



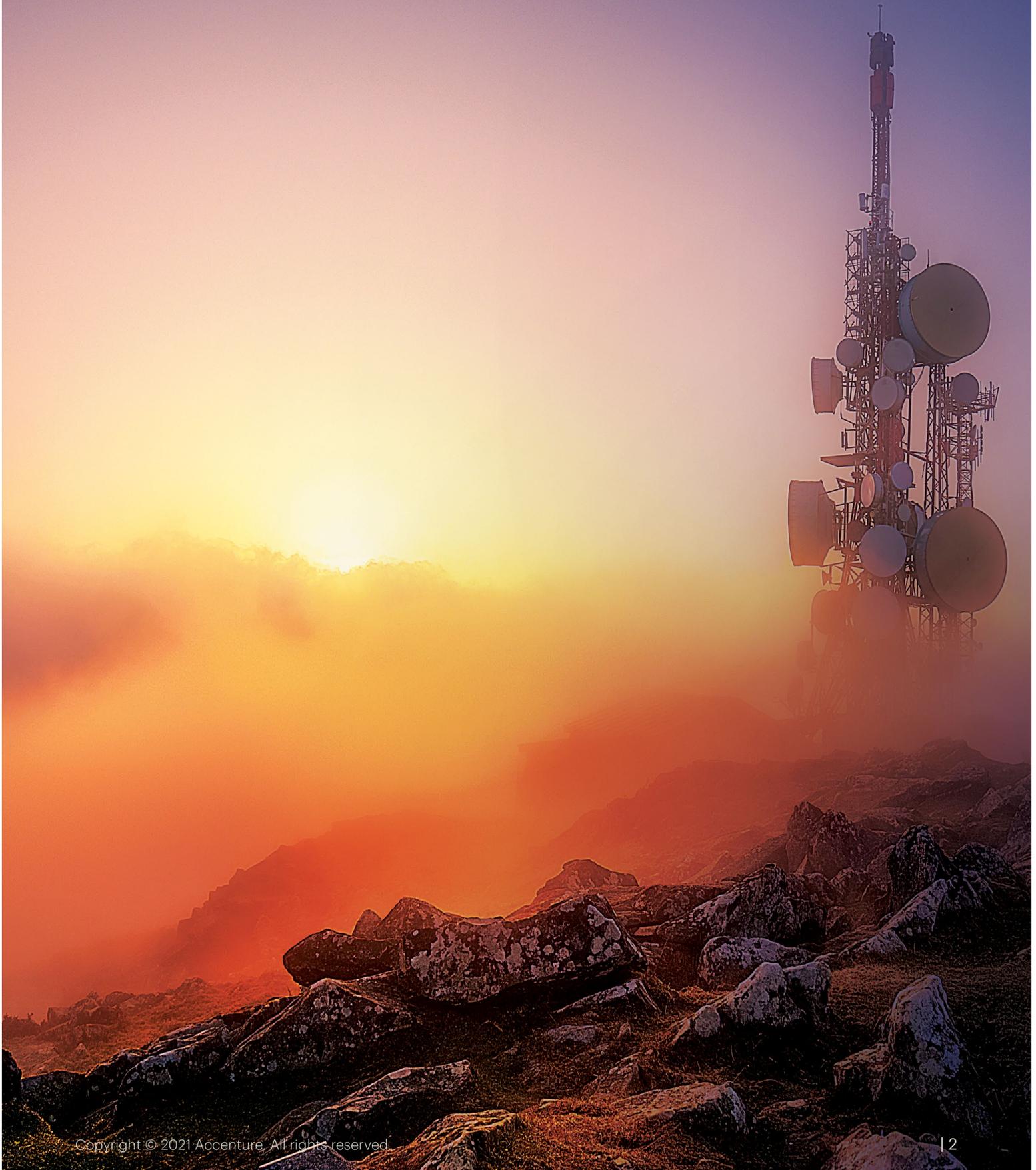
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Connecting Canadians during COVID-19:

The impact of the wireless
and wireline industry in
2020 and beyond

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Executive summary

The COVID-19 pandemic highlighted the essential nature of connectivity for Canadian society, business, and the economy. With sustained, accelerated growth in digital traffic, Canada's facilities-based operators continued to invest in building additional capacity and further upgrading critical telecommunications infrastructure and services, setting the stage for a resilient economic recovery post-pandemic.

As a result of COVID-19's adverse effects on employment and Canadians' ability to spend, the overall Canadian economy experienced a 5.4% contraction in 2020.¹ While some industries were dramatically impacted, the telecommunications industry performed in line with the overall economy, maintaining its share of overall Canadian GDP output. Accenture's analysis estimates that the **GDP contribution and jobs supported by the telecommunications industry and increased connectivity across other industries were up to \$70.7 billion and up to 596,000 jobs, respectively, in 2020.** In this same period, the industry **invested more than \$11 billion in infrastructure innovation and expansion.**²

The shock of COVID-19 triggered a potentially long-lasting shift in how Canadian society and business operates. Four key trends emerged around the consumption of telecommunication services. These include a pivot towards the digital economy, a decline in city-centric living, the advent of unconventional ways to socialize, and the rise of remote working. As the world reopens and the Canadian economy returns to growth, the **telecommunications industry will further enhance its economic contributions and fuel Canada's digital evolution.**

With most Canadians shifting to digital-first behaviours, those in communities with little or no access to connectivity were limited in their ability to participate in the digital economy and social ecosystem. The public and private sector must **continue to prioritize investment in network infrastructure and next generation technologies.** Working together to promote healthy facilities-based competition and a regulatory framework that fosters infrastructure investment will ultimately benefit Canadians by increasing availability, affordability, and accessibility of connectivity services.

COVID-19 also impacted marginalized groups such as the BIPOC and LGBTQ2IA+ communities.^{i ii} Even for those with Internet access, the loss of in-person and physical experiences resulted in the loss of critical support programs, which in turn, increased social and economic isolation. In response, communications service providers (CSPs) created targeted support programs to help those in need. **While the focus on marginalized communities is encouraging, more needs to be done by the public and private sectors to bridge inequities, increase access to adequate information and communication technologies, and ensure Canadians can get the help they need, when they need it.**

CSPs are well positioned to further their leadership role as trusted advisors in the home by working in partnership with, digital disruptors like Microsoft, Amazon, and Google that are rapidly simplifying the market for digital services. Fortunately, CSPs have a unique value proposition founded on connectivity expertise and trust which can be leveraged to pair the best of connectivity with technologies like Cloud and 5G, **propelling the Canadian economy and society into the future.**

i BIPOC refers to Black, Indigenous, and people of colour representations.

ii LGBTQ2IA+ refers to Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, Two-Spirit, Intersex, Asexual, and other identities that fall outside of cisgender and heterosexual paradigms.

Introduction

CWTA's Annual Economic Impact Study

This report was prepared by Accenture and commissioned by the Canadian Wireless Telecommunications Association (CWTA) as part of an annual series examining the economic impact of the telecommunications industry. As with the previous iterations of this report, this study examines the economic impact of the wireless and wireline industry on the Canadian economy in 2020 while also providing a perspective on the role that telecommunications has played and will continue to play in connecting Canadians, reducing the digital divide, and supporting society during COVID-19 response, recovery, and rebuild efforts.

The economic modelling in this study defines the telecommunications industry as consisting of facilities-based network operators supplying wireless and wireline connectivity services.ⁱⁱⁱ The analysis excludes television/video services and infrastructure as well as satellite connectivity and other supporting sub-industries (e.g., dealers, resellers, distributors, and application stores). The economic impact outlined in this study represents the telecommunications industry's contribution to the economy through its value chain as well as the impact on additional industries that could drive greater sales and increase output due to new wireless and wireline connections in 2020. In this analysis, the value chain for the telecommunications industry includes the CSPs themselves (driving direct impact), the suppliers of CSPs (driving indirect economic impact), and the labour employed in the supply chain (driving induced economic impact).

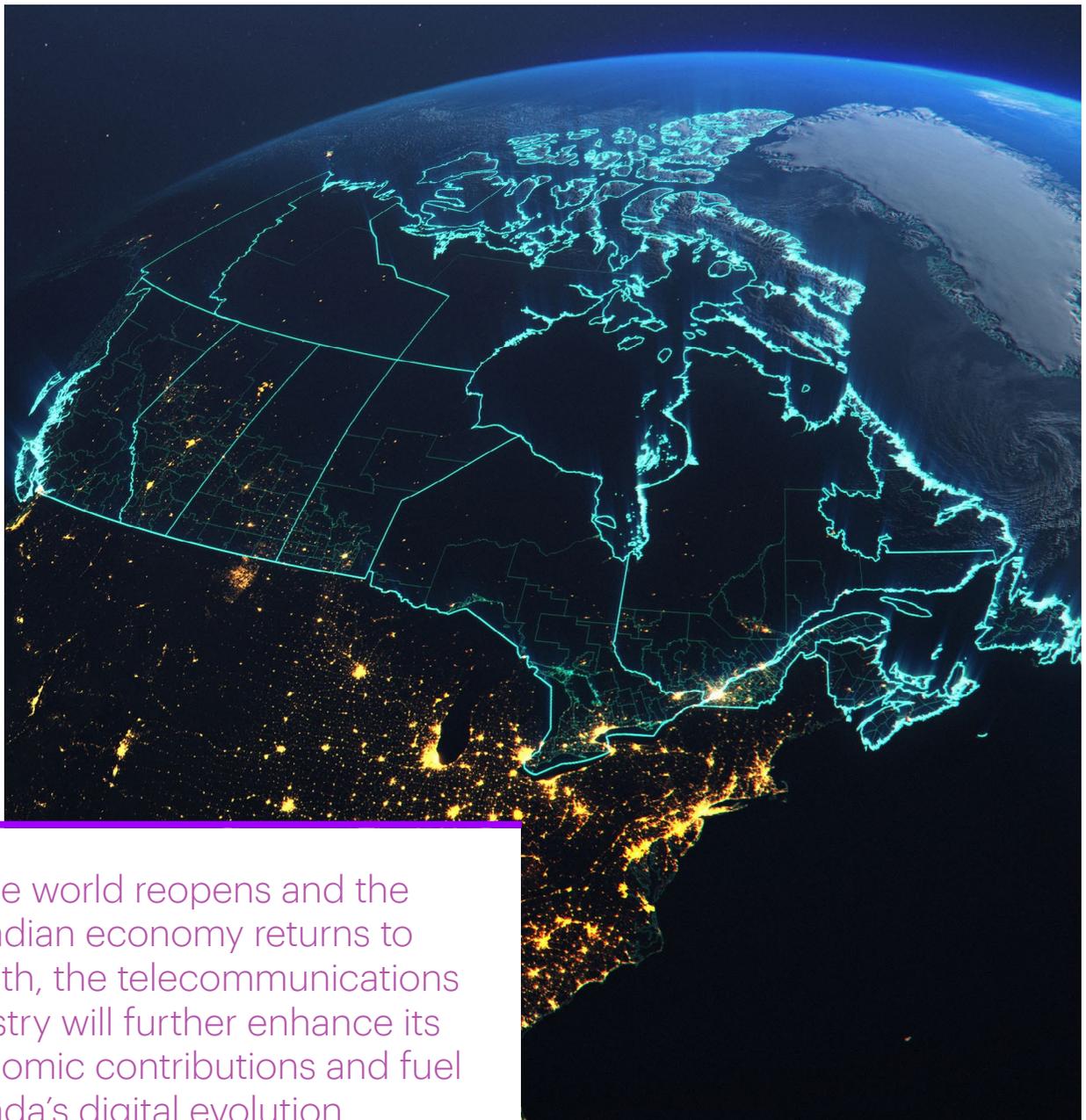
The economic modelling figures presented in this report were generated using the most up-to-date Statistics Canada multipliers from 2017.³ Our previous report (2019) used the Statistics Canada multipliers from 2015, which were the latest available at the time of publication. To keep the comparisons between publications consistent we updated the 2019 results with the latest set of multipliers; restated 2019 figures are included in this paper's charts and footnotes.

Summary of 2020 Economic Output

The Canadian economy contracted 5.4% in 2020, a significant reduction relative to a five-year compounded growth of 0.77%.⁴ This economic shock largely stemmed from COVID-19 and its downstream implications on employment and consumer spending. During this time, the telecommunications industry's value chain contracted only 1.6% from 2019 levels. More broadly, the industry influenced up to 3.14% of overall Canadian GDP in 2020.⁵ This economic strength was driven by the telecommunications industry's sustained and significant capital investment in 2020, with more than \$11 billion invested in wireless and wireline connectivity.⁶ Further, the rise in new connections for telecommunications services generated increases in sales across other industries in Canada valued at \$47.9 billion in GDP contributions (including, for instance, \$6.4 billion in incremental output in health care). These indicators demonstrate the telecommunications industry's key role as a lifeline for Canadian economic and social prosperity in 2020.

iii Facilities-based CSPs provide telecommunications services by investing in their own network facilities.

Despite the economic decline in 2020, the National Bank of Canada forecasts promising overall economic growth of 6% in 2021, as industries are expected to rebound and consumption to increase.⁷ The telecommunications industry will continue to play an integral role in this economic recovery, as indicated in the announcements made by many CSPs of their accelerated capital expenditure plans for 2021.



As the world reopens and the Canadian economy returns to growth, the telecommunications industry will further enhance its economic contributions and fuel Canada's digital evolution.

COVID-19 Impact in 2020



In 2020, COVID-19 changed the way Canadians lived and worked. Governments, businesses, and citizens took actions to mitigate the impacts of the virus with public health measures while ensuring society and the overall economy continued to function. The previous report for 2019 discussed the anticipated short- and long-term impacts of COVID-19 as an accelerator to the digital economy and as a foundation for digitally-enabled consumption models (e.g., e-commerce, remote education, telehealth, and virtual entertainment).^{iv} This paper will refine that stance using a larger dataset and a clearer view of the impacts of COVID-19 during the full calendar year.

Four key trends emerged in 2020:

I. Pivoting to the Digital Economy

In 2020, the impetus to accelerate retail digital adoption became difficult to ignore, as Canadians sought new and safe ways to spend. While overall retail sales were down in 2020, e-commerce sales increased by 70.5%.⁸ Part of this increase was due to an increase in first-time e-commerce, with a reported 13% of Canadians ordering groceries online for the first time during the pandemic.⁹ This shift could not have materialized without the telecommunications lifeline having supported not only large corporations but also the small and medium sized businesses (SMBs) that underpin the Canadian economy (see “Powered SMB Adoption Digital Adoption” in the sections below.) The outlook is positive for the continued growth of online shopping, with Canadian retail e-commerce expected to grow 12.5% in 2021.¹⁰ Telecommunications services will continue to power the digital economy, connecting Canadians, businesses, and ecosystem partners.

II. Decline of the City Dweller

Telecommunications services directly enabled many Canadians to work outside of city centers. With lockdowns, limited nature and space, and higher cases of COVID-19 in dense urban centres, a record 75,000 people moved out of Toronto and Montreal to more rural areas.¹¹ Subsequently, rents in those cities fell by 7-10%, while rents in smaller cities like Victoria and Kingston rose by up to 15%.¹² Post-pandemic, even with many returning to urban living, the increased population in rural areas will continue to put pressure on infrastructure, with new rural dwellers expecting the same level of connectivity in these previously unconventional “office” locations.

III. Seeking Social

The social strains brought on by COVID-19 led to a rise in social media adoption, increasing 4.9% to 23.7 million users by the end of 2020.¹³ Lockdown measures triggered a potentially lasting change in how Canadians interact, with many Canadians seeking social interaction through unconventional means. For example, the social media running, cycling, and marathoning app Strava, which runs on users’ devices and leverages wireless connectivity to log activity, saw twice the amount of outdoor running in 2020; Strava users collectively ran an impressive 3 billion kilometers.¹⁴ Beyond connecting Canadians, social media is also a conduit for e-commerce. In 2020, Shopify reported that 22% of Canadian adults aged 18-34 made a purchase via social media.¹⁵ As the prerequisite to social media use, telecommunications services will continue to underpin the elevated app economy and fuel the increase in virtual social engagement.

^{iv} Digital economy refers to an economy based on digital computing and communications technologies.

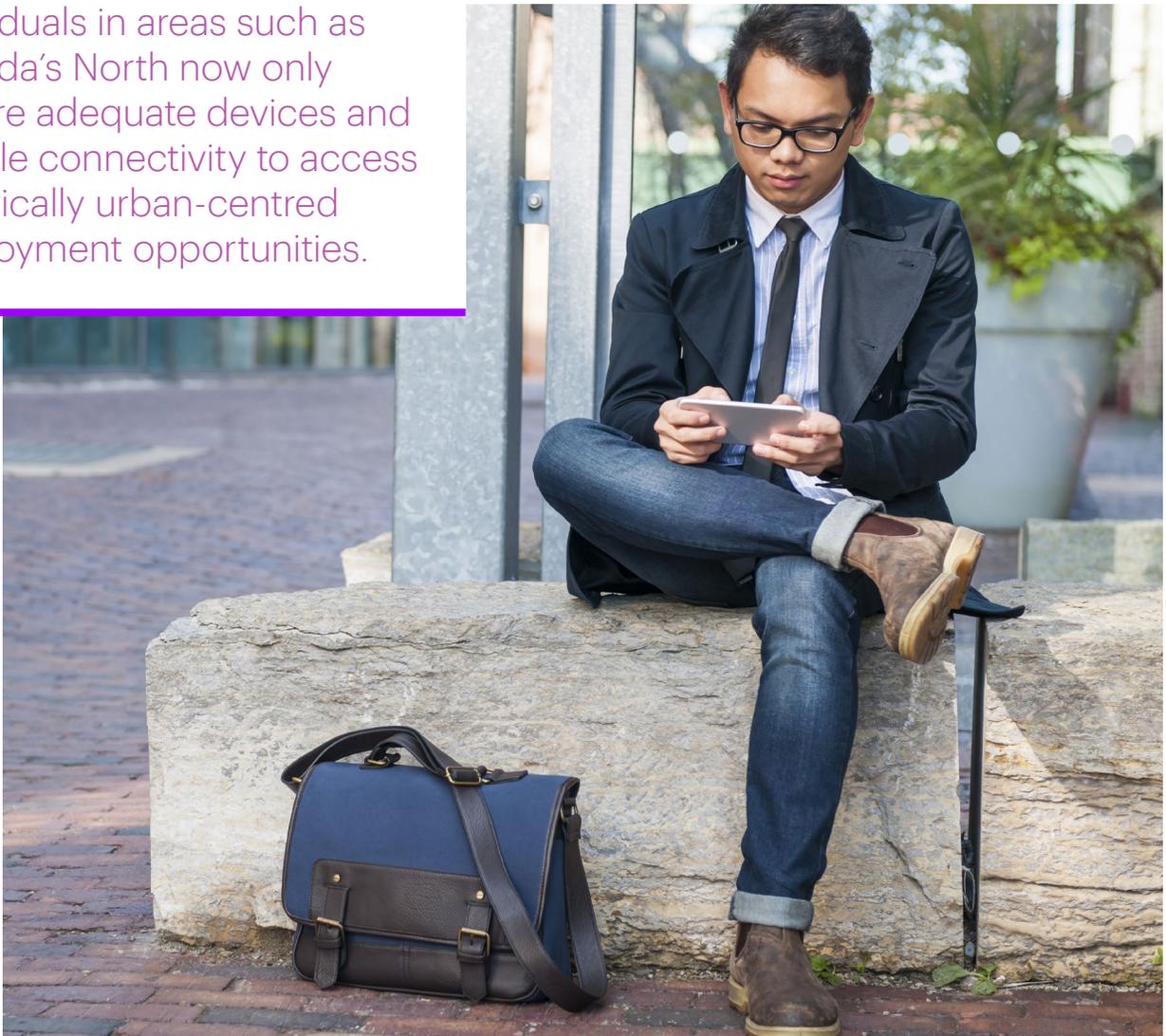
IV. The Rise in Remote Working

COVID-19 transformed the ways businesses and employees interact, uprooting traditional in-office experiences. Wireless and wireline infrastructure were critical in enabling Canadians to adapt to new digital ways of working while allowing businesses to achieve boosts in productivity and reach a larger and more diverse pool of talent.¹⁶

Beyond allowing employees and employers to remain connected, remote working helped workers maintain or improve their productivity, with approximately 90% of new teleworkers reporting being at least as productive as they were when working in an office.¹⁷ CSPs are well-positioned to play a leadership role in supporting businesses in their workplace evolutions and journeys to scalable cloud-based solutions that allow for remote working.

Remote working also allows businesses to access a more diverse set of skills across Canada.¹⁸ Individuals in areas such as Canada's North now only require adequate devices and reliable connectivity to access historically urban-centred employment opportunities. Telecommunications can continue to fuel this paradigm shift in employment accessibility.

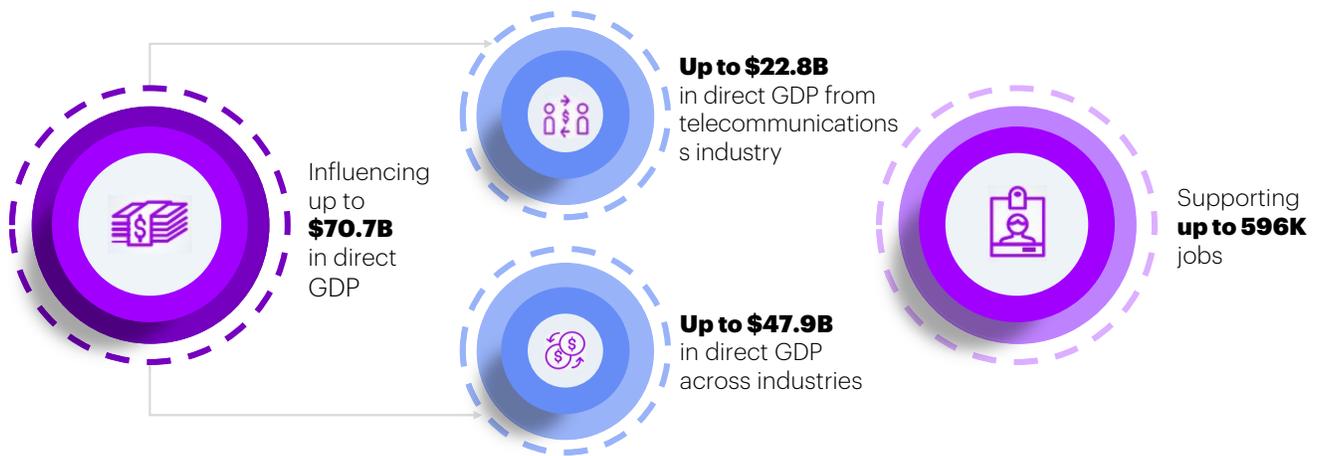
Individuals in areas such as Canada's North now only require adequate devices and reliable connectivity to access historically urban-centred employment opportunities.



Telecommunications Industry's Economic Contribution in 2020

Summary of the Telecommunications Industry's Direct Economic Contribution in 2020

Estimated contribution to Canadian economy (2020)



All values are related to **direct** effects

Accenture estimates that GDP contribution and jobs supported by the telecommunications industry and increased connectivity across other industries were up to \$70.7 billion and up to 596,000 jobs, respectively, in 2020. Broken down, this includes up to \$22.8 billion in direct impact from the value chain of CSPs and up to \$47.9 billion in direct impact due to other industries increasing their sales and output by adding incremental wireless and wireline connections. These direct impacts created by the telecommunications industry supported up to 596,000 jobs across Canada in 2020.

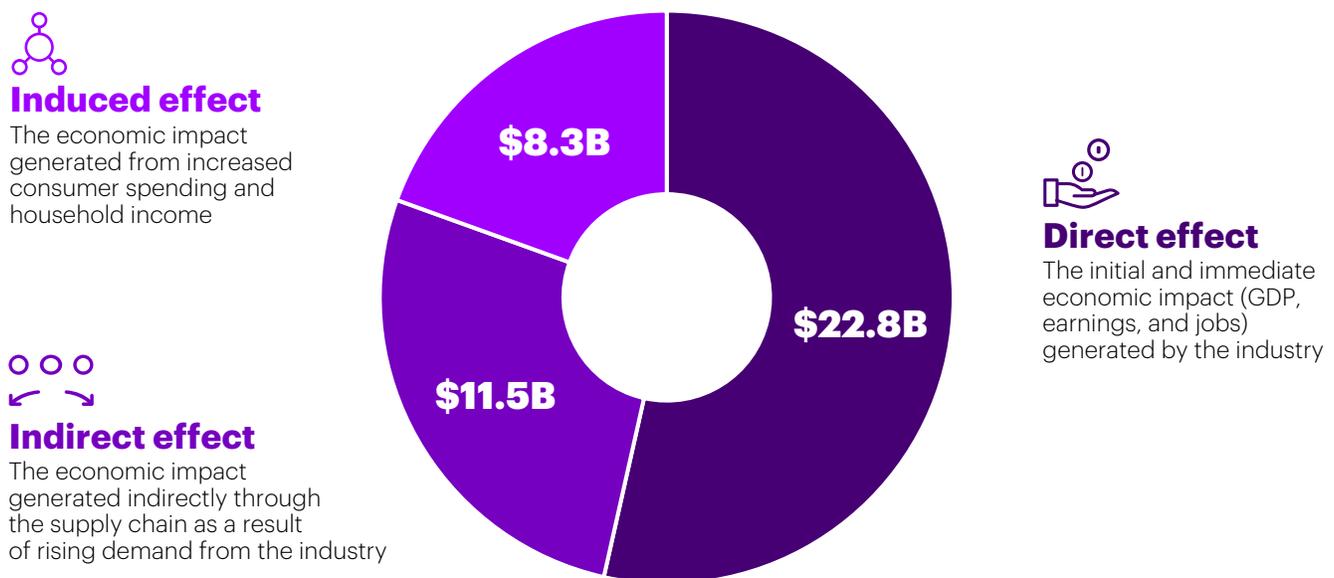
The telecommunications industry influenced a 3.14% share of overall GDP in 2020, even in the wake of COVID-19—this resiliency can be attributed to the industry's continued investment into infrastructure and innovation.¹⁹ We explore these impacts in more detail below and isolate for the value chain impacts as well as the output generated by industries which have benefitted from an increase in connections.

Impacts from the Telecommunications Industry's Value Chain in 2020

I. Direct, Indirect, and Induced Contribution to the Canadian Economy from the Telecommunications Value Chain

In 2020, the telecommunications industry's value chain contracted only 1.6% from 2019 levels. Despite this contraction, the value chain outperformed the Canadian economy's more significant 5.4% contraction and spurred up to \$42.6 billion in GDP output through CSP revenues, supply chain, infrastructure, and employees.²⁰ This resiliency persisted across direct, indirect, and induced contributions from the value chain, each down a modest 1.5%, 1.5%, and 1.7%, respectively, in 2020 when compared to 2019. These contributions represented up to \$22.8 billion in direct, up to \$11.5 billion in indirect, and up to \$8.3 billion in induced value chain contribution to GDP in 2020.

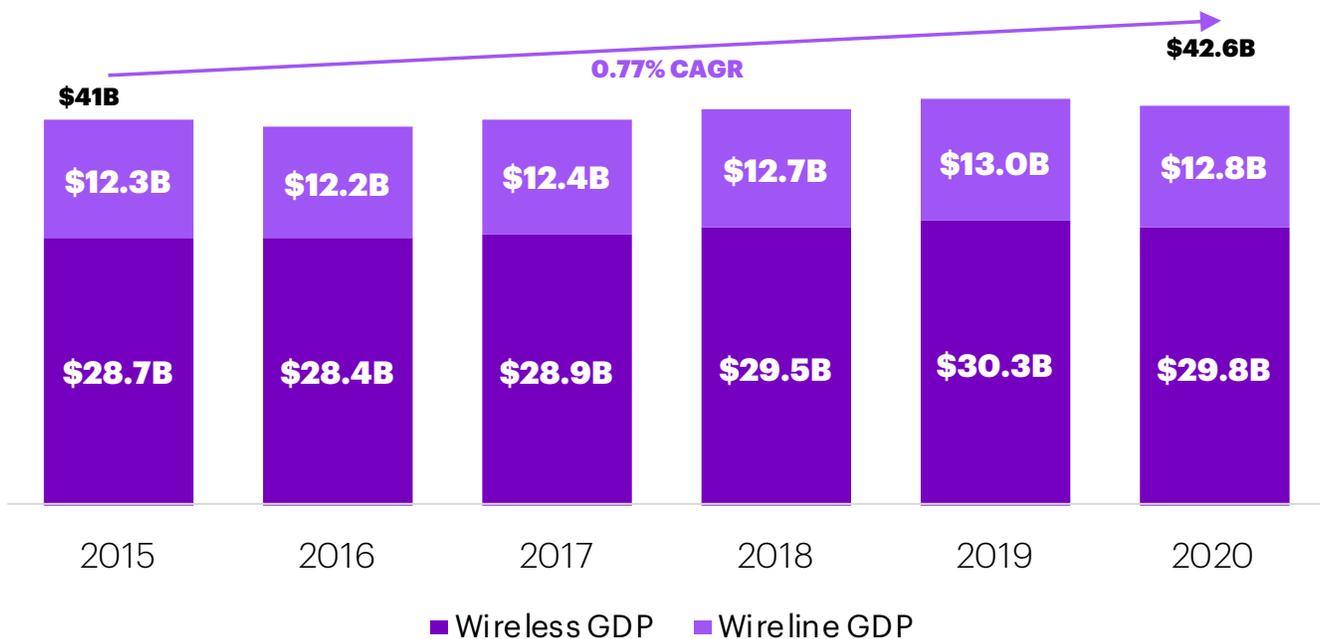
Breaking down up to \$42.6 billion in GDP contribution from the telecommunications industry's value chain (2020)



II. Stable Contribution to the Canadian Economy

The telecommunications industry's value chain has continued to deliver meaningful contributions to the Canadian GDP over the last five years, with contributions increasing at a compounded annual rate of 0.77%, reaching up to \$42.6 billion in 2020. Examined independently, the wireless value chain GDP contribution increased from up to \$28.7 billion in 2015 to up to \$29.8 billion in 2020 and the wireline value chain contribution increased from up to \$12.3 billion in 2015 to up to \$12.8 billion in 2020.

The growth in GDP contribution by the wireless and wireline value chain



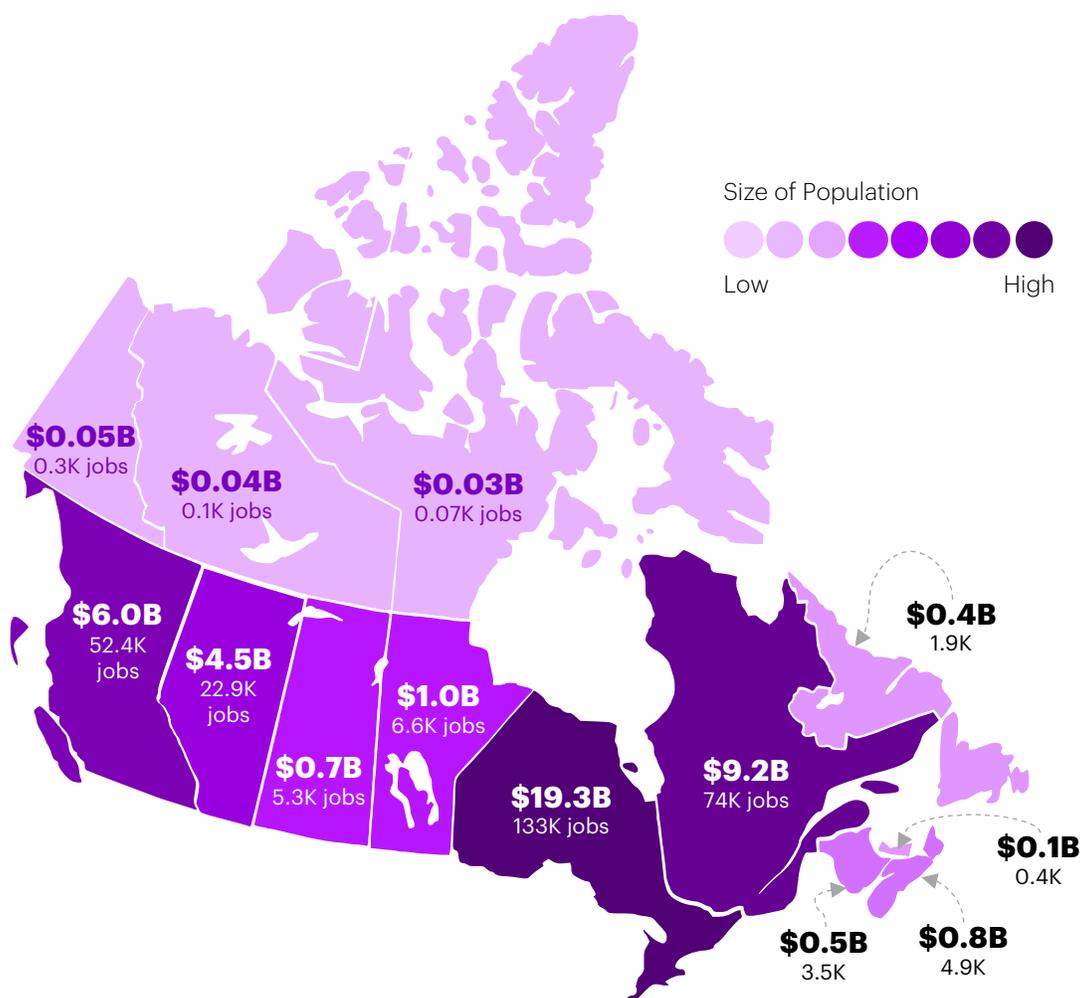
III. Impact on Employment

When looking at the telecommunications industry's value chain alone, up to 306,000 jobs were supported by its sales; this effect includes direct, indirect, and induced jobs. For every \$1 million in telecommunications sales, 4.4 indirect and induced jobs are potentially supported in the Canadian economy. The success and growth of the telecommunications industry drive significant employment benefits across the Canadian economy.

IV. Economic Contribution by Province

Across Canada’s vast geography, the impact of the telecommunications value chain is pervasive, with substantial contributions both to GDP and jobs in every province and territory. Increasing rural investment will reap benefits for the Canadian economy, with studies revealing that a 10% increase in broadband penetration can achieve a 0.9-1.5% increase in GDP growth for a given region.²¹ As a result, further expansion into rural and remote areas presents a challenging yet productive endeavour for CSPs and government to improve accessibility and spur economic activity across underserved regions in Canada. See “The Rural Digital Divide” in the sections below for more on this topic.

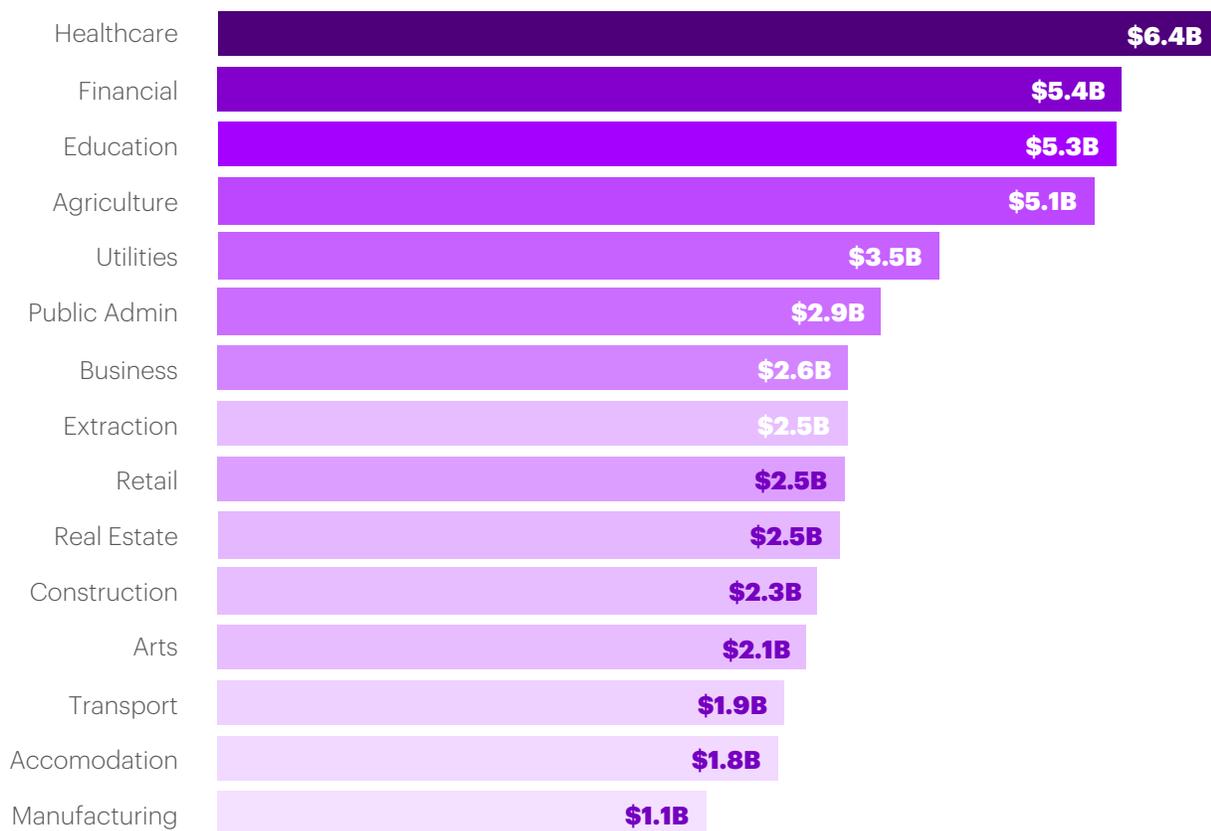
Potential GDP and jobs contributions of the telecommunications industry value chain by province and territory (2020)



Impacts from Incremental Connections Across All Industries

Another way to examine the meaningful impact of the industry on the Canadian economy is to explore how telecommunications services are used by other industries to produce and sell goods and services. Many industries, such as the arts and transportation, experienced significant revenue declines as a result of health and safety measures imposed in response to COVID-19. Despite these market effects, telecommunications investments and infrastructure were able to support up to a cumulative \$47.9 billion in direct GDP contribution by all industries (excluding telecommunications) to Canada's economy through new telecommunications connections.^v These telecommunications benefits were most prominent in health care and education. In the health care industry, up to an additional \$6.4 billion of GDP output was supported by incremental connections, unlocking value in areas such as virtual care and Internet of Things (IoT) applications.²² In the education industry, up to an additional \$5.3 billion of economic output was influenced as a result of the massive shift towards virtual learning.

Direct GDP contribution by industry, influenced by the increase in connections



^v New connections refers to incremental connections from 2019 to 2020

Growing Demand for Telecommunications: Key Industry Metrics

Growing demand for connectivity has driven up the number of total connections and the consumption of communications services. This growth in demand has required facilities-based network operators to maintain high levels of capital investments to support the load on communications infrastructure. This elevated level of investment has persisted year over year, even in the face of COVID-19.

Drivers of Wireless Growth

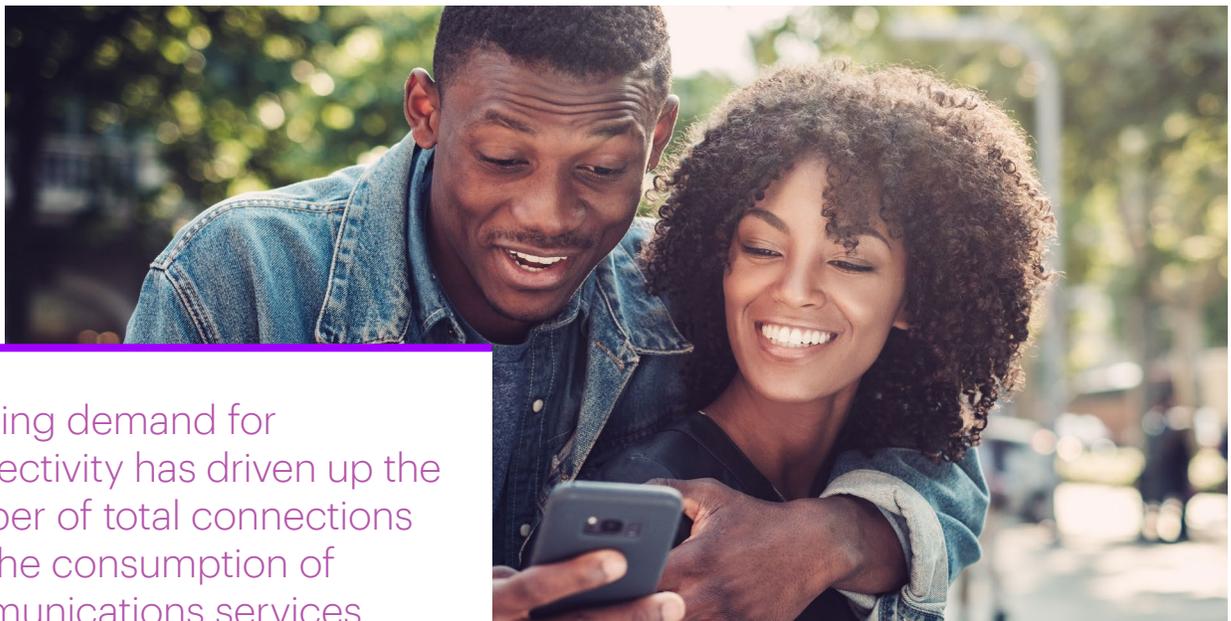
Increasing demand for wireless telecommunications services can be examined across three main dimensions: wireless connections, wireless consumption, and wireless prices.

I. Wireless Connections

Despite the impact of health and safety restrictions on people's mobility, mobile wireless subscribers increased from approximately 33.1 million in 2019 to 34.1 million in 2020, or almost 3%.²³

II. Wireless Consumption

With Canadians staying at home and commuting less, it might be expected that wireless data consumption would have declined in 2020. On the contrary, Canadian cellular data traffic grew 37% in 2020 to reach 2,279.5 petabytes.²⁴ This rise in wireless consumption was likely influenced by the increased prevalence of larger data plans at lower costs and without overage fees.

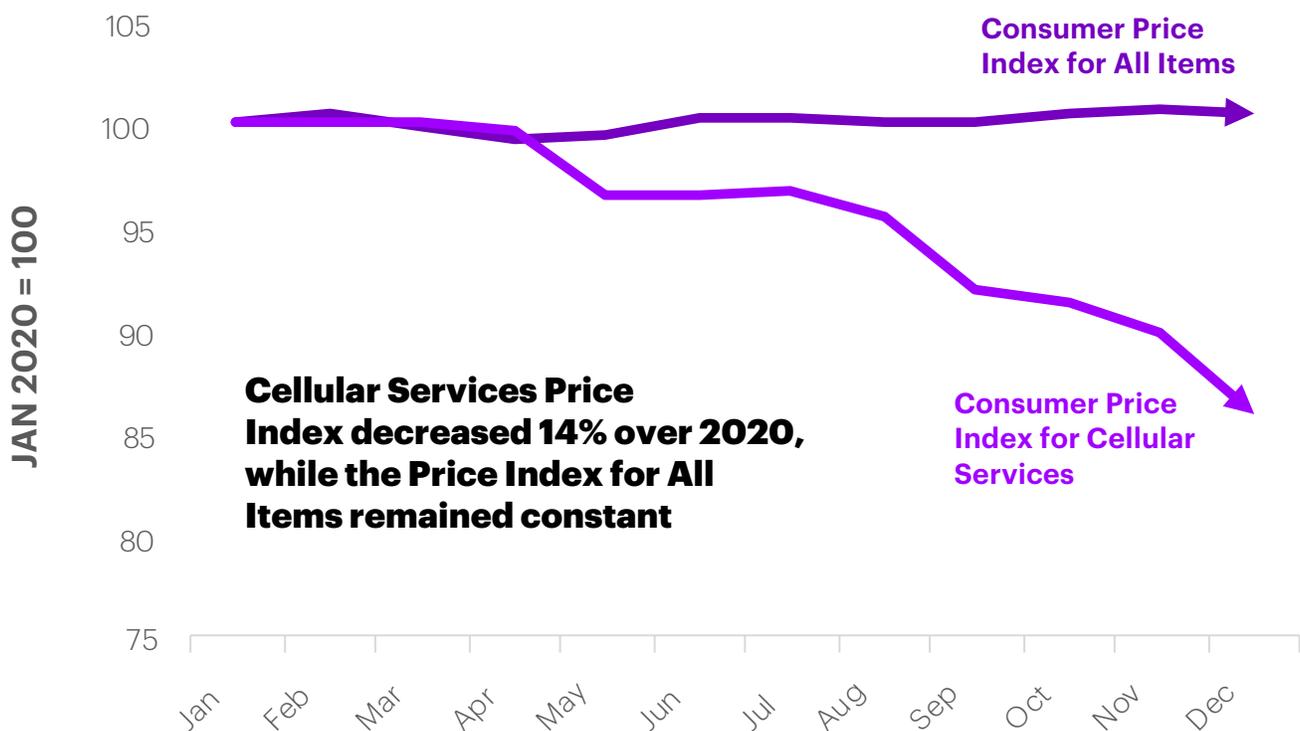


Growing demand for connectivity has driven up the number of total connections and the consumption of communications services.

III. Downward Trend in Mobile Wireless Prices

Due to vigorous competition and the proactive steps taken by CSPs, consumer prices for cellular services in Canada have continued to follow a declining pattern, with Statistics Canada's Cellular Services Price Index decreased 14% over 2020, while the Price Index for All Items remained constant.²⁵ This downward trend has continued into 2021, with the year-over-year increases in CPI for "All Items" hitting a ten-year high at a 3.7% increase, while the CPI for "Cellular Services" dropped 18.4% from July 2020 to July 2021.²⁶ The downward trend in CPI for "Cellular Services" enables increased consumption of wireless services.

Consumer Price Index for Cellular Services compared to All Items, 2020



The downward trend in prices combined with increasing mobile data consumption sets the stage for wireless to be a key driver of economic growth post-pandemic as Canadians embrace mobility once again.

Investments by the Telecommunications Industry

CSPs acted with a sense of urgency in 2020 to sustain Canada's digital economy and societal connectivity, maintaining investment levels despite financial headwinds brought on by COVID-19.

I. Capital Investments

In the face of COVID-19, the wireless and wireline industry spent more than \$11 billion in 2020 on capital investments, on par with 2019.²⁷ This sustained level of capital spending is in line with a long-running trend of telecommunications investment, with facilities-based network operators having invested more than \$57 billion in wireless networks (plus over \$18 billion spent on spectrum licenses) from 1987 to 2020 and \$157 billion in wireline networks since 1996.^{28 29} While no major spectrum auction was held in 2020 due to the pandemic, the auction for 3500 MHz frequency in the summer of 2021 saw \$8.9 billion in additional investment from facilities-based operators to support their expansion of 5G services across Canada. With this ongoing investment, CSPs are signaling a strong commitment to continue evolving Canada's national communications infrastructure.³⁰

II. Capital Intensity

Canada's vast geographic landscape and cold climate areas result in a highly dispersed population and many hard-to-reach communities.^{31 32} As a result, compared to service providers in other countries, Canadian CSPs are generally required to make greater investments into maintenance and development of infrastructure relative to a lower revenue potential, as reflected in the industry's high capital intensity.^{vi} In 2020, Canada's telecommunications industry's capital intensity remained constant at 22% and will likely rise in 2021 given accelerated capital investment plans announced by many facilities-based operators.³³ To place the capital intensity of the industry into perspective, a comparison can be made with Germany. Germany has a population that is over two times greater than Canada, all living in an area that is 26 times smaller.³⁴ With less territory to cover and a population density 60 times greater, German CSPs capital intensity in 2020 was only 17%.^{35 vii}

III. Impacts of Continued Investments

As a result of the investments made by facilities-based network operators, subscribers experienced an average 12.9% increase in LTE speeds in 2020, contributing to an overall 358.5% increase since 2014.³⁶ In a study comparing download speeds across the G7 countries and Australia, Canada ranked first at an average of 67.3 mbps.³⁷ In contrast, Australia—comparable to Canada due to a similarly geographically distributed population—reported an average of 41.3 mbps.³⁸ Further, the US reported average download speeds of only 30.3 mbps.³⁹

Much of the impact felt by consumers from the wireless and wireline industry investments in the coming years will stem from the deployment and scaling of 5G technology. 2020 was a monumental year, with many facilities-based network operators investing in upgrading backbone infrastructure and densifying wireless cell sites to enable their 5G deployment. In a previous study, Accenture estimated that by 2026, the annual GDP impact of introducing 5G in Canada will be \$40 billion and 250,000 permanent new jobs will be created.⁴⁰

Despite the negative impacts of COVID, the industry preserved growth plans and issued announcements of generous programs to expand rural connectivity, invest in 5G infrastructure, and support underserved and disadvantaged communities across Canada.

vi This report calculates capital intensity by dividing capital expenditure by revenues for wireless and wireline only.

vii Capital intensity for Germany was calculating using Vodafone GmbH, Deutsche Telekom AG, Freenet 2020 Annual Reports.

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“Connecting Canada”: Non-GDP Contributions



In addition to meaningful macro-economic contributions, the telecommunications industry contributes to the economic and social well-being of Canadians and provides Canada with remarkable social and environmental benefits. In 2020, the industry not only enabled Canadians to remain connected, but also played a crucial role in easing the burdens caused by COVID-19.

Supporting the Pandemic Response

Beyond the provision of connectivity, CSPs recognized their duty to uplift Canadians and be responsible business partners. In 2020, CSPs directly contributed over \$180 million to COVID-19 response initiatives.⁴¹ Examples of connectivity-based support include IoT investments for smarter health care facilities, the provision of temporary cell sites to increase hospital broadband capacity, and in-kind donations of complimentary service and devices to disadvantaged communities. CSPs also provided financial support through non-connectivity investments, such as over \$7.5 million in personal protective equipment and essential supplies to frontline workers.⁴²

Societal Continuity and Relief

The telecommunications industry's continued investment into infrastructure maintenance and innovation directly **enabled new ways of working** and **powered the adoption of digital for SMBs**. Connecting millions of Canadians during stay-at-home measures allowed students and office workers to function largely uninterrupted. Similarly, in 2020, CSPs supported local communities by providing SMBs with the required connectivity to accelerate digital adoption and shift their businesses online.

I. Enabled New Ways of Working

At the height of the COVID-19 shutdown in April 2020, 41.6% of the Canadian labour force worked at least half of their hours from home.⁴³ Given labour market rebounds, this number had dropped to 28.6% by the end of 2020 but this still meant that approximately 4.8 million people were working from home, more than 58% of which reported that they did not usually do so.⁴⁴ Teleworking, combined with more than 7 million students shifting to virtual learning, meant demand for connectivity was on the rise.⁴⁵ As a result, the industry saw wireline connections increase by 2.2% from 2019 to a total of 15.6 million, deviating from a historically declining trend, as more Canadians relied on residential connections.⁴⁶ The link between telecommunications and remote working is clear, with fast download and upload speeds directly enabling remote workers and students to videoconference and screen-share without lags or disruptions. The resiliency of Canada's connectivity network and infrastructure investment empowered Canadians to work and study safely from home during COVID-19. Part of this network investment included CSPs partnering with ecosystem hyper-scalers like Google and Microsoft to bring employees the best collaboration technologies (e.g., Microsoft Teams) backed by high-performance networks.⁴⁷

Telecommunications infrastructure will continue to support workplace evolutions. Looking ahead, approximately 40% of jobs in Canada can continue to be conducted from home and 25% of Canadian companies in the business sector (e.g., finance and insurance, professional services) will likely or/very likely offer their employees the option to telework in the post-pandemic era.^{48 49} COVID-19 has brought a dramatic culture shift to corporate Canada which would not be possible without the reliability and performance of Canada's digital infrastructure.

II. Powered SMB Digital Adoption

SMBs play an indispensable role in Canadian social prosperity as they contribute to community identities, provide a local source of employment, and contribute to the local tax base. In 2020, 38% of Canadians reported purchasing from Canadian online businesses with the rationale of supporting local, up from 29% in 2018.⁵⁰ CSPs helped these SMBs shift towards digital, providing the “always on” service and reliable connection that powered operations and made it easier for Canadians to support local businesses.

Canadian retail sales experienced the largest annual decline since the 2008 recession and local businesses were among the hardest hit, with Canada losing 58,000 active businesses in 2020.⁵¹ In response, 152,000 SMBs quickly pivoted and adopted e-commerce selling models built on the telecommunications backbone.^{viii 52} As part of this pivot towards the digital economy, SMBs took advantage of digital ecosystem partnerships such as food delivery apps to deliver straight to customer doors, while “click and collect” supported a brick-and-mortar-like experience for retail.^{ix}

Without strong and reliable connectivity, SMBs would not have been able to join the digital economy and take advantage of digital tools such as touchless payments and direct-to-door delivery. Going forward, 34% of retail small businesses say they will continue to rely on e-commerce.⁵³ Canadian businesses will need to remain nimble and resourceful, as well as invest in exceeding customers’ changing expectations. These investments start with a strong connectivity foundation and embracing the digital economy.

Health and Wellness

The continued treatment and care of Canadians posed a significant challenge for the health care industry in 2020. As part of the response, telecommunications played a critical role in facilitating virtual health services for Canadians in need.

At a time when mental and physical health suffered greatly in Canada, 47% of Canadians accessed virtual care.^{54 55} New virtual health platforms enabled those seeking mental and physical health supports to gain secure access to health care professionals without leaving home or increasing the burden on health care facilities. As an example, TELUS Health enabled health care practitioners to conduct over 59,000 COVID-19 visits and 18,000 assessments and tests, contributing to over 588,000 consultations since its early-2020 launch.⁵⁶ Additionally, Bell continued its multi-year Bell Let’s Talk initiative which not only raises awareness about mental health issues, but also provides financial support for the delivery of mental health services, both in-person and virtually.⁵⁷

Telecommunications-backed virtual health will persist post-pandemic, with 70% of Canadians believing virtual care is the future.⁵⁸ In May 2020, the federal government invested \$240.5 million towards virtual care and mental health tools, a promising sign that both the private and public sector are committed to enabling the future of virtual care.⁵⁹

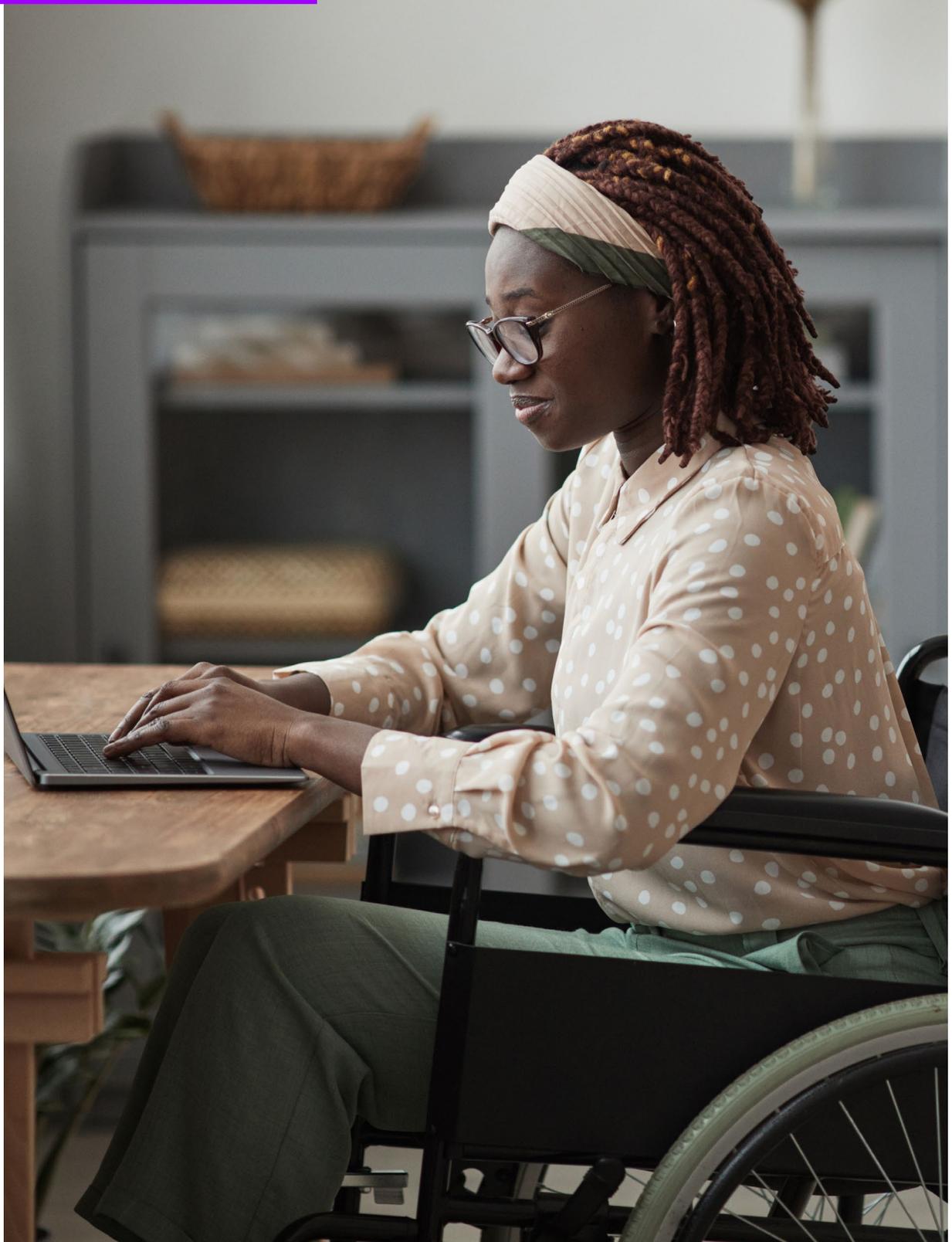
viii Adoption includes businesses who have set up or are in the process of establishing e-commerce operations.

ix “Click and collect” refers to a form of trading where consumers purchase online and pick up in-store.

At a time when mental and physical health suffered greatly in Canada, 47% of Canadians were able to access virtual care.



Charitable contributions from CSPs totaled over \$245 million in 2020.



The Rural Digital Divide

While most Canadians have access to telecommunications services, COVID-19 highlighted the communities that remain underserved, specifically in rural areas. By moving more of our societal and economic activities to digital channels, those with little or no digital access were limited in their ability to participate in the digital economy and social ecosystem.

A generous mix of partnership programs is crucial to achieving broader economic equality and bridging the digital divide. At the forefront, the private sector has spearheaded many broadband investments for underserved areas and deployed significant capital into rural development in 2020.⁶⁰ For example, Videotron expanded high-speed Internet to 30,000 more residents in rural Quebec as part of a \$25 million program.⁶¹

In addition to 100% privately funded programs, the private sector will also continue to invest in government partnerships to accelerate the expansion and upgrading of digital infrastructure. For example, in 2021, the private sector will contribute almost half of the funds for a \$1.74 million program to connect 4,557 households in the Durham region.⁶² Continued government support for connectivity projects that are not economically viable without a public/private partnership is crucial.

This continued focus on bridging the digital divide and achieving universal national broadband availability has the potential to drive tremendous marginal economic and social benefits for rural Canadians.

Inclusion and Diversity

The pandemic disproportionately affected Canadians across various socio-cultural demographics, such as BIPOC and LGBTQ2IA+ communities.

Along with the loss of in-person, physical experiences, many disadvantaged groups in Canada also lost access to critical support services and were more vulnerable to social and economic stress and isolation. In response, CSPs committed resources to social programs, many of which centered on the role of connectivity in empowering these groups. For instance, Bell launched the \$5 million “Bell Let’s Talk Diversity Fund” to support BIPOC mental health, including donations to the Black Youth Helpline.⁶³ Another example can be found in Shaw and Rogers’ jointly funded a program which offers free devices and services to women fleeing domestic violence in British Columbia and the Prairies during COVID-19.⁶⁴

Going forward, governments and the private sector should invest in policies and support programs that bridge inequities, increase access to adequate information and communication technologies, and ensure Canadians can get the help they need, when they need it.

Charitable Contributions

Telecommunications companies in 2020 supported many charities and non-profits, both with financial and in-kind support. Contributions from telecommunications CSPs totaled over \$245 million in 2020.⁶⁵ During the onset of COVID-19, the Mobile Giving Foundation Canada reported that donations from Canadians through texts went up a staggering 980%, an inspiring example of Canadians and CSPs working together to support charities.⁶⁶ More information on the private sector's charitable contributions can be found directly from the corporate social responsibility resources of some of the major facilities-based operators in Canada: [Rogers](#), [TELUS](#), [Bell](#), [Shaw](#), [Videotron](#), and [SaskTel](#). In addition to direct CSP charitable contributions, the CWTA donated on behalf of the industry and its members towards groups such as the Black Health Alliance and the Canadian National Institute for the Blind.⁶⁷

Jobs and Skills Development

Talented and engaged employees are key to delivering world-class telecommunications services to Canadians. In 2020, CSPs invested approximately \$12B in **employee salaries and benefits**, providing over 120,000 well-paying, high-quality jobs to individual Canadians. These employees in-turn contribute to the Canadian economy by exercising their purchasing power and through the payment of taxes.

Direct Contributions to Government

In 2020, CSPs supported Canada through an estimated \$6.8 billion in **taxes**.⁶⁸ × These federal, provincial, and municipal taxes consisted of corporate income taxes, sales taxes, property taxes, employer portions of payroll taxes, and various regulatory fees.⁶⁹ Contributions to government in the form of taxes help fund investment into technology and education as well as goods and services that benefit Canadians, such as social assistance, healthcare, infrastructure, and safety services for the public.

x A proxy method was used to estimate total taxes paid by Bell, Videotron, SaskTel, and Shaw based on an average revenue to taxes paid ratio for TELUS and Rogers. The income tax rate for the five largest mobile service operators was approximately 26%.

Conclusion

Continued and Accelerated Investment in Digital Infrastructure Expansion and Innovation

The public and private sectors should continue to prioritize investment into network infrastructure (including 5G) and spectrum. Sustainable network competition in this space and a regulatory framework that fosters investment in digital infrastructure will benefit Canadians by increasing availability, affordability and accessibility of services, and empowering consumers to make more educated connectivity choices.

The private sector continues to spearhead dedicated contributions towards infrastructure expansion. For example, Bell recently announced further increases to its largest-ever accelerated capital investment plans for 2021, now at \$1.7 billion.⁷⁰ Meanwhile, Rogers announced enhanced and enabled connectivity to more than 1,000 communities across Canada since January 2020, representing the fastest rollout in Rogers' history. The company also released plans to accelerate the pace of its infrastructure expansion to reach another 750 communities by the end of 2021.⁷¹ In parallel, government must also accelerate investment into network expansion. A noteworthy example is the Universal Broadband Fund's "Rapid Response Stream," which makes up to \$150 million available for ready-to-deploy projects that can be completed by November 2021.⁷² To improve connectivity services for Canadians, government must increase co-investment with the private sector and foster a regulatory environment that incentivizes continued CSP investment into infrastructure and innovation.

Partner with Disruptors to Become Trusted Technology Advisors

CSPs are well positioned to establish a leadership role as trusted advisors in the home and as orchestrators of value, helping Canadians get the most out of their technology services and products.

SMBs provide a great example of significant growth opportunity for CSPs. In 2020, Accenture found that SMBs rank CSPs as their second most desirable ecosystem partners after technology companies.⁷³ These disruptors (e.g., Microsoft, Google, and Amazon) are rapidly simplifying the B2B market and may edge CSPs into only playing a connectivity role. However, CSPs have a unique value proposition founded on connectivity expertise and trust. A spotlight partnership example can be found in a recent collaboration between Bell and Amazon Web Services (AWS). The deal will combine Bell's 5G capabilities with AWS's cloud-computing infrastructure to enable next-generation technologies such as immersive gaming, self-driving cars, and smart manufacturing.⁷⁴ By bringing their trusted brands and connectivity expertise to the table, CSPs can work alongside digital disruptors to advance their position as trusted advisors and accelerate the adoption of next-generation technologies in Canada.

Spectrum Enablement

Without sufficient spectrum availability and timely access to new spectrum bands, Canada risks losing the global competitive edge it held during the 4G era. Government should accelerate decision-making on spectrum and provide transparency around those decisions (e.g., earmarking timing and use of frequencies across industries) such that CSPs can conduct long-term capital planning and infrastructure deployments to propel advancements in 5G.

Understand Barriers to Adoption of Digital Services

While cost is among the primary reasons Canadians do not adopt digital services, there exist other barriers such as a lack of digital skills and access to devices that persist despite increases in affordability. In the 2021 Inclusive Internet Index, Canada was ranked first in terms of Affordability.⁷⁵ The private sector has fueled much of this achievement through proactive price reductions and low-cost programs such as Rogers' Connected for Success programs, and various other CSPs delivering on the Connecting Families initiative. While there are Canadians who cannot afford digital services, cost is not the lone barrier to adoption in Canada. As part of the effort to connect all Canadians, government should provide social assistance in the telecommunications space through focused policy, targeted funding programs, and tactical research that truly uncover and tackle the systemic reasons why some Canadians are not adopting digital services.

Conclusion

The telecommunications industry was a critical lifeline for Canada's economic and social survival during COVID-19. From an economic standpoint, the telecommunications industry and increased connectivity across other industries contributed up to \$70.7 billion in direct GDP and supported up to 596,000 jobs across all Canadian industries. Through new connections, the telecommunications value chain influenced up to \$42.6 billion in GDP and outperformed the Canadian economy, contracting only 1.6% from the estimated 2019 levels. CSPs maintained a sense of urgency, continuing to rapidly invest \$11 billion in infrastructure throughout COVID-19.⁷⁶ From nurses delivering virtual care to patients, to parents across the nation safely educating their children while balancing working from home, telecommunications allowed Canadians to stay connected as well as economically and socially empowered during COVID-19.



The telecommunications industry was a critical lifeline for Canada's economic and social survival during COVID-19.

About this Paper

About the Study

This study, commissioned by the CWTA and conducted by Accenture Strategy & Consulting, is an annual review of the telecommunications industry's impact on Canada's economy. In line with the 2019 report, this year's study continues to focus on the economic impact of both wireless and wireline communications service providers in 2020 and their role in the COVID-19 recovery. The methodology used in this report is consistent with the approach taken in the 2019 report but differs in part from that used in previous economic impact studies commissioned by the CWTA (prior to 2019), making direct comparisons difficult and not recommended.

Economic contribution modelling allows an estimation of how the current state of an industry supports the broader local economy. This type of model uses Input-Output tables constructed from standard economic accounts which measure intermediate purchases and demand between industries, as well as the actions of institutions. This allows for the calculation of multiplier effects through other industries (indirect) as well as household spending patterns (induced). As this type of model is a snapshot of the current economy, it does not attempt to capture complex econometric relationships that would, for example, affect price at different levels of production or through substitutes for wireless or wireline services. Regional distributions for direct value-add employment and production patterns were driven by publicly available data from Statistics Canada and further adjusted based on available industry data.^{77 78 79} Standard economic software was used for the calculation of multiplier effects, as well as source data on regional business patterns. The COVID assessments and perspectives were informed by Accenture and CWTA subject-matter-advisor interviews, CSP interviews, and publicly available industry reports and articles.

Methodology

I. Canadian Industry Calculations

Most figures amalgamate data for the major providers, which represent over 99% of the industry's revenues: TELUS, Rogers Communications (including Fido), Shaw Communications (including Freedom Mobile), Bell Canada Enterprises, SaskTel, and Videotron. This paper reports on operator figures representing the calendar year Jan. 1, 2020 to Dec. 1, 2020. Shaw and SaskTel report figures on non-calendar years; therefore, a prorated method was taken to approximate figures based on a calendar year.

II. Economic Modelling Methodology

The economic modelling figures presented in this report were generated using the most up to date Statistics Canada multipliers from 2017.⁸⁰ Our previous report (2019) used the Statistics Canada multipliers from 2015, which were the latest available at the time of publication. To keep the results between publications consistent we updated the 2019 results with the latest set of multipliers for this study; restated 2019 figures are included in this paper's charts and footnotes.

The economic model used in this study captured contributions from two categories: the value chain for CSPs and cross-industry increases in sales.

The Value Chain for CSPs

In this study, the telecommunications industry is defined as the wireless and wireline communications service providers. Using a narrow definition allows the study to identify the specific economic impact contributed by wireless and wireline services providers, rather than overestimating the impacts by including satellite providers, equipment manufacturers, additional support services providers, and third-party retailers of telecommunications services and devices. To quantify the impact of wireless and wireline services in the Canadian economy, data was sourced on real gross output in 2017 prices for the telecommunications industry from Oxford Economics. To meet the demand for wireless and wireline services, the telecommunication industry needs to source additional inputs for its supply chain from other industries in the Canadian economy. This generates a ripple effect of additional economic activity from the demand for communications services. To estimate the impact of this additional economic activity, we sourced the symmetric Input-Output tables for Canada with detailed industry information at the province level.

A few assumptions were made by the partial equilibrium analysis that must be understood before interpreting the Input-Output analysis results. First, industries do not change the mix of inputs used in their production process. Second, businesses within an industry use the same production process. Finally, there are sufficient inputs in the economy to meet the industry's increase in demand and supply shortages or price changes of inputs do not occur. While these assumptions are not always realistic, they are required to make estimations on GDP and jobs from the input-output analysis.

The Cross-Industry Increases in Sales

We estimate the relationship between increases in connections of mobile and fixed broadband and industry output/sales over time. Data on industry output and new connections by type of connectivity technology are sourced from Oxford Economics and Analysys Mason, respectively. Additional endogenous determinants of output growth such as consumption, government expenditure, and trade are also obtained from Oxford Economics.

Next, a panel data regression estimation method is used to estimate the relationship between gross output/sales and increases in new connections on wireless and wireline services. This estimated relationship helps project the impact on sales from projected increases in connections for the 16 key industry groups defined based on ISIC industry definitions.

The estimate for supported jobs as a result of the telecommunications industry represents all jobs across the economy that exist (in part) because of sales as a result of telecommunications products or services. In addition to jobs created by advances in telecommunications products and services, this estimate captures the ongoing jobs sustained by the telecommunications industry. The estimate is calculated using a jobs multiplier against sales both within the value chain for CSPs and across other industries.

Throughout this study, all dollar figures are represented in Canadian Dollars at a 2019 USD exchange rate of 1.3269 where required (Bank of Canada).⁸¹

Executive oversight



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Industry Definitions (NAICS Codes)

Name	NAICS
Accommodation and Food Services	72
Agriculture, Forestry, Fishing and Hunting	11
Arts, Entertainment & Recreation	71
Construction	23
Educational Services	61
Finance and Insurance	52
Health and Social Work	62
Manufacturing	31-33
Mining, Quarrying, and Oil and Gas Extraction	21
Public Administration	92
Real Estate, Rental and Leasing	53
Transportation	48-49
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Wholesale & Retail Trade	42, 44-45
Telecommunication	517110, 517210

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