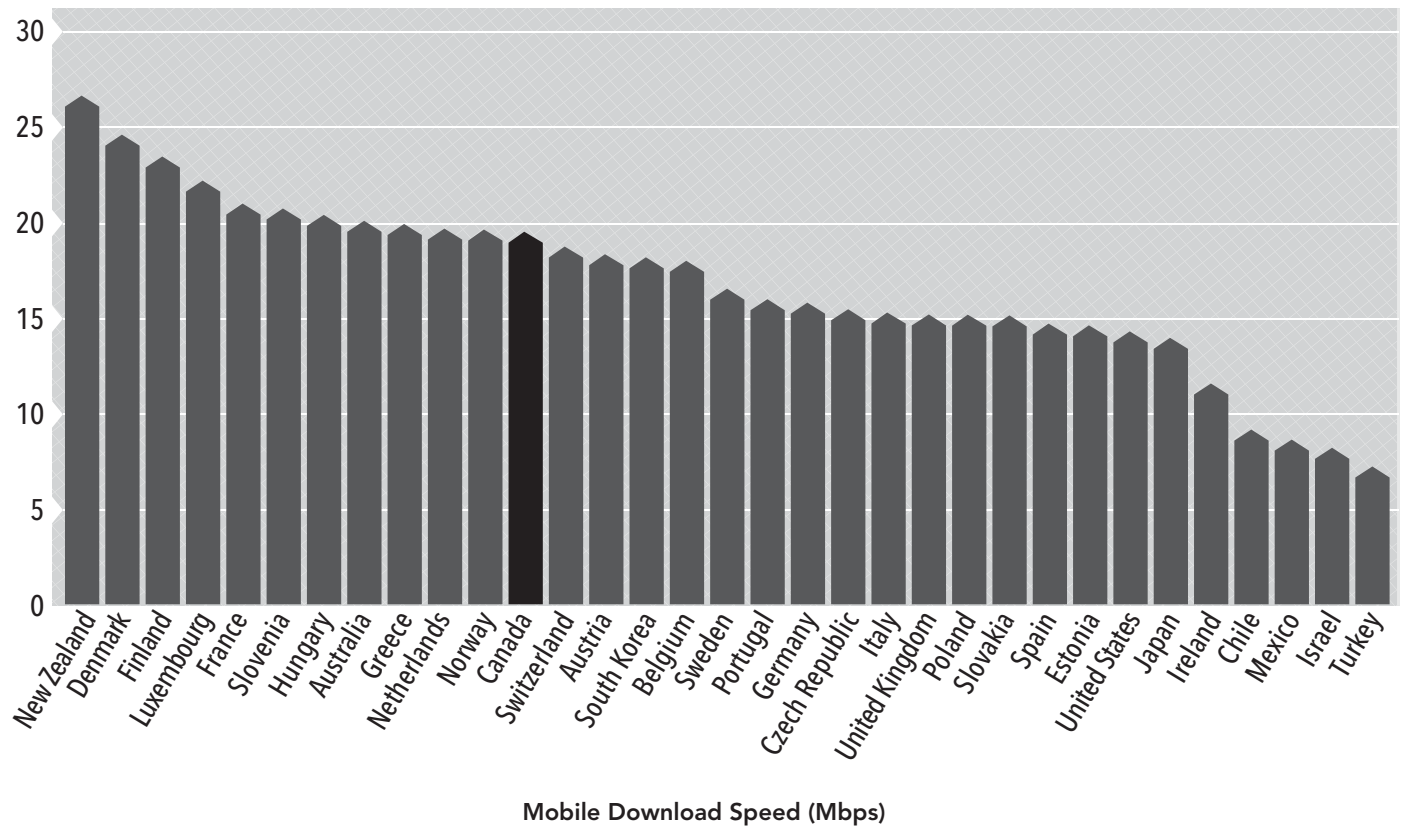


Source: Cisco, VNI Mobile Forecast Highlights 2014-2019, 2014.

Canada ranks 5th among the 21 selected countries in terms of the proportion of mobile users connected to the fastest network, with 20% of total connections being LTE (Long Term Evolution, or 4G) connections.

Figure 1-6

Mobile Download Speed

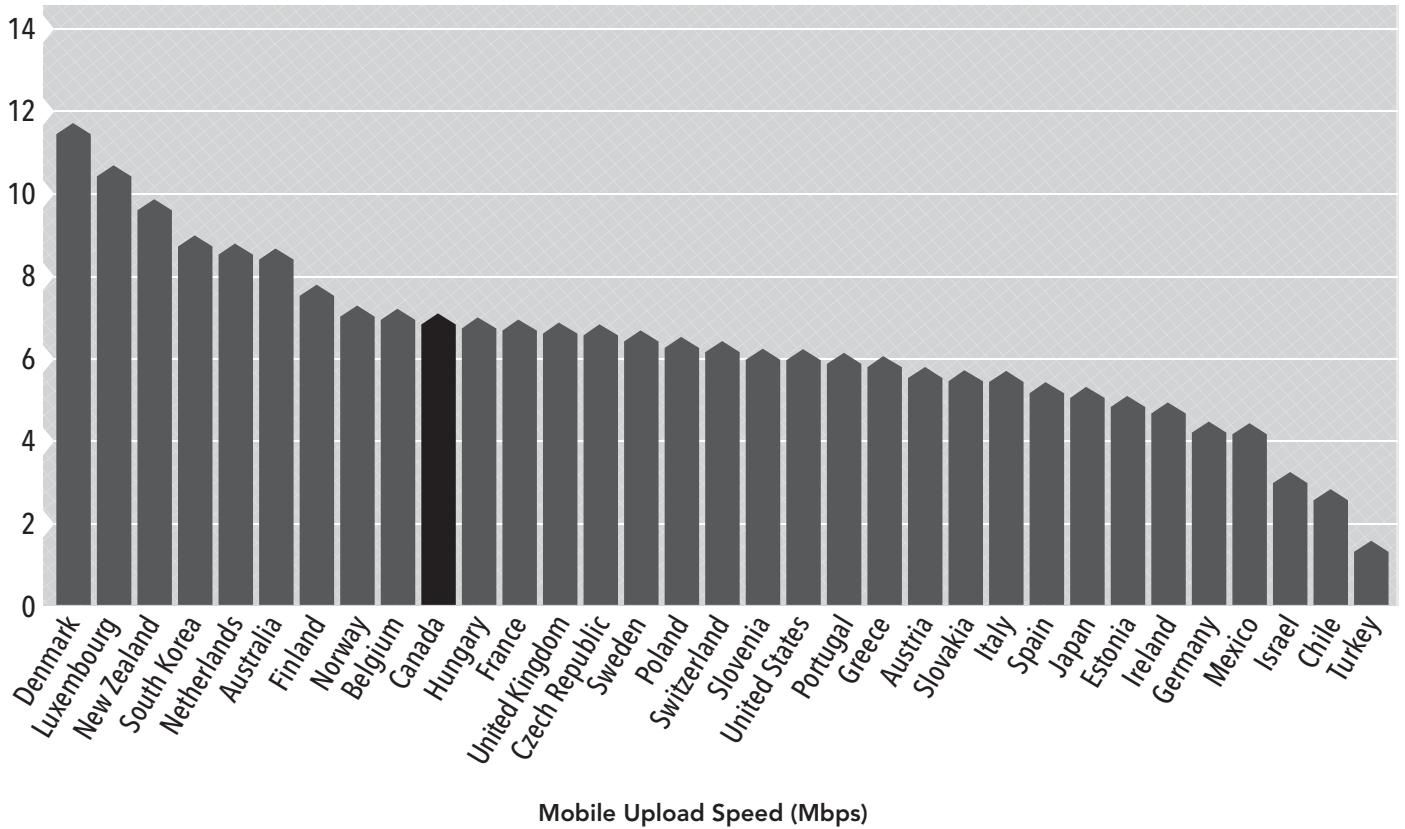


Source: Ookla Net Index, Mobile Download Index, April 22, 2015. Results were obtained by analyzing test data between March 24 and April 22, 2015.

In terms of mobile download speed, Canada ranks 12th among OECD member states, ahead of countries such as Switzerland, South Korea, the United Kingdom, the United States and Japan.

Figure 1-7

Mobile Upload Speed

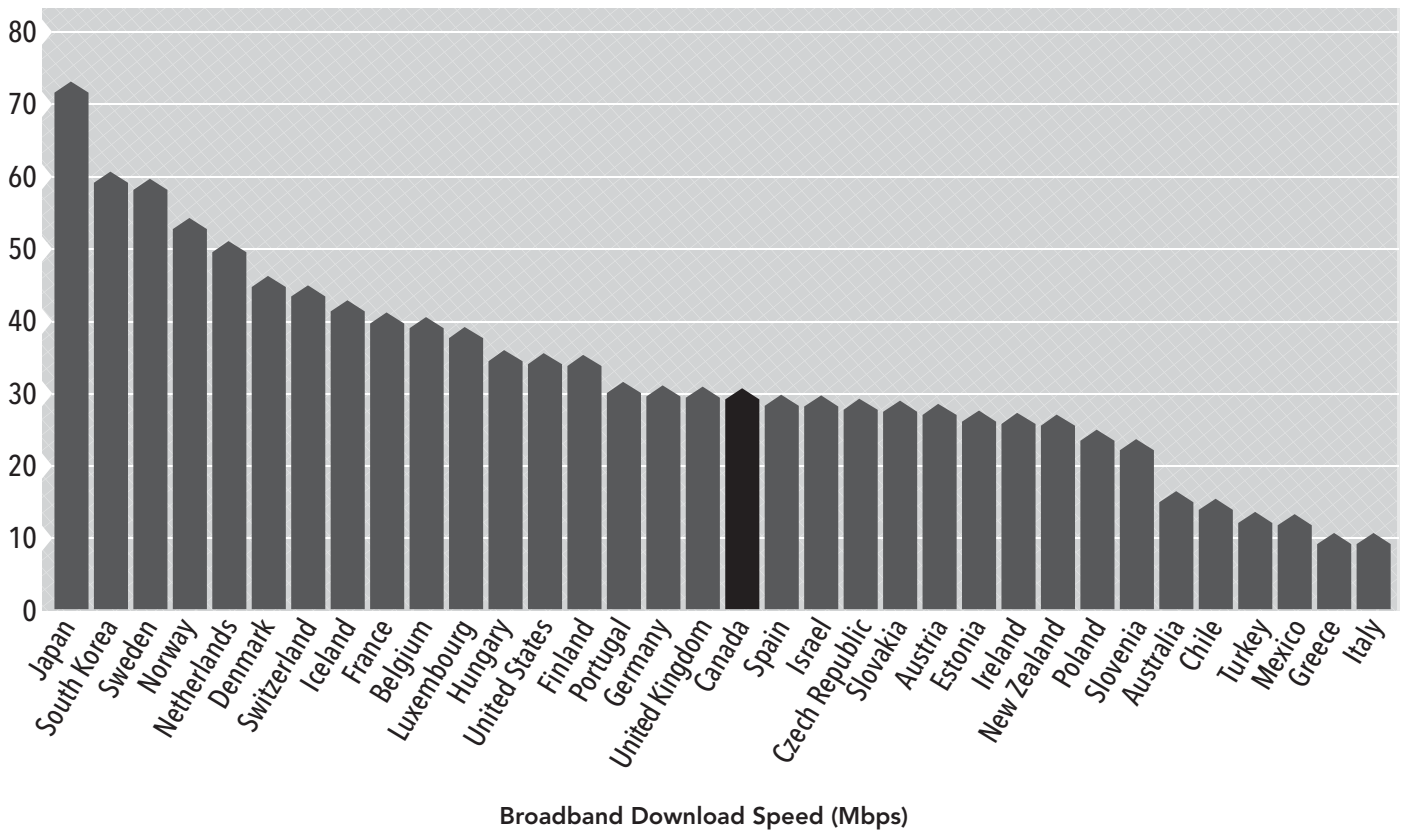


Source: Ookla Net Index, Mobile Upload Index, April 22, 2015. Results were obtained by analyzing test data between March 24 and April 22, 2015.

In terms of mobile upload speed, Canada ranks 10th among OECD member states, ahead of countries such as France, the United Kingdom, Switzerland, the United States and Japan.

Figure 1-8

Broadband Download Speed

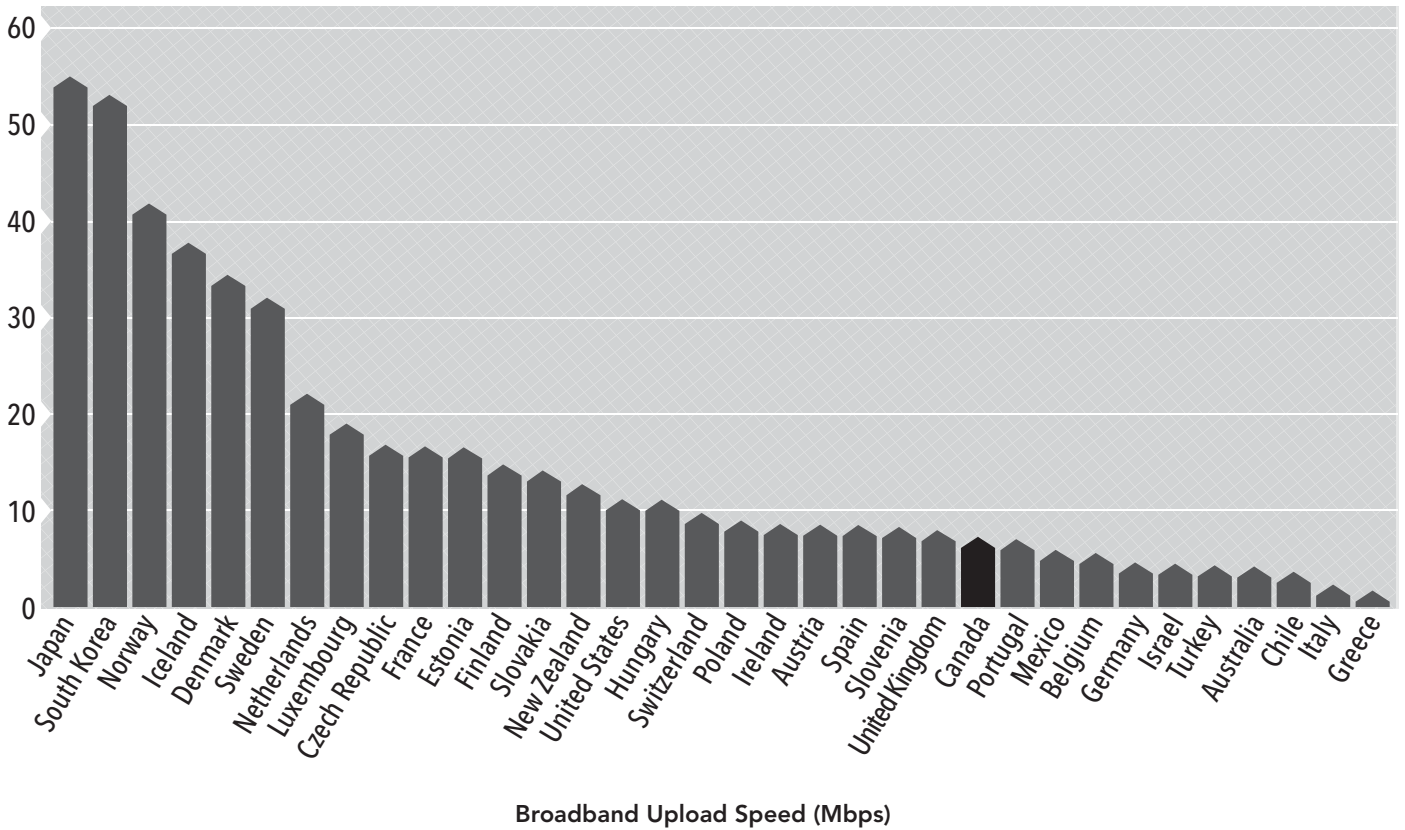


Source: Ookla Net Index, Household Download Index, April 22, 2015. Results were obtained by analyzing test data between March 24 and April 22, 2015.

In terms of broadband download speed (that is, download speed for Internet users with a wireline or cable connection), the Ookla Net Index ranks Canada 18th among OECD countries.

Figure 1-9

Broadband Upload Speed

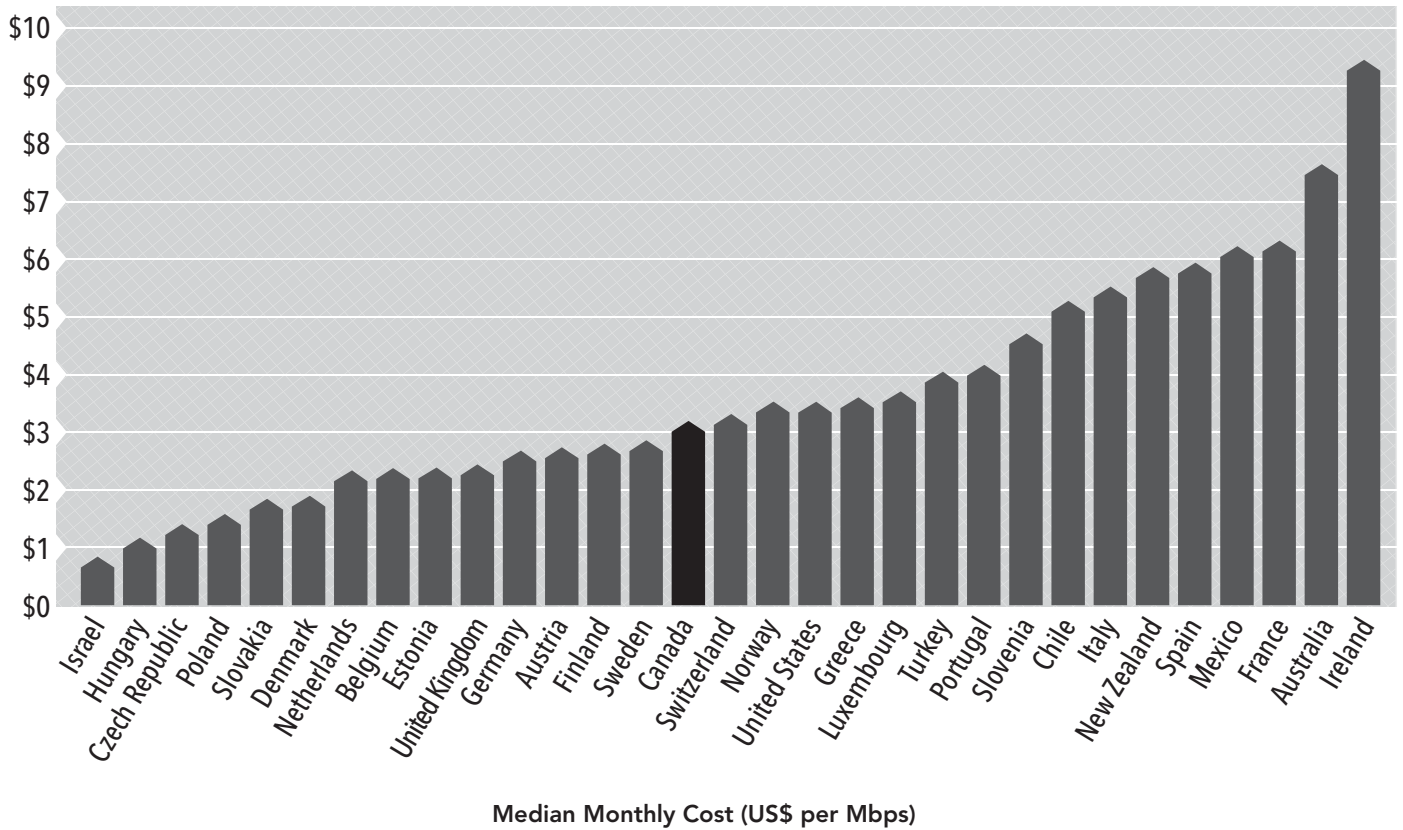


Source: Ookla Net Index, Household Upload Index, April 22, 2015. Results were obtained by analyzing test data between March 24 and April 22, 2015.

In terms of broadband upload speed, Canada ranks 24th among OECD countries.

Figure 1-10

Cost of Bandwidth

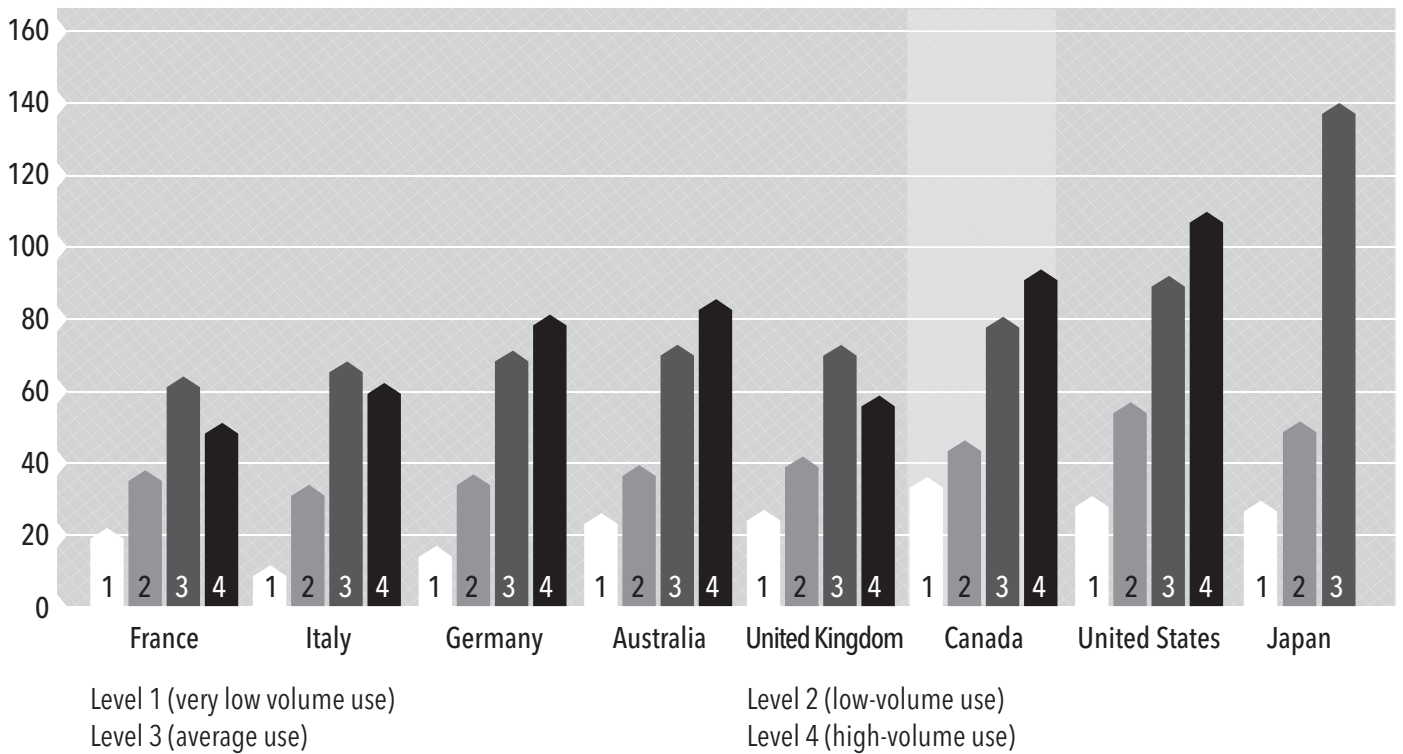


Source: Ookla Net Index, Household Value Index, April 23, 2015. Results were obtained by analyzing test data between October 23, 2014 and April 23, 2015.

Regarding the cost of bandwidth for broadband Internet connections, Canada is below the OECD average.

Figure 1-11

International Mobile Wireless Prices



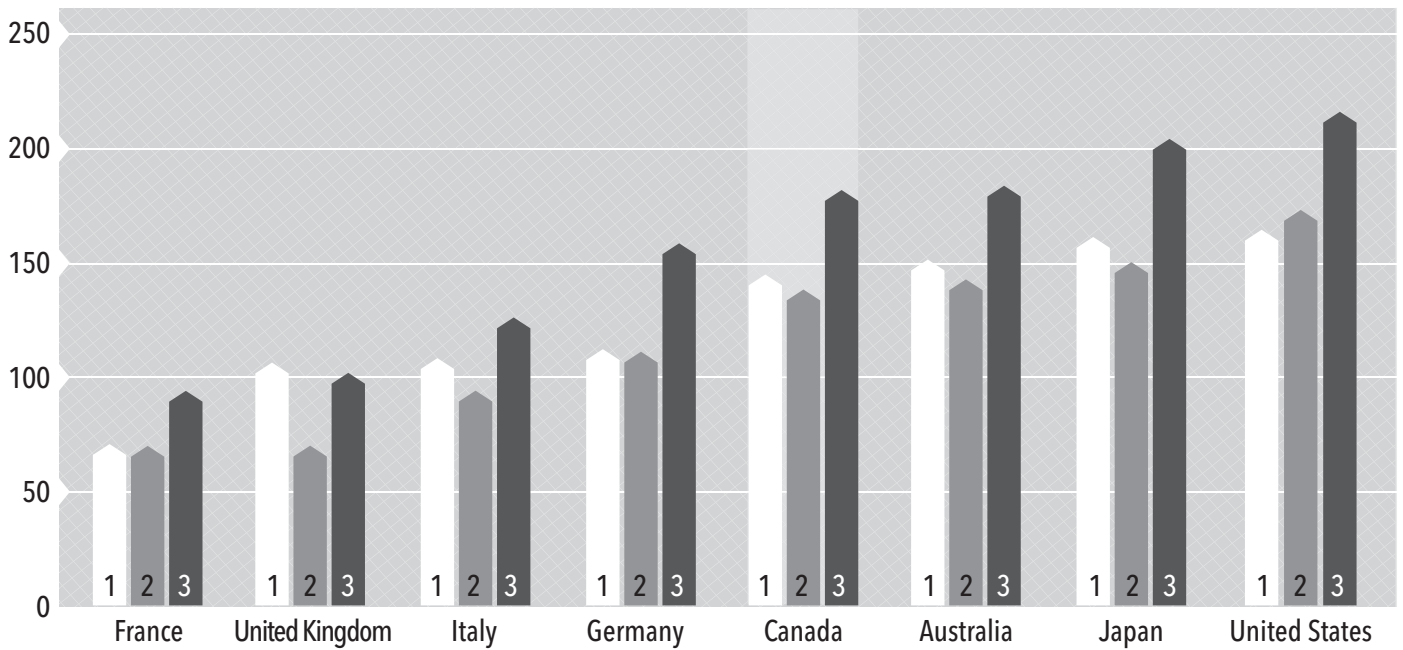
Source: Wall Communications, *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2014 Update*, Prepared for the CRTC and Industry Canada, March 31, 2014, Table A3.2. The indicated values are expressed in Canadian dollars, adjusted for purchasing power parity.

Wall Communications has assembled different baskets of mobile wireless services in order to compare Canadian monthly rates with those of seven other countries. These baskets were built on a usage basis, ranging from very low to high-volume usage.

In terms of prices, Canada ranks 8th for very low volume use, and 6th for each of the remaining levels.

Figure 1-12

International Prices for Bundled Services



Bundle 1: Wireline, broadband Internet and mobile wireless services.

Bundle 2: Wireline, broadband Internet and digital TV services.

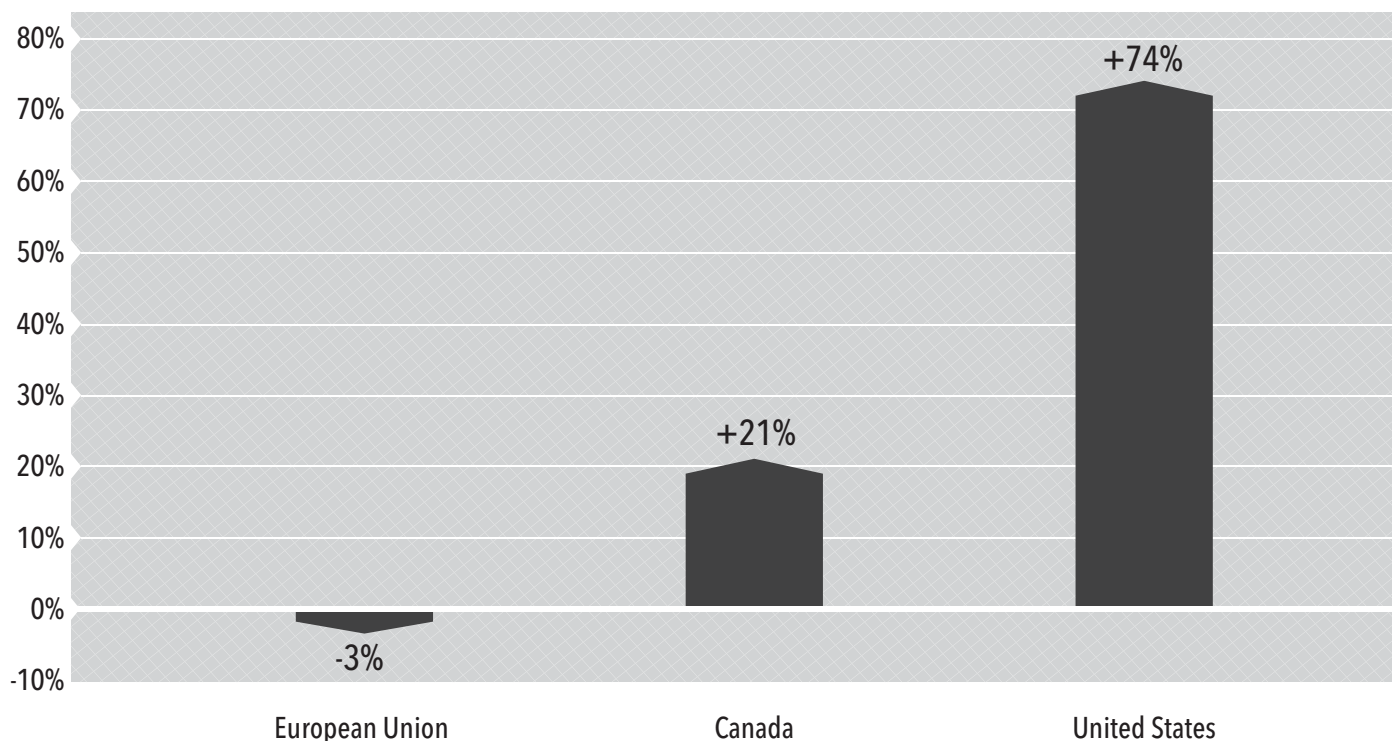
Bundle 3: Wireline, broadband Internet, mobile wireless and digital TV services.

Source: Wall Communication, *Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions: 2014 Update*, Prepared for the CRTC and Industry Canada, March 31, 2014, Table A3.5. The indicated values are expressed in Canadian dollars, adjusted for purchasing power parity.

Wall Communications has assembled different bundles of services in order to compare Canadian monthly rates with those of other countries. Canada ranks 5th out of 8 countries for all the bundles.

Figure 1-13

Progression of Capital Expenditure in the Wireless Sector, 2007-2013



Sources: Goldman Sachs Global Investment Research, quoted in Erik Bohlin, Kevin W. Caves and Jeffrey A. Eisenach, *Mobile Wireless Performance in the EU & the US*, GSMA/Navigant Economics, May 2013, p. 17; CRTC, *Communications Monitoring Report 2010*, July 2010, Table 5.1.9: Capital expenditures, by type of TSP, p. 119; CRTC, *Communications Monitoring Report 2014*, October 2014, Table 5.0.4: Telecommunications investments made in plant and equipment, by type of provider of telecommunications service, p. 141.

Regarding capex progression in the wireless sector, the European Union has been outpaced by the United States and Canada these past few years. The data show that between 2007 and 2013, wireless capex grew by 74% in the U.S. and by 21% in Canada while European Union capital expenditure decreased by 3%.

CHAPTER 2

An Update on Wireless Competition in Canada

In last year's report,¹ we provided an overview of the various measures undertaken by the federal government in order to foster additional competition in the wireless sector. The government has long advocated the emergence of a fourth national wireless player in Canada, claiming that the wireless sector is insufficiently competitive and that, as a result, Canadian consumers are suffering due to higher prices and less choice.

However, despite implementing policies aimed at increasing the number of competitors in the wireless market since 2007, the government has little to show for its efforts. The so-called "Big Three" (Bell, Telus and Rogers) still dominate the Canadian wireless market, as shown in Table 2-1. Furthermore, the provinces of Ontario, Alberta and British Columbia, which together account for more than 60% of Canada's population, still lack a solidly established fourth wireless player.

"Despite implementing policies aimed at increasing the number of competitors in the wireless market since 2007, the government has little to show for its efforts."

So what happened to the regional providers and new entrants that acquired subsidized AWS (Advanced Wireless Services) spectrum in 2008?

- EastLink in the Maritime Provinces, and Videotron in Quebec (owned by Quebecor), have successfully deployed their networks and built a local client base for their wireless services. Both are cable companies that already offered wireline telephone, Internet and television services. Their strong regional presence and their ability to offer a wide array of services are major reasons for their success. However, Videotron has yet to make a decision on whether or not to deploy the 700 MHz spectrum licences in Ontario, Alberta and British Columbia

that it acquired for a bargain price in the 2014 auction. Given that it currently has no presence outside of Quebec, most analysts doubt that it has the ability to exploit a wireless network in several provinces unless it teams up with other providers from Canada or elsewhere.² The company itself has admitted that it might simply "sit" on the spectrum licences it has secured.³

- Public Mobile, one of the three new "pure-play" entrants offering only wireless services that was launched after the 2008 auction, was acquired by TELUS for nearly five times the purchase price of its spectrum licences, essentially arbitraging its government-subsidized spectrum acquisition to secure a windfall.
- Another pure-play wireless operator, Mobilicity, has been under creditor protection since the government rejected its acquisition by TELUS, and did not bid in the recent AWS-3 spectrum auction due to a lack of financing. Its U.S. parent and one of its financial backers are now suing Industry Canada for preventing the sale of the company.⁴
- Finally, WIND Mobile is the only new pure-play entrant whose fortunes have brightened since last year. At the time, WIND's European financial backer, VimpelCom, had written off its investment in the company, whose future was gloomy. In September 2014, however, the tides changed when VimpelCom's majority stake in the company was acquired by WIND's founder, Tony Lacavera, and West Face Capital, a Canadian private equity firm.⁵ This change of control allowed the company to secure the critical financing it needed to acquire additional spectrum in the March 2015 AWS-3 spectrum auction. However, as explained below, it is premature to conclude at this stage that WIND will become a sustainable fourth player in Ontario, Alberta and British Columbia.

1. See Martin Masse and Paul Beaudry, Chapter 2: "The Elusive Search for a Fourth Wireless Player," in *The State of Competition in Canada's Telecommunications Industry – 2014, Research Paper*, Montreal Economic Institute, May 2014.

2. It should be added that Videotron acquired AWS-3 spectrum in the most recent spectrum auction. However, it only did so in Quebec and in Eastern Ontario.

3. Sophie Cousineau, "Quebecor waiting on Ottawa before expanding out of Quebec," *The Globe and Mail*, March 13, 2014.

4. "Mobilicity's backer sues Industry Canada over losses," *CBC News*, September 5, 2014.

5. Pete Evans, "Tony Lacavera and West Face buy Wind Mobile from VimpelCom," *CBC News*, September 16, 2014.

Table 2-1
Wireless service subscriber market share, by province and territory, 2013 (%)

Province/territory	Bell Group	Telus	Rogers	New entrants	Other
British Columbia	19	39	38	3	0
Alberta	24	48	25	3	0
Saskatchewan	12	13	8	0	68
Manitoba	6	10	33	0	51
Ontario	29	19	45	5	1
Quebec	33	29	29	9	0
New Brunswick	57	26	17	0	0
Nova Scotia	53	33	14	1	0
Prince Edward Island	56	32	12	1	0
Newfoundland and Labrador	71	28	2	0	0
The North	99	0	0	0	1

Source: CRTC, *Communications Monitoring Report 2014*, October 2014, Table 5.5.6: Wireless service subscriber market share, by province and territory (2013), p. 216.

Note: The "Bell Group" category includes Bell Canada; Bell Mobility; Latitude Wireless; NorthernTel, Limited Partnership; Northwestel Mobility; SkyTerra; Télébec, Limited Partnership; and Virgin Mobile. In 2013, Public Mobile's figures were included with those of Telus. The "New entrants" category refers to the new wireless entities that acquired spectrum in Industry Canada's 2008 AWS spectrum auction and were still operating as competitors to Bell, Telus and/or Rogers in 2013. These entities included: Data & Audio Visual Enterprises Wireless Inc.; Globalive Wireless Management Corp., operating as WIND Mobile; Videotron G.P.; and more recently, Bragg Communications Inc., operating as Eastlink. The "Other" category includes TSPs such as MTSAllstream, SaskTel, and other small TSPs.

Since the federal government lifted the foreign ownership restrictions in 2012 on carriers holding less than a 10% share of the Canadian telecommunications market (currently, any telecommunications carrier except for Bell, Telus and Rogers), no well-established foreign player has entered the Canadian market, despite the federal government's courting of two American wireless providers in 2013.⁶

Despite these policy setbacks, the federal government has not shown any signs of backing down from its activist approach to wireless competition. Indeed, as we shall see, over the last year, the government has reiterated its support for preferential spectrum auctions, and has passed legislation aimed at capping the roaming fees that large wireless carriers can charge small ones.

This is all the more surprising given that Canada's policy in this matter goes against a worldwide trend toward the consolidation of wireless players. In recent years, the

number of national wireless players has gone from five or four to three in Australia, Austria and Japan. Since last year's edition of this report, Germany and Ireland have been added to the list of countries with only three national players.⁷ Ongoing transactions in Italy, the UK and Denmark may lead to more mergers in the coming months.⁸ If these transactions go through, the vast majority of developed countries will have only three national wireless providers (see Table 2-2).

"No well-established foreign player has entered the Canadian market, despite the federal government's courting of two American wireless providers in 2013."

6. In 2013, Industry Canada officials met with two U.S. wireless providers, Verizon and AT&T, to inform them of Canada's favourable regulatory environment for new entrants and opportunities in Canada ahead of the 700 MHz spectrum auction. See Simon Doyle, "Industry Canada lobbied AT&T, too," *The Wire Report*, March 17, 2014.

7. European Commission, "Mergers: Commission clears acquisition of E-Plus by Telefónica Deutschland, subject to conditions," Press release, July 2, 2014; European Commission, "Mergers: Commission clears acquisition of Telefónica Ireland by Hutchison 3G, subject to conditions," Press release, May 28, 2014.

8. Daniele Lepido and Manuel Baigorri, "Hutchison Talks Over Italy Mobile Merger Said to Accelerate," *Bloomberg Business*, February 17, 2015; Amy Thomson and Rodrigo Orihuela, "Hutchison to Buy U.K. Mobile Network O2 for \$15.3 Billion," *Bloomberg Business*, March 24, 2015; Aoife White and Stephanie Bodoni, "TeliaSonera, Telenor Mobile Venture Gets In-Depth Probe," *Bloomberg Business*, April 8, 2015.

Table 2-2
Number of national wireless providers in developed countries

Australia	3	Japan	3
Austria	3	Netherlands	3
Belgium	3	New Zealand	3
Canada	3*	Norway	3
Denmark	4	Portugal	3
Finland	3	Spain	4
France	4	Sweden	4
Germany	3	Switzerland	3
Greece	3	United Kingdom	4
Ireland	3	United States	4*
Italy	4		

Source: Glen Campbell, *Global Wireless Matrix 4Q13 – 2014: The Year Ahead*, Bank of America Merrill Lynch, January 8, 2014, p. 2. Modified by the authors to take into account the latest developments. *Both Canada and the U.S. also have a number of regional networks.

Informa Telecoms & Media, an international business intelligence and strategy firm headquartered in London, noted in January 2014: "A consensus is emerging in the mobile communications industry that three is the optimum number of mobile operators for any given market."⁹ Meanwhile, Ottawa is still focusing all of its policy interventions on subsidizing the establishment of a strong fourth wireless player in every one of the country's regional markets.

Preferential Spectrum Auctions Remain the Order of the Day

Since 2008, all major spectrum auctions in Canada have favoured new entrants and regional providers at the expense of large national players. This trend started with the 2008 AWS spectrum auction, where the federal government set aside 40 out of 105 MHz for new or small regional players. This led to the emergence of three new pure-play entrants (WIND, Mobilicity and Public Mobile), and to some regional players (Videotron in Quebec, Eastlink in Atlantic Canada, and Shaw Communications in Western Canada, which never deployed its network) acquiring subsidized spectrum licences in their home markets.

The trend continued in February 2014, when the government auctioned off 700 MHz frequencies formerly used by broadcasters to provide over-the-air television, and repurposed for mobile broadband. Out of four prime blocks of spectrum that were auctioned, large carriers could only acquire one. The clear beneficiary of this spectrum cap was Videotron, which acquired spectrum licences not only in its home market of Quebec, but also in Ontario, Alberta and British Columbia. As noted above, however, Videotron has not yet announced plans to develop a network outside of Quebec, and few analysts expect it to do so.¹⁰

"Canada's policy in this matter goes against a worldwide trend toward the consolidation of wireless players."

After considerably subsidizing regional operators and new entrants in the AWS and 700 MHz auctions, it could have been expected that the federal government would

9. Informa Telecoms & Media, "Informa Telecoms & Media's top predictions for 2014," Press release, January 21, 2014.

10. For an analysis of what Videotron could do with its spectrum, see LuAnn LaSalle, "Regional partners seen as best bet for Videotron's wireless spectrum buy," *Canadian Business*, February 20, 2014; Christine Dobby, "How Quebecor's national wireless expansion could play out," *The National Post*, February 24, 2014; Bertrand Marotte, "National Strategy no sure thing for Quebecor," *The Globe and Mail*, February 20, 2014.

remove the proverbial training wheels on these new players and revert back to its traditional, pre-2008 practice of holding open (i.e., non-preferential) spectrum auctions. This, however, has not been the case.

The AWS-3 Spectrum Auction

In December 2014, Industry Canada confirmed it was going to implement a set-aside for the auction of AWS-3 spectrum. The auction was held in March 2015. Along with the AWS-1 bands auctioned off in 2008, the AWS-3 bands are expected to be key bands for the deployment of LTE technology for wireless networks.¹¹ AWS-3 spectrum is highly desirable to wireless providers, as it is adjacent to the AWS-1 band, which is the most widely deployed band in North America by number of mobile operators,¹² and is interoperable with it.¹³

The federal government's initial proposal, published in July 2014, included setting aside 60% of the available spectrum (30 out of 50 MHz) for new entrants, allowing the well-established national and regional players to bid only on the remaining 40%. Predictably, new entrants agreed with the government's proposal, putting forward arguments similar to those they had made in favour of a set-aside in the context of the 2008 AWS and 2014 700 MHz auctions: that a set-aside was necessary for the development of a viable fourth wireless player; that it would prevent large players from hoarding all of the available spectrum; and that it would allow new entrants to offer next-generation wireless services. Ultimately, the federal government decided to proceed with the 30 MHz set-aside.

The results of the AWS-3 auction were announced on March 6, 2015:¹⁴

- WIND acquired spectrum in British Columbia, Alberta and Ontario;
- Eastlink acquired spectrum in Atlantic Canada and Northern Ontario;
- Videotron acquired spectrum in Quebec and Eastern Ontario;

- TELUS acquired spectrum in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Quebec; and
- Bell acquired spectrum in Atlantic Canada, Northern Quebec, Ontario, Nunavut, Northwest Territories and Yukon.

The biggest winner of the auction was WIND, which almost tripled its spectrum holdings by securing licences that had been set aside for new entrants in British Columbia, Alberta and Ontario at the reserve price of \$56.4 million. WIND can thank Mobilicity for having had the opportunity to acquire this spectrum at such a deep discount, since Mobilicity, which would presumably have competed for the same licences as WIND, had to bow out of the auction process at the last minute due to a lack of financing.¹⁵ Videotron, which was thought of as a potential national player last year after its acquisition of 700 MHz licences in Ontario, Alberta and British Columbia, did not acquire any spectrum licences in these markets (except for Eastern Ontario), because auction rules only allowed new entrants that had started to deploy a network in these areas to bid on the set-aside spectrum.

“By preventing the transfer of dormant spectrum to a carrier that would put it to better use, the federal government is hindering technological advancements and wasting a valuable public resource.”

Although WIND is undeniably in a better position than it was last year, it would be premature to conclude that it will inevitably become a sustainable fourth national wireless player, or even, more realistically, a sustainable fourth player in Ontario, Alberta and British Columbia. Indeed, although WIND has amassed an enviable portfolio of spectrum licences across the country, it now has to invest significant sums to deploy that spectrum as per the conditions of these licences, and it is still uncertain whether it can secure the funding to do so. WIND's founder, Tony Lacavera, recognizes that the company will need to invest at least \$300 million over the next few years to develop an LTE network.¹⁶

11. Industry Canada, *Consultation on the Technical, Policy and Licensing Framework for Advanced Wireless Services in the Bands 1755-1780 MHz and 2155-2180 MHz (AWS-3)*, July 2014, paragraph 26.

12. TELUS Communications Company, *Comments for CONSULTATION on the TECHNICAL, POLICY and LICENSING FRAMEWORK for ADVANCED WIRELESS SERVICES in the BANDS 1755 - 1780 MHz and 2155 - 2180 MHz (AWS-3)*, September 4, 2014, paragraph 3.

13. Industry Canada, *op. cit.*, footnote 11, paragraph 36.

14. Hon. James Moore, “Announcement of AWS-3 Auction Results,” Industry Canada, March 6, 2015.

15. Theresa Tedesco, “Against the Wind for Mobilicity plot,” *National Post*, March 12, 2015.

16. Christina Pellegrini, “Wind Mobile bulks up on spectrum — but financing questions remain,” *National Post*, March 6, 2015.

Ironically, one of the major obstacles to Wind's quest for funding for an LTE network might be one of its biggest allies: the federal government. On March 12, 2015, it was reported that the federal government had blocked a transaction between WIND and SaskTel, which would have seen WIND sell two 10-year spectrum licences in Regina and Saskatoon (markets in which it does not operate) to the Saskatchewan carrier for a purchase price of approximately \$20 million.¹⁷ The government's decision is based on its Spectrum Licence Transfer Framework, which stipulates that the federal government will block any spectrum licence transfer that would increase spectrum ownership concentration.¹⁸ WIND is apparently considering other similar transactions in areas where it has not deployed a network.¹⁹ The revenues derived from such transactions could provide critical funding for WIND to build its LTE network in the three provinces in which it operates: Ontario, Alberta and British Columbia.

"In addition to subsidizing entry into the wireless market via spectrum caps and set-asides, the federal government has introduced other measures aimed at strengthening the hands of new entrants and regional providers."

If true, this decision would constitute yet another example of the federal government's willingness to sacrifice innovation and efficiency in the name of increased wireless competition.²⁰ By preventing the transfer of dormant spectrum to a carrier that would put it to better use, the federal government is hindering technological advancements and wasting a valuable public resource. In doing so, the federal government is displaying the same questionable logic it displayed when it blocked the acquisition of a near-bankrupt Mobilicity by TELUS in 2013. As we noted in last year's report, the consequences of the government's short-sighted approach should not be overlooked, particularly in an industry like

telecommunications where access to additional spectrum is directly linked to larger capacity, increased innovation and the development of new services.

The 2500 MHz Spectrum Auction

2015 has been a busy year for Industry Canada's Spectrum Management and Telecommunications group. On April 14, 2015, it initiated another auction, this time for the sale of 2500 MHz spectrum. The 2500 MHz frequency can be used to provide mobile phone and data services, as well as high-speed Internet in rural communities. A total of 318 licences will be offered across different blocks and regions of the country, each with a term of 20 years.

The auction framework, which was released in January 2014, imposes a spectrum aggregation limit (or cap) of 40 MHz in each service area of the 2500 MHz band, except in Northern Canada, where there is no such limit. The government has stated that the use of caps, which apply equally to each provider this time (unlike the caps used in the 700 MHz auction which only applied to large providers), will ensure that at least four carriers will be able to use the 2500 MHz frequency band. At the time of writing, the results of the 2500 MHz auction are not yet known.

Mandatory Roaming and Tower Sharing: Another Subsidy for New Entrants

In addition to subsidizing entry into the wireless market via spectrum caps and set-asides, the federal government has introduced other measures aimed at strengthening the hands of new entrants and regional providers—most notably mandatory roaming and tower sharing.

In order to provide wireless service, carriers do not only require spectrum. They also require equipment, such as antenna towers, and access to a national network. For their customers to be able to use their mobile devices outside of the geographical coverage area of their networks, smaller players have to purchase additional coverage on one of the large players' networks, which cover the entire country. This process is called "roaming."

In the consultation process leading up to the 2008 AWS spectrum auction, potential new entrants and regional providers argued that they needed more than a spectrum subsidy to gain a foothold in the Canadian wireless market; they also needed the federal government to impose network and tower site sharing requirements on

17. Christina Pellegrini and Theresa Tedesco, "Ottawa nixed SaskTel-Wind Mobile spectrum deal, sources say," *National Post*, March 12, 2015.

18. See Industry Canada, *Framework Relating to Transfers, Divisions and Subordinate Licensing of Spectrum Licences for Commercial Mobile Spectrum*, June 2013.

19. Christina Pellegrini and Theresa Tedesco, *op. cit.*, footnote 17.

20. According to Pellegrini and Tedesco, the proposed transaction was verbally communicated to government officials, but a written submission was not filed because of the negative response received from Ottawa.

large players. New entrants claimed that without government action, large players could treat antenna sites as an effective barrier to entry and competition by preventing their access to them, or by charging them artificially high prices. Similarly, they argued that mandated roaming was necessary, since they could not negotiate as equals with large players, even in a market with multiple providers.²¹

The federal government agreed to most of the new entrants' and regional providers' demands: As part of its policy framework governing the 2008 AWS spectrum auction, it mandated wireless antenna tower and site sharing, as well as automatic digital voice and data roaming.²²

Heeding the calls for greater regulation coming from new entrants, which felt the roaming rates they were paying were not sufficiently low, Industry Minister James Moore announced in December 2013 a cap on roaming fees that large wireless carriers can charge small ones that do not have a network across the country.²³

"Investments in wireless infrastructure in Europe have declined by 3% between 2007 and 2013, whereas they grew by 74% in the United States and by 21% in Canada."

This legislation, which came into force in June 2014, was a significant departure from past practices, considering that the CRTC had refrained from rate-setting in the wireless industry since the mid-1990s. The Minister implied that without such legislation, the three large national carriers would make it impossible for new wireless companies to compete on price, thus taking away their ability to invest in their networks.²⁴ The government indicated that this legislation was meant to serve as an interim measure until the CRTC made a decision regarding whether additional roaming rate regulation was necessary to ensure competitiveness in the Canadian wireless market.²⁵

With the recently adopted rate-capping legislation hovering over its head, the CRTC held a hearing on wholesale services in November 2014. Unsurprisingly, much attention was paid to the issue of roaming rates, and whether they needed to be regulated in order to ensure the competitiveness of the wireless market. Some commentators were quick to point out the peculiar situation the CRTC was facing: In order to reassert its jurisdiction, the regulator had no choice but to decide in favour of wholesale roaming rate regulation, or else the recently-passed "interim" federal legislation would remain in place.

As was expected, on May 5, 2015, just before the release of this *Research Paper*, the CRTC decided to impose a cap on the wholesale roaming rates that the three big providers (Rogers, Bell and TELUS) can charge small payers. The commission decided however not to regulate wholesale tariffs for tower and site sharing at this time, although this sharing remains mandated.²⁶

Why Mandatory Roaming and Tower Sharing Policies Are a Bad Idea

Prior to the implementation of the federal government's mandated roaming and tower sharing policies, existing competitors already had commercially-negotiated roaming agreements in place with large carriers. There were no compelling reasons to impose regulation on roaming and tower sharing after the fact, considering that the Competition Bureau already had the necessary tools to sanction any large player engaging in anticompetitive or predatory behaviour vis-à-vis new entrants. What the new entrants saw as a "barrier to entry" was in fact the cost of doing business, and the adoption of roaming rate caps by the federal government represented the culmination of their lobbying campaign to obtain regulatory price discounts.

Like preferential spectrum auctions, mandated roaming and tower sharing policies were implemented to encourage the emergence of a fourth national wireless player. However, what gets lost in this calculation is that forcing large carriers to provide access to their networks and infrastructure at below-market rates is bound to have a negative impact on innovation and network investments. The wireless businesses of Bell, Rogers and Telus did not become profitable overnight. It took years of negative financial results before their investments paid off.

21. Industry Canada, "Policy Framework for the Auction for Spectrum Licences for Advanced Wireless Services and other Spectrum in the 2 GHz Range," November 2007, p. 8.

22. *Idem*.

23. Government of Canada, *An Act to implement certain provisions of the budget tabled in Parliament on February 11, 2014 and other measures*, art. 239-241, June 19, 2014.

24. LuAnn LaSalle, "Wireless Roaming Rate Cap Coming, James Moore Says," *Huff Post Business Canada*, December 18, 2013.

25. Indeed, the legislation stipulates that the roaming price caps can be repealed by cabinet decree.

26. CRTC, *Regulatory Framework for Wholesale Mobile Wireless Services*, Telecom Regulatory Policy 2015-177, May 5, 2015.

There are perverse effects to such policies that are well established both in theory and in practice. By forcing the large players to provide discount access to the networks they invested in so heavily, the government is damaging a competitive market and sending the wrong signal to investors. If anything, the effect of maintaining stringent roaming and tower sharing rules might be the exact opposite of the one intended. By putting in place mandatory roaming policies, the government is reducing new entrants' and regional players' incentives to build out their own network facilities, and therefore diminishing the likelihood of additional facilities-based competition. Why would new entrants invest significant sums in building their own networks when it is more economical for them to piggyback on their competitors' networks at a discount?

“The government should recognize that the market is in a better position than Industry Canada to pick winners and losers.”

In adopting such wholesale regulatory schemes, the government and the CRTC are emulating the failed policies of Europe, where regulators have pursued lower prices by inducing entry into the retail market while sacrificing incentives to invest in networks. The European model is characterized by heavy-handed regulation aimed at encouraging service-based competition rather than facilities-based competition. These policies have had disastrous consequences on Europe's telecommunications industry: Total wireless revenues in Europe were lower in 2012-2013 than in 2007-2008 and are expected to continue to fall until at least 2016.²⁷ Furthermore, investments in wireless infrastructure in Europe have declined by 3% between 2007 and 2013, whereas they grew by 74% in the United States and by 21% in Canada.²⁸ Finally, LTE (or 4G) penetration rates in Europe still significantly lag Canadian rates today (see Figure 1-5, “LTE Connections as a Ratio of Total Connections”).

27. Antoine Pradayrol and Bertrand Grau, “European Telecom Operators – Capex: The long march,” Arthur D. Little & Exane BNP Paribas, March 26, 2014, p. 9.

28. Goldman Sachs Global Investment Research, quoted in Erik Bohlin, Kevin W. Caves and Jeffrey A. Eisenach, *Mobile Wireless Performance in the EU & the US*, GSMA/Navigant Economics, May 2013, p. 17; CRTC, *Communications Monitoring Report 2010*, July 2010, Table 5.1.9: Capital expenditures, by type of TSP, p. 119; CRTC, *Communications Monitoring Report 2014*, October 2014, Table 5.0.4: Telecommunications investments made in plant and equipment, by type of provider of telecommunications service, p. 141.

By maintaining—or worse, strengthening—mandatory access regimes, the federal government could end up weakening Canada's global wireless advantage.

Conclusion

The federal government should be commended for setting an aggressive agenda for the release of spectrum to Canadian telecommunications carriers. AWS-3 spectrum was released here less than a year after the United States,²⁹ and Industry Minister James Moore has already announced the launch of consultations on the release of 600 and 3500 MHz spectrum bands for mobile use. In addition, Minister Moore announced that the government was planning for the release of AWS-4 spectrum, which will be primarily aimed at serving Canadians in rural and remote areas.³⁰

However, the government's policy regarding spectrum licence transfers makes it nearly impossible for larger carriers to acquire spectrum outside of public auctions. A more liberal policy governing spectrum transfers is needed, and would insure that spectrum is being put to its best use by the most capable carriers.

Subsidizing the entry of new wireless players via exclusionary auction rules, wholesale price regulation, and mandatory roaming and tower sharing policies has not brought about more sustainable competition. Instead, real-world outcomes show us that these policies tend to suppress investment in network infrastructure and to create a business culture of regulatory dependency. As we have seen with the shaky performance of the three new pure-play entrants that emerged after the 2008 spectrum auction, the misallocation of resources only becomes evident further down the road, when business ventures hit a breaking point and can no longer be artificially sustained.

The wireless sector has historically benefited from light-handed regulation. This less interventionist policy approach has served Canadian consumers well and has allowed for the growth of a competitive industry that delivers innovative services to consumers at affordable prices. Lately, however, the government has increasingly adopted a “command and control” approach to regulation of the wireless sector, which has created uncertainty in the market and led to underutilized and unutilized spectrum. At a time when Canadian companies need

29. In contrast, AWS spectrum was released in Canada two years after its release in the United States, while the mobile broadband services spectrum (700 MHz) was released six years after the United States.

30. Government of Canada, “Unprecedented amount of mobile spectrum to be released to Canadians in 2015,” News Release, December 18, 2014.

more and more spectrum to meet consumer demand, the government should recognize that the market is in a better position than Industry Canada to pick winners and losers.

CHAPTER 3

Mandatory Sharing of Broadband Networks: Fostering or Hindering Innovation?

Historically, telecommunications services in Canada were provided by several telephone companies, each of which held a monopoly over its respective regional market. These companies were privately owned but regulated as public utilities by the Canadian Radio-television and Telecommunications Commission (CRTC).

When it finally allowed competition in the local telephone market in 1997, the CRTC imposed on incumbent telephone providers (i.e., the former monopolies) the obligation to share parts of their networks with competitors at regulated rates.³¹ Such a policy, known in regulatory circles as “mandatory wholesale access,” has been used in many jurisdictions around the world to ease the transition from monopoly to competition.

Proponents of mandatory network sharing contend that it is necessary because certain elements of telecommunications networks are difficult to replicate, or cannot be replicated economically. They see it as an enabler of competition that leads to lower retail prices and increased product differentiation between competitors, and to more rapid innovation and increased investment in facilities-based competition (i.e., a market structure where entrants compete by building their own infrastructure).³²

Although initially adopted to stimulate competition in wireline telephony, mandatory wholesale access policies were subsequently used to enhance competition in new services like high-speed Internet when new technologies replaced dial-up services in the late 1990s. In order to facilitate market access for emerging competitors offering such broadband services, the CRTC has mandated that incumbent telephone providers and cable companies must share their broadband networks with competitors at regulated rates and speeds.

There have been several CRTC decisions on this matter, and various regulatory frameworks (see Box 3-1 for an overview of how these rules have evolved). The regulatory framework that was introduced in 2008 called for a review of the regime five years later. Hearings were held

on October 27, 2014,³³ and the CRTC is expected to issue a decision shortly that may have wide-ranging consequences regarding how broadband services are regulated in Canada.³⁴

The objective of this review is to determine whether to retain or modify the existing wholesale services categories and classification. More importantly, the review is also assessing whether there is a need for mandatory wholesale access with respect to fibre-to-the-premises facilities (FTTP), rolled out by telephone companies in recent years, which are replacing copper technology with optical fibre that runs directly to the homes and businesses of customers. The higher bandwidth of FTTP networks facilitates the transmission of video, voice, and Internet services.

“Proponents of mandatory network sharing contend that it is necessary because certain elements of telecommunications networks are difficult to replicate, or cannot be replicated economically.”

Are such mandatory access measures necessary to bring about more competition and innovation? Would further attempts by the regulator to induce additional competition in the broadband sector via mandatory network sharing benefit Canadian consumers? There are several reasons to believe that the answer is no.

The Canadian Broadband Market Is Competitive

The vast majority of the Canadian population has access to competitive telecommunications and broadband networks. Prices for broadband services have been competitive for years, which helps explain why Canadians are among the heaviest Internet users in the world.³⁵ This high degree of competition is largely due to the vigorous

31. CRTC, *Local Competition*, Telecom Decision 97-8, May 1, 1997.

32. Martin Cave, “Encouraging Infrastructure Competition via the Ladder of Investment,” *Telecommunications Policy*, Vol. 6, Issue 3-4, April-May 2006, pp. 223-237.

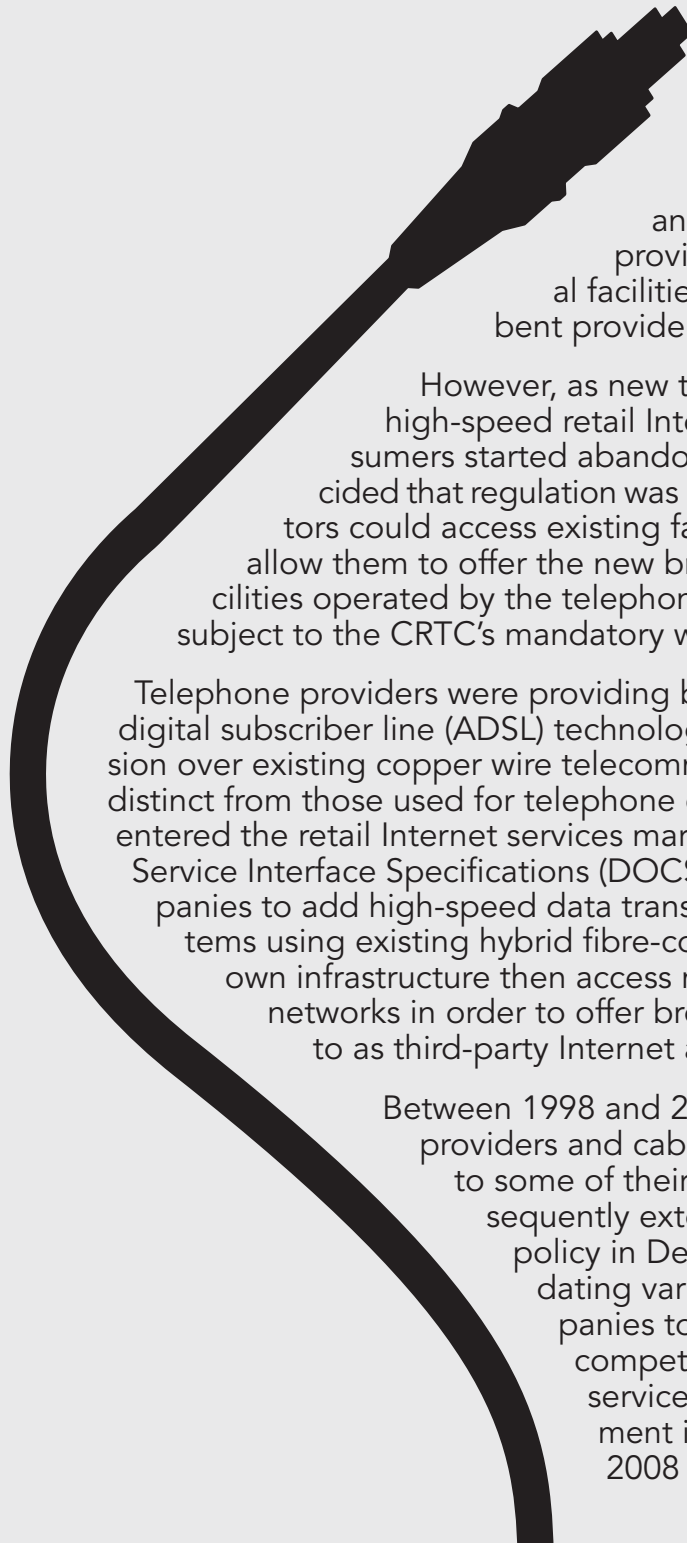
33. Documents related to the hearing are available at: <https://services.crtc.gc.ca/pub/instances-proceedings/Default-Default.aspx?lang=eng&YA=2013&S=C&PA=t&PT=nc&PST=a#2013-551>.

34. As of the publication of this paper in early May 2015, the decision has not yet been rendered.

35. A recent comScore report ranks Canadians as the heaviest Internet users in the world, with an average of 36.7 hours of PC online usage every month. They are followed by Americans, Italians and Britons, who spend 35.2 hours, 33.5 hours and 33 hours online, respectively. See comScore, *2015 Canada Digital Future in Focus*, March 2015, p. 6.

Box 3-1

The Evolution of Mandatory Wholesale Access Regulation in Canada



The CRTC's 1997 decision to allow competition in the local telephone market and impose wholesale access did not specifically address Internet access. At the time, Internet services were mostly provided via dial-up connections, and as a result, independent Internet service providers (ISPs) did not need to lease additional facilities or network components from the incumbent providers in order to provide service.

However, as new technologies facilitated the provision of high-speed retail Internet services in the late 1990s and consumers started abandoning dial-up for broadband, the CRTC decided that regulation was becoming necessary to ensure that competitors could access existing facilities and networks at prices that would allow them to offer the new broadband services. Accordingly, certain facilities operated by the telephone providers and cable companies became subject to the CRTC's mandatory wholesale access policy.

Telephone providers were providing broadband services using asymmetric digital subscriber line (ADSL) technology. ADSL facilitates Internet data transmission over existing copper wire telecommunications networks using frequencies distinct from those used for telephone calls. At the same time, cable companies entered the retail Internet services market by implementing Data Over Cable Service Interface Specifications (DOCSIS) technology. DOCSIS allows cable companies to add high-speed data transfer to their customers' cable television systems using existing hybrid fibre-coaxial networks.^I Competitors without their own infrastructure then access multiple points of interconnection on these networks in order to offer broadband services. This process is referred to as third-party Internet access (TPIA).

Between 1998 and 2006, the CRTC required the telephone providers and cable companies to grant competitors access to some of their ADSL and TPIA facilities.^{II} The CRTC subsequently extended the scope of its network sharing policy in December 2006 and January 2007 by mandating various telephone providers and cable companies to offer wholesale broadband services to competitors at speeds that matched their own service offerings.^{III} After rescinding this requirement in August 2007,^{IV} the CRTC reinstated it in 2008 in response to an application filed by a

competitor. In doing so, the regulator directed the incumbents to provide speed matching for their wholesale broadband services under a revised regulatory framework for wholesale services.^V The CRTC redefined the concept of “essential service” that it had set out in its initial 1997 framework by establishing six new categories of wholesale services, and assigning each existing service to one of these categories.^{VI}

The ability of competitors to access the incumbents' ADSL facilities was categorized as a “conditional essential” service, which meant that such network sharing would remain mandatory until a telephone company could demonstrate to the CRTC that “functionally equivalent wholesale alternatives [were] sufficiently present such that withdrawing mandated access would not likely result in a substantial lessening or prevention of competition in the relevant downstream market.”^{VII}

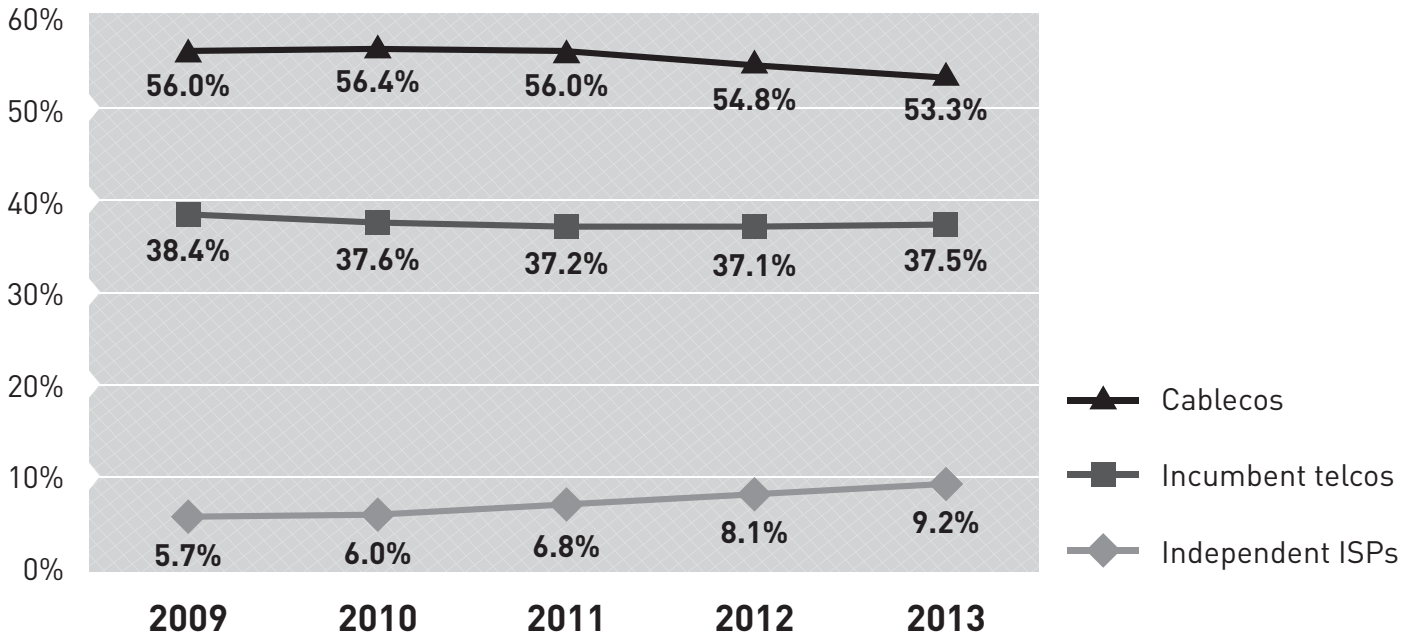
In 2009, the CRTC confirmed that all telephone providers using ADSL technology were subject to the speed-matching requirement.^{VIII} Several of these companies appealed to cabinet, which issued a directive requiring a re-examination of the speed-matching decisions.^{IX} Consequently, the CRTC launched a public proceeding, the result of which was a 2010 regulatory policy that affirmed the continued need for mandatory network sharing to ensure sufficient competition in the broadband services market. At the same time, the CRTC imposed a “POI aggregation” requirement on cable companies, which entailed reducing the number of points of interconnection (POIs) on TPIA services so that network traffic could be grouped to render data transmission more efficient.^X

In 2011, the CRTC approved a request by Bell to allow the application of bandwidth caps on the customers of independent ISPs who use Bell's last-mile infrastructure.^{XI} This new billing model, called “usage-based billing,” did not appeal to independent ISPs, as it would have forced them to stop offering unlimited Internet packages to their customers. After the government urged the CRTC to review its ruling,^{XII} the regulator announced that it would delay the implementation of its decision, and held a hearing on the issue. In November 2011, it issued a new decision on usage-based billing, which allows for two billing models: The first is capacity-based, and requires independent ISPs to determine in advance the amount of capacity they need. If demand exceeds this capacity, they have to manage their network capacity until they purchase more. The second model is the existing flat-rate model, where independent ISPs pay a flat fee per month regardless of usage.^{XIII}

Sources: I. CRTC, *Wholesale High-Speed Access Services Proceeding*, Telecom Regulatory Policy 2010-632, August 30, 2010. II. CRTC, *Regulation under the Telecommunications Act of Certain Telecommunications Services Offered by “Broadcast Carriers,”* Telecom Decision 98-9, July 9, 1998; CRTC, *Regulation under the Telecommunications Act of Cable Carriers' Access Services*, Telecom Decision 99-8, July 6, 1999; CRTC, *Gateway Access Service and High Speed Access Service*, Telecom Order 2005-62, February 17, 2005; CRTC, *Wholesale Internet ADSL Service*, Telecom Order 2006-17, January 20, 2006. III. CRTC, *ADSL Access Service and ADSL WAN Service*, Telecom Order 2007-21, January 25, 2007; CRTC, *Gateway Access Service and High Speed Access Service*, Telecom Order 2007-22, January 25, 2007; CRTC, *Asymmetric Digital Subscriber Line (ADSL) Data Access Service*, Telecom Order 2007-23, January 25, 2007; CRTC, *Aggregated Asymmetric Digital Subscriber Line (ADSL) Service*, Telecom Order 2007-24, January 25, 2007; CRTC, *Network-to-Network Interface Service, Wide Area Network ADSL Service, and Wholesale Internet ADSL Service*, Telecom Order 2007-25, January 25, 2007; CRTC, *Cogeco, Rogers, Shaw, and Videotron – Third-party Internet access service rates*, Telecom Decision 2006-77, December 21, 2006. IV. CRTC, *Applications to review and vary Ethernet and ADSL Orders*, Telecom Decision 2007-77, August 31, 2007. V. CRTC, *Cybersurf Corp.'s application related to matching service speed requirements for wholesale Internet services*, Telecom Decision 2008-117, December 11, 2008. VI. The six categories of wholesale services are: (1) essential, (2) conditional essential, (3) conditional mandated non-essential, (4) public good, (5) interconnection, and (6) non-essential subject to phase-out. VII. CRTC, *Revised regulatory framework for wholesale services and definition of essential service*, Telecom Decision 2008-17, March 3, 2008, paragraph 57. VIII. CRTC, *Cybersurf's application related to the implementation of Telecom Decision 2008-117 regarding the matching speed requirement*, Telecom Order 2009-111, March 3, 2009. IX. Privy Council Office, CRTC - Bell / TELUS petitions, Order in Council P.C. 2009-2007, December 10, 2009. X. CRTC, *Wholesale high-speed access services proceeding*, Telecom Regulatory Policy 2010-632, August 30, 2010. XI. CRTC, *Usage-based billing for Gateway Access Services and third-party Internet access services*, Telecom Decision 2011-44, January 25, 2011. XII. For a critical assessment of the government of Canada's decision to oppose the CRTC's initial decision on usage-based billing, see Martin Masse and Paul Beaudry, “Clement's telecom confusion,” *National Post*, March 8, 2011. XIII. CRTC, *Billing practices for wholesale residential high-speed access services*, Telecom Regulatory Policy 2011-703, November 15, 2011.

Figure 3-1

Residential high-speed Internet subscribers, by type of service provider



Source: CRTC, *Communications Monitoring Report 2014*, October 2014, Table 5.3.4: Residential Internet service subscribers, by type of service provider, p. 176.

competition between incumbent telecommunications providers and cable companies. Although 91% of Canada's residential high-speed subscribers do business with telecom and cable companies,³⁶ there is intense rivalry between these companies, as evidenced by Canada's competitive broadband prices (see Figure 1-10, "Cost of Bandwidth") and high capital intensity.³⁷

"The vast majority of the Canadian population has access to competitive telecommunications and broadband networks."

The current wholesale regulatory regime has allowed for the emergence of a large number of small competitors, so-called independent Internet service providers (ISPs), whose business model relies solely on the use of the large providers' infrastructure at below-market rates. These smaller providers have fared well under the current regulatory environment: According to the CRTC's

latest *Communications Monitoring Report*, the residential high-speed Internet revenues of alternative service providers (i.e., those other than the incumbent telephone providers and the cable companies) rose from \$219 million in 2009 to \$477 million in 2013, and their share of residential high-speed Internet subscribers grew from 5.7% in 2009 to 9.2% in 2013 (see Figure 3-1).³⁸

Although these additional competitors provide more choice to consumers, their presence is not necessary to ensure that the Canadian broadband market remains competitive. Indeed, the competition brought about by independent ISPs was created artificially by the CRTC, not by actors in the marketplace. And by allowing smaller players to use the existing networks at below-market prices, the CRTC has in fact significantly reduced their incentives to invest in their own competing networks.

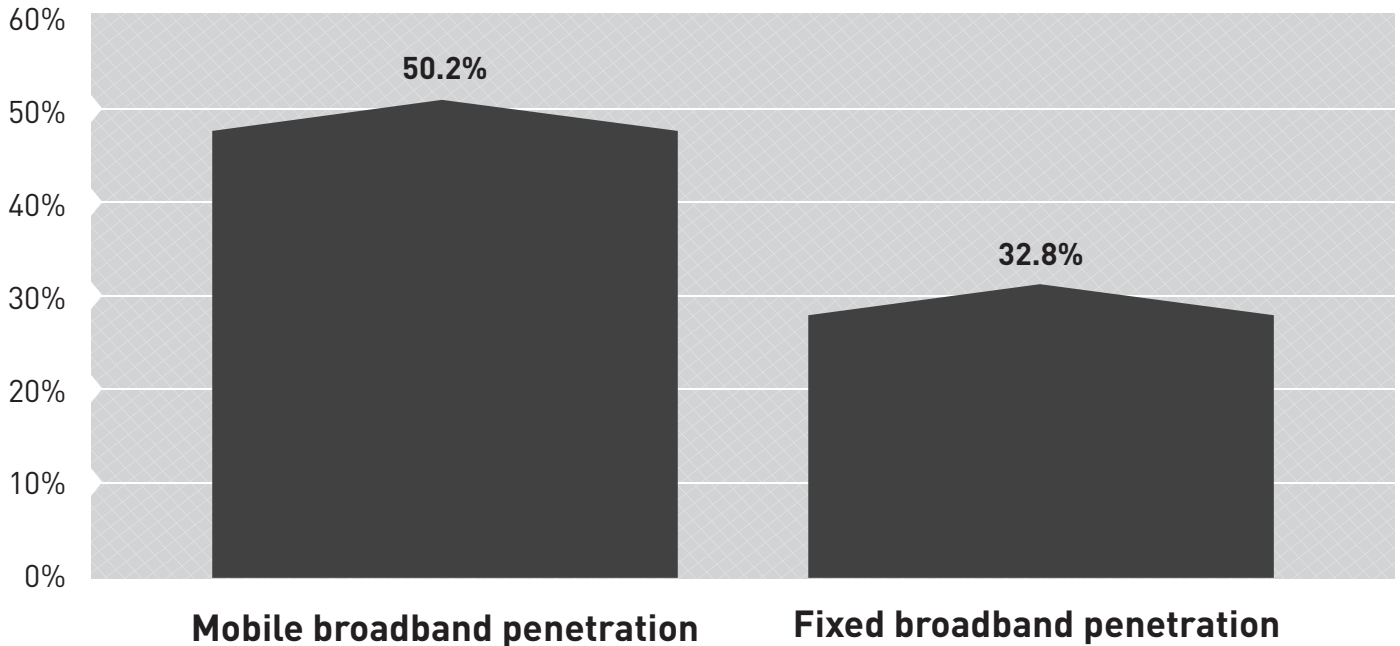
In addition, a proper assessment of the competitive landscape for broadband cannot overlook the increasing market presence of mobile broadband services. In 2013, the proportion of Canadians subscribing to mobile broadband was 50.2%, as opposed to 32.8% for fixed

36. CRTC, *Communications Monitoring Report 2014*, October 2014, Table 5.3.4: Residential Internet service subscribers, by type of service provider, p. 176.

37. Perry Hoffman, "Hearing Preview: Independents demand more wholesale broadband access, large TSPs say they'll stop investing," *CARTT*, November 20, 2014.

38. CRTC, *op. cit.*, footnote 36, Table 5.3.2: Residential Internet service revenues, by type of service, p. 174, and Table 5.3.4: Residential Internet service subscribers, by type of service provider, p. 176.

Figure 3-2

Mobile broadband exerts competitive pressure on fixed broadband

Source: CRTC, Communications Monitoring Report 2014, October 2014, Figure 6.0.4: Fixed and wireless broadband penetration (2013), p. 257.

broadband (see Figure 3-2).³⁹ Due to the growing popularity of smartphones and tablets, more and more Canadians access the Internet using wireless broadband. This is exerting competitive pressure on fixed broadband services, which in turn benefits Canadian consumers.⁴⁰

“By allowing smaller players to use the existing networks at below-market prices, the CRTC has in fact significantly reduced their incentives to invest in their own competing networks.”

The Stepping Stone Theory Has Failed

As noted in our 2014 report,⁴¹ one of the key justifications for mandatory network sharing is that by obtaining access to existing networks at low, regulated prices, new

competitors will be in a position to amass the necessary capital to build their own facilities in the medium to long run, which will ultimately benefit consumers. This belief is referred to as the “stepping stone” or “ladder of investment” approach to facilities-based competition.

In order for the stepping stone theory to succeed, the regulator must be able to set access prices that are a) low enough to facilitate new entrants’ ability to expand their networks and quickly acquire the customer base that would justify construction of their own facilities, and b) high enough to provide entrants with sufficient incentives to build such facilities rather than continue to rely on cheap access to existing networks.⁴²

There is, however, little evidence to support such a theory. When setting prices, regulators often fail to fully consider the risks taken by the telecom and cable companies when they build or update their networks. In a dynamic sector like the telecommunications industry, technology can quickly become obsolete (see Chapter 4 for a discussion of this issue). Competitors that rely on mandated access will not have to bear the costs of obsolescence or the costs of improving an existing network.

39. CRTC, *op. cit.*, footnote 36, Figure 6.0.4: Fixed and wireless broadband penetration (2013), p. 257.

40. That being said, wireless providers need additional spectrum to ensure that their broadband services are fast and reliable. This is yet another reason why, as discussed in Chapter 2, a spectrum policy that diverts spectrum toward smaller carriers is bound to hurt innovation.

41. Martin Masse and Paul Beaudry, *The State of Competition in Canada's Telecommunications Industry – 2014, Research Paper*, Montreal Economic Institute, p. 46.

42. Telecommunications Policy Review Panel, *Final report*, 2006, p. 3-34.

Despite their revenue and market share gains over the last five years, independent ISPs have little to show in terms of significant wireline infrastructure investments, and are still heavily dependent on existing infrastructure to provide broadband service. The differences in terms of investment levels are staggering. Again according to the CRTC's latest *Communications Monitoring Report*, resellers (including independent ISPs) have only averaged about \$100 million per year in capital investment from 2009 to 2013, whereas the facilities-based carriers (telephone providers and cable companies) have invested on average \$6.6 billion per year in order to upgrade their networks, or 66 times more.⁴³

Considering the massive costs involved in deploying next-generation networks, it is inevitable that incumbents—not independent ISPs—will bear the brunt of developing these networks. Hence, it is crucial to have a regulatory environment that will allow them to make those investments and provide them with the appropriate incentives.

“Considering the massive costs involved in deploying next-generation networks, it is inevitable that incumbents—not independent ISPs—will bear the brunt of developing these networks.”

Mandating Access to the Latest Services Would Not Benefit Canadian Consumers

As we've just seen, telecom and cable companies are investing heavily in next generation networks and technologies, which have thus far not been the subject of mandatory access policies. However, the adoption rate of FTTP technology by consumers is still uncertain today, accounting for only 2.9% of residential lines in 2013.⁴⁴ Other technologies might arise that can provide similar speeds to consumers at a lower cost. Furthermore, the demand for FTTP may not be strong enough to justify incurring large sunk costs to deploy these new networks at this point in time.

43. CRTC, *op. cit.*, footnote 36, Table 5.0.4: Telecommunications investments made in plant and equipment, by type of provider of telecommunications service, p. 141. The report does not provide precise numbers for resellers because many are too small to be required to provide investment data. The table simply records them as \$0.0 billion, although the subtotal numbers imply that they contribute about \$0.1 billion.

44. CRTC, *op. cit.*, footnote 36, Figure 5.1.6: Percentage of residential lines using fibre optic cable (2013), p. 148.

Mandating access to FTTP networks could prevent the telephone providers from recovering the capital costs associated with their investments, thus reducing the incentives to invest in such networks and most likely delaying their build-out.⁴⁵ It is doubtful that they will continue to make capital-intensive network infrastructure investments—or make such investments at the same pace as they have done in the past—if forced to share their newly-deployed infrastructure with their competitors at artificially low prices. Such a short-sighted policy approach would consequently hurt Canadian consumers in the long run, especially those living in rural and remote areas, where the costs of building out a fibre network are the highest, and the payback periods longer.

The CRTC Must Heed the U.S. and European Examples

The stark contrast between the U.S. and European approaches regarding mandatory access should give pause to proponents of generous mandated access policies.

In the United States, the Federal Communications Commission (FCC), which had initially imposed broad network sharing mandates to the former monopolies, was forced to change course after the courts struck down those mandates in the early 2000s. The FCC eventually chose to refrain from mandating competitor access to next-generation networks, which paved the way for extensive investment in and deployment of advanced fibre networks and similar network architecture.⁴⁶

Europe, however, has taken the exact opposite approach, with disastrous consequences. Its generous mandated access policies have led to an uncertain investment climate and an erosion of the profit margins of incumbent telephone providers. Once seen as a technology leader in the digital economy, over the past decade, Europe has lost ground against many Asian and North American markets in terms of providing coverage for fast and ultra-fast broadband. In an aptly named memorandum, “Regulatory mess hurting broadband

45. Independent ISPs have also been pressuring the CRTC to mandate access to a new “Broadband Access Service,” which would allow them to obtain wholesale high-speed access from incumbents on a disaggregated basis. The Canadian Network Operators Consortium (CNOC), which is pushing for the proposal, views BAS as a successor to unbundled local loops, and believes it would encourage independent ISPs to invest in middle-mile facilities. Although such a proposal may sound appealing in theory, its justification relies on the stepping stone theory, the flaws of which were briefly discussed above. See CRTC, *Final Argument of Canadian Network Operators Consortium Inc.*, Telecom Notice of Consultation 2013-551, December 19, 2014, paragraph 56.

46. CRTC, Fiber to the Home Council Americas Intervention, *Review of Wholesale Services and Associated Policies*, Public Notice 2013-551, January 31, 2014, paragraph 6.

investment: Consumers and businesses stuck in slow lane," the European Commission has recognized that Europe is "losing the global race to build fast fixed broadband connections."⁴⁷

As explained by Professor Christopher Yoo in a recent study comparing U.S. and European broadband deployment, differences in regulatory approaches have had a significant impact on investment:

In Europe, where it was cheaper to buy wholesale services from an incumbent provider, there was little incentive to invest in new technology or networks. In the U.S., however, providers had to build their own networks in order to bring broadband services to customers. Data analysis indicates that as of the end of 2012, the U.S. approach promoted broadband investment, while the European approach had the opposite effect (\$562 of broadband investment per household in the U.S. vs. \$244 per household in Europe).⁴⁸

The Boston Consulting Group has estimated that an opportunity of up to 750 billion euros in GDP growth and as many as 5.5 million jobs will have been missed in the EU by 2020 because of the lack of investment in next-generation networks.⁴⁹

Conclusion

Jean Tirole, the 2014 Nobel laureate in economics and an expert in regulation, recently had this to say about what regulation should try to accomplish: "What we have been trying to do is to get regulation which is light enough in order to let innovation happen and to promote investment by the incumbents. Bad regulation can actually reduce growth quite a lot, can create a lot of problems."⁵⁰

Tirole's wise words will hopefully be heard and acted upon by the CRTC in the context of its upcoming decision on wholesale services. In attempting to strike a balance between the interests of the large companies and those of small ISPs, the CRTC has interfered with all market participants' incentives to innovate and invest in advanced networks and equipment. Inevitably, a mandatory access regime that emphasizes the importance of

having multiple competitors in a given market at the expense of facilities-based competition is destined to blunt innovation and investments.

Canadians are using the Internet more than they have ever done before, and for increasingly bandwidth-intensive tasks.⁵¹ In order to meet their growing needs and ever-increasing expectations in the coming years, Internet service providers will need to make significant network and infrastructure investments. There is ample evidence that adopting a "lighter touch" wholesale regulatory regime will help spur innovation and investment.

"The CRTC should recognize that the current regime has not brought about an increase in facilities-based competition and has had a minor impact on broadband competition in Canada."

Although it is highly unlikely that the CRTC will refrain completely from regulating wholesale services in its upcoming decision, it should recognize that the current regime has not brought about an increase in facilities-based competition and has had a minor impact on broadband competition in Canada. By establishing a clear phase-out strategy for all services that do not meet the CRTC's test for essential services, and refraining from imposing additional access requirements on new services such as FTTP, the CRTC would be sending the right message to broadband market participants and creating a regulatory environment that would maximize broadband infrastructure investments.

47. European Commission, "Regulatory mess hurting broadband investment: Consumers and businesses stuck in slow lane," Press release, August 30, 2013.

48. Christopher S. Yoo, *U.S. vs. European Broadband Deployment: What Do the Data Say?* University of Pennsylvania, Institute for Law and Economics, Research Paper No. 14-35, June 2014.

49. The Boston Consulting Group, *Reforming Europe's Telecoms Regulation to Enable the Digital Single Market*, July 2013, p. 6.

50. Binyamin Appelbaum, "Q. and A. with Jean Tirole, Economics Nobel Winner," *New York Times*, October 15, 2014.

51. CRTC, *op. cit.*, footnote 36, Table 5.3.1: Retail Internet service revenues, p. 173.

CHAPTER 4

The Impact of Technological Changes on Competition in the Telecommunications Sector

The debate over whether or not it makes sense for the government to subsidize the emergence of a fourth wireless service provider in every regional market in Canada is bogged down over a fundamental question: the very definition of the concept of competition.

There are indeed two visions of competition: the traditional "static" vision of perfect competition, which continues to influence decision makers and the general public even though it has fallen out of favour in the field of economics; and a more recent "dynamic" vision that takes into account the rapid evolution of markets, and in particular the impact that new, disruptive technologies can have.

According to the static vision, a market is considered competitive when there are so many competitors that none of them is said to dominate it or to exercise a determining influence on prices. All of the competitors have access to more or less the same technology and the same management models. This static vision of competition assumes a relatively stable market and essentially revolves around the number of players in an industry and their market shares at a given moment.

Faced with what they consider to be too few players or too high a concentration of market shares, those who favour the static vision of competition generally advocate government intervention to increase competition, either by regulating prices or by promoting and subsidizing the entry of additional players. This is what the Canadian government is trying to do today in the wireless sector.

The dynamic vision emphasizes the fact that competition must be seen as a process rather than a fixed situation. It gives less importance to the distribution of market share and the number of competitors in the market, and more to potential competition.⁵²

According to this vision, the discipline and rivalry associated with competition do not necessarily depend on the presence of numerous market participants; they can also be generated by the anticipation of new technologies

allowing competitors from outside the sector in question to offer traditional services in a new way, or again, to offer new services that replace the old ones (for example, emails competing with letters sent through the post office).

Joseph Schumpeter famously called the process by which technological innovations destroy specific jobs as they replace older technologies, all while stimulating general economic growth, "creative destruction."⁵³ Since the static model largely ignores competition based on innovation and the influence of this process of creative destruction, it is of limited relevance to the analysis of the telecommunications industry, which is the perfect example of an industry that has undergone substantial and rapid changes thanks to technology.⁵⁴

Telephony Opens Up to Competition

We can illustrate the relevance of the dynamic vision of competition by observing how telephony has evolved in Canada over the past quarter of a century, and in particular how two new technologies led to the gradual erosion of the former monopolies' dominant market positions.

"Those who favour the static vision of competition generally advocate government intervention to increase competition, either by regulating prices or by promoting and subsidizing the entry of additional players."

In 1990, local and long-distance telephone services were the main activities of the Canadian telecommunications industry and were offered by regional monopolies like Bell Canada. Internet services such as we have

53. Thomas Grennes, "Creative Destruction and Globalization," *Cato Journal*, Vol. 22, No. 3, Winter 2003, p. 543.

54. See Professor Quigley's 2004 analysis, which remains as relevant as ever: "The threat of their being bypassed by an alternative and superior technology imposes competitive discipline on incumbents. It drives them to maintain prices at competitive levels, invest in new technology, and provide new services to customers since failure to do so will simply increase the speed with which alternative technologies become economically feasible. Thus, the state of competition in local access telecommunications in Canada hinges much more on the presence of alternative access technologies that may supplant fixed wire local access than it does on the fact that those companies do not yet have a large market share in local access telephony." Neil Quigley, "Dynamic Competition in Telecommunications: Implications for Regulatory Policy," *Commentary*, C.D. Howe Institute, No. 194, February 2004, p. 23.

52. J. Gregory Sidak and David J. Teece, "Dynamic Competition in Antitrust Law," *Journal of Competition Law & Economics*, Vol. 5, No. 4, December 2009, pp. 581-631.

today did not yet exist. The wireless sector, which now accounts for half of the industry's revenues,⁵⁵ was barely beginning to take flight after just five years of activity.

The decision of the Canadian Radio-television and Telecommunications Commission (CRTC) to open up the market for long-distance calls to competition in 1992, and for local calls in 1997, led to the entry of numerous resellers like AT&T Canada and Sprint Canada. However, these new players did not own any infrastructure of their own allowing them to access their clients' homes or offices directly; they had to rent a portion of the former monopolies' facilities, benefiting from regulations forcing those former monopolies to share their networks at modest regulated rates.

"The static model is of limited relevance to the analysis of the telecommunications industry, which is the perfect example of an industry that has undergone substantial and rapid changes thanks to technology."

This kind of policy allows competitors to vary the services offered somewhat and to offer slightly lower prices, but does not give rise to true facilities-based competition, as occurs between players who own their own networks. Indeed, resellers are entirely dependent on another entity that produces the service they resell. Such a policy does not encourage innovation and investment either, insofar as resellers have little incentive to invest in their own networks since they enjoy access to their competitors' networks at a low price. For their part, the former monopolies have less incentive to improve their networks if, each time they do, they are forced to share the resulting profits with their competitors.⁵⁶

In 2004, seven years after the opening up of the market, the share of local residential lines held by resellers in Canada was just 3.3%.⁵⁷ Nonetheless, true competitors were getting ready to emerge. They came not from the ranks of the resellers, but from outside the traditional telephone sector: first, thanks to a technological innova-

tion in the field of cable television, and then through the substitution of wireless telephone services for traditional wireline services.

Cable Providers Invade the Telephony Market

The expansion of the analog cable television network in the 1970s made Canada one of the most wired countries in the world. In 2005, 95% of Canadian households were located in areas served by cable providers.⁵⁸

Two related technological innovations in the 1990s expanded the scope of cable providers even further. First of all, the deployment of a hybrid network combining fibre optic and coaxial cables led to a considerable increase in the number of television channels that could be distributed, and put in place the infrastructure required to transition to digital technologies. The development of a new standard for transmitting data, DOCSIS (Data Over Cable Service Interface Specification), by the American research organization CableLabs led for its part to an expansion of the kinds of services that could be transmitted by cable, among others voice and Internet.⁵⁹

The main cable providers in Canada—Rogers, Shaw, Vidéotron, Cogeco—launched their telephony services in 2005 by relying on their own infrastructures, thereby offering serious competition to the former monopolies for the first time. These competitors quickly conquered a substantial share of the market. Less than a decade later, in 2013, cable providers accounted for 33% of all revenues from local residential telephony services. As for resellers, they still had only a marginal presence, with just 4% of the market.⁶⁰

Wireless Telephony Replaces the Traditional Telephone

Wireless telephone services, launched in 1985 in Canada, remained for a long time a specialized niche that supplemented the residential wireline telephone, without competing with it. In the early 2000s, however, a new phenomenon appeared: that of households deciding to abandon their residential telephones and keep just their wireless subscriptions. In 2002, 1.7% of Canadian households had decided to "cut the cord." Since then, this proportion has increased year after year,

55. See CRTC, *Communications Monitoring Report 2014*, October 2014, Figure 5.1.2: Distribution of telecommunications revenues, by market sector, p. 145.

56. For a discussion of the negative unintended consequences of this mandatory network sharing policy, see Chapter 3 of the 2014 edition of this *Research Paper*: "Mandatory Network Sharing in the Wireline Sector: A Policy Whose Time Has Passed."

57. CRTC, *CRTC Telecommunications Monitoring Report 2006*, July 2006, p. 36.

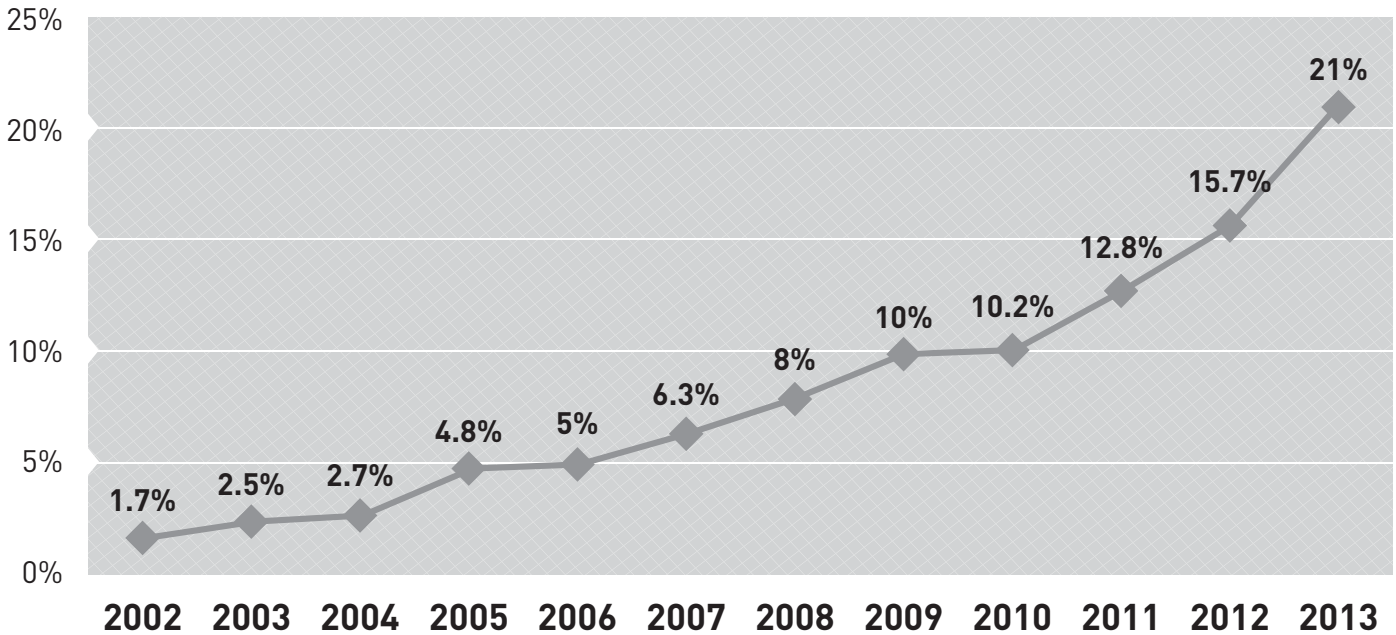
58. *Ibid.*, p. 15.

59. POTs and PANs, "Primer on DOCSIS," January 31, 2014.

60. CRTC, *op. cit.*, footnote 55, Table 5.2.2: Residential local telephone and long distance service revenues, by type of TSP, p. 156.

Figure 4-1

Growing proportion of Canadian households with wireless telephones only



Sources: CRTC, *Communications Monitoring Report 2013*, September 2013, Table 2.2.3: Canadian telephone penetration rates – Wireline and wireless subscribers per 100 households, p. 25; CRTC, *Communications Monitoring Report 2014*, October 2014, Table 2.0.7: Provincial telephone penetration rates – Wireline and mobile wireless subscribers per 100 households (2012), p. 14; Statistics Canada, “Residential Telephone Service Survey, 2013,” *The Daily*, June 23, 2014.

reaching 21% in 2013—and 60% among young households in which every member is less than 35 years old⁶¹ (see Figure 4-1).

“The main cable providers in Canada launched their telephony services in 2005 by relying on their own infrastructures, thereby offering serious competition to the former monopolies for the first time.”

This phenomenon demonstrates once again the importance of accounting for potential competition, which can come from outside the sector in question following technological changes, when trying to determine the level of competition that exists. Products that were previously not considered substitutable can rapidly become so when consumers’ habits change. Where to draw the always somewhat arbitrary line between different markets depends on what things consumers consider to be

easily substitutable or not. But whereas the bureaucrats who regulate the sector tend to underestimate this phenomenon in their deliberations, businesses have no choice but to plan for this potential competition and adapt to it quickly when it materializes, at the risk of sustaining even larger losses of market share (see Box 4-1).

Today, the very notion of “local telephony,” distinct from long-distance, no longer makes much sense. Wireless service plans usually include unlimited calling in Canada. Moreover, the arrival of Voice over Internet Protocol (VoIP) allowed anyone with a high-speed Internet connection to forgo traditional telephone services altogether and communicate with anyone in the world at very low cost. Services like Skype, instant messaging, and texting all compete in one way or another with traditional telephony, whose decline is accelerating. From 2009 to 2013, the proportion of total telecom sector revenues coming from local telephony (all types of providers combined) fell from 23% to 19%, with the revenues themselves diminishing from \$4.8 billion to \$4.2 billion.⁶²

61. CRTC, *Communications Monitoring Report 2013*, September 2013, Table 2.2.3: Canadian telephone penetration rates – Wireline and wireless subscribers per 100 households, p. 25; Statistics Canada, “Residential Telephone Service Survey, 2013,” *The Daily*, June 23, 2014.

62. CRTC, *op. cit.*, footnote 55, Figure 5.1.2: Distribution of telecommunications revenues, by market sector, p. 145 and Table 5.2.2: Residential local telephone and long distance service revenues, by type of TSP, p. 156.

Box 4-1

The dynamic vision of competition and the 2006-2007 deregulation of local telephony

The coauthors of this study had the opportunity to observe directly just how difficult it is to convince people of the dynamic notion of competition when they worked as consultants for then-Industry Minister Maxime Bernier on telecommunications issues in 2006-2007.

After the opening up of the local telephony market to competition in 1997, the CRTC did not just force the former monopolies to share their networks with their competitors; while these competitors could modify their products and fees without oversight from the regulator, the former monopolies had to continue to submit to a long, bureaucratic approval process each time they wanted to modify a product or the price of a product. The goal of this regulation was to ensure that the former monopolies would not modify their offerings in such a way as to compete unduly with the resellers that were trying to establish themselves in the market.

In April 2006, with the recent arrival of cable providers into the local telephony market and the rapid growth of facilities-based competition, the CRTC announced that it could envision deregulating the services of the former monopolies in regional markets where they had lost at least 25% of their market shares to competition (in addition to a series of other criteria like the quality of wholesale services offered to resellers).^I By emphasizing market share concentration first and foremost, this decision was inspired unsurprisingly by the static vision of competition.

Worried that these too-strict criteria would considerably retard the deregulation process and keep their hands tied while competitors gnawed away at their market shares, the former telephone monopolies called on the government a few weeks later to reverse the CRTC's decision. This complex process took place over a period of one year.^{II}

Inspired by the dynamic vision of competition, Minister Bernier judged that insofar as competitors were present in a market, the positive effects of competition were concretely felt, whether the competitors' market shares were 2% or 25%. The new criterion also had to take into account wireless services, which in his opinion constituted a real substitute to traditional telephone services.

In 2005, 4.8% of Canadians had already decided to abandon their traditional telephones (see Figure 4-1). From a dynamic competition viewpoint, it was obvious that the traditional local telephony market had changed and that regulation had to take this into account. In this context, limiting the ability of the former monopolies to adapt their offerings to the new realities of the market was not in the interests of consumers.

The new criterion announced by the minister in December 2006, which came into effect in April 2007, therefore replaced the 25% market share criterion with a different one.^{III} This one stipulated that the CRTC had to deregulate the services of the former monopolies in all of the regional residential telephone markets where at least two other competitors with their own infrastructures (in practice, a cable provider and a wireless service provider) were present. The majority of markets were deregulated in the months following the effective date of the decree.

Sources: I. CRTC, Forbearance from the regulation of retail local exchange services, Telecom Decision CRTC 2006-15, April 6, 2006. II. For an analysis of Minister Bernier's telecommunications reforms, see Richard Schultz, "Telecommunications Policy: What a Difference a Minister Can Make," in Allan M. Maslove (ed.), *How Ottawa Spends 2008-2009: A More Orderly Federalism?* Carleton University Press, June 5, 2008, pp. 134-162; Paul Beaudry, "Wireline Deregulation: The Canadian Experience," *Telecommunications Policy*, Vol. 34, 2010, pp. 606-615. III. Industry Canada, "Canada's New Government Proposes to Accelerate Deregulation of Local Telephone Service in the Interests of Canadian Consumers," News Release, December 11, 2006.

Conclusion

These examples illustrate just how important is dynamic competition (that is, competition based on innovation) and how the gains that it generates eclipse the benefits of static competition without innovation. It is technological change, and not the addition of a few resellers offering traditional telephone services, that has led to the multiplication of the different ways of communicating by voice and provided true competition to the former monopolies for a decade now.

This technological revolution is already old news, however. Today, the rapid transition from services and devices based on voice transmission to those designed to transmit data, which require more and more bandwidth, is giving rise to new transformations. The convergence between the telecommunications sector and the television broadcasting sector, which is making it harder and harder to distinguish the two sectors and regulate them separately,⁶³ will also force the entire industry to restructure itself.

“In the early 2000s, a new phenomenon appeared: that of households deciding to abandon their residential telephones and keep just their wireless subscriptions.”

We could also add the development of new fields that could occupy a central place in the coming years, like machine-to-machine (M2M) communication.⁶⁴ Furthermore, whether foreign ownership of Canadian businesses is permitted or not, competition over new services will increasingly come from foreign giants like Apple, Google and Netflix. Other innovative companies, unknown today, will undoubtedly dominate a portion of the market in a few years. In short, the potential competitors of today—which have no market share and which consequently are not considered relevant according to the static approach—are the ones that might revolutionize the industry of tomorrow.

While the current government concentrates all of its telecommunications interventions on its political goal of promoting a fourth wireless service provider in each of Canada's regional markets, other technological revolu-

tions are in the works. To survive and create jobs and wealth in Canada, our telecom and broadcasting companies will have to anticipate these revolutions and prepare for them by investing billions of dollars in the years to come.

That's where the action is really taking place. The debate surrounding a fourth wireless player is just a costly distraction. In a dynamic, competitive market like telecommunications, consumers will be better served by policies that encourage innovation than by pursuing static goals like increasing the number of competitors.

63. Anja Karadeglija, “Telecom and broadcasting converge as legislation remains separate,” *The Wired Report*, March 31, 2015.

64. “La communication entre machines ‘M2M’ : Une formidable révolution,” *TelecomReview.info*, 2013.

CONCLUSION

Endangered Benefits

Canadians continue to enjoy one of the most advanced telecommunications networks on the planet, and while prices are higher than in Europe, they are lower than in the United States and Japan. This explains in part why Canadians are among the biggest consumers of telecommunications services in the world.

These benefits, however, are endangered. The numerous interventions carried out by the federal government to encourage the establishment of a 4th wireless telephony player across the country could end up hurting consumers by undermining innovation in this industry. This is all the more worrisome given that important technological revolutions are in the works that will require billions of dollars of investments from the country's telecommunications companies.

The ever-growing use of smartphones by Canadian consumers requires greater and greater bandwidth, and therefore increasing amounts of spectrum. This spectrum should not be sold at a discount, ostensibly to encourage competition, to companies that will not make optimal use of it.

By limiting the access of large telecommunications companies to new spectrum in favour of smaller players, and by forcing them to share their networks with their competitors at regulated rates, the government and the CRTC are missing the mark. The effect of these policies designed to increase competition is to deter current players from investing in new technologies.

The discipline and rivalry associated with competition do not necessarily depend on the presence of numerous market participants; they can also be generated by the anticipation of new technologies. Competition over new services will increasingly come from foreign giants like Apple and Google, and other innovative companies that are as yet unknown.

The most appropriate public policies are those that will allow Canadian telecommunications companies to face this global competition and that will offer the best investment climate. The debate over a fourth wireless player, and the government's interventions in the matter, which continued this year, are just a costly distraction that could well backfire for Canadian consumers.

ABOUT THE AUTHORS



MARTIN MASSE

Martin Masse is the Senior Writer and Editor at the Montreal Economic Institute, a post he has held since 2011. Previously, he had been the MEI's Director of Research and Publications from 2000 to 2007. He also served as political advisor to Canadian Industry Minister Maxime Bernier, in particular on issues relating to the Canadian telecom industry. Martin Masse is a graduate of McGill University in Political Science and East Asian Studies. He is the author of a book on Quebec politics and of numerous articles appearing in various publications over the past two decades on economic, political and philosophical issues.



PAUL BEAUDRY

Paul Beaudry is an associate in the Ottawa and Montreal offices of Stikeman Elliott, where he practices competition law. Mr. Beaudry advises clients on government relations and telecommunications law and policy matters. Mr. Beaudry was formerly a senior policy advisor to the federal Minister of Industry. As such, he contributed to two landmark government decisions that modernized the telecommunications regulatory framework and accelerated the deregulation of local telephony. Mr. Beaudry is also a member of the Selection Advisory Board for the appointment of members to the Immigration and Refugee Board of Canada and the corporate secretary of the Montreal Economic Institute. Mr. Beaudry holds a law degree from the Université de Montréal.



Montreal Economic Institute

910 Peel Street, Suite 600, Montreal QC H3C 2H8
T 514.273.0969 F 514.273.2581 iedm.org

ISBN 978-2-922687-59-0