

Greater Montréal's Surging Cybersecurity Sector





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01

A Surging Business Environment



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

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



Private organizations



Major private certification agencies



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.



Security consulting; Managed security;
Network and cloud security



Full IT outsourcing



Global leader in cybersecurity awareness



Bespoke engineering solutions, system
development and security services



Secure files transfer and storage business
process automation services



Integrated perspective on all aspects of
organizational risk and key focus on
cybersecurity



Cybersecurity and privacy consulting
services



Global IT security service provider
delivering cybersecurity services



Desjardins' cybersecurity kit is
protecting businesses against
cyberattacks



Strategy and governance, cyber
defense, cyber response



Cybersecurity consulting services



Provides a leading, autonomous,
security vulnerability intelligence
platform



Cybersecurity consulting services
and solutions focused on changing
human behaviors

The most notable Centres of excellence in cybersecurity in Montréal



Organization that leads the establishing of Québec talent and expertise collective in cybersecurity, created by **Desjardins Group, National Bank, Deloitte** and **RHEA Group**



Centre of excellence and expertise in blockchain technologies powered by **Raymond Chabot Grant Thornton**



Non-profit industry cluster that aims to increase the cohesion and competitiveness of the Canadian cybersecurity industry



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 **\$2 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



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



Coopération
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



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



"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



02

A Deep and Growing Pool of Highly Qualified Talent



Montréal
International



Mural painting representing Leonard Cohen © Tourisme Montréal - Madore - Daphné CARON

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

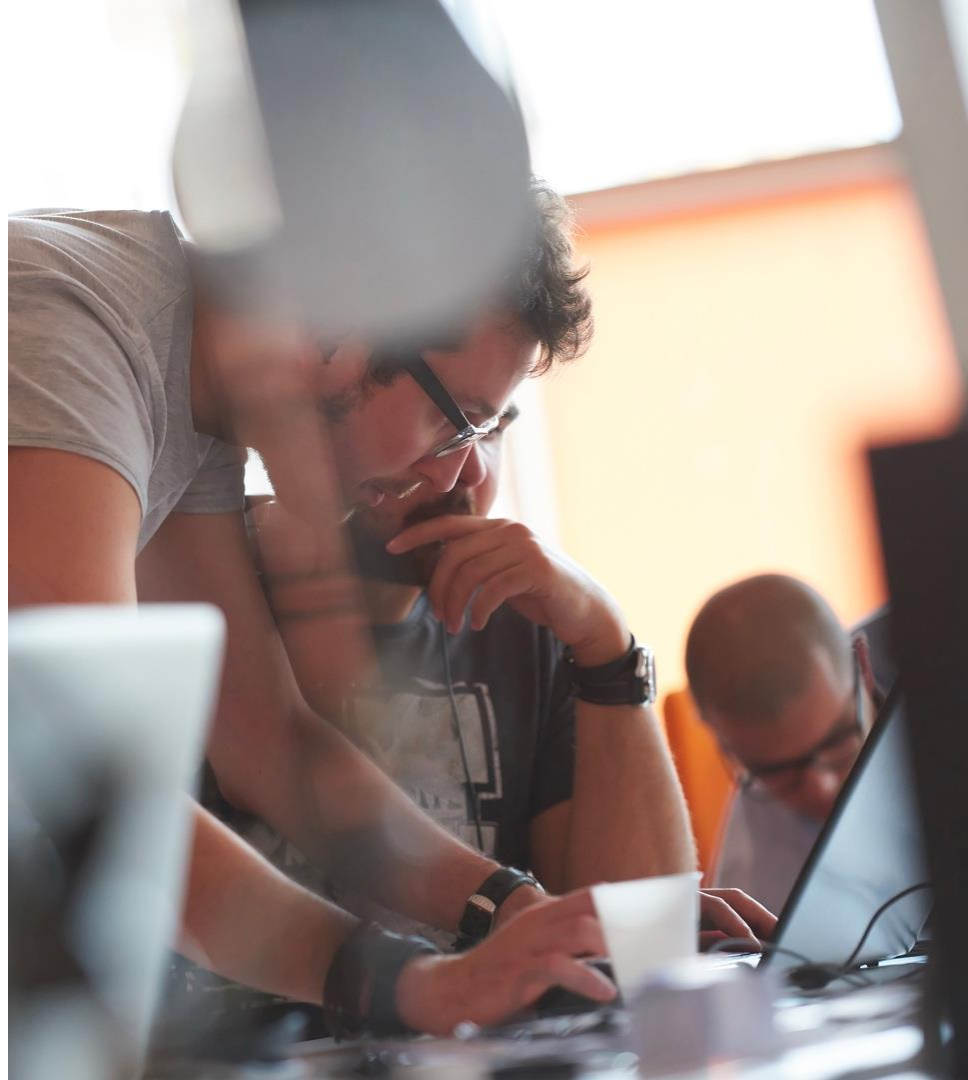


The Olympic Stadium of Montréal © Montréal International

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



Research chairs in cybersecurity



- Canada Research Chair in Cybersecurity
- Canada Research Chair in Quantum Information Processing
- Research Chair in Cybercrime Prevention



- Canada Research Chair in Data Mining for Cybersecurity



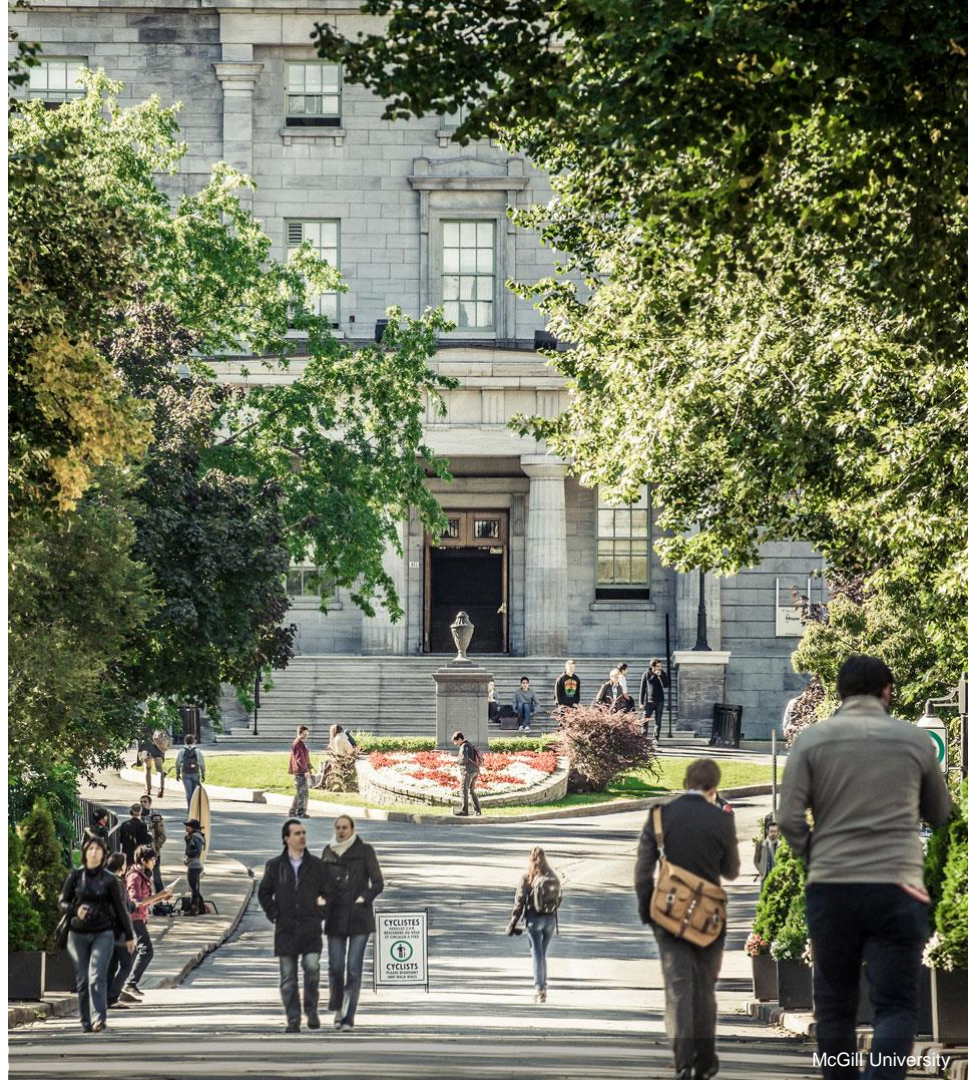
- NSERC / Hydro-Québec-Thales Senior Industrial Research Chair on Smart Grid Security and Cyberphysical Attacks and Chairholder
- Concordia University Research Chair Tier I in Information Systems Security



- Mobile Computing and Networking Research Laboratory (LARIM)
- Mobile robotics and autonomous systems laboratory



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



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



Benoît Dupont

Professor-Criminology department
Scientific Director of the Integrated Network on Cybersecurity (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



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



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



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



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 2017-2018	University graduates, 2017
Computer sciences	8,104	1,558
Electric and electronic engineering	3,498	744
Computer engineering and computer science	2,002	374
Mathematics	1,438	262
Probabilities and statistics	190	35
Applied mathematics	130	27
TOTAL	15,362	3,000

University programs related to criminology and law	Students enrolled 2017-2018	University graduates, 2017
Criminology	1,632	776
Law	7,171	1,530
TOTAL	8,803	2,306

In Greater Montréal, more than 15,000 students were enrolled in a university program related to IT in 2017-2018 as well as 1,600 students in criminology and 7,000 in law.

Université de Montréal

McGill

UQÀM

ÉTS
Le génie pour l'industrie

HEC MONTRÉAL

UNIVERSITÉ
TÉLUQ

UNIVERSITÉ
Concordia
UNIVERSITY

UNIVERSITÉ DE
SHERBROOKE

École nationale
d'administration publique

Université du Québec
Institut national
de la recherche
scientifique

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



University departments



Academic partners



International partners



20+
research chairs
& labs

03

Attractive Operating Costs and Incentives



Competitive salaries

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

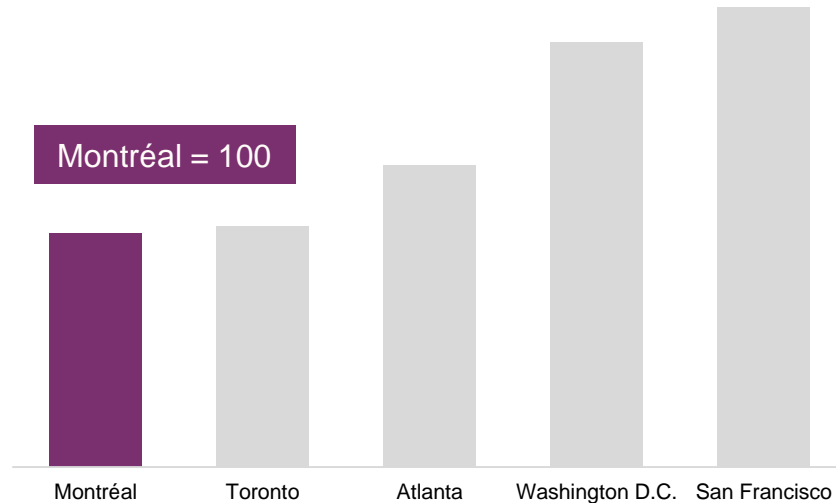
	Montréal	Toronto	Atlanta	Washington	San Francisco
Cyber Security Engineer	\$77,132	\$81,618	\$109,193	\$122,352	\$132,917
Information Systems Auditor	\$57,077	\$60,669	\$78,663	\$88,479	\$96,190
Information Security Engineer	\$66,335	\$70,353	\$94,365	\$105,933	\$115,097
Information Security Manager	\$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

*Salaries based on 5 years of experience

Note: Exchange rate based on monthly average 2018-11-21 - 2018-12-20 – CA\$1 = US\$ 0,7503.

Source: Economic Research Institute – NAICS 5415 – December 2018.

Very attractive operating costs



- **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

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



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**



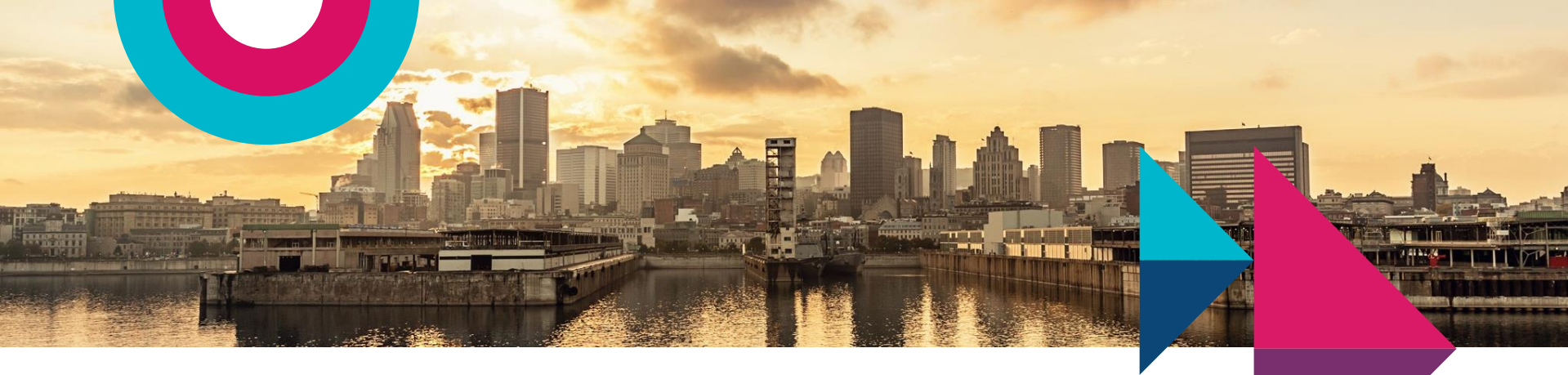
**Incentive programs
assistance**



**Foreign workers
immigration
assistance**



**International
recruiting missions**



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