

Why Artificial Intelligence Giants are Heading North to Montréal



A world leading economic development agency



2nd
BEST INVESTMENT
PROMOTION AGENCY 2021

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Top reasons to invest in AI in Greater Montréal



Global leaders, including **Google, Microsoft** and **Meta**, have made Montréal their AI R&D centre



Among the **best student cities** in the world and university capital of Canada



AI based on ethics and the common good with the Montréal Declaration and organizations such as OBVIA**



Home of **Scale AI**, Canada's AI supply chain supercluster and **ICEMAI***



1st in Canada for university research funding with nearly 2B\$ per year



Lower operating costs compared to any other major metropolitan area in Canada and the U.S.



Cutting-edge expertise developed by world-renowned researchers such as **Yoshua Bengio, Joëlle Pineau, Doina Precup, Hugo Larochelle, Irina Rish** and many more!



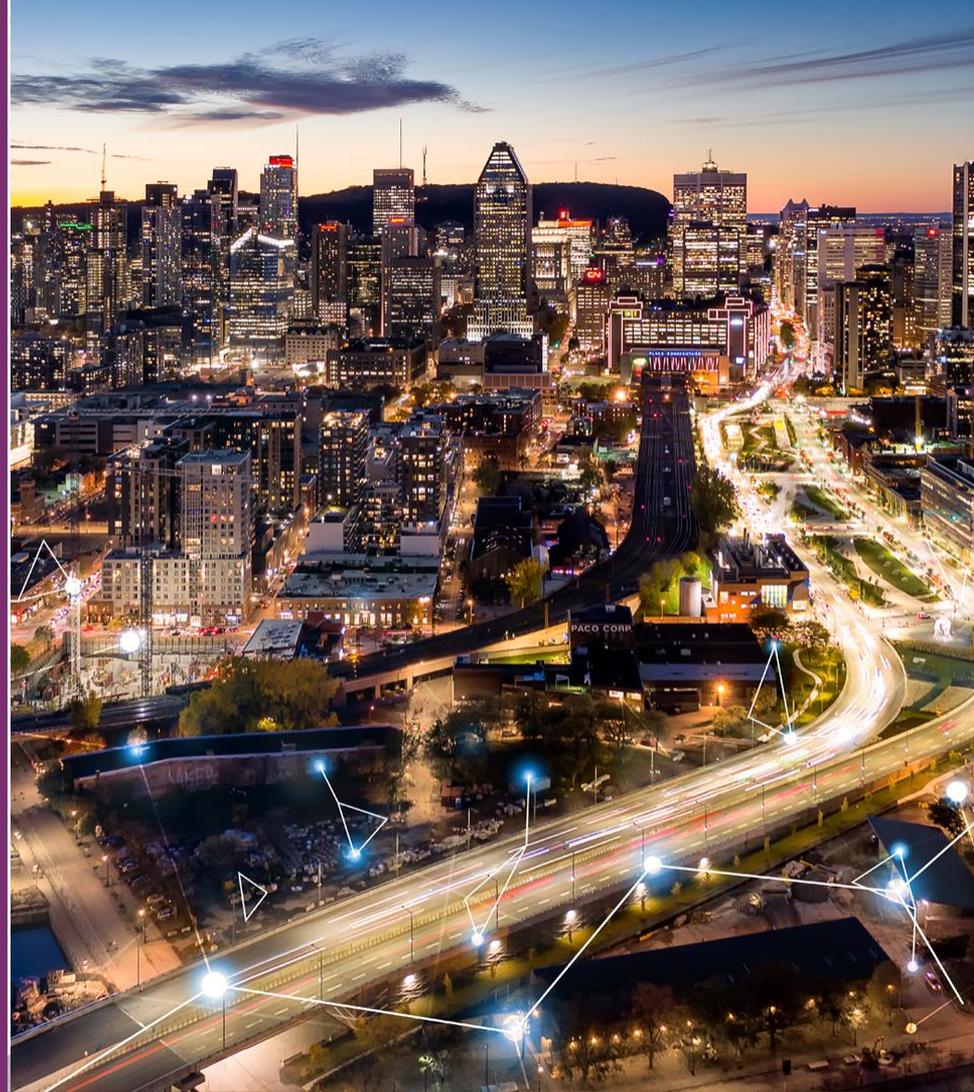
Close to **900 researchers** MSc, PhD, post-doc and applied AI students at **Mila**, the **world's largest academic research lab in deep learning and reinforcement learning**



Attractive tax credits and incentives for **R&D** and **talent development**

01

A World-Class Artificial Intelligence Hub



Mila, a thriving AI hub in the Mile-Ex neighborhood

- With close to **900 researchers**, Mila is the **world's largest academic research lab specialized in deep learning and reinforcement learning**
- A collaborative ecosystem of AI researchers, startups and major companies
- Examples of strategic global partners within Mila:



A unique centre of excellence: IVADO (Institute for Data Valorisation)



More than **1,400** scientists
(professors, professionals and
students) with complementary areas of
expertise

Close to **150**
members and partners

Over **270**
collaborative
research projects

Research centres



Network partners



Academic partners



International partners



40+
research chairs
& labs

Montréal's leading AI researchers

- 1st in Canada and 2nd in the world in the **2021 Top Scientists Ranking for Computer Science & Electronics**
- **Winner of the Turing Award 2018:** “Nobel Prize of computing”
- **Winner of the Killam Prize** in Natural Sciences in 2019
- **Fellow of the Royal Society**
- Full Professor, Department of Computer Science and Operations Research, **Université de Montréal**
- Founder and Scientific Director of **Mila**
- Scientific Director of **IVADO**
- **CIFAR** Fellow and Program Director, Learning in Machines and Brains
- Worked at the CIFAR research institute alongside **Yann LeCun** (now at Meta AI) and **Geoffrey Hinton** (now at Google)

YOSHUA BENGIO
a pioneer in deep learning



World-renowned researchers who make Montréal shine



Joëlle Pineau

Associate Professor with the **School of Computer Science at McGill University** and **CIFAR Senior Fellow**, Program in Learning in Machines and Brains. She is also the Head of the **Meta AI Research lab**, as well as a member of **Mila**



Doina Precup

Associate Professor with the **School of Computer Science at McGill University** and **CIFAR Senior Fellow**, Program in Learning in Machines and Brains. She is also the Head of the **DeepMind Lab** in Montréal, as well as a member of **Mila**



Gregory Dudek

Chaired professor of computer science at McGill University and **Director of McGill School of Computer Science**. He is also the Head of the **Samsung AI Center**, as well as a member of **Mila**



Aaron Courville

Associate Professor in the **Department of Computer Science and Operations Research (DIRO)** at the University de Montréal, and **CIFAR Fellow**, Program in Learning in Machines and Brains. He is also a member of **Mila**



Simon Lacoste Julien

Associate Professor in the **Department of Computer Science and Operations Research (DIRO)** at the University de Montréal and **CIFAR Fellow**, Program in Learning in Machines and Brains. He is also Director at **Samsung SAIT AI Lab** and a member of **Mila**



Andrea Lodi

Full Professor at École Polytechnique de Montréal and the **Canada Excellence Research Chair in Data Science for Real-Time Decision-Making**, as well as a member of **Mila**





Major public investments to support AI development and adoption

\$93.5M

from the First Research Excellence Fund (2016)

\$100M

over the next 5 years for the creation of a Québec AI cluster (2017)

\$44M

for the Pan-Canadian Artificial Intelligence Strategy (2017)

\$313M

for Scale AI Supercluster (2018) and for the development of AI talents (2019)

\$329M

over the next 5 years to accelerate the adoption of AI in Québec (2019)

\$15M

for the International Centre of Expertise in Montréal for the Advancement of Artificial Intelligence (ICEMAI) (2019)

Montréal is home to many organizations to propel the industry

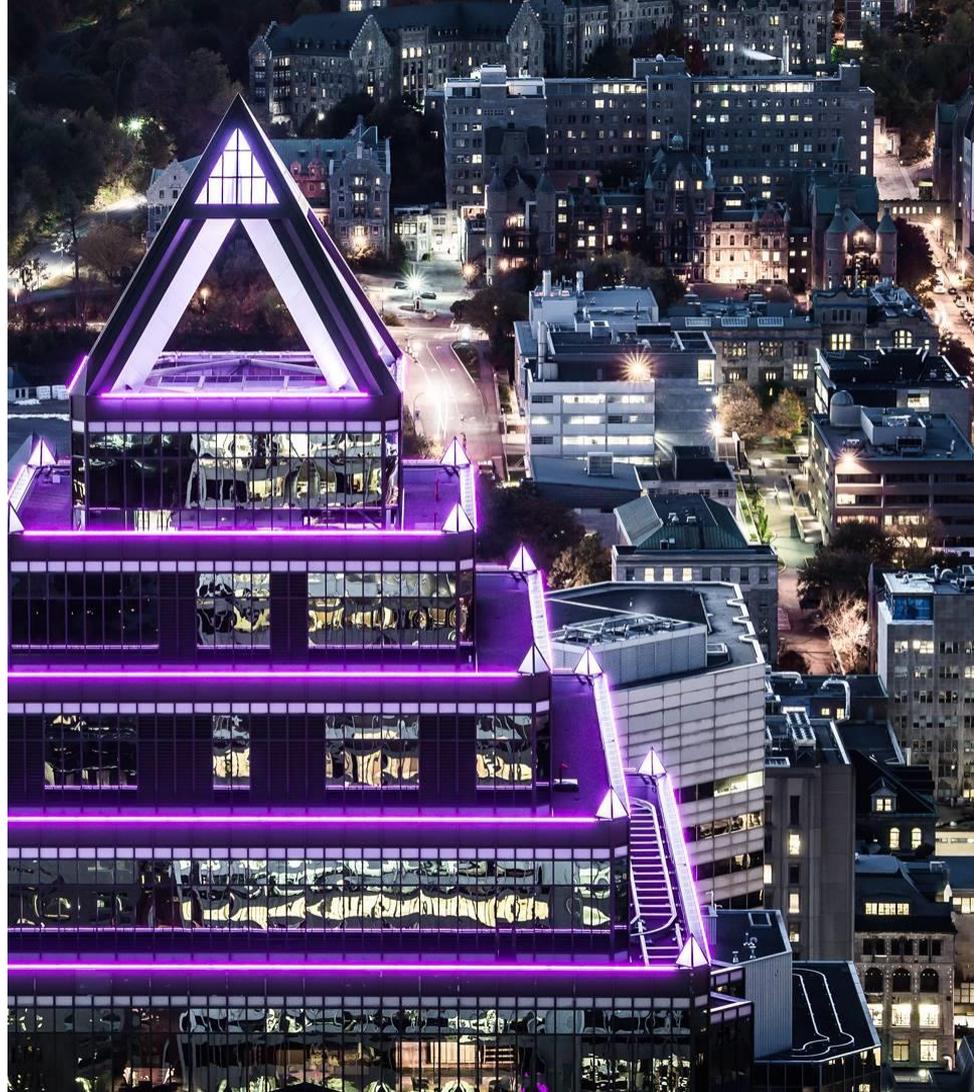
SCALE AI

Canada's AI supply chain supercluster, dedicated to building the next-generation supply chain and boosting industry performance by leveraging AI technologies



Québec's AI organization fostering the development of Québec's AI ecosystem and mobilizing stakeholders in the field around common projects

Examples of other support and funding organizations:





OBVIA, fostering responsible AI and digital technology

- The **International Observatory on the Societal Impacts of AI and Digital Technology (OBVIA)** helps maximize the positive effects of AI and digital technology on society and minimize its negative impacts
- Founding institutions: **18 universities and colleges** in Québec, such as:



- **100+ partners** in Québec, across Canada and internationally
- **\$2.6M+** invested in **innovative research projects** from 2019 to 2021
- **260+ researchers** working across disciplines



The International Centre of Expertise for the Advancement of Artificial Intelligence (ICEMAI) launched in Montréal

- Spearheaded by Montréal International as part of the **Global Partnership on Artificial Intelligence (GPAI)**
- It is one of the two centres of expertise along with the centre in Paris who will work closely with the GPAI Secretariat, housed at the **OECD**
- ICEMAI will support two of the four themes the GPAI will be working on: **responsible use of AI** and **data governance**
- It will also analyze measures to strengthen our national capacity to **commercialize** and **adopt AI-related technologies**



- **\$15M investment** by the Government of Québec and the Government of Canada
- **A collaboration of industry, the scientific community and civil society:**



Government of
Canada's
Advisory Council
on Artificial
Intelligence

In addition to local and international experts

A few of the world leaders developing their AI expertise in Montréal

2016

-  opens Google Brain Montréal headed by Hugo Larochelle

2017

-  acquires Maluuba and announces it will hire 40 AI specialists
-  opens an AI lab
-  opens its AI lab headed by Joëlle Pineau, Associate Professor at McGill University
-  opens its second international AI lab in Montréal
-  picks Montréal for new AI global hub
-  RBC opens AI lab

2018

-  expands research lab and hires Geoff Gordon
-  opens an accelerator in partnership with Real Ventures
-  creates an AI innovation centre
-  opens an AI lab
-  expands its lab to accommodate up to 60 researchers
-  opens an AI Centre
-  becomes the first VC from Silicon Valley to open an office in Montréal
-  opens an AI office

2019

-  opens an AI innovation lab
-  opens an AI lab
-  launches its global AI accelerator
-  opens an AI lab
-  establishes a strategic alliance with Québec AI Institute Mila

2020

-  announces major expansion in Montréal
-  chooses Montréal for its most important expansion
-  opens its Canadian innovation hub
-  establishes an AI innovation hub
-  opens its AI hub in Montréal

2021

-  opens its new AIoT hub
-  chooses Montréal for its AI centre

Other foreign companies that have chosen Greater Montréal



BIOS

axionable



samasource



BOAST.AI

A strategic hub for solving environmental challenges with AI



Nearly **20 members of Mila**, specialize in research that can help fight the harmful impacts of climate change, such as:

- **David Rolnick**, McGill University
- **Yoshua Bengio**, Université de Montréal



Examples of AI research projects on **climate change** and **environmental research**:

- Using AI to visualize the **impacts of climate change**
- AI and climate change: opportunities, considerations, and policy levers to **align AI with climate change goals**



Mila has numerous projects with industry and academic partners including the **carbon footprint of AI** and the **reduction of greenhouse gas (GHG) emissions** in the energy sector:



An open-source software that help track the location-dependent carbon footprint of algorithms and code. CodeCarbon is a collaboration between BCG's GAMMA, Comet, and Haverford College



An organization created by an international group of volunteers from academia and industry with the goal of catalyzing impactful work at the intersection of climate change and machine learning



A booming startup ecosystem

- Canada is the **most attractive country** in the world for entrepreneurs according to the OECD
- **Six of Canada's ten most active venture capital (VC) funds** in 2021 are based Montréal
- **\$8 B+** in VC investments between 2017 and 2021 in Québec, including **50%+ in Tech**
- Lucrative funding for Montréal's AI companies:

 \$436M (2021)	 \$53M (2019)
 \$43M (2020)	 \$26M (2019)

- Examples of specialized incubators and accelerators:



- And many more!

Source: OECD, "Indicators of Talent Attractiveness", 2019; Canadian Venture Capital & Private Equity Association, 2021.

Sample of leading local companies active in AI in Montréal

Examples of Montréal companies using AI in various fields



IMAGIA: AI-driven personalized care



InVivo AI: facilitating accurate toxicity screening in the earliest phases of drug discovery



wrnch: digitizing human motion and behaviour from standard video



AFX Medical: AI-powered radiology tools intended to treat brain disease



Algolux: using machine learning to empower cameras to see more clearly



Myelin: AI synthesis of ASD scientific data



LANDR: machine learning audio production platform, offering audio creators a suite of tools to support the lifecycle of creation



Fluent.ai: personalized intent recognition that learns from speech, behavior and context, for command and control interfaces



Automat: helping companies use AI to talk to their customers, understand them and serve them better



envision.ai: applies the science of deep learning to the art of visual media



Via: helping energy companies across the globe realize the value of their data through AI and blockchain

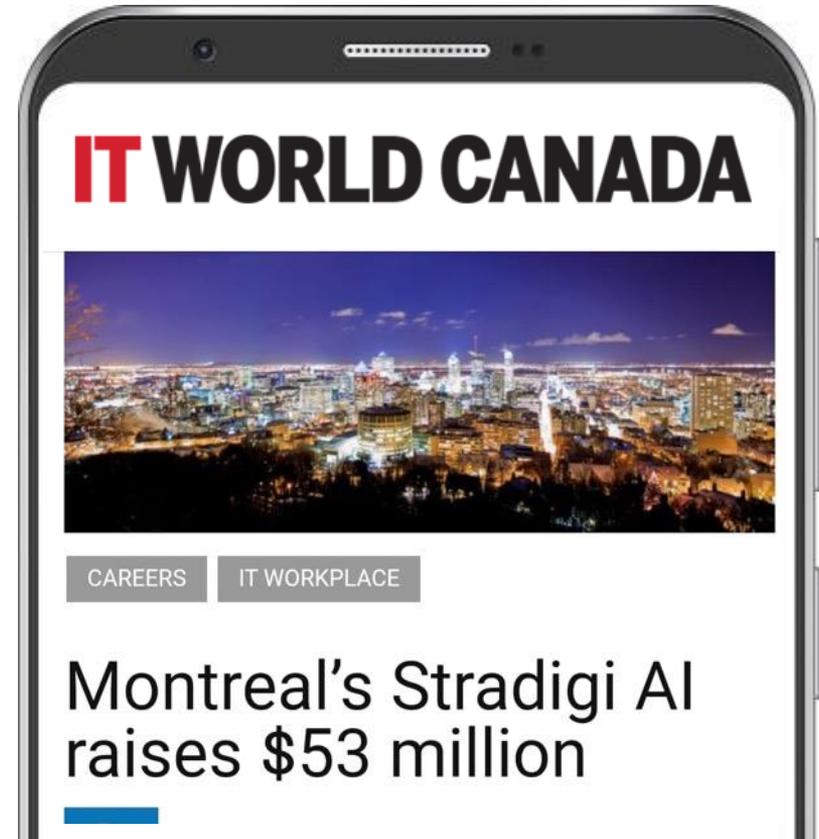


Moov.ai: deploys tailor-made AI and machine learning solutions bringing a concrete ROI to business challenges

Stradigi AI, a global leader in AI platform for businesses, based in Montréal



“Stradigi AI redefines how enterprises work by scaling AI-powered decision-making capabilities for any business user”



At the forefront of AI for good initiatives

- For ethical & responsible AI



<>
Montréal Declaration
Responsible AI_
</>

An initiative of the Université de Montréal

Since December, 2018
more than 1,900 signatures
from citizens and 108
organizations

- Research centres with AI for good initiatives



Mila

Fostering a dialogue on the socially responsible use of AI and the development of social and environmental applications.
Montréal's AI4Good lab aims to get more women working in Artificial Intelligence and other events

HumanIA

Directing AI towards the common good through humanistic and multidisciplinary studies and research



Catalyst for technosocial and responsible innovation projects



TechAide AI4Good Conference and Hackathon 2020

**SINCE ITS OFFICIAL LAUNCH IN 2016,
TECHAIDE HAS RAISED \$1.34M FOR
CENTRAIDE**

AI stands on a strong information technologies ecosystem

- **160,000+ IT workers** and **7,000+ companies** in Greater Montréal
- **Lowest operating costs in North America** for software development, ahead of Toronto, Boston, New York and San Francisco
- **Broadly diversified industry:**



Top 5

video game development hubs in the world



1st

city in Canada and a world leader in digital creativity



Top 5

highest tech jobs concentrations among the largest metropolitan areas in Canada & the U.S.

Examples of major companies located in Greater Montréal



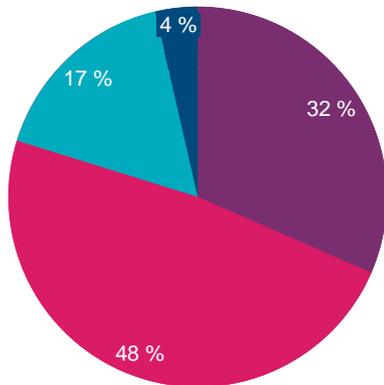
02

A Deep and Growing Pool of Highly Qualified Talent



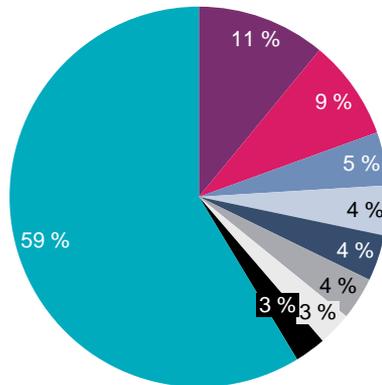
17% of Montréal's AI workers have a PhD and 48% have a master's degree

Highest level of education among AI workers
(100% = 27,373)



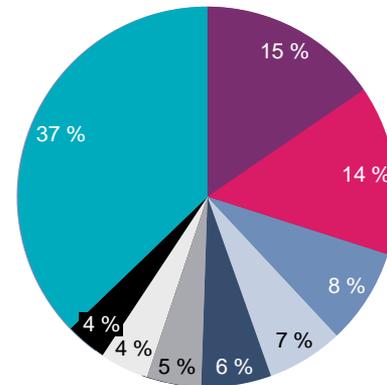
- Bachelor's degree
- Master's degree
- PhD
- Other

Fields of studies of AI workers



- Computer Science
- Computational Science
- Electrical and Electronics Engineering
- Computer and Information Sciences and Support Services
- Computer Software Engineering
- Mathematics
- Information Technology
- Physics
- Autre

Universities where AI workers earned their degrees



- Concordia University
- McGill University
- Université de Montréal
- Polytechnique Montréal
- HEC Montréal
- Université du Québec à Montréal
- École de technologie supérieure
- Université de Sherbrooke
- Autre

The best student city in the Americas and Canada's university capital

- **Canada's university capital:** 15 university institutions and 60 colleges
- **320,000 post-secondary students**, including more than **200,000 university students** and **50,000 international students**
- **1st in Canada for university research funding** with nearly \$2B per year



Best student city in the Americas
 tied with Boston
 QS Best Student Cities Rankings
 2022

1	Montréal tied with Boston
2	Toronto
3	New York
4	Vancouver
5	San Francisco





More than 14,000 university students are enrolled in AI-related programs

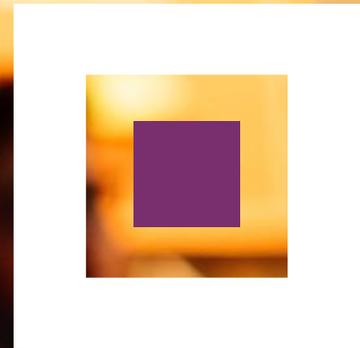
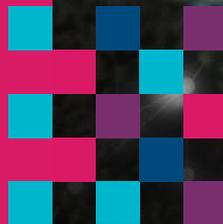
AI-related University programs	Students enrolled 2019-2020	University graduates 2019
Computer Sciences	10,181	2,061
Computer Engineering and Computer Science	2,328	464
Mathematics	1,416	313
Probabilities, Statistics and Applied Mathematics	371	84
Total	14,296	2,921

PIA, a training expertise centre: Initiative of 12 colleges and 7 universities in Montréal for training adapted to the industry



03

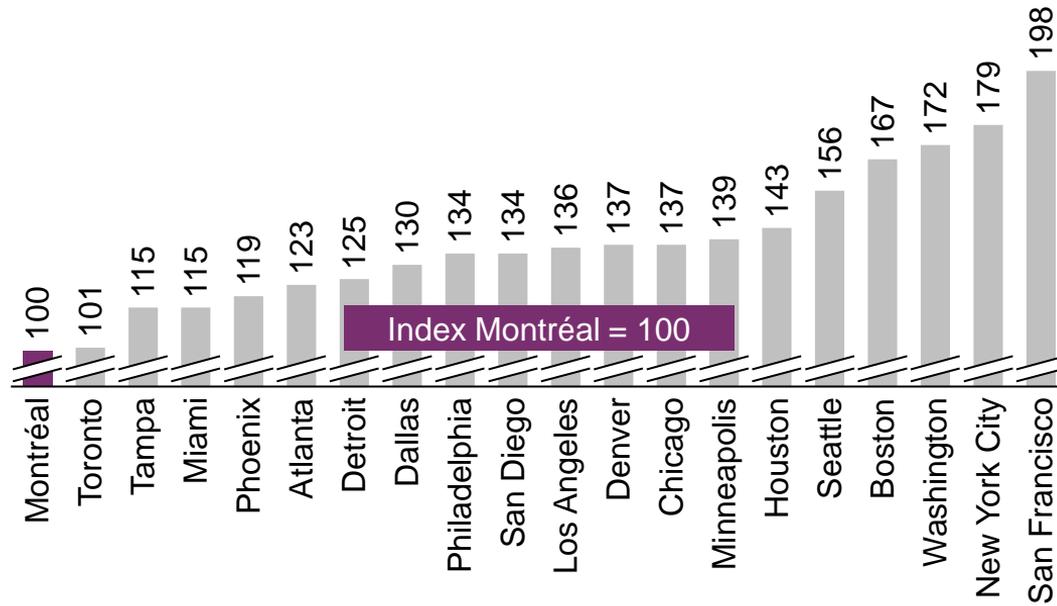
Attractive Operating Costs and Incentives



Operating a business costs less in Greater Montréal than in any other major metropolitan area in Canada and the U.S.

Operating costs index for software development

20 largest metropolitan areas in Canada and the U.S., 2021



28% cost advantage

for **software development** compared to the average 20 largest metropolitan areas in Canada and the U.S.

Advantageous AI and IT salaries for employers

Annual base salaries (US\$) for AI / IT professions

	Montréal	Toronto	Vancouver	New York	San Francisco
Software Developer	\$66,172	\$66,414	\$68,672	\$104,404	\$124,957
Computer Programmer	\$68,072	\$68,321	\$70,644	\$107,932	\$129,179
Software Engineer in AI	\$75,757	\$76,034	\$78,619	\$122,504	\$146,620
Machine Learning Engineer	\$94,969	\$95,316	\$98,557	\$157,006	\$187,915
Data Scientist	\$94,969	\$95,316	\$98,557	\$157,006	\$187,915

Exchange rate for July 2021: 1CA\$ = 0.81 US\$.

Source: fDi Benchmark, 2021.

Low mandatory benefit costs for employers

Examples of mandatory benefit costs for employers, 2022

Gross annual salary*	\$50,000	\$100,000	\$125,000
Québec Public Pension Plan (employee: 6.15%; employer: 6.15%, max. \$3,500)	\$2,859.75	\$3,500.00	\$3,500.00
Québec Parental Insurance Plan (employee: 0.494%, employer: 0.692%, max. sal. of \$88,000)	\$346.00	\$608.96	\$608.96
Employment Insurance (employee: 1.20%, employer: 1.68%, max. sal. of \$60,300)	\$840.00	\$1,013.04	\$1,013.04
Health Services Fund (max. 4.26% if global salary total is more than \$7M)	\$2,130.00	\$4,260.00	\$5,325.00
Commission des normes du travail (Labour standards board) (0.06%, max. sal. of \$88,000)	\$30.00	\$52.80	\$52.80
Commission de la santé et sécurité du travail (Occupational health and safety board) (0.44% in service sector, max. sal. of \$88,000)**	\$220.00	\$387.20	\$387.20
Workforce Skills Development and Recognition Fund - Québec Training Law 1% (1% of their total payroll in training for employers with total annual payroll over \$2M)	\$500.00	\$1,000.00	\$1,250.00
Total benefit costs	\$6,925.75	\$10,822.00	\$12,137.00
Total cost	\$56,925.75	\$110,822.00	\$137,137.00
Total benefits in % of gross annual salary	13.85%	10.82%	9.71%

Note: *Paid vacation represents a minimum of 4% of salary and is included in gross salary. Some rates apply up to a maximum insurable revenue.

**The rate for the service sector (65110 - *Bureau de courtage; bureau de services professionnels; bureau offrant des services de soutien administratif*) is 0.44%. The average premium rate in 2022 is \$1.77 per \$100 of payroll.

Source: Revenu Québec, 2022.

E-Business tax credit could cover up to 30% of eligible salaries

SCENARIO

Québec refundable tax credit for the development of E-Business:

- Covers up to **30%** of employee salaries, including **24% refundable**, up to **\$25,000** per employee, per year

ASSUMPTIONS¹

- Foreign-controlled company
- 20 employees eligible @ \$80,000/year
- 100% of their work is related to eligible activities under the E-Business



Note:

- All values are in \$CA.
- The unused portion of the non-refundable tax credit can be carried back three years or forward 20 years.

Source: Ministry of Finance of Québec, 2021; Montréal International's analysis, 2021.

R&D tax credits: 15% non-refundable from Canada and 14% refundable from Québec

SCENARIO	Canada	Québec
Scientific Research and Experimental Development (SR&ED) tax incentive program		
	Qualifying salaries and wages	\$1,500,000 (A) \$1,500,000 (D)
	Other eligible expenses @ 55% ¹	\$825,000 (B) -
	Subcontractor ²	\$160,000 (C) \$100,000 (E)
	Exclusion on the first \$225,000 of R&D expenditures ³	- \$(225,000) (F)
	Deduction of the Québec R&D credit ⁵	\$(192,500) (G) -
	Total qualifying expenditures	\$2,292,500 (A) + (B) + (C) - (G) \$1,375,000 (D) + (E) - (F)
	Refundable Québec credit @ 14%	- \$192,500 (G)
	Non-refundable federal credit @ 15%	\$343,875 (H) -
	Total tax credit	\$536,375 (G) + (H)

ASSUMPTIONS

- Foreign-controlled company, more than \$75M assets
- 15 eligible employees @ \$100,000/year
- 100% of their work is related to eligible activities
- Subcontractor: \$200,000

Note:

1. Up to 55% of qualifying salaries and wages, federal only: expenditures should be related to R&D activities.

3. Only 80% of the amount paid to a subcontractor is eligible for a federal tax credit and 50% for Québec tax credit.

4. Québec only: For SMEs (less than \$50M assets) there is an SR&ED tax credit exclusion on the first \$50K of R&D spending. For large companies (more than \$75M assets) and companies under foreign control, the exclusion applies on the first \$225K of R&D spending. This amount is deducted of the qualifying salaries and wages.

5. For the purposes of calculating the combined rate of the credit, the tax credit from the government of Québec is applied against the federal tax credit.

Source: Ministry of Finance of Québec, 2021; PWC, 2021; Compilation: Montréal International, 2021.

Combination of E-Business and SR&ED tax credits

Refundable tax credits for Scientific Research and Experimental Development (SR&ED) and E-Business¹:

- E-Business covers up to **30%**, including **24% refundable**, of employee salaries up to **\$25,000** per job per year
- SR&ED covers **15%** from the Government of Canada, and **14%, refundable**, from the Government of Québec

SCENARIO

Combination of the Québec refundable tax credit for the development of E-Business and the Canada Scientific Research and Experimental Development (SR&ED)

ASSUMPTIONS

- Foreign-controlled company
- 20 eligible employees @ \$80,000/year
- 100% of their work is related to eligible activities

	SR&ED	E-Business
	CANADA	QUÉBEC
Qualifying salaries and wages	\$1,600,000 (A)	\$1,600,000 (C)
Other eligible expenses @ 55% of A ²	\$880,000 (B)	-
Total qualifying expenditures	\$2,480,000 (A)+(B)	\$1,600,000 (C)
Federal credit @ 15% of total qualifying expenditures	\$372,000	-
Québec credit @ 30%³ of total qualifying expenditures	-	\$480,000
Total credit	\$852,000	

Other scenarios are possible to maximize the total credit amount depending on the R&D intensity

Note:

1. Company has to choose between the R-D or the E-Business tax credit for the Québec credits. Only the SR&ED applies in combination with the E-Business.
2. Up to 55% of qualifying salaries and wages, federal only: expenditures should be related to R&D activities.
3. If the company has no taxes to be paid, the Québec credit will be 24%.

Source: Ministry of Finance of Québec, 2021 - Compilation: Montréal International, 2021.



Aerial view of downtown Montréal © Montréal International

Other major incentives

Financial assistance for job creation and training

- **25%** of eligible costs for the implementation of a training program and **50%** of costs incurred for the creation of a human resource department

Tax holiday for foreign researchers and experts

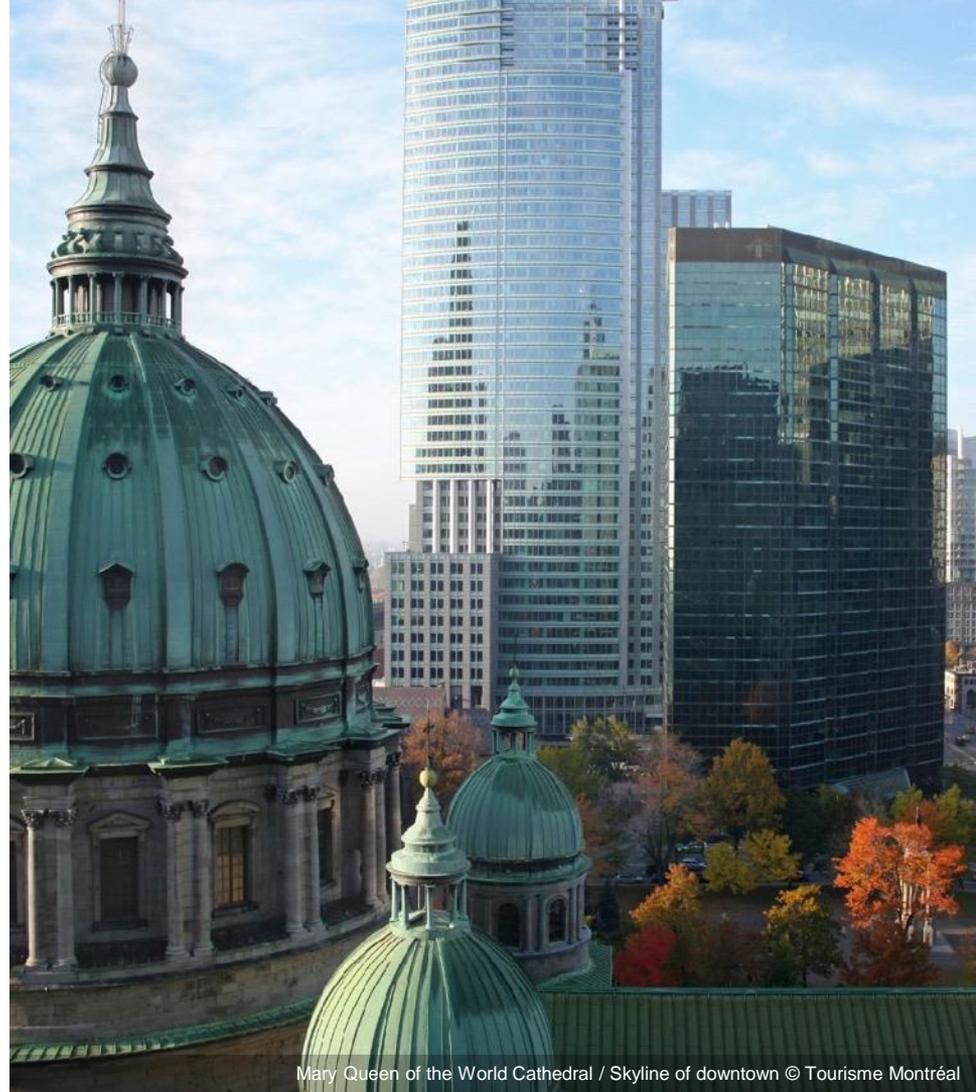
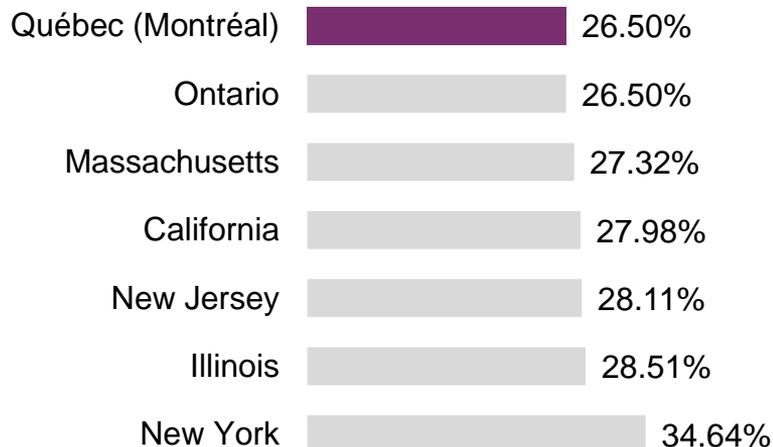
- Five-year Québec income tax exemption
- **0%** of provincial income tax on salary for the 1st and 2nd year
- **25%** for the 3rd year
- **50%** for the 4th year
- **75%** for the 5th year

Internship units to drive collaboration and innovation between universities and companies

- 500 internships created and \$2M invested in Québec to bolster AI research, talent development, and job creation

Québec offers corporations an attractive tax treatment

Comparison of corporate effective tax rate (%)
Selected Canadian provinces and U.S. States, 2021



04

An Exceptional Quality
of Life

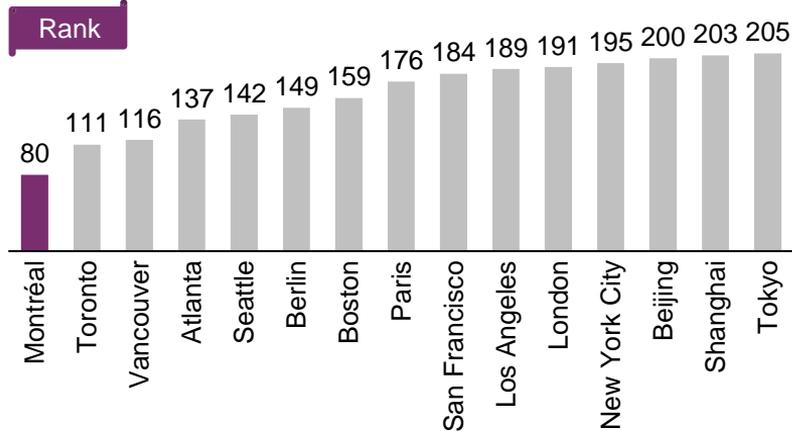




A low cost of living

Greater Montréal is **cheaper than almost all other large cities** in North America, Western Europe, China and Japan:

Mercer Cost of Living Index
World rank from least to most expensive*, 209 cities



Greater Montréal offers a higher purchasing power thanks to:

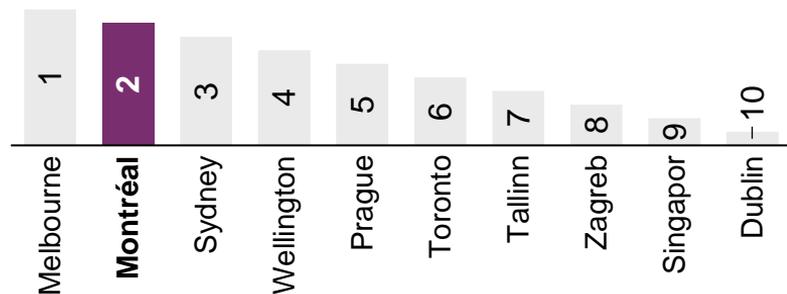
- **Cheap housing**
- **Low medical insurance costs**
- **Generous family allowances**
- **Affordable child care**

* Montréal International's analysis.
Source: Mercer, "Cost of Living Survey," 2021.

An exceptional quality of life

- Montréal is the **2nd best city in the world** for remote workers:

World ranking of the best cities for for remote work, WorkMotion, 2021



- **Lowest homicide rate** among the 20 largest metropolitan areas in Canada and the U.S.
- **Universal healthcare**
- **Lowest education tuition fees** in North America
- **Vibrant cultural metropolis** with 100+ festivals and 70 museums





Montréal's Olympic Stadium © Parc olympique

Globally recognized

Most reputable city in the Americas

Reputation Institute, 2018

Best city in Canada and 6th in the world

Time Out, 2019

Best student city in the Americas tied with Boston

QS Best Student Cities Rankings, 2022

Most affordable major city in Canada and the U.S.

UBS Prices and Earnings, 2018

Best Cycling City in North America

Coya, Global Bicycle Cities Index, 2019

Second most walkable city in Canada

Walk Score, 2020

3rd friendliest city in the world

Rough Guides, 2016

UNESCO City of Design since 2006

Top host city in North America for international association events

Union of International Associations (UIA), 2020

05

Montréal International's Personalized, Free and Confidential Services



Montréal International, a single point of access to a series of personalized, free and confidential services



**Long-term
strategic support**



**Economic data
and communication
services**



**Government
relations facilitation**



**Incentive programs
assistance**



**Foreign workers
immigration
assistance**



**International
recruiting solutions**



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