CISCO

Québec

Investing in its Communities to Build a Digitally Ready Society

Cisco Canada Digital Readiness Index 2023

Québec

Provincial Insights Brief

DRI Score: 1.00 | Ranking: 2nd

In today's world, digitally mature countries have the infrastructure, governance, labour force, digital services and technologies to support social development, economic growth and global competitiveness.

Major technology trends including mobility, 5G networks, cybersecurity, Internet of Things (IoT) and cloud solutions have compelled countries to reimagine government, enhance access to public services, promote innovation and drive technology adoption.

At Cisco, we are fuelled by our purpose to 'Power an Inclusive Future for All' by leveraging our technology, our expertise and our extended ecosystem to bridge gaps of inequity and drive change. Cisco's desire to solve global problems and create a more inclusive world through technology led to our first Global Digital Readiness Index (DRI) in 2017. In 2023, we completed the Cisco Canada Digital Readiness Index, a comprehensive analysis of Canada to help provinces and territories better understand the building blocks of digital readiness and explore opportunities to improve their relative performance.

This holistic model measures digital readiness across many components beyond technology including basic needs, human capital and the business and start-up environment. While access to technology and the infrastructure to support digital technologies is critical, if, for instance, individuals' basic needs are not met, a country cannot maximize the benefits of digital opportunity. The Cisco Canada Digital Readiness Index provides an understanding of a province or territory's level of digital readiness and what interventions and investments could help them advance.

The Cisco Canada DRI is based on data published from 2019 to fall of 2022. For more information on Canada's national digital readiness score, the full report is available here.*

> This guide was developed to enable provinces and territories to understand their level of digital readiness and explore areas of opportunity to reach their full potential.

https://www.cisco.com/c/m/en_ca/digitalreadiness-2022.html

Measuring Digital Readiness: DRI Components

The Cisco Canada Digital Readiness Index (DRI) employs a comprehensive framework and model based on seven different components of digital readiness including **Basic Needs; Business and Government Investment; Ease of Doing Business; Human Capital; Start-Up Environment; Technology Adoption; and Technology Infrastructure.** Unique, market-specific metrics serve as proxies for performance in each of the components.

Basic Needs

Basic needs for a population to survive and thrive

Metrics

- Life expectancy
- Low Income
- Food insecurity
- Housing affordability

Business & Government Investment

Private and public investment in innovation and technology

Metrics

- Business expenditure on R&D
- Government expenditure on R&D
- Infrastructure investment

Ease of Doing Business

Basic infrastructure/ policies needed to support business continuity

Metrics

- Business density
- Business growth
- Business confidence
- Internal trade barriers

Human Capital

Skilled labour force to support digital innovation (build and maintain)

Metrics

- Labor force participation
- Youth population
- Post-secondary education
- Immigration

Start-Up Environment

Environment which fosters innovation within a community

Metrics

- Venture capital investment
- Business entries
- Access to financing

Technology Adoption

Demand for digital products/services continuity

Metrics

- Zero emission vehicle (ZEV) registrations
- Broadband subscriptions
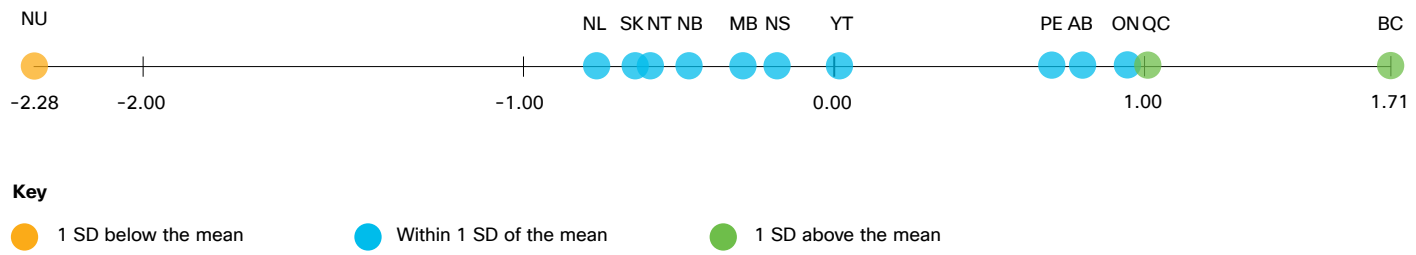- Online sales

Technology Infrastructure

Infrastructure available to enable digital activities and connected to consumers (IoT, Cloud)

Metrics

- Broadband availability
- LTE coverage
- EV charging stations
- Internet affordability

Overall DRI Score Across Provinces and Territories

NU		NL	SK	NT	NB	MB	NS	YT		PE	AB	ON	QC		BC

-2.28   -2.00   -1.00   0.00   1.00   1.71

Key

🟠 1 SD below the mean   🔵 Within 1 SD of the mean   🟢 1 SD above the mean

The Cisco Canada DRI examines the performance of Canada's provinces and territories and provides a benchmark on their progress towards digital readiness[1]. British Columbia tops Canada's DRI ranking with a sizable lead, followed by Québec and Ontario, while the remainder of the provinces and territories fall closer to Canada's national average DRI score. The exception is Nunavut, which faces unique digital readiness challenges.

[1] Z-scores are a way to measure how far away a particular data point is from the average (or "mean") of a group of data points, and how unusual or "extreme" that value is compared to the rest of the group. If a score is below the mean, it is expressed as a negative number, and if above the mean, it will be a positive number.

# Québec's Digital Readiness Index

DRI Score: 1.00 | Ranking: 2nd

Québec is a clear leader in digital readiness in Canada, ranking second overall. The province's strong social foundations and ongoing investments in technology infrastructure saw it ranked first for **Basic Needs, Business and Government Investments**, and **Technology Infrastructure.** Québec has the potential to rank first overall, but it underperformed in **Human Capital, Start-up Environment** and **Ease of Doing Business.** This last component saw Québec ranked 10th, and suggests opportunities exist to support Québec'scompetitiveness in a dynamic global market.

Québec's DRI score of 1.00 and second place rank in Canada reflects its top scores in Basic Needs, Business and Government Investment and Technology Infrastructure.

DRI Scores: A breakdown by component

The following section will explore how Québec scored in each of the DRI's seven components and what metrics drove performance.

0.95
1st
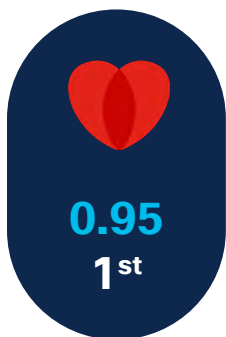
Basic needs are an indicator of the health of a society.

- Québec has the highest overall score in Basic Needs, with the longest life expectancy, second best housing affordability and second lowest percentage of the population considered low-income.

1.63
1st

The capacity of government and businesses to invest in their future is a key factor in enabling digital readiness.

- The province ranks first in this component with the highest amount of government research and development (R&D) and the second highest business-led R&D.
- This is an impressive accomplishment despite Québec's Infrastructure investment scores, the third lowest in the country.

-0.77
10th

An environment where businesses can invest and grow with ease and confidence is a core foundation to digital readiness.

- Québec's overall DRI score was impacted the most by its 10th place rank in the Ease of Doing Business component, where it has the most restrictive internal trade barriers in the country.
- This is paired with weak business confidence and business density scores.
- Québec's weakness in this component could impact future business entries and investment in businesses due to restrictions.

-0.04
7th

Human Capital – a society's ability to build and maintain a skilled labour force – is intrinsic to digital innovation and readiness.

- Québec's score on Human Capital is average – even though it ranks first in post-secondary education – due to its weak scores in immigration, youth population and labor force participation.

0.00
7th

Start-ups are an important source of innovation and economic growth.

- The province's Start-up Environment score was average. While Québec has high venture capital investment, its score on this component was impacted by low business entries and access to financing.
- Other forms of government or private sector financing should be considered to reduce these potential barriers to growth.

1.20
2nd

Technology Adoption serves as a proxy for the population's willingness and ability to use new and emerging technologies.

- Québec scores second in both online sales and zero emission vehicle adoption rates, reflecting a readiness by Québec to adopt new technologies.
- However, the province does have a broadband subscription rate that is below average, limiting internet access to a portion of its population.

1.61
1st

Modern technology infrastructure is key to economic growth and the delivery of services.

- Québec ranked first overall in this component, and above average in all metrics.
- Notably, Québec ranks first in EV charging stations and second in internet affordability.
- There remains an opportunity to improve on broadband availability, LTE coverage and core communications infrastructure for the province.

Québec's Opportunities

A Path Forward

The Cisco Canada DRI identifies strengths and opportunities for Québec to further improve its digital readiness.

Creating a strategy to reskill and retain mid-career professionals

To support a digitally inclusive economy, Québec needs to maintain an educated and highly skilled labour force. Québec has a high post-secondary education attainment rate but must ensure it can retain this valuable population. While Québec has experienced overall population growth in recent years, the province has also seen a net loss in domestic migration, presenting challenges in talent attraction and retention.

Québec has acknowledged the challenges of labour shortages and has continued to work with the federal government to increase funding to support employment and skills training programs. In 2019, an additional $680 million over four years was allocated to support training for adults to reskill and meet the needs of changing labour markets in an increasingly digital economy. The Government of Québec should consider a provincial strategy to explore the role of microcredentials to address workforce retention challenges and provide more upskilling and reskilling training opportunities for adult learners and mid-career professionals to maintain an agile labour force.

Enhancing cybersecurity measures for businesses

Digitization of the economy demands new skills and practices that are often unfamiliar to small and medium-sized businesses (SMEs) including point-of-sale technology, online commerce and adoption of connected IoT devices in settings ranging from agriculture to warehouses to offices. Without appropriate attention, these present new privacy and security risks for businesses, their partners and their customers.

Recent cyberattacks on prominent Canadian organizations and governments of all levels demonstrate the scale of this growing and evolving threat. As a leader in digital readiness, Québec has prioritized enhancing its cybersecurity posture to protect government systems and residents' data. However, more focus can be applied to encourage the private and SME sectors to do the same.
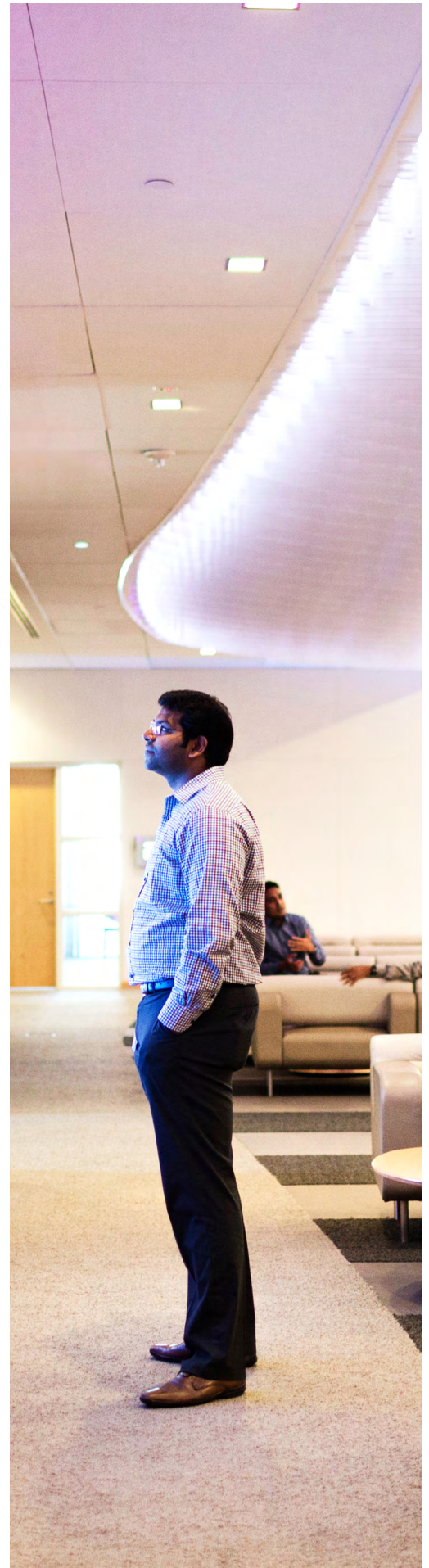
The Government of Québec has already identified itself as a leader in cybersecurity, creating a standalone Ministry of Cybersecurity and Digital Technologies in 2021, which was the first of its kind in North America. The Ministry could lead in capacity building among organizations in the province to effectively protect government systems, businesses and residents' data. The province should continue its investment and momentum in this business-critical area.

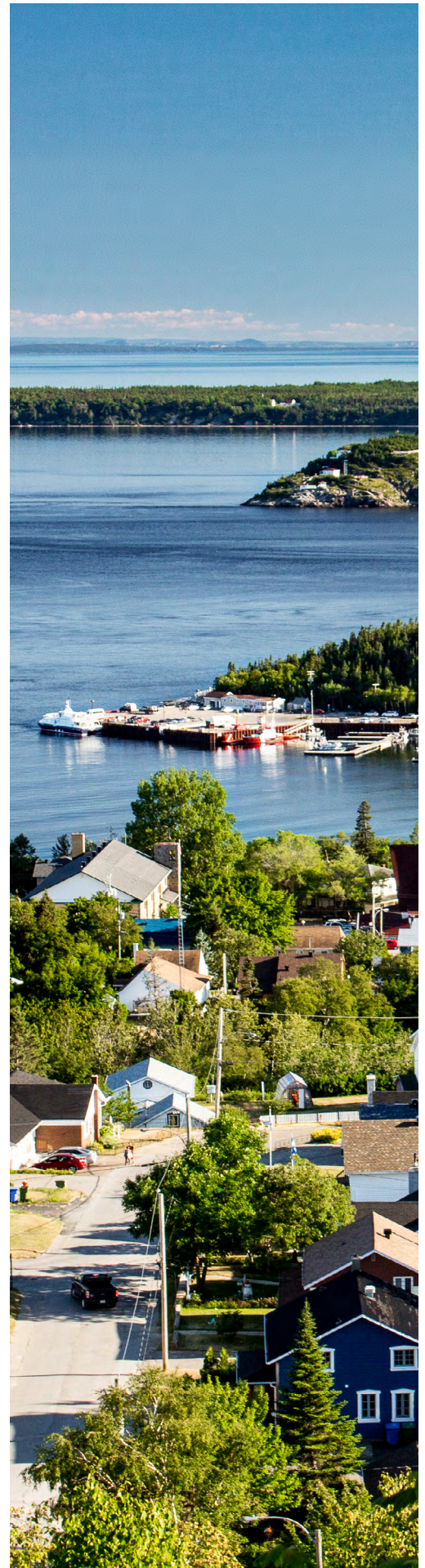## Supporting digital readiness for businesses in small towns and rural Québec

As a leader in digital readiness, Québec must ensure that success is more evenly distributed across the province. While Montréal is now home to globally competitive AI and gaming clusters, other municipalities have not seen the same level of success. In 2022, the Québec regions of Montreal, Chaudière-Appalaches and Outaouais, which all contain major urban centres, accounted for about 60% of the province's overall increase in employment. Meanwhile, some of Québec's regions with the lowest population density saw declines in employment including Côte-Nord et Nord-du-Québec, Mauricie, and Abitibi-Témiscamingue.

To bridge the digital divide between cities and rural areas and guarantee all residents can participate in the digital economy, it is important to invest in economic development and capacity building in small towns and rural areas. Businesses operating in small towns and rural communities in Québec face additional barriers to adopting new technologies that are essential for growth and success in an increasingly digital world. For instance, they may lack access to growth financing and expertise to adopt digital solutions that would help improve their competitiveness.

Sociétés d'aide au développement des collectivités (SADCs) and Centres d'aide aux entreprises (CAEs) play a key role in the rural local economic development in Québec and have often received direct funding for programs from the Government of Canada. Some of the supports they offer include integrating information systems and communications technologies for small and medium-sized businesses. There may be future opportunities for the provincial and federal governments to partner with SADCs and CAEs. Together, they could deliver enhanced technical support and financial assistance to small and medium-sized businesses operating in small towns and rural communities who are looking to adopt new technologies that will improve their digital readiness.

[2] https://statistique.quebec.ca/en/fichier/bilan-marche-travail-quebec-2022.pdf
[3] https://statistique.quebec.ca/en/fichier/bilan-marche-travail-quebec-2022.pdf

Conclusion

Quebec's focus on technology enablement combined with its strong social foundations establish the province as a clear leader in digital readiness. A comprehensive cybersecurity preparedness strategy and investment supports government and business to build capability and drive growth safely and securely. However, a society's ability to build and maintain a skilled labour force is intrinsic to digital innovation and readiness.

With lower scores in labour force participation, the province can focus on programs to drive skilling and reskilling to help prepare Quebecers for jobs in the digital economy. Continued investment to support digitization for businesses in rural Quebec will also create more opportunity for the province to build their digital readiness leadership nationally.