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# Canada's Digital Charter in Action:

## A Plan by Canadians, for Canadians

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# MINISTER'S MESSAGE

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**In 2016, we started a conversation with Canadians on how to foster innovation to build a stronger, more competitive Canada. Together we developed the Innovation and Skills Plan. This plan reflects our commitment to a partnership-driven approach to build innovation ecosystems in Canada and deliver simpler, more efficient and more coordinated supports to firms at all stages of growth and Canadians at every stage of their lives. It is with this same mindset that we move forward on how to make Canada a leader in today's data-driven, digital global economy.**

The National Digital and Data Consultations, launched June 19, 2018, are part of our commitment to continuing to work together to make Canada a nation of innovators. We asked Canadians across the country to share their unique perspectives and ideas on what are some of the challenges and areas of opportunity for Canada in this time of transformation. Canadians responded — from small business owners and multi-national companies; students, teachers, and researchers; innovators and entrepreneurs; and everyone in between.

Canadians shared their optimism about the great social and economic potential for Canada in this digital age. But they also shared their concerns about ensuring that youth are prepared for the workplace of the future, that employees are supported in learning new skills for career changes throughout their lives, and that all Canadians are connected to more fully participate in, and benefit from, the digital economy. They told us that businesses, especially SMEs, need support to embrace digital technology adoption. And, most prominently, we heard that getting data right is a key priority for Canadians.

Data is a powerful tool. It has the potential to drive groundbreaking research and innovation, supporting robotics, artificial intelligence (AI) and the Internet of things. There are, however, real concerns amongst Canadians about how personal data

could be used, and that measures are in place that protect Canadians' privacy and security. Simply put, that the way forward on data collection, management and use must be built on a strong foundation of trust and transparency between citizens, companies and government.

There are also real concerns about violent extremist content online. I was proud to accompany the Prime Minister to Paris in May 2019 where Canada signed the Christchurch Call to Action, a global pledge to work toward eliminating terrorist and violent extremist content online.

I believe that innovation is not possible without trust. Trust and privacy are key to ensuring a strong, competitive economy and building a more inclusive, prosperous Canada. As our world continues to evolve and becomes increasingly more digitized, we must remain proactive, fostering a flexible environment where Canadians can seize the benefits available through the digital economy while maintaining a protective framework that supports our fundamental Canadian values. Addressing digital and data transformation means looking at complex policy questions with no simple, one-size-fits-all response and ensuring that our solutions are based on shared priorities to support our companies and citizens, with trust and privacy at their core. We are committed to principles to guide how data, trust and privacy fit into our plan to grow our economy through innovation and build sustainable growth by leveraging digital and data transformation — as a nation, we can't afford not to get this right.

This is why we are moving forward with an ambitious, aspirational principled approach to digital and data transformation in Canada. The principles are the foundation for a made in Canada digital approach that will guide our policy thinking and actions and will help to build an innovative, people-centred and inclusive digital and data economy. This balanced approach strives to set out the building blocks for a foundation of trust for this digital age that unlocks Canada's innovation potential.

# A NEW DIGITAL REVOLUTION

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We are living in an age that is in many ways defined by the rapid acceleration and convergence of disruptive technologies. These technologies are now an integral part of Canadians' everyday lives. From GPS, to mobile banking, to social media, digital technologies are revolutionizing the way Canadians access information, shop, live, socialize and work. People are creating more data than ever before, spanning a wide range of industries, which if harnessed can be used to advance human knowledge and understanding, improving the ability to analyze challenges, deliver meaningful, user-driven services, and increase productivity and efficiency. Advancements in areas including robotics, AI, quantum computing, and nanotechnology are leading to groundbreaking discoveries with significant economic and social benefits. But while these technological achievements are in many ways enriching society, this transformation also brings with it challenges and uncertainty that Canada must be prepared to address.

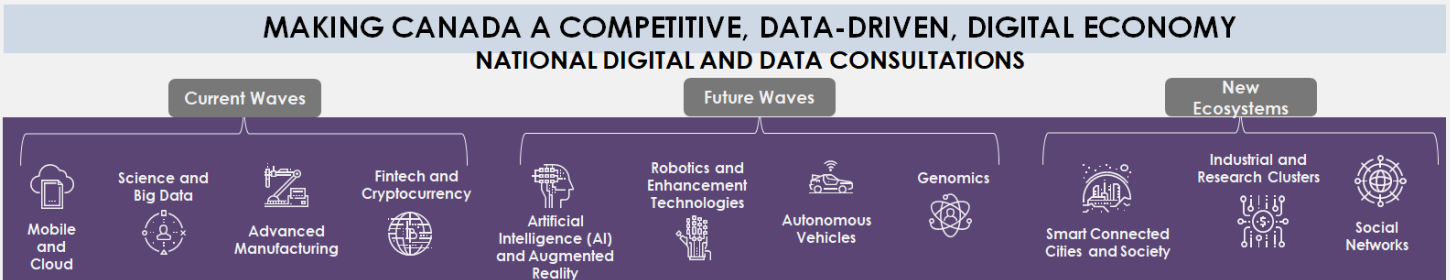
No sector of the economy has been untouched by digital transformation. Automation, digital platforms, and other disruptive technologies are transforming existing industries and opening up new markets, but are leaving some feeling uncertain about how this will affect them going forward. New business

models, such as those that drive the gig economy and the sharing economy, are providing new opportunities for people to choose how they participate in the labour market, but also challenging traditional notions of work. And there is concern around the impact that technological disruption will have on the labour market.

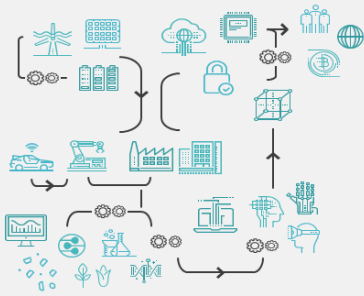
Embracing digital and data-driven technologies provides an opportunity to push the boundaries of what is possible. It will enable Canada to create new business opportunities, foster new, high-value jobs, improve the collective ability to be leaders of change, and create a better quality of life for all. It also means Canada needs a cohesive vision for its digital future that builds on the country's strengths, is flexible and nimble in reducing barriers to innovation, encourages a thriving and secure innovation-based marketplace, and ushers in a new era of Canadian global competitiveness. This means ensuring the workforce has the right skills and supports to be able to quickly respond to change and a strong pipeline of Canadian talent. Most importantly it must be inclusive of all Canadians, taking a partnership approach that ensures everyone has a role to play and is well positioned to benefit.

# Making Canada a Competitive, data-driven, digital economy

## National Digital and Consultations



**Technologies are reshaping the way people live and connect, the nature of work and industrial production**



- Big Data: 90% of the world's data created in the last 2 years
- 80B connected devices by 2025
- Industrial robots to reach 3M by 2020
- AI – Global GDP 14% higher in 2030
- Nearly 10% of jobs automated
- 2B active Facebook users
- 4B Google search per day – 1.2T annually
- Cybercrime to cost \$6T annually by 2021



# A Plan by Canadians for Canadians

In 2016, the Government of Canada set out to develop an ambitious plan for economic growth, creating jobs for Canadians and helping Canadians gain the skills they need to succeed in a competitive global economy. The Innovation and Skills Plan, announced in Budget 2016, takes an integrated, whole-of-government approach that supports firms at all points along the innovation continuum and Canadians at every stage of their lives.

But as the innovation ecosystem changes and shifts, it is important to remain proactive. The Innovation and Skills Plan was always envisioned as a multi-year strategy that would evolve and expand as needed. Significant progress can only be made when working together, which is why the Government has continued its conversation with Canadians. Six

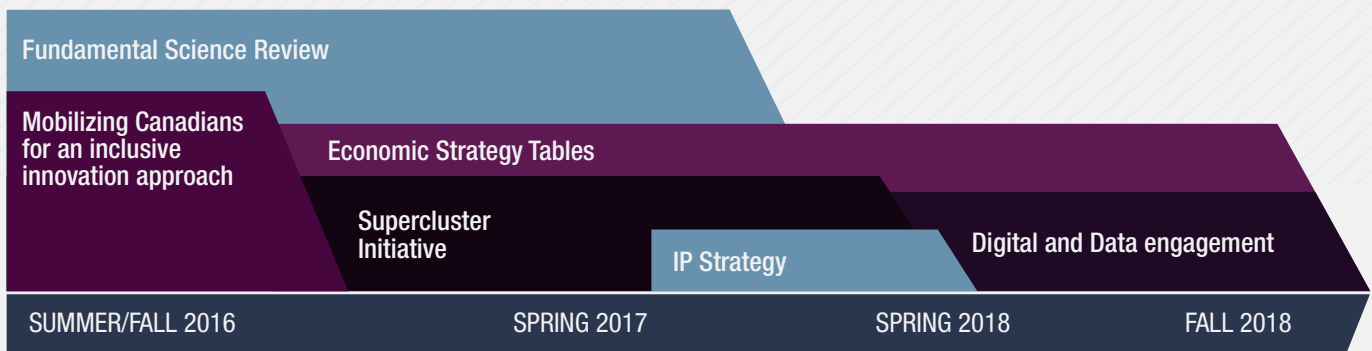
business-led Economic Strategy Tables have provided recommendations in the areas of advanced manufacturing, agri-food, clean technology, digital industries, health/bio-sciences and resources of the future. And in 2018, the Government reached back out to Canadians to help build a collaborative approach to digital and data transformation and inclusion which is the next phase of the innovation-driven agenda.

On June 19, 2018, Minister Bains officially launched the National Digital and Data Consultations with the goal of better understanding how Canada can drive digital innovation, prepare Canadians for the future of work, and ensure they have trust and confidence in how their data is used. Over the following four-month period Canadians from coast to coast shared their insights and ideas on digital and data transformation

and what Canada can do to harness its power for the benefit of all. This includes more than 1,950 written responses received through the consultation web site and other digital platforms.

Minister Bains conducted a series of roundtable discussions with Canadians. So did six respected Digital Innovation Leaders, appointed by the Minister to engage on this important matter. Together, 30 discussions took place across the country between June and September 2018. The leaders reached out to a broad cross-section of society including business leaders, innovators and entrepreneurs, academia, women, youth, Indigenous peoples, provincial and territorial governments, and all Canadians.

## MINISTERIAL ENGAGEMENTS WITH CANADIANS

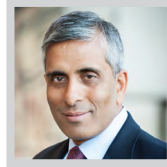


## FPT ENGAGEMENT

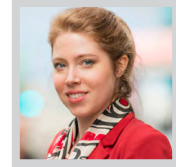
## Digital Engagement Leaders



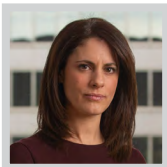
**Janie Béique**  
Executive Vice-President,  
Investments at Fonds de solidarité FTQ



**Dr. Arvind Gupta**  
Professor of Computer Science,  
University of Toronto



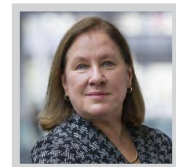
**Dr. Sarah Lubik**  
Director of Entrepreneurship, Simon  
Fraser University



**Carole Piovesan**  
Partner & Co-founder, INQ Data Law  
(formerly lawyer with McCarthy Tétrault)



**Mark Podlasly**  
Founder, Brookmere Management Group  
Co-founder & CEO, North Pacific Energy  
Ltd.



**Dr. Ilse Treurnicht**  
Former CEO, MaRS Discovery District

For full bios, please visit: [Digital innovation leaders](#)

## Engagement Highlights



Ideas



Digital Leaders



Roundtables



Participants



# WHAT CANADIANS SAID

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Through this engagement process Canadians came together to share their vision for a competitive, inclusive, digital and data-driven Canada in three areas:

1. Skills and Talent: Preparing for the Workplace of the Future

2. Unleashing Innovation: Supporting Growth of Competitive Canadian Companies

3. Privacy and Trust: Making Canada a Leader in the Digital Age

## 1. Skills and Talent

### ADDRESSING HOW NEW TECHNOLOGIES IMPACT THE WAY WE WORK, THE JOBS OF TOMORROW AND THE EMPLOYMENT LANDSCAPE

#### The Issue:

The world is in a time of unprecedented transformation, moving at a pace and scale that has never been experienced before. Technology is changing business models, sectors of the economy and the nature of work. Canada has one of the most educated populations in the world, but important skill gaps remain. As the nature of work continues to evolve and technological change accelerates, many employers have difficulty in identifying the specific skills their employees will need. In order to succeed, Canadians must be equipped with the right competencies and provided the flexibility to meet the evolving demands of the workplace. Canada must develop an agile pipeline of talent that remains responsive to the evolving jobs landscape. To grow and scale up, firms must be able to fill

skills gaps through access to global talent and recruiting from a broader, deeper pool of Canadians with strong Science, Technology, Engineering, and Mathematics (STEM), business, creative, and digital skills. All Canadians, including youth, women, Indigenous people and other under-represented groups, must continually train and upskill, and have more opportunities to develop key skills.

#### What we Heard: Digital Skills/Literacy

Canadians told us that it is difficult to predict what the jobs of the future will look like, and what skills will be needed. This creates challenges in predicting what skills gaps Canada will need to fill. To succeed in a labour market marked by digital transformation, individuals will need to draw from a more holistic skill set. It is likely that digital skills, including knowledge of coding, data analytics, AI, and machine learning, will be in demand; however with the rapid pace of technological advancement and shifting business models, it will be important that Canadians are adaptable

and nimble. This means that they will need to complement technical skills with soft skills including critical thinking, leadership and resilience.

We heard that Canada must also recognize that while not all careers in the future will be digital and STEM focused, a basic level of digital literacy will be required to prosper, engage, and protect one's data, as more and more businesses and institutions move towards digitized platforms. Canada must instill comprehensive digital literacy and exposure to STEM skills from a young age, particularly for under-represented groups including women, Indigenous people, and people with disabilities. To build digital resilience, Canada must take a multidisciplinary approach to skills development and training that encourages a life-long learning mentality.

Canadians also reiterated that work-integrated learning and co-op placements are an effective way for students to learn new skills, develop an understanding of the job market, and leave post-secondary

education “work-ready”. Many businesses recognized the value of leveraging work-integrated learning and are working in partnership with academia through programs like MITACS or embedding educational programs directly within their own organizations.

## Upskilling and Reskilling

Canadians told us that they recognize automation and other innovative technologies have the ability to boost efficiency and help companies scale up and grow. However, they told us we must be mindful of potential disruption to the labour market. Canadians must have support to develop the skills and competencies needed at all stages of work, and across any career changes. Canada must look at smart, efficient and timely ways to train individuals so they are able to transition as quickly and smoothly as possible.

To do so, Canada may need to rethink how we view skills, looking at an individual’s broad skillset rather than relying solely on credentials. For example, according to RBC’s report on the coming skills revolution, it could take upgrading as few as four competencies to help move from being a dental assistant to a graphic designer<sup>1</sup>. Rather than requiring an entirely new skill set to switch careers, some suggested that if Canada looks to break jobs down by their core skills and provide targeted training, it would support smooth career transitions.

We also heard that Canada needs to diversify how people attain skills. In today’s diverse ecosystem, individuals have options beyond traditional education systems. Many people are self-teaching or accessing programming through community resources, online resources, skill bootcamps, internships, etc. Canada must continue to support flexible, cost-effective options for attaining new skills in short time frames. Canada could leverage the work of other countries such as Singapore, which promotes a life-long learning approach through credits for all citizens to use towards new skill training.

## Access to Talent

We heard that across Canada and in multiple sectors businesses are seeing a shortage of skilled workers necessary to succeed in a digitally driven economy. While this shortage includes STEM disciplines, it is also pronounced in key soft skills including leadership, communication, critical thinking, and sales. Technologically savvy individuals also don’t necessarily think to integrate their skills in to non-tech sectors such as mining, natural resources, banking, etc., where interesting digital and STEM careers exist but are overlooked.

Canadians told us that skill shortages are particularly prominent in smaller and remote communities. In these areas, skilled graduates are often pulled to larger metropolitan areas like Toronto and Montréal, and those who aren’t are often hired by larger companies, which restricts

the ability of small businesses and start-ups to attract workers. Competing for a limited talent pool means that businesses must get creative in their search for skilled workers. Many are reaching out to young people directly in highschool or even younger, raising awareness about careers and job opportunities they may not know exist. Many are also looking outside Canada, drawing from a global talent pool, and leveraging Canada’s reputation as a trusted and prosperous country.

## Global Talent

Canadians told us that in a global economy, businesses and universities must be enabled to bring in the most qualified people. It will be important to continue to market Canada as a destination of choice for the world’s best and brightest. This means continuing to lessen the burden for entry through processes that are quick and cost effective. Retaining these workers means providing opportunities for career advancement and enabling an inclusive and welcoming environment for them and their families, such as through exploring more freedom for visa holders spouses to contribute to Canada’s economy. To further leverage the expertise and experience of world-class talent, Canada could facilitate knowledge sharing through opportunities such as adjunct professorships with academic institutions or in-house residencies with public sector institutions.

1. Royal Bank of Canada. (March, 2018). Humans Wanted: How Canadian youth can thrive in the age of disruption, Office of the CEO.

We heard that Canada must also attract and retain top-level international students who choose to study in Canada. Many foreign students look to gain permanent residency following their studies in Canada. However, between 2004 and 2013 only 25% of students actually remained in Canada following graduation<sup>2</sup>, and many of those report lower earnings than Canadian-born graduates<sup>3</sup>. Canada could look at supports and pathways to retain high-potential foreign graduates, so we as a country are able to benefit from the knowledge, skills and differing world perspectives they possess.

### Diversity, Inclusivity and Accessibility

We heard that diversity has been shown to be a competitive advantage for businesses — it makes good business sense to increase participation and retention of underrepresented people in the tech sector and other STEM disciplines. Women, people with disabilities, Indigenous people, new Canadians, etc. think differently about technology and bring a new perspective that can help increase creativity, commercialization and innovation. In the workplace, while we are seeing positive movement on inclusion, Canada still must work to shift the culture to build a welcoming environment.

We also heard that Canada must ensure that the benefits of a digital and data-driven society are available to all. This means ensuring accessibility considerations for people with disabilities are integrated into technology from the outset. It means ensuring affordable Internet access to low-income individuals and those in rural and remote areas, including Canada's North. And it means casting a wider net in regards to digital literacy, skills and training opportunities.

### Changing Labour Models

Canadians highlighted that as a country and as a society, we are seeing the emergence of new thinking about labour market models that are a break from what was once thought of as the standard—a 40-hour workweek, working within a building or factory, and having the same employer for 30 or more years. People's expectations and desires are shifting and the economy is shifting with them. This is especially true for young Canadians.

For instance, the gig economy, where individuals can be "contractors" completing short term employment, is growing at a rapid rate within Canada<sup>4</sup>. While this may not be attractive for all workers, it poses an interesting option for those who may be looking for more flexible work. Even within more traditional workplaces, we are seeing a shift in how people work with digital technologies,

opening up the possibility to work remotely, start your own business from anywhere in Canada, and partner globally. However, we heard that many of our systems have been built on a traditional view of the labour market and Canada must examine whether our supports and frameworks are modern and flexible enough to address the needs of all Canadians in the labour force.

We are also seeing a movement, largely led by younger Canadians, who are looking for a more holistic work environment. In this economy, skilled workers have more choice, and many want lifestyle companies with progressive environments that support work-life balance. Organizations are finding themselves having to adapt in order to attract and retain talent.

## 2. Unleashing Innovation

**ENSURING CANADIAN BUSINESSES CAN REMAIN COMPETITIVE IN A DIGITAL AGE, ADAPT THEIR TRADITIONAL APPROACHES, AND IDENTIFY, ADOPT AND IMPLEMENT DIGITAL AND DATA-DRIVEN TECHNOLOGIES**

### The Issue:

Digital adoption and embracing new technology-enabled business practices fuel productivity, economic growth,

2. Yuqian Lu and Feng Hou (2015). Insights on Canadian Society. International students who become permanent residents in Canada.

3. Statistics Canada (2017). Study: International Students, Immigration and Earnings Growth.

4. BMO Wealth Management (2018). The Gig Economy.

and international competitiveness.

Technological transformation is characterized not only by the acceleration of technological advancement, but also by the increased integration and convergence of technologies. These new technologies are transforming existing industries, creating new business models, empowering innovation, and driving growth. For instance, AI could potentially deliver additional economic output of around US\$13T by 2030, boosting global GDP by about 1.2% a year<sup>5</sup>. The global connected and autonomous vehicles market is projected to reach a value of approximately CAD\$1.5T by 2035<sup>6</sup>. Also by 2035, 5G wireless technology is projected to enable US\$12.3T of global economic output<sup>7</sup>.

Yet, Canadian firms are slow adopters of new technology, ranking low on robots per worker (20th in the OECD) and e-commerce (21st in the OECD)<sup>8</sup>. Canada also continues to struggle to scale firms to their full potential. This is particularly challenging in an era of increasing global competition for leadership in digital and data-driven domains. Finally, while the Government is working to ensure all Canadians are connected, 16% of households do not have access to high-speed internet meeting government service objectives<sup>9</sup>.

## What we Heard: Connectivity for Economic Growth across Canada

Canadians told us that in today's digital economy, access to reliable and affordable high-speed Internet is critical for success. Canadians rely more and more on digital infrastructure for social inclusion—connecting people, particularly those in rural and remote areas, to vital services, educational resources, economic opportunities, and to each other. Access to high-speed Internet for Indigenous, rural and remote communities, including those in the North, allows for greater diversity and inclusion in Canada's digital economy. While progress has been made to connect rural and remote areas, gaps persist.

We also heard that affordability continues to be a persistent issue. Canada ranks among the most expensive countries in the G7 for many telecommunication services including mobile wireless and Internet<sup>10</sup>. Given how much we as Canadians rely on telecom technology for our social and economic prosperity, we were told that this is restricting the ability for all Canadians, particularly low-income Canadians, to participate fully.

Canadians highlighted that one of Canada's greatest strengths is its research excellence and investment in

innovative research and development (R&D). We must continue to support the digital infrastructure, including high-performance computing, data storage centres, and high-speed networks, which are necessary to continue this legacy.

## Capacity Building for Technology Adoption

Canadians told us that digital and data-driven technologies provide businesses a wealth of opportunity, allowing for greater efficiency, innovation and interconnectedness, in order to grow and compete globally. However, many businesses, particularly those in more traditional sectors, are not fully aware of how they can apply digitization or what specific benefits they could see. And technological solutions are not a one-size-fits-all. Industries, and even individual businesses, have different needs, different capabilities, and are in different stages of tech adoption. Businesses must have supports to evaluate their needs, identify areas where technology can benefit them, and then find and implement the solution that is the best fit.

We heard that even when businesses are ready and willing to integrate digital and data-driven technologies into their organizations, many do not have the capacity internally to implement and

5. McKinsey Global Institute. (2018). Notes from the AI frontier: Modeling the impact of AI on the world economy.

6. Transport Systems Catapult. (2017, July). Market Forecast for Connected and Autonomous Vehicles.

7. IHS Economics. (2017). The 5G economy: How 5G technology will contribute to the global economy.

8. OECD. (2017). OECD Science, Technology and Industry Scorecard 2017.

9. The Canadian Radio-television and Telecommunications Commission (CRTC). (2018). Communication Monitoring Report 2018.

10. Wall Communications Inc. (August, 2018). Price Comparisons of Wireline, Wireless and Internet Services in Canada and with Foreign Jurisdictions.

are unsure where to go to access the resources and expertise needed to take advantage of these innovations. This is not a size issue as both larger organizations looking to increase production through automation, and small and medium-sized enterprises (SMEs) looking to build a website and sell online, struggle to identify how to best implement.

We also heard that to truly be a nation of innovators, we must build a culture of innovation, one that embraces resilience and risk. We are seeing a productivity gap emerging as other countries embrace technologies and leverage them as a competitive advantage. Canada must be a leader, embrace change and make big bets in areas of strength. Those who quickly adapt are best placed to benefit from the new digital marketplace.

### Building Partnerships

Canadians reiterated that we are always stronger together, and strong partnerships are foundational for many aspects of addressing digital and data transformation. Facilitating greater partnership and mutually beneficial clusters, such as those underway through the Innovation Superclusters Initiative, can help establish connections and build competitiveness in areas where Canada already leads. Working together with government, industry, academia, etc. will help build expertise, attract investment, and involving students through work-integrated learning programs will help build skills.

We heard that institutions including universities, colleges and governments remain siloed which can create difficulties in being responsive to the changing economic and social landscape. Particularly in regards to identifying and addressing skills gaps, partnerships between academia (universities and colleges), industry and government are vital. We also heard of the need to look at different models of accreditation.

## 3. Privacy and Trust

### SUPPORTING INNOVATION, PROTECTING PRIVACY INTERESTS AND PROMOTING TRUST WHEN IT COMES TO DATA

#### The Issue:

Digital and data transformation has led to an explosion of data, with a large proportion of the world's data created recently<sup>11</sup>. Data is helping to fuel innovations like AI, machine learning, and the Internet of things, however the rapid acceleration of data being created, and its use as a commodity means Canada must re-evaluate the frameworks it has in place. While the *Personal Information Protection and Electronic Documents Act* (PIPEDA) and other marketplace frameworks continue to provide important protections, particularly as they were situated as technologically neutral in orientation, there remains important questions about how to ensure these frameworks are transparent, and have the appropriate approach to maintain Canadian's privacy and trust in an increasingly data-driven world.

## What we Heard: Data Trust and Control

Canadians told us that data is a valuable resource helping to drive innovation, power machine learning, and improve services for Canadians. However, we must ensure that while we support the greater use of data we are also protecting the trust and privacy of Canadians. The issue is complex with important questions around data access, ownership, use, and the consent and controls available to both citizens and providers.

What is clear is that Canadians want more transparency in how their data is being collected and how it is being used. Current consent-based models with complex and lengthy privacy policies are inadequate and do not help to build trust. People also want greater control over their personal data, and flexible options such as portability that allows citizens to transfer their data in order to fuel choice and competition. A commitment to privacy and maintaining trust must be a fundamental principle of any approach to data management for both private and public entities and should be built in to the design of digital systems from their inception.

Recognizing that not all data is created equal and there is no one-size-fits-all model for data, we heard that different approaches to data management should be considered that all respect Canada's core values including a right to privacy. It is important that any mechanism ensures openness and transparency, and instills

11. IBM Marketing Cloud, (2016). *10 Key Marketing Trends For 2017*.

the importance of engaging the consumer to instill confidence and maximize the innovative possibilities. Access to data can have great value to individuals and Canada as a whole. Ultimately, Canadians need to be equipped with the appropriate information, tools and digital literacy skills required to weigh the benefits and risks in order to make an informed decision.

### **Clear and Responsive Marketplace Frameworks**

Canada has a mature regulatory environment, however with the growing complexity of vast amounts of data flows, privacy, and cross-border markets, many Canadian companies, in particular SMEs, expressed difficulty understanding how best to comply with existing data and privacy legislation and the corresponding regulations.

Canadians told us that the current privacy legislation, PIPEDA, needs to be modernized and streamlined however, the Government must ensure that updates both support innovation and protect Canadians. Rules must be supported by clear guidance on implementation and applicability, and must consider effective and appropriate enforcement measures to hold players accountable and ensure Canadians have confidence and trust in these protections. Effective enforcement must also include ease of understanding and compliance, strong advocacy, and a commitment to due process in order to not add undue burden and costs to firms.

We also heard that updates must consider emerging privacy norms,

particularly internationally, and work coherently across other important marketplace frameworks, including competition and intellectual property, as well as emerging regulations for particular disruptive technologies and business models, such as blockchain or open banking. The Government must consider the accelerated pace at which the technological ecosystem evolves and ensure that measures are agile and flexible enough to remain responsive. And it is important to continue working proactively and in partnership with industry to ensure benefits for both businesses and citizens are optimized.

### **Putting Data to Use for Canadians**

Researchers have used data for a variety of reasons; to drive scientific discovery, to better understand the world, and to make informed policy decisions. Canadians told us that data has the potential to further refine and enhance these uses while creating new and exciting data innovations. However, these benefits are only as good as the data used, and Canada must ensure that its data vision aims to be inclusive, using unbiased and representative data, benefiting all Canadians.

This necessitates building frameworks that are committed to interoperability, including across provincial and territorial borders. Smart and efficient data-sharing and data storage solutions should be explored allowing for experimentation and shared benefits to Canadians. This could include building data trusts in areas such as health, clean technology or agri-business. Interoperability should

also apply on a global scale, through international collaboration and alignment with existing frameworks including the EU's General Data Protection Regulation (GDPR).

Finally, we heard that Canada has an opportunity to be proactive and take a leadership role in emerging areas in digital and data management, helping to establish benchmarks or global standards to support areas such as AI, machine learning, and autonomous vehicles. Allowing for internationally driven certifications and standardizations could bring some certainty to these disruptive markets and allow Canada to help shape global norms.

### **Security**

Canadians told us that digital threats including, security breaches, data misuse and manipulation, malware, etc., help to underscore the importance of strong cybersecurity measures for businesses and citizens. Many SMEs, particularly in "non-tech" sectors (eg. natural resources) might not realize they need to consider cybersecurity until it is too late. We heard that greater awareness is needed on how to protect Canadians from threats. Businesses must be supported to build both capacity to implement cybersecurity measures and knowledge of its importance, including leveraging relationships across the supply chain. Cybersecurity is also a large industry in and of itself. Canada has an opportunity to better understand threats and use its reputation as a stable and trusted nation to welcome sector investment.

## What Young Canadians Said

While most young Canadians have grown up in a world already driven by rapid technological advancements, they still share many of the same goals and concerns as the rest of the country. They believe access to technology is essential to participation in the digital economy, whether through basic infrastructure or increased educational, training and digital literacy programs. They want to ensure all Canadians, including those with disabilities and those in rural and remote communities, have access to the benefits that digital technology can bring. They also want to see digital and data transformation used to improve our institutions by improving digital government services, and by removing barriers to education through online resources and integrated technologies.

Young Canadians also feel that privacy and trust are critical to our democracy and essential to ensuring full participation in the digital economy. While data has great value and benefits, Canada must have greater transparency around privacy agreements, what it means to give consent and how data is being used. Canada must also ensure our democratic institutions are not undermined by the spreading of false information. Finally young Canadians worry about what digital and data transformation will mean for the future of work and their prospects for stable jobs and secure benefits.

## What Women Said

Supporting and empowering women for the digital and data-driven economy means supporting and empowering women in Canada's overall economy. Women today have access to participate in Canada's economy more than ever before. However, policies and supports for primary care givers must continue to evolve as these affect women's opportunities for promotion and work-life balance. Canada must also continue to work to increase female representation in corporate and academic leadership roles.

To benefit from women participating in Canada's economy there is a need to modernize and balance policies and regulations to incentivise diversification and discourage

restrictive practices. There is also a need to adjust current, and establish new, regulations as well as create more responsibility for monitoring and enforcement.

Canadians need to see what female leadership looks like and are asking for more female role models for themselves and for their children. Recent changes to Canada Research Chairs demonstrated a focused policy change that provided much-needed female academic support. Now there is a desire to take it further with formally recognizing more women in areas such as the Order of Canada, and promoting women in technology and history.

## What Indigenous Peoples Said

Access to affordable and reliable digital infrastructure is of great importance to Indigenous people. Critical infrastructure, both backbone and last-mile, is essential for the inclusion and participation of many Indigenous communities, allowing for remote access to education, health supports, and government resources, as well as for participation in an interconnected, digital economy.

The Government must respect that Indigenous People are best placed to address their own challenges and must be empowered to find solutions that fit their core values and unique perspective. This is particularly true around data ownership where many Indigenous people value the principles

of Ownership, Control, Access, and Possession (OCAP) and the goal of data sovereignty.

Digital and data transformation has the potential to enable greater inclusion and economic participation for Canada's Indigenous people. Canada must ensure that technology investments are inclusive and viewed through the lens of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Canada must also ensure that Indigenous youth are provided the skills and training they need to succeed and that Indigenous-led businesses have access to funding and opportunities to thrive and grow.

## What New Canadians Said

The digital economy is growing rapidly and Canadian universities and colleges are having difficulties keeping pace with demand for the skilled individuals necessary to remain competitive. Immigrants can play a crucial role in bridging this gap as a large percentage of Canadians with STEM degrees are immigrants. Although there are many pathways for immigrants to join the Canadian workforce, we must do more to recruit and retain future Canadians and maintain our competitive edge as we continue to grow the middle class.

Many avenues are available to bring in new talent from abroad such as through the Federal Skilled Worker program

and our world-class colleges and universities with Canada being a country of choice for international students. However, immigrants face further barriers to entry. For example, many employers in the tech sector hire through pre-existing networks—limiting options for new Canadians who may be highly qualified but lack Canadian work experience.

Canada must better maximize the potential of skilled immigrants, while continuing to attract and retain global talent. We must also continue to help all new Canadians to gain the digital literacy and fundamental skills they need to better participate in Canada's digital economy.



## What Seniors Said

The rapid advancement and integration of digital and data-driven technologies risks leaving some people behind, including seniors. Older Canadians want technology-enabled solutions that provide benefits to society but that do not increase social isolation for seniors, add undue burden, or over complicate processes.

Many seniors express concern for what digital and data transformation means in terms of the workplace. Those who wish to remain active in the labour market or even in their communities are unsure what skills they will need. We as a country must support the University of the Third Age, which aims to educate and involve seniors as meaningful

participants in our digital future. Seniors need increased and individually adapted supports to help them develop their digital skills, reskill if necessary, and stay engaged in a digital environment.

While Canada itself is a safe country, the interconnectedness of a digital world increases the risk for fraud, predatory practices, and cyber threats against vulnerable people, including seniors. Canada must strengthen its regulatory and legislative frameworks to protect all citizens against cybercrime and other digital-related threats, including breaches of privacy by businesses.

# SO WHAT'S NEXT?

Canada is part of a diverse and interconnected global marketplace that is marked by heightened competition, greater economic volatility, and new geopolitical uncertainties. Digital and data transformation will profoundly impact not just Canada, but countries around the world.

Canada has the right ingredients to thrive in an increasingly digital world including a strong capacity for research, a diverse and highly educated workforce, and a robust investment climate. Canadians are tech savvy and well-connected with 89% of people and 98% of businesses connected to the Internet<sup>12,13</sup>. 88% of Canadians have a mobile device<sup>14</sup>. On average, 18 to 34 year old Canadians spend five hours a day on the Internet<sup>15</sup>. And through targeted investments in science, innovation and sustainable growth, Canada has built a strong economic foundation.

However, the country also faces some challenges. Canadian businesses are poised to leverage digital and data-driven technologies in order to increase

efficiency and productivity to stimulate growth and competitiveness. Yet Canadian technology adoption and investment lags behind other countries. There have been great strides through targeted investment to bridge the digital divide in Canada, but due to its large and unique geography, there are still those who lack access to high-speed, affordable digital services, particularly in rural, remote and Indigenous communities. Canadians also have real concerns around trust and security. For example, data breaches have raised questions and public concern around data ownership, and how data is collected, used, and protected. Cybercrime, including malware and fraud, is dangerous and estimated to cost the world US\$6T annually by 2021<sup>16</sup>.

This is why the Government is undertaking a principled approach that will guide future thinking and actions to ensure they are aligned with the values that are important to Canadians. These principles are also aligned with work of other international partners and organizations, such as the principles put forth by the Organisation for Economic

Co-operation and Development (OECD) as part of their Going Digital project to support the development and implementation of digital government strategies to bring governments closer to citizens and businesses, and G7 international efforts on AI.

## The Global Landscape Globally Connected

- Half the global population are online (UN ITU, 2018)
- 5 billion global mobile devices (GSMA Intelligence, 2017)
- 2 billion Facebook monthly users (Forbes, 2017)

## Digital Growth

- Global e-commerce has increased almost four-fold from USD\$495B in 2005 to USD\$1.9T in 2016 (McKinsey, 2017)
- By 2035, 5G wireless technology projected to enable USD\$12.3T of global economic output (IHS Economics, 2017)

## New Marketplaces

- The global autonomous cars/driverless cars market is projected to reach a value of approximately CAD\$1.5T by 2035 (Transport Systems Catapult, 2017)
- AI expected to deliver around USD\$13T in additional economic output by 2030 (McKinsey, 2018)

12. Statistics Canada (2017). Table 11-10-0228-01 Dwelling characteristics and household equipment

at time of interview, Canada, regions and provinces

13. OECD. (2017). OECD Digital Economy Outlook 2017.

14. Statistics Canada. (2017). Dwelling characteristics and household equipment at time of interview, Canada, regions and provinces.

15. Media Technology Monitor (March, 2017). Internet Use in the Home: analysis of the English Language Market.

16. Cyber Security Ventures (2017). Official Annual Cybercrime Report. <https://cybersecurityventures.com/hackerpocalypse-cybercrime-report-2016/>

# A PRINCIPLED APPROACH TO DIGITAL AND DATA TRANSFORMATION

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The Government asked Canadians to share their ideas and insights on how Canada can foster an innovative, people-centred and inclusive digital and data economy, and they responded loud and clear. The following draft 10 principles will help guide the federal government's work, serving as a digital charter for Canadians to help address challenges and leverage Canada's unique talents and strengths in order to harness the power of digital and data transformation. These principles reflect what we heard from Canadians and are the building blocks of a foundation of trust for this digital age. The principles may still evolve over time as it is important to make sure that this continues to be the right approach.

One example of how the Government is advancing these principles is a commitment to examine the viability of certain changes to PIPEDA to ensure that it continues to meet its stated purpose of maintaining trust and confidence in the marketplace. Building on changes already made, such as new mandatory breach reporting regulations, the Government will engage with stakeholders on issues such as consent, enforcement, online reputation, transparency, and data mobility.

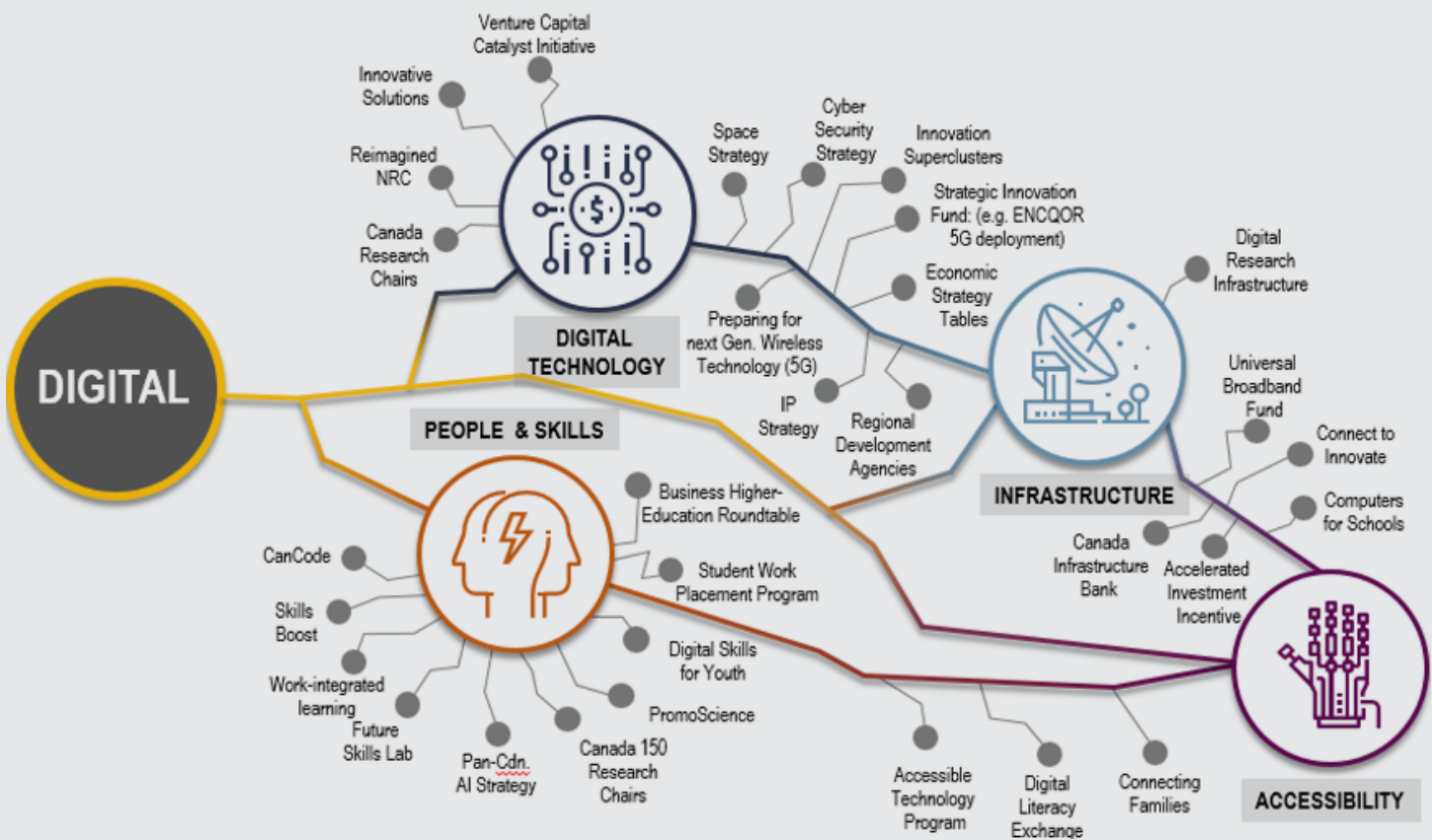
The Government will continue to speak with Canadians to ensure that these principles and priorities remain those that Canadians need to succeed in the digital economy.

## Canada's Digital Charter Principles

<b>1</b> Universal Access	<b>6</b> A Level Playing Field
<b>2</b> Safety and Security	<b>7</b> Data and Digital for Good
<b>3</b> Control and Consent	<b>8</b> Strong Democracy
<b>4</b> Transparency, Portability and Interoperability	<b>9</b> Free from Hate and Violent Extremism
<b>5</b> Open and Modern Digital Government	<b>10</b> Strong Enforcement and Real Accountability

# Canada's Digital Charter in Action

The Government is already taking action through the Innovation and Skills Plan to make Canada a competitive, data-driven digital economy:



## Connecting Canadians: Providing Access, Skills and Tools

To be able to fully participate in, and benefit from the digital economy requires a fully connected Canada, where Canadians and businesses have the access and tools and skills they need to fully participate in the economic and social benefits of a digital and data-driven economy.

The Government knows connecting Canadians is vital, which is why the

Connect to Innovate program is investing CAD\$500M in rural and remote communities across Canada, helping Canadians to more fully participate in, and benefit from, the digital economy. This program is helping to build high-capacity backbone into more than 900 rural and remote communities, including 190 Indigenous communities. Connecting Canadians will continue to be a priority, and to achieve this, Budget 2019 announced a coordinated plan that would deliver CAD\$5B to CAD\$6B in new investments towards building a connected

Canada - with a national target of having 100% of Canadian homes and businesses connected to the internet with speeds of 50/10 Mbps by 2030.

The Connecting Families initiative helps Canadian families access affordable home Internet and bridge the digital divide. The Computers for Schools program provided 7,500 refurbished computers to Syrian refugees in Canada. And the Accessible Technology Program provides support for the development of assistive and adaptive digital devices

and technologies to help Canadians with disabilities take full advantage of technology.

The Government continues to ensure Canadians have the skills necessary to thrive in a digital economy, including support to increase the participation of underrepresented groups and youth in the digital economy and expand the pool of highly qualified workers. Budget 2019 provided CAD\$60M in new funding for the CanCode program which will support one million more young Canadians to gain coding and digital literacy.

The Digital Literacy Exchange is supporting education on basic digital skills to those most affected by digital divides, including seniors, low-income Canadians, Indigenous people, and those living in northern and rural communities. This will help ensure Canadians are equipped to make informed choices on how and when they consent to their data being shared.

Work Integrated Learning programs will connect 10,000 young Canadians with potential employers, helping them develop the skills they need to succeed in the workplace, and ensuring Canadian businesses have the pipeline of talent they need to grow. Work-integrated learning is a valuable tool for both business and students, which is why Budget 2019 provided funding for the Business/Higher Education Roundtable to help forge partnerships with the goal of creating an additional 44,000 work-

integrated learning opportunities for young Canadians by 2021.

The Global Skills Strategy is making it easier for businesses to access the top talent they need by getting highly-skilled workers into our country faster. Budget 2019 also made the Global Talent Stream a permanent program to give Canadian businesses expedited, predictable access to global talent.

The Youth Employment Strategy will focus on providing supports to youth, particularly those facing barriers to employment, to gain essential skills, including digital skills and work experience. This will include launching a youth digital gateway that provides streamlined digital access to programming, services and supports.

## Keeping Canadians Safe and Secure

As we drive towards a more connected, digitally enhanced society, the safety and security of Canada's digital and data platforms remains at the forefront.

The Government is working to keep Canadians safe. In 2018 the Government announced a new National Cyber Security Strategy, putting in place a framework to help protect citizens and businesses from cyber threats and take advantage of the economic opportunities afforded by digital technology. The Strategy includes increased cyber security guidance for SMEs, the consolidation of the Government's cyber security operations into the new Canadian

Centre for Cyber Security, and the creation of a National Cybercrime Coordination Unit within the Royal Canadian Mounted Police (RCMP).

The Government will continue to put the safety and security of all Canadians as a top priority. Budget 2019 took steps to ensure Canada's critical infrastructure, including in the finance, telecommunications, energy and transport sectors, is protected from cyber threats. Funding will also go to support Public Safety Canada, Global Affairs Canada, and Innovation, Science and Economic Development Canada (ISED) to work together to enhance outreach and engage with stakeholders including Canadian businesses on cyber security, and raise awareness of threats.

Cyber security as an economic sector is growing and cyber security skills are in high demand. This is why Budget 2019 provided funding to grow Canada's advantage in the cyber security sector by supporting private-academic partnerships to expand R&D, commercialization, and the talent pipeline.

In order to support a renewed marketplace framework, the Government will look at how codes of practice, certification and standards can be used to adapt principles-based law to particular sectors, activities, or technologies, and to make frameworks more agile. These tools can be important for encouraging development and implementation of new data governance mechanisms, such as data trusts. Towards this, the Government

will continue to support the work of the Standards Council of Canada.

In particular, to support the innovation ecosystem and ensure Canadian companies remain competitive globally, the Canadian Data Governance Standardization Collaborative aims to examine areas of data governance where standardization may be useful and deliver a comprehensive roadmap to get us there. It will work to accelerate the development of critical industry-wide data governance standards and specifications. The Collaborative will foster coordination and collaboration among business, standards-developing organizations, governments and regulators, and others. The Government of Canada will also work to ensure that data produced through federal funding programs or public-private partnerships be made more readily available to government in order to better support evidence-based policy making.

Furthermore, a new Canadian Statistics Advisory Council will provide advice to the Minister of Innovation, Science and Economic Development, and the Chief Statistician on the overall quality of the national statistical system. Members of the council will come from different backgrounds and horizons to bring a broad viewpoint and expertise and to ensure thoughtful advice encompasses the perspectives of all stakeholders promoting relevance, accessibility and timeliness of data while protecting the privacy of all Canadians.

Canada must continue to support researchers and civil society in understanding and addressing radicalization to violence online in Canada. The Government of Canada will also continue its bilateral and multilateral efforts to work with digital industry to better address violent extremist and terrorist use of the internet and online hate, in concert with other Federal Government efforts to address online harm.

Canada recently signed the Christchurch Call to Action, a global pledge to eradicate terrorist and violent extremist content online, led by New Zealand and France. The pledge is a response to the Christchurch attack at two mosques in New Zealand, where the perpetrator discussed his intentions online and subsequently livestreamed the attack. Through the Call to Action, governments and major online service providers have made voluntary, collective commitments to prevent people from abusing the Internet for violent extremist and terrorist purposes. These commitments include: increasing transparency and accountability in expressing community standards, terms of service, and content moderation on the part of online service providers; building more inclusive, resilient communities to counter violent radicalization; enforcing laws that stop the production and dissemination of terrorist and extremist content online; and encouraging media to apply ethical rules when reporting on terrorist events

to avoid amplifying violent extremist and terrorist content.

## Consent, Control and Transparency of Data

To be competitive, Canada must have a modern regulatory framework that is responsive and agile, promoting greater digital and data-driven innovation through clear guidance while providing for adequate enforcement measures to maintain trust.

While many Canadians recognize that the use of data can greatly benefit them, leading to better service delivery, more tailored user experiences, and greater system efficiency, there are very real concerns about data privacy and control that must be addressed. The Government is looking at how to support greater control for consumers through modernizing the privacy ecosystem and ensuring Canadians have the confidence to take full advantage of the opportunities that come from data-driven innovations.

The Government recognizes the need to promote greater understanding and openness so Canadians are better equipped to make decisions on how and when their personal data is collected and used. And to create an environment that holds those who break the rules accountable for their actions.

The Government recently took concrete action to protect Canadians' privacy. New mandatory breach reporting regulations

are now in place in Canada, reinforcing organizations' responsibilities to come clean about significant breaches that affect consumers. Under these new rules, companies will have to inform Canadians if their private information has been lost or stolen, and if they have been placed at risk of harm. Companies also have to report these breaches to the Privacy Commissioner of Canada and maintain records of all data breaches for at least two years. These regulations will provide Canadians with the information they need to protect themselves, and will encourage stronger information security practices on the part of organizations who handle the personal information of Canadians.

The Office of the Privacy Commissioner of Canada provides education and guidance to individuals about protecting personal information. The office also enforces Canada's two federal privacy laws, PIPEDA and the *Privacy Act*, which set out the rules for how private and public sector organizations respectively, must handle personal information. The Office of the Privacy Commissioner, under PIPEDA, has existing agreements with provincial and international counterparts to share information to conduct investigations jointly or in parallel. It has conducted many interventions using these agreements.

In a June 2018 Government Response to recommendations made in a Parliamentary report on PIPEDA, the Government committed to reforming the Act. Through release of a discussion paper

the Government will examine the viability of certain proposed changes to PIPEDA to ensure that it can continue to meet its stated purpose of maintaining trust and confidence in the online marketplace. Building on recent changes highlighted above, the paper will frame discussions with stakeholders on issues such as consent, enforcement, online reputation, transparency, and data mobility. Individuals need an opportunity to provide consent in a way that is meaningful and informed.

To this end, the paper proposes that individuals should be provided plain language information about the handling of their personal information including when automated decision making is used. The discussion paper will specifically examine how introducing data mobility requirements within the legislation could support greater individual control over data and promote consumer choice. This has the potential to create and grow entirely new and innovative goods and services. The paper also looks to strengthen enforcement mechanisms including enhanced penalties that support compliance by organizations with these proposed new rules.

As part of the Government's continued commitment to update PIPEDA, the discussion paper will examine options for ensuring that the rules for use of personal information in a commercial context are clear and enforceable, and that there are appropriate incentives for compliance. The Government has also committed to looking at ways to simplify

the structure and language of the Act to make it more accessible to consumers and small businesses.

Budget 2019 committed additional funding for the Office of the Privacy Commissioner of Canada to enable greater engagement with Canadians on important issues and to support businesses' efforts to comply with PIPEDA. The Government will also examine a number of options to strengthen the enforcement powers of the Commissioner, and to increase their ability to collaborate with other key enforcement bodies on matters that pertain to privacy, competition and the broader data economy.

The Government will also examine emerging approaches to other policies across Government, such as those related to competition and privacy, as means to addressing issues posed by a digital and data-driven economy. The Government will prioritize any recommendations that touch on digital and data considerations in the context of the ongoing copyright review. It is increasingly important that all our policies and laws across Government provide the necessary transparency and confidence for Canadians particularly given the rise of algorithms and predictive decision-making.

The Government is committed to reviewing other marketplace framework policies to ensure they are able to address the reality of new technological systems in the digital age. This includes modernizing Canada's anti-spam legislation (CASL) and reviewing

enhanced e-protection measures, where appropriate, to make sure that the Act is clear and effective. In its April 2018 Response to the Parliamentary study of CASL, the Government agreed to work with stakeholders to identify concrete solutions that will ensure that the Act both protects Canadians from spam and other electronic threats and minimizes the cost and administrative burden of compliance for organizations.

This also includes looking at the results of reviews of the *Telecommunications Act*, *Broadcasting Act* and *Radiocommunication Act* and moving forward with updates that promote competition and affordability for Internet and mobile wireless.

## Supporting Innovation

The Government recognizes that supporting Canadians and businesses in their digital interactions with government requires a commitment to improving service design, delivery and our own digital capabilities. And that the government must embrace the digital age, through modernized internal operations and leveraging the power of public data to support evidence-based policy making while protecting the trust and privacy of all Canadians.

Canada will continue to foster digital and data leadership by supporting Canadian businesses and consumers to create, enhance and adopt innovative approaches to doing businesses in the digital age. The Government will encourage businesses

in all sectors to take full advantage of the technological advancements that will help them to grow and compete, and strives to put in place the innovation ecosystem that will get them there by enabling partnerships and capacity building.

Through investments in initiatives such as the Innovative Superclusters and Innovative Solutions Canada, the Government of Canada is further strengthening Canada's innovation ecosystem and promoting collaborative and inclusive growth. Under the Strategic Innovation Fund (SIF) companies can receive funding to advance industrial R&D and technology demonstration by developing collaborative partnerships. The new Intellectual Property Strategy, launched in 2018, will help Canadian entrepreneurs better understand and protect their intellectual property (IP), and get better access to shared IP.

Significant investments have also been made in Innovation Canada, a single window to ease the burden for innovators and entrepreneurs in finding programs and services. Since January 2018, Innovation Canada has already saved 340,000 Canadians millions of hours spent searching for the right government supports. Budget 2018 highlighted Innovation Canada as a single window for businesses to help them save time figuring out which department to go to or which program best meets their needs. Innovation Canada is a trusted service provider that also helps SMEs find and access government tenders, innovation

challenges, researchers and research facilities, municipal assistance, export promotion supports, as well as permits and licences.

The Government has also kept the dialogue going with Canadians on key questions related to the data and digital economy. The six Economic Strategy Tables, launched in Budget 2017, recently released their recommendation report and recognized the importance of prioritizing technology adoption, the need for a modern privacy and data protection regime, the value of data trusts, and the need for compatibility with the European Union's General Data Protection Regulation (GDPR).

The Government also recognizes that access to leading-edge infrastructure and connectivity is paramount to industrial growth and enabling Canadians' participation in both the digital economy and society at large. In addition to the commitments to investments in connectivity, the Government's 2018 Fall Economic Statement introduced the Accelerated Investment Incentive which will help accelerate the deployment of next-generation digital technologies, such as 5G connectivity.

To support the innovation ecosystem and ensure Canadian companies remain competitive globally, the Canadian Data Governance Standardization Collaborative will work to accelerate the development of critical industry-wide data governance standards and specifications. The



Collaborative will foster coordination and collaboration among business, standards-developing organizations, governments and regulators, and others. The Government of Canada will also work to ensure that data produced through federal funding programs or public-private partnerships be made more readily available to government in order to better support evidence-based policy making.

## The Value of Data

Canada must continue to foster collaborative partnerships on the global stage that allow Canadian leadership and values to shape the conversation on digital and data-driven technologies and the future of the digital economy.

Data is a valuable resource and a key component in many advanced technologies including AI. Canada has a strategic advantage as a world leader in AI due in large part to our historic strength in domestic talent, research and skills. Canada's decades-long commitment to public funding of AI research has paid off, with world-leading and world-recognized hubs of AI research established in Toronto-Waterloo, Montréal, Edmonton, and Vancouver.

The Canadian Institute for Advanced Research (CIFAR) is leading the Government of Canada's CAD\$125M Pan-Canadian Artificial Intelligence Strategy, which promotes collaboration, talent building and research on AI among Canada's already well-developed centres of AI expertise.

Unlocking the potential of data will help support the growth of Canadian firms, particularly in AI where Canada has a competitive advantage. However, given its ubiquitous nature, its ability to traverse international borders with ease, and the sensitivities around trust and privacy, it is a complex issue. Canada continues to support bilateral and multilateral commitments relating to the cross-border transfer of information, as well as commitments, which seek to prevent data localization requirements.

Canada is also engaged internationally to promote the global interoperability of privacy frameworks. Following the commitment made by G7 Innovation Ministers during their Ministerial Meeting on Preparing for Jobs of the Future, Canada hosted a G7 Multi-stakeholder Conference on Artificial Intelligence on December 6, 2018 in Montréal. This built on the G7 Innovation Ministers' Statement on AI, and the G7 Leaders' Charlevoix Common Vision for the Future of Artificial Intelligence.

Also in 2018, Canada's Prime Minister and France's Secretary of State for Digital Affairs announced collaboration on establishment of the International Panel on Artificial Intelligence (IPAI). The IPAI will foster international collaboration to advance a shared understanding of AI issues and to support and guide the responsible adoption of AI that is human-centric and grounded in human rights, inclusion, diversity, innovation and economic growth.

Canada will continue to work with our international partners to address matters of importance and promote areas where Canada has a competitive advantage. This means continuing to promote global interoperability of frameworks on the global stage. Canada will maintain its support for progressive trade objective including reinforcing its established position on digital trade issues. This means encouraging responsible cross-border data transfers as well as commitments, which seek to prevent governments from requiring data localization.

Canada will work towards greater alignment of our marketplace frameworks with international best practices, where necessary. Canada's status of providing an adequate level of privacy protection for transfers of personal information from the European Union continues to be a priority.

Canada will continue to work with international organizations, such as the OECD (Going Digital project) and collaborate with the World Economic Forum (WEF) on data governance policy. In January 2019, at the WEF Annual Meeting in Davos, the Government announced that Canada will partner with WEF's Center for the Fourth Industrial Revolution on the development of data policy, and the marketplace frameworks that underpin its use, flow, and economic value.

# CONCLUSION

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This is a pivotal time in history where harnessing technological advancements is no longer just a competitive advantage, it is a necessity for prosperity. Canada has the potential to be at the forefront of digital and data transformation but without real action, there is a risk of falling behind. Positioning Canada as a world leader in today's digital and data-driven economy requires a national collaborative effort across all sectors and stakeholders. Canada has a strong foundation to be a global centre of innovation. And its greatest asset continues to be its people. This is why ensuring all Canadians have the capabilities and opportunities to benefit from an inclusive digital and data-driven economy is key to navigating this evolving digital landscape.

This is an opportunity to build a digital legacy for Canada. The Government of Canada has made significant investments in Canada's digital future but must continue driving forward. Using this principled approach to guide future supports and investments, Canada can leverage innovative technologies to build and grow world-class businesses, commercialize new and innovative products and services, build partnerships and participate in high-value global value chains to not only compete but lead on the world stage.