Digital equity:
empowering all organizations
to succeed in the digital era

Deloitte.

CONTENTS

Note to the reader
There are various hyperlinks throughout the report. Underlined hyperlinks will take you to a designated page within the report and green hyperlinks *will take you to an external web page.*

We are at the beginning of a transformative era, propelled by the lightning-fast pace of innovation in digital technologies. Known as the Fourth Industrial Revolution or Industry 4.0, it is reshaping every aspect of our lives, fundamentally changing the way we live, work, play, and do business. While previous industrial revolutions brought us society-altering innovations such as machinery, electricity, and computers, the Fourth Revolution is characterized by the unprecedented pace and velocity of change coupled with the convergence of cutting-edge technologies, including *artificial intelligence** and *quantum computing†*, that have the potential to transform industries around the world.

Deloitte defines **artificial intelligence as systems and applications that perform tasks that mimic or augment human intelligence, ranging from simple gaming to sophisticated decision-making agents that adapt to their environment.*

*† **Quantum computing** is a type of computing that uses quantum bits, or qubits, instead of traditional bits to perform calculations. Qubits can exist in multiple states simultaneously, which allows quantum computers to perform certain types of calculations much faster than classical computers.*

For Canadian *organizations**, this new era presents many profound opportunities for enhanced growth, heightened efficiency and productivity, and unparalleled innovation. *Digital technologies*† are permeating all sectors and industries, blurring traditional boundaries. They have brought about a wide range of benefits, from enhanced internal processes and resource management to improved communication and collaboration within and between organizations. The potential seems limitless—and not just for businesses. Governments can leverage digital technologies and methods to deliver high-quality citizen and business services. Non-profit organizations can use digital technologies to not only optimize their operations, but also their social impact—and, for charitable organizations, their fundraising efforts—through online platforms and social media campaigns.

The opportunities created by existing and emerging digital technologies have the potential to benefit people and organizations alike. However, not all organizations are equipped to capitalize on these opportunities because they struggle to overcome both internal and external challenges. Internal challenges include limited digital adoption, a lack of in-house specialized technology experience to shape digital strategies or guide digital investment decisions, and barriers to finding and accessing external supports. External challenges can be digital skills shortages in the labour market and a constantly evolving regulatory and cyberthreat environment.

In this report, we consider these issues through the three pillars of digital equity: access, participation, and ecosystem. We established this framework in *Digital equity: spotlighting Canada's divide*, where we made the case for a digitally equitable country by 2030. This report, the third and last in our series on digital equity, focuses on attaining that future for all organizations in Canada. Particular attention is paid to small and medium enterprises (SMEs), Indigenous-owned and -led organizations, public sector organizations, and non-profit organizations, all of which face disproportionate barriers to equity.

Not every organization is interested in a full-scale digital transformation, but almost all those with growth aspirations have come to understand the need to consider which technologies they could use to grow.

We at Deloitte envision a digitally equitable future in which all organizations—regardless of size, sector, or location—have access to digital tools, are able to participate in the digital economy as they see fit, and are empowered to shape and thrive in the next-generation digital ecosystem. Our recommendations seek to achieve this future—because we're not there yet.

We hope organizational leaders and policymakers can use them to address the barriers Canadian organizations are facing and, by doing so, pave the way to a more inclusive digital future for individuals and organizations alike.

---

*We use **organizations** as an umbrella term that includes for-profit and not-for-profit organizations of all sizes, sectors, and legal structures, as well as government organizations and Crown corporations.

†**Digital technologies** refer to any technology that uses digital information, such as computers, smartphones, and the internet. These technologies are used to create, store, process, and share information and are often used to automate tasks and improve efficiency.

Literature review

To inform this report, we conducted an in-depth literature review of academic journals, media articles, government documents, and reports by think tanks, non-profits, and industry associations. This secondary research helped us identify the most pressing barriers to digital equity and create recommendations to build an inclusive digital economy.

Survey of business leaders

We surveyed 804 senior business executives across Canada from September 7 to October 11, 2022. Respondents included executives from both for-profit and non-profit organizations of varying sizes and economic sectors, as well as governments and other public sector organizations. The survey data has been weighted to Statistics Canada population data for enterprises by size and region, and has a margin of error of +/- 3.46% at a 95% level of confidence.

An in-depth analysis of the survey results by organization type, size, sector, and region is available on our *website*. For any questions related to the data, please write to *futureofcanada@deloitte.ca*.

Interviews

Between August 2022 and March 2023, we conducted 13 interviews with business and technology leaders from across the private, non-profit, and public sectors in Canada to better understand the challenges and opportunities facing organizations over the next decade.

Deloitte partner engagement

We also consulted with several Deloitte partners with deep and varied experience in technology strategy, transformation, privacy, cybersecurity, and government incentives to validate our research findings and develop our recommendations.

What does digital equity mean for organizations?

*We define **digital equity** as a state where all people and organizations can fully benefit from the digital technology needed to succeed in the digital economy. Read about our framework and the benefits of greater digital equity for people, organizations, and Canadian society as a whole in Digital equity: spotlighting Canada's divide.*

Organizations both face digital equity barriers themselves and have a role to play in improving digital equity for people. Where the second, people-focused report in our series, *Digital equity: focusing on every Canadian's digital future*, explored the role of organizations in creating a digitally equitable future for individuals, this third report focuses on the digital divide among organizations.

The purpose of this report is not to persuade non-adopters to adopt digital technologies. We assume that organizational leaders already understand the benefits of greater digital adoption, including improved efficiency, productivity, and organizational resilience. Instead, our goal is to identify the challenges experienced by adopters and would-be adopters—those who want to adopt but don't know how or where to start—and to propose solutions to those challenges.

What precisely is needed to succeed in the digital economy will look different for different organizations, based on factors like economic sector, business model, customer or client profile, organizational size, age and stage of the business, and growth aspirations. Likewise, their digital equity challenges will differ based on these factors and on their *digital maturity**.

In the interest of building an equitable digital future, this report focuses on those organizations that face the greatest barriers to *digital adoption*[†] and *digital transformation*[‡]: SMEs, non-profit organizations, and public sector organizations.

*Digital maturity is the current level of ability of an organization to effectively leverage digital technologies to achieve its goals. Maturity encompasses the organization's digital strategy, culture, processes, and infrastructure. A digitally mature organization is one that has fully integrated digital technologies into its operations and is able to adapt to changes in the digital landscape.

†Digital adoption refers to the process of acquiring and integrating digital technologies into an organization's operations, workflows, and culture. It involves identifying and selecting the right digital tools for the job as well as ensuring that employees are trained and equipped to use them effectively.

‡Digital transformation refers to the fundamental changes an organization undergoes in order to fully leverage digital technologies and capabilities. This involves rethinking business models, processes, and client experiences to capitalize on opportunities. While digital adoption is a critical part of digital transformation, the concepts are distinct: transformation encompasses a wider range of changes than technology adoption.

Representing 90% of businesses worldwide and 99.8% of employer businesses in Canada, **small and medium enterprises*** experienced a marked digital deficit as soon as the COVID-19 pandemic set in. When in-store and local interactions were limited, digital experiences were the preferred, and often only, consumer experience available. But even as economies reopened, this digital deficit persisted for many SMEs—and not only retailers, restauranteurs, and consumer goods brands. This is a gap felt across sectors, from finance and real estate to energy and manufacturing. As digital technologies become increasingly prevalent and essential for business success, the digital divide between large, well-established companies and SMEs has significant implications for the competitiveness and growth potential of Canada's economy. For SMEs, digital equity impacts their ability to catch up, keep up, and thrive in the digital economy.

Like SMEs, many **non-profit organizations** had to pivot to digital-first or digital-only offerings during the pandemic. This experience shone a light on the positive impact digital technologies can have for non-profits, not only in terms of operational efficiency, but also on their reach, the accessibility of their services, and their impact on communities. But non-profits also face unique cost-related hurdles to digital transformation because of how they are funded. Moreover, despite experiencing the same cybersecurity threats as other organizations, non-profits tend to be less well equipped to identify, assess, and mitigate cybersecurity risks than for-profit enterprises. Yet, the damage to client and community trust from cyber incidents can have an outsized impact on non-profits because, for most of them, establishing and maintaining the trust of their constituents is vital for fulfilling their mission.

Governments and other public sector organizations are also tackling different challenges to digital transformation than private sector businesses. These are rooted in the complex structures and processes of government, particularly with respect to funding and hiring. At the same time, among all organizations, governments have a particularly compelling case for digital transformation since the quality of citizen and business services—and public money—is at stake.

*We define **SMEs** as enterprises with 1–499 employees. Micro enterprises have fewer than 10 employees, small enterprises have 1–99 employees, medium enterprises have 100–499 employees, and large enterprises have 500 employees or more.*

Digital journeys

The nature and intensity of the digital equity barriers experienced by an organization will differ based on factors like size, sector, digital maturity, and priorities for digital investment. Consider the following fictional examples, inspired by some of the stories we heard in interviews.

Aerolith Athletics is a thriving medium-sized sports apparel manufacturer that wants to use digital technologies to fuel its growth ambitions.

Priorities: The company has two key priorities—streamlining its manufacturing processes through the adoption of smart factory solutions, including automation and robotics, to enhance efficiency and reduce production costs, and implementing data analytics and machine learning to optimize its supply chain management, forecasting, and inventory control.

Challenge: Although Aerolith's leadership team recognizes and embraces the potential of digital technologies, it does not have the experience and skills—at either the executive or talent level—to know which solutions would best fit the company's needs.

Compassion Connect is a small non-profit organization dedicated to decreasing social isolation and loneliness among Canadian seniors living in rural areas.

Priority: Demand for its services has increased since the pandemic, resulting in the organization's leaders considering how digital technologies could help meet the higher demand.

Challenges: Like the people who use its programs and services, Compassion Connect's office and base of operations is located in a rural area. The lack of reliable connectivity and adequate internet speeds pose a barrier to digitalizing its operations, offering virtual programs, and supporting videoconferencing technologies. Additionally, the nature of the work requires staff to collect and manage clients' personal information—the leaders want to be able to implement a digital client information management system that is secure and complies with applicable data protection regulations.

SecureSettle Solutions is a fintech startup that develops modern payment solutions tailored to entrepreneurs and small businesses.

Priorities: The founders want to hire a team of top-notch developers who possess the technical background and innovation mindset to take their products from concept to launch. They also want their products to be available across the country.

Challenge: While the founders expected to have a hard time competing with established players for tech talent, they were caught off guard by Canada's regulatory environment; in particular, the lack of an open banking regime.

Global Gastronomy is a large, established food and beverage retail company, with over 25 years in operation and store locations across many provinces.

Priorities: The company is embarking on a digital transformation journey under the leadership of its first-ever chief technology officer (CTO). The CTO has set three major priorities: integrating digital technologies across their supply chain to enhance operational efficiency; establishing a seamless omnichannel experience by leveraging e-commerce platforms and mobile applications; and adopting advanced analytics and artificial intelligence applications to improve customer insights and decision-making.

Challenges: The CTO knows that upskilling the workforce is key to the success of the digital transformation strategy, but the company has dedicated only a limited budget to staff learning and development. Another difficulty is ensuring the adoption of advanced analytics is done in a way that upholds and protects customer privacy according to the privacy laws in each jurisdiction it has stores. Finally, while the use of e-commerce platforms promises to expand its customer base, Global Gastronomy's CTO and other leaders are concerned with both the fees charged by these platforms and the possible implications for the security of, and their access to, customer data.

The Department of Service Transformation is a newly formed provincial government department.

Priority: The department's mandate is to modernize the government's citizen and business services through user-centric and human-centred design principles, with digital technologies underpinning these efforts.

Challenges: Although excited about the mandate, the department's leaders are struggling to fill key roles, particularly in cybersecurity. As they begin to roll out key initiatives, they're also grappling with the government's vertical structures, which make it difficult to ensure a consistent quality of service across different departments.

THE ACCESS PILLAR

ENSURING ORGANIZATIONS HAVE ACCESS

To succeed in the digital world, organizations need access not only to high-speed internet and internet-enabled devices, but also to the right digital systems and tools to enable effective business operations.

The successful adoption of digital tools exists at the intersection of all three pillars of digital equity. As well as access to useful tools, organizations also need the right people and processes to effectively implement and derive value from these tools, and a business and policy ecosystem that incentivizes and supports digital adoption. This section focuses on selecting and procuring the right digital tools, while other aspects of digital adoption are considered under the participation and ecosystem pillars.

Digital equity

ACCESS

Ensuring organizations can access digital systems and tools that enable efficient business operations

- **Digital tools**
- **Connectivity**

PARTICIPATION

ECOSYSTEM
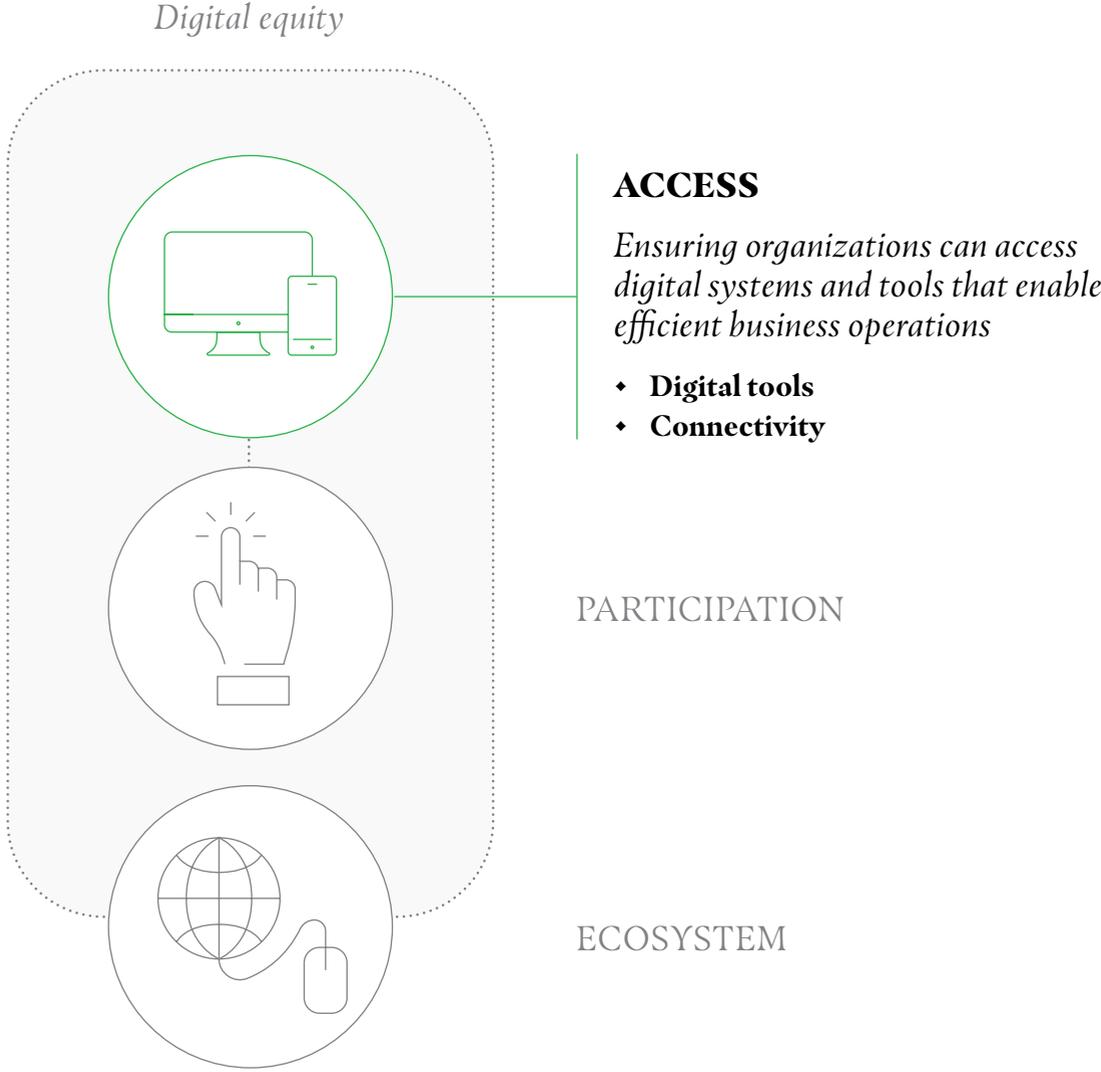
Digital tools

The availability of useful digital tools in the market is not sufficient to create equitable access to digital technologies. Organizations need both adequate information and comprehension to decide which tools to acquire and the resources to acquire and implement them.
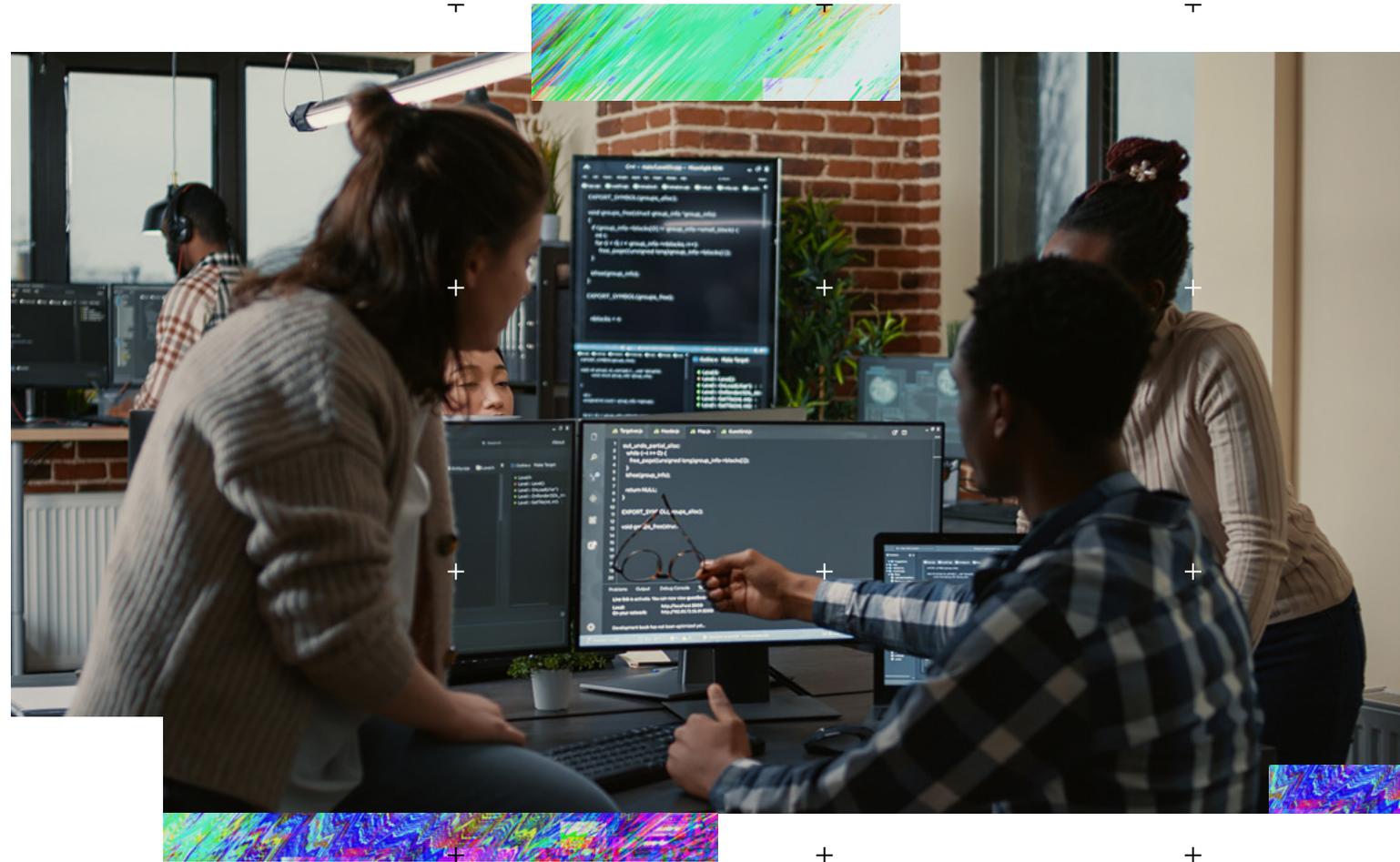
In line with past studies examining digital adoption trends, our research found that many SMEs and non-profit organizations lack meaningful access to digital systems and tools. Research from the Organisation for Economic Co-operation and Development (OECD) has found that the smaller an organization is, the less likely it is to adopt new digital technologies and associated business practices—and adoption gaps compared to large firms increase as technologies become more sophisticated.[1] The Business Development Bank of Canada has likewise reported that only 5% of SMEs in this country have a high level of digital maturity, a lost opportunity given that digitally advanced companies perform much better across several important measures, including growth, resilience, exporting, and obtaining financing.[2]

Our survey results confirmed that the adoption of digital systems and tools is correlated with the size of the organization (*Figure 1*).

Figure 1: Investment in digital tools by organization size

N=804

Large (500+ employees)
Medium (100–499 employees)
Small (10–99 employees)
Micro (<10 employees)

Basic office software — 95%, 95%, 97%, 88%
Software to manage core business functions — 90%, 87%, 92%, 79%
Cybersecurity software — 90%, 94%, 84%, 70%
Virtual collaboration tools — 91%, 91%, 83%, 61%
Enterprise software — 77%, 62%, 55%, 28%
SEO tools — 45%, 42%, 40%, 27%
Data analytic tools — 72%, 52%, 50%, 21%
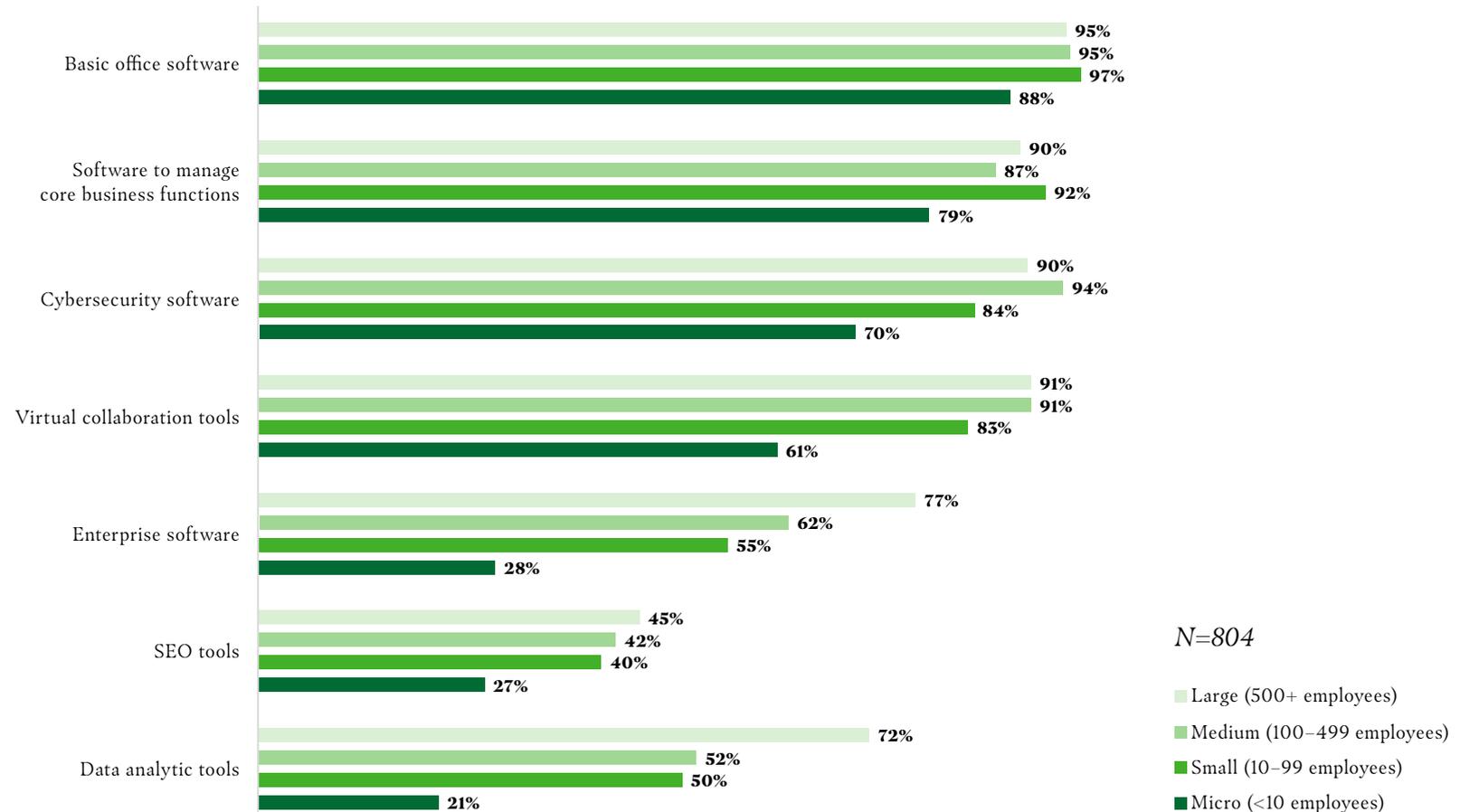
Tools for a digital economy

The digital devices, systems, and tools organizations need to thrive in the digital economy will differ depending on factors including their sector and industry, size, and growth objectives. Organizations may need digital tools and systems that enable:

Effective, efficient, and secure business operations: These could include software to support discrete business functions (e.g., accounting, content creation, communication), enterprise-level software (e.g., for enterprise resource planning, customer relationship management, supply chain management), cybersecurity software, and tools that enable data collection and analysis.

E-commerce sales and enhanced client experiences: From February 2020 to July 2022, retail e-commerce sales increased by 67.9% and the share of e-commerce sales as a proportion of total retail sales rose significantly, from 3.9% in 2019 to 6.2% in 2022 (July year to date)—and even that figure is an underestimate, as it doesn't capture sales by foreign, online-only retailers.[3] In retail and beyond, technology is increasingly transforming the customer experience into one that seamlessly blends online and physical experiences—a "phygital" experience.

Employee engagement, especially in hybrid and remote teams: From collaboration platforms to virtual learning modules to employee communications, there are many ways next-generation technologies have been deployed or can be effectively implemented to enhance the employee experience.

Many organizations don't know which digital tools to invest in

There are so many different paths to value creation and countless digital solutions in the marketplace. The cost of software is the biggest challenge, according to our survey respondents: two-thirds (67%) described the cost of software licences and subscriptions as somewhat or very challenging, with one in four (25%) describing it as a great challenge. But even leaders who can afford the investment still struggle with determining which technologies would be most beneficial to the organization; 58% of our survey respondents said the uncertainty was somewhat or very challenging. A related challenge is the difficulty choosing between competing software vendors or cloud service providers—56% of respondents said this was somewhat or very challenging.

In other words, it's not just about finding the money to invest in digital technology, it's also about deciding where that money should go. This problem is not new, but the pandemic catapulted the issue to top of mind. Faced with an ever-evolving marketplace of digital technologies, leaders must determine which tools are the most useful, the most user-friendly, and offer the best value for money. Unless it's a tech company or a large organization with an IT voice on its senior leadership team, the kind of expertise needed to guide those decisions probably doesn't live within an organization.

CHALLENGES

"

Our biggest challenge has been what or who to invest in that will best drive our business and processes forward. Having our current internal IT needs met while having the insight and knowledge to have all of our various platforms—whether it's our POS system, HR software, marketing analytics, or scheduling software—speak together and improve overall efficiency is our primary goal. Is it a dedicated IT lead? Is it an integration specialist or an IT solutions provider? These are the questions that we challenge ourselves with when we look to invest in the future of our digital assets. Furthermore, with digital equity evolving quickly, we have turned our focus on how to merge our digital assets with AI solutions to take our business to the next level."

Ryan Moreno, co-founder and CEO, Joseph Richard Group

For many SMEs, cost is a barrier to accessing qualified advice

The SME leaders we interviewed for this report expressed a desire for a specialist's advice to guide their strategic decision-making on digital investments. Without such expert guidance, many organizations end up investing in solutions that don't quite meet their needs or aren't quite what they paid for.

Naturally, organizations would benefit from having staff, particularly on their leadership teams, who specialize in digital technology—professionals with the knowledge and experience to advise on investments and leverage data to improve decision-making, similar to the role of a chief technology officer (CTO) or chief information officer (CIO) at a larger organization. However, sourcing and retaining talent with this kind of background isn't easy; we address this challenge under the participation pillar.

"

We've had experiences with vendors saying that things will work a certain way, and then they don't, or there is some kind of manual workaround that wasn't what we were buying. We would [switch to a new system] if we could, but we don't feel we can, and we don't have the expertise to help us understand whether we can move away and export everything we need to a new system."

Kevin Bergeron, CEO, miEnergy

While funding and other supports exist, awareness is limited and uptake is low

Many programs exist to help organizations adopt technology, but smaller businesses in particular face challenges in identifying the best programs and supports to meet their needs. Governments try to help entrepreneurs navigate what's available, but these efforts don't always pay off. For instance, while tools like the Business Benefits Finder help business owners locate supports, awareness of such tools is limited.

"

Despite a consistent effort by the Government of Canada and provincial governments to help entrepreneurs navigate available resources, there is a lot of confusing information for young entrepreneurs about where they can get what they need. With so many different supports available, it isn't always intuitive where entrepreneurs should look for the resources that match their specific circumstances and requirements. As a result, entrepreneurs can feel a bit lost."

Karen Greve Young, CEO, Futurpreneur

Develop an upfront digital investment strategy that clearly links digital investments to broader business objectives

As companies become more digitally mature, they become better equipped to mitigate risk, create value, and stimulate innovation by developing an upfront digital investment strategy. In the past, digital investments came with substantial upfront costs that were amortized over the life of the investment and were treated as a longer-term capital expenditure (capex). However, as organizations move toward agile delivery, research suggests that it is more practical to treat them as an operating expenditure (opex).

Digital strategy should not be treated as a standalone enterprise function. Like any compelling business strategy, digital investments must be linked to clear and ambitious business-wide objectives. A road map should be created to help navigate people, processes, and systems through the digital transformation journey—whether during the initial digital adoption phase or later, during implementation and utilization.

"

COVID forced everybody to change overnight. Many organizations were in crisis mode, and grabbed the technology to fill immediate needs. They made it work, people learned to use it, and organizations set up new systems that weren't there before. But I think what was missed was some of those earlier steps around strategy—choosing tools based on needs, evaluating those tools, integrating them into overall plans, and thinking about what kind of digital enablement is needed in every project. There is a lot of foundational work. For example, they need to understand which tools people across the organization are using, and really take a step back and ask, what do they need to get set up really well now to be more effective going forward?"

Lizz Bryce, Senior Vice President, Community & Strategic Initiatives, CanadaHelps

Find creative ways to address knowledge gaps around digital solutions

Leaders who don't have a technology background can employ various approaches to ensure they're making the right investments for their organizations. For example:

- Use well-established solutions, if guidance is inaccessible, over bespoke systems and tools

- Seek out pro-bono or low-cost advice on digital investment strategy from larger, digitally mature organizations

- Attend conferences, trade shows, summits, and seminars to discover the digital tools available in the marketplace

- Subscribe to tech podcasts to stay up to date on new tech innovations and advancements in the sector

- Participate in associations, peer networks, and other collaborative arrangements where leaders can learn from one another and share best practices

Consider crafting new incentives and grants for digital investments

Governments should contemplate establishing a fully refundable investment tax credit to incentivize SMEs to digitalize their operations. The amount available for each SME should be proportionate to the size of the organization.

They should also consider creating a parallel granting program for non-profit organizations. At minimum, governments should include funding for digital enablement and IT support in their funding agreements with non-profits.

Promising initiatives exist to support non-profit digital transformation. These include:

· *The Charity Growth Academy, which aims to provide all charities with the tools and support they need for digital transformation and growth*

· *The Canadian Centre for Nonprofit Digital Resilience, which aims to create a shared ecosystem where technologies are utilized by non-profits to enhance services and widen reach*

Improve the uptake and utilization of government programming that supports digital adoption

The federal government should investigate the underutilization of its available programming to support digital adoption and modify it accordingly. It could also consider remodelling existing programs to account for the different stages of the journey toward digital maturity so that resources are structured and allocated depending on a business's needs and goals. More funding could become available as companies submit metrics that prove they're evolving digitally.
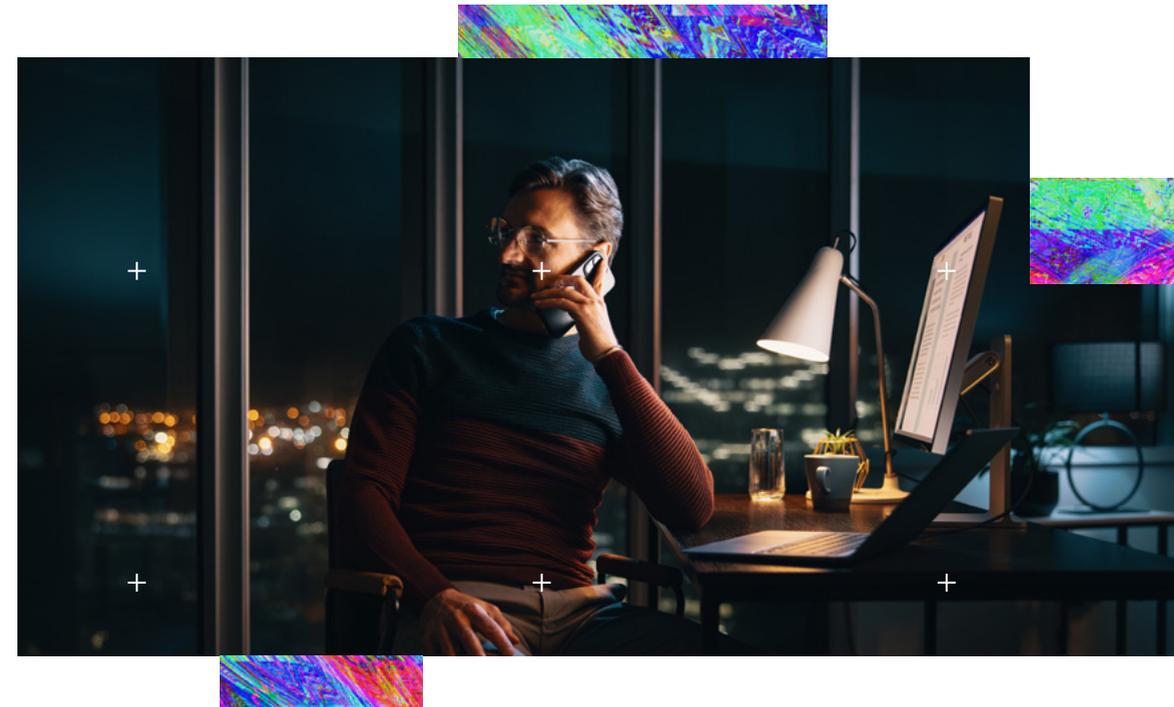
Connectivity

Connectivity is a prerequisite for participating in the digital world. Almost all industries rely on it to improve productivity, drive efficiency, and promote growth.

Businesses in rural areas need the same access to quality internet as those in urban centres, whether it's for leveraging cloud-based software, using a modern point-of-sale system, or enabling employees to stay connected while on the move. Previous Deloitte research has found that expanded connectivity in rural areas creates a foundation for stronger economic growth through improved talent attraction, increased employment, the facilitation of entrepreneurship and business expansion, enhanced access to financial capital, and greater innovation.[4] Both public and private sector leaders have recognized that investments in broadband infrastructure have the potential to catalyze economic activity in smaller and rural communities.[5] The impact of connectivity cannot be overstated.

Figure 2: Quality issues with workplace internet by location of head office

	6%	19%	19%
Rural (N=47)			

	10%	20%	5%
Non-rural (N=559)			

0%   10%   20%   30%   40%   50%

■ Slow ■ Inconsistent ■ Both slow and inconsistent
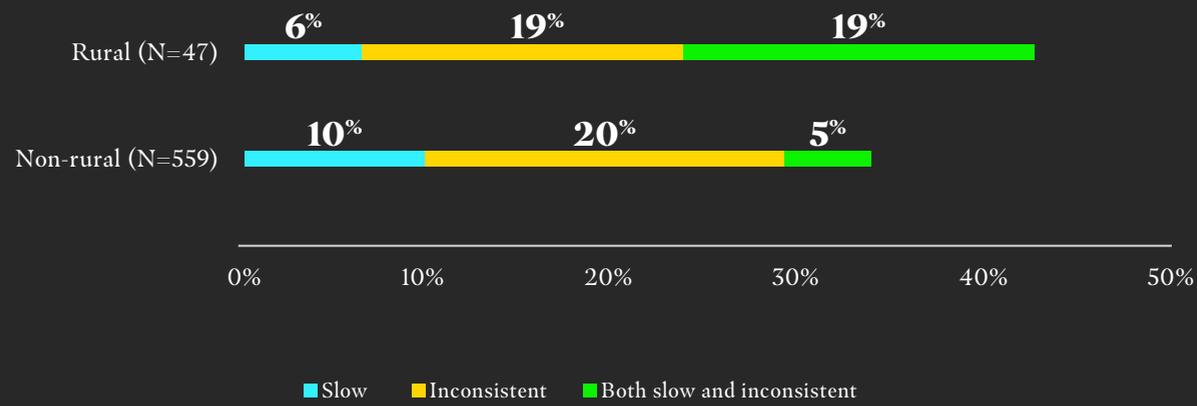
Despite much progress, many rural and remote areas in Canada still face significant connectivity issues. As of 2021, only 62% of households in these areas had access to the federal government's minimum internet speed target of 50 megabits per second for downloads and 10 megabits per second for uploads (also known as *50/10 Mbps** minimum speeds).[6] Almost half (45%) of the business leaders we surveyed from organizations headquartered in rural areas said their workplace internet connection was slow, inconsistent, or both (*Figure 2*).

Persistent connectivity deficits are inhibiting business development and growth in rural communities. Additionally, Indigenous Peoples are disproportionately affected. Approximately 60% of Indigenous Peoples live in predominantly rural regions, compared to one-third (33%) of non-Indigenous people.[7] Moreover, as of 2021, only 43.3% of households on First Nations reserves had access to internet coverage at the target minimum speed of 50/10 Mbps.[8]

Indigenous Peoples are a growing population, and Statistics Canada projections suggest that it will continue to grow faster than the non-Indigenous population between now and 2041.[9] The Indigenous economy will grow alongside. While some data suggests that the number of Indigenous-owned businesses is increasing at a comparable pace to non-Indigenous-owned businesses, other studies have suggested that the size and diversity of Indigenous businesses is much larger than is generally understood.[10] By one estimate, the number of Indigenous business owners is growing at five times the rate of self-employed Canadians.[11]

Speeds of 50/10 Mbps are generally good for two to four people and between five and seven devices. A download speed of 50 Mbps can handle two to three video streams plus some extra online activity, such as browsing the web or checking social media. For comparison, download speeds of 100 Mbps are generally good for four to six people and up to ten devices. With 100 Mbps, it's possible to stream in 4K on four to five devices and quickly download big files.
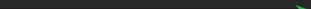
This means internet connectivity deficits are holding back an exceptionally entrepreneurial and rapidly growing subset of the population from fully realizing its economic potential. Ensuring Indigenous Peoples have equitable access to economic opportunities is an important part of Canada's reconciliation journey—and connectivity enables this.

In our interview with Stanley Barnaby, CEO of the Joint Economic Development Initiative (JEDI), an Indigenous economic development organization based in New Brunswick, we heard that many Indigenous entrepreneurs and business owners want to grow their businesses in their home community, but the lack of connectivity is an obstacle.

Recognizing that rural broadband infrastructure is challenging and expensive to build due to the country's size, terrain, and population dispersion, governments have made funding programs available to support projects to build or upgrade broadband infrastructure in underserved areas. Key funding programs include the Broadband Fund from the Canadian Radio-television and Telecommunications Commission (CRTC) and the Universal Broadband Fund of Innovation, Science and Economic Development Canada (ISED).

While these programs have helped improved internet access, a 2023 report by the Auditor General of Canada found that the implementation of projects undertaken through these funds was consistently delayed by the long application review and approval processes.[12] The auditor general's report also found that less than half (40%) of federal funding earmarked for connectivity projects in the 2022-23 fiscal year had been spent by January 2023.[13]

"Not all Indigenous communities have access to the high-speed internet that they need for things like virtual learning and remote work. Community members like to stay in community, they like to be close to home—but for our entrepreneurs to be able to do that, communities need to have that high-speed internet. Even when high-speed internet is available, it's often only community-owned buildings that have access. It's the rural communities that really have a hard time. We're trying to work on creating work-hub offices in communities, so entrepreneurs can be close to home."

Stanley Barnaby, CEO, Joint Economic Development Initiative (JEDI)

The Government of Canada should create the conditions for fast and efficient investment in broadband infrastructure

To achieve universal connectivity by 2030, the federal government should dedicate resources to ensure timely approvals for projects. It should also consider strengthening incentives for infrastructure investment in underserved areas. For example, enhanced tax credits for on-time project delivery could accelerate project completion and make investments more attractive to private sector partners.

Governments should consider adopting bridging measures to support organizations and workers in underserved areas—and employers should supplement the supports available to these workers

Infrastructure takes time to build. In the meantime, governments can take steps to bridge connectivity gaps through, for example, rebate programs for satellite internet, such as those offered by the governments of Nova Scotia and New Brunswick.[14]

Governments can also invest in remote working hub facilities and coworking spaces, similar to the approach taken in Ireland. Stanley Barnaby, JEDI's CEO, noted that only community-owned buildings in some Indigenous communities in New Brunswick are connected to broadband. JEDI is working to create work-hub offices in communities so that Indigenous entrepreneurs don't have to leave their communities to set up and run their businesses—these efforts should be supported and, where sensible, replicated. Organizations with employees working remotely from underserved areas could then subsidize the cost of membership in a work-hub or coworking space. This will support and facilitate remote employment arrangements for both the employees and employers.

Satellite internet rebates

Through the Internet for Nova Scotia Initiative, projects are under way to deliver reliable, high-speed internet access to 99.99% of homes and businesses across the province. In July 2022, the provincial government announced the Satellite Internet Service Rebate program, which accepts applications from business owners (as well as individual residents) who are not expected to gain wired or wireless internet access until after December 31, 2023. The purpose of this program is to level the playing field so that Nova Scotians who are the furthest from gaining access can get connected more quickly. Qualified satellite service providers for the program must meet or exceed the CRTC's 50/10 Mbps minimum speeds.

Remote working hubs

Led by the Minister for Rural and Community Development, Ireland is rolling out a national hub network to allow employees and individuals living in rural Ireland to work and connect with services, employers, and other businesses. This network is a central component of the government's plan to ensure that all parts of the country have the requisite facilities and high-speed broadband connections to allow as many people as possible to work remotely.[15] By the end of 2022, there were over 300 remote working hubs in Ireland's national network.[16]

THE PARTICIPATION PILLAR

EQUIPPING ORGANIZATIONS WITH THE SKILLED TALENT THEY NEED TO PARTICIPATE
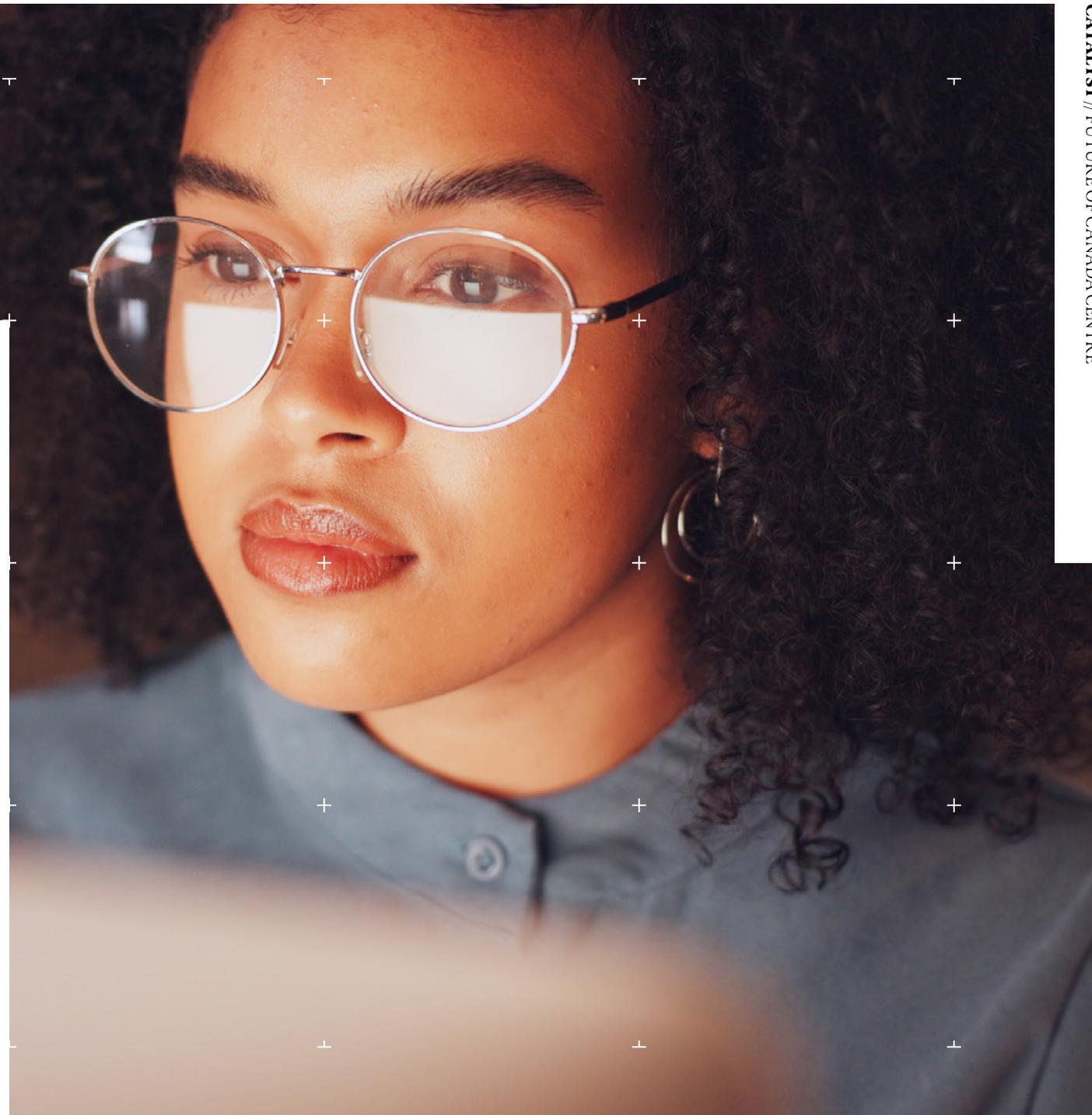
In today's business world, the ability of organizations to thrive hinges on having not only the right digital systems and tools but also the right skills and capabilities. Successful digital adoption—and digital transformation—is as much about people, processes, and culture as it is about technology.

In our report on digital equity for individual Canadians, the participation pillar revolved around the foundational skills, or digital literacy, people need to be able to use digital technology safely and effectively. In this report, we broaden our focus to consider both foundational digital skills— referred to here as workforce digital skills—as well as more advanced and specialized digital skills.

"

You need strong DNA in your organization to pull off a multi-year digital transformation. It's not pure technology—there is a big people element in the background."

Marco Trecroce, former Senior Vice President and CIO, Four Seasons Hotels and Resorts (2010–2023)

Digital equity

ACCESS

PARTICIPATION

Equipping organizations with the skilled talent they need to participate in the digital economy

- Capacity for change management
- Digital skills

ECOSYSTEM
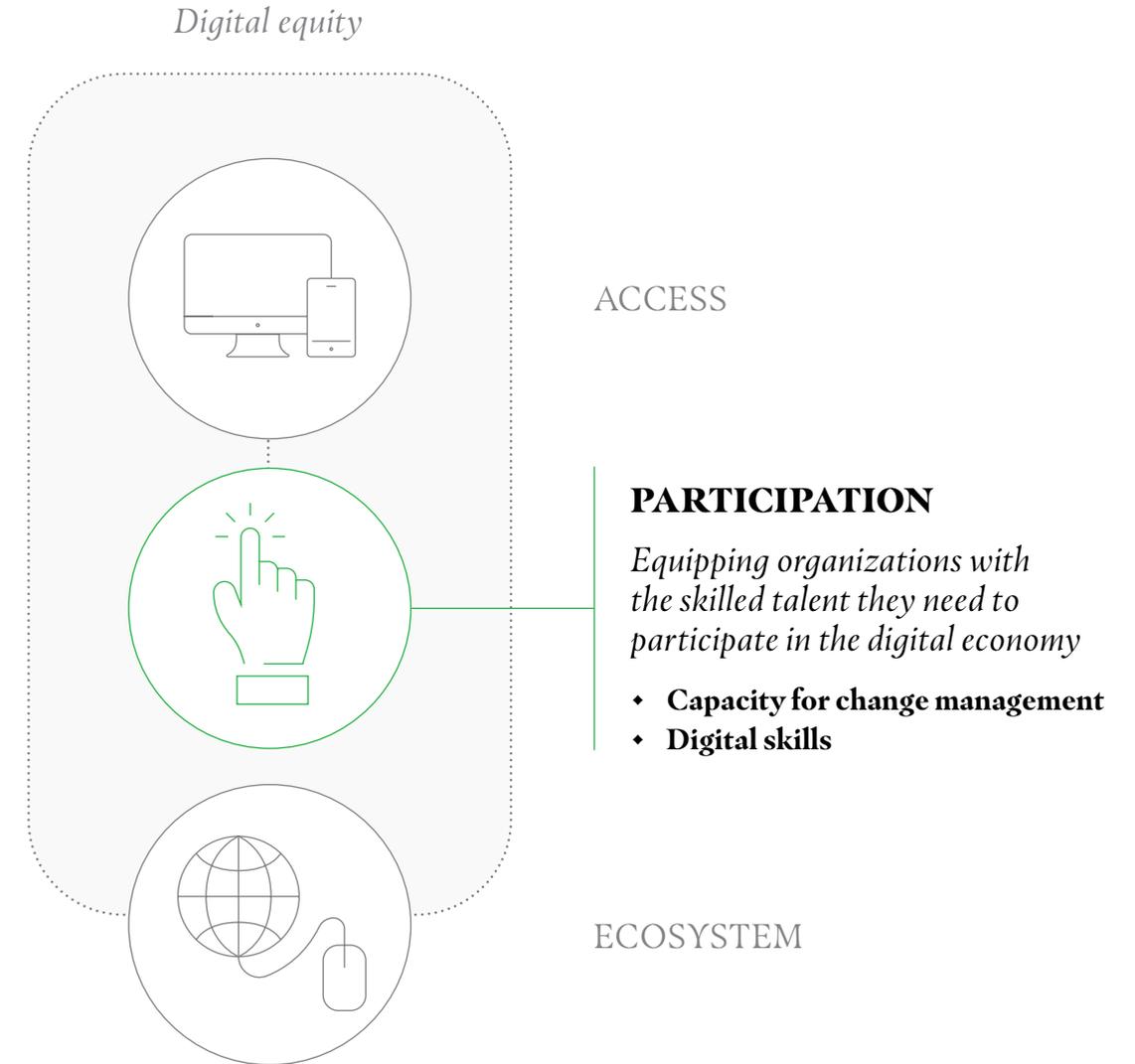
Capacity for change management

While the participation pillar focuses primarily on digital skills, we must note that leadership capacity for change management is critical to enabling a successful digital transformation. In our interviews with business leaders, we heard that the biggest cost of digital transformation—besides the cost of the technologies—is the time and work of leaders and managers involved in implementing change in the organization. The alignment of leadership with the goals of digital transformation is therefore paramount. It is also the leaders' responsibility to champion these evolutionary shifts by striking a balance between embracing innovative change and honouring the organization's core values. This is more than a necessity; it's an opportunity to grow and stay ahead in the digital age.

TOWARD DIGITAL RESILIENCE: CONSIDERATIONS FOR LEADERS
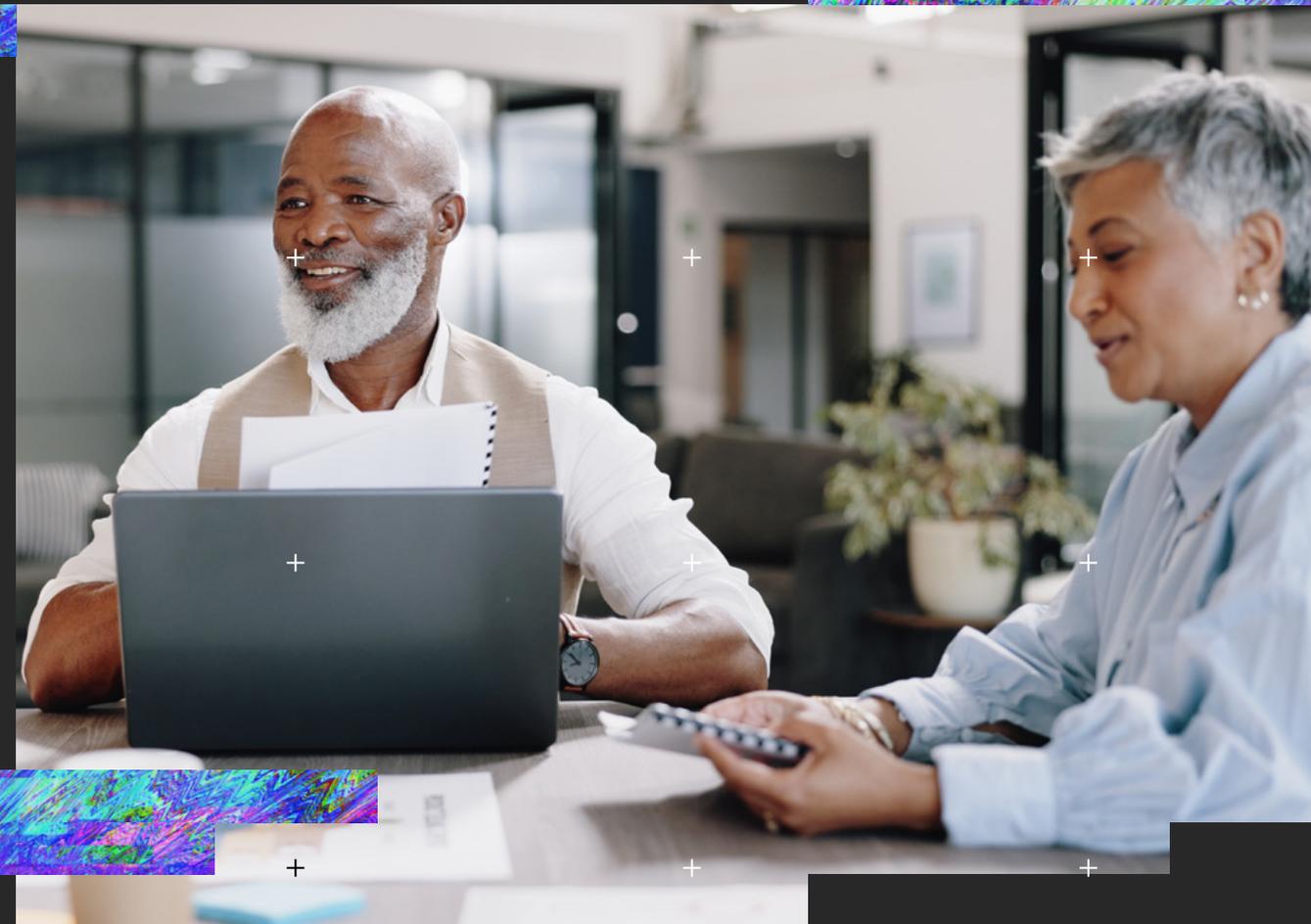
Leaders could consider developing and implementing a change management strategy to equip sponsors with the resources they need to rally the entire workforce into joining the digital transformation. This requires an ongoing commitment to talent development and digital upskilling.

Leaders will want to think about building a network of change agents across all functions who will partner with the change team to promote the positive impacts of transformation. They can also update the change team about what is working well and where workers need more support.

"

Technology changes much faster than organizations change. Keeping up with [tech] is going to require a lot of intentional work."

Lizz Bryce, Senior Vice President, Community & Strategic Initiatives, CanadaHelps

"

When we talk about a government fit for the digital future, it is about digital skills and expertise, but it's also about how we operate—the machinery of government, our processes and ways of working. It's about the culture, the mindset, how we fund things, how we make decisions. This isn't unique to the public sector; there are big, traditional organizations that have been accustomed to waterfall budgeting decisions, and they're going to find themselves in the same position. For me, digital transformation is about actually changing the operating model of the organization so that we can be more human-centred, more responsive, and more agile to meet citizen and business needs."

Natasha Clarke, Deputy Minister,
Department of Cyber Security and Digital Solutions,
Government of Nova Scotia

Digital skills

To benefit from digital investments, organizations need a digitally adept workforce.
While the demand for talent with such skills has been growing for decades,
the pandemic accelerated the rate of digital transformation—and consequently
the demand for digital skills, both general and specialized.
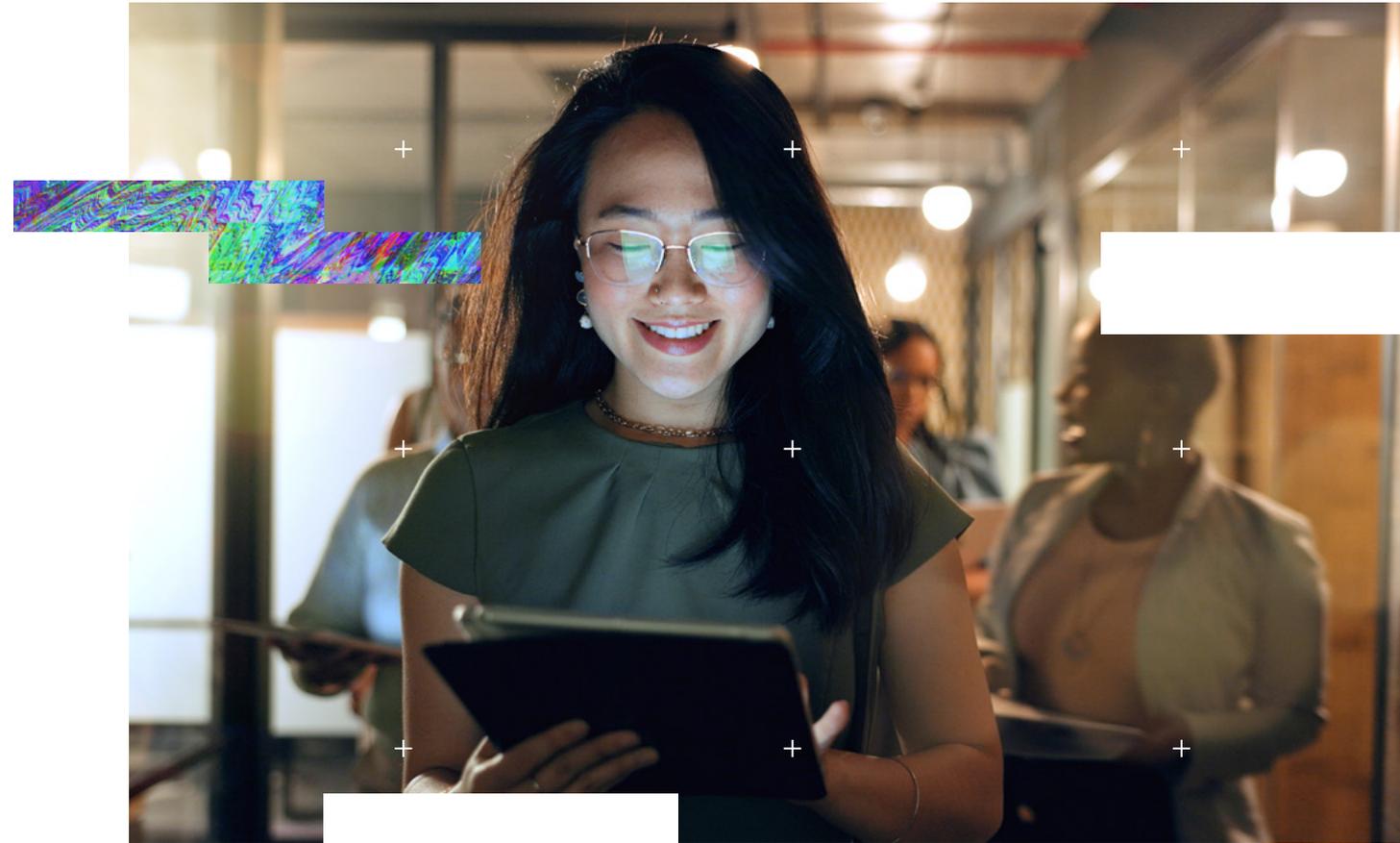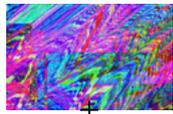
Workforce digital skills encompass the kind of proficiencies that are becoming essential for nearly all workers. For example, the ability to effectively use virtual collaboration tools has become an indispensable skill in the era of hybrid-remote work and geographically dispersed teams.

Specialized digital skills refer to the advanced technical knowledge of workers under the umbrella of tech talent, such as data scientists, software developers, and cybersecurity professionals. Unlike workforce digital skills, specialized skills don't need to be diffused throughout the entire organization; instead, they reside in designated experts or teams. Workers with specialized digital skills may be responsible for the governance, maintenance, and functionality of an organization's digital systems and tools. They may also be responsible for acquiring, advising on, and managing the implementation of new digital technologies.

Organizations face digital skills shortages

The need for digital skills is much higher than the current supply of Canadian workers who have them. Nearly half (49%) of the business leaders we surveyed said hiring and retaining digitally skilled workers is somewhat or very challenging. This increased to more than two-thirds when we exclude respondents from organizations with fewer than 10 employees: 68% for leaders of small organizations (10 to 99 employees) and 70% for leaders of medium and large organizations (more than 100 employees) (*Figure 3*).

While hiring challenges exist across sectors, finding and keeping digital talent is especially difficult for the manufacturing and public sectors: 29% of manufacturing leaders indicated hiring and retaining digital talent was a great challenge, while in interviews, government leaders told us hiring for IT jobs is particularly difficult—for example, the federal public service is grappling with an estimated 30% vacancy rate in this space.[17]

Figure 3: Challenges in hiring and retaining digitally skilled talent by organization size

Organization size	A great challenge	Somewhat challenging
Large (500+ employees)	27%	43%
Medium (100–499 employees)	21%	50%
Small (10–99 employees)	19%	49%
Micro (<10 employees)	13%	29%

N=756 ■ A great challenge ■ Somewhat challenging
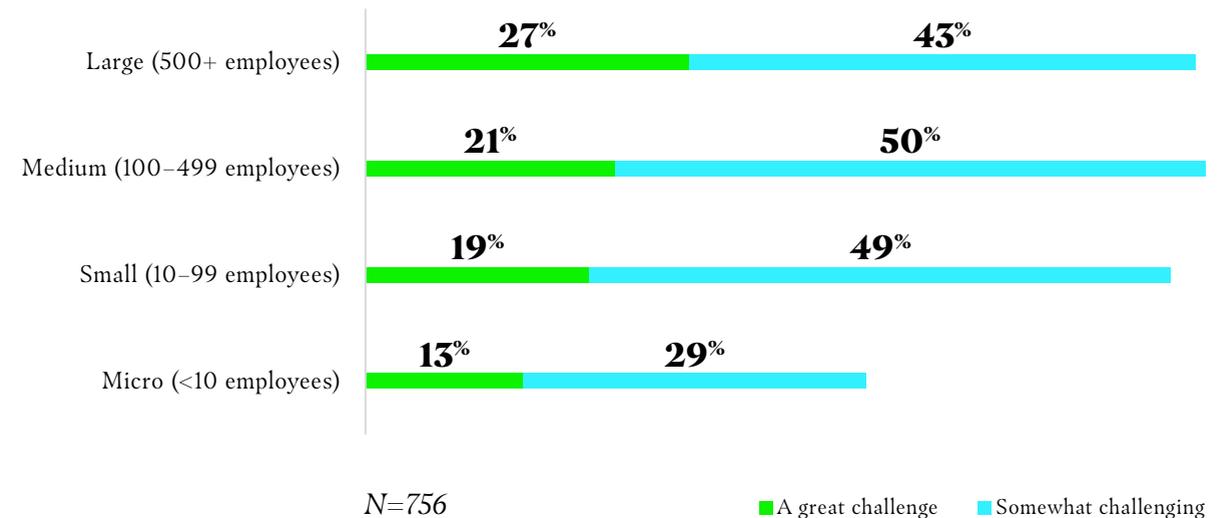
CHALLENGES

An obvious solution to this problem is to increase the supply of digitally skilled workers in the market. We recommended a digital skills strategy in *Digital equity: focusing on every Canadian's digital future*, in particular for improving training in formal education (K–12 and post-secondary) and for increasing access to training outside formal education systems. If implemented, those recommendations, while aimed at advancing the digital literacy of people in general, will have the added benefit of expanding the pool of digitally skilled workers. Still, even the best efforts will take time to yield results.

It's important to note that, despite the recent surge of layoffs from technology companies that briefly flooded the market with tech talent, the long-term trend in Canada is likely to be persistent scarcity of specialized digital skills. The demand for tech talent is projected to continue to greatly outstrip supply until at least 2026.[18]

"

I think we'll continue to be challenged on the skills and expertise side, as more and more boomers leave the workforce. Maybe things like AI, automation, and machine learning will help fill those gaps, but the result will be a shift in where the gaps are—they'll still exist, just in different places. A level of digital literacy is going to be a basic requisite for most jobs."

Natasha Clarke, Deputy Minister, Department of Cyber Security and Digital Solutions, Government of Nova Scotia

The odds are stacked against smaller organizations in the competition for digitally skilled talent

While large corporations are feeling the impact of a tight labour market, they have several advantages over SMEs, non-profits, and governments when it comes to finding, hiring, and retaining digitally skilled talent because of the greater resources they tend to have available. These give them:

- **Recruitment advantage:** Larger organizations can afford top-of-the-line recruiting tools and can pay for premium placement of their job ads in search results. More importantly, they are more likely to have relationships with post-secondary institutions, where they can hire through on-campus initiatives and participate in work-integrated learning opportunities offered to students (*Figure 4*).

- **International advantage:** If they choose to hire in international markets, they can afford to hire specialists, or teams of specialists, to manage immigration issues (or they can afford to outsource these functions).

- **Compensation advantage:** They can pay higher salaries and offer more attractive, comprehensive benefits packages.

We asked survey respondents about the challenges they've faced in their efforts to hire and keep digitally skilled talent. The most commonly experienced challenge was an inability to match the salaries and benefits offered by large corporations: 78% of respondents from organizations with 10 or more employees (N=384) said this was somewhat or very challenging; 42% described it as a great challenge.

Figure 4: Partnerships with post-secondary educational institutions to recruit students to meet digital skills needs

Large (500+ employees): **34%** (Formal relationships), **29%** (Ad-hoc partnerships)
Medium (100–499 employees): **23%** (Formal relationships), **38%** (Ad-hoc partnerships)
Small (10–99 employees): **13%** (Formal relationships), **25%** (Ad-hoc partnerships)
Micro (<10 employees): **5%** (Formal relationships), **19%** (Ad-hoc partnerships)

N=754

■ Formal relationships   ■ Ad-hoc partnerships
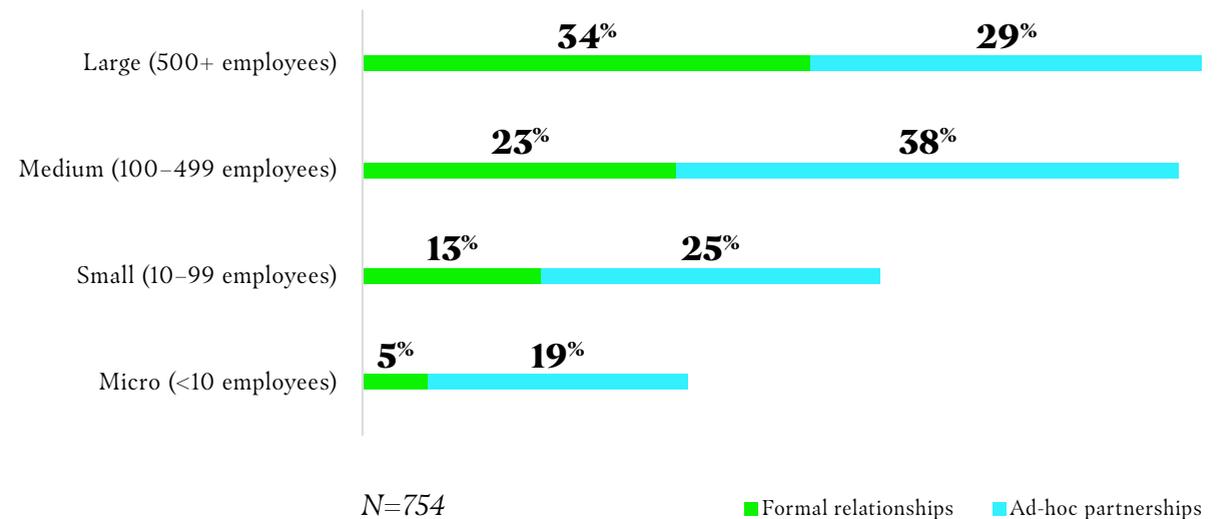
Governments face unique barriers to hiring and retaining digitally skilled talent

Governments across Canada are struggling to hire people with the general and specialized digital skill sets needed to execute ambitious digital transformation strategies. These challenges are rooted in both the realities and misperceptions of what it's like to work in the public service.

Realities:

◆ The candidate pool is limited by requirements such as the location of work

◆ The hiring process is typically slower and more administratively onerous than in the private and non-profit sectors; candidates with highly in-demand skills may accept another offer while the hiring process is still under way

◆ The pay bands and career advancement opportunities do not align with what is available to highly skilled tech workers in the private sector

◆ The quality of digital tools available to public servants varies significantly across departments and agencies

Misperceptions:

◆ The work is not as exciting or fast-paced as work in other sectors

◆ Public service is a "career for life"—once someone joins government, they're in it forever

◆ Government tech stacks are outdated

These misperceptions of public service work are rooted in long-standing stereotypes about public administration that persist despite the existence of contradictory information. Governments around the world are making efforts to rehabilitate their image, but the strength of these stereotypes is formidable—indeed, "anti-public service bias" is widely discussed and tested in public administration research.[19]

To build their digital capacity, governments need to address the barriers to attracting and retaining digital talent as well as work to bust the myths associated with government work.

"

We need to think about digital excellence and that means having tools that digitally excellent talent expect."

Paul N. Wagner, Deputy CIO of Canada, Treasury Board of Canada Secretariat

Organizations, especially smaller ones, are not investing enough in training and upskilling

The recruitment of digitally skilled talent is just one piece of the puzzle. In the midst of a tight talent market and a dearth of digital skills in the pool of job seekers, organizations are also grappling with digital skills gaps among their existing workers.

According to a Statistics Canada survey, over half (56.1%) of businesses in 2021 reported skills gaps in their workforce. Two-thirds (66.1%) of those businesses said that information and communication technologies (ICT) were the top factor affecting the skill requirements of employees.[20]

Our own survey data aligns with these findings. We asked business leaders to estimate what percentage of their employees had the digital skills to do certain tasks. Among those from organizations with at least 10 employees (N=452):

- 69% said at least three-quarters of their employees had the skills to communicate with colleagues online and use digital collaboration tools

- 67% said at least three-quarters of their employees had the skills to use digital devices and basic software applications

- 60% said at least three-quarters of their employees had the skills to search for and evaluate information online

And these are the most foundational digital skills—the same leaders estimated fewer workers possessed the more advanced skills. For example, less than half (42%) said at least three-quarters of their employees had the skills to create and modify content online, and only 30% said at least three-quarters of their employees were able to protect digital devices and avoid cybersecurity risks.

"

The pandemic has created an environment where the need for the skill set far outweighs what's available today in the workforce. We're no longer afforded the luxury of hiring the correct skill set that we need immediately from the talent pool that's out there looking for work."

Ron Bennett, General Manager, Linamar (formerly Global VP of IT, 2019–2023)

CHALLENGES

In this context of shortages and hiring challenges, upskilling is more important than ever. But many organizations—SMEs in particular—don't offer or facilitate digital skills training opportunities for staff. In 2021, Canada ranked 25th among 29 countries for the proportion of businesses that provided training to develop ICT skills for persons not employed in the sector: just 11.3% of businesses with 10 or more employees indicated that they had provided any type of such training for non-ICT specialists, compared to the OECD average of 19.5%.[21]

Larger companies are more likely to have the budget to invest in employee training programs and dedicated training staff. They also tend to have more established relationships with external training providers, including post-secondary institutions, which is a key way to facilitate digital upskilling for workers (*Figure 5*).

By contrast, SMEs have fewer employees, which makes fixed training costs more of a challenge and limits their ability to offer workers time away from core operations for training. In addition, smaller organizations often lack the specialized experience needed for designing and implementing effective training programs. They may not have a dedicated training staff or access to external training providers. As a result, they struggle to create effective training programs that meet the needs of their employees and the organization as a whole in a cost-effective way.

Figure 5: Partnerships with post-secondary educational institutions to train or upskill existing staff to meet digital skills needs

Large (500+ employees): 27% Formal relationships, 39% Ad-hoc partnerships
Medium (100–499 employees): 18% Formal relationships, 50% Ad-hoc partnerships
Small (10–99 employees): 11% Formal relationships, 38% Ad-hoc partnerships
Micro (<10 employees): 4% Formal relationships, 27% Ad-hoc partnerships

N=754 ■ Formal relationships ■ Ad-hoc partnerships
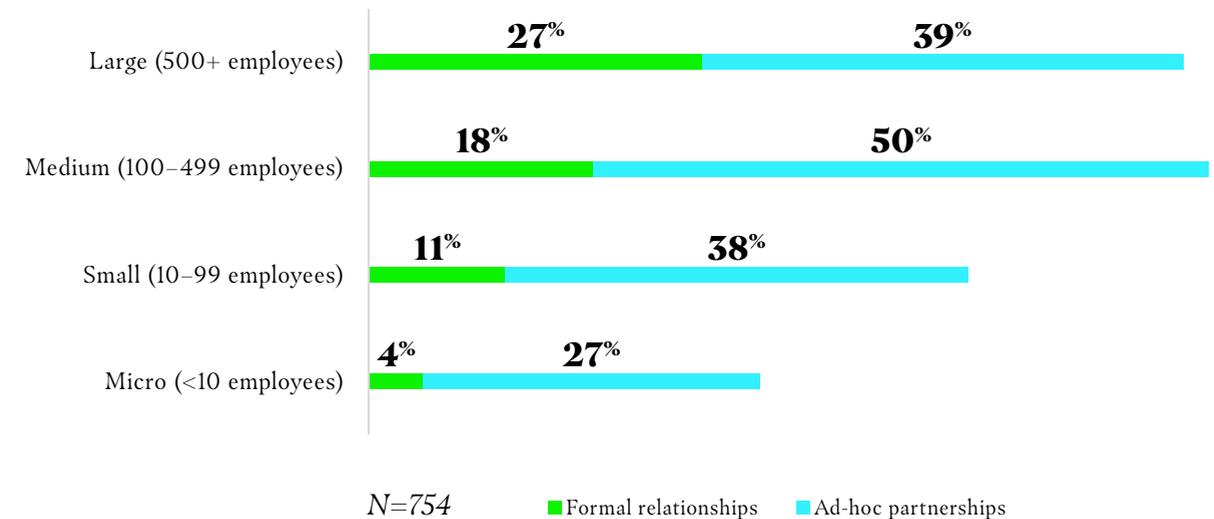
" *Resistance to change isn't a problem for us. We're an organization with people that like to innovate and change for the better. It's more so the training to make sure that everybody understands how to use the tools correctly, so they can be as efficient as possible. And certainly, we've had some examples of when that hasn't gone so well, and we've struggled and spun our wheels a little bit, and it hasn't been nearly as smooth of an implementation as we would have liked. We don't have internal L&D, so we rely heavily on the vendors.*

Kevin Bergeron, CEO, miEnergy

Formulate a clear, persuasive talent value proposition that speaks to tech workers

Offering fair compensation is only one aspect of attracting talent with in-demand digital skills. Organizations can also stand out from the competition by clearly articulating their purpose, or mission, and appealing to people who value that vision. This is especially important for organizations that can't necessarily compete on salary—including many non-profits, SMEs, and governments.

Leaders should also consider strategies to articulate their organization's talent value proposition to a wider pool of digitally skilled candidates seeking new opportunities. This could mean re-evaluating the lists of must-haves and nice-to-haves in job postings, finding ways to maximize flexibility for staff, and engaging in targeted outreach to communities that are underrepresented in digital and tech jobs.

"

You have to pay people fairly, and if you treat them really well, they're more likely to stay. And I think people underestimate that—if you have a strong mission, people will feel compelled to stay."

Karen Greve Young, CEO, Futurpreneur

"*With our continued focus to hire great and diverse teams, we've done a few things to increase the candidate pool. We have tried to switch from degree-based hiring to skills-based hiring where possible to open the pool up—not only has this helped us to diversify the talent we bring in, but it also opens the market for the talent that would have been disqualified if we went from a degree space. Because we do have a huge focus on diversity and inclusion, we're mindful of not limiting ourselves to a certain number of schools we hire from, so we can bring in diversity of thought and experience. Some specific tactics that we have used when we are trying to attract new talent is trying as much as possible to be tech agnostic in our job postings. We specifically tell these candidates, hey, it's okay if you don't have everything in the job description, we are committed to upskilling you so you can grow here. We also offer remote and part-time roles to create more inclusivity and opportunities for people who have caregiving responsibilities.*"

Faye Pang, Canada Country Manager, Xero

Create and nurture a workplace culture of continual learning

In addition to creating or facilitating training opportunities for workers, leaders should consider what might stand in the way of their staff taking advantage of these opportunities. People need time and energy to dedicate to training—and they need to be properly incentivized.

Strategies can include establishing dedicated times for learning activities and tying training milestones to wage bumps or bonuses.

Establish industry training hubs

Business leaders should collaborate with government and academia to create industry training hubs for training and measuring upskilling outcomes. Each hub should be managed by a full-time career facilitator, who will help support people to build in-demand skills, including digital skills. In unionized environments, trade unions can play an important and productive role in training. The idea is to create better links between schools, local government, and local industry.
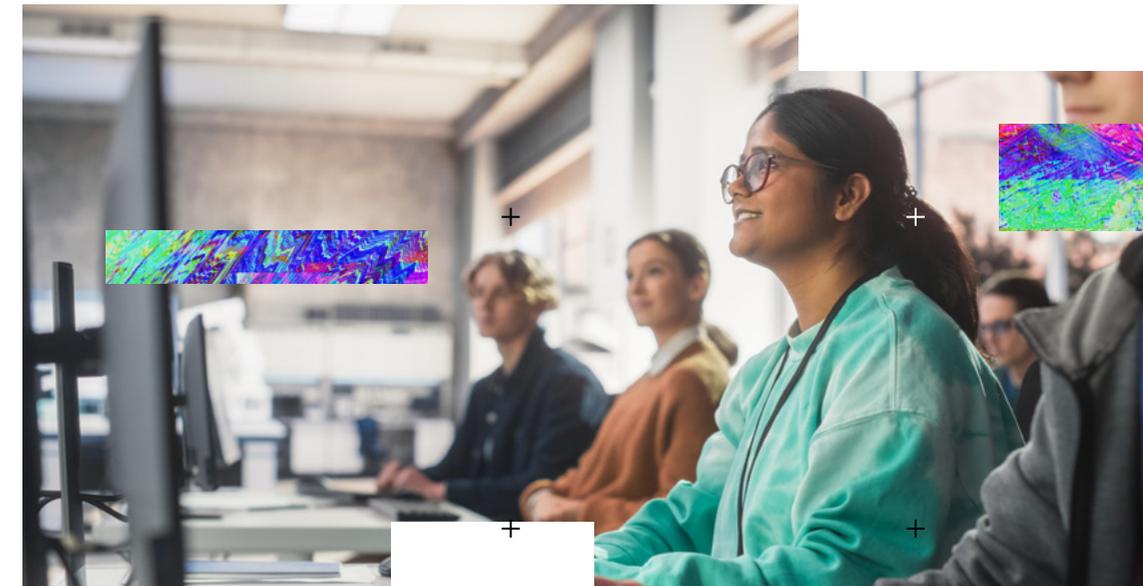
Leverage MOOCs for on-demand learning

Massive open online courses (MOOCs)—free or low-cost web-based distance learning programs—are increasingly recognized in the workplace as a positive tool for the professional development of both new and experienced staff. Many of the most popular MOOCs teach specialized digital skills, including programming, data analytics, and digital marketing.

People with higher levels of education are most likely to benefit from taking a MOOC to upskill, whereas those in lower-skilled jobs can benefit more from taking a MOOC to reskill and transition to a higher-skilled job. Registrations in these online programs continue to climb, driven by the on-demand nature of many courses, their low cost, and the opportunity to receive credentials.

MOOCs can be paired with more informal learning experiences—lunch-and-learn sessions, mentorships, and work-shadowing arrangements, for example—to round out an organization's upskilling program without adding a lot of extra cost.

Improve existing incentives for organizations to invest in upskilling

Governments at different levels across the country offer a range of supports for non-government organizations to help employers train and upskill their employees. One such initiative is the federal-provincial Job Grant Program, which supports short-duration skills programs provided by eligible third-party trainers. In most provinces, the funding covers 50% to 100% of eligible training costs—to a maximum of $10,000 per employee—while the employer covers the rest.

Limited data is available about the reach and impact of the Job Grant Program, but a 2016 review concluded the program was administratively onerous for employers.[22] In addition, participation was not varied—it was mostly men aged 30 to 49 years.

Governments can take various steps to improve the delivery of this program:

- Engage in **awareness campaigns** through targeted marketing and partnerships with industry associations and other employer groups when applications are open.

- **Streamline the application process** to reduce paperwork and provide more support to first-time applicants. Dedicate resources to speed up the application approval process, which currently takes between 30 and 60 days.

- Offer **additional incentives** to employers to ensure a minimum level of training participation by women, Indigenous Peoples, people with disabilities, and other underrepresented groups covered by the grant.

Make it easier for employers (and workers) to find suitable skills training opportunities

The federal government could also consider working with provincial governments and private sector partners to create a centralized online repository or one-stop portal for upskilling that's accessible to both employers and individuals. A model for this is the SkillsFuture portal, offered by the Singapore Government, which helps individuals assess their career interests, skills confidence, and work values while finding suitable courses that teach in-demand skills and qualify for the SkillsFuture credit. Employers can use the portal to assess employees' skills, identify training needs, and find training opportunities.

Scale up mechanisms that temporarily bring private sector tech workers into government for a "tour of service"

Governments are stepping up their efforts to attract and retain digital talent. The Office of the CIO of Canada, for example, has set up a Digital Talent and Leadership office. Additionally, talent attraction and development is a core piece of Canada's Digital Government Strategy. Digital service teams across the country are advocating not only for quality digital tools, but also for new mindsets, methods, and approaches that will shift what it means to be a tech worker in government.

In addition to these promising steps, governments at all levels should expand their use of interchange agreements and other mechanisms, such as secondments and exchange programs, that allow highly skilled workers from other sectors to temporarily join the public service (and vice versa—public servants can temporarily move into the private sector). Interchange experiences are valuable not only for the skills they bring into the government, but also for the networks and relationships they build across sectors, which can contribute to a positive shift in the perception of public service.
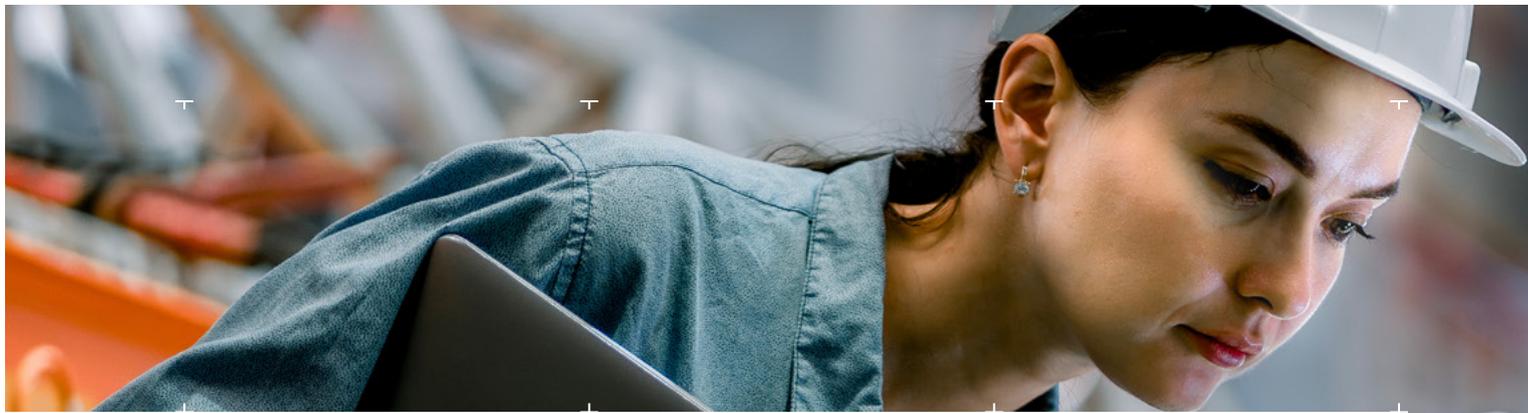
THE ECOSYSTEM PILLAR

BUILDING AN ECOSYSTEM IN WHICH ALL ORGANIZATIONS CAN SUCCEED

For a digitally equitable future, Canada needs an ecosystem of policies, regulations, and business practices that enables all organizations to thrive in the digital economy—not just the largest and most technologically advanced among them.

This section focuses on three areas of digital policy and business that are critical to shaping a digital economy: data and privacy regulation, cybersecurity, and competition policy.

It's important to note these policy areas are interconnected. For example, data regulation and cybersecurity are closely related because data breaches and cyberattacks can compromise personal information and violate data protection laws. Effective data regulation can help prevent data breaches and cyberattacks by setting standards for data security and privacy. Similarly, the key role played by data in the competitive dynamics of digital marketplaces has brought competition policy and data protection regulation into closer relationship—access to relevant data can have a substantial bearing on the ability of businesses to grow or maintain their market share, as well as on their ability to generate revenue. Finally, cybersecurity and competition are related both because data security is implicated by competition rules regarding the sharing and transfer of data, and because some organizations may be reluctant to share cyberthreat information with others if they fear it means giving up a competitive edge. The interplay between these policy areas calls for a coordinated policy response, particularly at the federal level.

Digital equity

ACCESS

PARTICIPATION

ECOSYSTEM

Building a secure and inclusive ecosystem in which all organizations can succeed

- **The regulatory environment**
- **Cybersecurity**
- **Fair competition**
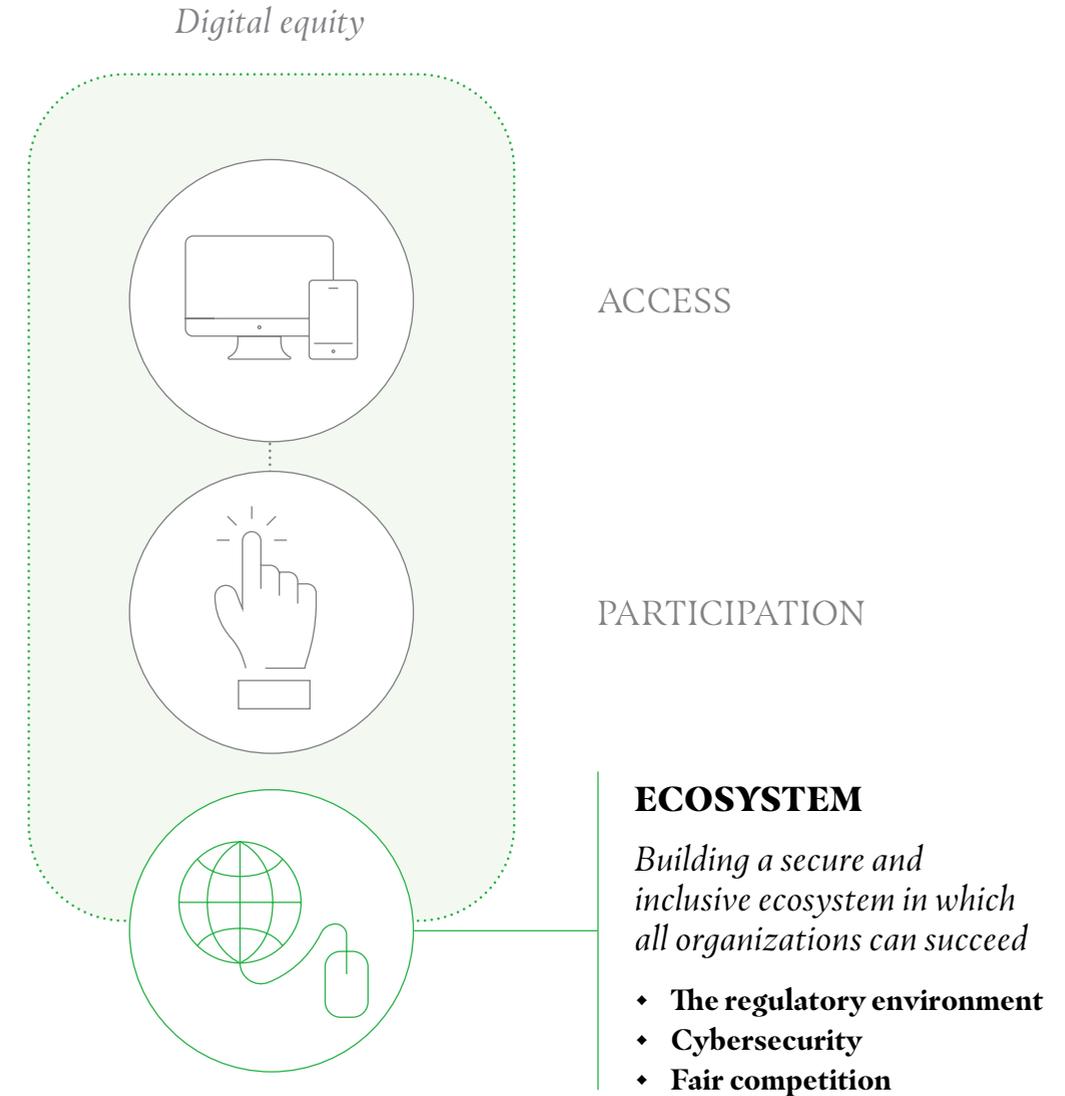
The regulatory environment

Regulations create the rules of the game for doing business. These rules serve important public purposes, including protecting public health and safety, preserving the environment, and promoting fair competition.

Market economies need clear rules to function effectively. But regulations must be designed to achieve these legitimate purposes without straining the economy. A strong regulatory environment will provide a clear and predictable framework for businesses to operate and innovate in an ethical and socially responsible manner. Poorly designed regulations, on the other hand, can hinder business investments by imposing unduly burdensome compliance requirements on businesses, resulting in negative impacts on Canada's economic competitiveness.

To achieve digital equity for organizations, we need a regulatory regime that governs data in a way that protects the public interest with the least amount of economic disruption. We also need a policy environment that unlocks the potential of new technologies.
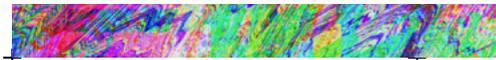
Canada's regulatory landscape for privacy and data protection is fragmented

While data protection policies are just one element of a broader nexus of laws, regulations, and norms that determine how countries govern the use of data, they still play a significant role. An effective data protection regime creates the conditions for public trust in the legitimate use of data by both governments and businesses. Greater trust should, in theory, lead to greater acceptance of the services that rely on data-sharing and data use, which will in turn lead to more investment in the resources and expertise necessary for success in a digital economy. To engender such trust, policymakers are tasked with establishing clear rules that govern how different actors can responsibly use personal data throughout its life cycle and across different data ecosystems.

Currently, the regulations governing data protection and privacy differ across provinces. This raises compliance costs, especially for organizations that operate in multiple jurisdictions in Canada and around the world. Moreover, ongoing changes to privacy laws in both Canada and other jurisdictions require continued effort by organizations to stay compliant. It's worth noting that inaction and non-compliance also come at a high cost—organizations that fail to establish effective data protection policies and processes put their employee and client information, not to mention their operations, at risk, and could face hefty fines from regulators.

SMEs face greater difficulties than larger firms in adapting to changing regulatory frameworks.[23] Consider the cost of data management technology tools and legal consulting for data privacy management. Larger organizations have the advantage of bigger budgets, better legal teams, and more access to security talent than smaller businesses.

"

Often it can feel like some regulatory frameworks contradict each other. To ensure the highest level of adherence, we pick the strictest policy and prioritize following the guidelines that it outlines. It's not a perfect science, but it grounds our adherence in what we consider to be the most rigorous protocol."

Sarah Wilkinson, CEO, Dr.Bill

Lagging progress on laws and policies that accelerate digital adoption

In response to COVID-19, governments around the world sought to encourage the rapid development and deployment of new technologies to better serve consumers' digital needs. A variety of policy instruments could do the same for the digital transformation of businesses. For example:

- **Open banking:** In Europe, regulations have been a catalyst in the significant rise of open banking. These include the implementation of the Second Payment Services Directive (PSD2) and the UK Competition and Markets Authority's (CMA) Open Banking regulation. At the time of writing, Canada does not yet have an open banking framework in place; the target launch date for the first phase was missed. The Canadian government still hopes to present a model of open banking by the end of 2023.[24]

- **Business eInvoicing Right (BER):** The Australian government recently established BER to push for the adoption of business-to-business (B2B) e-invoicing in Australia. Gradually, all companies will be able to request their trading partners to send them e-invoices in a standardized Peppol format. In Canada, e-invoicing is allowed but not mandatory for B2B transactions; businesses who work with the federal government (B2G) had to be able to accept e-invoices by the end of 2018.

> "
> *Government policy decisions can be real force multipliers for digital adoption. Subsidies help, but requirements for e-invoicing in Australia, open banking regimes— these are things that we have seen accelerate small business tech adoption. They make it easier and more compelling because they make it mandatory for certain things to be tech-enabled."*
>
> *Faye Pang, Canada Country Manager, Xero*

Appoint a data protection and privacy champion

Organizations should designate a data protection and privacy champion to oversee data protection initiatives, monitor regulatory changes, and ensure compliance. This person can be a point of contact for privacy-related queries, act as an internal advocate for privacy and data protection, and take the lead on developing a data strategy for the organization. They can also participate in and support the development of privacy symposiums, where representatives from government, industry, and the non-profit sector come together to share knowledge, experiences, and best practices regarding privacy and data protection. Engaging in dialogue with other organizations can provide valuable insights and help influence the development of more harmonized regulations.
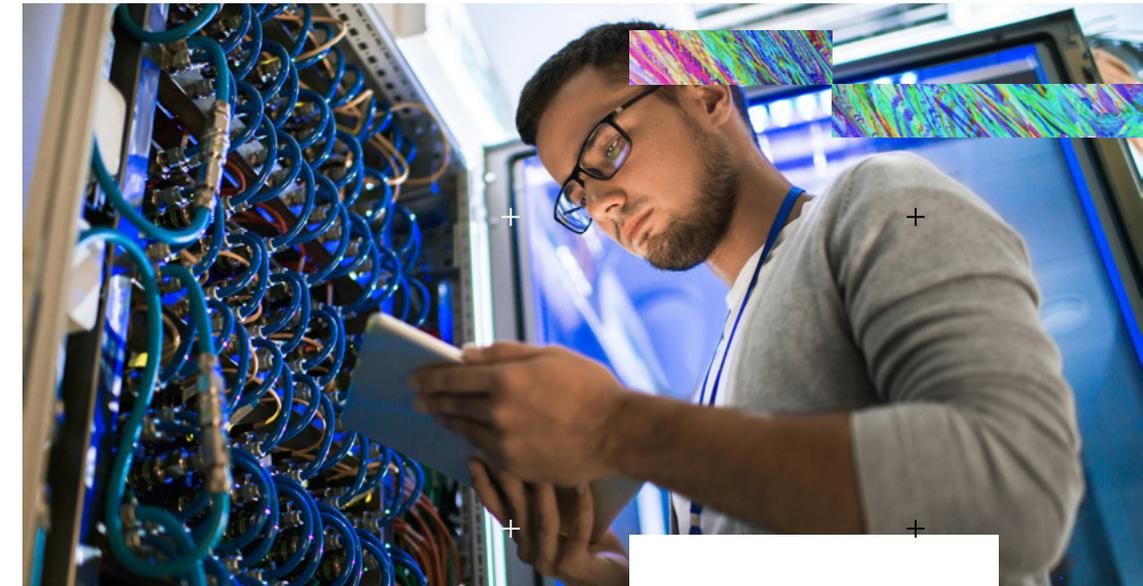
Educate employees about data protection and related vendor management practices

Organizations should consider educating their employees about data requirements, data protection laws, and vendor management best practices. It's particularly important that workers understand what controls vendors have and what data-sharing relationships are in place. To do this successfully, organizations should develop training programs, test learners, and iterate accordingly.

Align privacy and data protection regulations across jurisdictions

The goal of efforts to better align and harmonize privacy laws in Canada should be to ensure their interoperability—and to compel organizations to develop cohesive internal compliance mechanisms. The goal need not be uniformity, but rather a common set of standards.

All Canadian privacy laws should be founded on a shared set of principles. Beyond this, there is room for nuance—and governments should clearly articulate where (and how) those nuances can appear in legislative requirements imposed on businesses. They should also ensure that the scope of their legislation is clearly delineated: for example, section 3 of the BC Personal Information Protection Act specifically states that the BC Act does not apply to the collection, use, or disclosure of personal information covered by the federal act.

Help organizations to comply with privacy and data protection regulations

SMEs and non-profits need more support in implementing and achieving compliance with privacy regulations. Governments should consider creating a user-friendly, pan-Canadian portal to help organizations navigate shifting regulatory requirements across different provinces and territories, similar to the approach taken by the European Commission for the General Data Protection Regulation (GDPR). The commission developed an easy-to-use portal for small businesses featuring information to help them understand the GDPR and comply with its rulings, and it's investing in support and advice for small businesses.

"

It's understanding what the regulations are and putting in place the actual technological infrastructure and processes—a lot of stuff has to go in to be compliant. Data protection is a great thing for governments to be focusing on, but there has to be support for actually implementing these things. If their goal is to have good data protection, they need to support those organizations that have a huge amount of data to do it well."

Lizz Bryce, Senior Vice President, Community & Strategic Initiatives, CanadaHelps

Implement laws and policies that accelerate digital adoption

Following the lead of the United Kingdom and Australia, Canadian governments should consider moving quickly to implement policies that have a proven track record of accelerating SME digital adoption, including e-invoicing requirements and open banking frameworks. In addition to incentivizing digital adoption, these policies could help to grow the fintech industry and increase access to financing for SMEs. A February 2023 survey found that small business owners want better access to innovative fintech to take control of their finances, citing fraud prevention and payment verification as the most appealing benefits of digital financial tools and technology.[25]
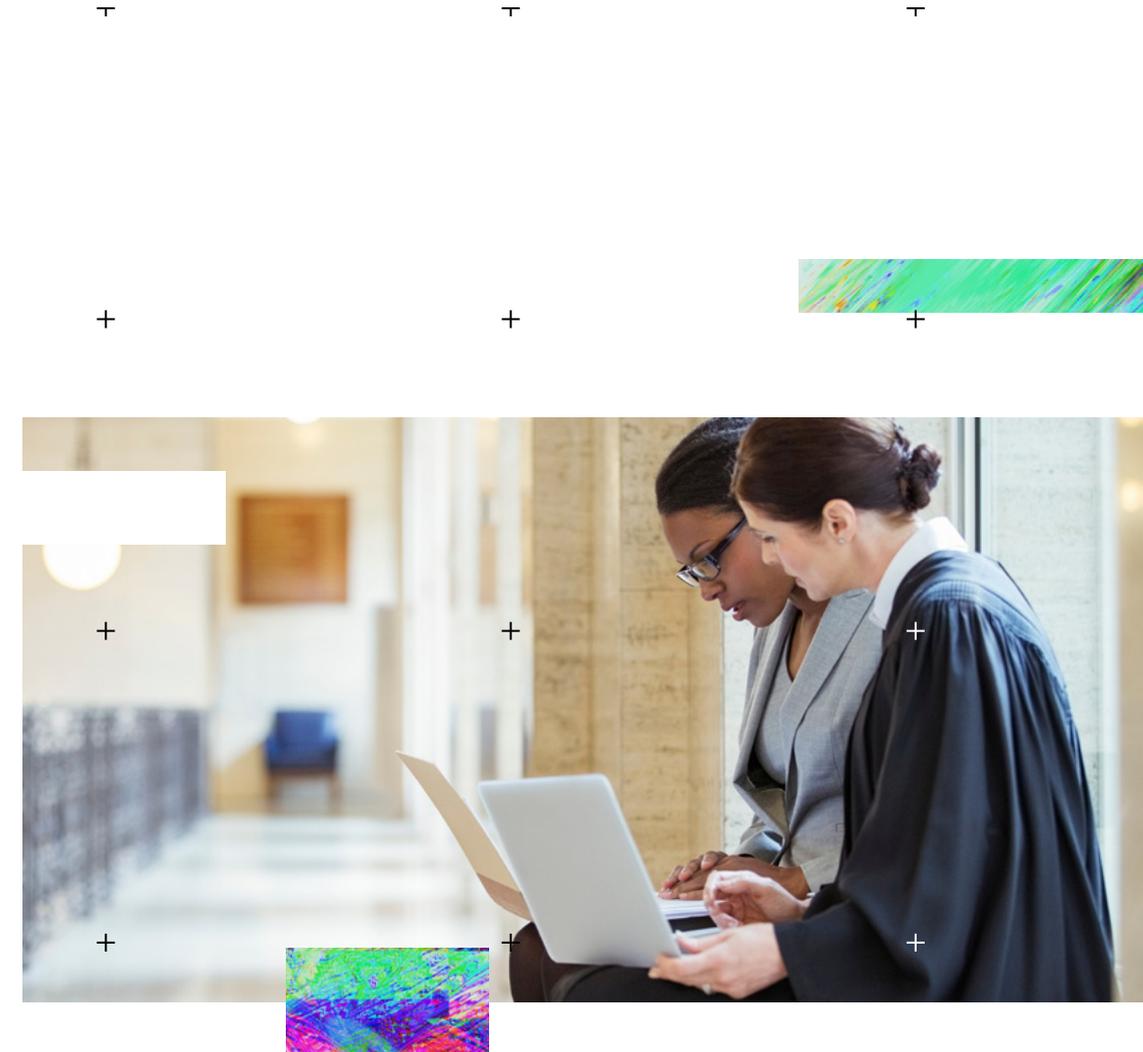
Cybersecurity

As more organizations embrace digital technologies, the cyberthreat landscape continues to evolve. Cyberattacks surged during the COVID-19 pandemic, and experts expect cybersecurity threats to continue growing both in frequency and magnitude, as cybercriminals become increasingly sophisticated in their tactics. Cybercrime is predicted to cost the global economy nearly $24 trillion by 2027.[26]
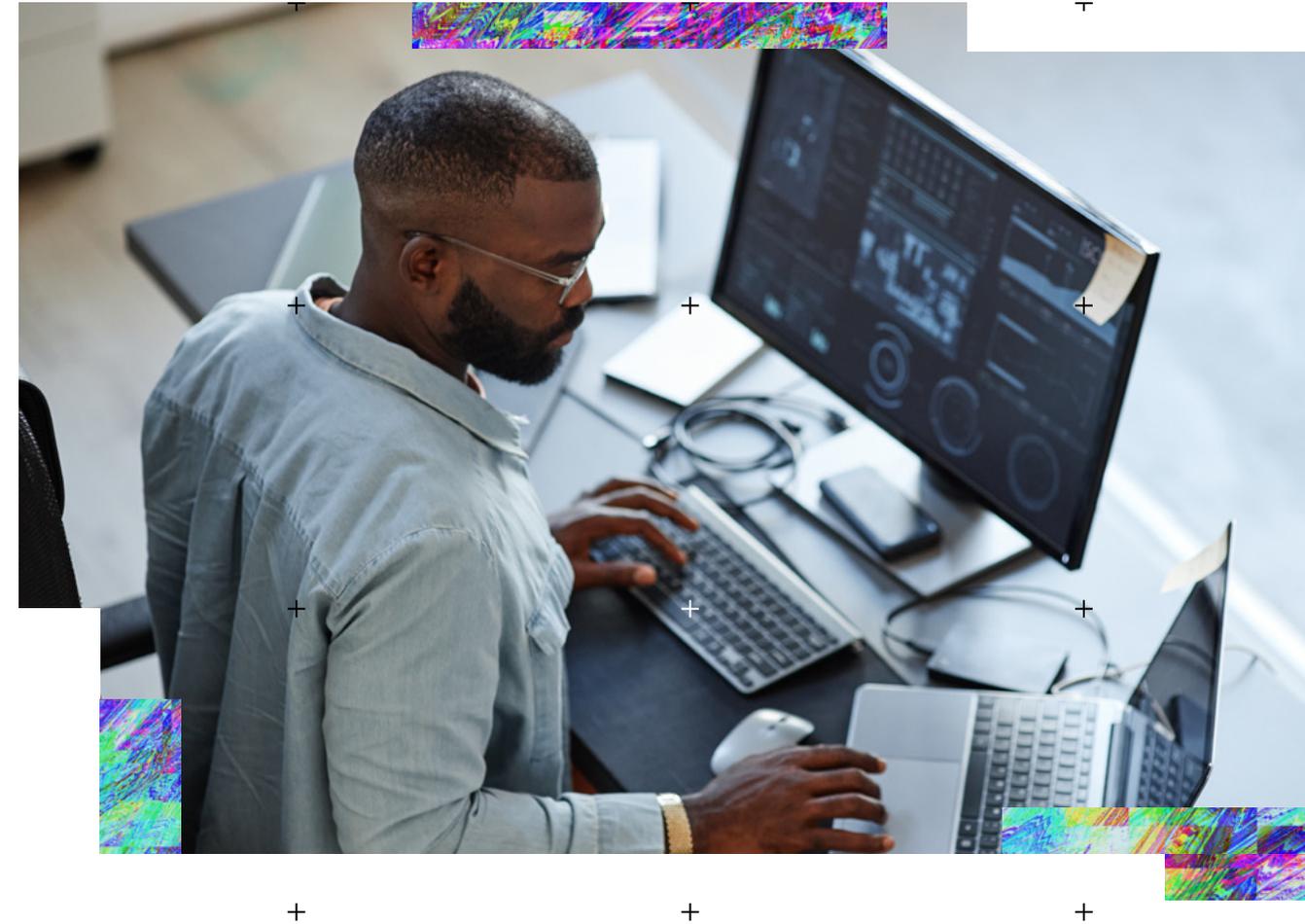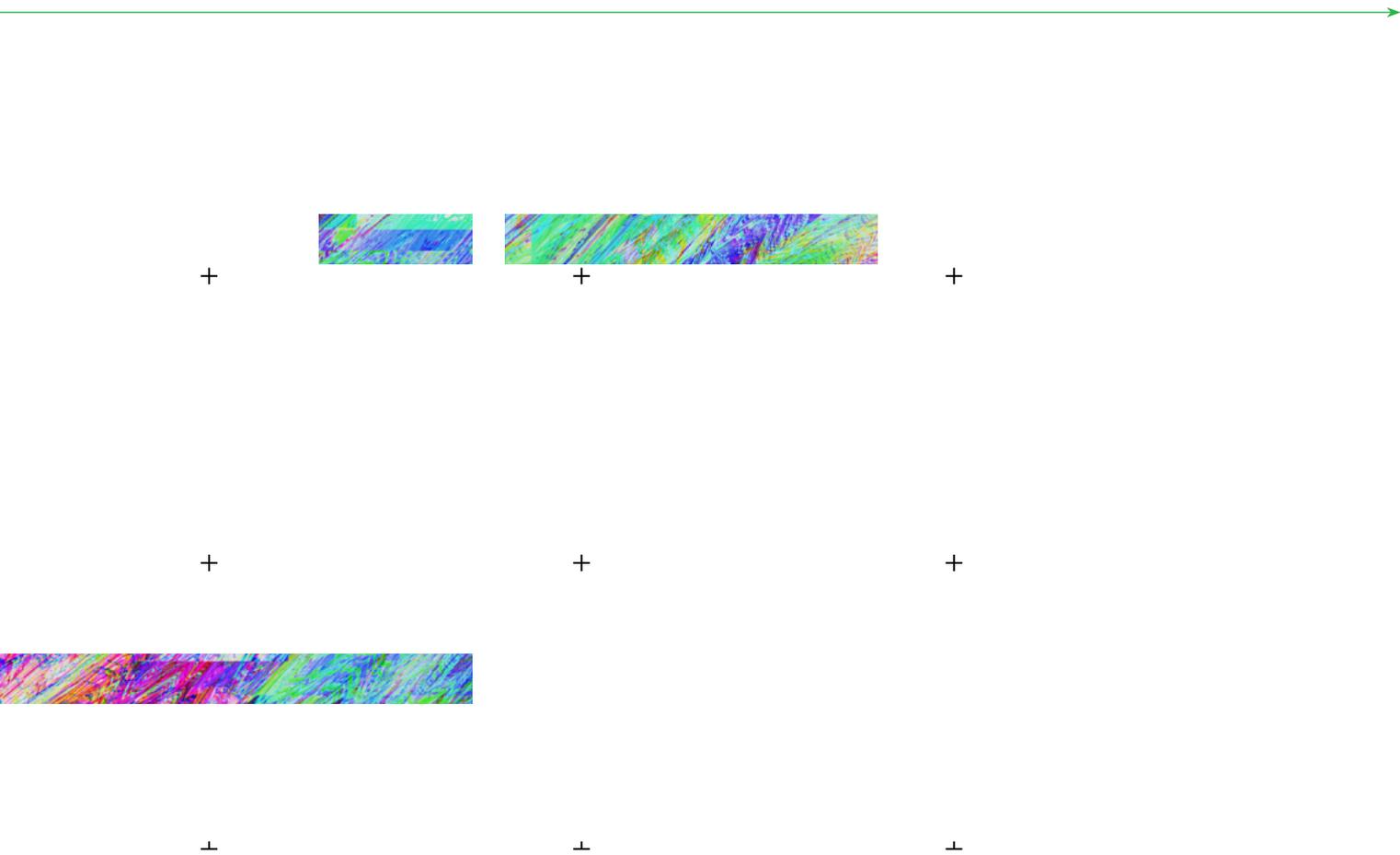
For businesses, cyberattacks can result in substantial financial losses and reputational damage. As well as disrupting operations, attacks can result in the loss of sensitive employee or customer data, or even intellectual property. In some cases, a cyberattack on one business can have ripple effects throughout the supply chain, disrupting the entire ecosystem and causing delays and losses for multiple organizations. Concerns about cybersecurity can also impact business willingness to use digital tools.

A safe and secure cyberspace is essential for the reliable functioning of the Canadian economy. But organizations, for-profit and non-profit alike, face barriers when it comes to implementing good cybersecurity practices.

CHALLENGES

Smaller organizations often lack the awareness, resources, and capacity needed to adequately protect against cyberthreats

Despite the complexity and scale of the cyberthreat landscape, organizations' knowledge and awareness of cybersecurity issues remains limited. This is particularly true of non-profits: according to a report by the Canadian Centre for Nonprofit Digital Resilience, few non-profits have data security and privacy on their radar as a basic operational requirement.[27]

Small and medium organizations often lack the knowledge and resources to implement cybersecurity regimes, even if doing so would create a competitive advantage. Setup and maintenance of a cybersecurity framework is an expensive project and typically requires several external plugins or an expert hire.

Some organizations don't have any resources dedicated to cybersecurity. Among our survey respondents, 20% said their organization had not invested in any cybersecurity software or applications. This is troubling given small cybersecurity teams may face greater risk from attacks compared to larger enterprises.[28]

Our renewed national cybersecurity strategy, launched in July 2022, indicated that the Government of Canada is committed to encouraging cybersecurity and improved data management practices for business. However, the action plan under the strategy (2019–2024) is focused almost exclusively on critical infrastructure. The one piece that touches on SMEs is the introduction of a voluntary cybersecurity assessment and certification.

"

Cybersecurity is going to be one of the rising challenges. It's not going to get better; it's only going to get worse. We're a larger enterprise, so we can do a better job of protecting our environment than a smaller, mid-cap business. How will they manage through a cyberattack? It's going to take them down."

Ron Bennett, General Manager, Linamar (formerly Global VP of IT, 2019–2023)

Remote work arrangements

While hybrid work and work-from-anywhere arrangements offer greater flexibility to workers and employers, these arrangements can also create a larger threat surface where cyber criminals can access organizations' and individuals' networks or devices. The Canadian Centre for Cyber Security has assessed that cyberthreat actors will very likely continue to exploit hybrid work infrastructure and target employees' home networks and personal devices to gain access to organizations.[29] When workers access corporate networks and information from their home networks and devices, they create opportunities for cyberthreat actors to do the same. This is troubling given our survey data indicating that over half (59%) of organizations permit employees to use personal mobile devices for work, while almost a third (32%) permit employees to use personal computers or laptops for work.
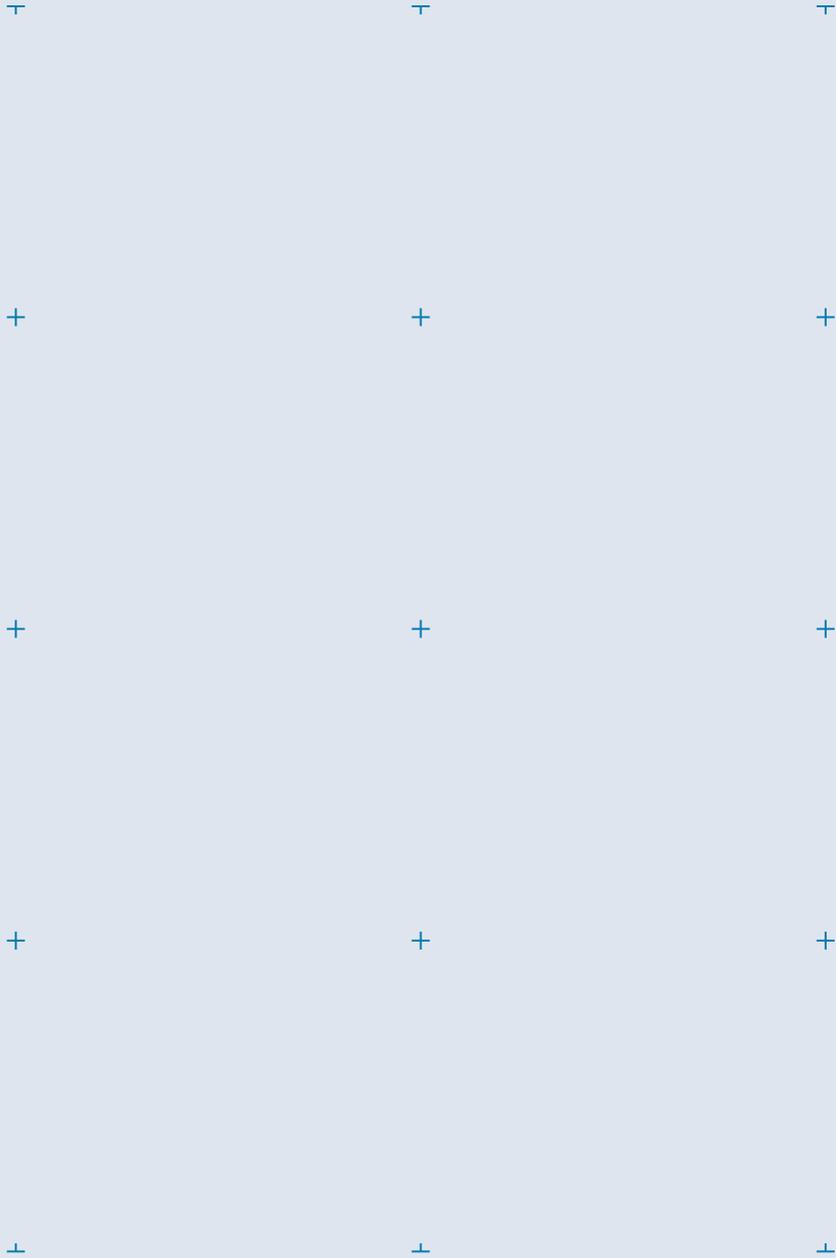
Transition from initial awareness-raising to building a culture of security and privacy by design

To do this, leaders should revisit their people, process, and technology strategies to identify threats and mitigation measures within each.

- **People strategy:** Ensure employee buy-in by having them read and accept the information security policy, involving them in the development and iteration of the policy, flowing out information about cybersecurity in regular channels, and conducting regular training on cyber risks and third-party management. The people strategy is key because most data breaches are the result of human error.

- **Process strategy:** Conduct regular audits to test for vulnerabilities in systems and processes, document incidents and response planning, and ensure complex password requirements. Be sure to include a process to report incidents to law enforcement and other government agencies; authorities can use that intelligence to help the cybersecurity community defend against cyber criminals.

- **Technology strategy:** Maintain network security, install anti-virus software on all devices, maintain encryption and VPNs when operating on public networks, have a robust data recovery process, and secure backups.

To guide their efforts, leaders can make use of freely available cyber resources offered by organizations like the Canadian Centre for Cyber Security and the Digital Governance Standards Institute.

Consider cyber insurance to help mitigate financial risks associated with cyber incidents

Small organizations can assess their specific needs and consider obtaining a cyber insurance policy that provides coverage for potential damages, legal expenses, and incident response costs.

Find ways to securely share cyberthreat information across sectors

When it comes to cyberthreats, there are significant information asymmetries between government agencies responsible for monitoring threats on the one hand and private and non-profit sector organizations on the other. Even large corporations and industry leaders express a strong desire for better information sharing related to cyberthreats.

Government leaders must find—or create— safe spaces to share information and guidance on cyberthreats.

"

When I think about how we are going to tackle cyberthreats, I think there's actually a real challenge for information sharing and collaboration across systems, both public and private sector. We're limited in terms of what we can share. Even within government, it's challenging to know what we can and can't share. And when you introduce other actors like private sector, not-for-profits, academics—we have to get at this, we have to find some way that we can talk and share. We have to put down all of that armour, so we can lean into this problem more collectively."

Natasha Clarke, Deputy Minister, Department of Cyber Security and Digital Solutions, Government of Nova Scotia

RECOMMENDATIONS FOR GOVERNMENTS

Cyber leaders in government could work with private sector partners to create a cybersecurity community of interest, modelled off the approach taken by the United States: the National Institute of Standards and Technology (NIST), an agency of the Department of Commerce, recently created a small business community of interest intended to improve the two-way sharing of information and cybersecurity best practices between the NIST and small enterprises across the United States.

"

I think it really comes down to helping industry understand what the emerging threats are. If we understand that, we can react to it. We can then make better decisions. People are just trying to find their way through; they don't know where to spend their money. And it's getting harder and harder for small businesses to generate good solid earnings, so they need to find the most effective and efficient place to spend that money around cybersecurity to protect their environment and continue operations. Better sharing goes a long way to protecting the environment."

Ron Bennett, General Manager, Linamar (formerly Global VP of IT, 2019–2023)

Increase uptake of the CyberSecure Canada program

In 2019, Innovation, Science and Economic Development Canada (ISED) introduced CyberSecure Canada, a certification program for SMEs. While the standard provides a high level of protection, the program has not been widely adopted.[30] The federal government should investigate why adoption has been slow and take measures to increase uptake. Organizations and Canadians alike benefit if cyberthreats are mitigated at the aggregate level.

Fair competition

Online platforms have created significant opportunities for SMEs, especially during the pandemic, when many businesses had to make the digital pivot in order to stay afloat.

In our increasingly digital economy, platforms are a vital gateway for businesses to reach potential clients and customers. However, this dynamic also means platforms have market power over business users, which can be wielded in ways that disadvantage SMEs. For example, platforms may engage in conduct like *copycatting** or *self-preferencing*†, and they may use *lock-in strategies*‡ to make it difficult for business users to negotiate better terms or switch platforms.

It's important to note that these behaviours are not new or unique to the digital economy; however, with the advent of digital marketplaces, behaviours like copycatting and self-preferencing can happen more often, more quickly, and with greater precision.

***Copycatting** *is the imitation of a product or service by a dominant corporation so that it closely resembles a rival's successful product or service.*

† **Self-preferencing** *refers to practices whereby platform providers favour their own products and services in rankings, crawling, and indexing. In other words, self-preferencing is preferential treatment in favour of products or services the platform offers itself or through a business user that it controls.*

‡ **Lock-in strategies** *refer to creating situations where customers are so dependent on a vendor for products and/or services that they cannot move to another vendor without incurring substantial switching costs. In platform markets, lock-in can be both contractual and technical. Contractual lock-in: terms and conditions that give platforms the right to use the data they gather from business users as they see fit; SMEs often don't really have a choice about accepting these terms. Technical lock-in: platforms that make it difficult to transfer data to another platform.*

"

SMEs weren't thinking about digital, but during the pandemic, they got on platforms and were able to stay in business."

*Marco Trecroce,
former Senior Vice President and CIO,
Four Seasons (2010–2023)*
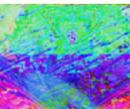
SMEs have limited if any bargaining power to negotiate fees and terms of their use of online platforms

Canada is a country of SMEs, and increasingly we see private actors setting the terms of the marketplaces in which SMEs compete. If we want to encourage SMEs to engage in e-commerce (and we do), we must do a better job of protecting fair competition on online platforms and in the platform economy.

We heard in interviews that SMEs feel they have no choice but to accept whatever fees, terms, and conditions that are set by major online platforms. One leader we interviewed commented, "That's the ecosystem that's been created and we have to just figure out how to work within it."

SMEs provide platforms with a large volume of sensitive business information, and contractual terms and conditions often give platforms the right to use the data they gather as they see fit. SMEs do not have a meaningful choice as to whether to accept these terms, as use of the platform is conditional on business users accepting the provider's terms.

Moreover, there is no well accepted technical standard that facilitates the transfer of data between platforms. In fact, porting data from one provider to another can be prohibitively difficult and expensive for SMEs.[31]

> "
>
> *If we're really serious about the digital economy, the government will need greater open standards about how we're going to share data or have technologies work with one another in a way that we can provide digital equity."*
>
> *Marco Trecroce, former Senior Vice President and CIO, Four Seasons (2010–2023)*

Dedicate adequate resources to competition authorities

To encourage and support the participation of SMEs in the digital economy, the Government of Canada needs to ensure that both the country's competition laws and the enforcement of those laws are adequate for the digital age. The review of the federal Competition Act is a step in the right direction, but the key challenge lies in enforcement. Since good enforcement is resource-intensive, the Competition Bureau would benefit from increased resources (both financial and human), strengthened enforcement powers, and enhanced collaboration with international partners. Working with other competition authorities around the world could help the Bureau share best practices and coordinate enforcement efforts, particularly given the global nature of online platforms and the challenges of regulating them across borders. An expanded role for provincial and territorial governments in this area should also be considered.

Consider data portability mandates for business data on online platforms

The federal government should explore data portability mandates to reduce the switching costs and risk of platform lock-in. With such mandates in place, SMEs would be able to export their data and move to a different platform, thus increasing their bargaining power and helping to level the playing field. A 2021 OECD paper recommended regulating data portability and interoperability through a competition law lens, especially in the context of remediation for competition violations.[32]

For platform leaders

Tech companies have made great strides toward data portability for individual users—the Data Transfer Initiative, which grew out of a collaboration between major tech companies, is one example.[33] They should consider expanding these efforts to encompass data portability for business users as well, rather than waiting for governments to impose such requirements.

CONCLUSION

Canada is at a pivotal moment in our technological evolution. The convergence of cutting-edge technologies underpins a future brimming with possibilities, promising enhanced efficiency, growth, and innovation for organizations of all stripes across the country. In many ways, this future is already here—it's just not evenly distributed yet.

As organizations begin to reap the benefits of the digital revolution, we must address the disparities that threaten progress. The pillars of digital equity—access, participation, and ecosystem—provide a framework for understanding and addressing the disparities that exist between and among organizations, so leaders can act to ensure that no entity is left behind.

To ensure a digitally equitable future, we call upon policymakers to enact forward-looking regulations that are conducive to building trust and accelerating innovation and growth. The development of accessible pathways for increasing skills and fostering partnerships between academia and industry will empower Canada's workforce to excel in this technologically charged landscape. Organizational leaders play a critical role in shaping the digital landscape through inclusive strategies that extend the benefits of transformation across their own organization and beyond. By investing in employees' digital skills and technical proficiencies, leaders can ensure their workforce is equipped to capitalize on the opportunities ahead.
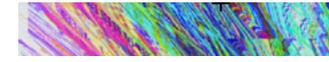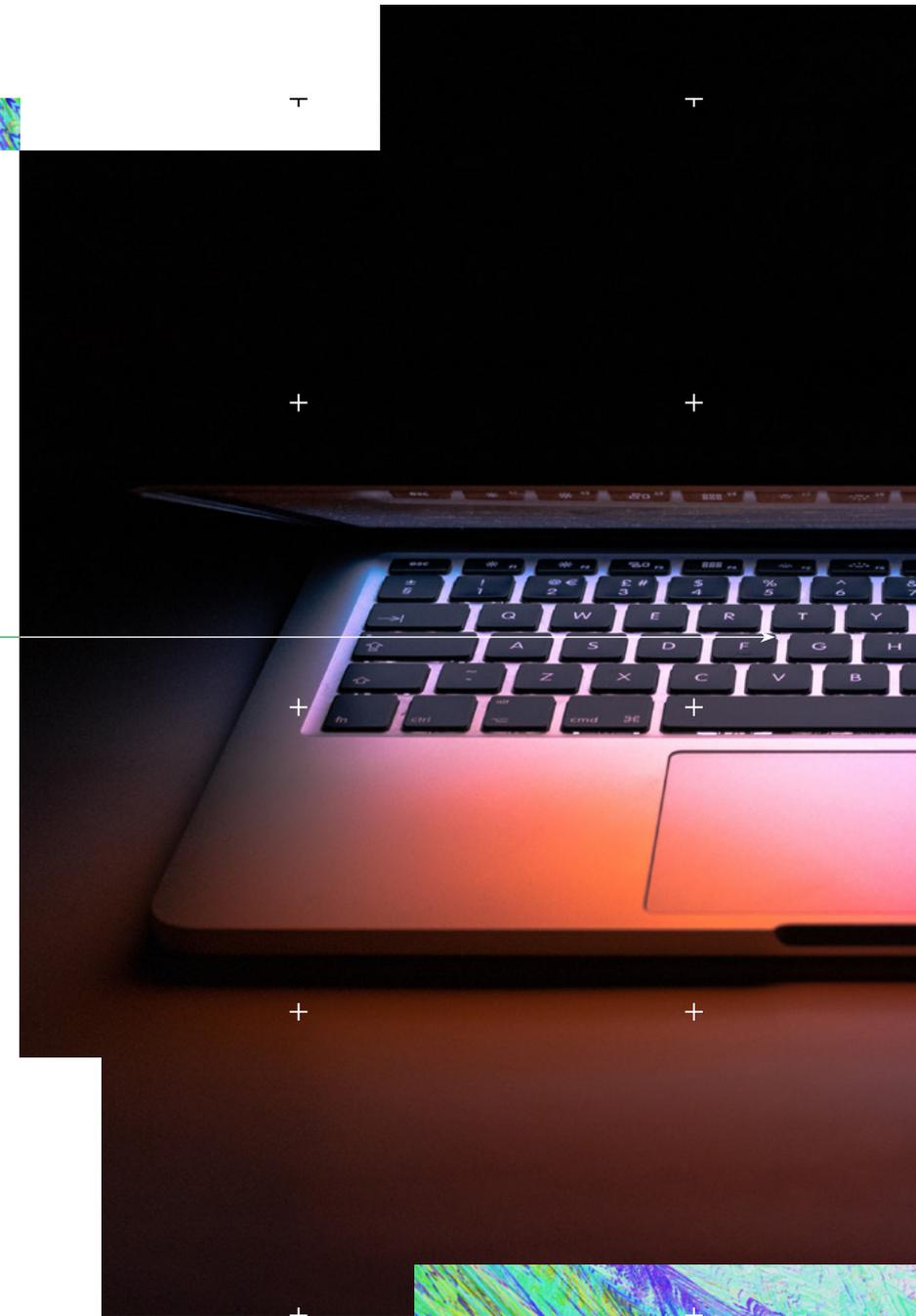
Achieving fairness and equality for a digitally inclusive nation is an ongoing process. The obstacles we have highlighted may seem challenging. But they can be overcome with commitment, deliberate investment, and focused action. By embracing the recommendations this report offers, policymakers and organizational leaders can move us toward a future where all Canadian organizations, regardless of their size, sector, or location, have the opportunity to leverage digital technologies for better services, stronger growth, and greater prosperity for our nation.

Acknowledgements

ENDNOTES

1   Sandrine Kergroach, *SMEs going digital: Policy challenges and recommendations*, OECD Going Digital Toolkit, Policy Note 15, 2021.

2   Jean Laneville, *Seize the Technological Advantage: Why Digitally Mature Companies Perform Better*, Business Development Bank of Canada, May 2022, p. 19.

3   Salim Zanzana and Jessica Martin, *Retail e-commerce and COVID-19: How online sales evolved as in-person shopping resumed*, Statistics Canada, Analysis in Brief, February 21, 2023.

4   Deloitte, *Case study report: Columbia Basin broadband benefits*, January 10, 2022. // Deloitte original research.

5   Mirko Bibic, "Bridging the Urban-Rural Divide: Your Postal Code Should not Determine Your Future," *Policy Magazine*, May 23, 2023.

6   Canadian Radio-television and Telecommunications Commission (CRTC), *Current trends – High-speed broadband*, Communications Market Reports, 2023.

7   OECD, "Profile of Indigenous Canada: Trends and data needs," *Linking Indigenous Communities with Regional Development in Canada*, 2020.

8   CRTC, *Current trends – High-speed broadband*.

9   Statistics Canada, "Projections of the Indigenous populations and households in Canada, 2016 to 2041," The Daily, October 6, 2021.

10 Bassirou Gueye, Amélie Lafrance-Cooke, and Javier Oyarzun, "Characteristics of Indigenous-owned businesses," Statistics Canada, *Economic and Social Reports* 2, no. 12, 2022.

11 Denise Ryan, "Indigenous entrepreneurs poised to make big impact on Canadian economy," *Vancouver Sun*, August 27, 2021.

12 Auditor General of Canada, *Connectivity in Rural and Remote Areas*, 2023 Report 2 of the Auditor General of Canada to the Parliament of Canada, paras. 2.40–2.47.

13 Ibid, para. 2.48.

14 Nova Scotia Department of Economic Development, "Satellite Internet Program Expansion," news release, August 11, 2022; New Brunswick Finance and Treasury Board, "Remote Satellite Internet Rebate Program announced," news release, September 29, 2022.

15 Harry McGee, "Network of 400 remote working hubs planned by end of year," *Irish Times*, January 26, 2022.

16 Blathnaid O'Dea, "Number of remote working hubs in Ireland to pass 300 by end of 2022," *Silicon Republic*, November 24, 2022.

17 Kathryn May, "Ottawa needs thousands of tech workers to serve Canadians properly," *Policy Options*, October 31, 2022.

18 Gartner, "Do Recent Layoffs Mean the Tech Talent Crunch Is Over?" press release, March 7, 2023.

19 See, for example, Jurgen Williams, "Public servant stereotypes: It is not (at) all about being lazy, greedy and corrupt," *Public Administration* 98, 2020, pp. 807–823; Steven Van de Walle, "Context-specific images of the archetypical bureaucrat: persistence and diffusion of the bureaucracy stereotype," *Public Voices* 7, no. 1, 2004, pp. 3–12.

20 Statistics Canada, "Survey of Employers on Workers' Skills, 2021," The Daily, October 3, 2022.

21 OECD, "ICT access and usage by businesses," last updated July 12, 2023.

22 Labour Market Information Council, *Employer-sponsored skills training: A picture of skills training opportunities provided by Canadian employers*, March 2023.

23 OECD, "Recent SME developments and forthcoming challenges," OECD, *OECD SME and Entrepreneurship Outlook 2023*, 2023.

24 Craig Lord, "Open banking could mean cheaper services and a better credit score. What is it?" *Global News*, April 20, 2023.

25 "Small Businesses in Canada Fast Track Open Banking Adoption," *Fintech Times*, February 11, 2023.

26 Anna Fleck, "Cybercrime Expected To Skyrocket in Coming Years," Statista, December 2, 2022.

27 Canadian Centre for Nonprofit Digital Resilience, *Building the Cybersecurity and Resilience of Canada's Nonprofit Sector: A Vision and Strategy for the Sector*, February 2023, p. 5.

28 Edward Segal, "Why Small And Medium-Sized Companies Face More Cyber Challenges Than Large Ones: Survey," *Forbes*, July 13, 2022.

29 Canadian Centre for Cyber Security, *National Cyber Threat Assessment 2023-2024*, October 2022, p. 2.

30 Howard Solomon, "Give tax break so small Canadian firms can invest in cybersecurity, Parliament told," IT World Canada, February 8, 2023.

31 Björn Lundqvist, "An access and transfer right to data—from a competition law perspective," *Journal of Antitrust Enforcement*, Vol. 11, Issue Supplement_1, June 2023, pp. i57–i71.

32 OECD, *Data portability, interoperability and digital platform competition*, OECD Competition Committee Discussion Paper, 2021, pp. 27–44.

33 Markham Erickson and Ali Lange, "Building data portability to help consumers choose," The Keyword, March 9, 2022.

The Future of Canada Centre

The Deloitte Future of Canada Centre facilitates an exploration of new ideas, viewpoints, and insights about our country's most important national issues, with the aim of helping propel Canada into a new age of growth and competitiveness. It houses a team of Deloitte's most innovative thinkers and experienced leaders, who are valued influencers in their respective fields.
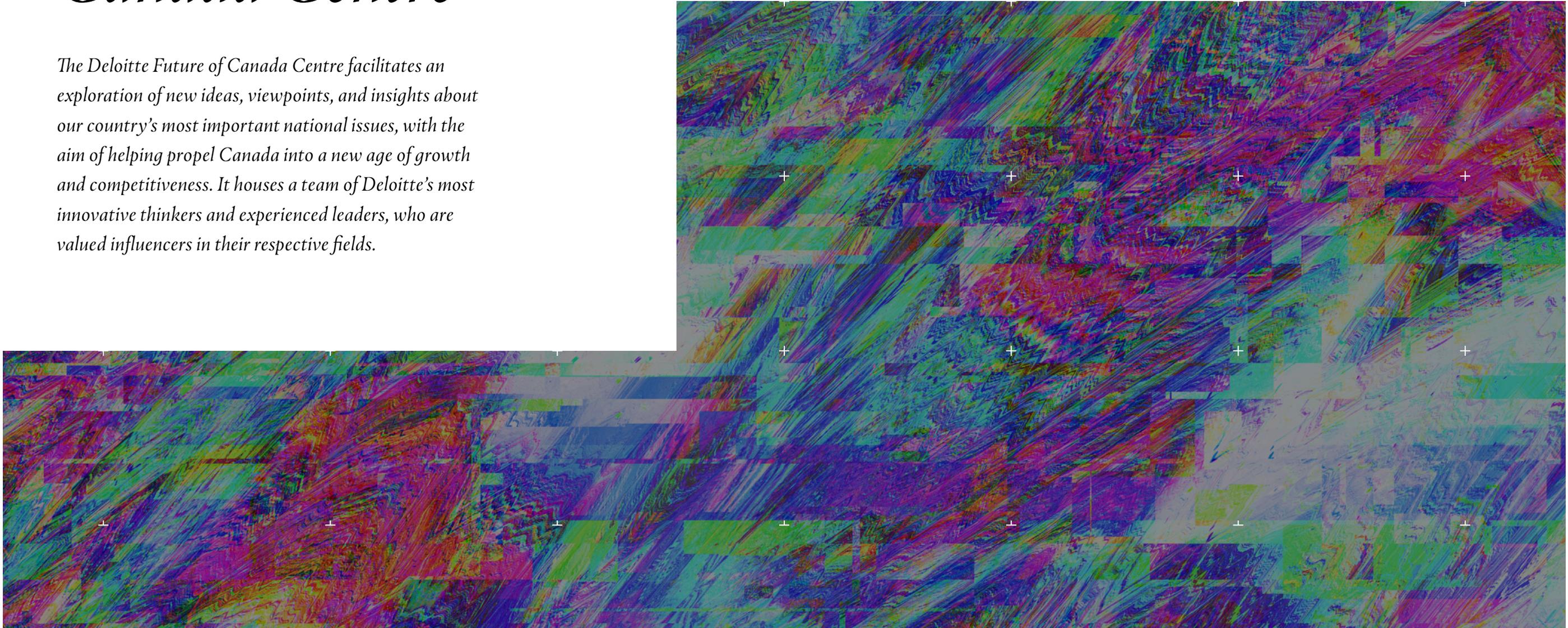
Deloitte.

About Deloitte

Deloitte provides audit and assurance, consulting, financial advisory, risk advisory, tax, and related services to public and private clients spanning multiple industries. Deloitte serves four out of five Fortune Global 500® companies through a globally connected network of member firms in more than 150 countries and territories bringing world-class capabilities, insights, and service to address clients' most complex business challenges. Deloitte LLP, an Ontario limited liability partnership, is the Canadian member firm of Deloitte Touche Tohmatsu Limited. Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.com/about for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

Our global Purpose is making an impact that matters. At Deloitte Canada, that translates into building a better future by accelerating and expanding access to knowledge. We believe we can achieve this Purpose by living our Shared Values to lead the way, serve with integrity, take care of each other, foster inclusion, and collaborate for measurable impact.

To learn more about Deloitte's approximately 412,000 professionals, over 14,000 of whom are part of the Canadian firm, please connect with us on LinkedIn, X (formerly Twitter), Instagram, or Facebook.

Designed and produced by the Agency | Deloitte Canada. 23-7785965