



# AI and Productivity



Doubling AI adoption in the next few years will be critical.

# Artificial Intelligence is poised to lift Canada's productivity to new levels.

**As revolutionary technologies redefine the workplace and rewrite the rules for business efficiency and competitiveness, Canada stands at historic crossroads.** The rapid proliferation of Artificial Intelligence is transforming our business and social landscape, ultimately positioning us for an unprecedented leap in productivity, competitiveness and economic growth.



# The big picture

Canada has been witnessing a long-term dip in real GDP growth, largely due to stagnant productivity. Measured on a real GDP-per-hour-worked basis, Canadian labor productivity is “trailing behind” other advanced economies, notably the US. Several factors contribute including: weak R&D investments and a resulting “innovation gap”, relatively large concentration of small businesses, an aging population, a shrinking workforce and the critical need for modern skills and technology. While the government is taking steps to improve productivity, individual businesses can play a critical role too.

Businesses need smart ways to make more and higher-value products and services with the same amount of effort, and today, Artificial Intelligence offers a way to do just that.



## Productivity meets AI

A responsible and ethical use of AI has the potential for transformative change. AI isn't new but has evolved to a state that makes it so accessible, versatile and scalable, that it is uniquely suited to tackle Canada's multifaceted productivity challenges.

From our perspective, AI isn't just another tool in the toolbox; it's a lever that has the power to redefine how productivity is achieved. AI could potentially supercharge global GDP by 7% or \$7 trillion over a decade, adding a yearly 1.4% bump to productivity.<sup>1</sup>

Based on AI's potential and CGI's experience in enabling Canadian organizations adopt AI, we strongly see the need for strategic acceleration in the adoption of responsible AI to get to par with our OECD counterparts. Our experience indicates that there is a need to elevate

AI adoption from an estimated 30-40% of organizations to 70%.

<sup>1</sup> <https://www.goldmansachs.com/intelligence/pages/generative-ai-could-raise-global-gdp-by-7-percent.html>

# AI's shift: From automation to creation

**AI is evolving from enabling automation to enabling creation. The big advancement with generative AI today is the ability to produce something new.**

This is a game-changer for how much work can get done. Generative AI capabilities are soaring across every industry and function - personalized customer interactions, healthcare diagnostics, drafting complex business reports and academic articles, language translation, software and computer-code refinement and generation, and more.

AI is already proving to remarkably boost productivity in real workplaces by acting as a complement. For example, in one study, Customer Service employees using AI to create conversational scripts boosted their productivity – measured as customer issues resolved per hour – by 14% on average. Improvement was even more pronounced among new and less-skilled workers – who completed tasks 35% faster using AI. At the same time, customer satisfaction increased, and employee attrition declined.<sup>2</sup>

Take NOMI Forecast – Canadian banking giant RBC's cutting-edge forecast tool to enhance the customer experience. NOMI Forecast provides clients with a new seven-day view into their future cashflow and upcoming authorized payments, plus timely personalized insights, and advice to help customers manage their money.



Today, as per CGI's 2023 global Voice of Our Clients research with 1,764 executives, 65% of Canadian organizations are investigating, or conducting proofs of concept using AI, but only 4% have implemented AI. Let's dive deeper.

<sup>2</sup> <https://www.cnn.com/2023/04/25/stanford-and-mit-study-ai-boosted-worker-productivity-by-14percent.html>

# ‘Bridging the gap’ between development and deployment

Canada ranks in the global Top 5 in terms of AI research influence but lags far behind when it comes to commercialization and adoption – to the detriment of national productivity.<sup>3</sup>

Some observers label our weak productivity as Canada’s *innovation paradox* – Canadian businesses are good at coming up with compelling concepts and research but we struggle to turn our brilliant thinking into economically viable products and services that will drive organizational and national productivity in the digital economy. Bridging the gap between AI *development* and *deployment*, and closing the skills gap to accelerate our productivity journey, should be high on business agendas as AI use and capabilities soar.

As the Conference Board of Canada suggests in its 2023 report *Digital Skills for Today and Tomorrow*: Canada “must better understand digital skills in the current climate to remain a competitive country and prepare for the future of work – workplace training and upskilling are key to solving today’s skills gaps in advanced areas such as data analysis, cyber-security and cloud technology.”<sup>4</sup>

In British Columbia, for example, it is estimated that the province could face a workforce shortage of about one million people by 2035 amid the ongoing departure of retiring workers and the creation of new jobs as B.C.’s economy expands over the coming decade.

We expect Canada’s healthy immigration numbers to help solve workforce shortages and our need for modern skills. At the same time, we are seeing an increase in the development of new talent as Canadian universities turn out young professionals with important skills in AI, data analytics and other advanced technologies.

But the journey to higher organizational and national productivity also needs to embrace the power of today’s fast-emerging AI capabilities in order to truly revolutionize how we work. And we must accelerate our efforts without delay if we hope to enhance Canada’s economic growth, competitiveness and prosperity as the world around us speeds ahead. There is no time to lose.

<sup>3</sup> <https://internetsociety.ca/press-release-ai-event-march-29/>

<sup>4</sup> <https://www.conferenceboard.ca/product/digital-skills-for-today-and-tomorrow/>

# The key now is to accelerate smart, safe, ethical AI adoption

Simply put, we believe Canada is at a crucial inflection point as businesses continue to explore and invest in AI to fit their unique requirements. The key is to continue investing and innovating – redesigning how we work in order to drive and accelerate productivity. Canada cannot risk missing out on the immense opportunities AI represents to advance organizational and national productivity and ultimately enhance our global competitiveness.

More businesses are quickly recognizing that AI investment is inevitable for future productivity and competitiveness.

Despite the pressing need for more time, skills and budgets on the AI journey, we are seeing greater buy-in from ambitious business leaders – even as they work hard to ‘keep the lights on’ in today’s hypercompetitive environment.

Business leaders ultimately need to fully understand the AI continuum they are embarking on to mitigate risk and optimize the value of AI investment: how the technology actually works, how best to implement and sustain its advantages, how to ensure integrity, governance and public trust – the list goes on. Transparency into how the tool is being used, what the employee and customer experience looks like, where the data and information it provides is coming from – these are essential to AI’s success and trustworthiness.

Modern change-management, and data and AI governance programs to facilitate new work models featuring unprecedented collaboration between humans

and technology, will be vital as well. A balanced approach that keeps humans ‘in the loop’ is critical – one that effectively combines AI’s vast power with human values and judgement as AI use proliferates.

**“We must continue to encourage and advance AI innovation, as the value it brings to improve our lives and businesses is still relatively unrealized. But at the same time, we must advance AI responsibly, which means AI development must apply rigor and risk management to ensure solutions are accurate, inclusive, transparent and safe,”** CGI’s VP and AI Research Center Lead Diane Gutiw, PhD, notes in her recent blog [\*Embracing responsible AI in the move from automation to creation.\*](#)



# Harnessing AI's profound power responsibly is imperative

Amid the promise of profound benefits, AI poses unprecedented risks – making it critical that it is applied in ways that benefit not only businesses but all of society. The rapid advance of AI continues to prompt widespread 'doom-and-gloom' scenarios about the potential for biased outputs, unethical applications and massive displacement of workers worldwide.

Regarding workforce fears, we believe AI will in fact play an important role in solving today's growing talent and resource shortages – particularly as aging workers continue to exit the workforce in large numbers. In our global research, 80% of executives interviewed cited the significance of ongoing IT recruiting challenges and it seems clear that AI will have a positive impact on this trend.

If we harness AI responsibly – ensuring that appropriate guardrails are in place for its reliable and productive use – today's and tomorrow's powerful AI technologies represent an extraordinary opportunity to redesign work for the future.

The federal government in June, 2022 introduced the Artificial Intelligence and Data Act (AIDA). The act aims to ensure that the design, development and use of AI systems is secure, safe and responsible.

As the act notes: **"Canada has drawn from and will work together with international partners – such as the European Union, the UK and the**

**US – to align approaches in order to ensure that Canadians are protected globally and that Canadian firms can be recognized internationally as meeting robust standards."**

The federal government also warns that as AI use becomes ubiquitous and its capabilities expand, **"it is important for standards to emerge for businesses and the public to have clear expectations regarding how the technology needs to be managed. Absent clear standards, it is difficult for consumers to trust the technology and for businesses to demonstrate that they are using it responsibly."**

Success on this front will demand a level of scientific rigor that ensures we are building ethics principles into every stage of AI development – maintaining transparency, privacy, security, statistical relevance, low bias, low variance and inclusivity.

AI algorithms rely on available information and data to provide answers but not all of it will prove useful, appropriate, statistically relevant or even accurate. In Canada, for example, businesses will need transparency into how data and AI responses will vary by region, markets and industries across the country, from Western and Central Canada to Eastern Canada. For example, how AI models are developed and applied by oil-and-gas businesses in Alberta to understand customers, enhance services and drive productivity will differ from AI tools implemented by financial firms centred in Ontario.

# Canada appears poised for a new era of productivity

As businesses everywhere pursue revolutionary innovation to remain relevant and competitive, AI will continue to reveal its profound ability to save time, reduce costs, heighten business efficiency and transform customer and employee experiences – all critical to boosting productivity at the organizational and national level.

CGI's 2022 & 2023 Voice of Our Clients global research reveals that 50-60% of the firms we surveyed are exploring or implementing AI.

It is cited as the primary area for innovation investment over the next three years among major industries such as healthcare, retailing, manufacturing, transportation, utilities and energy.

Now is the time to accelerate AI innovation and productivity – the public is ready and the technology is here. We need to adopt AI responsibly and ensure smart strategies featuring data that is always accurate and reliable. The good news is that most executives we surveyed – 83% – say they are focused on improving data quality, management and governance to advance their data strategy.

As the AI wave gains momentum and strength, it will impact every industry, automating business processes and positioning workers to focus on higher-value roles and tasks. And our view is that while Canada's productivity has lagged, we are poised for a new era of productivity as more businesses in every major industry explore how best to harness AI's revolutionary power.



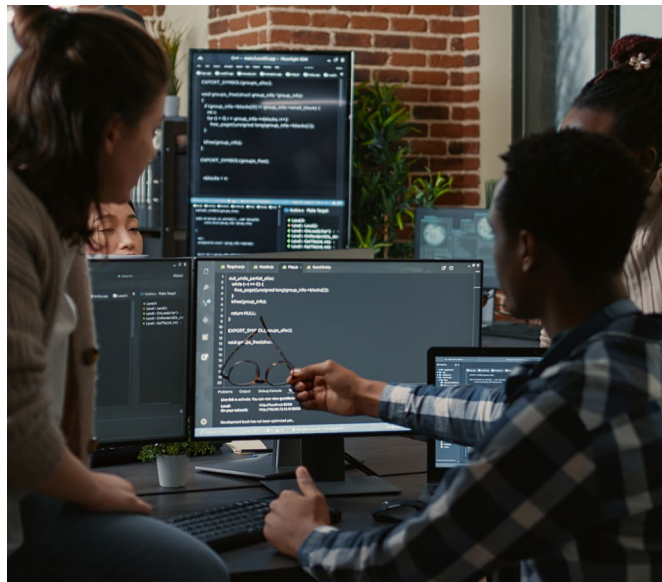


Healthcare, for example, is already making historic strides in key areas that include diagnostics and treatment recommendations, patient engagement and administrative functions. Algorithms are supporting radiologists with rapid identification and diagnosis of tumors, brain bleeds and hard-to-detect conditions, in addition to guiding research in major clinical trials.

Retail and e-commerce businesses are also embracing AI after being catapulted to new technologies and capabilities during the global pandemic. The consumer-centric retail environment is racing ahead with automation and AI-based customer support, order processing, inventory management and virtual-shopping assistants.

New AI use cases are emerging across Canada's manufacturing sector as businesses automate production, monitor operations and manage quality control through predictive and targeted maintenance – while improving worker efficiency and safety. Banking and financial-services leaders are also breaking new ground, tapping into solutions and industry-specific tools that are revolutionizing that sector's customer and employee experiences and overall efficiency.

The Government of Canada had created the Global Innovation Clusters Program, which pulls together technology clusters across the country into five industry-led consortiums designed to help strengthen their industries and position Canada to lead globally.



To date, the government has invested nearly \$2 billion and the 2022 federal budget earmarked \$750 million over five years to invest in innovation funds supporting Canadian companies.

The Canadian Institute for Advanced Research (CIFAR), a leading global research group, predicts that by 2030, Canada could have “**one of the most-robust national AI ecosystems in the world.**”<sup>5</sup>

5 <https://cifar.ca/ai/ai-and-society/publications/>

# Forging ahead with CGI on the AI revolution

Fortunately, in our collaboration with leading organizations in every industry today, we are certainly witnessing progress as more Canadian firms ambitiously explore or embark on the AI journey.

And CGI is providing market-leading expertise to implement transformational AI projects that are designed to accelerate innovation and drive productivity among Canadian businesses.

Our AI experts recently worked closely with a major player in the North American transportation sector that needed to enhance its operational efficiency. The goal was to optimize delivery services by reducing empty return trips and ultimately minimizing truck mileage and operating costs.



We carried out a proof of concept that demonstrated the feasibility of using AI to improve operations, with functionality on an Operations Research (OR) algorithm coupled to Machine Learning. The solution was designed to monitor and predict driver activity and efficiency based on GPS data in key areas such as trip planning, travel times, routing and delays.

CGI's AI specialists worked closely with the organization to gain a clear understanding of its complex business data and the algorithms in use for transportation programming, route optimization and overall efficiency. Our successful initiative delivered an array of benefits to the client, including:



Optimized vehicle mileage that includes reduced costs related to empty-vehicle trips;



Optimized planning of orders and fewer delivery delays;



Optimized hours worked by drivers and support teams based on enhanced efficiency.

The client now has a new window into its operational data and how best to manage it. The AI solution is also scalable to meet evolving needs across transportation planning and dispatch processes. Productivity is on the rise.

CGI's work with a highly specialized business looking to take its drone fleet services to a new level using AI was also successful. Commercial and industrial use of drones

to inspect large or remote areas, especially in particular circumstances such as natural disasters impacting large geographies, is growing rapidly. The client needed to enhance its drone flight planning, execution and navigation to improve efficiency and outcomes, with a focus on data offering insights into the number of drones needed for projects, areas to cover, potential weather delays and more.

Our AI specialists provided a solution that enables the client's drone operations to operate and interact more efficiently and autonomously, with automatic adaptation to emerging needs or configuration changes. The AI model is trained to calculate the best actions needed to optimize results and we met the clients overarching objectives to reduce mission-preparation and planning time and ultimately avoid incomplete missions due to drone failures or errors.

This year, CGI also partnered with Helsinki University Hospital and Planmecca, a leading manufacturer of digital-imaging devices, to develop a breakthrough AI solution that is assisting radiologists in interpreting brain scans and detecting common types of non-traumatic brain hemorrhages.

The solution analyzes data from medical-imaging devices to build and clinically test AI algorithms in line with rigorous regulatory requirements. It assists in detecting patient results that require urgent attention – ultimately easing the workload of radiologists and speeding up treatment by physicians.

**Our continuing success has been a remarkable learning curve for both our clients and CGI.**



Our close collaboration across an array of industries has taught us the critical importance of maintaining a strategic, timely, informed approach that meets the AI needs of every unique business. It's never a one-size-fits-all challenge.

We don't force fit AI into your business, instead collaborating to explore and implement smart AI solutions that will drive efficiency, productivity and ROI. Our experts integrate customized AI models with software engineering best practices and standards, including modern data-privacy protection and compliance with today's ever-evolving security regulations.

# Building on a trusted AI foundation

CGI is also keeping a sharp lens on the future, ambitiously building on our trusted AI foundation to accelerate the AI journey and the race to greater productivity.

We recently announced plans to invest \$1 billion over the next three years to support continued expansion of our AI services and solutions in partnership with clients seeking to move responsibly from experimentation to implementation.

**“We believe that we are at the beginning of a new wave of innovation and that the business value of AI will be achieved through the combination of human expertise and ethical use of technology,”** says CGI President and CEO George D. Schindler.

**“Over the last two decades, CGI has delivered intelligent automation and AI technologies as part of our services and solutions. Today, our consultants are drawing on proven AI use cases and pre-built, industry-focused solutions powered by trusted domain data sets to help clients navigate the hype and make the best return on investments.”**

CGI's AI investments will be prioritized across five dimensions:

- ✓ End-to-end offerings expansion, including an AI business consulting methodology, IP platforms and pre-built solutions;
- ✓ Talent development, including training, hiring and the creation of global 'communities of interest' to accelerate AI use;

- ✓ Go-to-market strategies featuring insightful thought-leadership publications and strong global-alliance partnerships to increase awareness of CGI's AI offerings;
- ✓ Operational and delivery excellence to drive efficiencies and benefits both for businesses and CGI through expanded AI implementation;
- ✓ Incorporating responsible AI use into CGI's Management Foundation to ensure ethical and disciplined practices that consistently meet evolving AI regulations.

As we pursue a new era of productivity, CGI is committed to maintaining three core principles to help businesses navigate the journey from AI experimentation and exploration to rapid, reliable and effective implementation:

## Productivity

We believe AI only has value if you use and manage it properly to support organizational performance. AI is a disruptive technology and, like technologies before it such as cloud, it is core to what and how we deliver for clients. CGI specialists have worked with AI for decades, with much of our work leveraging machine learning. The next step of development is on generative AI and this is the core of our AI investment as we focus on the next wave of innovation. As our recent research shows, fully 80% of executives we surveyed are experimenting with AI and we are dedicated to helping them accelerate the journey into a new era of organizational and national productivity.

## Trust

We work with closed data sets, where data provenance is clearly verified and trustworthy. In our work with a large pharmaceutical company, for example, we compiled data from millions of documents and systems and applied AI to identify, extract and clean structured and unstructured content at speed and scale. Public trust in AI is indispensable to its adoption and its contribution to productivity growth.

## Transparency

We keep human insights ‘in the loop’ at all time to verify the assumptions and decisions AI uses, rooting out bias and keeping AI aligned to company values.

In conclusion, we are experiencing a perfect storm amid the rapid emergence of revolutionary technology, stakeholder and citizen awareness, and our potential to implement AI’s revolutionary power.

Challenges remain as businesses look to adopt AI and effectively manage both its advantages and risks. But there is no time to lose in redefining the workplace and accelerating innovation while ensuring effective AI guardrails, ethical and appropriate adoption and, ultimately, new levels of efficiency, productivity and economic growth.

CGI has been implementing advanced analytics, AI and Machine Learning for business optimization and evidence-based decision making for over a decade. Generative AI is also in our toolbox and CGI will continue to lead the way in accelerating the AI journey for Canadian businesses – moving us into a new era of organizational and national productivity. We believe that a ‘golden age’ of AI is indeed upon us and CGI is ‘all in’ on bringing the promise of productive and responsible AI to life. The time is right – let’s not delay

### Talk to CGI

Let’s collaborate to uncover your best fit AI-use case and navigate AI technology options. Contact us.



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# About CGI

## Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-based to help accelerate returns on your investments. Across hundreds of locations worldwide, we provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

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