



# Microsoft in Québec

## Economic and Social Impact Report

November 2023





## Disclaimer

Ernst & Young LLP (“EY”) was engaged by Microsoft Canada Inc. (“Microsoft”) to conduct a social and economic impact study. In preparing this document (“Report”), EY relied upon unaudited data and information from third party sources, Microsoft, associations, academic and research institutions, and the public sector (collectively, the “Supporting Information”). EY reserves the right to revise any analyses, observations or comments referred to in this Report if additional Supporting Information becomes available to us subsequent to the release of this Report. EY has assumed the Supporting Information to be accurate, complete and appropriate for the purposes of the Report. EY did not audit or independently verify the accuracy or completeness of the Supporting Information. Accordingly, EY expresses no opinion or other forms of assurance in respect of the Supporting Information and does not accept any responsibility for errors or omissions, or any loss or damage as a result of any persons relying on this Report for any purpose other than that for which it has been prepared.



# Foreword by Chris Barry, President of Microsoft Canada

In Québec, as elsewhere in the world, the past few years have been synonymous with inventiveness, adaptation, and uncertainty. In the great upheaval brought about by the COVID-19 pandemic, technology has played a big role in making it possible to continue living as normal a life as possible thanks to hybrid work.

With the pandemic largely behind us, the era of artificial intelligence (AI) is upon us, and it promises to bring solutions that will not only boost productivity but will have a profound economic impact in Québec. Artificial intelligence represents a profound change that propels us towards a future where innovation takes center stage with unlimited opportunities.

Governments and industry share responsibility for equipping the workforce with skills for the AI economy and ensuring the governance of responsible AI, so that our society can take full advantage of the opportunities available to it.

We are proud to work in Québec to support inclusive economic growth for every person, every business, and every community. In Québec for more than 30 years, Microsoft shares the same dreams and challenges with its innovation and business ecosystem. When Québec innovates, Microsoft wins. Conversely, when Microsoft innovates, Québec companies also win.

Building on this relationship, we want to deepen our work and involvement in our community. We share the spirit of collaboration and cooperation that is so dear to Québec. As such, I am proud to present this economic study testifying to the impact of Microsoft in Québec to date through our four strategic pillars:

- This starts with **access to digital technologies and skills**, especially for the world's one billion people with disabilities.
- **Protecting fundamental rights**, from the defence of democracy to the fight against racial injustice and inequality, to the protection of human rights.
- **Creating a sustainable future**. We've been committed to eliminating Microsoft's carbon footprint since its inception and building workplaces that meet the highest energy standards. Québec is a leader in the fight against climate change, and we are proud to be part of this effort.

We're committed to earning trust every day, whether it's privacy, cybersecurity, digital security, responsible AI, or transparency. We want Québec to become a leader here as well, and we will do everything we can to ensure that together, we succeed.

This economic impact report also and above all illustrates the ingenuity of Quebecers. I am excited about what lies ahead as we continue to work together to achieve inclusive and green economic growth for the benefit of Quebecers as we seize the opportunity of the future where AI serves humanity with infinite capabilities.



# Impact at a glance

Ernst & Young LLP (EY) was engaged by Microsoft Canada Inc. (Microsoft, or Microsoft Canada) to conduct a social and economic impact study of Microsoft's operations and activities in Québec.

As part of the engagement, EY:

- Assessed Microsoft Canada's contributions to the innovation ecosystem in Québec, including economic contributions associated with the partner networks and cloud products.
- Quantified the productivity benefits gained by businesses in Québec that use Microsoft Teams.
- Estimated total contributions to the Canadian gross domestic product (GDP) and full-time equivalent (FTE) employment in Québec.
- Evaluated Microsoft's broader socioeconomic contributions to Québec.

## Microsoft's mission is "To empower every person and every organization on the planet to achieve more".

In today's world, this has never been more urgent or more necessary. Microsoft is among the key players in Québec that significantly contributes to the province's economy and society through its partner network, cloud ecosystem, and more generally, through its commitment to delivering innovation that helps drive broad economic growth. Microsoft's products and solutions enable innovation in all sectors, including education and healthcare, and its programs, contributions, and initiatives support the broader community.

### Support inclusive economic growth

Microsoft succeeds only when they help the world around them succeed. That's why they believe economic growth should be inclusive – for every person, organization, community, and country. This starts with increasing access to digital skills and extends to closing the data divide and supporting public health.

- Microsoft's commitment to growing access to skills for jobs has empowered Quebecers from all backgrounds to acquire in-demand digital skills and connect to opportunities in today's digital economy through internships, apprenticeships, jobs and more.
- Microsoft's services and products enable Québec's organizations to digitally transform and transition to more efficient ways of working, while also allowing them to access new market opportunities.
- The Microsoft ecosystem contributes to economic prosperity through job creation, revenue generation, and contributions to Québec's GDP.

### Protect fundamental rights

Microsoft unequivocally supports the fundamental rights of people, from defending democracy, to protecting human rights, to addressing racial injustice and inequity. And, as education, healthcare, and other critical services become increasingly dependent on technology, access to broadband and accessible technology are also fundamental to a more equitable future.

- Microsoft is committed to working across sectors with other businesses, governments, NGOs, and change-makers to foster partnerships and solutions that will have lasting impact in solving societies' greatest challenges.
- Microsoft provides contributions in cash, cloud services solutions, and technology services to Québec's non-profit sector to promote inclusive digital transformation.
- Through the Democracy Forward program, Microsoft works to promote election integrity and provide customers with the tools to safeguard the democratic process from threats.

### Create a sustainable future

Climate change is the defining issue of our generation, and addressing it requires swift, collective action and technical innovation. Microsoft has outlined ambitious commitments and detailed plans to achieve climate goals and is helping others set and achieve their own too.

- To minimize the environmental impacts of its operations and maximize the positive impacts of its technologies, Microsoft has made significant contributions to sustainable projects in Québec and in Canada as a whole.
- Microsoft's global sustainability commitments include reaching carbon negative, water positive, and zero waste status by 2030.
- By 2050, Microsoft has committed to removing its historical emissions since it was founded in 1975.

### Earn trust

Microsoft is optimistic about the benefits of technology yet understands the challenges. To drive positive impact with technology, people need to be able to trust the technologies they use and the companies behind them.

- In response to the growing demand for cybersecurity professionals, Microsoft has partnered with various organizations across Québec on cybersecurity skills development.
- Microsoft is ensuring access to cybersecurity educational resources via course offerings on Microsoft Learn, LinkedIn Learning, and Microsoft Cloud Academy.
- Microsoft is at the forefront of helping governments and businesses defend against cyberattacks.





# Microsoft in Québec: By the numbers

## Microsoft's footprint in Québec

Microsoft's offices throughout Québec are dedicated to empowering people and organizations through technology.

**\$300 million**

invested in Québec over the last three fiscal years<sup>1</sup>

**\$7 million**

invested in research at the Montréal Microsoft Research Lab<sup>2</sup>



**Microsoft Offices in Québec:**  
Montréal (2), Québec City



**Xbox Studio:**  
Compulsion Games (Montréal)



**Azure Datacentre Region:**  
Québec City

Microsoft was the first hyperscale cloud provider to open a Datacentre Region in the Québec City region.



**Microsoft Research Lab:**  
Montréal

Established in 2017, the Microsoft Research Lab in Montréal is one of nine Microsoft Research labs globally. The experts carry out fundamental research in artificial intelligence (AI) and machine learning.

## Microsoft

**Over 1,000**



employees across Québec including those from Microsoft Research, Compulsion Games, and Nuance<sup>3</sup>

**Up to \$4.3 billion**



in annual productivity benefits gained by Québec businesses using Microsoft Teams<sup>9</sup>

**1,300**



unemployed and underemployed youth and adults in Québec will gain access to digital skills programming through Microsoft's investments in NPower Canada's new Montréal hub from 2022-2025<sup>12</sup>

## Partner ecosystem

**3,200+**



Microsoft partners in Québec<sup>4</sup>

**\$5 billion**



in revenue generated annually<sup>5</sup>

**Over \$1 million**



Azure credits to Québec start-ups at LE CAMP since 2019<sup>10</sup>

**192**



teachers were trained in 2021 to use digital tools in classrooms through Actua's National Teacher Training Program sponsored by Microsoft<sup>13</sup>

## Cloud ecosystem

**\$4.1 billion**



of economic activity driven by Microsoft's cloud customers in Québec annually<sup>6</sup>

**93% more energy-efficient and 98% lower carbon emissions**

Microsoft cloud compared to traditional enterprise data centres<sup>11</sup>

## Economic contributions

**\$6.4 billion in GDP**



generated or sustained by the Microsoft ecosystem in Québec annually<sup>7</sup>

**57,600 FTE jobs**



supported by the Microsoft ecosystem in Québec<sup>8</sup>



Note: Figures are presented in Canadian dollars. Jobs are expressed as FTE employment. Note that the estimated partner revenues are attributed to all Microsoft's software products and services; whereas the estimated cloud ecosystem economic activity is attributed to the implementation of cloud solutions only. Methodology is provided in the [Appendix](#).

Sources: <sup>1,2,3,4,10,11,12,13</sup> Microsoft; <sup>5,6</sup> IDC and EY Analysis; <sup>7,8</sup> IDC, Statistics Canada, and EY analysis; <sup>9</sup> Forrester Research, Statistics Canada, and EY Analysis; <sup>11</sup> Microsoft and WSP

# Innovation and technology

**From providing productivity software, AI and public cloud solutions, to supporting the start-up ecosystem and accelerating innovation, Microsoft plays an integral role in Québec's digital economy.**

## Supporting Québec-based start-ups



LE CAMP is the incubator-accelerator dedicated to the growth of Québec City's tech companies and their support. LE CAMP offers a range of services adapted to their stage of maturity, from pre-start-up to the internationalization of their activities.

Microsoft actively contributes to Québec's start-up ecosystem by partnering with the incubator-accelerator LE CAMP. Microsoft has helped support nearly 150 start-ups by giving LE CAMP access to its cloud-based development tools and solutions, equipment, and the consulting expertise of key talent who work with LE CAMP entrepreneurs to unlock their full potential.

Over  
\$1  
million



In Azure credits provided to support Québec start-ups at LE CAMP since 2019<sup>1</sup>

## Enabling healthcare transformation



In March 2022, Microsoft acquired AI company Nuance Communications. Nuance specializes in conversational AI and ambient intelligence with applications in healthcare such as reducing clinician burnout and enhancing early detection and treatment of disease.



Petal is a leading Canadian provider of technology solutions, strategic consulting and healthcare supply and demand orchestration. With more than a decade of experience in digital transformation, Petal is shaping the future of an agile, high-performing and resilient healthcare system. At the heart of its infrastructure is the power of Microsoft Azure, which houses the full ecosystem of its innovative solutions.

## Supporting innovative companies



### A digital twin to make personalized preventive health a reality

BioTwin revolutionizes precision medicine through proactive health surveillance through developing clinical decision support tools for healthcare professionals by creating virtual human twins derived from metabolomic profiling associated with different health conditions. This unique technology uses tens of thousands of biomarkers from biological samples collected with a non-invasive collection kit directly from home.

A key technology, virtual twins, assists healthcare professionals with decision-making, such as early detection, remote monitoring, prognosis, treatment assistance, prediction, simulation, etc. Furthermore, there are wide therapeutic applications with current focus on oncology, diabetes, allergies, women's health, and chronic fatigue.

## AI for humanity and the environment



AiTera is committed to providing socially and economically sustainable solutions for the decontamination of soil and groundwater through AI. Its next-generation decision-making tool is powered by a constantly growing global body of knowledge that includes several million research articles and environmental reports as well as tens of thousands of reported cases of decontamination.



# The AI era is here

Recent months have highlighted the advancements in generative AI, unveiling the potential to profoundly impact industries and societies at large. The unprecedented pace and scale of technological innovation present opportunities for economic growth. Furthermore, AI provides significant advantages to address ongoing social and economic issues, leading to the wellbeing of individuals at large.

## AI is reshaping lifestyles and work environments

2023 represented an inflection point for artificial intelligence. Breakthroughs have been driven by developments in generative AI, systems that can generate new information, including text, images and video, code, and audio content, based on simple prompts or existing data and that will underpin a new wave of AI innovation across the country. Machine learning has been integrated into a wide range of assorted products and services within Microsoft, such as Outlook email client works, predictive text in Word, Bing search engines, and social media feeds in LinkedIn.

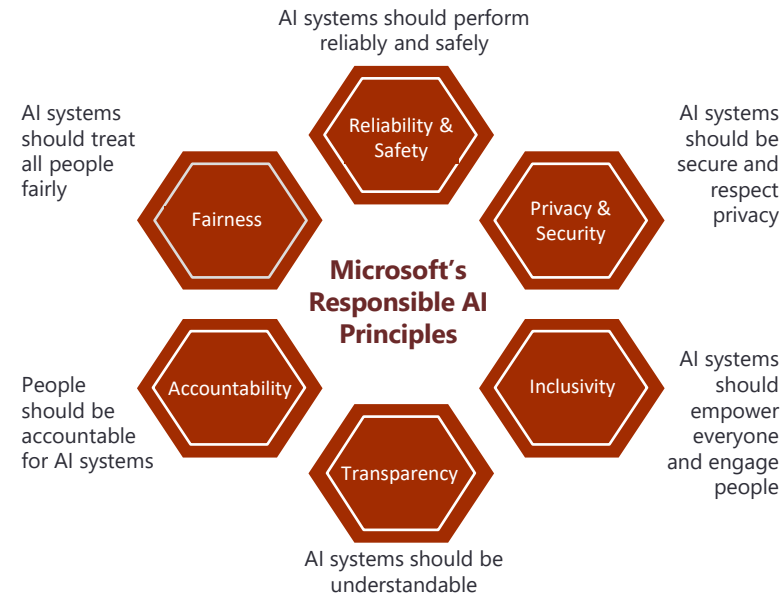
Generative AI has been leading to significant changes in how organizations and individuals approach sustainable value creation in the economy. Leveraging these technologies responsibly with a human-centric approach, users have the potential to benefit from personalized experiences, optimized solutions, and improve wellbeing.

## The promise of AI

Microsoft is working to help bring the benefits of AI to all in society, including helping customers build with state-of-the-art models, infusing AI across products and developing new offerings.

- **Creativity and critical thinking:** AI will be used to help people explore ideas and find information. It offers the opportunity of more personalized tuition, tailored to people's different needs.
- **Productivity:** Tools like GitHub Copilot, an AI powered coding assistant that 90% of coders say makes them more productive, will support people across different domains, helping teachers and physicians, for example, to conduct more effective research and reduce administrative tasks.
- **Addressing major societal challenges:** AI is already being used to develop new medical treatments, create clean fuels, better understand and mitigate climate change, and model the impacts of economic policy and help farmers improve yields.

Source: Microsoft



## Putting people first and committing to help realize the opportunity of AI responsibly

As a company developing and deploying this technology, Microsoft is committed to working with others, including governments, to ensure AI is built and used responsibly and ethically, advances international competitiveness and national security, and serves society broadly, not narrowly. A collaborative effort involving government, civil society, and industry is crucial to establish regulations, norms, and standards to govern the responsible use of AI as it becomes increasingly integrated with everyday tools. Developing a multistakeholder approach is needed to ensure responsible and ethical practices in the deployment and use of AI technology.

## Skilling for the future

Microsoft Canada has launched the Operational Risk Skills Development Center in partnership with KMPG. The pilot project aims to equip businesses and governments with the knowledge and tools to navigate the complexities of cybersecurity and generative AI effectively.

The initiative offers free and practical and French-first training in cybersecurity and generative AI for business leaders and board members, representing an investment of \$1.7 million over three years with more than 11,000 learners benefitting in the initial phase.

**“At Microsoft, our mission is to empower every person and every organisation on the planet to achieve more. That means we make sure we’re building technology by humans, for humans. We should really look at this technology as a tool to amplify human potential, not as a substitute.”**

**Natasha Crampton, Chief Responsible AI Officer, Microsoft**



# Supporting inclusive economic opportunity

**The Microsoft partner ecosystem has been, and continues to be, at the centre of how Microsoft delivers technology, services, and cloud-to-edge solutions that enable business transformation for customers across Canada and in Québec.**

Canadian organizations of all sizes and industries are digitally transforming and thriving thanks to the dynamic network of over 3,200 partners in Québec. Microsoft has a symbiotic relationship with its network of partners throughout Canada, serving as a key driver of digital transformation and growth for these companies. To illustrate, each dollar of revenue generated by Microsoft, generates \$9.58 for partner service providers.<sup>1</sup>

Microsoft partners, including Québec's entrepreneurs, start-ups, app builders, software development firms, and technology companies, build tech intensity with innovative solutions for Québec businesses, work to close the digital divide, and digitally transform workplaces to enable organizations to achieve more. Microsoft and its partners work to increase access to digital technologies, which promote opportunities for every person, community, and organization. Through this network of partners, Microsoft drives value creation and redistributes the value created locally.

For instance, Microsoft supports the public sector in its partnership with the Government of Québec on a tailored skills training initiative. Microsoft also supports value creation in private sectors through its leadership in various educational opportunities, such as its partnership with LE CAMP to provide training and mentorship to start-ups. Microsoft enables Québec's organizations to harness the power of cloud technology and digital transformation with the Azure Datacentre Region located in the Québec City region.



## Partner ecosystem

**3,200+**   
Microsoft partners in Québec<sup>2</sup>


**\$5 billion**   
generated in revenue annually<sup>3</sup>

## Cloud ecosystem

**\$4.1 billion**   
of economic activity  
driven by Microsoft cloud  
customers in Québec  
annually<sup>4</sup>

## Economic contributions

**57,600 FTE**   
jobs supported by the  
Microsoft ecosystem in  
Québec<sup>5</sup>

**\$6.4 billion in GDP**   
generated or sustained by the  
Microsoft ecosystem in Québec  
annually<sup>6</sup>

Notes: Figures are presented in Canadian dollars. Note that the estimated partner revenues are attributed to all Microsoft's software products and services; whereas the estimated cloud ecosystem economic activity is attributed to the implementation of cloud solutions only. Economic contribution results include a total of direct, indirect, and induced contributions. Methodology is provided in the [Appendix](#).

Sources: <sup>1</sup> IDC; <sup>2,7</sup> Microsoft; <sup>3,4</sup> IDC and EY Analysis; <sup>5,6</sup> IDC, Statistics Canada, and EY analysis;



# Empowering the hybrid workforce and ensuring safety across Québec

## Microsoft is empowering and supporting Québec's businesses in transitioning to the hybrid work model.

The COVID-19 pandemic accelerated the digital transformation and the adoption of remote work. From April 2020 to June 2021, close to 70% of Canadians in the professional services sectors worked from home.<sup>1</sup>

Digital communication technologies enabled remote work, allowing Québec's businesses to not only mitigate revenue losses, but support flexible and now hybrid work environments for employees.

For example, Microsoft 365 and Teams help Québec's businesses work more productively by breaking down the barriers of multiple applications so people can find information, collaborate, and stay in the flow of work. Microsoft Viva further supports employee experience by bringing together communications, knowledge, learning, and resources. Using these applications, organizations are enabled to ensure their employees are more productive, empowered, and included.



## Up to \$4.3 billion

in annual productivity benefits gained by Québec businesses using Microsoft Teams<sup>2</sup>

### Time savings



- Collaboration
- More efficient and effective meetings
- Reduced application switching time



### Productivity gains



- Optimized work environment
- Increased time for learning
- Increased creativity

**“Employee expectations are changing, and we will need to define productivity much more broadly — inclusive of collaboration, learning, and wellbeing to drive career advancement for every worker, including frontline and knowledge workers, as well as for new graduates and those who are in the workforce today.”**

**Satya Nadella, Chairman and CEO of Microsoft**

Notes: Productivity benefit estimate is presented in Canadian dollars. Methodology is provided in the [Appendix](#).

Sources: <sup>1</sup> Statistics Canada; <sup>2</sup> Forrester Research, Statistics Canada, and EY Analysis.



Teameo, a Microsoft partner, is an innovative digital education management system integrated with Microsoft Teams. The program connects the different systems of a school organization to simplify the digital environment of teachers and students.

Teameo reduces workload by automating tasks, simplifies the use of technological tools used for teaching, and facilitates the transmission of educational content.



Leveraging the Azure, PowerBI and Microsoft 365 ecosystem, Akinox's healthcare automation solutions were mobilized on a large scale in record time to help the Government of Québec deal with the overwhelming health crisis of COVID-19.

The use of the Akinox Linx platform to support multiple components of public health operations has saved the equivalent of 700 nurses annually and more than \$60 million. Allowing workers to stay at home and direct people towards better testing and compliance with local measures reduced infections and saved many lives.

Akinox also launched the first mobile applications for multi-format vaccination certificates for the government (more than 60 countries supported), #2 in number of downloads on the Canada App Store for 2021, and processing more than 60 million verifications per month at the peak of use.



AI is transforming the City of Laval's 311 non-emergency response system with a virtual agent that is expediting citizen-agent interactions and answering the more basic inquiries on its own.

The introduction of the 311 virtual agent is positively impacting the citizen experience. By eliminating the clerical task of entering the request in the system, the virtual agent is reducing wait times. It is also allowing city employees to respond to complex requests sooner.



# Skills for jobs

**Building up a talent pipeline equipped with digital skills while continuously upskilling the workforce is key to strengthening Québec's economic competitiveness. Microsoft invests in the future of Quebecers by leading and expanding numerous skilling initiatives.**

## Strengthening Québec's innovation economy

Québec's economy needs digital talent for innovation. According to a study conducted by Information and Communications Technology Council (ICTC), Canada requires more than a-quarter million digitally skilled workers by 2025.<sup>1</sup> Between 2019 and 2020 alone, nearly 10,000 new jobs were added to Québec's digital sector.<sup>2</sup>

To bridge the digital skills gap among the workforce, Microsoft has made significant investments in partnerships and programs to:

- Help **existing ICT talent** to continue developing their skills
- Promote an environment of continued lifelong learning with **customers and partners**
- Ensure the **future generations of educators and learners** have access to technology and skills training
- Support and connect **learners** to jobs

## Academic Partnerships

In response to the widening skills gap and the urgent need for digital skills, Microsoft Canada expanded the **Canada Skills Program** and invested in skilling initiatives to build a sustained pipeline of talent equipped with cloud, data, and AI skills. Since its establishment in 2020, the program has helped **over 30,000** Canadian students achieve Microsoft Certifications alongside their institutions' credentials.

Microsoft's partnerships with post-secondary institutions drive the cybersecurity curriculum and help address the skills gap in Québec. Microsoft's commitments include providing tools and supports to students and faculty at Concordia University and Université Laval, including introducing the Microsoft Chair in Cybersecurity at Université Laval.

The Montréal Microsoft Research Lab takes on PhD interns and works with Mila to engage faculty and offer part-time work and scholarships to students to help develop future AI and machine learning experts.

## Digital skills are highly in-demand

**70%+**



jobs require basic digital skills in today's labour market<sup>3</sup>

**10,000**



new jobs for digitally skilled workers in Québec between 2019-2020<sup>2</sup>

**10%**



Canadian businesses reported difficulty hiring digital talent<sup>4</sup>

## Empowering Québec's workforce

**192**

**actüa**

Educators were trained in 2021 to use digital tools in classrooms through Actua's National Teacher Training Program sponsored by Microsoft<sup>5</sup>

**1,100+**

**actüa**

Indigenous youth in Québec reached through Actua's InSTEM program, supported by Microsoft in 2021<sup>6</sup>

## Supporting underrepresented communities:



**NPower Canada** helps supply youth and adults who face systemic barriers to employment with the in-demand tech skills Québec's economy needs. Microsoft supports the **Canadian Tech Talent Accelerator** program, a 15-week skills training and job placement course that will equip **6,000** Canadians for in-demand digital careers.

In November 2022, NPower Canada launched its **first bilingual** program site for holistic IT skills training and workforce development in **Montréal**. This site will serve as a hub for Francophone job seekers, delivering virtual programs in French and in English to those within and outside of Québec. Between 2022 and 2025, this programming, with support from Microsoft and CIBC Foundation, will skill and support nearly **1,300** unemployed or underemployed youth and adults.

Sources: <sup>1</sup> ICTC; <sup>2</sup> Future Skills Centre; <sup>3,4</sup> Statistics Canada; <sup>5,6</sup> Actua; <sup>7</sup> Business Development Bank of Canada.



## Aiding in post-pandemic recovery

The pandemic exacerbated labour shortages in many industries that had already faced difficulties hiring. A recent study by the Business Development Bank of Canada in 2021 found that **more than half** of Canadian businesses struggled to hire workers. **Nearly 44%** of businesses identified skill shortages as the main cause for hiring difficulty.<sup>7</sup> Digital upskilling, therefore, becomes vital for business recovery and for ensuring all Quebecers have the opportunity to pursue in-demand jobs in a post-pandemic world.

## Promote inclusivity

People need access to technology and digital skills to pursue the in-demand roles of today and tomorrow. Microsoft works to increase equitable access to broadband, technology, skills, and data to deliver more opportunities for **all communities** to thrive in an increasingly digital world.

# Creating a sustainable future

Climate change is a defining issue in the economy, and addressing it requires swift, collective action and technological innovation. To minimize the environmental impacts of its operations and maximize the positive impacts of its technologies, Microsoft has made significant contributions to sustainable projects in Québec, in Canada, and around the world.

## Microsoft's global commitment to a sustainable future

### Carbon negative



Reduce and remove carbon emissions, and use renewable energy to reach carbon negative by 2030. By 2050, remove historical emissions since Microsoft was founded in 1975.

### Water positive



Replenish more water than what Microsoft uses by 2030.

### Zero waste



Across Microsoft's direct business by 2030.

### Planetary Computer



Build a global environmental network tool to monitor, model, and manage the world's ecosystems and protect more land than Microsoft uses.

"As a leading technology provider of sustainable solutions, Microsoft is supporting our customers and partners as they move toward a net zero, environmentally sustainable future."



**Brad Smith, Microsoft's President and Vice-Chair**

## Microsoft is collaborating with organizations across Québec to build a more sustainable future



GoodLeaf Farms, a sustainable vertical farming operation that has half the carbon footprint of conventional open-field farms, is opening a new location in Montréal. Microsoft is helping to improve the sustainability of the farming industry by helping GoodLeaf Farms utilize data, with Microsoft Azure Synapse Analytics and Microsoft Power Platform, to optimize the conditions around their farming methods and to improve the yield and quality of their products to meet sustainability goals.

## Benefits of Microsoft cloud <sup>1</sup>

Relative to traditional data centres.

**93%**



Microsoft cloud is up to 93% more energy-efficient



**98%**



This results in up to 98% reduction in carbon emissions

## Microsoft initiatives and programs <sup>2</sup>

### US\$1 billion



Climate Innovation Fund to accelerate development of climate technologies globally

### Emissions impact dashboard



A dashboard to measure Microsoft cloud-based emissions and carbon-saving potential

### Technology grants



42 technology grants to 29 Canadian organizations working on environmental challenges

### Microsoft cloud for Sustainability



A new solution offering comprehensive, integrated, and automated sustainability management for organizations of all stages

Note: Figures are presented in Canadian dollars unless noted otherwise.

Sources: <sup>1</sup> Microsoft and WSP; <sup>2</sup> Microsoft.

# Earning trust and advancing cybersecurity

By using advanced cloud technology, a Zero Trust approach to cybersecurity, and a network of cybersecurity experts, Microsoft is at the forefront of helping businesses and governments defend against cyber threats.

## Providing access to cybersecurity skills

Remote work, growing online activity, and evolving threats have increased the demand for cybersecurity professionals. A sustained pipeline of cybersecurity professionals is vital for safeguarding the security of Quebecers' most valuable information. In response to the growing demand, Microsoft offers a multitude of courses on cybersecurity hosted on learning platforms such as Microsoft Learn, LinkedIn Learning, and Microsoft Cloud Academy.

## QOHASH

### Discovering and managing data while ensuring the highest security and protection

Coming from the start-up world in Québec City and having worked closely with start-up incubator LE CAMP, Qohash was founded in response to several high-profile data breaches that highlighted the need to improve security tools by providing granular insights into data elements and their users.

Now an established company, strengthened by its network and in partnership with Microsoft, Qohash assists in the discovery and real-time protection of data for major institutions around the world such as Desjardins, allowing increase security of data and compliance with the most rigorous regulatory requirements in terms of the protection of personal information.

Through a user-friendly and intuitive interface, Qohash enables the discovery and management of data from Microsoft 365 and Azure environments, in addition to offering real-time protection on users' workstations and file servers of organizations.

Qohash is working closely with various product teams at Microsoft to further develop a value-added offering for Microsoft customers, both for SMEs and large enterprises with the highest data protection requirements.

Cybersecurity is a priority in Canadian organizations' rapid digital transformation. An IDC study forecasts that nearly 50% of Canadian organizations will unify security capabilities for enhanced threat detection and incident response by 2023.<sup>1</sup>

## Security signals processed by Microsoft globally<sup>2</sup>

**65 trillion**  
signals  
synthesized  
daily



**15,000+**  
partners in Microsoft's  
security ecosystem  
who increase cyber  
resilience



**135**  
million  
managed devices  
providing security and  
threat landscape insights



**4,000**  
identity attacks  
blocked  
per second



**300+**  
threat actors tracked  
by Microsoft Threat  
Intelligence



**10,000+**  
Microsoft security and  
threat intelligence  
experts



July 1, 2022 through June 30, 2023

Note: Figures are presented in Canadian dollars unless noted otherwise.

Sources: <sup>1</sup> IDC; <sup>2</sup> Microsoft



## Cybersecurity Governance and Management Research Chair

Université Laval, the oldest French-language university in North America, in collaboration with Microsoft and Québec's Ministry of Cybersecurity and Digital, has created a new Research Chair in Cybersecurity Governance and Management, held by Professor **Hager Khechine**. The Chair will further develop existing programs, research, and best practices in cybersecurity governance and management for public and private organizations.



## Partnership with Benoît Dupont

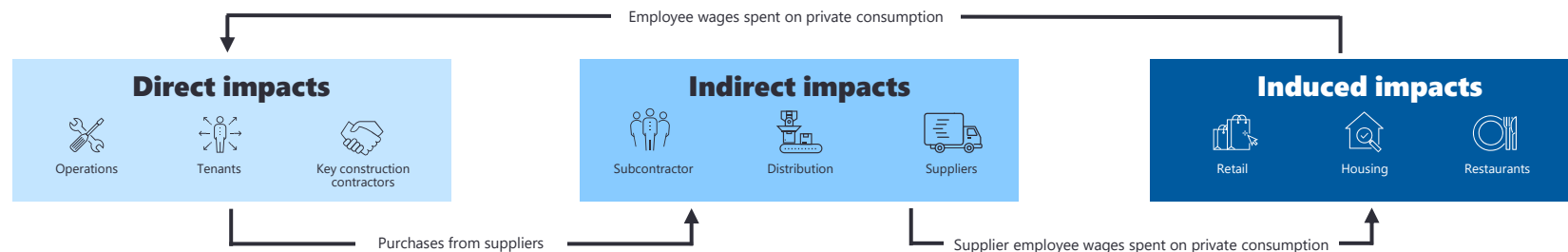
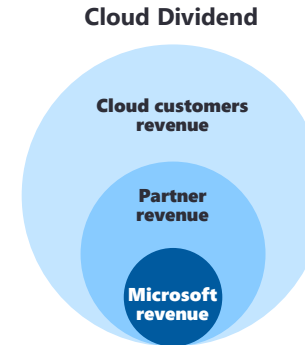
Microsoft has partnered with Dr. **Benoît Dupont**, a leading researcher in cybersecurity who holds the positions of Professor in Criminology, Canada Research Chair in Cyber-resilience, and Research Chair in the Prevention of Cybercrime at the Université de Montréal. He is the co-founder and scientific director of the Human-Centric Cybersecurity Partnership which works to bring together academia, government, industry, and non-profits to promote cybersecurity knowledge.



# Appendix: Methodology

Annual economic contributions of the Microsoft partner ecosystem and cloud-using customers were estimated based on the approach described in the following steps:

- Annual Microsoft revenues in Québec were estimated based on the data from IDC Semi-annual Software Tracker and IDC Public Cloud Tracker. These revenues include all digital, software and cloud products provided by Microsoft. Microsoft partner revenues were estimated using the IDC multiplier of partner revenue-to-Microsoft revenue.
  - Cloud-using customer revenues were estimated based on the IDC Cloud Dividend methodology. The Cloud Dividend methodology states that X dollars are generated by the cloud partners, and Y dollars are generated by cloud-using customers for each dollar of Microsoft cloud-related revenue. Partner revenues that form the basis for cloud-using customer revenues estimate are a subset of total Microsoft and partner revenues estimated in step (1).
  - An economic contributions assessment was conducted using inputs from Statistics Canada, revenues estimated in steps (1) and (2) above and EY's proprietary economic modelling tools, which are founded on the principles of the Input-Output (I-O) model.
- Economic contributions associated with Microsoft partner and cloud ecosystem, are captured through three distinct channels: direct, indirect, and induced contributions. More specifically, we define each of these contributions as follows:
    - Direct contributions include the economic contributions supported directly by the revenues of the Microsoft partner and cloud ecosystem;
    - Indirect contributions include the economic contributions from supporting industries supplying goods and services to the Microsoft partner and cloud ecosystem; and,
    - Induced contributions include the economic contributions that occur when benefited employees from the stimulated direct and indirect economic effects spend their additional wages and salaries on consumer goods and services. The induced activities are assumed to be primarily in service or consumer-related industries, such as retail, transportation, accommodation, food and beverage services, and banking and finance.
  - Economic contribution indicators reported in this study are:
    - Gross Domestic Product (GDP): a measure of the value of all final goods and services produced in a region; and
    - Full-time-equivalent (FTE) jobs: total number of employee jobs that are converted to full-time equivalence based on the average full-time hours worked.



## Microsoft Teams productivity benefit

Annual productivity benefit generated by Québec businesses using Microsoft Teams was estimated in the following steps:

- Number of Microsoft Teams users was estimated using Statistics Canada employment data, collaborative application usage research, and Microsoft's competitor market share in the collaborative applications market segment.
- Average annual time savings generated by the Québec business users were estimated based on the inputs from Forrester economic impact of Microsoft Study commissioned by Microsoft.
- Annual productivity gains were estimated based on the value of time saved using Statistics Canada wage data.

Productivity gains refer to benefits when labour productivity increases. In this case, businesses and/or worker may allocate the time saved to other productive activities in Québec's economy.

