

Investing in Canada's Future

The Canadian Telecom Summit

November 6, 2023

Why Rebrand?

1. Telecommunications is traditionally thought of as two distinct services: wireless and wireline.
2. New technologies and consumer demands have blurred the lines between the capabilities and use of wired and wireless telecommunications.
3. Rebranding allows us to promote the importance of both wired and wireless telecommunications to Canada's economic growth and social development, and advocate for policies that foster innovation, investment, and positive outcomes for consumers.

Our Work

1. Promotion & Advocacy

We advocate for our members and inform Canadians about the many contributions the telecom sector makes to Canada's economic and social well-being.

2. Consumer Services & Programs

We support industry initiatives and programs, such as enhancing accessibility, charitable giving, and consumer protection.

3. Research & Education

We publish industry data and commission research into telecom sector trends and developments.

Our Programs

www.mobilegiving.ca

MOBILE GIVING FOUNDATION CANADA

The Mobile Giving Foundation Canada brings the technology and reach of mobile phones to registered charities as an innovative fundraising tool. Through the Mobile Giving Foundation Canada, registered charities can engage donors in a simple and straightforward way. Culture, love, generosity, and expand their base of givers by ease of transactions. Giving has never been easier.

[CLICK HERE FOR ALL CURRENT DONATION OPTIONS.](#)

- For Donors**
Giving to your favorite registered charities has never been easier. Mobile giving allows you to make a donation to a registered charity via your mobile device, and have the convenience of the donation appear on your monthly wireless phone bill.
- For Registered Charities**
Are you a registered charity looking to incorporate the mobile giving channel into your fundraising campaign? Explore how mobile giving uses wireless technology to support charitable causes and remove barriers for donors.
- For Application Service Providers**
The Mobile Giving Foundation Canada appoints Application Service Providers (ASPs) based on a range of criteria, including the functionality of their mobile platform, mobile marketing strategy capabilities and commitment to pioneering the mobile channel.

[OBTAIN YOUR OFFICIAL TAX RECEIPT](#)

www.devicecheck.ca

Device Check Canada

Device Check provides instant access to the Canadian national database of mobile devices reported lost and stolen.

- Business**
Subscribe for access to information that will allow the national list of stolen devices relating your results or reporting stream.
- Law Enforcement**
Free, instant access to information valuable to investigations and operations.
- Consumers**
Purchasing a pre-owned device? Check the list number here to ensure the device has not been reported lost or stolen in Canada.

www.textwith911.ca

TEXT with 9-1-1

What you need to know about TEXT with 9-1-1

9-1-1 is a service available to you if you are part of the dual-coverage, first-aid training and speech impaired call (DHFD) community.

[Click here for current service availability](#)

[Click here for what you need to know about Text with 9-1-1](#)

Important Resources for TEXT with 9-1-1

- How to Make a 9-1-1 Call**
ASL Video
- Registration**
Please visit your wireless service provider's link site for specific details such as information on registration and call pricing compatibility.
- Service Availability**
9-1-1 will be made available in specific areas on the appropriate network and call pricing compatibility.
- FAQs**
What is Text with 9-1-1? 9-1-1 is a service that allows you to call 9-1-1 using your mobile phone. It is a service that is available in specific areas.

www.txt.ca

txt.ca

Looking to expand your reach with SMS?

- Why use text?**
- How to use text**
- Content Aggregation**
- Content Management**

www.wirelessaccessibility.ca

wireless accessibility.ca

Welcome to WirelessAccessibility.ca

www.staccouncil.ca

STAC

GEO WEEK

Membership

STAC Committees

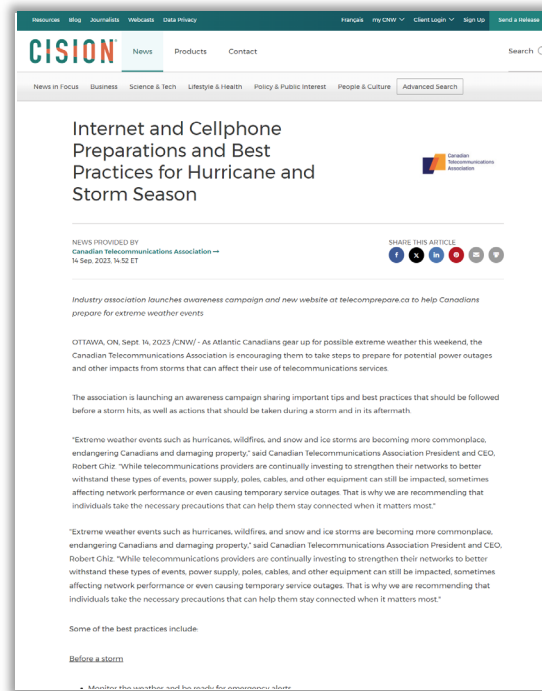
Guidelines & Best Practices

Safety Codes & Regulations

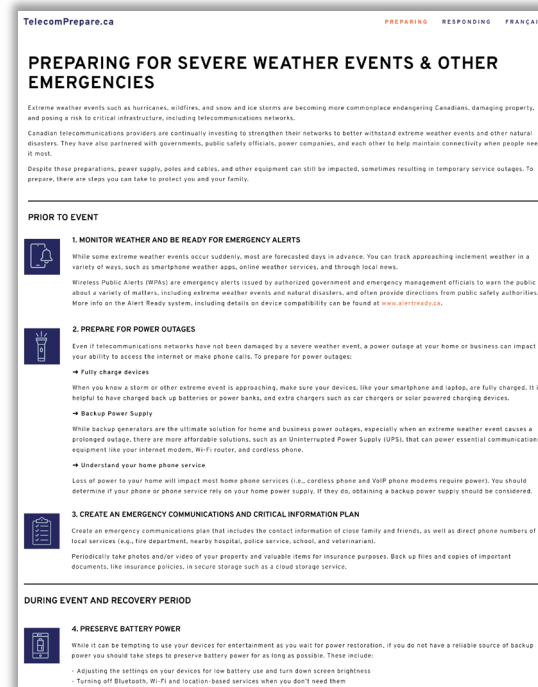
Train the Next Generation of Tower Technicians

Emergency Preparedness Awareness Campaign

Press Release



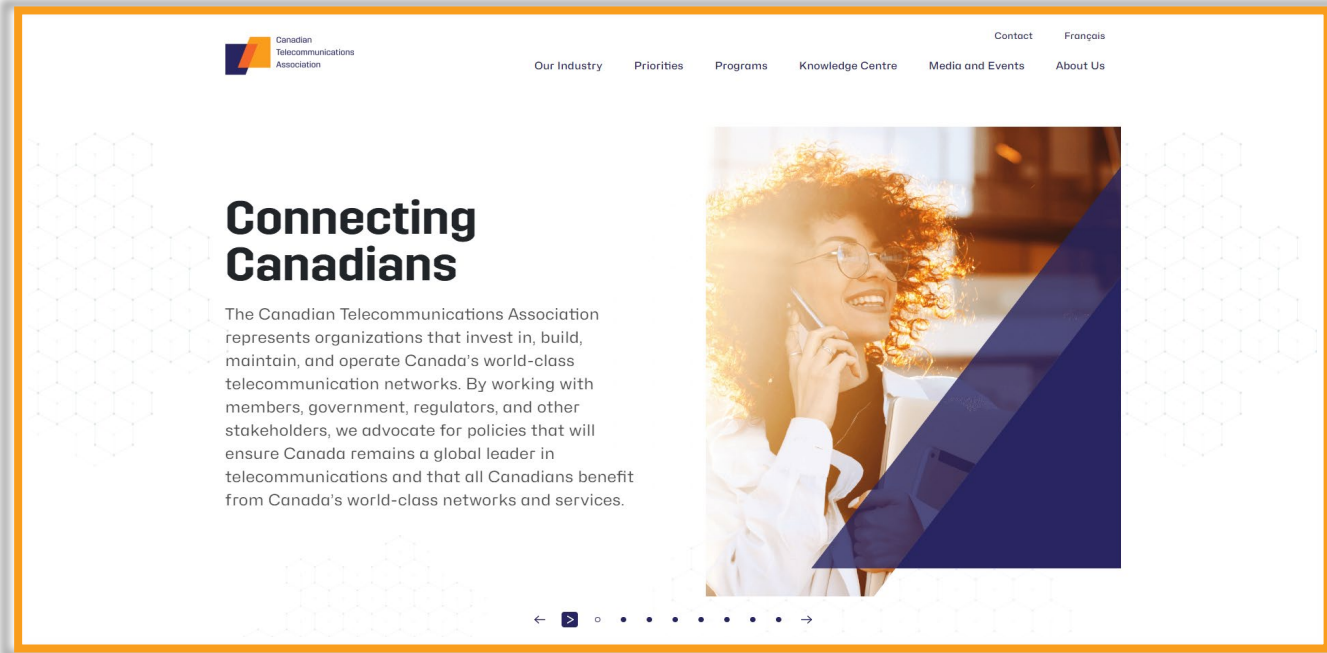
Dedicated Website



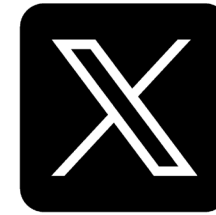
Print and Digital Advertising



Social Media



www.canadatelecoms.ca



[@CanadaTelecoms](https://twitter.com/CanadaTelecoms)



[Canadian
Telecommunications
Association](https://www.linkedin.com/company/canadian-telecommunications-association)

“Investment, in simple terms, involves using today’s resources to make life better in the long term.”

– *New York Times, Longer Commutes, Shorter Lives: The Costs of Not Investing in America*

www.pwc.com/ca

Connecting Canadians through resilient networks

The impact of the telecom sector in 2022 and beyond
November 2023

1. The telecom sector is an important contributor to the Canadian economy

The telecom sector is an important contributor to Canadian GDP and jobs, contributing nearly \$77B in direct GDP and supporting 724,000 jobs across industries in 2022.³⁰ Beyond direct economic contributions, the telecom sector made \$323M in charitable contributions and paid \$2.7B in corporate income taxes.^{31,32} Furthermore, expansion of the digital economy through adoption of use cases supported by the deployment of enhanced connectivity has the potential to contribute an incremental \$112B to Canada's GDP by 2035.³³

30 PwC Analysis, Statistics Canada, IMF Capital ID.
31 The largest six telecoms in Canada were Verizon, and include Bell, Rogers, SaskTel, Shaw Communications, TELUS and Freedom.
32 IMF Capital ID, Publicly Available Annual Reports.
33 PwC Analysis, IMI Markets, Statistics Canada.

PwC | Connecting Canadians through resilient networks

www.pwc.com/ca/fr

Connecter les Canadiens grâce à des réseaux résilients

Incidence du secteur des télécoms en 2022 et pour les années suivantes
Novembre 2023

1. Le secteur des télécoms contribue de façon importante à l'économie canadienne

Le secteur des télécoms contribue de façon importante au PIB et à l'emploi au Canada. En 2022, il a contribué directement au PIB à hauteur de près de 77 GS et représentait 724 000 emplois³⁰. Au-delà de sa contribution économique directe, le secteur des télécoms fait des dons à des organismes de bienfaisance de 323 M\$ et verse 2,7 GS en impôt des sociétés^{31,32}. De plus, l'expansion de l'économie numérique par l'adaptation de cas d'utilisation soutenue par le déploiement d'une connectivité améliorée pourrait apporter une contribution additionnelle de 112 GS au PIB du Canada d'ici 2035³³.

30 Analyse de PwC, Statistique Canada et IMF Capital ID.
31 Évaluation fournie par les six plus grandes entreprises de télécoms au Canada : Bell, Rogers, SaskTel, Shaw Communications, TELUS et Freedom.
32 IMF Capital ID et rapports annuels publics.
33 Analyse de PwC, IMI Markets et Statistique Canada.

PwC | Connecter les Canadiens grâce à des réseaux résilients

Economic Contribution of Telecom Industry

In 2022

directly contributed

\$76.7 billion

in GDP to Canada's economy



supported over

724,000

jobs



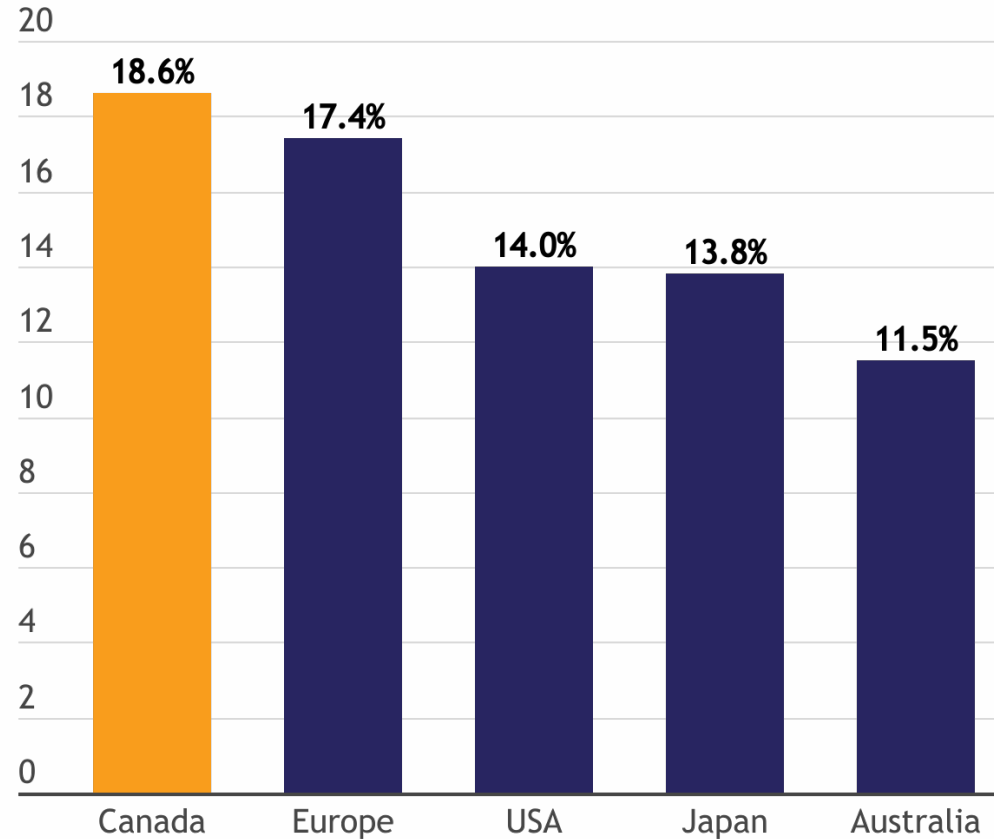
By 2035, the sector is estimated
to contribute an additional

\$ 1 1 2 billion

to Canada's overall GDP



Average Capital Intensity for Major Telecoms in Canada, Europe, the USA, Japan, and Australia (% , 2018 to 2022)



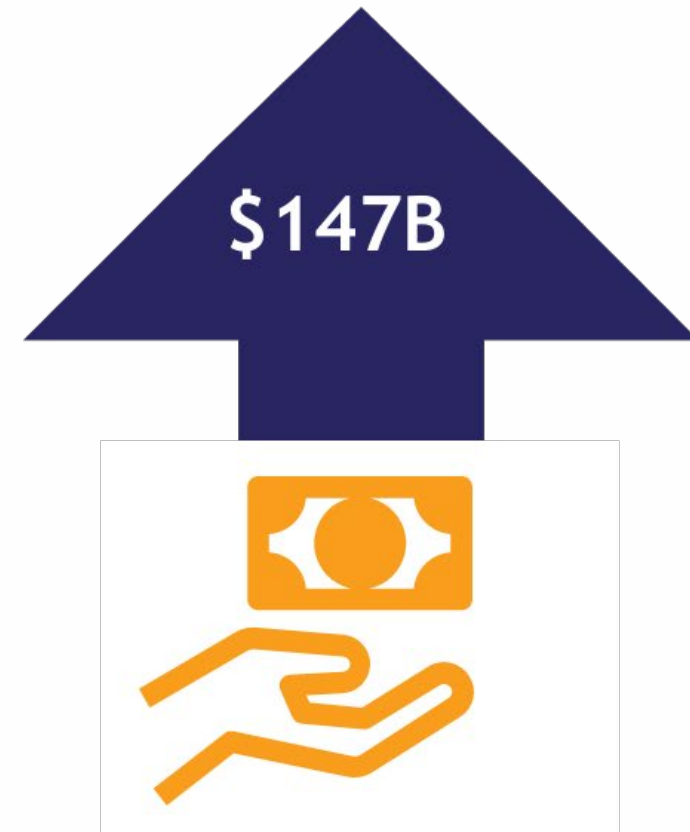
Note: Telecoms based in France, Germany, Italy, and the UK are aggregated into Europe due to cross-border operations

Source: S&P CapIQ, Annual Financial Reports via PwC, Connecting Canadians through resilient networks: The impact of the telecom sector in 2022 and beyond, 2023

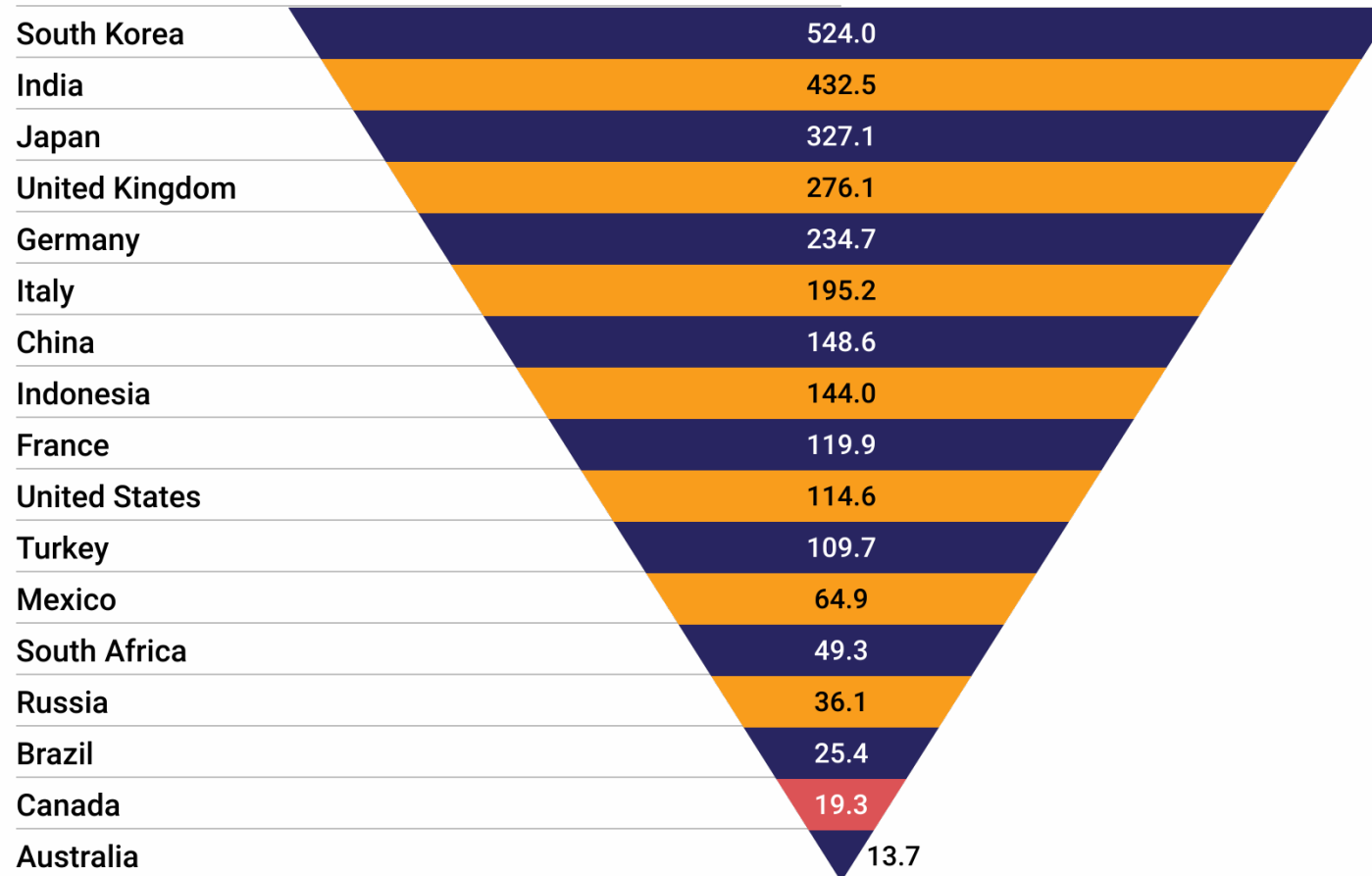
From 2010 to 2022, the
four largest Canadian
telecoms have invested

\$147 billion

in CAPEX (including
spectrum).



Population Density per km² (Inhabited Area)

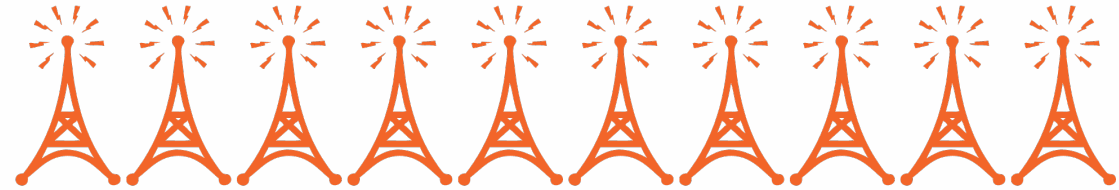


Note: Canada, Australia, Russia, and the U.S. were adjusted to account for inhabited areas: Canada - 20% of geographic area; Australia -25%; European Russia; contiguous United States

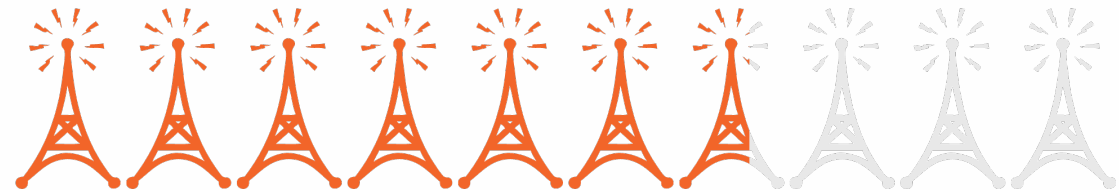
Source: Telegeography, GlobalComms Database

**Canada has
50% more
cell towers
per capita
than
Australia**

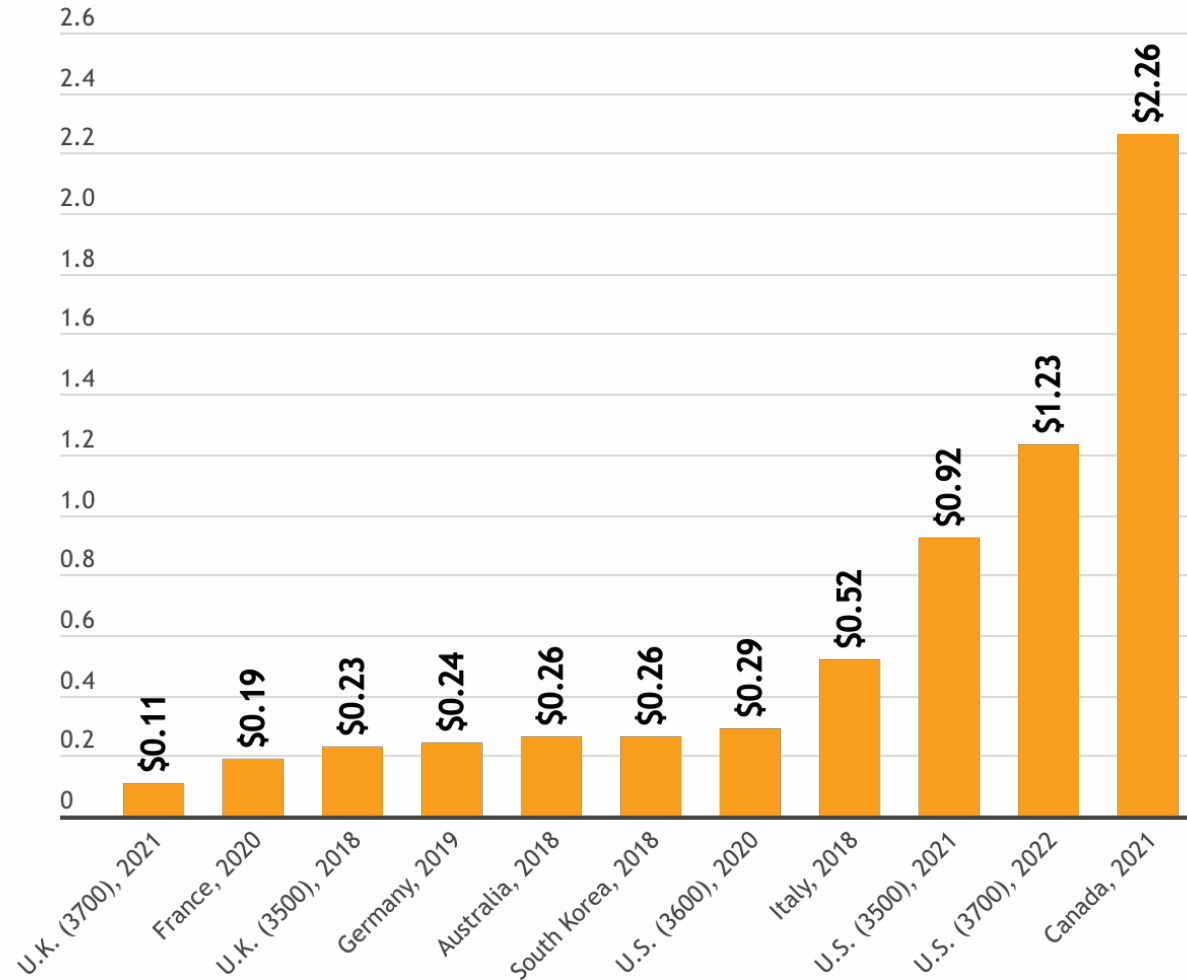
Canada



Australia



Mid-band Spectrum Auction Final Prices (C\$/MHzPop), Canada vs. G7 + Australia and South Korea



“Facilities-based competitors engage in a dynamic form of competition to successfully introduce better networks over time through investment.”

“Companies have a strong incentive to compete hard and win customers to generate revenues sufficient to recoup those investments.”

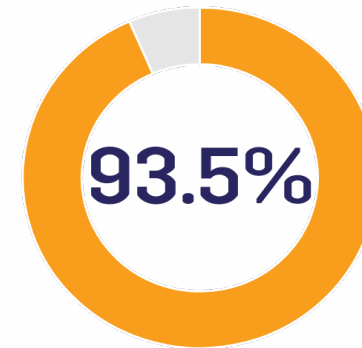
– Competition Bureau, *Delivering Choice: A Study of Competition in Canada’s Broadband Industry*, p. 45

Mobile Wireless Coverage



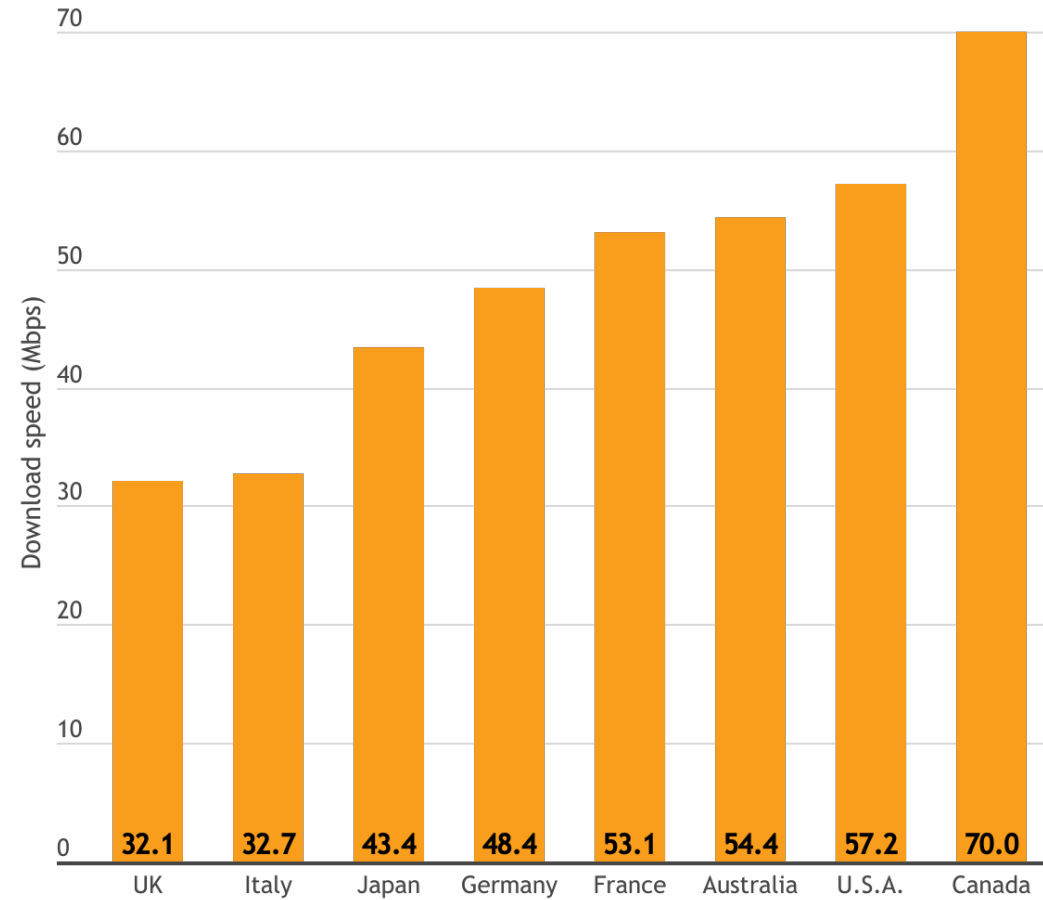
of population
as of
end of 2021

50/10/Unlimited Internet Access



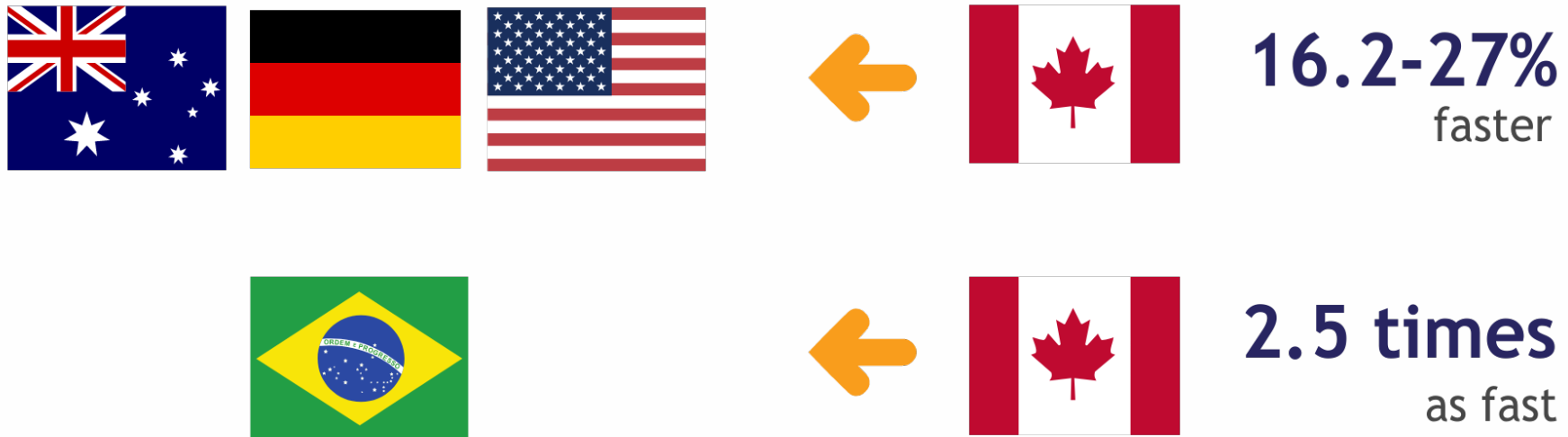
of households
as of
June 2023

Average Mobile Download Speeds – International Comparison



Sources: Opensignal – Australia Mobile Network Experience Report – April 2023, Canada Mobile Network Experience Report – August 2023, France Mobile Network Experience Report – May 2023, Germany Mobile Network Experience Report – May 2023, Italy Mobile Network Experience Report – May 2023, Japan Mobile Network Experience Report – April 2023, United Kingdom Mobile Network Experience Report – April 2023, USA Mobile Network Experience Report – July 2023

Mobile Rural Users in Canada Experience Faster Download Speeds



Canadian Fixed Broadband Speeds

▲ **60.0%**

faster
G20 Average
(excluding Canada)

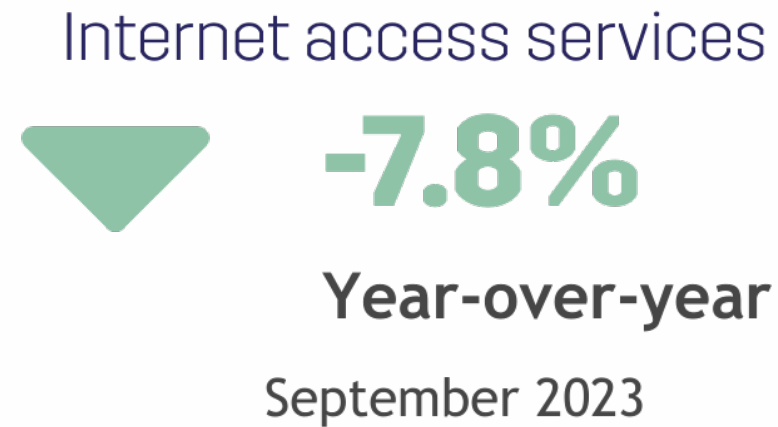
▲ **85.6%**

faster
Global Median

Note: Canada median speed: 158.35 Mbps G20 Average (excluding Canada): 98.94 Mbps; Global median: 85.31 Mbps

Source: Ookla, Speedtest Global Index, Median Download Speed, September 2023

Internet Prices



Cellular Prices

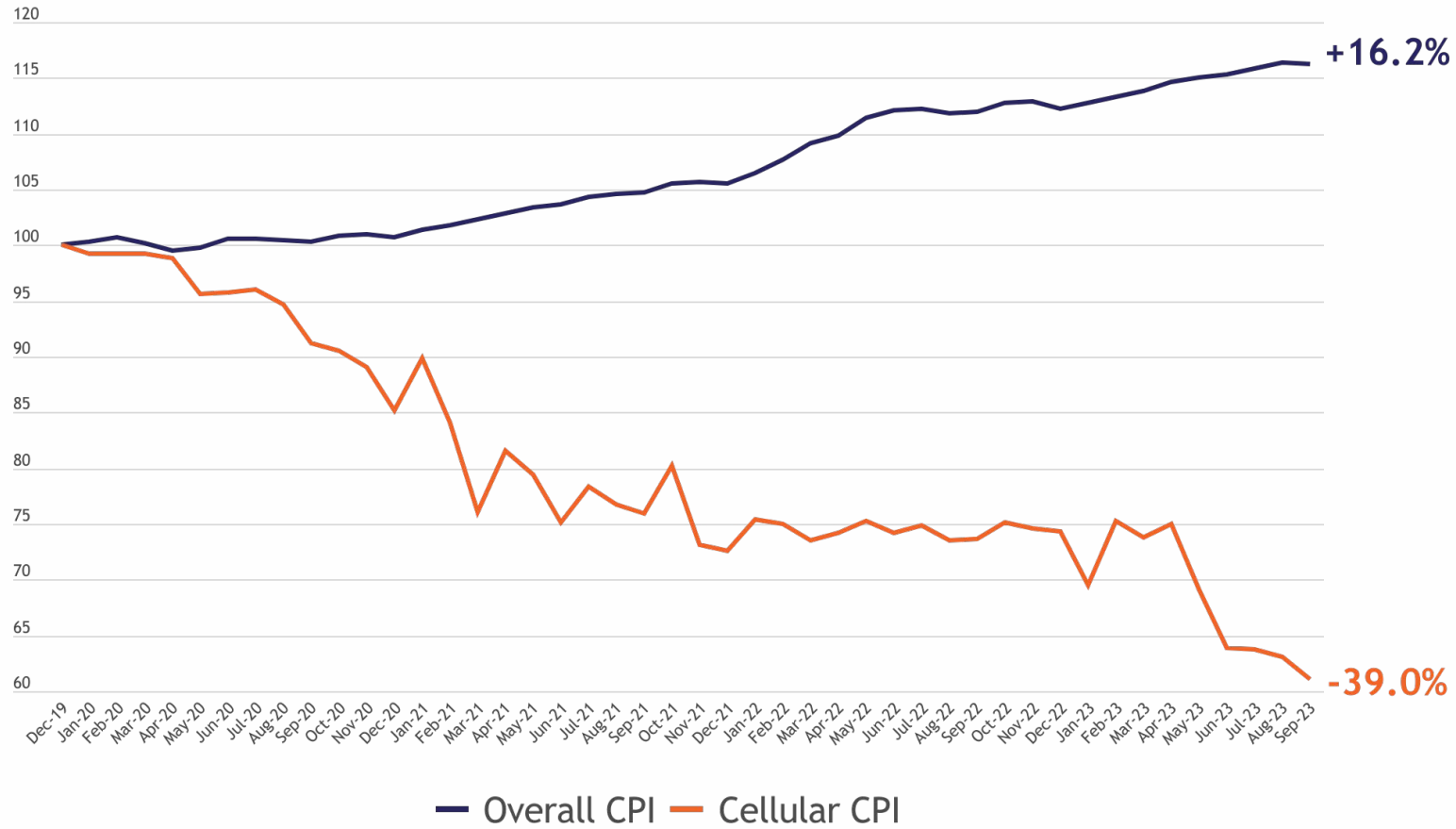


	September 2022 to September 2023
	% change
Main contributors to the 12-month change	
Main upward contributors	
Mortgage interest cost	30.6
Rent	7.3
Food purchased from restaurants	6.1
Gasoline	7.5
Electricity	11.1
Main downward contributors	
<u>Telephone services</u>	<u>-12.9</u>
Natural gas	-12.8
Air transportation	-21.1
Child care and housekeeping services	-10.7
Furniture	-4.6

Note: Telephone services has two components: wireless telephone services and landline telephone services.

Source: StatCan, Consumer Price Index, September 2023 – Table 5: Main Contributors to the 12-month and 1-month change in the Consumer Price Index

Overall CPI vs. Cellular Services Index September 2023 (rebased to Dec. 2019 = 100)



All-items



15.8%

3-Year Change

September 2020 to 2023

Cellular Services



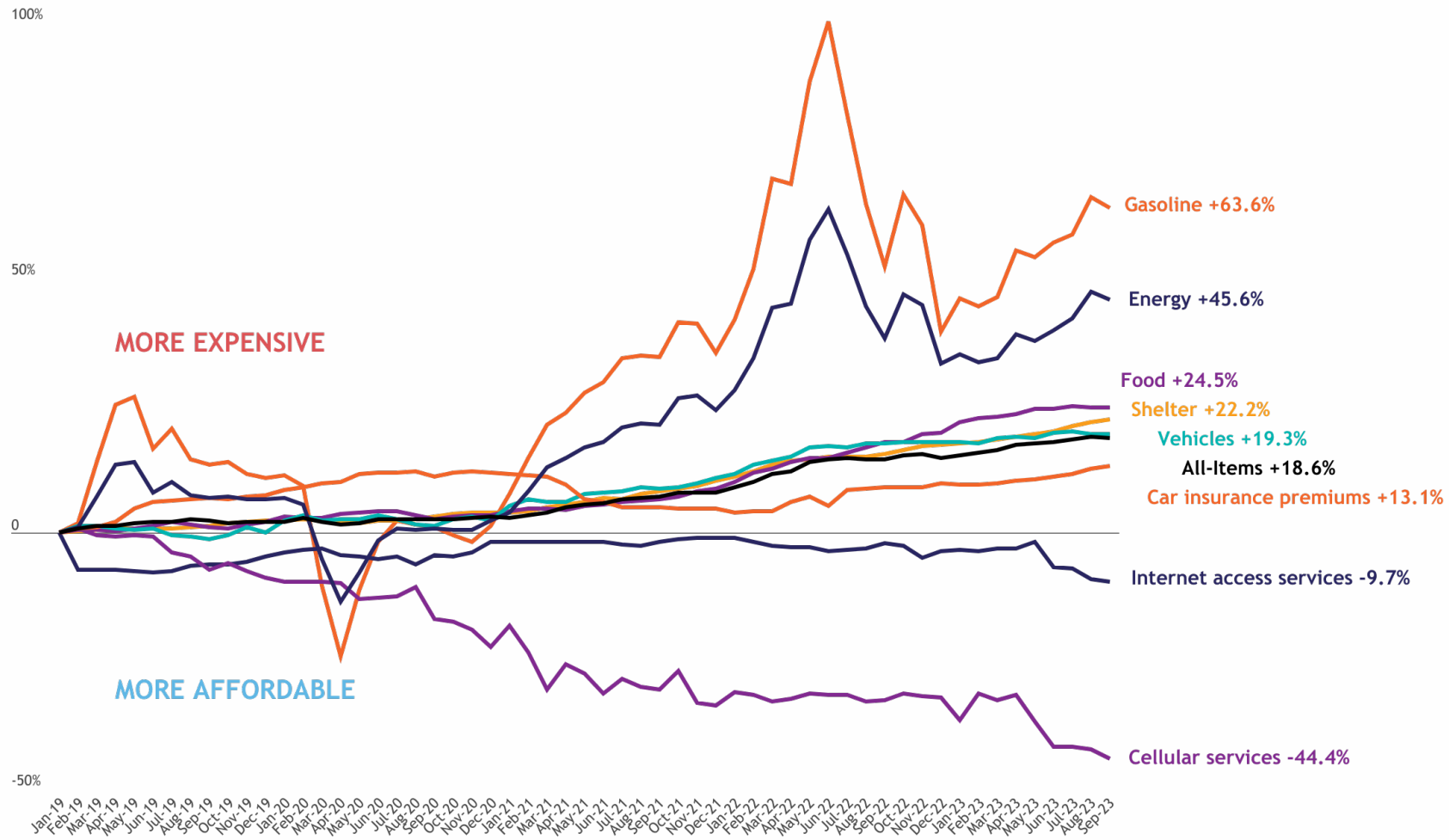
-33.1%

3-Year Change

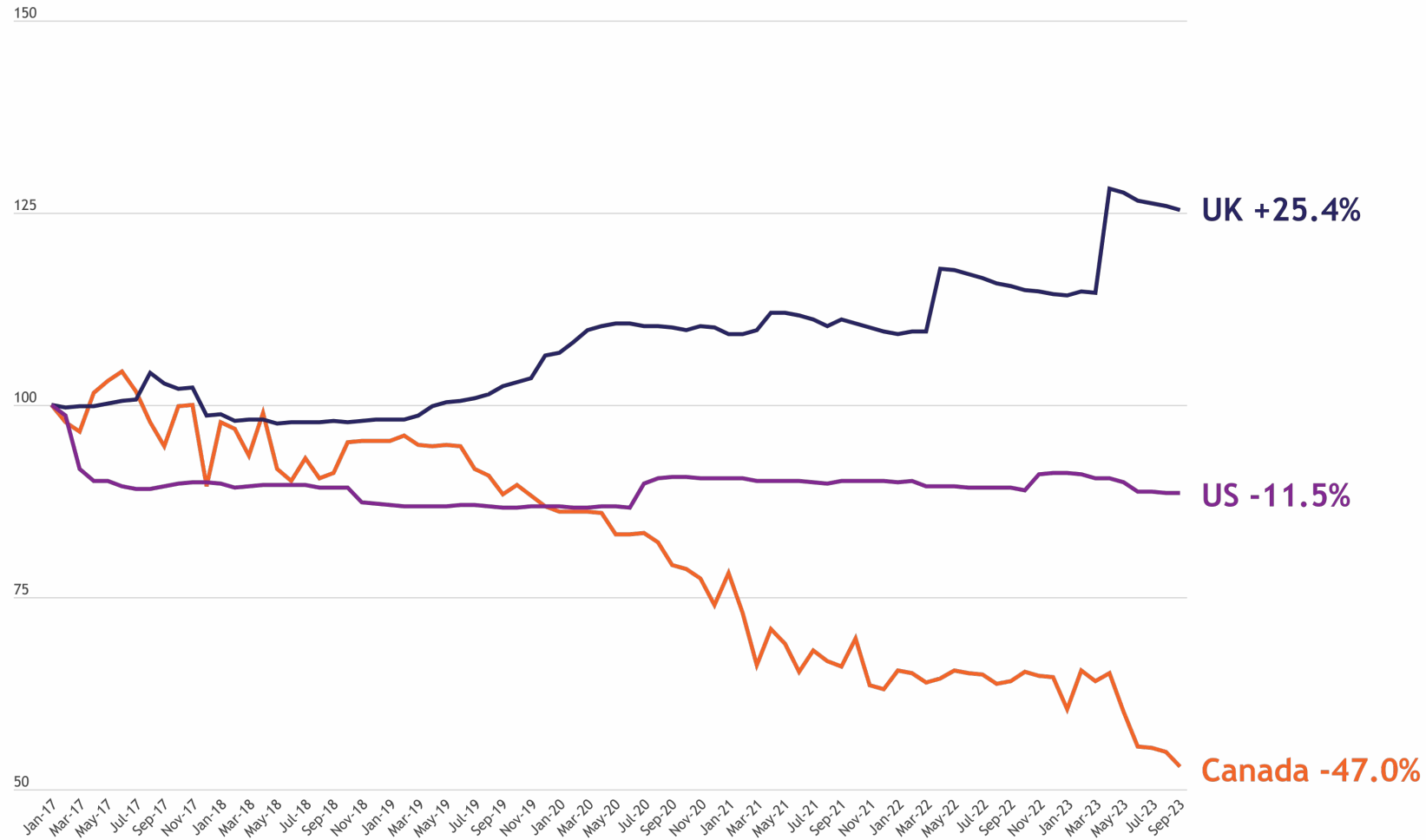
September 2020 to 2023

Price Changes: January 2019 to September 2023

Selected Canada Consumer Price Index Items



Wireless Consumer Price Index, Canada vs. US and UK, Jan. 2017 to Sept 2023 (rebased to Jan. 2017 = 100)



Improving Service in Indigenous Communities

Northwestel: Sold its Yukon FTTH assets to a group of 13 First Nations development corporations.

Rogers: Expanded fibre in the Mississaugas of the Credit First Nation and built 12 new towers along Highway 16 in British Columbia

SaskTel: Partnered with Indigenous owned ISP, Beaver River Broadband and enabled 5G connectivity on 143 towers covering 44 new communities, including 4 Indigenous communities.

Resiliency





Enhancing Network Resiliency

Network Diversification

- Geo-redundancy
- Additional fibre paths
- Standalone core
- Wireless backup services

Resilient infrastructure and supply chains

- Fibre-connected cell towers
- Structural mitigation
- On-site generators and solar panels
- Fire-proofing

Rapid assessment of network issues

- Disaster recovery protocols
- AI-based network and service layer modeling
- Scenario analysis

LTE and 5G Network Deployment

Country	# of LTE networks
Canada*	9
United States	8
Japan	5
Australia	5
France	4
Italy	4
United Kingdom	4
Germany	3

Country	# of 5G networks
United States	9
Canada	8
Italy	5
Japan	4
France	4
United Kingdom	4
Australia	4
Germany	3

Canada has **the most** LTE networks and **the second most** 5G networks in the world.

Emergency Protocols

- **Emergency roaming protocols:** Ensures that parties provide emergency roaming to others when experiencing a critical network failure.
- **Mutual assistance protocols:** Ensures that parties provide assistance when experiencing a critical network failure.
- **Emergency network outage communication protocols:** Requires parties to provide the public and Governmental Authorities with key network outage information in the case of critical network failure.

Sustainability



Canada's next sustainability frontier:
Powering digital transformation with connectivity

Commissioned by Canadian Telecommunications Association

The case for digital transformation as part of the sustainability solution

What is digital transformation?

Digital transformation is the reinvention of Canada's industries powered by technology and a digital core, resulting in fundamental changes to how the business operates and delivers value.

Industrial Internet of Things (IIoT), artificial intelligence (AI), cloud computing, and other digital technologies have the potential to significantly improve productivity by directly streamlining processes, automating operations, and making better use of data. By leveraging technology to produce the same or increased outputs with fewer inputs and waste, this improved productivity, in turn, reduces resource and energy consumption and greenhouse gas emissions. With access to better data on their operations, businesses can further improve their processes over time, driving continuous improvement in both efficiency and sustainability.

How connectivity powers sustainability impact through digital transformation

- Network & connectivity**
To drive Canada's digital infrastructure and connectivity forward, businesses are looking for solutions that offer high speed and high capacity wireless and wired technologies.
- Digital transformation**
Using the infrastructure & connectivity offered by telcos, businesses can reduce costs, digitalise their operations, processes & services.
- Operational efficiencies**
This automation increases operations, making them more productive and efficient by increasing productivity, improving utilization of assets, and enabling greater safety and innovation through more data.
- Sustainability impacts**
As operations become more efficient and productive, they also become more sustainable, with resources being consumed at a lower rate, decreased greenhouse gas emissions and energy consumption, improved water quality, and more.

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La prochaine frontière du Canada en matière de développement durable:
Favoriser la transformation numérique grâce à la connectivité

Commandé par l'Association Canadienne des Télécommunications

Arguments en faveur de la transformation numérique dans le cadre de la solution de développement durable

Qu'est-ce que la transformation numérique?

La transformation numérique est la réinvention des industries canadiennes alimentées par la technologie et un noyau numérique, entraînant des changements fondamentaux dans la façon dont les entreprises fonctionnent et offrent de la valeur.

L'Internet des objets (IIoT) industriel, l'intelligence artificielle (IA), l'informatique en nuage et d'autres technologies numériques ont le potentiel d'améliorer considérablement la productivité en rationalisant directement les processus, en automatisant les opérations et en faisant une meilleure utilisation des données. En tirant parti de la technologie pour produire des extraits identiques ou accrus avec moins d'intrants et de déchets, cette productivité améliorée réduit la consommation de ressources et d'énergie ainsi que les émissions de gaz à effet de serre. Grâce à l'accès à de meilleures données sur leurs activités, les entreprises peuvent améliorer leurs processus au fil du temps, ce qui favorise l'amélioration continue de l'efficacité et de la durabilité.

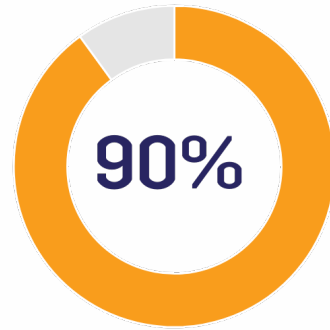
Comment la connectivité favorise la transformation numérique qui a une incidence sur la durabilité

- Réseaux et connectivité**
Les entreprises de télécommunications travaillent à améliorer les capacités de connectivité et à offrir des services à haut débit aux entreprises canadiennes pour accélérer la transformation numérique en offrant des technologies sans fil et filaires.
- Transformation numérique**
À l'aide de l'infrastructure et de la connectivité offertes par les entreprises de télécommunications, les entreprises canadiennes peuvent améliorer l'efficacité de leurs opérations, faire progresser et automatiser leurs processus et leurs services.
- Gains d'efficacité opérationnelle**
Ces technologies améliorent les opérations, les rendent plus productives et efficaces, et réduisent les coûts. Elles permettent également d'optimiser l'utilisation des ressources, d'améliorer la sécurité et de réduire les émissions de gaz à effet de serre et de la consommation d'énergie, une amélioration de la durabilité de la main-d'œuvre et de la terre.
- Répercussions sur la durabilité**
À mesure que les opérations deviennent plus efficaces et productives, elles deviennent également plus durables, les ressources étant mieux utilisées, les émissions de gaz à effet de serre et de la consommation d'énergie, une amélioration de la durabilité de la main-d'œuvre et de la terre.

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of wasted fuel use reduced by predictive maintenance



decrease in incidents with network-enabled tailings
pond management solutions



reduced water and fertilizer user with precision
agriculture



**Telecom
policies must
maintain
incentives to
invest in
networks to
achieve
sustainability
through digital
transformation.**

“Investment, in simple terms, involves using today’s resources to make life better in the long term.”

– *New York Times, Longer Commutes, Shorter Lives: The Costs of Not Investing in America*

THANK YOU

www.canadatelecoms.ca

