CATALYST

FUTURE OF CANADA CENTRE

Building Canada's brightest AI future

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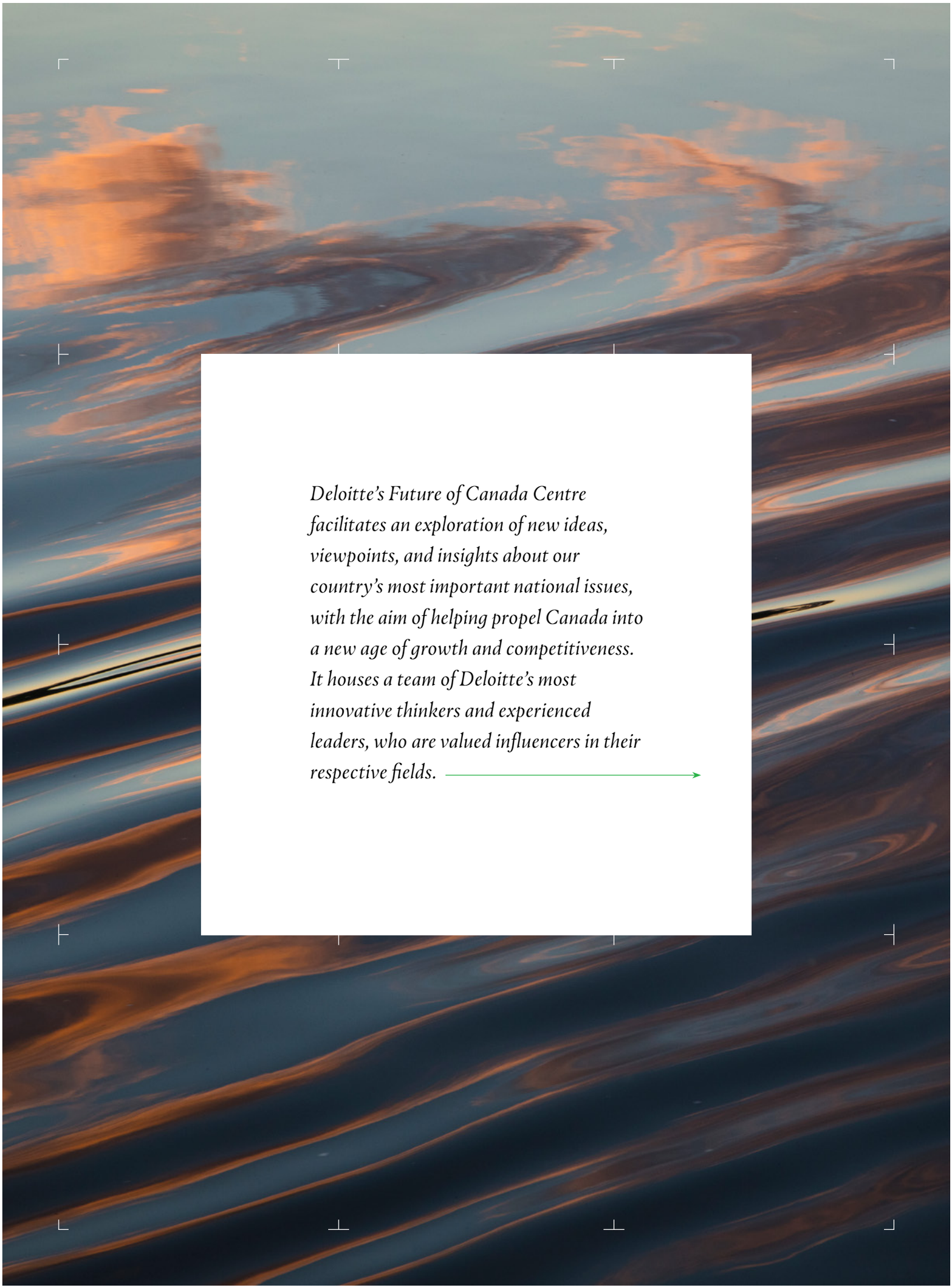
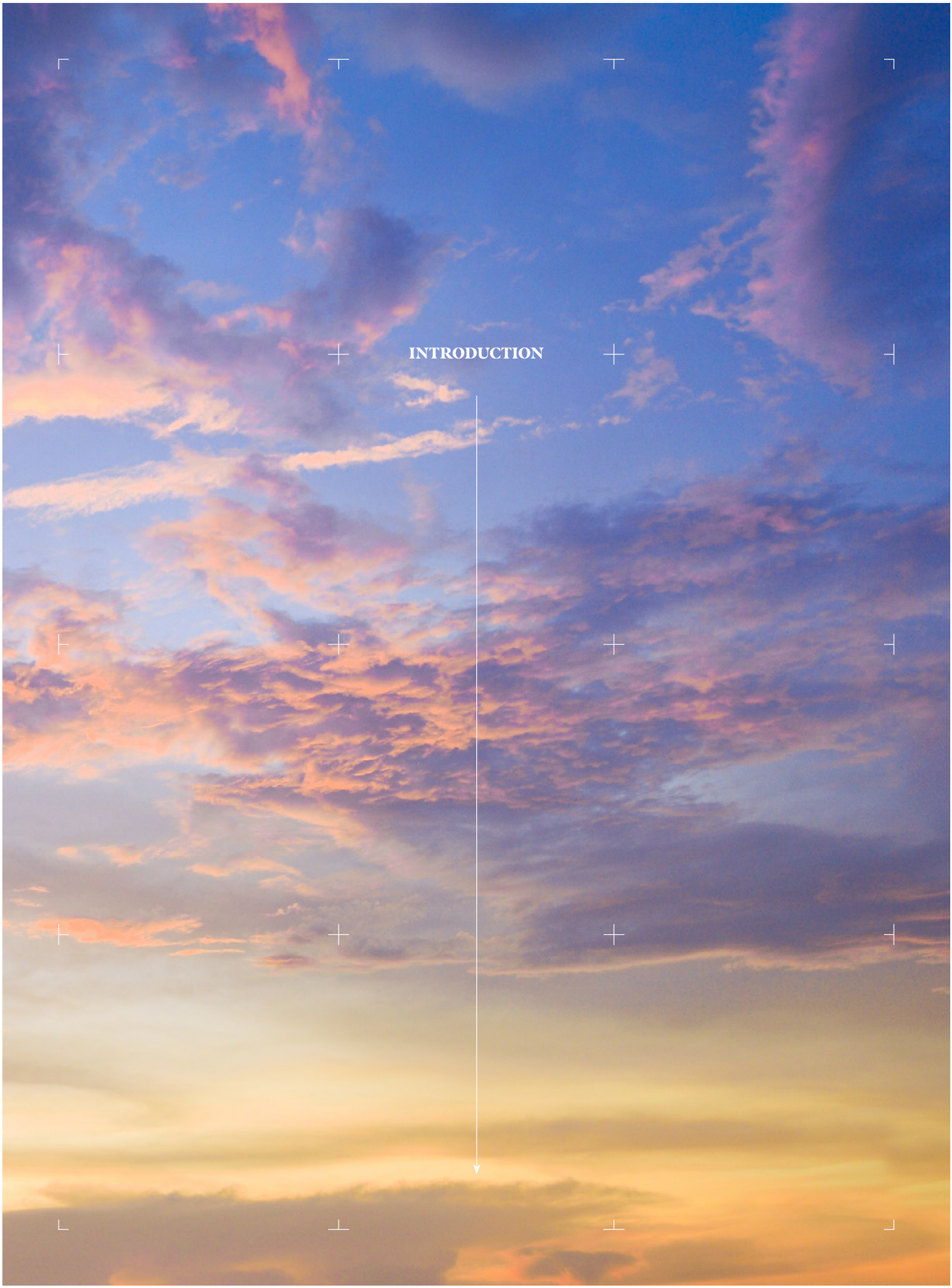


Deloitte's Future of Canada Centre facilitates an exploration of new ideas, viewpoints, and insights about our country's most important national issues, with the aim of helping propel Canada into a new age of growth and competitiveness. It houses a team of Deloitte's most innovative thinkers and experienced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

CONTENTS


INTRODUCTION

In an era when technological marvels once confined to science fiction are being woven into the fabric of our daily lives, ***Artificial Intelligence (AI)***** stands out as a beacon of potential for Canada. Amid a national productivity crisis and associated stagnation in Canadians' average standard of living, the enthusiasm for AI's capabilities to enhance efficiency and spur innovation-fuelled growth is as fervent as ever.*[1]

***Defining artificial intelligence (AI)**

AI is a general term that has many applications. Some fields of AI involve production machinery, while others are software programs or even simple algorithms incorporated into online services to help guide human decision-making. Work is ongoing to find a consensus definition of AI, but member countries of the Organisation for Economic Co-operation and Development (OECD) have reached a consensus on the definition of an AI system:[2]

> *An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.*

As indicators for how transformative a given AI system is, we can look to the sophistication of its outputs and its levels of autonomy and adaptiveness after its deployment. In this paper, we focus primarily, but not exclusively, on AI systems with higher transformative potential.

While AI-driven productivity gains are difficult to predict—mainly because the size and timing of those gains depend on how quickly and broadly AI is adopted—one estimate suggests that Canada's real GDP could potentially be 5% to 8% higher in the next 10 years due to AI adoption, implying an annual increase in productivity of about 0.5% to 0.7%.[3]

Canada believes in AI's transformative potential, as evidenced by the country's significant investments in AI research and development, infrastructure, and commercialization. In the 2024 federal budget, the Canadian government announced a substantial investment of $2.4 billion to bolster the country's AI ecosystem. A significant portion of this funding, $2 billion, was earmarked for building and providing access to computing capabilities and technological infrastructure for Canada's leading AI researchers, startups, and scale-ups, supported by a new Canadian AI Sovereign Compute Strategy.[4] These investments demonstrate Canada's broad commitments across various points of the AI value chain, from early-stage academic research and the commercialization of AI startups and scale-ups to the acceleration of AI adoption and support for workers impacted by AI.

With such strong commitments and the unique advantages of a national AI strategy, world-renowned research institutes, and an impressive pool of AI talent, Canada is well-positioned to harness its AI potential. Yet, despite this strong foundation, whether Canada can fully realize the positive potential of AI depends on our ability to overcome long-standing strategic issues like sluggish business investment in technology, an excessively risk-averse mindset, barriers to commercialization of intellectual property (IP), and a significant trust gap on the part of Canadians. If we fail to address these hurdles, we risk being left behind in the AI economy, losing our competitive edge, and missing out on a generational opportunity to revive productivity growth and raise living standards. In other words, we risk repeating history and missing the AI wave, just as we missed the Internet wave in the early 2000s—the effects of which are still felt today.[5]

Today, **the question is not whether AI will transform Canada, but when, where, and, most importantly, how**. It's time for the conversation shift from *why* AI is important to *how* it can be effectively implemented and sustained. We are at an inflection point, a moment of transition in which many strategic leaders and decision-makers are advancing beyond exploration and experimentation toward a focus on how to scale and sustain AI in ways that deliver lasting economic and social benefits.

To support Canadian leaders as they work to determine *how* to scale and sustain AI for their organizations, we have developed a framework that addresses the three interconnected imperatives that stand between current-state AI implementation in Canada and the realization of the country's highest AI potential. Our framework invites leaders to identify and develop winning approaches that:

1 **Define ambition with a relentless focus on value creation**

2 **Build trust by cultivating responsible AI, supporting AI literacy, and fostering human-AI synergy**

3 **Commit to AI for good by embracing equitable, sustainable AI**

Decisions surrounding AI are among the most consequential that Canadian leaders will make. In addition to their impacts on organizational performance, productivity, and economic growth, these decisions will affect national security, cybersecurity, the resilience of our critical infrastructure, and Canada's influence on the world stage. Ultimately, these decisions could profoundly impact Canadians' everyday lives; this report imagines what those impacts could look like through stories set in 2030 featuring the fictional *Singh family*. By embracing the three imperatives of our framework, leaders can not only navigate AI's complexities to create and capture more value for their organizations, but also contribute to building a bright future for all.

Meet the Singhs

The Singh family includes Devansh "Dev" Singh, his wife, Eleanor, and their two children, 14-year-old Myrah and two-year-old Amar. Dev is a second-generation Sikh man in his early 40s; he works as a design engineer for a solar company. Eleanor is of English and Scottish descent in her late 30s, with a professional background in utilities. The family lives in Mississauga, Ontario, just a few blocks away from Dev's parents. Dev's extended family lives in India in the Punjab region, while Eleanor's family hails from Winnipeg. Eleanor's sister, Jean, still lives in Manitoba, in a small community in the north of the province.

INSIGHTS FROM CANADIAN BUSINESS AND POLICY LEADERS

Unlocking the full potential of AI in Canada will require collaboration between businesses, policymakers, and ecosystem organizations. Businesses, as digital transformation accelerators, will help shape and execute Canada's bold vision for the future of AI. Policymakers play a crucial role by developing regulations, championing responsible AI development, and creating an environment that fosters innovation while ensuring public trust. They are also instrumental in investing in AI infrastructure and supporting skills training to prepare Canadians for AI-driven changes.

AI ecosystem organizations, such as the national AI institutes (Amii in Edmonton, Mila in Montreal, and the Vector Institute in Toronto), serve as vital bridges between scientists, researchers, experts, and the broader Canadian society. These organizations convene stakeholders, facilitate knowledge transfer, and help translate cutting-edge research into practical applications for businesses and policymakers. By fostering collaboration and providing resources, they contribute to building a strong AI ecosystem that can drive innovation, attract investment, and position Canada as a global leader in responsible AI development and adoption.

Deloitte's Future of Canada Centre held a structured AI roundtable discussion in June 2024 with leaders in academia, public policy, applied research, and the private sector to unpack the role of policy and legislation in driving positive AI outcomes. We also interviewed nine Canadian AI leaders and consulted with several senior Deloitte leaders to better understand what the future of AI in Canada could look like, what's needed to achieve a brighter, more human-centred AI future, and what barriers Canada must overcome.

Together, these discussions illuminated four of the most important questions for Canadian leaders to prioritize to achieve a positive AI future for Canada:

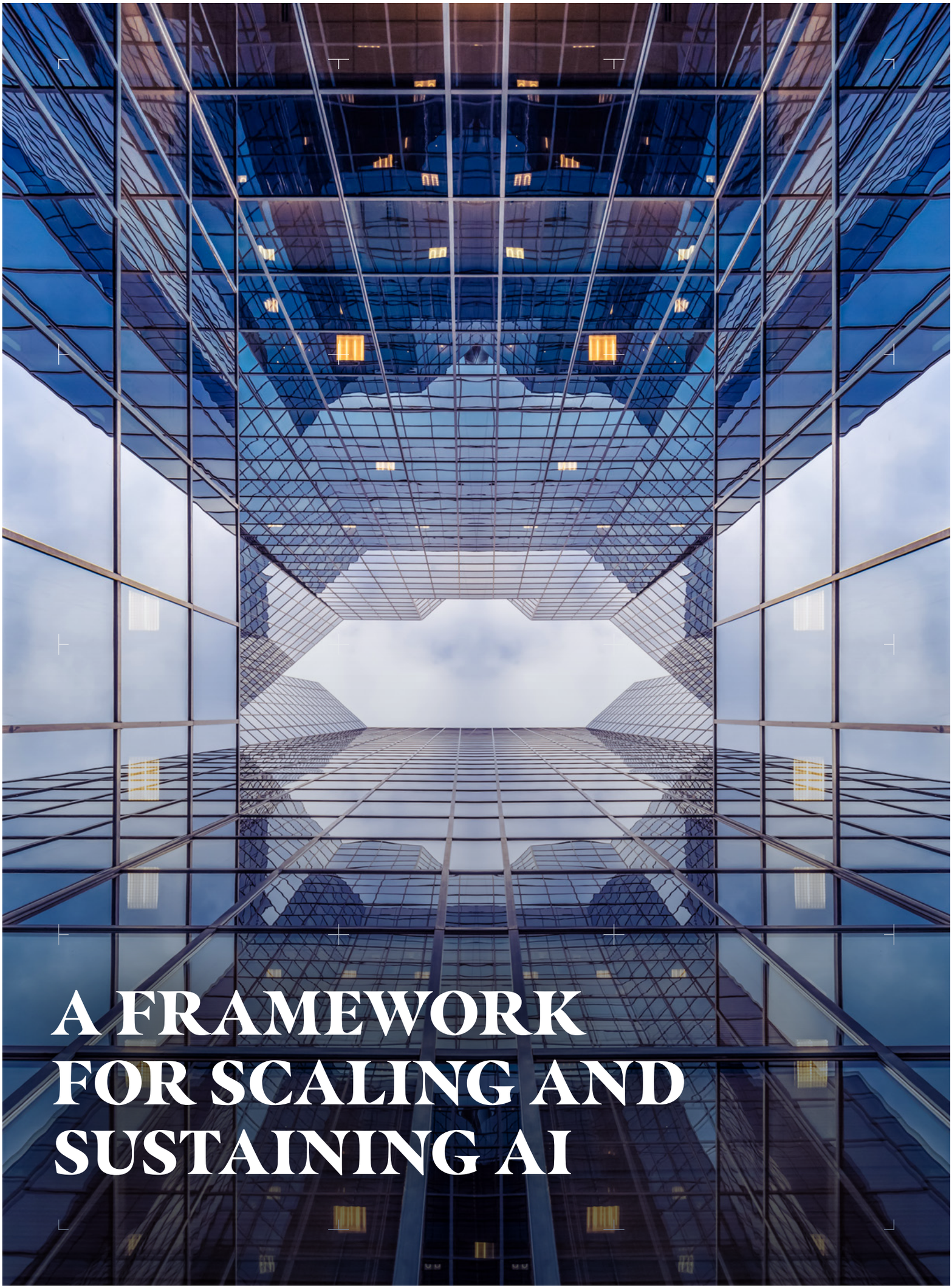
1. ***How can Canada promote and advance an ambitious AI vision for the next five years?***

2. ***Which bold AI-focused bets can Canada make today for a better tomorrow?***

3. ***How can Canada overcome the trust gap and work toward more intentional, strategic collaboration between humans and AI?***

4. ***How can Canada lead the charge in building an equitable, sustainable AI-powered economy?***

The framework in the following pages will help leaders think through these questions for their respective purposes. While we designed it primarily for organizations at the scaling stage of their AI journeys, we hope that organizations at all stages—including those that are just beginning to explore potential applications of AI—will find it useful.



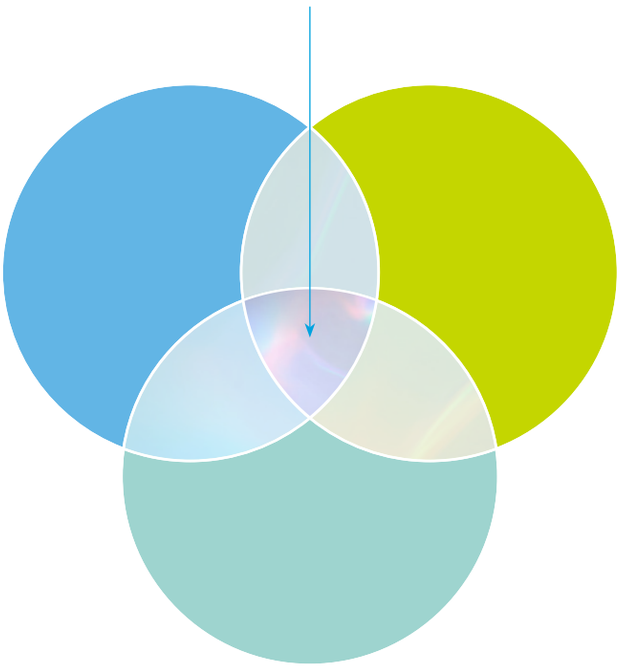
A FRAMEWORK FOR SCALING AND SUSTAINING AI

Canada's brightest AI future

1

Ambition

combines a visionary mindset with a sharp focus on creating value for stakeholders—including shareholders, employees, and customers, clients, or constituents (as the case may be).



3

AI for good

drives success beyond bottom-line financial results, ensuring that AI creates positive societal impacts for Canadians, our communities, and our environment.

2

Trust

is cultivated by establishing responsible AI governance, supporting AI literacy, and by fostering human-AI synergy.

Deloitte's Future of Canada Centre developed a framework to help all organizations and policymakers scale and sustain AI in Canada that consists of three interconnected imperatives:

1. *Define **ambition** with a relentless focus on value creation*
2. *Build **trust** by cultivating responsible AI, supporting AI literacy, and fostering human-AI synergy*
3. *Commit to **AI for good** by prioritizing equitable, sustainable AI*

The three elements of this framework are interdependent and mutually reinforcing, forming networks of positive feedback loops. Appropriately channelled ambition is the engine that drives significant organizational and societal impact. Positive societal impact builds trust among stakeholders. Trust, in turn, acts as a permission mechanism for ambition, enabling leaders to dream bigger and continue to innovate.

The interconnections between these elements underscore **the importance of using the full framework to achieve the best possible outcomes** at organizational, sectoral, and national levels. Each element is vital to maintaining positive AI-powered growth and innovation. Failure to deliver on any of these fronts can break the cycle, leading to stagnation. Lack of ambition results in missed opportunities to deliver positive societal impacts; failing to deliver positive societal impacts damages trust; and inadequate trust and lack of stakeholder buy-in constrains ambition.

By embracing this comprehensive approach, Canadian leaders across sectors can overcome current challenges and chart the course to a prosperous, equitable, and sustainable AI-powered future.

DEFINING AMBITION: VISION AND FOCUS

Ambition, when harnessed effectively, is a powerful force driving individuals, organizations, and nations toward a brighter future. Unfortunately, Canada has an ambition problem. Part of this problem is a risk-averse culture.[6] But most of this problem is structural: when it comes to realizing their scaled ambitions, organizations are contending with real barriers.

For one, Canada's incentives to promote innovation and IP ownership are imperfect.[7] Low and declining competitive intensity is also a factor: Statistics Canada data suggests that businesses facing more competitors are more likely to introduce innovations.[8]

Canadian scale-ups face especially acute barriers. There's no shortage of ambitious Canadian founders, and our startup scene is strong, but high-growth companies struggle to scale here, faced with the challenge of a comparatively small home market alongside regulatory barriers, suboptimal innovation policy, and inadequate access to growth capital.[9] Technology leaders have also cited lengthy and cumbersome procurement processes as a barrier.[10] Infrastructure gaps are another challenge: Canada has the lowest amount of publicly-available computing infrastructure and performance among G7 countries—our computing performance is half that of the UK, which holds the second-lowest spot.[11]

If Canada is to achieve its brightest AI future, we must address the cultural and structural barriers keeping organizations from realizing their scaled ambitions. To do this, our framework urges strategic leaders and policymakers to channel ambition through bold **vision** and deliberate **focus** on value creation. Leaders with strong AI fluency will have an advantage here.

Vision

According to Capital Economics, Canada is ranked ninth out of 33 countries best placed to benefit from AI and its effects over the coming decades, with its productivity growth forecasted to average around 1.5% per year during the 2030s—the second-highest forecasted growth rate among G7 countries, surpassed only by the United States (2.3% per year).[12]

This potential is exciting, but it would be a mistake to treat forecasted gains as guaranteed. To capitalize on the opportunities that AI presents, Canadian organizations need a clear vision for what they want to achieve with AI, accompanied by an ambitious action plan to realize that vision. At the national level, Canada must set a vision for the future of the country that boldly declares where we will lead and what we want to be known for.

> *"We're at the beginning of a historic transition, a moment where everything becomes possible, and we need to create accountability. Canada has many competitive advantages, but where will we show real leadership? We need to plant a flag."*
>
> *—Valérie Pisano, President and CEO, Mila – Quebec AI Institute*

There are already troubling indicators that we're not moving fast enough. A survey conducted in March 2023 of 375 business executives and senior managers operating enterprises across Canada found that Canadian enterprises are lagging in AI adoption compared to their global counterparts: just 26% of surveyed organizations reported having launched one or more AI implementations, compared with 34% globally.[13] Deloitte research has shown that fast-moving businesses and countries will have the best data pools, models, and infrastructure, allowing them to pull ahead and create outsized value using AI. In addition, these countries will have access to superior products and services, attracting capital and setting industry standards that provide a competitive advantage.[14]

Given AI's potential, **Canadian leaders cannot afford a risk-averse mindset, nor a wait-and-see approach to AI innovation and adoption**. We have lost ground in recent years, with Canada's ranking on the Global AI Index dropping from fourth place in 2021 to eighth in 2024—outpaced by Singapore (sixth → third), France (tenth → fifth), South Korea (seventh → sixth), and Germany (ninth → seventh).[15]

To close the gap, policymakers and leaders in Canadian organizations must set a clear vision, bet on growth opportunities, and take calculated risks to support AI initiatives that redefine industries, streamline public services, and support positive societal impact.

> *"In general, Canadian companies are happy to buy education for their board and executive, happy to create policy and governance around AI—but as soon as you go to developing and integrating a solution, everything just stops. It's a 'wait and see' approach, almost as if companies are waiting to be forced to do it because of their competitors. In contrast, in the US, a company will pick a use case where ethics won't be an issue, where not having governance ready upfront is not a big deal, and they will build governance along the way. ROI is number one. It's a different approach."*
>
> *—Nicole Janssen, co-founder and co-CEO, AltaML*

Focus

Canada is consistently described as having a vibrant AI ecosystem, with AI researchers that are highly respected and valuable members of the international AI community. However, this has not translated into many commercial successes. The slower pace of business is particularly frustrating for innovators—one Canadian startup noted that it takes four months on average to start building an AI product in the United States, while it takes 18 months in Canada. This is due to various challenges, including access to funding, venture finance, mentorship, and markets.[16]

To deliver on the promises of AI, Canada needs not just the vision to invest in priority areas, but **a clear focus on where AI can have the most impact**. We cannot play to win everywhere; we need to ensure that resources are concentrated on high-value opportunities in support of measurable economic and societal outcomes. A good example of this is Europe's Digital Decade framework for 2020–2030, which sets targets that are measurable goals in priority investment areas including digital transformation of businesses (the target being 75% of EU companies using cloud, AI, or Big Data by 2030).[17]

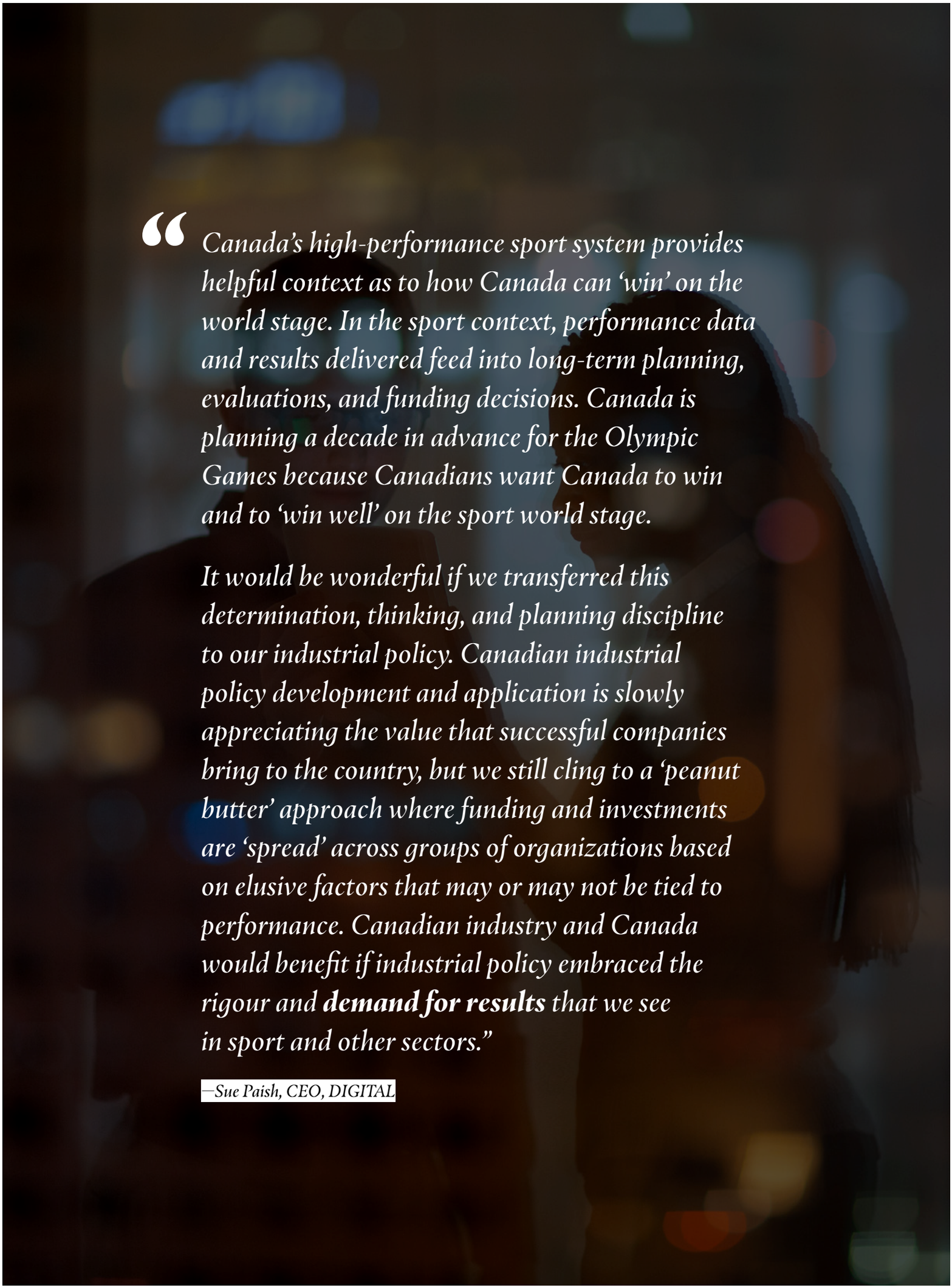
Canada can take a similar approach. By setting measurable targets for value creation using AI, policymakers can support investment in priority areas where Canada has a competitive advantage and send clear signals about the areas to which capital must flow—and applications that must be a focus for commercialization. Likewise, strategic leaders in organizations can set ambitious AI investment and impact targets with relevant measures attached.

> *"We're at a point in time where we have to make some deliberate decisions about where and how AI is used. We have a small window of the next five years or so, where everyone in the ecosystem has to be very intentional about the choices we make."*
>
> *—Mai Mavinkurve, P. Eng, Founding Partner, Prosperity Global Services*

At a national level, leaders interviewed for this report expressed unanimous support for **a strategic focus on health (including healthcare, as well as medical, health, and life sciences) and primary industries (such as agriculture, mining, and forestry)**—both are areas in which we have natural strengths and a significant data advantage. Some added the **financial services** sector, noting that Canadian banks have a global reputation for strength, stability, and safety. Our banks already lead in AI innovation globally: Canadian banks hold three of the top 10 spots worldwide for AI innovation.[18] Another opportunity for Canada is to **claim global leadership in responsible AI innovation**, ensuring that transformative AI applications respect ethics and benefit society. We already lead the world in the responsible adoption of AI, earning first place among 80 countries in the 2023 AI and Democratic Values Index.[19]

At the organizational level, of course, priority focus areas will vary. We think the right approach is a thoughtful mix of relatively easy and low-risk quick wins—such as adopting generative AI in customer service—coupled with longer-term investment in growth-oriented areas.

> *"The first level of discussion on AI is not about AI; it's about the business. As a company, are you clear about the business process you want to change and why you want to change it? That's the first layer—getting really clear on what your business issue is and what results you want to achieve."*
>
> *—Julien Billot, CEO, Scale AI*



"Canada's high-performance sport system provides helpful context as to how Canada can 'win' on the world stage. In the sport context, performance data and results delivered feed into long-term planning, evaluations, and funding decisions. Canada is planning a decade in advance for the Olympic Games because Canadians want Canada to win and to 'win well' on the sport world stage.

It would be wonderful if we transferred this determination, thinking, and planning discipline to our industrial policy. Canadian industrial policy development and application is slowly appreciating the value that successful companies bring to the country, but we still cling to a 'peanut butter' approach where funding and investments are 'spread' across groups of organizations based on elusive factors that may or may not be tied to performance. Canadian industry and Canada would benefit if industrial policy embraced the rigour and ***demand for results*** *that we see in sport and other sectors."*

—Sue Paish, CEO, DIGITAL

MEET THE SINGHS

Bright future

As Amar approached school age, Eleanor started searching for a new job that more closely aligned with her interests and values. She reached out to her friend Caroline, who had recently started her own healthtech company, to ask about opportunities to get involved. Caroline's company was scaling quickly, thanks in part to steps the government had taken to make Canada's vast amount of high-quality public healthcare data securely available to industry. It was 2030, and the Canadian healthcare system was recognized worldwide for harnessing the full potential of artificial intelligence to deliver remarkable patient outcomes.

The diversity in age, ethnicity, and health conditions across the country meant that healthcare AI models trained in Canada could yield insights and predictions that were more robust and widely applicable than those developed elsewhere. Thanks to the government's regulatory sandbox initiative, where businesses were able to innovate with fewer regulatory barriers, but anonymized patient data was still controlled through regulatory supervision, the company Caroline founded was able to leverage AI to tackle one of the biggest challenges in hospitals: streamlining workflows while optimizing patient care.

The AI-powered platform the company developed leveraged the patient data to predict everything from resource needs to individual treatment responses, allowing doctors to provide personalized care while reducing costs and wait times.

This innovation improved patient outcomes and unlocked a new level of efficiency across Canada's healthcare system. Hospitals could better allocate their limited resources, and healthcare teams were empowered to make quicker, data-informed decisions, ultimately saving lives and transforming how care is delivered.

Canada had recognized the once-in-a-generation opportunity to redefine what healthcare could look like. By enabling innovators to develop valuable IP and patents in the healthcare sector, Canada established itself as a leader on the world stage and elevated the quality of care for millions of Canadians. Canadian models became the backbone and the blueprint for international AI health solutions.

MEET THE SINGHS

Dark future

Eleanor still longed for a career that aligned with her passion for health and innovation, but this sector was marred by indecision, bureaucracy, and heavy regulation. Despite AI's early promise to transform healthcare in Canada, policymakers had hesitated to set a clear vision for these technologies. Investment was piecemeal and inconsistent, and without a coordinated national strategy, there was no framework to ensure that resources were directed toward high-impact AI applications. Companies like her friend Caroline's struggled to navigate the red tape and, in this environment, had failed to attract business investment. Projects that could have put Canada at the cutting edge of AI in healthcare had fallen victim to bureaucratic barriers and a lack of public-private collaboration.

The consequences of this stagnation were stark. While other countries had concentrated their AI efforts and investments in specific industries based on comparative advantage, Canada had struggled to find its footing. Canadian hospitals remained burdened with inefficiencies and rising costs, which translated into increased government spending, which in turn resulted in higher taxes and reallocation of funds from other public services. Patient outcomes had begun to fall behind global standards, with uneven impacts across provinces. To address this, Canada had become reliant on imported solutions rather than homegrown innovation. Caroline's company had relocated to the United States—a lost opportunity to develop Canadian IP—and Eleanor had to consider other opportunities.

BUILDING TRUST: GOVERNANCE, LITERACY, AND HUMAN-AI SYNERGY

Though Canada is home to world-renowned AI pioneers, trust in AI in Canada is 19 points lower than the global average, with only 31% of Canadians reporting that they trust AI.[20] This is concerning because trust is a key enabling factor in the widespread adoption and successful integration of AI, especially in sectors like healthcare, finance, and public services.

Trust in AI is a complex and context-dependent issue. It encompasses both trust in AI systems—their safety and reliability—and trust in the competence and positive intent of key people in the AI value chain, including developers, security specialists charged with protecting systems against bad actors, and leaders responsible for the management and oversight of AI operations.

According to a February 2024 survey, the biggest concerns Canadians have about AI tools are their lack of emotion and empathy, the potential for society to become too dependent on them, and the threat they pose to human jobs.[21] Canadians also have concerns around how AI technologies work and how they're implemented.[22]

Building trust is critical at every point along the AI maturity curve. As organizations progress from experiments and pilot projects to fully integrated AI solutions, the complexity, risks, and stakeholder expectations evolve as well. This necessitates a shift in trust-building priorities from raising awareness and establishing basic ethical standards toward implementing a robust **governance** framework, increasing AI **literacy**, and cultivating human-AI **synergy**.

Governance

A systematic approach to AI governance is key to responsible AI deployment. It not only mitigates risks but also ensures that AI operates within ethical boundaries and legal requirements, thereby building trust and protecting people, businesses, and Canadian society more broadly.

One of the cornerstones of responsible AI governance is transparency. Sufficient transparency helps individuals understand where, how, and why AI systems affect their lives, while a lack of transparency can lead to public skepticism, resistance, and distrust. Consider medical diagnostics, where AI models might be used to evaluate complex medical data and generate diagnoses and treatment recommendations. If a medical practitioner can't grasp the logic behind those recommendations, they might question the quality of the AI system and the insights it offers, leading to a lack of trust in the system and a reluctance to incorporate it into their practice. Similarly, in the financial industry, AI systems can be used in credit scoring, fraud detection, and risk assessment. If these systems use "black-box" models (i.e., machine learning models whose inner workings are difficult or impossible to interpret, such that users are unable to see how the system reached a conclusion or made a decision), it could raise concerns about the impartiality and reliability of their outputs. Consider a situation where a decision made by a black-box AI system is found to be discriminatory—who would be held accountable? What redress mechanisms could there be?

Some of these governance questions will be answered by legislation. But strategic leaders shouldn't wait to rally around common standards and emerging best practices. Leaders can get ahead of these challenges by implementing an AI governance framework at the right level of detail for their organization. While such frameworks can take many forms, they should include an oversight structure, clear ethical guidelines, and provisions for transparency and accountability.

Literacy

Understanding plays a pivotal role in building trust. To feel a sense of security and confidence in AI, individuals need a clear understanding of what AI systems and tools are, how they function, the intentions behind their development, how they can be used, and their potential benefits, risks, and limitations. They need the knowledge and ability to discern the trustworthiness of a given system or output. In short, they need to be AI-literate.

AI literacy can be understood as a set of competencies that enables individuals who are not technical experts to use AI successfully. This means they can critically evaluate AI technologies, communicate and collaborate with AI effectively, and use AI as a tool online, at home, and in the workplace.[23] AI literacy overlaps with other priority literacy areas including computational literacy, data literacy, and algorithm literacy.[24]

In the transition between AI exploration and scaling, AI literacy is a cornerstone for success. For leaders, this means understanding how AI can be leveraged to drive business growth, innovation, and competitive advantage. Leaders must be able to identify opportunities for AI integration, manage AI-driven projects, and address ethical considerations. To stay ahead of technological advancements and regulatory changes, leaders need continuous education and collaboration with AI specialists.

> *"For people to adopt the technologies we develop, we must first establish a bond of trust between them and this technology. This involves education, but also an ethical and socially responsible approach, as well as a commitment to digital literacy in order to demystify this technology and demonstrate its potential to positively impact the community."*
>
> *—Myriam Côté,*
> *Director of Research and Innovation,*
> *JACOBB – Centre d'intelligence artificielle appliquée*

Employees, on the other hand, need functional AI literacy tailored to their roles. For instance, data scientists and engineers require deep technical knowledge to develop and deploy AI systems. Non-technical employees, such as those in marketing or human resources, need a more practical understanding of how AI tools can enhance their workflows and decision-making processes.

Employers play a pivotal role in this educational journey. **Canadians are more likely to trust their own employers than other corporations or the government**: according to the 2024 Edelman Trust Barometer, 64% of Canadians trust their CEO to do what is right, while only 43% trust government leaders and 39% trust other CEOs.[25] Likewise, Canadians are more likely to trust technical experts at their own companies to tell them the truth about new innovations and technologies (60%) than they are to trust journalists (50%) or CEOs and government leaders (both 40%).[26] Business leaders thus have a unique opportunity to leverage this trust to build their employees' confidence in AI. By providing targeted training programs, workshops, and resources, employers can empower their workforces to embrace AI confidently and ethically.

The general public's AI literacy is equally important. As AI becomes more pervasive in everyday life, citizens need to understand its benefits and risks. Public education initiatives, transparent communication from leaders, and accessible learning platforms can help demystify AI and foster a culture of informed trust.

> *"We want to build consumers who are skeptical and have the capacity to negotiate their interactions with AI technologies such that they know what to trust and what not to trust."*
>
> *—Rebecca Finlay, CEO, Partnership on AI*

Human-AI synergy

A trust-building approach to AI investment gives priority to the strategic collaboration between humans and AI systems, where the combination of their strengths exceeds the sum of their individual contributions—this is often referred to as "synergy." Applying a synergy lens guides decision-makers to focus primarily on developments that leverage the strengths of both humans and AI. For example, while AI excels in processing vast amounts of data, making predictions, and performing repetitive tasks efficiently, humans bring creativity, empathy, and complex decision-making to the table. Research suggests that **prioritizing human–machine collaboration, rather than automating operations for the sake of (human) workforce reduction**, drives the biggest performance improvements.[27]

> *"I think it's a partnership with humans. AI is something that extends our abilities and makes us much more effective at what we do. If you can't program, AI is not going to make you a good programmer; but if you're already a good programmer, it can make you great."*
>
> *—Cameron Schuler, Chief Commercialization Officer and Vice President Industry Innovation, Vector Institute for Artificial Intelligence*

When AI is designed and deployed in a manner that complements human skills and augments our capabilities, it becomes easier for individuals to understand and trust these systems. Transparent, clearly defined AI processes that demonstrate their utility in enhancing human performance and decision-making can help alleviate fears about unchecked AI, promoting a more positive attitude toward technological advancements. Moreover, if human–AI collaboration is accepted as the default approach, cases where the most effective solution involves AI working autonomously might also be more readily accepted, as leaders will be expected to justify the choice of automation over collaboration.[28]

The synergy lens allows us to better anticipate and manage the impacts of AI on jobs over the medium and long term. By identifying which tasks AI can optimize and which ones benefit from human skills such as interpersonal interactions and creative problem-solving, policymakers and business leaders can create a future where AI and humans coexist productively. This includes crafting training programs that equip the workforce with skills that are complementary to AI, thereby ensuring a smoother transition into our AI-powered future.

MEET THE SINGHS

Bright future

In his office, Dev set his status to Do Not Disturb and pulled up his financial dashboard, a sleek interface powered by an advanced AI called FIN. A state-of-the-art system known for its ability to provide clear, understandable financial advice, FIN came highly recommended from Dev's former financial advisor, Sacha, who recently retired.

While Dev was no stranger to interacting with AI agents, this was his first appointment with FIN and his first time discussing his family's finances with a non-human advisor. He thought back to Sacha's endorsement, which hinged on FIN's gold-level certification by Ontario's IAS- and SCC-accredited AI testing lab. He recalled Sacha's warm words of reassurance: *Don't forget, you can always opt to speak with a human.*

Dev opened the appointment window and FIN's avatar appeared. "Good morning, Dev. How can I help you?"

"Hi, FIN. I'm looking to check in on how our investments are doing," Dev replied. "My eldest, Myrah, starts high school in the fall, and I want to make sure we're on track with our savings for her post-secondary education."

"I'm happy to assist you with that. Let's look at your portfolio." FIN's avatar disappeared behind a cascade of account visualizations. Dev was pleased with what he saw: the renewable energy sector had boomed over the last few years, and their savings had grown apace.

A moment later, FIN continued: "Based on my analysis of your financial goals against market trends, I have some suggestions for optimizing your investments for the upcoming quarter."

Dev listened intently as FIN explained, in simple terms, the rationale behind each suggestion. "Considering recent policy changes in renewable energy subsidies, I recommend rebalancing your portfolio. Here is my recommended breakdown of assets." FIN displayed easy-to-understand charts and predictions.

Dev found FIN's recommendations sensible and aligned with his own understanding of the renewable energy sector. "Thanks, FIN. This all sounds great. Let's go ahead with these adjustments."

"Got it," FIN said. "Before we close, I would like to share one more investment opportunity with you for your consideration."

"Sure, let's hear it," Dev said.

FIN, aware of Dev's expertise in renewable energy, shared the details of a new cryptocurrency backed by solar farms. "With your permission, I can invest on your behalf."

Dev leaned back in his chair, contemplating the implications. It would be his first foray into cryptocurrency. "Thanks, FIN. I need some time to think it over. Could we set up a follow-up appointment with a human advisor sometime in the next couple of weeks?"

"Certainly, Dev. I'll arrange a meeting with my human colleague, Bridget, and send you the details in an email."

Dev closed the call feeling reassured and eager to debrief with Eleanor.

MEET THE SINGHS

Dark future

On a colleague's recommendation, Dev was considering switching to an AI advisor to manage his savings and investments. He was about to have his initial consultation with B-FIN, the most popular AI advisor in the market.

After spending what felt like an age linking his accounts to B-FIN's dashboard, Dev asked B-FIN to assess his investments against his savings goals. "Analyzing your portfolio now," B-FIN responded, its avatar vanishing behind a jumble of confusing graphs. Dev squinted at the screen.

Moments later, B-FIN reappeared. "Based on current trends, I suggest some adjustments." The AI presented a series of complex investment strategies, riddled with technical jargon that Dev struggled to comprehend. "A more aggressive allocation could increase your gains in the long term."

Dev frowned. "Can you clarify how these changes would benefit us specifically?" he asked, trying to mask his irritation. "My biggest priority right now is making sure we're prepared to support my daughter through university or college."

"I understand," B-FIN replied. "Post-secondary education is a big expense. To maximize your long-term gains, I suggest selecting a more aggressive investment allocation. Shall we proceed with the adjustments?"

Dev frowned again. "Hold on. Can I discuss this with a human advisor first? I don't know if increasing my risk exposure makes sense right now."

"Unfortunately, human advisors are currently unavailable due to high demand. I am fully equipped to manage your investment needs," B-FIN insisted, pushing for authorization to proceed.

Dev leaned back and rubbed his temples. B-FIN's aggressive sales tactics and opaque reasoning left him uneasy. "No, thank you. I need more time to consider." He closed out of the appointment and resolved to shut down his account with B-FIN. The session had not inspired confidence.

AI FOR GOOD: EQUITABLE AND SUSTAINABLE AI

Depending on how it is developed, deployed, used, and regulated, AI has the potential to either enhance or undermine our pursuit of a more prosperous future for Canadians. At the same time, AI has the potential to either promote or compromise equity and sustainability objectives. Deployed with intention, AI can be a force to solve societal challenges. To achieve a future where economic growth aligns with positive societal outcomes, our framework encourages decision-makers to keep ***equity*** *and* ***sustainability*** *top of mind.*

An equity lens is essential because of Canada's rich diversity. As a geographically vast country with two official languages and citizens from a range of nations, races, religions, and cultural heritages, Canada must actively promote equity and inclusion to ensure that all who call this country home can participate meaningfully in its society. It's important that we carry this approach into our AI-powered future, especially considering the risks that AI systems could reinforce structural inequalities and bias, threaten jobs, and facilitate misinformation and surveillance.

Equity in this context also means ensuring that all Canadians experience the upside of AI. For example, where certain groups might be at a disadvantage when it comes to accessing AI and reaping its benefits—owing to education levels, distance from urban centres, race, gender, and linguistic minority status, to name a few factors—leaders can take additional measures to achieve equitable impact.

Likewise, we must apply a sustainability lens to ensure AI's positive potential is realized in alignment with improved ecological health and climate resilience. Because of our northern location, Canada experiences climate change at more than twice the rate of the world's average—and the Arctic is warming at about three times the global rate.[29] We are also home to many coastal communities, which are disproportionately impacted by rising sea levels; and we are the custodians of the third-largest forest area in the world, which is seeing increasingly destructive wildfire seasons due to climate change.

Canada is part of a growing number of countries committed to achieving net-zero carbon emissions by 2050. We must keep this goal, and all of these climate realities, in mind as we deploy and scale AI technologies.

Equity

Our framework encompasses our belief that to create truly equitable AI, we need to consider three forces: access to technology, use of technology, and outcomes of technology use.

While access to technology is important for initial adoption, effective use and long-term equitable outcomes become increasingly vital as organizations scale and sustain AI. In our *Digital equity* series, we made the case that to achieve equitable digital outcomes, we must address any hurdles that prevent certain populations from benefiting from digital technology; this means considering **the role of infrastructure, education, and economic resources in determining AI access and effective use of the technology**. For example, AI is becoming more prevalent in everyday life in high-income urban areas. From personalized learning tools in education to AI-assisted healthcare systems, advanced applications of AI are shaping the way people live and work. However, a significant gap exists between high-income urban areas and low-income or rural areas, thereby limiting access and use for certain underrepresented groups. Canada will need to address these gaps if the country is to seize its full AI potential.

At the same time, leaders across sectors should work to minimize discrepancies in AI outcomes—both for their employees and for their customers, clients, and/or service users. When it comes to employees, research suggests that AI will make certain roles redundant. Some stable, low-skilled employment such as customer service roles will likely be disproportionately reduced or replaced by systems that use chatbots and natural language processing.[30] And in small cities and rural regions where employment opportunities are limited, this could exacerbate economic disparities. The key is to manage these transitions equitably, with systems in place to help workers adapt to a changing job landscape.

For their customers, clients, and service users, leaders will want to **ensure that AI systems are implemented in an equitable way**. This means putting appropriate checks and guardrails in place to ensure that a process being automated or augmented by AI yields fair outcomes and doesn't perpetuate biases that may have been baked into the data the system was trained on.

Future-oriented, purpose-driven leaders might take their equity commitments a step further to consider whether and how their organizations could **deploy AI to promote greater equity or solve equity challenges**. For example:

- In recruitment and talent management processes, AI can be programmed to check for and reduce racial, gender, and other human biases, supporting equitable outcomes for groups facing marginalization.[31]
- In the healthcare sector, AI can contribute to improved health equity through its applications in precision medicine and precision public health.[32]
- In education, AI tools and AI-powered tutoring systems can help create adaptive, personalized learning experiences that enhance educational outcomes for students with diverse needs and abilities.[33]

As noted in Deloitte's report *The future is equitable: Balancing the impact of GenAI on Canada's Black communities*, companies that invest in equitable AI outcomes and promoting social good can not only reduce their risk exposure but also expand their market share and relevance, enhance public perception and brand trust, and build deeper customer loyalty.

> *"If it isn't to the benefit of people, why would we bother doing it? We want people to have better, richer lives because of AI—not narrower lives because of AI. I hope AI will bring out and help expand the diversity in who we are as humans, as cultures, and as countries."*
>
> *—Cameron Schuler, Chief Commercialization Officer and Vice President Industry Innovation, Vector Institute*

Sustainability

According to Deloitte's 2024 CxO Sustainability Report, **40% of Canadian executives have already made sustainability a central feature of their strategic planning**, with 78% acknowledging that climate change will have a high or very high impact on their strategies over the next three years.[34] The report also found that among C-suite executives across 27 countries, AI is perceived as the top strategic challenge.[35]

On one hand, AI can significantly contribute to solving complex environmental issues; this perspective is often called "AI for sustainability." AI technologies can optimize resource allocation, improve environmental monitoring, and enhance emergency responses. For example, AI can help us manage the impact of natural disasters, like floods and wildfires, through digital twins and simulation models that allow for better forecasting and more efficient deployment of resources.[36] Another promising area is food security: AI can help optimize yields through advanced crop monitoring systems and data-driven insights on growing conditions and crop health.[37]

On the other hand, as we scale AI systems, it's crucial to consider the potential harmful consequences of AI's increased resource usage. A "sustainable AI" perspective considers the environmental impact of AI development and operations. This perspective has received comparatively less attention than "AI for sustainability."

> *"AI's impact on supply chains is of course about efficiency, but efficiency in supply chains means not only decreased costs, but also decreased waste of natural resources. AI can have a lot of impact by helping us do more with less. All sectors have demand issues—in terms of product, in terms of people—and with any demand issue, access to better forecasting and prediction means having the ability to optimize resource allocation."*
>
> *—Julien Billot, CEO, Scale AI*

According to Deloitte Global analysis, data centres worldwide used more than 380 terawatt hours (TWh) of electricity in 2023—accounting for about 1.4% of global electricity consumption and 0.3% of global greenhouse gas emissions.[38] By 2030, these figures are projected to nearly triple to around 1,000 TWh, or approximately 3% of worldwide power use. The International Energy Agency (IEA) likewise estimates that electricity consumption from data centres, AI, and the cryptocurrency sector could double by 2026 and account for electricity demand that is roughly the equivalent to the electricity consumption of Japan.[39]

In addition to electricity, the data centres that host AI consume a lot of water for cooling purposes. A 2023 study estimated that global AI demand could account for up to 6.6 billion cubic metres of water withdrawal by 2027, which is roughly equivalent to half the annual water withdrawal of the United Kingdom.[40]

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380

terawatt hours (TWh) *of electricity in 2023.*

These figures are projected to nearly triple to around

1,000

terawatt hours (TWh) *of electricity by 2030.*

Leaders who take a sustainable AI perspective consider AI's environmental impacts, both positive and negative, through its entire lifecycle, to identify the levers they can pull to embed sustainability in their AI operations. This could mean, for example, reducing redundant research by sharing open-source models, using recycled materials to build servers (the hardware of AI systems), or investing in energy-efficient AI model practices. It could also mean relying on renewable and low-carbon energy sources to power AI models, or choosing to deploy smaller, fit-for-purpose models that are less energy-intensive.

Whichever levers they focus on, leaders who take a coordinated approach to the so-called "twin transitions" of AI and sustainability can craft and execute on a strategy that is good for both the planet and the bottom line. While it can be complicated to measure the impact of embedded sustainability on financial performance, a 2015 meta-analysis of about 2,000 studies found positive correlations between good sustainability performance and stock price, cost of capital, and operational achievements, suggesting that investments in sustainability pay off in performance gains and enhanced shareholder value.[41]

MEET THE SINGHS

Bright future

Eleanor's sister, Jean, lived with her partner in a small community in northern Manitoba. In the past, her community had faced many challenges: limited access to essential services, crumbling transit infrastructure, and food insecurity. But now, thanks to thoughtful deployment of AI strategies by industry and government, things were different.

Self-driving, AI-powered electric trucks now delivered fresh produce and essential goods to Jean's community at a fraction of the previous cost. The vehicles were designed to handle the tough northern terrain and operate autonomously, which significantly cut the transportation costs that were typically passed on to the consumer. AI algorithms also optimized delivery routes and supply chains, ensuring food arrived more frequently and with less spoilage, which had a profound effect on food availability and affordability in the community, particularly when it came to fresh, nutritious options. This change meant the community had seen a marked improvement in overall health outcomes. Chronic conditions that had once been prevalent, such as diabetes, had begun to decline.

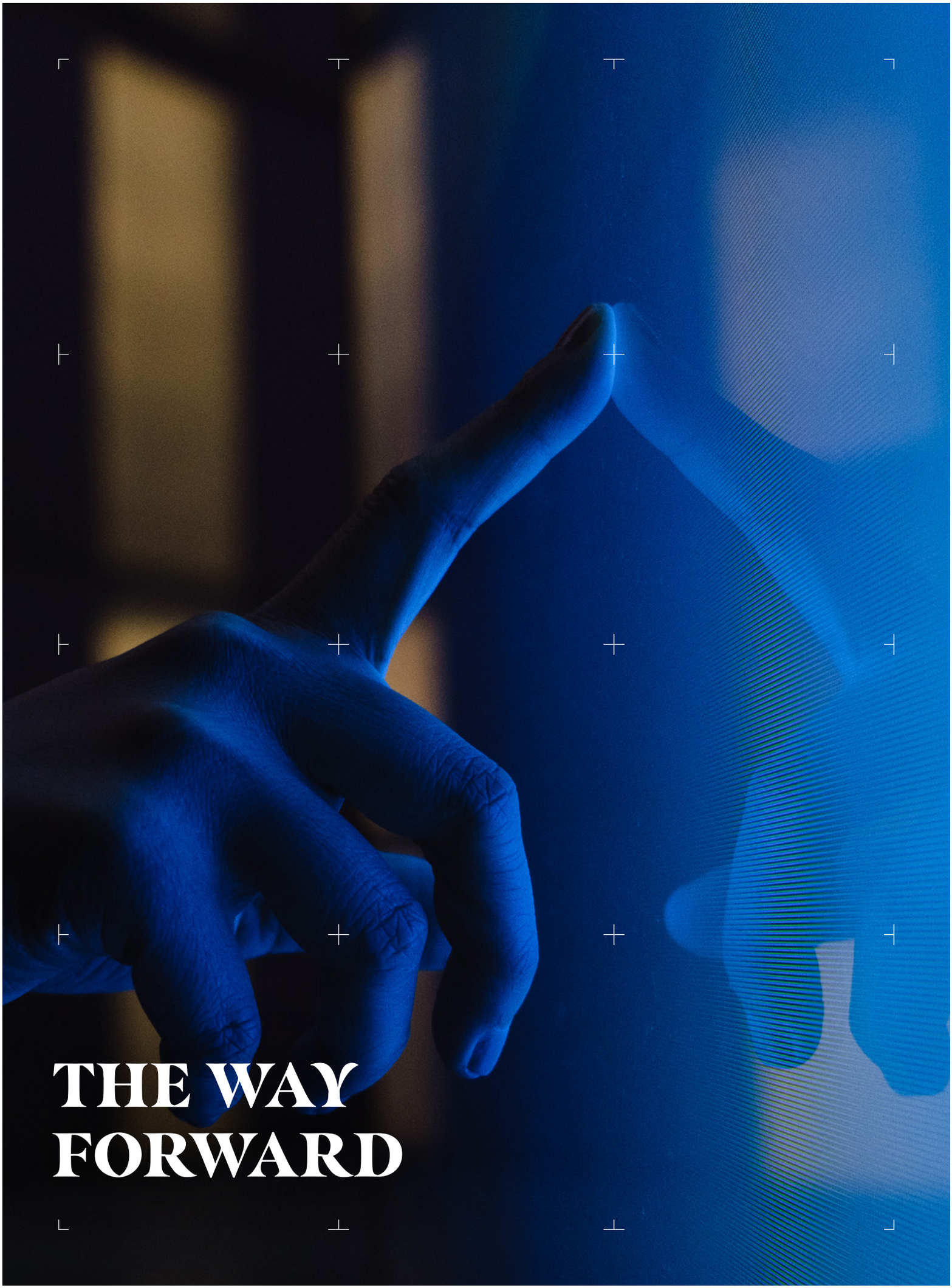
The self-driving AI-powered electric trucks were part of a trans-Canadian network that the government had supported by reducing interprovincial barriers, which drastically cut greenhouse gas emissions in Canada.

But it wasn't just about food. AI had also transformed access to essential services, like healthcare. Jean's town, like many rural communities, had struggled for years with inadequate healthcare access, with residents having to drive 10+ hours to the nearest urban centre and stay in a hotel overnight for medical appointments. Now, AI-powered telemedicine platforms and mobile health units provided near-instant access to medical professionals. Through AI-powered advanced diagnostics robots that visited the town regularly, Jean and her neighbours could access near real-time health assessments and treatment recommendations.

MEET THE SINGHS

Dark future

Eleanor's sister, Jean, lived with her partner in a small community in northern Manitoba. In recent years, a massive data processing centre had been constructed just outside of town, supposedly to power the region's AI systems and boost digital infrastructure, while also benefiting from the cooler temperatures in the north. However, it seemed this centre was primarily powering AI systems deployed in Calgary and Vancouver. The community's nearby lake, once a vital fishing resource for the local Indigenous community, had seen its water levels drop drastically, drained by the data centre's cooling needs.


THE WAY
FORWARD

THE ROLE OF STRATEGIC LEADERS IN DRIVING US TOWARD A BRIGHT AI FUTURE

To enable organizations to progress from AI exploration to scaling and sustaining value from AI, our framework urges a holistic approach that attends to each element. The recommendations in the following pages are intended as a starting point to thinking strategically about these goals.

In implementing these recommendations, leaders can maximize their efficacy by **partnering and collaborating with other companies and with the broader AI ecosystem in Canada**, including Canadian AI companies, startups, scale-ups, incubators, accelerators, and research institutes. By engaging with the broader AI community, Canadian organizations can stay at the forefront of technological advancements and best practices for AI operations. This will help to enhance Canada's diverse and vibrant AI ecosystem, further solidifying the country's reputation as a leader in AI innovation.

> *"I do think in Canada, we tend to look at the negatives before the positives. And there is so much positive to celebrate in this area.* ***We have so much ingenuity, so much creativity, so much talent, so much potential. It really is just about having the leadership to get started.*** *It's going to be one of those things where you look back in five or ten years, and you go, 'Oh, my gosh, all that stuff we were debating, now we just take it for granted!' My advice is take a long view. It's a marathon, not a sprint."*
>
> *—Rebecca Finlay, CEO, Partnership on AI*

1

Create a comprehensive AI strategy that is ambitious, trust-building, and oriented toward equitable, sustainable prosperity

AMBITION **TRUST** **AI FOR GOOD**

When it comes to adopting AI, Deloitte's research shows that there's no one-size-fits-all approach. Every organization faces its own unique pain points. However, the foundational building blocks are consistent: it starts with choosing the appropriate AI tools and models that will drive organizational goals, capital investments, and a culture and talent pool that support scaling.

We are at a turning point where Canadian organizations are looking beyond laying these foundational blocks and focusing on shaping a future powered by AI at scale, i.e., implementing AI in a sustainable, secure way that aligns to business goals. To position their organizations for maximum success in this AI-powered future, we urge leaders to create or refresh an AI strategy that attends to the breadth of our framework. This means crafting an AI strategy that is boldly ambitious; that builds trust across the organization and beyond; and that is oriented toward achieving positive societal outcomes, with a strong emphasis on equity and sustainability.

An important step toward scaling AI in alignment with our framework is to **widen the circle of responsibility**. This is key—an AI strategy is not just the responsibility of the Chief Technology Officer (CTO); the entire executive leadership team (including the general counsel and Chief Risk Officer) and the board of directors need to be active participants in this process. This is essential to developing an AI strategy that addresses our entire framework: holistic strategies require cross-departmental, cross-functional teams equipped with enough AI fluency to fully appreciate the potential and limitations of AI technologies.

2

Identify AI opportunities with the greatest potential

AMBITION

The potential value of AI for organizations lies in its strategic alignment with business objectives. By recognizing how AI can contribute to achieving strategic goals, organizations can transform it from a cost centre to a core business accelerator. To embark on this journey, organizations can consider a few organic measures:

- **Conducting a comprehensive impact and opportunities assessment across the organization**: Embracing cross-functional perspectives can provide valuable insights into areas where AI can have a significant impact. This analysis provides an inventory of organizational processes and business areas that are ripe for AI-enabled transformation, and identifies the roles, tasks, and skillsets that are most likely to be transformed by AI.
- **Benchmarking against industry standards and competitors**: Investigating how peer organizations leverage AI can reveal valuable opportunities and serve as a powerful motivator. For example, if competitors are using AI for predictive maintenance and a given organization is not, this could indicate a growth opportunity.
- **Developing a clear understanding of the return on investment (ROI) and value proposition of AI initiatives**: To fully unlock the benefits of AI, organizations must effectively measure productivity and efficiency gains. A list of targeted KPIs—such as user satisfaction, cost reduction, and adoption rate—can provide a clear, quantifiable view of how AI is impacting business processes and serve as a strategic guide for further investments. By tracking and analyzing these metrics, organizations can demonstrate the tangible value of AI.

3

Adopt a portfolio mindset to move up the AI maturity curve

AMBITION

A portfolio mindset is crucial for organizational leaders who strive to effectively manage and maximize the potential of their AI projects. This mindset involves balancing a mix of projects that range from low-risk, high-reward solutions to high-risk, "moonshot" innovations. By diversifying their AI projects, leaders can mitigate risks associated with technology development and foster a culture of experimentation and creativity within their organizations.

Leaders can extend the portfolio mindset to their sourcing decisions—i.e., whether they will build proprietary models, buy established solutions, or borrow from open-source platforms. The right choices for a given organization will depend on critical factors such as the problems to be solved, the industry landscape, and the organization's analytics maturity. For organizations in the early stages, low-code data-labelling tools provided by major cloud vendors can be a game-changer. As organizations gain confidence and expertise, they can explore pre-existing models available in AI marketplaces. The right blend of approaches for a given enterprise will evolve as they advance along their journey.

4

Implement a responsible, forward-thinking AI governance framework that prioritizes transparency and accountability

TRUST

While an AI governance framework should be adapted to the needs of the organization it's meant to serve, every such framework must provide for appropriate transparency practices and accountability measures.

Transparency: AI decision-making is often criticized for its black-box characteristics, where the inner workings of its algorithms are difficult to grasp. A strong governance model demands that AI systems be designed to provide traceable, understandable decision pathways. This helps build trust among users by making AI decisions more interpretable. Transparency also makes it easier to identify, and thus rectify, biases or errors that can occur in AI systems, enhancing their reliability and fairness.

Accountability: Embedding accountability into an AI governance framework involves establishing oversight structures, monitoring and evaluation protocols, and redress mechanisms. Oversight structures clarify who is responsible for the outcomes of AI decisions; this involves defining roles and responsibilities across the AI lifecycle, from development and training to deployment and post-deployment monitoring. Protocols for audits and continuous monitoring ensure AI systems perform as intended and don't deviate from their ethical constraints—this includes ensuring they don't perpetuate existing biases and socioeconomic inequities. An accountable governance approach also provides a framework for addressing grievances and rectifying issues, which is essential for maintaining public trust and legal compliance.

To ensure widespread buy-in, larger organizations might consider taking an inclusive approach to developing their governance framework, incorporating a full range of perspectives from leaders of the business, technical experts, employees, and clients, customers, or service users.

Recognize the complexity-interpretability-transparency trade-offs

As AI models become more complex, their interpretability and transparency often decrease. Business and AI leaders need to understand this trade-off and make informed decisions based on their specific requirements. Questions to ponder include what level of explainability to pursue, for whom, and at what cost? For certain industries, the answers to the first two questions will be driven by regulatory requirements, but it is a worthwhile exercise for leaders to assess their room to manoeuvre here.

Consider the glass-box model, which refers to AI systems that make it easy to trace predictions and decisions from input to output. Such models (such as linear regression, logistic regression, or decision trees) often lend themselves to a more direct interpretation of results based on input data, without additional investment in modelling individual outcomes. With a glass-box model, business leaders can explain how the AI system behaves and why it came to make a specific prediction.

On the other hand, in the case of a black-box model, leaders can see the output or resultant decision but are unable to explain or reproduce the result because they have limited insight into the exact contributing factors. While black-box models (such as neural networks) may perform better in certain contexts, this often comes at the cost of explainability.[42] Moreover, a black-box model is not always necessary for top predictive performance: in a 2023 study, the authors tested an array of AI models on nearly 100 representative datasets, and they found that 70% of the time, a more explainable model could be used without sacrificing accuracy.[43]

Organizations could also consider combining the strengths of both strategies. For example, glass-box techniques can be used to shine light on the inner workings of black-box AI systems, offering much-needed transparency. Alternatively, black-box tactics can be used to improve the capabilities of glass-box AI systems, giving them an advantage in dealing with more difficult problems.

5

Invest in AI literacy

TRUST

Employers that invest in AI literacy will build trust among their workforce, positioning them to leverage AI effectively. When employees understand how AI works, its potential impact, and its strengths and limitations, they are more likely to integrate these tools into their daily workflows.

When it comes to AI, a one-and-done approach to learning is inadequate. To keep up with the pace of change, leaders should institutionalize continual education for their workforce, incorporating regular refreshers and evolving the training in tandem with the technology.

Organizations can optimize the return on their investments in AI literacy by offering employees dedicated time for learning and development and by establishing feedback mechanisms that enable continuous improvement of their training initiatives. Understanding where employees find value and where they're experiencing roadblocks allows employers to tailor training efforts more effectively.

6

Assemble cross-departmental teams to reimagine roles for optimal human-AI synergy

TRUST

The successful scaling of AI within organizations requires careful consideration beyond just financial investments or upskilling efforts. In Canada's brightest AI future, the workforce embraces AI as an accelerator of human potential.

To bridge the trust gap and ensure optimal collaboration between humans and AI, business leaders, HR specialists, and technology leaders should work hand-in-hand to reimagine existing processes, tasks, and roles in an AI-augmented workplace, as well as define new roles that will emerge as an organization scales AI—these include trainers, explainers, and sustainers.

- **Trainers**: Machine-learning algorithms need to be trained to perform their designated tasks effectively. This involves accumulating large training datasets to educate machine-translation apps, medical apps, recommendation engines, and other AI systems. Furthermore, AI systems must be trained to interact seamlessly with humans. While many organizations are still in the early stages of filling trainer roles, leading tech companies and research groups have already established mature training teams and expertise.
- **Explainers**: As AI systems increasingly reach conclusions through opaque processes (known as the black-box problem), human experts in respective fields are necessary to explain their behaviour to non-expert users. Explainers play a critical role in evidence-based industries such as law and medicine, where practitioners need to understand how AI systems weigh inputs for decisions. They are also vital in helping insurers, law enforcement, and regulated industries understand the actions taken by autonomous vehicles, or challenging machine outputs that may seem unfair, illegal, or incorrect.
- **Sustainers**: In addition to explainers, organizations require "sustainers" who continuously ensure the proper functioning, safety, and ethical responsibility of AI systems. For example, ethics managers investigate and address any issues related to AI systems discriminating against specific groups or failing to comply with regulations.

It is equally important to communicate to employees that machines are not here to replace human beings, but rather to *amplify* their cognitive strengths, *automate* mundane tasks to free humans for more meaningful work, and *extend* their physical capabilities.

7

Nurture timeless human capabilities to help people adapt to an AI-augmented world of work

TRUST

While our framework encourages leaders to invest in AI literacy and prioritize human-AI synergy when deciding where and how to deploy AI, it is equally necessary for organizations to focus on developing the human capabilities of their workforce—especially since these human capabilities are needed to fully harness technical proficiencies. Human capabilities include classic "soft" skills like communication, teamwork, and leadership, but they also include emotional and imaginative capabilities like curiosity, creativity, and empathy.

Worryingly, Deloitte research suggests that the speed of AI-driven disruption, particularly from generative AI, may be outpacing the capacity of many organizations and workers to imagine new ways of working that get the best out of both humans and technology. According to our *2024 Global Human Capital Trends* survey, 73% of respondents think it's important to ensure human capabilities in their organization keep pace with technological innovation, but only 9% say they are making progress toward striking that balance.[44] This suggests that many organizations may soon be facing an imagination deficit.

To get ahead of this, organizations will need to help their workforce develop curiosity, creativity, empathy, and other human capabilities that have staying power. They should also consider giving workers and their teams the autonomy to use these traits to shape the work they do. As well as building organizational resilience, this approach can improve worker well-being and activate their potential to adapt and thrive amid uncertainty.

According to Deloitte's 2024 ***Global Human Capital Trends*** *survey,*

73%

of respondents think it's important to ensure human capabilities in their organization keep pace with technological innovation, but only

9%

say they are making progress toward striking that balance.

8

Embed equity and sustainability principles in AI strategies and governance frameworks

AI FOR GOOD

To ensure AI is developed and deployed in equitable ways, leaders can take a systems view of equity and inclusion in AI by recognizing and addressing the interconnected factors that contribute to equitable outcomes, including the composition of AI development teams, the quality of the datasets used to train AI models, the policies and procedures in place to identify and mitigate biases in AI systems, and the breadth and depth of stakeholder engagement.[45]

To help achieve equitable AI outcomes, leaders can consider the following strategies:

- **Promoting diversity within AI teams** ensures that a wide range of perspectives and experiences are considered during the creation, deployment, and operations of AI systems. This diversity helps identify and mitigate potential biases and other equity issues that homogeneous teams might overlook. By including individuals from various backgrounds, teams are more likely to create and operate AI solutions that are sensitive to the needs and contexts of different user groups, fostering more equitable outcomes.
- To ensure AI models perform fairly across different groups, organizations should use **diverse and representative datasets** to train (and re-train) their AI models. When data includes a wide range of ages, genders, ethnicities, and socio-economic backgrounds, AI systems are less likely to develop biases that disadvantage specific groups.
- Conducting **regular bias audits** and impact assessments allows organizations to systematically identify and address any biases present in their AI systems. These audits involve evaluating the AI's performance across different demographic groups and examining its decision-making processes for fairness. By proactively identifying and rectifying biases, organizations can prevent discriminatory outcomes and build more trustworthy AI systems. Several leading tech companies and non-profit organizations have introduced open-source models and other resources to help developers measure and minimize bias, and many cloud AI providers have built such capabilities into their services.

- **Engaging with a broad range of stakeholders**, including marginalized communities, is good practice not just during the development stage but throughout the AI lifecycle. This engagement could involve consultations to understand stakeholder needs as well as ongoing feedback sessions to evaluate the real-world impacts of AI deployment.

The pathway to scaling AI in alignment with sustainability principles involves rigorous lifecycle assessments of AI technologies, investment in sustainable AI research and innovation, and the development of policies and initiatives that support sustainable practices throughout the AI lifecycle. In this context, we encourage organizations to take a holistic approach to assessing their AI-related energy usage and seek opportunities to balance AI capabilities with emissions in line with sustainability principles.[46]

To help mitigate AI's carbon footprint, leaders can consider the following strategies:

- Not every problem needs to be solved by a large language model (LLM). **Prioritizing smaller, targeted, domain-specific AI models** to meet specific business needs instead of constantly increasing model size helps to optimize resources.[47] This approach minimizes environmental impact and promotes responsible development. Small models also represent a space of potential competitive advantage for Canada.
- In developing an enterprise AI system, organizations can **use renewable energy and energy-efficient hardware** in the development process and optimize AI model training processes to reduce computing power needs.[48]
- To **optimize hardware usage**, organizations can rely on prompt engineering, prompt tuning, and model fine-tuning. These techniques adapt foundation models (generative AI) for tasks while minimizing resource consumption. Companies can further enhance efficiency through techniques such as quantization, distillation, and client-side caching, which make models more suitable for deployment on resource-constrained devices or systems. Investing in specialized hardware, such as in-memory computing and analog computing, can also improve AI model performance and contribute to overall sustainability.
- Shifting AI operations to **energy-efficient data centres** is another strategy to reduce environmental impact. By transferring computational workloads to data centres with greener practices, organizations can mitigate the carbon footprint associated with AI execution in the cloud.

9

Explore ways to deploy AI in service of solving societal problems

AI FOR GOOD

Our framework focuses on the first-order, foundational requirements of AI for good, that is, ensuring AI operations are equitable and sustainable. But some organizations have opportunities to go beyond this to leverage AI in novel and impactful ways to advance their purposes and solve societal problems. We propose two questions for strategic leaders to consider in assessing their opportunities to deploy AI for good:

- Are there societal problems we have always wanted to solve but couldn't, due to limitations or roadblocks that AI can now help us overcome?
- How can AI help us achieve our purpose beyond improving existing processes?

By exploring these questions, organizations can identify opportunities where AI can deliver both social good and financial returns. Rigorous and transparent impact measurement tools, such as impact accounting and evaluation frameworks, can help organizations quantify the benefits of these AI-for-good initiatives, ensuring that societal impacts are reported alongside financial returns.

This approach aligns with the broader trend of purpose-driven business, where solving the wider problems faced by groups of customers and society at large is seen as a pathway to both profitability and social impact.[49] By considering the broader implications of AI deployment, strategic leaders can unlock new possibilities for innovation and impact, build stronger relationships with the people and communities they serve, and ultimately contribute to a more equitable and sustainable world.[50]

THE ROLE OF POLICY LEADERS IN DRIVING US TOWARD A BRIGHT AI FUTURE

Policymakers play a vital role in supporting businesses and driving Canada toward a leadership role in AI. Canada is already on a leadership path thanks to critical public investment into AI R&D that laid the groundwork for our world-renowned AI ecosystem, but **without targeted public efforts in strategic areas, we risk missing the window of opportunity to solidify that position**. A fundamental precondition for success in this regard will be passing comprehensive AI legislation in line with peer jurisdictions.

> *"My number one prescription for government is to have **stability in regulation** and tie that to global standards. Yes, there are protections we need to put in place, but we also need to make this the friendliest place on the planet to build an AI company. This doesn't mean no regulations—it's about having the right guidelines in place, so we know what to expect and we're on an even playing field."*
>
> *—Cory Janssen, co-founder and co-CEO, AltaML*

1

Craft a bold vision for Canada's AI future

AMBITION **TRUST** **AI FOR GOOD**

Canada pioneered the concept of a national AI strategy when it launched its Pan-Canadian AI Strategy in 2017. Since then, the strategy has been linked to the launch of over 50 multinational companies with AI research and development laboratories in Canada and the recruitment of over 100 researchers to the Canadian Institute for Advanced Research (CIFAR) AI Chair program[51]—long-time CIFAR researcher Geoffrey Hinton was awarded the 2024 Nobel Prize.

While the strategy's second phase was about commercialization and adoption, the AI landscape has undergone significant transformation in this brief time and Canada's AI leadership potential is falling short. Bill C-27, introduced in late 2021, would have created the *Artificial Intelligence and Data Act* (AIDA), but it died on the order paper when Parliament was prorogued on January 6, 2025. As a result, Canada's legislative efforts with respect to AI are stalled for the foreseeable future.

Another fundamental issue holding back Canada's AI potential has to do with low levels of public investment in Canadian IP. While other countries like the UK, France, Spain, and Ireland have sought opportunities to increase and protect their IP through patent boxes, for example, a Canadian Parliamentary report tabled in 2022 by the House of Commons Standing Committee on Science and Research noted witness testimony that "[a] large portion of the IP that was developed in Canada ended up being owned by international companies, notably in fields like AI."[52]

These issues underscore the need for policymakers to collaborate with AI ecosystem leaders, business leaders, and academics to craft a new, bold, and forward-looking vision for Canada's AI future—one that sets up our enterprises to thrive in an era of AI-fuelled innovation, builds public trust, and leverages AI to address equity and sustainability challenges. This strategic vision would serve as a beacon for stakeholders in Canada's AI ecosystem to understand and contribute to building Canada's AI future. It would also signal to the rest of the world that Canada is a serious player when it comes to international AI governance frameworks and underscore its commitments to securing a leadership role within frameworks like the Global Partnership on AI.[53]

As an example of signalling its vision for AI, in the fall of 2023 the UK government spearheaded the first-of-its-kind AI Safety Summit, convening senior government officials, executives of major AI companies, and civil society to explore topics like risk management and innovation. The Summit was seen as a breakthrough in AI diplomacy and was a testament to the government's bold vision for the role that the UK could play in this space. Moreover, it set the tone for the kind of domestic approach to AI that the UK was taking, balancing both innovation and safety, and signalled a predictable regulatory environment for business to innovate within.

There is little reason for Canada to not be as (if not more) clear and ambitious when it comes to its AI vision. It could take the opportunity of holding the G7 presidency in 2025 to launch its vision for AI. This would lay the groundwork for tactical considerations around governance and commercialization and chart a path for AI domestically and on the world stage that seizes AI's commercial opportunities while delivering on equitable and sustainable access, uses, and outcomes.

2

Establish a harmonized system of public investment in AI that identifies competitive strengths and optimizes incentive structures targeting high-priority fields

AMBITION

The Canadian government has been instrumental in fostering world-class AI research and development. However, decades of government funding have created a fragmented landscape of incentives for AI development and deployment that insufficiently support commercialization. Notably, while Canada has launched an "AI Strategy for the Federal Public Service," it remains the only G7 country, aside from France, where the public sector AI strategy is not integrated into the national AI strategy.[54]

A multi-stakeholder review process that makes recommendations for a harmonized system of public investment in AI would significantly enhance the societal and commercial outcomes of Canada's AI ecosystem. This process would identify Canada's competitive advantages in various sectors and inform adjustments to incentive structures and funding programs to target high-priority, high-impact areas. Such an approach would reduce redundancies, address gaps in government funding, such as in IP, and harmonize efforts across departments and levels of government.

In the United States, the Biden administration called for a similar assessment focused on the private sector in its Memorandum on Advancing the United States' Leadership in Artificial Intelligence.[55] This assessment included considerations such as chip design and manufacturing, availability of highly skilled talent, computational resources, and capital availability. A multi-stakeholder assessment in Canada would bring together provincial partners, industry, academia, government, and members of civil society to analyze which industries hold the greatest potential for AI-driven transformation.

The process should include examining key sectors where Canada already has existing strengths to identify high-impact applications. Insights from this assessment would guide a more targeted and streamlined approach to Canada's AI incentives and funding programs.

By concentrating resources on high-priority, high-impact areas, policymakers can ensure that investments are directed toward sectors with the highest potential for economic growth and societal benefits. This harmonized investment strategy would solidify Canada's position as a global leader in AI and maximize the impact of public funding in the AI landscape.

“In Canada, funding systems are often based on the university model, which is well suited to their needs. But CEGEPs, with their focus on applied research and rapid technology transfer, have different needs, particularly when it comes to rapid innovation. In a college technology transfer centre (CCTT) like ours, we help companies innovate and adopt new technologies by being more practical and responsive. When we work with a company, we take the time to understand their project, assess the risks, and do our utmost to ensure its success. Funding timescales can be long (anywhere from six months to a year), which is often too slow for small companies or startups that need to move forward quickly.

Innovation, particularly in artificial intelligence, requires the ability to respond quickly to the needs of companies who are under pressure to get to market as quickly as possible. This is where the CCTTs play a key role: supporting them in practical and effective ways. If we are to continue to fulfil this mission effectively, ***we need funding mechanisms that better reflect the reality of businesses****.”*

—Myriam Côté, Director of Research and Innovation, JACOBB – Centre d’intelligence artificielle appliquée

3

Build trust and promote good governance by positioning Canada as a global leader in AI standardization and safety

TRUST

Whether or not Canadians trust AI will vary based on its applications, the regulations in place, and their knowledge of those two things. Having a foundational knowledge of AI is crucial for policymakers, but equally important is ensuring the wider Canadian population feels informed and confident about AI technologies and their applications (especially in the context of Canadians' distrust of AI being among the highest in the world). The gap between how these technologies work and how they're perceived is fertile ground for misinformation, which only further contributes to resistance and mistrust. This is especially important in areas like healthcare and financial services, where trust is paramount, and it cannot be addressed in a vacuum delineated by national borders.

Promoting AI interoperability standards involves establishing common guidelines and technical specifications that ensure AI systems can integrate into and operate seamlessly across different platforms, industries, and international borders. This not only enhances the efficiency and effectiveness of AI applications but also fosters greater trust, collaboration, and innovation domestically as well as on a global scale.

A significant step toward this goal would be for the growing network of Artificial Intelligence Safety Institutes (AISIs) to recognize and align with each other's safety assessments. In Budget 2024, the Government of Canada announced its intention to join peer countries, including the United States and the United Kingdom, by allocating $50 million over five years to establish the Canadian AI Safety Institute (CAISI). Close collaboration with other AISIs to ensure their interoperability could be a cornerstone in building trust in AI in Canada.

Indeed, Canada has the potential to solidify its status as a global leader in the AI domain by championing standards for AI interoperability. But in order to achieve this, **Canada must also enact comprehensive AI legislation that applies to both the public and the private sector**. Such legislation would help mitigate distrust by ensuring stakeholder buy-in and establishing a shared set of expectations for all to follow. This legislation should be developed through consultation with a wide range of stakeholders, and should emphasize key principles such as transparency, accountability, and risk management.

As a relatively slow adopter of AI governance legislation compared to peer jurisdictions, Canada must ensure its domestic regulations align with the policies of its partners, such as the European Union's AI Act. The EU, for example, is pioneering interoperability standards to create a unified AI regulatory framework across its 27 member states.

By positioning itself as a leader in AI standardization and safety, Canada can build trust and promote good governance at home, reinforcing its commitment to leading in responsible AI deployment on the global stage.

4

Focus CAISI efforts on real-world risks and applications of AI and regularly communicate findings to the public to foster trust

TRUST

CAISI has a crucial role to play in advancing Canada's understanding of AI risks and promoting responsible AI development. To maximize its impact and build public trust, CAISI should prioritize studying real-world risks and applications of AI, while transparently communicating its findings.

Given the high levels of distrust in AI reported by Canadians, CAISI's focus on practical, tangible AI risks is essential. By addressing concerns that directly affect citizens' lives, CAISI can demonstrate its relevance and value to the public. This approach aligns with CAISI's mandate to assess AI risks, test AI systems, and develop guidance on critical issues like the detection of AI-generated content and the evaluation of advanced AI models.

The 2024 OECD Survey on Drivers of Trust in Public Institutions found that communicating about the evidence, research, and statistics that inform government decision-making is a key factor in building public trust—so regular and transparent communication of CAISI's findings to the public will be paramount in fostering trust and understanding of AI technologies.[56] This is particularly important given what the survey calls the current "critical juncture" facing democratic governments, which must navigate environmental and digital transitions while confronting increased polarization.[57]

CAISI can leverage its position within Canada's broader AI strategy to serve as a trusted source of information on AI safety. It should not only inform the public but also support policymakers and industry leaders in making evidence-based decisions regarding AI development and deployment.

Furthermore, CAISI's collaboration with international partners through the International Network of AI Safety Institutes presents an opportunity to share knowledge and best practices globally. By actively participating in this network and communicating insights gained from international cooperation, CAISI can demonstrate Canada's commitment to global AI safety efforts while also bringing valuable international perspectives to domestic discussions.

5

Adopt a risk-based approach to public AI procurement

TRUST

A risk-based approach to AI procurement in the public sector is crucial for building trust and ensuring responsible and effective adoption of AI technologies. Requirements should be tailored based on the potential impact of AI projects, allowing for stringent oversight of high-risk applications while providing flexibility for low-risk uses. By conducting initial AI impact assessments, the public sector can evaluate factors such as data sensitivity, implications for individual rights and communities, health and well-being considerations, economic interests, and ecosystem sustainability. Assigning risk levels—high, medium, or low—to AI systems based on these assessments will enable tailored contract requirements and oversight mechanisms that correspond to the assigned risk level.

Implementing continuous monitoring throughout the AI system's lifecycle will further enhance risk management. The benefits of this risk-based approach extend beyond mere compliance; it promotes responsible AI capacity-building within organizations, aligns contracting language with emerging laws and best practices, and addresses IT procurement issues such as preventing vendor lock-in while providing equitable opportunities for suppliers of various sizes. As one of Canada's largest sectors, accounting for 44.5% of GDP in 2022, the public sector can act as a catalyst for innovation and responsible AI practices.[58] Building on Canada's existing directive on automated decision-making, a comprehensive risk-based framework should provide detailed guidance on risk assessment methodologies specific to AI systems. It should also establish clear risk thresholds alongside corresponding procurement requirements, while incorporating an equity lens to address potential disparities in access, use, and outcomes for different groups in Canada. Moreover, it's essential to outline specific risk mitigation strategies for high-risk AI applications that directly affect individual rights or access to services.

Adopting this approach would also align with the World Economic Forum's AI Procurement in a Box toolkit (published in partnership with Deloitte), which emphasizes robust and consistent procurement processes across the public sector.[59] This alignment will ensure clear expectations for vendors regarding sustainability, equity, and responsible data use while integrating public benefit considerations into decision-making processes when assessing proposals. By implementing a risk-based framework for AI procurement, the Canadian public sector can lead by example by balancing innovation with trust in seeking to mitigate potential harms associated with AI technologies.

6

Incorporate AI literacy into Canada's AI strategy

TRUST

A foundational knowledge of AI would enable Canadians to engage meaningfully with AI and position the country as a leader whose citizens are prepared to navigate the opportunities and risks of its AI future.

While K–12 education is an important starting point for AI literacy—one that provincial lawmakers, as opposed to federal ones, need to consider—there's a critical gap in outreach and programming for adults or those outside traditional education systems. Employers have an important role to play in educating their own workforces, but governments and ecosystem organizations are best positioned to reach the general public. One measure for governments to consider is funding accessible and low-cost or free programs, like CIFAR's Destination AI course, which is designed for all types of learners and available for free online.[60]

7

Establish an approach to assessing and reporting on AI's ecological footprint throughout its lifecycle

AI FOR GOOD

To support the sustainable commercialization of AI, Canada should develop a framework that helps AI companies measure and manage their environmental impact across the entire lifecycle of their technologies—from development and training to deployment and operation. This approach would acknowledge that AI's environmental impact extends beyond development to include deployment and operations and would consider both the direct and indirect environmental impacts of AI applications.[61]

While no ISO-level standard yet exists for measuring the environmental impact of AI throughout its lifecycle, the French Ministry of Ecological Transition and Territorial Cohesion has created AFNOR Spec 2314 on Frugal AI, for example.[62] This national strategy document sets out methodologies and best practices to measure the environmental impact of an AI lifecycle, which they intend to promote as a possible universal model at the ISO level.

Not only will this be beneficial from an environmental standpoint, but research published by the OECD has shown that following good sustainability practices in AI enables efficiency gains in AI compute.[63] Establishing an approach to measuring and managing environmental impacts, with this in mind, would also reinforce the intended productivity impact of the $2 billion earmarked by the government to build AI compute infrastructure. As well, a recent BDC report looking at trends in DEI and ESG (diversity, equity, and inclusion; and environmental, social, and governance) metrics across its portfolio flagged a need for "better tools to capture quantitative data, such as energy consumption and emissions."[64]

Furthermore, the green and digital "twin transitions" are a testament to the potential for emerging technologies to contribute to sustainability efforts. As proposed by the Artificial Intelligence Environmental Impacts Act of 2024 tabled by Congress, adopting voluntary standards for measuring AI's ecological footprint would balance the technology's potential environmental benefits with its harms.[65]

CONCLUSION

The transformative potential of AI to shape Canada's future underscores the importance of a thoughtful, coordinated approach. By embracing collaboration, leveraging strengths, and addressing vulnerabilities, Canada can harness AI's potential to drive us toward a future defined by prosperity, inclusivity, and innovation.

Through these coordinated efforts, we will see a future where innovators like Eleanor and Caroline have access to the capital and regulatory environment that they need to bring their ideas to life (and to scale); where busy professionals like Dev benefit from trustworthy, convenient, and highly personalized services made possible by human–AI collaboration; and where communities like Jean's are empowered to address long-standing challenges like food insecurity and inequitable access to healthcare by leveraging AI-powered technologies.

We cannot take this bright future for granted. The journey to 2030 will require commitment, creativity, and cooperation from all sectors of society to ensure that AI serves as a force for good, enhancing the lives of all Canadians, and enabling people and communities across the globe to benefit from made-in-Canada AI solutions. All of us have a role to play in proactively influencing the arc of AI toward the future we want.

APPENDIX

Compiled recommendations

IMPERATIVE		STRATEGIC LEADERS	POLICYMAKERS
DEFINE AMBITION	**Vision**	Build a comprehensive AI strategy that is ambitious, trust-building, and oriented toward equitable, sustainable prosperity	Craft a bold vision for Canada's AI future
	Focus	Identify AI opportunities with the greatest potential	Establish a harmonized system of public investment in AI that identifies competitive strengths and optimizes incentive structures targeting high-priority fields
		Adopt a portfolio mindset to move up the AI maturity curve	
BUILD TRUST	**Governance**	Implement a responsible, forward-thinking AI governance framework that prioritizes transparency and accountability	Build trust and promote good governance by positioning Canada as a global leader in AI standardization and safety
			Focus CAISI efforts on real-world risks and applications of AI and regularly communicate findings to the public to foster trust
			Adopt a risk-based approach to public AI procurement
	Literacy	Invest in AI literacy	Incorporate AI literacy into Canada's AI strategy
	Human–AI synergy	Assemble cross-departmental teams to reimagine roles for optimal human-AI synergy	
		Nurture timeless human capabilities to help people adapt to an AI-augmented world of work	
COMMIT TO AI FOR GOOD	**Equity and sustainability**	Embed equity and sustainability principles in AI strategies and governance frameworks	Establish an approach to assessing and reporting on AI's ecological footprint throughout its lifecycle
		Explore ways to deploy AI in service of solving societal problems	

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