Montréal International

Greater Montréal's Surging Cybersecurity Sector

Content

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A Surging Business Environment

Mural painting representing Leonard Cohen © Henry MacDonald

A stable and thriving country

One of the soundest banking systems in the world: first in the G7 and second among 140 countries
Economist Intelligence Unit, 2018

Ranks second in the G20 for doing business over 2019-2023
Economist Intelligence Unit, 2018

Tops the G20 with Germany and Australia for its sound fiscal soundness, with a triple A credit rating
Standard & Poor's, Moody's and Fitch

Best country in the Americas and 6th in the world to attract top talent
World Talent Ranking 2018, International Institute for Management Development

The easiest place to start a business in the G20
World Bank, Doing Business, 2019

The most educated talent pool in the OECD, with more than half of its population aged 25 to 64 having a tertiary level education
OECD, Education at a Glance, 2018

Source: Invest in Canada, 2019.

One the leading countries in cybersecurity

- **4th in cybersecurity venture capital deals in the world** behind the USA, Israel and the UK, 2012-2016
  Deloitte, 2016

- **One of the Top 10** most committed countries in cybersecurity
  2017 Global Cybersecurity Index

- Home to 15 companies that made the **Cybersecurity Ventures 500**, including **Go Secure**

- **A signatory of the Paris Call for Trust and Security in Cyberspace**, pledging to do more to fight criminal activity on the internet, including interference in elections and hate speech*

- **$500 M** over five years invested to battle cyber crime and create the **Canadian Centre for Cyber Security**

*On November 12, 2018 at the UNESCO Internet Governance Forum (IGF)
Source: Deloitte, Harnessing the cybersecurity opportunity for growth, 2016;
2017 Global Cybersecurity Index; 2018 Federal Budget.

National Cyber Security Strategy

Canada conducted a three-month public consultation to shape **Canada's renewed approach on cybersecurity** and capitalize on the advantages of new technology and the digital economy.

The ministry published the **2018 Cyber Strategy** which focuses on three key goals:
1. Secure and resilient Canadian systems
2. An innovative and adaptive Cyber ecosystem
3. Effective leadership, governance and collaboration

Canada's cybersecurity ecosystem

Public organizations

Canadian Security Intelligence Service | Service canadien du renseignement de sécurité

Communications Security Establishment | Centre de la sécurité des télécommunications

Public Safety Canada | Sécurité publique Canada

Canadian Centre for Cyber Security | Centre canadien pour la Cybersécurité

Private organizations

serene risc — SMART CYBERSECURITY NETWORK

CICC — Centre international de criminologie comparée | 50 ans 1969 - 2019

ASIMM

ASIQ

Major private certification agencies

ISACA — Trust in, and value from, information systems — Montreal Chapter

(ISC)²®

SANS

A dynamic cybersecurity ecosystem in Greater Montréal

The cybersecurity ecosystem in Montréal is booming, thanks to its close ties to clients such as the provincial and federal **governments in Québec City and Ottawa**, as well as the presence of many global leaders in the **aerospace, e-commerce, finance and retail industries.**

Examples of Leaders in Cybersecurity

In Greater Montréal, there are 50 companies providing professional consulting services, including security audits.

Bell	Security consulting; Managed security; Network and cloud security
CGI	Full IT outsourcing
TERRANOVA	Global leader in cybersecurity awareness
RHEA GROUP	Bespoke engineering solutions, system development and security services
OKIOK	Secure files transfer and storage business process automation services
EY Building a better working world	Integrated perspective on all aspects of organizational risk and key focus on cybersecurity
pwc	Cybersecurity and privacy consulting services

HITACHI Inspire the Next ⊕Hitachi Systems Security Inc.	Global IT security service provider delivering cybersecurity services
Desjardins	Desjardins' cybersecurity kit is protecting businesses against cyberattacks
KPMG	Strategy and governance, cyber defense, cyber response
Deloitte.	Cybersecurity consulting services
DELVE LABS	Provides a leading, autonomous, security vulnerability intelligence platform
KEREON	Cybersecurity consulting services and solutions focused on changing human behaviors

The most notable Centres of excellence in cybersecurity in Montréal

cyber eco	Organization that leads the establishing of Québec talent and expertise collective in cybersecurity, created by **Desjardins Group**, **National Bank**, **Deloitte** and **RHEA Group**
catallaxy	Centre of excellence and expertise in blockchain technologies powered by **Raymond Chabot Grant Thornton**
IN·SEC·M	Non-profit industry cluster that aims to increase the cohesion and competitiveness of the Canadian cybersecurity industry
STATION FINTECH MONTRÉAL	Catalyst for the growth of FinTech start-ups and the acceleration of digital transformation for major financial institutions

Mary Queen of the World Cathedral and 1000 de La Gauchetière and Sun Life buildings
© Tourisme Montréal, Stéphan Poulin

Fighting crime with AI

Montréal is a hub for AI-powered cybersecurity tools

- Nearly **$1.1 billion in AI investments** announced in Greater Montréal since 2016
- The Canadian government chose Montréal as the headquarters for **SCALE AI**, Canada's AI supply chain super cluster
- All major players present and a thriving community aiming for a better world

"With its high concentration of companies and researchers in AI, Montreal is "The place to set up a world-class center that combines cybersecurity and artificial intelligence", thanks to the presence of several universities, start-ups and a skilled workforce."
- CyberEco

Source: MILA; Montréal International Analysis.

Montréal's funding environment

- **More than $1 billion**
  raised in VC by Québec firms in 2017
  (a growth of 102% since 2014)

- **Montréal Ranked 1st
  in Canada**
  for venture capital investments dollars
  in 2017 with $800 M (+ 64% since 2016)

A home to many innovative industry gatherings

Networking events and major cybersecurity shows, such as:

GOSEC
Cybersecurity conference

NorthSec
Applied Security Event 2019

Coopérathon
The largest open innovation challenge in the world!

Hacketons
Upcoming community events in cybersecurity in Montréal

Cyber Security Training in Montréal
By Mangates

" We chose Montreal as the global headquarter for our cyber security R&D and operations centers because it offers us a unique opportunity to easily recruit and attract the best minds in the field from anywhere in the world. In addition to its steady stream of new cybersecurity specialists, its vibrant local cybersecurity ecosystem, and AI talent pool, Montreal unmatched diversity allows us to develop locally solutions that address the global cybersecurity challenges of today and tomorrow."

– Fadi Albatal, Chief Strategy Officer, Hitachi Systems Security

HITACHI
Inspire the Next
Hitachi Systems Security Inc.

"Montreal possesses all of the elements necessary for the success of a cybersecurity organization. The presence of six universities contributes to a strong spirit of innovation within the city and guarantees a steady stream of talented graduates from a multitude of cybersecurity-related programs.

Moreover, in Montreal, we find an active cybersecurity ecosystem, supported by both a talented pool of students and by a variety of organizations—startups and established companies—all working together to organize and support a wide range of activities, from monthly technical workshops to major international conferences."

– Alexis Dorais-Joncas, Director, ESET Montreal

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ENJOY SAFER
TECHNOLOGY™

"Greater Montreal has a strong and active community in all facets of cybersecurity, in particular, cybercrime, information security, industrial security, and embedded computing applications. Its expertise relates to all sectors and industries of the economy, including higher education, the financial and banking sector, aeronautics, the video game industry, as well as the development of cybersecurity solutions using artificial and digital intelligence."

– Vincent Milette, Senior Vice-president, ISACA - Montreal Chapter

ISACA®
Trust in, and value from, information systems
Montreal Chapter

"Greater Montreal's reputation, in terms of creativity and innovation, is well-established on the global scene. These unique qualities, in addition to the high concentration of renowned post-secondary institutions, make Montreal the ideal destination for the development of cutting-edge solutions in the field of cybersecurity."

– Béatrice Couture et Sébastien Demers, Presidents, CyberEco

cyber eco

02

A Deep and Growing Pool of Highly Qualified Talent

MTL INTL
Montréal
International

5,000 cybersecurity experts in Greater Montréal

There are nearly **3,000 cyber security specialists in the IT sector** in Greater Montréal, and another **2,000 in related disciplines** such as criminologist, compliance officer, etc.

Most popular security certifications

Source: Compilation Aviseo, Montréal International, ISACA – Chapter Montréal.

Highly qualified workforce

A great talent pool is also available in cybersecurity complimentary sectors

Professions related to cybersecurity in Greater Montréal	Number of experts
Computer and Information Systems Managers	12,100
Electrical and electronics engineers	3,200
Information systems analysts and consultants	38,100
Database Analysts and Data Administrators	2,900
Software Engineers and Designers	5,900
Computer engineers (except software engineers and designers)	6,100
Computer network technicians	12,300
Lawyers	21,200
Total	**101,800**

Source: National Occupational Classification 2017 - Statistics Canada.

Research chairs in cybersecurity

Université de Montréal
- Canada Research Chair in Cybersecurity
- Canada Research Chair in Quantum Information Processing
- Research Chair in Cybercrime Prevention

McGill
- Canada Research Chair in Data Mining for Cybersecurity

Concordia University
- NSERC / Hydro-Québec-Thales Senior Industrial Research Chair on Smart Grid Security and Cyberphysic Attacks and Chairholder
- Concordia University Research Chair Tier I in Information Systems Security

Polytechnique Montréal — Le génie en première classe
- Mobile Computing and Networking Research Laboratory (LARIM)
- Mobile robotics and autonomous systems laboratory

UQÀM
- Canada Research Chair in Privacy-Preserving and Ethical Analysis of Big Data

McGill University

University research expertise

Mourad Debbabi
Full Professor-Faculty of Engineering and Computer Science
NSERC/Hydro-Québec Thales Senior Industrial Research Chair in Smart Grid Security
Concordia University Research Chair Tier I in Information Systems Security
Research themes: Cyber Forensics, Network Security, Software Security, Malware Analysis

Benjamin C.M. Fung
Associate Professor, School of Information Studies; Associate Member, School of Computer Science
Canada Research Chair in Data Mining for Cybersecurity
Research themes: Data mining & databases, Deep learning, Data security & privacy, Authorship analysis

Benoît Dupont
Professor-Criminology department
Scientific Director of the Integrated Network on Cybersecurité (SERENE-RISC)
Member of International Centre for Comparative Criminology
Canada Research Chair in Cybersecurity
Research Chair in Cybercrime Prevention
Research themes: Identity theft, Bank fraud, Hacking, IT Fraud, Technological ecosystems, Cybersecurity, politics

Sébastien Gambs
Professor - Computer Science
Canada Research Chair in Privacy-Preserving and Ethical Analysis of Big Data
Research themes: privacy and computer security, particularly for location-based services and the mobile context

José Fernandez
Associate Professor, Department of Computer Engineering and Software Engineering. Member of Ivado & GRIM.
Research themes: Computer security and artificial intelligence applied to cybersecurity

Gilles Brassard
Professor - Department of computer science and operations research.
Canada Research Chair in Quantum Computing
Winner of the Wolf Prize 2018 for Physics
Research themes: Quantum computing cryptography, Protection of private life

A new generation ready to take over

University programs related to IT	Students enrolled 2016-2017
Computer sciences	7,100
Electric and electronic engineering	3,279
Computer engineering and computer science	1,866
Mathematics	1,411
Probabilities and statistics	183
Applied mathematics	134
TOTAL	**13,973**

University programs related to criminology and law	Students enrolled 2016-2017
Criminology	1,600
Law	5,500
TOTAL	**7,100**

In Greater Montréal, close to 14,000 students were enrolled in a university program related to IT in 2016-2017 as well as nearly 1,600 students in criminology and 5,500 in law.

Université de Montréal   McGill

UQÀM   ÉTS — Le génie pour l'industrie

HEC MONTRÉAL   UNIVERSITÉ TÉLUQ

Concordia UNIVERSITY   UNIVERSITÉ DE SHERBROOKE

École nationale d'administration publique   Université du Québec Institut national de la recherche scientifique

Source: Ministère de l'Éducation et de l'Enseignement supérieur, 2017; compilation by Montréal International.

Cutting-edge undergraduate and graduate programs in cybersecurity

Department of Computer Engineering and Software Engineering
- Bachelor's degree in cybersecurity:

3 certificate programs in cyber investigation, online fraud and IT network computer security

Faculty of Engineering & Computer Science
- Information Systems Security (MASc)
- Master of Engineering (MEng)
- Information & Systems Engineering (PhD)

Information Technologies
- Certificate Analysis of Information Security and Systems

A Unique Centre of Excellence: IVADO (Institute For Data Valorisation)

More than **1,000** scientists
(professors, professionals and students) with complementary areas of expertise

#1
for publications worldwide

Over **40**
academic programs

Research centres

Mila · DATA SCIENCE FOR REAL-TIME DECISION-MAKING · tech³lab · CIRRELT · GERAD · CRM CENTRE DE RECHERCHES MATHÉMATIQUES · RL LAB · McGill Centre for Intelligent Machines · LIVIA Laboratory for Imagery Vision and Artificial Intelligence

University departments

DIRO · HEC MONTRÉAL Département de sciences de la décision · POLYTECHNIQUE MONTRÉAL DÉPARTEMENT DE MATHÉMATIQUES ET DE GÉNIE INDUSTRIEL

Academic partners

crdm_ul CENTRE DE RECHERCHE EN DONNÉES MASSIVES DE L'UNIVERSITÉ LAVAL · CIRANO Allier savoir et décision · Laboratoire de CYBERJUSTICE Laboratory · rali

20+
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03

Attractive Operating Costs and Incentives

MTL
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Competitive salaries

Median annual salaries * (US$) for 9 typical professions in cybersecurity

	Montréal	Toronto	Atlanta	Washington	San Francisco
Cyber Security Engineer	**$77,132**	$81,618	$109,193	$122,352	$132,917
Information Systems Auditor	**$57,077**	$60,669	$78,663	$88,479	$96,190
Information Security Engineer	**$66,335**	$70,353	$94,365	$105,933	$115,097
Information Security Manager	**$85,798**	$91,559	$125,538	$140,700	$153,734
Criminalist	**$46,431**	$49,983	$59,516	$70,718	$73,319
Architect IT Solutions	**$75,682**	$80,106	$106,577	$119,482	$129,799
Cyber Security Specialist	**$68,084**	$72,180	$95,651	$107,365	$116,651
Security Consultant	**$45,760**	$48,184	$56,684	$72,715	$79,885
Information Security Specialist	**$55,004**	$58,496	$75,494	$84,997	$92,404

Very attractive operating costs

Montréal = 100

Montréal   Toronto   Atlanta   Washington D.C.   San Francisco
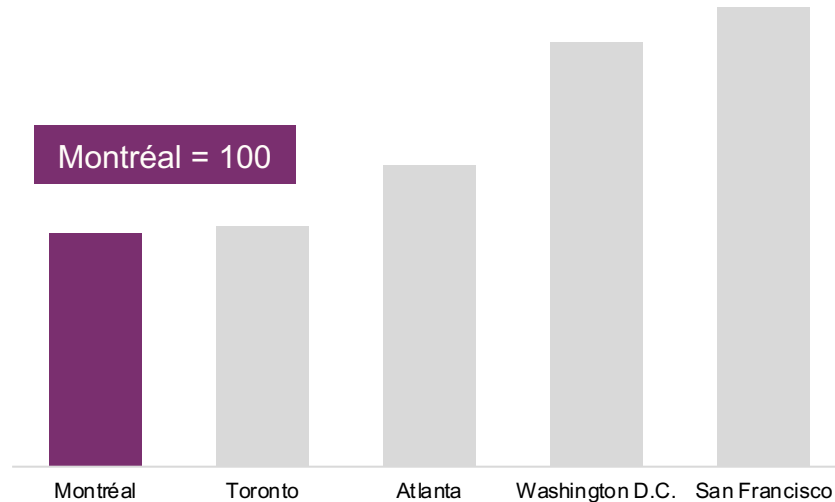
- **Greater Montréal** has the **most competitive operating costs** for the software development sector of all 5 North American cybersecurity hubs

- **30% cost advantage** compared to the study average

- When factoring in the **E-Business and Scientific Research and Experimental Development tax credits,** that cost advantage is even greater

Note: The annual operating cost calculations are based on labour and property costs in US$.
Source: fDi Benchmark, 2018.

Tailor-made incitatives available

Industry credits

Tax Credit for E-Business Development

The E-Business tax credit is unique in North America and aims to foster the development of information technologies. **Refundable tax credit equal to 30%** (24% refundable and 6% non-refundable) of eligible salaries, **up to $25,000 per employee per year**.

Research and development

R&D tax credits

- Québec: **14 % tax credit on salaries** and subcontractor fees paid in Québec. It is fully refundable, whether or not the business makes a profit.
- Canada: **15 %** federal tax credit on eligible **activities and expenditures**.

Tax Holiday for Foreign Researchers and Experts

Five-year Québec income tax exemption at the personal level: **100% of salary** for the 1st and 2nd year; **75%** for the 3rd year; **50%** for the 4th year; **25%** for the 5th year.

Major and innovative projects

ESSOR Fund for Major Projects

Provides support to major projects with refundable (interest-free & low interest loans) and non-refundable contributions, loan guarantees. Investment projects with eligible expenditures of **$250,000** or more to start a new business or expand (including modernizing) an existing business.

Labour development

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 with the creation of 50 jobs or more on 2 years.

04

Montréal International's Personalized, Free and Confidential Services

MTL INTL Montréal International

Montréal International, a single contact point for a series of personalized, free and confidential services

Long-term strategic support

Economic data and communications services

Government relations facilitation

Incentive programs assistance

Foreign workers immigration assistance

International recruiting missions

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