

Global Talent Mobility, Innovation and Growth

Global Talent Attraction and Retention Case Study Quebec

**Olivia Dale
Erin Newman-Grigg
Martin Geiger**

Ottawa
July 2021

© Ottawa, Canada, July 2021

Focusing on the empirical case of Quebec, this profile examines the recruitment and retention of high-skilled professionals and international students in the case of Canada and one of its most important destination regions for high-skilled immigrants. The aim of this study is to foster a deeper understanding of the role that policy programs and industry strategies play in attracting and retaining migrant professionals in STEM (Science, Technology, Engineering and Mathematics).

This study was made possible thanks to generous funding support provided by the Government of Ontario (Early Researcher Award, 2017-2022) and the Social Sciences and Humanities and Research Council of Canada (SSHRC, Partnership Development Grant). The authors of this report wish to acknowledge and thank all other members of the Global Mobility of Talent (GMT) research group who assisted in this research project and the publication of this report, in particular Jenny Francisca Kotsou and Juanita Molano who contributed to different sections and work processes leading to this report.

For further information, visit <http://globalmobilityoftalent.info>, join us on Twitter [@migrateinnovate](https://twitter.com/migrateinnovate), or contact Dr. Martin Geiger, Carleton University at martin.geiger@carleton.ca

Table of Contents

Key Messages	1
I. Economic Situation and Skill Shortages	3
II. Global Talent Recruitment and Retention	17
III. Stakeholder Viewpoints	38
Conclusions – Outlook	49
Appendixes	52

Key Messages

- **Quebec has a competitive STEM sector, but its businesses are experiencing mounting pressure from labour shortages.**

Quebec has the second largest Sciences, Technology, Engineering and Mathematics (STEM) economy in Canada behind Ontario, with key clusters in artificial intelligence, visual effects, animation and video games, aerospace and the health and life sciences. STEM-related businesses in Quebec benefit from existing strengths in innovation and competitiveness, strong government research and development support and close proximity of competitive as well as collaborative enterprises with 85% of businesses located in the Greater Montreal Area. Competition for talent is fierce with many businesses reporting existing or expected labour shortages. Though Quebec has a strong history of innovation and talent development through its renown universities, further attraction and retention of highly-skilled workers from other provinces and, in particular, from abroad is required for the continued innovation and growth of Quebec's STEM economy.

- **High skilled immigration is a key component of labour replacement, but provincial targets are significantly below the needs of the labour market.**

Compared to other Canadian provinces, Quebec enjoys a significantly higher degree of independence in immigration governance with more autonomy and independency concerning policy development, program implementation and immigration requirements and thresholds. While other key STEM attractors in Canada such as Ontario and British Columbia (B.C.) have sought to increase immigration to their provinces, Quebec over the past three years has actively decreased its immigration levels. To meet employment demands from job creation and retiring workers, it is estimated that Quebec would need to admit 80,000 immigrants annually. Despite growing labour market demand and persistently low unemployment rates, the provincial immigration target in 2019 was set at 40,000, and only slightly increasing to 44,500 in 2020, prior COVID-19.

- **Quebec seeks to improve immigrant integration with requirements for linguistic and cultural alignment but are not addressing societal discrimination against immigrants.**

Lowered immigration levels were introduced as necessary measures to respond to public and electorate pressure, as an instrument to ensure the full social and economic integration of immigrants entering the province. Programmatic changes have focused on increasing the level of French language skills held by applicants and their spouses, as well as introducing an assessment proving understanding of democratic and Quebec values. Additionally, increased resources have been dedicated to increasing French language training available to immigrants in Quebec. While linguistic and cultural comprehension are important parts of immigrant integration, it is unclear if or how Quebec is addressing systemic bias against and discrimination towards immigrants. There is also a responsibility for Quebec businesses to take necessary action in supporting immigrant employees and promoting equal employment opportunities for immigrant job candidates.

- **Further research and improved access to data is required for understanding the state of the STEM economies and the complexities of immigrant integration into Quebecois society and the labour market.**

Effective policy making is constrained by a persistent and significant lack of available and current data, research and analysis of issues concerning and affecting highly-skilled immigration to the Quebec STEM economy. While a system of individual sector committees presents profiles of Quebec industries, an overarching body capable of comprehensively tracking labour market statistics, economic characteristics, overlaps and interconnectivity of STEM-related economies is lacking. This fragmented approach hinders a centralized targeted strategy for filling in-demand occupations and addressing existing and evolving skills and talent gaps. Similarly, effective evaluation of immigrant experiences is lacking. More research is required to understand and address systemic bias against immigrants, the specific challenges newcomers to Quebec face, and if current provincial integration strategies are appropriate, effective or need to be reassessed.

- **The COVID-19 pandemic will not impact Quebec employer needs for skilled talent but may further disrupt their ability to recruit qualified and specialized workers.**

The pandemic has devastated the economy and will likely have continued effects in the coming years throughout economic recovery. Even though unemployment rates have risen as unprecedented amounts of workers have lost their jobs, the newly available labour does not meet the qualifications and experience generally required across STEM fields. Highly-skilled workers with advanced education levels and specialized experience in innovative fields will still be in demand as these individuals were already in short supply before the pandemic. Though talent will still be in-demand, many firms suffering from the economic contraction will be further constrained in their ability to dedicate resources to recruitment, offer competitive salaries, let alone undertake the costs of hiring through the immigration system. Economic recovery will require provincial support of businesses to be competitive in meeting labour demands and reinvigorating the Quebec economy.

I. STEM Economy and Skills Shortages

Quebec is a major player in the Canadian high-technology and innovation industry, with the second largest Sciences, Technology, Engineering and Mathematics (STEM)¹ economy of all Canadian provinces and territories, next to Ontario. In 2019, STEM-related industries contributed 42.7 billion Canadian dollars to Quebec's Gross Domestic Product (GDP), just over 10% of the province's total GDP.² The industry has been growing increasingly over the past 5 years with an average annual growth rate of 3.7% though it is unclear if this trend will continue through the economic consequences of COVID-19. As of July 2021, the province of Quebec had the second highest number of cases in Canada and the highest count of COVID-19 related deaths, exceeding 375,000 and 11,000 respectively.³ As of 2019, Quebec has 18,589 STEM businesses⁴ with a total of 302,160 workers across these industries.⁵ It is estimated that around 85% of jobs in technology fields are found in the Greater Montreal Region.⁶ According to *TECHOCompétences* in 2016, Information Communication Technology (ICT) related jobs were found primarily in Montreal (48.0%), Montréal (22.3%) and the Capital regions (8.8%).⁷

¹ The availability of STEM-related statistics in Quebec is limited, due to a lack of consensus across various sources regarding what industries are to be included and form part of STEM-related activities or high technology definitions. To address this data shortage, this report uses an adapted definition from the Government of British Columbia (B.C.) which has been proactive in monitoring high technology and STEM-related economy characteristics. The statistics included in the report include 25 industries in the North American Industry Classification System to the 4-digit level (which are broader categories than the more specific 6-digit level used in BC's definition). Resultingly, the report uses an expanded definition of STEM industries. The full list of industries included in this definition can be found in Appendix 1. Statistics included in this report are drawn from Statistics Canada. The unavailability of disaggregated data from this source was a challenge for the statistics collection of this report, particularly in quantifying variables at the sub-regional level in Quebec. Though Montreal is a well-documented city regarding its economic and STEM-related activities and outputs, the rest of Quebec is often left absent in relevant statistics. Further research is required to address this problem and to determine the presence and impact of the STEM economy across Quebec's various regions. In addition, labour market planning disaggregated by industry or occupation are required preferably from a central source. Different sectors of the STEM economy provide their own estimates for labour demands. However, this strategy is disjointed, inadequate and would benefit from enhanced coordination e.g., by a centralized body.

² GDP in 'chained' Canadian dollars (2012): Statistics Canada (2020a), *Gross domestic product (GDP) at basic prices, by industry, provinces and territories (x 1,000,00)*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=3610040201>

³ GoC (Government of Canada) (2021), *Coronavirus disease (COVID-19): Outbreak Update*, Ottawa: GoC: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>

⁴ Small businesses are defined as businesses with 49 employees or less: Statistics Canada (2020b), *Canadian Business Counts, With Employees, December 2019*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3310022201>

⁵ Statistics Canada (2019a), *Data tables, 2016 Census*, Ottawa: Statistics Canada: <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&A=R&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=24&GL=-1&GID=1354640&GK=1&GRP=0&O=D&PID=111853&PRID=10&PTYPE=109445&S=0&SHOWALL=Yes&SUB=0&Temporal=2017&THEME=124&VID=0&VNAMEE=&VNAMEF=&D1=0&D2=0&D3=0&D4=0&D5=0&D6=0>

⁶ Greater Montreal defined as the administrative regions of Montreal, Laval, Laurentides, Lanaudière and Montréal: TechnoMontréal (2019), *Le livre blanc des technologies du Québec*, Montreal: TechnoMontréal, 11: https://promptinnov.com/wp-content/uploads/2019/11/livre_blanc_des_technologies_complet_LR.pdf

⁷ TECHNOCompétences (2018), *Diagnostic sectoriel de la main-d'œuvre dans le secteur des technologies de l'information et des communications (TIC) au Québec*, Montréal: TECHNOCompétences, 27: https://www.technocompetences.qc.ca/wp-content/uploads/2018/11/2018_DiagnosticSectoriel_TECHNOComp%C3%A9tences.pdf

For overall performance in the innovation sector, the *Conference Board of Canada's* '2018 Evaluation of Canadian Innovation' assigned Quebec the letter grade 'C.' They reported that Quebec performs well in indicators related to public R&D and entrepreneurial ambition earning an 'A' across both categories. Quebec earned a 'B' in venture capital investment which increased from 0.18% of Quebec's GDP to 0.25% in 2016.⁸ However, according to the Conference Board of Canada, it underperformed in the number of researchers per total employees (10.9 researchers per 1,000 employed as of 2013⁹), scientific articles published (2,334 in 2014¹⁰) as well as business R&D, earning only a 'C' in these categories. The most significant improvements were pointed out concerning the indicators of ICT investment, patents, enterprise entry and labour productivity, commercialization and capitalizing on innovation, all of which received only a 'D' grade.¹¹

Quebec's Key STEM Industries

In a 2016 report by the *Brookfield Institute for Innovation and Entrepreneurship (BII+E)* on Canada's Tech Sector, Quebec's main clusters by percentage of employment included ICT (51.8%), architecture, engineering and design (19.7%), aerospace manufacturing (12.2%), scientific research and development (6.5%), chemical and pharmaceutical manufacturing (4.9%) and machinery and specialized manufacturing (5.0%).¹² The non-profit organization specializing in the attraction of foreign direct investment and talent to the Montreal region, *Montreal International*, identified key Quebec STEM industries in ICT sub-sectors including visual effects and animation, video games, artificial intelligence (AI), as well as the industries of aerospace and life sciences and health technologies.¹³ Detailed accounts or projections of the likely impact of COVID-19 on these key sectors are not currently available. Further research will be required to understand the sectoral responses to the pandemic and their role in innovating in an adapting society as is likely to be seen, particularly in the AI and the life sciences and health technologies clusters.

⁸ Conference Board of Canada (2018a), *Venture Capital – Innovation Provincial Rankings*, Ottawa: Conference Board of Canada: <https://www.conferenceboard.ca/hcp/Provincial/innovation/venture-capital.aspx#top>

⁹ Conference Board of Canada (2018b), *Researchers – Innovation Provincial Rankings*, Ottawa: Conference Board of Canada: <https://www.conferenceboard.ca/hcp/Provincial/innovation/researchers.aspx>

¹⁰ Conference Board of Canada (2018c), *Scientific Articles – Innovation Provincial Rankings*, Ottawa: Conference Board of Canada: <https://www.conferenceboard.ca/hcp/Provincial/innovation/sci-articles.aspx>

¹¹ Conference Board of Canada (2018d), *Innovation Provincial Rankings*, Ottawa: Conference Board of Canada: [https://www.conferenceboard.ca/\(X\(1\)S\(vbfehnwwqgrxaypxppu4jfw\)\)/hcp/provincial/innovation.aspx?AspxAutoDetectCookieSupport=1](https://www.conferenceboard.ca/(X(1)S(vbfehnwwqgrxaypxppu4jfw))/hcp/provincial/innovation.aspx?AspxAutoDetectCookieSupport=1)

¹² BII+E (The Brookfield Institute for Innovation + Entrepreneurship) (2016), *The State of Canada's Tech Sector, 2016*, Toronto: BII+E, 22 and 35: <https://brookfieldinstitute.ca/wp-content/uploads/The-State-of-Canadas-Tech-Sector-2016-V2.pdf>

¹³ With so much of Quebec's STEM workforce and businesses being located in Montreal, this can be regarded as a reasonable proxy for the largest STEM industries in Quebec.

Information Communication Technologies (ICT)

According to *TECHOCompétences*, the major industry association dedicated to information technology in Quebec, 210,000 professionals were found in Quebec's ICT sector in 2016.¹⁴ In 2016, the ICT industry accounted for 5.04% of Quebec's total GDP at 16.1 billion dollars.¹⁵ The ICT industry by employment has grown at an average annual growth rate of 3.6% since 2011.¹⁶ ICT as a growing and expanding field encompasses many up and coming industries in Quebec including thriving clusters in visual effects and animation, AI, and video games.

The visual effects and animation sector in Quebec is a large share of Canada's total stake in this particular industry. A 2016 report published by the *Montreal Metropolitan Employment Council* estimated the sector's contribution to the provincial GDP at \$8.9 billion. In 2015, Quebec's visual effects and animation sector represented almost 25% of the Canadian audio/visual industry and 31.9% of Canadian cinematographic and televisual production.¹⁷ *Montreal International* reports that Greater Montreal has 21,000 experts in 2D/3D animation, with over 4,000 specialists in visual effects and animation, 15,000 specialists in 3D animation for video games and around half of all Canadian experts, 2,000 individuals, in AR/VR.¹⁸

Quebec's AI cluster is one of five Canadian 'Super Clusters' designated by the federal government Innovation Superclusters Initiative (ISI). The 'AI-Powered Supply Chains Supercluster' (Scale AI) was created to connect the retail, manufacturing, transportation, infrastructure and ICT sectors together to build intelligent supply chains.¹⁹ *Scale AI* reports the Canadian supply chain represents about one million jobs and 10% of Canada's total GDP. Through AI and robotics, the cluster is aimed to help Canadian SMEs scale up and consolidate Canada as a globally competitive export leader.²⁰ The cluster received \$230 million from the Government of Canada and \$30 million from the Government of Quebec to fund collaborative projects such as industry-led initiatives, providing training and also an industry accelerator programme.²¹ Combining government funding with the near \$700 million in commitments from participating companies,

¹⁴ *TECHNOCompétences* (2018), 12.

¹⁵ *TECHNOCompétences* (2018), 7.

¹⁶ *TECHNOCompétences* (2018), 7.

¹⁷ Conseil Emploi Métropole (CEM) (2016), *Diagnostic des besoins de main d'œuvre et d'adéquation formation-emploi – Secteur des effets visuels et animation*, Montreal: CEM, 3: https://emploi-metropole.org/wp-content/uploads/2016/05/CEM_Diagnostic-Effets-visuels-animation_synthese.pdf

¹⁸ Montréal International (2019a), *Effets visuels: une industrie en plein essor dans le Grand Montréal*, Montréal: Montréal International, 16: https://www.montrealinternational.com/app/uploads/2019/02/profil_sectoriel_effets-visuels_2019.pdf

¹⁹ Scale AI (2019), *The scale AI supercluster and industrialists start the work and launch their call for projects*, Montreal: Scale AI, 1: <https://scaleai.ca/wp-content/uploads/2017/11/PR-scaleai-launchofprojects.pdf>

²⁰ Innovation, Science and Economic Development Canada (ISED) (2020), *AI-Powered Supply Chains Supercluster (Scale AI)*, Ottawa: ISED: <https://www.ic.gc.ca/eic/site/093.nsf/eng/00009.html>

²¹ Scale AI (2019), 1.

the total public and private investment in Scale AI is close to \$1 billion.²² The Government of Canada's projected return on investment over the next ten years is more than \$16.5 billion dollars added to the GDP and over 16,000 jobs created across the Supercluster supply chain.²³

Beyond this Supercluster, Quebec's AI expertise is globally renown for its high concentration of AI innovators. Montreal is well known for *MilaQuebec Artificial Intelligence Institute* (formerly the *Montreal Institute for Learning Algorithms*), a highly regarded machine learning research center, as well as the *Institute of Data Valorization (IVADO)*, a research center that brings together over 1,000 scientists specializing in data science, operational research and AI.²⁴ In May 2020, Mila announced their COVID-19 AI-enabled contact-tracing application, 'COVI,' was nearly ready for rollout. The voluntary tracing app aims to calculate the probability of an individual based on their response to a series of questions, as well as monitor cases and alert individuals if someone they have been in contact with contracted the virus. The Canadian government later had considered Mila's 'COVI' app, before ultimately adopting COVID Alert as the federal government's technology, jointly developed by Health Canada, Shopify and Blackberry.²⁵²⁶

Montreal International reports that the video game industry in Greater Montreal is composed of over 140 studios and 15,000 video game professionals.²⁷ The provincial government offers compelling support for Quebec's video game industry. This is evident through the 'Tax Credit for the Production of Multimedia Titles' which is intended "to foster development of the video game industry and certain distribution platforms."²⁸ As of 2015, the tax credit can cover up to 37.5% of labour costs on eligible multimedia titles for the commercial market if the title is in French, and up to 30% if it is in English.²⁹ Quebec has attracted international players such as *Ubisoft* and *Square Enix*, and cultivated success for Montreal's own *Ludia Games*, *Behaviour Interactive* and *Compulsion Games*. *Montreal International* states that Greater Montreal's world leading video game industry is one of the top five largest video game development hubs globally.³⁰ Though there is no Quebec specific data, reports of a boom in online gaming as a result of

²² Artificial Intelligence Cluster Steering Committee (2018), *Strategy for the Development of Quebec's Artificial Intelligence Ecosystem*, Québec: Ministry of Economy and Innovation (MEI), 10: https://api.forum-ia.devbeet.com/app/uploads/2020/09/ai-strategy_en-acj-19-juin-v8.pdf

²³ ISED (2020).

²⁴ Artificial Intelligence Cluster Steering Committee (2018), 24.

²⁵ Tomesco, Frédéric (2020), *A COVID-19 exposure notification app won't work if people aren't motivated to use it: AI expert*. Montreal: Montreal Gazette: <https://montrealgazette.com/health/a-contact-tracing-app-wont-work-if-people-arent-motivated-to-use-it-ai-expert>

²⁶ Kline, Amanda (2020), *Montreal to study possible use of COVID-19 tracing apps, including one made locally*. Montreal: Montreal CTV News: <https://montreal.ctvnews.ca/montreal-to-study-possible-use-of-covid-19-tracing-apps-including-one-made-locally-1.4943837?cache=yes%3FautoPlay%3Dtrue>

²⁷ Montréal International (2019b), *Welcome to Greater Montréal's World-Leading Video Game Hub*, Montreal: Montréal International, 15: https://www.montrealinternational.com/app/uploads/2019/02/industry_profile_videogame_2020.pdf

²⁸ Investissement Québec (2016), *Tax Credit for the Production of Multimedia Titles – General Component*, Montreal: Investissement Québec, 3: https://www.investquebec.com/Documents/qc/FichesDetaillees/FTTITRES_general_en.pdf

²⁹ Investissement Québec (2016), 5.

³⁰ Montréal International (2019b), 2.

COVID-19 as players have increased amounts of spare time and seek connectivity with others through online multi-player games.³¹

Aerospace

The *Aerospace Workforce Sector Committee*'s 'Annual Report 2019-2020' reports that as of 2019 the aerospace industry in Quebec was composed of 535 businesses³² and 60,430 employees³³ across airports, air transport and manufacturing. *Global Business Reports (GBR)* 2017 publication 'Quebec Aerospace' reports that as of 2017, the province accounted for 52% of the Canadian aerospace industry.³⁴ Of Quebec's total aerospace workforce, 70% were employed in manufacturing.³⁵ *AéroMontréal* reports that over 70% of Canadian research and development (R&D) in aerospace happens in the Greater Montreal region.³⁶ In 2019, The Greater Montreal area alone accounted for 240 of the aerospace businesses and 43,400 employees an increase of 3.1% since 2018. In the same year, these companies generated \$17.8 billion in revenue, an increase of 15.9% from 2018. GBR reports the average annual growth in sales for the sector of 5.2% from 1991 to 2016.³⁷ The province is either the home base or has attracted established aerospace companies including *Bell Helicopter Textron*, *Pratt & Whitney Canada*, *GE Aviation*, and *Bombardier*.³⁸ Looking to the future of the industry, Quebec's 'Aerospace Strategy' sets a \$250 million financial framework for funding between 2016 and 2021 to bolster sector growth through four priorities set for the industry. These include to 1) strengthen and diversify the industry structure; 2) bolster industry growth: support projects and invest in the workforce; 3) assist SMEs in their development; and 4) promote innovation.³⁹

³¹ MacDonald, Michael (2020), 'There has been a boom': Surge in video games linked to need for connection. Toronto: CTV News: <https://www.ctvnews.ca/entertainment/there-has-been-a-boom-surge-in-video-games-linked-to-need-for-connection-1.4898910>

³² 141 (26%) in airports, 203 (38%) in air transport, and 191 (36%) in manufacturing.: CAMAQ (Comité sectoriel de main-d'œuvre en aérospatiale) (2020), *Bilan annuel d'activités 2019-2020*, Montreal: CAMAQ, 7: <https://camaq.org/wp-content/uploads/2020/09/Bilan-Annuel-19-20.pdf>

³³ 1,790 (3%) in airports, 16,766 (28%) in air transport and 41,874 (69%) in manufacturing.: CAMAQ (2020), 7.

³⁴ GBR (Global Business Reports) (2017), *Québec Aerospace*, London: GBR, 8: <https://www.gbreports.com/wp-content/uploads/2017/12/Quebec-Aerospace-2017-Web-Preview.pdf>

³⁵ 1,790 (3%) in airports, 16,766 (28%) in air transport and 41,874 (69%) in manufacturing.: CAMAQ (2020), 8.

³⁶ Aéro Montréal (2019), *Rapport d'activités 2019: la mobilité durable au cœur de l'innovation aérospatiale*, Montreal: Aéro Montréal, 2: https://www.aeromontreal.ca/download/fca8add9e359d7/D-7391_RA2019_FR_ECRAN.pdf

³⁷ GBR (2017), 8.

³⁸ GBR (2017), 8 and 9.

³⁹ Ministry of Economy and Innovation (MEI) (2016), *2016-2026 Québec Aerospace Strategy*, Québec: MEI, 16: https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/economie/publications-adm/politique/PO_strategie_aerospatiale_2016-2026_MEI_EN.pdf?1573046293#:~:text=The%202016%E2%80%932026%20Qu%C3%A9bec%20Aerospace,from%20the%20c hanging%20global%20market.&text=The%20government%20will%20support%20business,to%20bolster%20aerospace%20industry%20growth

Life Sciences and Health Technology

According to Quebec's Ministry of Economy and Innovation, the Life Sciences and Health Technology industry in Quebec was comprised of 669 businesses and 32,380 employees in 2018.⁴⁰ This included 220 businesses and 17,750 employees in the biopharmaceutical sub-sector, 342 businesses and 12,220 employees in the medical technology subsector and 107 businesses and 2310 employees in the natural health product subsector. By employment, Life Sciences and Health Technology saw a 25.7% increase in employment from 2014 to 2018.⁴¹ The Ministry of Economy and Innovation's 'Life Sciences Strategy', highlights Quebec's strengths in cardiology, neuroscience, oncology, infectionology, genomics, medical imaging, digital health, rehabilitation and sports medicine.⁴² It is projected that in the next three years, an approximated 2,250 jobs in the pharmaceutical and biotechnology industries will need to be filled. The sector's rapid development adds an additional challenge of the requirement for training and upgrading of knowledge. In a sectoral workforce assessment, 70% of companies responded they believe at least one job in their firm will require training in the next three years.⁴³

BioQuebec, Quebec's bio-industries and life sciences business network conducted a survey of their employers during the COVID-19 Crisis. The report reveals that the majority of life sciences companies (67%) are operating at 10% to 80% while only 23% are operating at full capacity. The remaining 4% are companies that had to shut down completely.⁴⁴ Key recommendations emerging from the report point out human resources capacity deficiencies, a lack of financing, a slowdown of investments and negative effects of certain tax measures.⁴⁵ Quebec City biopharmaceutical company *Medicago* began Phase I clinical trials of its own COVID-19 vaccine in July 2020, administering the first doses to human volunteers and launched Phase 3 as of March 2021.⁴⁶

⁴⁰ MEI (2019), *Recensement des entreprises 2018*, Québec: MEI:

<https://www.economie.gouv.qc.ca/bibliotheques/secteurs/sciences-de-la-vie/recensement-des-entreprises-2018/>

⁴¹ 2014: 25,690, 2016: 30,800 and 2018: 32,280. Between 2014 and 2016, the increase was 19.9% and between 2016 and 2018 the increase was 4.8%.: MEI (2019).

⁴² Noreau, Joëlle (2019), *Life Sciences in Quebec: A Booming Industry*, Levis: Desjardins, 4:

<https://www.desjardins.com/ressources/pdf/per0319e.pdf>

⁴³ Noreau, Joëlle (2019), 4.

⁴⁴ BioQuebec (2020), *Survey of Life Sciences Industry Stakeholders on the COVID-19 Crisis*. Montreal: BioQuebec, 5:

https://static1.squarespace.com/static/57c496ac6b8f5bb965c464d3/t/5e8732bee9c584759ae31183/1585918655014/BQ+-Recommandations+au+MEI+-+COVID_30-03-2020_ENG_FINAL.pdf

⁴⁵ BioQuebec (2020), 4.f

⁴⁶ Medicago (2020a), *Medicago begins phase I clinical trials for its covid-19 vaccine candidate*. Quebec City: Medicago:

<https://www.medicago.com/en/newsroom/medicago-begins-phase-i-clinical-trials-for-its-covid-19-vaccine-candidate/>; Medicago (2021), *Medicago and GSK announce positive interim Phase 2 results for adjuvanted COVID-19 vaccine candidate*, Quebec City: Medicago: <https://www.medicago.com/en/media-room/medicago-and-gsk-announce-positive-interim-phase-2-results-for-adjuvanted-covid-19-vaccine-candidate/>

Government Support for STEM Sectors and R&D

In 2017, *Quebec's Ministry of Economy, Science and Innovation* (now the *Ministry of Economy and Innovation*)⁴⁷ (MEI) released Quebec's 'Strategy for Research and Innovation 2017-2022'.⁴⁸ This strategy indicated an increased resource mobilisation over the following five-year period to make Quebec one of the most innovative and creative societies in the world. Prior to the outbreak of COVID-19, the goal was set to bring Quebec among the OECD's top 10 leaders in research and innovation by 2022, and by 2030, the objective was to be world-renown for talent incubation, ideas and innovations.⁴⁹ To meet these goals, Quebec's government has allocated \$5.4 billion to promote and stimulate research and innovation over five years.⁵⁰ The investment is intended to be spread across:

1. Developing talent and competencies;
2. Supporting research and innovation; and
3. Increase knowledge transfer and commercialization of innovation products.

The Strategy prioritizes investment in 10 OECD identified future and emerging technologies including: 1) the Internet of Things; 2) Big Data; 3) Artificial Intelligence, 4) Neurotechnology, 5) Nano/micro Satellites, 6) Nanomaterials; 7) Additive Manufacturing; 8) Advanced Energy Storage Technologies, 9) Synthetic Biology and 10) Blockchain.⁵¹ Demonstrating its commitment to research and innovation, Quebec has increasingly prioritized its investment R&D since 2017 with the release of the strategy. For example, government funding to AI has increased substantially, including \$30 million dedicated to the aforementioned Scale AI supercluster and \$329 million budgeted across 2018-2024 for accelerating the R&D in AI.⁵²

R&D has historically been an important driver of economic growth in Quebec. Between 2011 and 2015, Quebec invested an annual average of 2.6% of its GDP on Gross Domestic Expenditure on R&D (GERD) (\$8.5 billion). Combined with Ontario's GERD the two provinces make up 71% of Canada's entire spending on R&D.⁵³ R&D has steadily increased in recent years, Quebec invested \$8.8 billion in R&D in 2016 and

⁴⁷ English translation of: Ministère de l'Économie et de l'Innovation

⁴⁸ English translation of: Stratégie québécoise de la recherche et de l'innovation 2017-2022

⁴⁹ MEI (2017), *Stratégie québécoise de la recherche et de l'innovation 2017-2022*, Québec: MEI, 10: https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/economie/publications-adm/politique/PO_SQRI_2017-2022_MEI.pdf?1568820440

⁵⁰ MEI (2017), 13.

⁵¹ MEI (2017), 57.

⁵² Ministère des Finances (2019), *Plan Budgétaire 2019-2020*, Québec: QC, 37 and 113:

http://www.budget.finances.gouv.qc.ca/budget/2019-2020/fr/documents/PlanBudgetaire_1920.pdf

⁵³ Council of Canadian Academics (2018), *Competing in a Global Innovation Economy: The Current State of R&D in Canada*. Ottawa: Expert Panel on the State of Science and Technology and Industrial Research and Development in Canada, Council of Canadian Academics, 110: http://new-report.scienceadvice.ca/assets/report/Competing_in_a_Global_Innovation_Economy_FullReport_EN.pdf

\$9.7 billion in 2017.⁵⁴ Exact amounts of Quebec investment in COVID-19 related R&D remain unclear. *Canadian Manufacturing* reports that the Quebec government contributed \$7 million in financial support to *Medicago's* developing vaccine, while in October 2020, the Government of Canada announced an investment of \$173 million in funding support.⁵⁵ The past high growth is attributed to increased R&D performance in Quebec's business enterprise sector.⁵⁶ Quebec's investment in R&D is paying off as evidenced by the province's lead in its proportion of companies readily and actively adopting new technology when compared to the rest of Canada. *Business Development Canada (BDC)* reports that 26% of Quebec's businesses are considered digitally advanced, compared to only 19% in Ontario, 17% in the Prairies and 15% in BC and the North and Atlantic Canada respectively.⁵⁷

STEM Labour Force & Skills Shortages

While the STEM industry in Quebec has been high performing and the government has been increasing investment, shortages in the labour supply and barriers to growth have become serious problems for Quebec's companies. Reports from business associations and media consistently highlight the struggle for companies to hire the staff they need and their struggle to scale-up, particularly at the small- and medium-enterprise (SME) level.⁵⁸ In 2018, *BDC* reported that 37% of SMEs in Quebec had struggled to find new employees in the past 12 months.⁵⁹ In 2019, a study conducted by *Raymond Abbot Grant Thornton* found that amongst SMEs the greatest challenges projected for the next three years were the recruitment of qualified personnel (48%), competitiveness, global expansion and growth strategies (35%), and the retention of qualified personnel (23%).⁶⁰

⁵⁴ At current prices.: Statistics Canada (2020c), *Gross domestic expenditures on research and development, by science type and by funder and performer sector (x 1,000,000)*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2710027301>

⁵⁵ Canadian Manufacturing (2020), *Quebec providing \$7M to Medicago's COVID-19 vaccine development*. Toronto: Canadian Manufacturing: <https://www.canadianmanufacturing.com/research-and-development/government-of-quebec-providing-7m-to-medicagos-covid-19-vaccine-development-249412/>; Medicago (2020b), *Medicago signs agreements with the Government of Canada to supply up to 76 million doses of its recombinant plant-derived COVID-19 vaccine*, Quebec City: Medicago: <https://www.medicargo.com/en/media-room/medicago-signs-agreements-with-the-government-of-canada-to-supply-up-to-76-million-doses-of-its-recombinant-plant-derived-covid-19-vaccine/>

⁵⁶ Statistics Canada (2020d), *Spending on research and development, 2017 (final), 2018 (preliminary) and 2019 (intentions)*, Ottawa: Statistics Canada, 2: <https://www150.statcan.gc.ca/n1/en/daily-quotidien/200130/dq200130b-eng.pdf?st=xgIHbdkU>

⁵⁷ Bédard-Maltais, Pierre-Olivier (2018), *Passez au numérique : Comment prendre le virage dans votre entreprise*, Montréal: Banque de développement du Canada, 16: https://www.bdc.ca/FR/Documents/analyses_recherche/comment-prendre-le-virage-dans-votre-entreprise-etude.pdf?utm_campaign=Digitize-now-Study-2018--FR&utm_medium=email&utm_source=Eloqua

⁵⁸ Lortie, Pierre-Philippe (2020), *L'appui à nos PME technologiques au cœur de la création de la richesse*, Montréal: La Presse: <https://www.lapresse.ca/debats/opinions/2020-03-07/l-appui-a-nos-pme-technologiques-au-coeur-de-la-creation-de-la-richeesse>; Lussier, Jérôme (2019), *Non, la pénurie de travailleurs n'est pas un complot*, Montréal: L'Actualité: <https://lactualite.com/lactualite-affaires/non-la-penurie-de-travailleurs-nest-pas-un-complot/>

⁵⁹ Cocolakis-Wormstall, Michael (2018a), *Pénurie de main-d'œuvre : un problème tenace*, Montréal: Banque de développement du Canada, 7: <https://www.ledevoir.com/documents/pdf/2019-01-15-penurie-main-doeuvre.pdf>

⁶⁰ Raymond Chabot Grant Thornton LLP (RCGT) (2019), *Les PME québécoises et leurs différents enjeux*, Montréal: RCGT, 13: https://media.cdn.rcgt.com/app/uploads/2019/04/etude-sur-les-enjeux-des-pme-quebecoises_raymond-chabot-grant-thornton_2019.pdf

Quebec's workforce has been steadily expanding in recent years, though stagnation or decreases may be anticipated in the economic aftermath of COVID-19. In 2019, the *Ministry of Immigration, Diversity and Inclusion* (now the *Ministry of Immigration, Francisation and Inclusion*⁶¹, *MIFI*) has forecasted an increased labour demand of 751,000 for the period of 2017 to 2021. Of these jobs, 161,800 will result from economic growth and 589,200 will be needed for labour replacement linked to retirement.⁶² STEM-related labour demand projections are incomplete and fragmented across various clusters. For example, the ICT sector projects a 6,500 increase in jobs per year,⁶³ the AI sector estimates that their talent gap is at least 1,000 graduates per year, with potential to increase in the medium term.⁶⁴ The aerospace industry expects a demand of 33,000 over the next 10 years including 10,000 new aerospace employees and 23,000 to replace workers leaving the workforce.⁶⁵

Beyond projections, the number of vacant posts in all of Quebec has almost doubled from 61,445 in 2015 to 118,520 in 2018.⁶⁶ High demand for workers to fill these multiplying vacancies is met with a low level of available labour supply, showcased by Quebec's low rates of unemployment. In 2019, Quebec broke its own record for the lowest unemployment rate in its history at 4.5%.⁶⁷ At the same time, Quebec is experiencing the same demographic challenges as the rest of Canada: a rapidly aging population with a low rate of population replacement. Fertility rates in Quebec have hovered between 1.48 children and 1.68 children since 2000, sitting at 1.57 in 2019, as women are increasingly deciding to have fewer children and at later stages in life than in the past.⁶⁸ Moreover, population replacement becomes a serious concern for the labour supply which increasingly counts on immigration to meet the demand for filling jobs.⁶⁹

⁶¹ English translation of : Ministère de l'Immigration, Francisation et Intégration Québec

⁶² Ministry of Immigration, Francisation and Inclusion (MIFI) (2019a), *Recueil de statistiques sur l'immigration au Québec*, Montréal: MIFI, 27: http://www.mifi.gouv.qc.ca/publications/fr/planification/BRO_RecueilStat_PlanificationImmigration.pdf

⁶³ TECHNOCompétences (2018), 8.

⁶⁴ Artificial Intelligence Cluster Steering Committee (2018), 33.

⁶⁵ GBR (2017), 128.

⁶⁶ Québec International (2019), *Marché du travail*, Québec: Québec International, 5: <https://s3.amazonaws.com/quebecinternational/qi-web-api-prod/JCGVRivS4ZTGgFsOsrOv4w.pdf>

⁶⁷ Statistics Canada (2020e), *Unemployment rate, participation rate and employment rate by educational attainment, annual*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410002001&pickMembers%5B0%5D=1.6&pickMembers%5B1%5D=2.8&pickMembers%5B2%5D=4.1&pickMembers%5B3%5D=5.3>

⁶⁸ Statistics Canada (2020f), *Crude birth rate, age-specific fertility rates and total fertility rate (live births)*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1310041801#timeframe>

⁶⁹ MIFI (2019a), *Recueil de statistiques*, 15.

Table 1: Quebec STEM Business Breakdown⁷⁰

	Number of businesses	Percent of total
Total business with 1-4 employees	11,673	62.80%
Total business with 5-9 employees	2,558	13.76%
Total business with 10-19 employees	1,787	9.61%
Total business with 20-49 employees	1,416	7.62%
Total business with 50-99 employees	637	3.43%
Total business with 100-199 employees	308	1.66%
Total business with 200-499 employees	147	0.79%
Total businesses with 500+ employees	63	0.34%
Total small businesses (1-49 employees)	17,434	93.8%
Total large businesses (50+ employees)	1,155	6.2%
Total all businesses	18,589	100%

Quebec’s STEM business ecosystem is primarily made up of small businesses⁷¹ (93.8%) with almost 63% of those being micro-businesses with four or less employees (*see table 1*). Quebec’s *Ministry of Work, Employment and Social Solidarity*’s⁷² (MTESS) ‘National Workforce Strategy 2018-2029’ holds businesses at the heart of creating wealth and prosperity for society. The report recognizes the particular challenge for SMEs in recruiting talent who “rarely have the time and resources to devote to the human resources function.”⁷³ The report acknowledges the existing and impending skills and labour shortages across Quebec stating:

*...the Quebec economy is changing rapidly. Whether technological changes (e.g. the 4th industrial revolution), the transition to a greener economy, globalization and trade agreements or the transformation of modes of work organization, it affects the skills required of the workforce. Some specific fields, such as science, technology and engineering, are already in high demand, and will be even more so in the future.*⁷⁴

⁷⁰ Statistics Canada (2020b), *Canadian Business Counts, with employees, December 2019*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3310022201>

⁷¹ Small business is defined as a business with 49 or less employees.

⁷² English translation of : Ministère du Travail, de l'Emploi et de la Solidarité sociale

⁷³ Ministry of Work, Employment and Social Solidarity (MTESS) (2018), *National Workforce Strategy 2018-2023*, Québec: MTESS, 17: https://www.mteess.gouv.qc.ca/publications/pdf/National-Workforce-Strategy_en.pdf

⁷⁴ MTESS (2018), 17.

Table 2: STEM positions in demand⁷⁵

NOC Code	Occupational title
0211	Engineering managers
0212	Architecture and science managers
0213	Computer and information systems managers
2111	Physicists and astronomers
2112	Chemists
2113	Geoscientists and oceanographers
2121	Biologists and related scientists
2122	Forestry professionals
2123	Agricultural representatives, consultants and specialists
2131	Civil engineers
2132	Mechanical engineers
2133	Electrical and electronics engineers
2134	Chemical engineers
2141	Industrial and manufacturing engineers
2142	Metallurgical and materials engineers
2143	Mining engineers
2146	Aerospace engineers
2147	Computer engineers (except software engineers and designers)
2151	Architects
2153	Urban and land use planners
2154	Land surveyors
2161	Mathematicians, statisticians and actuaries
2171	Information systems analysts and consultants
2172	Database analysts and data administrators
2173	Software engineers and designers
2174	Computer programmers and interactive media developers
2175	Web designers and developers
2211	Chemical technologists and technicians
2212	Geological and mineral technologists and technicians
2223	Forestry technologists and technicians
2224	Conservation and fishery officers
2225	Landscape and horticulture technicians and specialists
2231	Civil engineering technologists and technicians
2232	Mechanical engineering technologists and technicians
2233	Industrial engineering and manufacturing technologists and technicians
2241	Electrical and electronics engineering technologists and technicians
2242	Electronic service technicians (household and business equipment)
2243	Industrial instrument technicians and mechanics
2244	Aircraft instrument, electrical and avionics mechanics, technicians and inspectors
2251	Architectural technologists and technicians
2252	Industrial designers
2253	Drafting technologists and technicians
2254	Land survey technologists and technicians
2261	Non-destructive testers and inspection technicians
2271	Air pilots, flight engineers and flying instructors
2281	Computer network technicians
2282	User support technicians
2283	Information systems testing technicians

⁷⁵ MIFI (2019b), *Liste régional des professions admissibles au traitement simplifié dans le cadre du Programme des travailleurs étrangers temporaires (Québec) pour l'année 2019*, Montréal: MIFI: http://www.immigration-quebec.gouv.qc.ca/publications/fr/divers/LIS_region_Ete2019.pdf; MIFI (2020a), *Liste des professions admissibles au traitement simplifié*, Montréal: MIFI: <http://www.immigration-quebec.gouv.qc.ca/fr/employeurs/embaucher-temporaire/recrutement-haut-salaire/liste-professions/index.html>

Currently, government reports detailing the exact skills or numbers of additional workers that will be required across each occupation are not available. Resulting from these gaps in data, knowledge and awareness, to understand what occupations in Quebec are in high demand this report analyzes the priority occupations list for Quebec's 'Temporary Foreign Worker Program' (TFWP). The jobs included on this list are in highest demand and foreign talent must be sought to fill gaps in the local labour supply. Employer vacancies for roles included on this list of highly demanded occupations are prioritized for expedited TFWP processing, allowing international talent to more quickly fill urgent gaps identified in the local labour supply. 21% of the occupations listed are STEM-related (*see table 2*).⁷⁶

Responding to labour shortages, Canadian firms reported to BDC that they were hiring less-qualified workers (43%) and recruiting younger workers (40%).⁷⁷ As a result, many businesses are providing their own in-house training and development programs to equip less experienced workers with the knowledge and skills they will need on the job. In Quebec, 83% of SMEs surveyed by *Raymond Abbot Grant Thorton* in 2019 reported they were already investing in staff training and development. Further business studies are needed to understand the hiring challenges amidst the COVID-19 pandemic and the resulting economic conditions affecting businesses. The MTESS 'National Workforce Strategy' identified five 'levers' to take action on workforce shortages: The education system offering quality accessible educational services; public employment services supporting connecting workers to businesses; the immigration system admitting permanent and temporary workers; taxation and subsidies providing deductions, tax credits and shields; and department interventions such as legislation and policy.⁷⁸ Despite identifying and acknowledging immigration as part of the solution to impending labour shortages, the Quebec government reduced immigration levels by 21%, accepting 40,600 immigrants in 2019 compared to 51,100 in 2018.⁷⁹ According to a *Citizenship and Immigration Canada News (CIC News)* update, "*The [Quebec] government said the reduction was necessary to ensure new arrivals are properly integrated into Quebec's majority French-speaking society and its labour market.*"⁸⁰

⁷⁶ Positions are defined by the National Occupation Classification (NOC) system. Definitions for STEM-classified NOC codes are taken from the Government of Canada's definition (for complete list see Appendix 2) set out in: Frank, Kristyn (2019), *A Gender Analysis of the Occupational Pathways of STEM Graduates in Canada*, Ottawa: Statistics Canada:

<https://www150.statcan.gc.ca/n1/en/pub/11f0019m/11f0019m2019017-eng.pdf?st=eYa7GOB->

⁷⁷ Cocolakis-Wormstall, Michael (2018b), *Labour Shortage: Here to Stay*, Montreal: BDC, 11: https://www.bdc.ca/en/documents/analysis_research/labour-shortag.pdf

⁷⁸ MTESS (2018), 3.

⁷⁹ El-Assal, Kareem & Miekus, Alexandra (2020), *Quebec fell even further behind the rest of Canada in attracting immigrants in 2019*, Montreal: CIC News: <https://www.cicnews.com/2020/02/quebec-fell-even-further-behind-the-rest-of-canada-in-attracting-immigrants-in-2019-0213750.html#gs.ahqg3r>

⁸⁰ El-Assal & Miekus (2020).

In 2015, the *Quebec Council of Employers*⁸¹ (CPQ) published their study 'Economic Immigration, Rich Potential for Prosperity in Quebec' detailing the contribution, importance and support for economic migration to the Quebec economy. According to a survey of CPQ members, 84% of the respondents had one or more immigrant workers among their employees and managers. A majority of CPQ members support the increase of quotas for qualified immigrant workers and investors, and that the different economic immigration programs would benefit from being improved.⁸² In 2018, CPQ expressed disappointment in the reductions of immigration numbers tabled by MIFI for 2019. CPQ and other business groups including the *Chamber of Commerce of Metropolitan Montreal* were advocating to increase immigration to 60,000 per year.⁸³ CPQ President and CEO Yves-Thomas Dorval expressed that *"Even if immigration is only part of the solutions to meet the very glaring labor needs in Quebec, around 22% of the needs for the next 10 years, it is a labor pool - essential work for the prosperity of Quebec. Reducing the volume only makes the situation worse."*⁸⁴ Travel bans and work restrictions due to COVID-19 have sharply reduced immigration to Quebec. The province has estimated between 13,000 and 18,000 unrealized admissions in 2020, which the ministry aims to make up for with an additional 7,000 admissions in 2021.⁸⁵

Adequate labour supply is essential to the continued economic growth of Quebec's companies. The situation is becoming increasingly dire, as BDC reports that businesses suffering from labour shortages are 65% more likely to be low growth.⁸⁶ The pressure is driving Quebec employers increasingly to seek for qualified workers abroad.⁸⁷ In October of 2019, the Quebec government announced its immigration plan would increase to 44,500 newcomers in 2020 to help alleviate the province's labour shortages.⁸⁸ However, *CIC News* reports that this number is far below what is necessary to sustain healthy levels of economic growth. As a result of restrictions related to the COVID-19 pandemic, the Quebec government announced that the total number of admissions for 2020 would fall short of its projected target by between 13,000 and 18,000 people. The province shared their plan to increase admissions by an additional 7,000 immigrants in 2021 to account for this.⁸⁹ To keep pace with Canada's intake of newcomers and meet the increased labour demand caused by job creation and retirement of their aging population, Quebec would need to double its

⁸¹ English translation of: Conseil du Patronat du Québec

⁸² Conseil du patronat du Québec (CPQ) (2015), *L'Immigration économique, un riche potentiel de prospérité pour le Québec*, Montréal: CPQ, 37: <https://www.cpq.qc.ca/workspace/uploads/files/etude3prosperite021215.pdf>

⁸³ El-Assal & Miekus (2020).

⁸⁴ CPQ (2018), *Plan d'immigration du Québec pour l'année 2019 : le CPQ regrette la révision des seuils à la baisse*, Montréal: CPQ: <https://www.cpq.qc.ca/en/publications/communiqués-de-presse/plan-dimmigration-du-quebec-pour-lannee-2019-le-cpq-regrette-la-revision-des-seuils-a-la-baisse/>

⁸⁵ MIFI (2020b), *Plan d'Immigration du Québec 2021*, Québec: MIFI, 8: https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/immigration/publications-adm/plan-immigration/PL_immigration_2021_MIFI.pdf

⁸⁶ Cocolakis-Wormstall (2018b), 1.

⁸⁷ Dubé, Isabelle (2019), *Pénurie de main-d'œuvre : le recrutement à l'étranger bat des records*, Montréal: La Presse:

<https://www.lapresse.ca/affaires/entreprises/2019-09-21/penurie-de-main-d-oeuvre-le-recrutement-a-l-etranger-bat-des-records>

⁸⁸ El-Assal & Miekus (2020).

⁸⁹ MIFI (2020b), 9.

immigration levels to over 80,000 annually.⁹⁰ The impacts of the COVID-19 virus on Quebec businesses and a qualified workforce needs is unlikely to change. However, the pandemic will most likely further reduce the financial capacity of businesses to attract this talent. Moreover, supporting businesses in confronting their labour shortages will require a significant shift in Quebec's current strategy on immigration in the coming years.

⁹⁰ El-Assal & Mickus (2020).

II. Global Talent Recruitment and Retention

Despite the importance of immigration to Quebec's economic growth and sustainability, overall levels and targets for immigration to Quebec experienced a continuous decline over the past three years (see *table 3*).⁹¹ As of 2018, immigrants in Quebec composed 13.7% of the province's population.⁹² The greatest share of immigrants were admitted through economic streams with economic migrants, composing 57.1% of total immigration in 2018. Humanitarian categories make up the remaining 42.9%, with 24.0% of immigrants entering Quebec through family reunification, 11.1% through refugee categories, 6.2% through asylum seeker and 1.6% through other categories.⁹³ Drawn to Quebec's largest urban and population center, 83.1% of immigrants in Quebec live in the Greater Montreal Region.⁹⁴ The five top countries of birth for immigrants admitted between 2014 and 2018 included China (8.6%), France (8.2%), Syria (6.2%), Iran (6.0%) and Algeria (5.5%).⁹⁵

Table 3: Quebec Immigration Levels 2014-2018⁹⁶

	2014	2015	2016	2017	2018
Total Immigration to Quebec	50,257	48,997	53,249	52,399	51,118 ⁹⁷
Economic Immigration	33,441	29,904	31,603	30,263	29,188
Family Reunification	11,338	10,494	11,125	12,136	12,268
Refugees	4,866	7,613	9,435	9,154	8,843
Other	612	986	1,086	846	818

⁹¹ MIFI (2019a), 39.

⁹² MIFI (2019a), 31.

⁹³ MIFI (2019a), 38.

⁹⁴ Composed of the administrative regions of Montreal, Laval, Monteregion, Laurentides and Lanaudiere: MIFI (2019a), 32.

⁹⁵ MIFI (2019a), 56.

⁹⁶ MIFI (2019c), *Présence et portraits régionaux des personnes immigrantes admises au Québec de 2008 à 2017*, Montréal: MIFI, 28: http://www.mifi.gouv.qc.ca/publications/fr/recherches-statistiques/PUB_Presence2019_admisQc.pdf; MIFI (2019a), 38-39.

⁹⁷ Calculation rounded to highest whole number.

Immigrants in Quebec tend to be very well educated, a key provincial requirement for admitted economic immigrants. Only little less than 40% of the province's migrant population between 25 and 64 years of age hold a bachelor's degree or higher, and a further 15.3% hold a college or non-university certificate or diploma.⁹⁸ Command of the French language is another important requirement, with most immigration programs requiring that immigrants speak French at the intermediate to advanced level. In 2016, 80.5% of immigrants living in Quebec knew French, of which 30.2% spoke only French and 50.3% spoke both French and English.⁹⁹

The top five professions of all immigrants active in the provincial labour market and admitted between 2009 and 2018 were to a considerable extent entry-level workers (47.6%); 13.5% were working in the natural and applied sciences, 9.3% in business, finance and administration, 6.7% in social sciences, teaching and public administration, and 5.4% in the health sector.¹⁰⁰ Though immigrants make up only 13.7% of the entire population, they represent one-fifth of the STEM workforce. Of the 302,160 Quebec STEM workers, non-immigrants make up 76.1% (229,880 workers) while immigrants compose little more than a fifth (65,415) of Quebec's worker population.¹⁰¹

Quebec Immigration Governance

Quebec has a high degree of autonomy in immigration governance when compared to other Canadian provinces and territories. Preserving Quebec's cultural identity and distinct history as the only predominately French-speaking province in Canada has been central to the province's political character. The institutionalizing of this distinction began in the 1960s with Quebec's 'Quiet Revolution'¹⁰² – a movement that sought to establish a more democratic and equitable society with an emphasis on the separation of the Catholic Church and State. During this time, Quebec also began to differentiate its distinctive character from other Canadian provinces at the federal level. In defense of its French heritage while existing in an Anglophone country, Quebec tries to keep as much control over its own affairs as possible. This is achieved through Québécois representation at the federal level through their own nationalist party, the *Bloc Québécois*, firm negotiation and leveraging various policy actions including two failed referendums (1980 and 1995) for Quebec's separation and independence from Canada.

⁹⁸ Statistics Canada (2017a), *Census Profile, 2016 Census, Quebec [Province] and Canada [Country]*, Ottawa: Statistics Canada: <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=PR&Code1=24&Geo2=PR&Code2=01&Data=Count&SearchText=24&SearchType=Begins&SearchPR=01&B1=All&Custom=&TABID=3>

⁹⁹ 15.1% spoke only English and the remaining 4.4% spoke neither French nor English. The total does not include permanent residents: MIFI (2019a), 35.

¹⁰⁰ MIFI (2019a), 66.

¹⁰¹ The remaining 2.3% are non-permanent residents: Statistics Canada (2019a)

¹⁰² English translation of "la Révolution tranquille"

In 1968, Quebec was the first province to create their own ministry of immigration.¹⁰³ Immigration governance has been a key area that reaffirms Quebec's sovereignty, as part of the strategy allowing the province to maintain and protect its French speaking heritage through control of the population admitted. As such, Quebec's distinct cultural identity has allowed it to negotiate more independence in its immigration agreements with the federal government. This began with the 'Lang-Cloutier Agreement' in 1971¹⁰⁴ and has been reinforced in subsequent agreements including the 'Andras-Bienvenue Agreement' (1975), the 'Cullen-Couture Agreement' (1979), and most recently the current 'Canada-Quebec Accord relating to Immigration and Temporary Admission of Aliens' (Canada-Quebec Accord or Accord), ratified in 1991.¹⁰⁵

While all Canadian provinces have their individual bilateral immigration agreements with the federal government, Quebec's agreement with Canada's federal government by far provides the most autonomy. Under the most recent and currently relevant 'Canada-Quebec Accord', Quebec maintains exclusive responsibility for identifying and selecting all economic migrants to the province.¹⁰⁶ Though the federal government maintains control over family class and refugee claimants, it seeks to only admit migrants under these humanitarian categories who meet Quebec's selection criteria.¹⁰⁷ The Accord stipulates Quebec can establish its own immigration levels, develop its own immigration policies and programs, and set its own selection standards depending on the needs of the province. While the Canadian government retains the right to set national immigration numbers, an annual consultation with Quebec's immigration authorities occurs to integrate Quebec's preferences for its own future immigration levels.¹⁰⁸

Quebec is also responsible for the delivery of integration and settlement services such as training for language and adapting to Quebec workplace culture for migrants with funding provided by the federal government (*see table 4*). The federal government compensates Quebec for the settlement services it provides under condition that these services correspond to those offered by the federal government and the other provinces. Additionally, they must be accessible to all Canadian permanent residents residing in Quebec regardless of whether they were specifically selected by Quebec's immigration authorities.¹⁰⁹ The

¹⁰³ El-Assal, Kareem, Fields, Daniel, Homsy, Mia, Savard, Simon & Scarfone, Sonny (2019), *Seuils d'immigration au Québec: analyse des incidences démographiques et économiques*, Montréal: Institut du Québec, 8: <https://ehw.395.myftpupload.com/wp-content/uploads/2020/05/201905-Immigration.pdf>

¹⁰⁴ Béchar, Julie (2011), *Immigration: The Canada-Québec Accord*, Ottawa: Library of Parliament, 1: <https://lop.parl.ca/staticfiles/PublicWebsite/Home/ResearchPublications/BackgroundPapers/PDF/2011-89-e.pdf>

¹⁰⁵ Béchar, Julie (2011), 2.

¹⁰⁶ Immigration, Refugees and Citizenship Canada (IRCC) (2019a), *2019 Annual Report to Parliament on Immigration*, Ottawa: IRCC, 26: <https://www.canada.ca/content/dam/ircc/migration/ircc/english/pdf/pub/annual-report-2019.pdf>

¹⁰⁷ Except for refugee claims adjudicated from within Canada: Béchar (2011), 2.

¹⁰⁸ Béchar (2011), 2.

¹⁰⁹ The Canadian Charter of Rights and Freedoms guarantees the freedom of movement to all permanent residents anywhere in Canada. Therefore, any permanent resident of Canada may move to Quebec from any other province and be eligible to access the same services as immigrants selected specifically by Quebec: Béchar (2011), 3.

grant amounts correspond to a base sum of \$90 million, increased by an ‘escalator clause’ corresponding to the number of immigrants Quebec takes on (i.e., new immigrants or non-francophone immigrants to Quebec) (see *table 4*).

Table 4: Canada-Quebec Accord Grant Amounts (2009-2017)¹¹⁰

Fiscal Year	Grants under the Canada-Québec Accord (\$ millions)
2009-2010	232.2
2010-2011	258.4
2011-2012	283.1
2012-2013	284.5
2013-2014	320.0
2014-2015	340.5
2015-2016	345.0
2016-2017	378.2

The selection of economic immigrants to Quebec is decided by a points system. Total scores are awarded to applicants using a selection grid based on education, work experience, knowledge of French and English, financial self-sufficiency, age, valid offer of employment, time spent in Quebec, as well as the age, education and level of French for any partner or spouse accompanying the primary applicant.¹¹¹ The selection grid most heavily weights the education and French linguistic capacities with these two categories composing 40% of the maximum points attainable.¹¹²

With economic immigration composing 60.3% of total immigration from 2014-2018, Quebec has built a robust system of programs to facilitate the movement of high skilled workers across its economy. Quebec offers a range of permanent and temporary economic immigration streams from the Regular Skilled Worker Program and the Quebec Experience Program governed solely by the province, as well as the Temporary Foreign Worker Program, Global Talent Stream and International Mobility Program housed in the federal government. Regardless of provincial or federal jurisdiction, Quebec holds the responsibility to process both avenues with the Federal government giving final approval rather than choosing and administrating applications.

¹¹⁰ Béchard (2011), 4.

¹¹¹ MIFI (2018a), *Grille de sélection du Programme régulier des travailleurs qualifiés*, Montréal: MIFI:

https://www.immigration-quebec.gouv.qc.ca/publications/fr/divers/GRI_SelectionProgReg_TravQualif2018.pdf

¹¹² MIFI (2018a).

Quebec's Regular Skilled Worker Program

Skilled workers interested in establishing themselves and their livelihoods in Quebec permanently may use the general program available to apply for permanent residency, the Regular Skilled Worker Program¹¹³ (PRTQ). The 2013-2017 statistical report on permanent residents from MIFI details that applicants admitted under economic immigration categories composed 62.4% of permanent residents to Quebec for the period.¹¹⁴ Of this percentage, 83.3% were admitted under the Skilled Worker sub-category.¹¹⁵ In June 2019, an online portal called *Arrima* was launched for processing PRTQ applications and has since been expanded to include applications for other Quebec programs.¹¹⁶ This portal aims to facilitate easier identification and matching of immigration candidate profiles with the needs of the provincial labour market. Applicants submit their expression of interest online through *Arrima* detailing information including education, language skills and work experience. As of January 1st, 2020, permanent residency applicants are also required to submit an attestation of learning about democratic values and Quebec values expressed by the 'Charter of Human Rights and Freedoms'. Applicants obtain the attestation by taking an assessment online or in person. If applicants fail the online assessment twice, they are required to attend a 24-hour in person training session at a cost of \$188.00. Once obtained the assessment is valid for two years.¹¹⁷ The assessment aims to ensure immigrants know the rights and responsibilities of being in Quebec and are informed that Quebec is a French-speaking, secular and democratic society where there is equality between women and men.¹¹⁸ Immigrants matching Quebec's labour market needs and demonstrating their knowledge of Quebec values are awarded a Quebec Selection Certificate¹¹⁹ (CSQ) from the *Quebec Minister of MIFI*, which invites them to apply for permanent residency.¹²⁰ The CSQ affirms a potential migrant's eligibility to settle in Quebec as a permanent resident when this application is sent to be validated at the Federal level.

The applications for obtaining a CSQ as an economic immigrant are evaluated using the selection grid and points thresholds in effect. While there is no set schedule for applicants to receive an invitation to apply rather operating on a rolling basis, the draws are posted publicly to the MIFI website and typically the

¹¹³ English translation of 'Programme régulier des travailleurs qualifiés'

¹¹⁴ MIFI (2018b), *Portrait de l'immigration permanente au Québec selon les catégories d'immigration 2013-2017*, Montréal: MIFI, 7:

http://www.mifi.gouv.qc.ca/publications/fr/recherches-statistiques/Portraits_categories_2013-2017.pdf

¹¹⁵ MIFI (2018b), 9.

¹¹⁶ MIFI (2019d), *Lancement du système Arrima : une modernisation attendue et souhaitée du système d'immigration*, Montréal: MIFI: <http://www.mifi.gouv.qc.ca/fr/presse/communiqués/com20190627.html>

¹¹⁷ MIFI (2020c), *Session Objectif Intégration*, Montréal: MIFI:

<http://www.immigration-quebec.gouv.qc.ca/fr/region/sessions-information/objectif-integration/index.html>

¹¹⁸ CBC News (2019), *Here's a sample of the questions on Quebec's new values test*, Montreal: CBC:

<https://www.cbc.ca/news/canada/montreal/quebec-legault-values-test-sample-1.5340965>

¹¹⁹ English translation of 'Certificat de selection du Quebec'

¹²⁰ Some applicants are requested to attend an interview to verify information included in the application particularly regarding education, work experience and language knowledge.: MIFI (2021a), *Arrima*, Montréal: MIFI: <https://www.immigration-quebec.gouv.qc.ca/en/informations/arrima/index.html>

invitations are sent twice a month. COVID-19 has impacted the frequency of the draw with the most recent round of invitations (90 in total) sent out on May 27, 2021 while only four invitation exercises were carried out in 2020, totalling 628 invitations.¹²¹

Quebec Experience Program¹²² (PEQ)

The PEQ was introduced in 2010 as an accelerated program for skilled workers on temporary permits in Quebec to obtain a CSQ and fast track their permanent residency. The Canadian financial group *Desjardins* estimates that of non-permanent residents in Quebec in 2018, 49% were temporary workers and 27% were foreign students.¹²³ The program bridges temporary permit holders with Quebec experiences into permanent residency, tapping into the pool of foreign talent who have Quebec experience. This approach fits well with Quebec's priority of improved integration of immigrants, by assuring applicants have Quebec experience either as specialized temporary workers (the Temporary Worker stream) or international graduates from Quebec educational institutions (the Quebec Graduate stream).

Candidates qualifying for this program undergo a simplified process compared to the PRTQ. In the PEQ, the selection of applicants is done based on requirement satisfaction rather than point thresholds. Under this program, no interview is required, less information is required regarding spouses, and less paperwork is required for accompanying dependents.¹²⁴ The popularity of the PEQ continues to rise. In 2019, 86% of CSQs approved in Quebec were through the PEQ.¹²⁵ Split between both PEQ programs, 67.0% went to the Temporary Worker stream, and 33% went to the Quebec Graduate stream (*table 5*).

Further to the goal of improving immigrant integration, a reform of both streams of the PEQ was introduced in February 2020 and later implemented during the COVID-19 pandemic in July 2020. The reform increased the work experience required to meet application criteria and now requires documentation of a proficient level of French for accompanying partners. Whereas previously no spousal characteristics factored into an individual's application, spouses are now required to demonstrate an equivalent proficiency in French to the level four on the 'Quebecois Scale of French Competency of Adult Immigrant Individuals'.¹²⁶ The reform also announced an increase in processing times, extending the previous processing standard of 20 days to a

¹²¹ MIFI (2021b), *Invitations*, Montréal: MIFI: <https://www.immigration-quebec.gouv.qc.ca/fr/informations/arrima/individus/programme-regulier-travailleurs-qualifies/invitations/index.html>

¹²² English translation of 'Programme de l'expérience québécoise'

¹²³ The remaining 22% are asylum seekers: Bégin, Hélène (2019), *Economic Viewpoint: Montreal's Economy Is the Driving Force Behind Quebec's Economy Once Again*, Levis: Desjardins, 2: www.desjardins.com/ressources/pdf/pv121219e.pdf

¹²⁴ MIFI (2013), *Rapport d'évaluation du Programme de l'expérience québécoise*, Montréal: MIFI, 19: http://www.mifi.gouv.qc.ca/publications/fr/divers/Rapport_Evaluation_PEQ.pdf

¹²⁵ MIFI (2020d), *Document de consultation sur le Programme de l'expérience québécoise (PEQ)*, Montréal: MIFI, 10: http://www.mifi.gouv.qc.ca/publications/fr/dossiers/DOC_consultation.pdf

¹²⁶ English translation of 'Échelle Québécois des niveaux de compétence en français des personnes immigrantes adultes'

commitment of processing applications within a maximum of 6 months.¹²⁷ The rationale for this change was to ensure Quebec treats PEQ and PRTQ candidates equally. In the press release introducing the initial reforms in May 2020, MIFI also proposed pilot programs for prioritizing professionals in the artificial intelligence (AI), information technologies and visual effects (IT/VE) sectors. The latter program comes into effect on April 22, 2021 and will allocate 550 CSQs each year, divided evenly between Québec graduates and temporary workers in AI and foreign workers in the IT/VE sector.¹²⁸

Table 5: Quebec Selection Certificates approved under the Quebec Experience Program¹²⁹

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Temporary Worker	1,289	1,674	2,309	3,398	4,221	4,239	4,534	4,402	5,566	9,881
Quebec Graduate	606	1,126	1,598	2,156	2,596	3,512	4,906	4,791	5,146	4,867
PEQ total	1,895	2,800	3,907	5,554	6,817	7,751	9,440	9,193	10,712	14,748

Temporary Workers

Under the PEQ, the Temporary Worker stream is available to immigrants who have stayed in Quebec before as a temporary foreign worker or as part of a youth exchange program.¹³⁰ The July reform of the PEQ increased the work experience required from at least 12 of the past 24 months to 36 months in the past 48 months preceding their application.¹³¹ Work experience must be full-time or if part-time, calculated for the full-time equivalent. Experience can be accumulated across multiple employers, but to apply requires applicants to have a full-time permanent offer of employment at their current workplace. This position must be classified at the managerial, professional, or technical level in the National Occupational Classification (NOC) system type 0 or level A or B.¹³² Applicants and any accompanying spouse must demonstrate their

¹²⁷ El-Assal, Kareem, Thevenot, Shelby & Mickus, Alexandra (2020), *Quebec announces major immigration program reforms; 2 new pilots*, Montreal: CIC News:

<https://www.cicnews.com/2020/05/quebec-announces-major-immigration-reforms-2-new-pilots-0514514.html#gs.cnvot2>

¹²⁸ MIFI (2021c), *Programme pilote d'immigration permanente des travailleurs des secteurs de l'intelligence artificielle, des technologies de l'information et des effets visuels*, Québec: MIFI: <https://www.immigration-quebec.gouv.qc.ca/fr/immigrer-installer/programmes-pilotes/intelligence-artificielle/index.html> ; MIFI (2020e), *Fiche Technique – Programme de l'expérience québécoise*, Montréal: MIFI, 4: <http://www.mifi.gouv.qc.ca/publications/fr/divers/fiche-technique-peq.pdf>

¹²⁹ MIFI (2020d), 12.

¹³⁰ Of note, the Temporary Worker stream of the PEQ is comparable to the Canadian Experience Class (Express Entry) program used across other provinces.

¹³¹ El-Assal, Thevenot & Mickus (2020).

¹³² The NOC system is Canada's national system for describing occupations. It defines generalized job characteristics ranging from example job titles and job descriptions, employment requirements such as level of education needed and any licensing required to perform the job in Canada. The levels under the National Occupation Classification are broadly described as: Skill

knowledge of French at the intermediate and advanced level respectively, as well as submit proof of financial security for the applicant and any spouse or dependent for at least three months.¹³³ As is the case for the PRTQ, applicants must also obtain an attestation proving knowledge of democratic values and Quebec values for all individuals (primary applicants, spouses and dependents over age 18) on the application.

A 2014 evaluation of the PEQ conducted by *MIFI* demonstrated the role of the program in attracting and retaining foreign workers. Survey respondents were successful applicants through the program, 82.2% reported knowledge of the PEQ in its ability to lead specialized workers to permanent residency. Of this percentage, 81.7% confirmed they were motivated to work in Quebec temporarily to become eligible to apply. Of temporary workers who obtained their first temporary work permits, 67.6% reported it was their intention to obtain a CSQ before the end of their contract.¹³⁴ Respondents successful under the Temporary Worker stream reported they chose to move to Quebec for the job prospects (83.3%), the possibility to live in French (53.4%), to live in a secure environment (44.6%) and for the cost of living (30.5%).¹³⁵ The program caters to the short-term labour needs of employers, of which 87.9% surveyed considered it beneficial for Quebec to retain its specialized temporary workers. They cited advantages to be filling labour shortages (29.5%) and to retaining the expertise of these workers (25.9%).¹³⁶

Administratively, Temporary Workers expressed more difficulty with navigating the PEQ than did Quebec Graduate stream respondents. 91.3% of Quebec Graduate respondents perceived the PEQ process to be simple or very simple with only 8.7% finding it complicated or very complicated. In contrast, 80.6% of the Temporary Workers reported simple or very simple, whereas 19.4% reported the processes to be complicated or very complicated. Of respondents reporting the process as complicated, key difficulties for Temporary Workers were collecting the required documents (83.4%), understanding the steps for completing the form (33.6%) and understanding the questions on the form (23.7%).¹³⁷

type 0: management occupations including senior and middle management positions; Skill level A: university degree (bachelor's, master's or doctorate); Skill level B: a combination of two to five years of applicable experience and up to three years of community college education; Skill level C: secondary school education with up to two years of on-the-job training; Skill level D: low skill or labour jobs that usually give on-the-job training: Government of Canada (GoC) (2020), *National Occupation Classification*, Ottawa: GoC: <http://noc.esdc.gc.ca/English/noc/Introduction.aspx?ver=16#sl>

¹³³ Primary applicants must demonstrate level 7 competency while spouses must demonstrate at least level 4 on the Quebecois Scale of French Competency of Adult Immigrant Individuals (*Échelle Québécois des niveaux de compétence en français des personnes immigrantes adultes*): MIFI (2020e).

¹³⁴ MIFI (2013), 14.

¹³⁵ MIFI (2013), 15.

¹³⁶ MIFI (2013), 15.

¹³⁷ MIFI (2013), 21.

Quebec Graduates: Spotlight on International Students

The Quebec Graduate stream is intended for foreign students from Quebec education institutions who wish to settle and find employment in Quebec. To apply, these individuals must have stayed in Quebec for at least half of the duration of their program of study and hold an eligible Quebec diploma. Other requirements are the same as the Temporary Worker stream, where applicants must prove an intermediate to advanced proficiency of French, demonstrate financial stability for the applicant and any spouse or dependents accompanying for a minimum of three months, and obtain an attestation proving an understanding of democratic values and Quebec values.¹³⁸ The July 2020 program changes added a work experience requirement of at least 12 months in a managerial, professional or technical occupation (NOC level 0, A or B). Applicants must be holding a full-time job at the NOC 0, A or B level when they submit their application. Previously, graduates were able to apply without experience. This change requires most new graduates obtain a temporary visa from the federal Post-Graduation Work Permit Programme to accumulate the required job experience before being eligible to apply for permanent residency.

A robust immigration framework for international students is important for talent retention. This is a particular area of focus for the Quebec immigration apparatus as 49% of jobs projected to be created by 2028 will be highly-skilled, requiring at least a technical college diploma if not higher.¹³⁹ As of 2017, Quebec ranked third for the proportion of Canadian international students at all levels of study at 12% (61,565) of the total student population.¹⁴⁰ According to data provided by the *Office of Inter-university Cooperation*¹⁴¹ comparing enrollment data from 2018 to 2019, enrolment of international students in the Fall semester at Quebec universities saw an increase of 8.7%, with the highest increase among Masters level students at 12%.¹⁴² Accordingly, the proportion of international students as a percentage of the total Quebec university population increased from 14.3% (44,534 students) to 15.6% (48,393 students).¹⁴³ Quebec is well known for its high proportion of University talent with 310,859 students total enrolled across seven renown universities.¹⁴⁴ Three-quarters of all Quebec's university student population were enrolled in universities in Greater Montreal.¹⁴⁵ The percentage of international students at universities in the Greater Montreal Region

¹³⁸ MIFI (2021d), *Selection conditions*, Montréal: MIFI: <http://www.immigration-quebec.gouv.qc.ca/en/immigrate-settle/students/stay-quebec/application-csq/students-peq/conditions-steps.html>

¹³⁹ MIFI (2020d), 8.

¹⁴⁰ First comes Ontario at 48% (237,280) and BC at 24% (119,110). Canadian Bureau for International Education (CBIE) (2018), *International Students in Canada*, Ottawa: CBIE, 5: <https://cbie.ca/wp-content/uploads/2018/09/International-Students-in-Canada-ENG.pdf>

¹⁴¹ English translation of: Bureau de Coopération Interuniversitaire

¹⁴² Bureau de Coopération Interuniversitaire (BCI) (2019), *Données préliminaires relatives aux inscriptions au trimestre d'automne 2018*, Montréal: BCI, 1: https://www.bci-qc.ca/wp-content/uploads/2019/10/Insc_automne_2019.pdf

¹⁴³ BCI (2019), 32.

¹⁴⁴ Bishops University, Concordia University, Laval University, McGill University, University of Montreal, Sherbrooke University and the University of Quebec: BCI (2019), 4.

¹⁴⁵ Calculations based on data from: BCI (2019), 32.

was 77.2% in 2018 and 75.7% in 2019, with only 22.8% and 24.3% in other areas of Quebec for 2018 and 2019 respectively.¹⁴⁶

Immigrants have a higher average of educational attainment than the Canadian-born population. While 22.3% of all Canadian-born individuals in Quebec hold a bachelor's degree or higher, the average for immigrants is 39.0%, increasing to 50.5% when isolating the immigrant population more recently landed between 2011 and 2016.¹⁴⁷ The five most common fields of study in Quebec's education including immigrants and non-immigrants at the Bachelor's degree level or higher include business, management, marketing and related services (23.3%), education (12.3%), engineering (10.5%), health professions and related programs (9.2%) and the social sciences (6.1%).¹⁴⁸ In 2016, the majority of individuals with educational attainment at the Bachelor's degree level or higher completed their degree in BHASE¹⁴⁹ fields (77.1%), while only 22.9% completed their degree in STEM fields.¹⁵⁰

In a 2017 study commissioned by the federal government conducted by *Roslyn Kunin and Associates, Inc.* (RKA), the combined direct and indirect economic impact of international students in Quebec was estimated at a contribution to GDP of \$1.6 billion and supported 25,102 jobs.¹⁵¹ Another from the *Chamber of Commerce of Metropolitan Montreal* and *KPMG* calculated the human capital contribution of international students between 2014 and 2015 at \$16.3 billion in GDP.¹⁵² The same study took data from 2001, 2006 and 2011 to demonstrate the steadily increasing proportion of jobs held by university graduates in the STEM industries (see *table 6*).¹⁵³

In Canada, *RKA* research indicated that international student enrollment in the STEM field grew much faster than domestic students.¹⁵⁴ The available numbers are very likely significantly higher as the economy grows and educational attainment increases. More recent, robust, and disaggregated statistics are required to understand the impact of Quebec's universities, and more specifically international students, on its

¹⁴⁶ Calculations based on data from: BCI (2019), 32.

¹⁴⁷ Statistics Canada (2017b), *Focus on Geography Series, 2016 Census*, Ottawa: Statistics Canada: <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-pr-eng.cfm?Lang=Eng&GK=PR&GC=24&TOPIC=10>

¹⁴⁸ Statistics Canada (2017b).

¹⁴⁹ Defined as degrees in seven fields of study: business and administration; arts and humanities; social and behavioural sciences; legal professions and studies; health care; education and teaching; and trades, services, natural resources and conservation.

¹⁵⁰ Statistics Canada (2017b).

¹⁵¹ Roslyn Kunin and Associates, Inc. (RKA, Inc.) (2017). *Economic Impact of International Education in Canada – An Update*, Vancouver: RKA, Inc, vi:

https://www.international.gc.ca/education/assets/pdfs/Economic_Impact_International_Education_in_Canada_2017.pdf

¹⁵² These calculations account for the total student population and have not been differentiated by domestic or international student status.

¹⁵³ Chambre de commerce du Montréal métropolitain (CCMM) (2016), *The contribution of greater Montréal universities to the Québec economy*, Montréal: CCMM, 39: https://www.ccmm.ca/en/news/etude_universites/

¹⁵⁴ Global Affairs Canada (GAC) (2016), 2. *Recent Trends in International Student Mobility and Economic Impact*, Ottawa: GAC: <https://www.international.gc.ca/education/report-rapport/impact-2016/sec-2.aspx?lang=eng>

economy. International students make up a considerable amount of total temporary permits issued by *MIFI*. The province reports its numbers of international student study permits have been steadily increasing reaching 43,690 in 2018 (*table 7*).

Table 6: Proportion of jobs held by university graduates in the census metropolitan area of Montreal, selected industries (2001, 2006, 2011)¹⁵⁵

Industries	2001	2006	2011
Scientific R&D services	57%	63%	66%
Pharmaceutical products and drugs manufacturing	40%	40%	47%
Information and communications technology	36%	43%	43%
Finance and insurance	28%	35%	40%
Aerospace products manufacturing	20%	25%	32%
All Industries	22%	26%	29%

Table 7: Temporary Permits Issued in Quebec (2014-2018)¹⁵⁶

	2014	2015	2016	2017	2018
International Study Permits	29,510	30,155	33,360	37,990	43,690
Temporary Foreign Worker Program (TFWP)	11,405	12,035	12,915	17,475	23,060
International Mobility Program (IMP)	29,274	29,735	33,830	35,440	40,095

¹⁵⁵ CCMM (2016), 15.

¹⁵⁶ MIFI (2019a), 75.; Statistics Canada (2020g), *Canada – Temporary Foreign Worker Program work permit holders by province/territory of intended destination, intended occupation (4-digit NOC 2011) and year in which permit(s) became effective, January 2015 – June 2020*, Ottawa: Statistics Canada: http://www.cic.gc.ca/opensdata-donneesouvertes/data/IRCC_M_TR_0009_E.xls found on webpage: <https://open.canada.ca/data/en/dataset/360024f2-17e9-4558-bfc1-3616485d65b9>

COVID-19 has put international students in an unprecedented situation of insecurity. Uncertain if they will be able to study physically in Quebec due to travel restrictions, extended border closures could jeopardize the chances for some to be eligible for permanent residency under the Quebec Graduates stream. The program requires applicants complete at minimum 50% of their studies in-person at their Quebec educational institution. No amendments have yet been made for this requirement despite many international students returning to their country of origin and online learning having become the norm since the beginning of the pandemic and for the foreseeable future.

Temporary Foreign Worker Program (TFWP)

The TFWP provides employers with a pathway to hire foreign employees on a temporary basis. The total number of temporary foreign workers admitted to Quebec through the TFWP continues to increase steadily (see *table 6*). Whereas the federal government administers the TFWP in other provinces, MIFI manages the Temporary Foreign Worker Program (TFWP) in Quebec. Employers seeking to hire through the TFWP must have been doing business in Quebec for 12 months or more, be offering a job under the four levels of professional competence— skill levels A, B, C, or D according to the National Occupation Classification.¹⁵⁷ Echoing the Federal protocol for temporary foreign workers, MIFI requires employers to submit a Labour Market Impact Assessment (LMIA). The LMIA requires employers to submit proof and documentation that there are no Canadian citizens or permanent residents available to fill the position the company is seeking a foreign national for.¹⁵⁸ This includes proving that despite reasonable effort to recruit a qualified Quebec resident, the company was unable to fill the position with the local labour supply.¹⁵⁹ The LMIA details both failed recruitment efforts, as well as how the temporary foreign worker selected would provide an added value to Quebec's job market and expand the diversity of the workforce.¹⁶⁰ Upon receipt of an employer's application and acceptance of the labour shortage established through the LMIA, MIFI grants approvals for TFWP permits by issuing a Quebec Certificate of Acceptation¹⁶¹ (CAQ) to foreign workers. Applying employers are required to pay processing fees for the LMIA at \$205.00 per person, and an additional \$205.00 per person for the CAQ.¹⁶²

¹⁵⁷ MIFI (2020a).

¹⁵⁸ IRCC (2019b), *Quebec cases (Temporary Foreign Worker Program and International Mobility Program)*, Ottawa: IRCC: <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/temporary-residents/foreign-workers/quebec-cases.html>

¹⁵⁹ Reasonable efforts include extended vacancy or ineligibility of applicants during regular recruitment, as well as demonstrating that local labour could not be trained for the position within a maximum of one calendar year. MIFI (2020f), *Démarche simplifiée pour l'embauche de travailleurs étrangers temporaires dans des professions spécialisées à haut salaire*, Québec: MIFI: <http://www.immigration-quebec.gouv.qc.ca/fr/employeurs/embaucher-temporaire/recrutement-haut-salaire/demarche-simplifiee.html>

¹⁶⁰ MIFI (2020f).

¹⁶¹ English translation of 'Certificat d'acceptation du Québec'

¹⁶² MIFI (2020g), *Frais et modes de paiement*, Montréal: MIFI: <http://www.immigration-quebec.gouv.qc.ca/fr/employeurs/embaucher-temporaire/frais.html#offre>

The complexity of the LMIA process incentivizes employers and consultants to use LMIA-exempt avenues where possible through the International Mobility Program (discussed below). Additional LMIA-exempt avenues are also available where an employment contract is 30 days or less, the employment is not paid, or the employment of a foreign national does not require an assessment of the impact this job offer may have on the Quebec labour market. Under the TFWP, a simplified process is also available through an agreement established between the federal *Employment and Social Development Canada (ESDC)* and *MIFI* for in-demand occupations. Since 2012, a list of specialized occupations determined by *Emploi-Quebec* and *MIFI* is published each year determining the NOC codes of in-demand occupations prioritized for a facilitated application process.¹⁶³ The facilitated process is largely the same as the regular process, except that employers are no longer required to provide proof of their attempted recruiting efforts in their LMIA submission.¹⁶⁴ This occupations list demonstrates Quebec's effort to settle more immigrants in Quebec's regions outside of Montreal. The eligible in-demand occupations list also corresponds to the needs of Quebec's various regions, using this facilitated process as an incentive for companies to recruit needed foreign talent into more remote or rural areas of Quebec. As discussed in the previous section, 21% of these specialized and high wage occupations are STEM-related.

Table 8: Temporary Foreign Worker Program Admissions to Quebec (2015-2019)¹⁶⁵

	2015	2016	2017	2018	2019
Total Quebec Temporary Foreign Workers	11,405	12,035	12,915	17,475	23,060
STEM-related Temporary Foreign Workers	675	680	625	980	1,695
STEM percentage of total	5.9%	5.7%	4.8%	5.6%	7.4%

Federal data disaggregated by NOC code demonstrates an increasing trend in temporary work permits both at large and to STEM-related occupations (see *table 8*). According to federal data, the main occupations recruited through this pathway in Quebec include: Agricultural workers; food service workers; home childcare providers; and graphic designers and illustrators. Of the STEM-related occupations, computer programmers and interactive media developers, and information system analysts and consultants make up

¹⁶³ Most recent list can be accessed at: MIFI (2019b).

¹⁶⁴ Employment and Social Development Canada (EDSC) (2020a), *Facilitated Labour Market Impact Assessment process for Quebec employers*, Ottawa: EDSC: <https://www.canada.ca/en/employment-social-development/services/foreign-workers/quebec/simplified-process.html>

¹⁶⁵ Based on author's calculations using data from: Statistics Canada (2020g).

almost half of all STEM-related temporary foreign workers. Though STEM-related occupations compose one-fifth of the prioritized list, the percentage of STEM-related temporary foreign workers through the TFWP are low. In 2019, STEM-related occupations made up only 7.4% of total temporary foreign workers to Quebec through this pathway.¹⁶⁶

International Mobility Program (IMP)

The IMP is a federal temporary foreign worker program allowing eligible employers to hire temporary foreign workers who are exempt from the LMIA. The exemption codes applicable to Quebec and high-skilled workers are those related to international agreements such as the Canada-United States-Mexico Agreement (CUSMA), intra-company transfers, Canadian interests, reciprocal employment, research and competitiveness and public policy. Pertaining to STEM-related exemptions, Canadian interests can include foreign physicians coming to work in Quebec and LMIA-exempt work permit renewals and extensions for certain CSQ holders currently in Quebec. Reciprocal employment includes academic exchanges such as professors and guest lecturers. STEM-related research applies to scientists, scholars, post-doctorate fellows and research chairs. Competitiveness and public policy provide LMIA-exemptions for post-doctoral Ph.D. fellows and award recipients, and foreign medical or dental residents and medical research fellows. Employers must pay a compliance fee of \$230, once approved workers must still apply for an employer specific work permit where the Federal Government ensures the worker is eligible to work in Canada.¹⁶⁷

Table 9: International Mobility Program Admissions (2015-2019)¹⁶⁸

	2015	2016	2017	2018	2019
Total Quebec IMP workers	29,274	29,735	33,830	35,440	40,095
STEM-related IMP workers	4,170	3,555	3,935	4,275	4,790
STEM percentage of total	14.2%	12.0%	11.6%	12.1%	11.9%

Almost twice as many temporary foreign workers are admitted per year under the IMP than the TFWP (refer to *table 7*). This trend may speak to Quebec employer avoidance of the LMIA process under the TFWP. Of the total IMP admissions to Quebec, STEM-related occupations have made up on average 12.4% of admissions from 2015-2019 (see *table 9*). Key STEM-occupations admitted through this program include

¹⁶⁶ Statistics Canada (2020g).

¹⁶⁷ IRCC (2020), *International Mobility Program: How to hire a temporary worker*, Ottawa: IRCC:
<https://www.canada.ca/en/immigration-refugees-citizenship/services/work-canada/hire-foreign-worker/temporary/international-mobility-program/how-to-hire.html>

¹⁶⁸ Statistics Canada (2020g).

information systems analysts and consultants, computer programmers and interactive media developers, software engineers and designers and mechanical engineers.

Global Talent Stream

Since 2017, Quebec has facilitated high skilled labour movement through the federal *Global Skills Strategy*: The Global Talent Stream (GTS). The GTS is an innovative program offering eligible employers a pathway for temporary highly-skilled and specialized foreign talent that bypasses the typical barriers faced by businesses seeking to undertake the immigration process. Notably, the pathway offers a 10-day processing time and does not require an indeterminate offer of employment. The GTS maintains a labour market reporting requirement, the Labour Market Benefits Plan (LMBP). However, this document is significantly less onerous than the LMIA as ESDC officers are available to guide employers through the process. Rather than requiring employers to prove a labour shortage, it acts as a written strategy of employers for how they will commit to creating jobs for Canadians or permanent residents, as well as leverage foreign labour for complimentary benefits such as knowledge transfer, investment in skills and training or enhancing company performance.¹⁶⁹ Using the pathway is costly, at \$1,000 for each position requested.

Eligibility for the stream falls under two categories. To apply under Category A, employers must receive a referral from designated partners confirming the company's authenticity in their labour needs. In Quebec, referring partners include Invest Quebec¹⁷⁰, Montréal International, Québec International, Quebecois Technology Association.¹⁷¹ Category B is open to any employer to use the global talent stream when they are seeking temporary foreign workers to fill positions on the Global Talent Occupations list.¹⁷² The list covers a range of highly in-demand occupations spanning high tech and STEM occupations.¹⁷³ Quebec maintains control of the selection of immigrants under this category, but the federal government keeps responsibility for admission.¹⁷⁴ On the second anniversary of the Global Skills Strategy in June of 2019, the Government of Canada released a statement praising the success of the pathway. The statement reports that over the past two years over 1,100 Canadian employers have benefited from the GTS. These employers have committed to creating over 48,000 jobs and more than 12,500 paid co-op positions, as well as

¹⁶⁹ EDSC (2020b), *Program requirements for the Global Talent Stream*, Ottawa: EDSC:

<https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent/requirements.html#h5>

¹⁷⁰ English translation of 'Investissement Québec'

¹⁷¹ English translation of 'L'Association Québécoise des Technologies'

¹⁷² MIFI (2019e), *Liste des professions exigeant des talents mondiaux (Volet des talents mondiaux – Catégorie B)*, Montréal: MIFI: <https://www.immigration-quebec.gouv.qc.ca/publications/fr/divers/SalaireProCategorieB.pdf>

¹⁷³ For complete list, visit: Global Talent Occupations List for Category B of the Global Talent Stream (as of July 2019): EDSC (2020c), *Global Talent Occupations List for Category B of the Global Talent Stream (as of July 2019)*, Ottawa: EDSC: <https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent/requirements.html#h15>

¹⁷⁴ MIFI (2019f), *Stratégie en matière de compétences mondiales*, Montréal: MIFI: <http://www.immigration-quebec.gouv.qc.ca/fr/employeurs/embaucher-temporaire/talents-mondiaux/index.html>

dedicating over \$113 million to skills development and training. After two years, nearly 40,000 professionals have come to Canada through the Global Skills strategy, with almost 24,000 of them being in highly-skilled occupations. The statement highlights computer programming, information system analysis and software engineering as particularly popular occupations under the GTS.¹⁷⁵ No formal report of statistics has been released for the pathway, as such it is unclear to what extent employers in Quebec are taking advantage of this pathway and across what occupations.

Quebec-France Agreement

Taking advantage of sharing linguistic and historical ties, in 2008 Quebec and France officiated their mutual recognition agreement (MRA), the Quebec-France Agreement. This agreement does not facilitate immigration, rather it sets the framework for mutual recognition of professional qualifications between Quebec and France. MRAs significantly ease immigrant integration processes, permitting immigrants to transition easily into the French and Quebecois labour markets. In most cases, immigrants from other countries are required to undertake a costly, complex and daunting system of credential recognition to have their qualifications recognized in Quebec. The MRA permits French migrants to avoid engaging with this system by offering a fast-tracked recognition through pre-established credential equivalencies and relationships between various Quebec and French industry associations and regulatory professions. The agreement covers 81 occupations in Quebec including STEM-related occupations such as engineers, architects, land surveyors and urban planners.¹⁷⁶

After immigrating, French migrants to Quebec contact the appropriate regulating body and submit the required credential recognition documents. The pre-established process of equivalencies aims to expedite the process significantly, though no studies currently explore to what degree this is effective. While the agreement itself does not facilitate immigration, it does act as a pull factor for French immigrants to settle in Quebec. The ease of integration provided by a common language in addition to the simplified credential recognition process may help explain France's position as the 2nd highest country of origin listed for Quebec immigrants (8.2%) between 2014-2018.¹⁷⁷

Tax Break for Foreign Researchers and Experts

Quebec leverages a variety of policy tools to further international recruitment to the province. One tax break offered by the Quebec government aims to support Quebec businesses experiencing difficulties in finding

¹⁷⁵ IRCC (2019c), *Second Anniversary of the Global Skills Strategy*, Ottawa: IRCC:

<https://www.canada.ca/en/immigration-refugees-citizenship/news/2019/06/second-anniversary-of-the-global-skills-strategy.html>

¹⁷⁶ Bédard, Jean-Luc (2014), *Mutual recognition arrangements (MRAs) between France and Quebec: Innovating on the transnational professional front*, Montréal: Téluc: <https://r-libre.teluc.ca/390/1/B%C3%A9dard%2C%202014%20ARM.pdf>

¹⁷⁷ The second highest percentage of immigrants from any one country, second to China at 8.6%. MIFI (2019a).

highly-skilled talent in the Quebecois or Canadian talent pools. This measure aims to stimulate scientific research and experimental development in Quebec by providing tax breaks to companies hiring foreign researchers or experts to a maximum of five years.¹⁷⁸ The tax break extends to researchers holding a university degree recognized by a Quebec university as specialized in the field of pure or applied sciences or another related field.¹⁷⁹ It also applies to foreign experts holding a university degree recognized by a Quebec university, who is specialized in the field of R&D they seek to enter. For experts, eligibility requirements additionally include possessing specialized skills in management or financing, international marketing or technology transfer.¹⁸⁰

International Recruitment Missions (Journées Québec)

Another tool employed by the Quebec government is conducting and supporting international labour recruitment missions. Since 2008, the Journées Québec program has been connecting international talent to Quebec employers. Prospective candidates can attend recruitment fairs for free, view Quebec job postings, build their career profile and meet with employers.¹⁸¹ Fair facilitating partners under Journées Québec include Montréal International, Québec International, and the Economic Development Society of Drummondville. Journées Québec conducts recruitment missions around the world. In 2019, Journées Québec and their partner organizations conducted recruitment missions in France, Morocco, Belgium and Colombia, California, Mexico, Tunisia, and Brazil.¹⁸² In response to the COVID-19 pandemic, all Journées Québec events are being held virtually, targeting recruitment in the AI, ICT, and health sectors.¹⁸³

Since the first mission in 2008, Quebec reports a total of 5,320 skilled workers have been recruited to Quebec City and its surrounding areas alone have welcomed more than 13,300 newcomers including spouses and children.¹⁸⁴ In Montreal, Montréal International reports their overseas recruitment missions have increased in both frequency as well as number of skilled workers hired (see *table 10*). In 2019 as a result of 21 recruitment missions, 1,112 skilled workers were hired at Montreal companies.

¹⁷⁸ MEI (2020), Guide de renseignements généraux – Congé fiscal pour chercheurs et experts, Montréal: MEI, 4: https://www.economie.gouv.qc.ca/fileadmin/content/programmes/mesures_fiscales/cher_exp_etrangers/guide_ce_ce.pdf

¹⁷⁹ MEI (2020), 3-4.

¹⁸⁰ MEI (2020), 4.

¹⁸¹ Gouvernement du Québec (2020) *Journees Quebec*. Quebec: <https://journeesquebec.gouv.qc.ca/en/>

¹⁸² Québec First (2021), *Recruitment missions*, Québec: Québec International: <https://www.quebecentete.com/en/working-in-quebec-city/recruitment-missions/>

¹⁸³ MIFI (2021e), *Journées Québec – Activités de recrutement à l'étranger*, Montréal: MIFI: <https://www.immigration-quebec.gouv.qc.ca/fr/employeurs/activites-recrutement/index.html>

¹⁸⁴ Québec First, (2021).

Table 10: Montreal International Overseas Recruitment Events 2015-2019¹⁸⁵

	2015	2016	2017	2018	2019
Number of overseas recruitment missions	5	4	8	14	21
Number of participating companies	31	35	59	143	229
Number of skilled workers hired	142	164	296	640	1,122

Barriers to Successful Immigrant Integration

The Quebec government demonstrably recognizes the importance of global talent recruitment to the competitiveness, innovation, growth and sustainability of their economy. However, at the same time immigration targets continually fall below the needed numbers to meet their economic demand. The Quebec government identifies the reduction as a necessary measure to ensure social and economic integration of those immigrants entering the province. Immigrants to Canada generally face higher rates of unemployment than their Canadian-born counterparts, this trend is further exacerbated in Quebec. The average unemployment rate from 2015-2019 for landed immigrants in Quebec was 2.0% higher than the national average, and the highest of any Canadian province at 8.66%.¹⁸⁶ Within Quebec in 2018, the average unemployment rate for the total population was 5.0% for the Quebec-born population, versus 7.2% for immigrants to Quebec. Immigrant unemployment rates differ depending on how long they have been in the province. The unemployment rate for immigrants who arrived 5 years ago or less was very high at 11.4%. As the years increase to 5-10 years since arrival, the unemployment rate decreases to 6.5% and further to 6.3% for those who have passed 10 years since their arrival. This is still notably higher than the Canadian-born population unemployment rate in 2018 of 5%.¹⁸⁷

High unemployment rates and other reports of social and economic discrimination in Quebec reaffirm the need for improved support for immigrant integration. The Quebec government seeks to address immigrant integration struggles by putting more emphasis on immigrant immersion and compatibility with Quebec culture. The government approach has been higher French language admission requirements, to provide more French-language training, and requiring an attestation to immigrants' understanding of democratic values and Quebec values. While this may be an important component of immigrant integration to Quebec,

¹⁸⁵ Montréal International (2019c), *2019 activity report*, Montréal: Montréal International, 13:

<https://www.montrealinternational.com/en/publications/2019-activity-report/>; Montréal International (2018), *2018 activity report*, Montréal: Montréal International, 10: <https://www.montrealinternational.com/en/publications/2018-activity-report/>

¹⁸⁶ Average unemployment rates for landed immigrants in the 2015-2019 period across other Canadian provinces included: 7.98% in Alberta; 7.5% in the Atlantic region; 6.7% for the Canada average; 6.26% in Ontario; 6.1% in Manitoba and Saskatchewan; 5.38% in British Columbia. Statistics Canada (2020h), *Labour force characteristics by immigrant status, annual 2015-2019*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410008301>

¹⁸⁷ MIFI (2019a), 22.

it is unclear how the Quebec government is working to address discrimination within the labour market. Employer bias is also a factor affecting the ability for immigrants to find gainful employment, particularly those who are visible minorities.¹⁸⁸

Available research on discrimination against immigrants in Quebec is dated. In 2010, a study published by Nadeau and Seckin reports the presence of a prevalent immigrant wage gap in Quebec.¹⁸⁹ Also in 2010, a report on discrimination against racial minorities in Greater Montreal from *Quebec's Human Rights Commission* confirmed the bias of employers towards Quebecois sounding names and against those with an African, Arab or Latin American sounding name.¹⁹⁰ More recent reports documenting the existence of discrimination in Quebec are not specifically labour force or immigration related. For example, a 2019 report from *Quebec's Human Rights Commission* reports a rise in hate crimes against racial, ethnic and religious minorities where Quebec saw a 21% rise in hate crimes between 2015 and 2016, and a further 49% increase in 2017.¹⁹¹ Another 2019 study from the *Center of Research on Diversity and Democracy* analyzed systemic bias in the police found from data across 2014-2017. This study found indigenous and black people were 4.6 and 4.2 times more likely to be stopped by police for a random street check than a white person respectively.¹⁹² More recent and comprehensive research is required to determine the extent of employer discrimination against immigrants within Quebec.

Signs of discrimination have also been flagged in recent Quebec immigration legislation, the 2019 immigration reform bill, Bill 9 (PL9). When the Bill was tabled by the Quebec government, it received criticism from a consortium of 100 of Quebec's refugee and immigrant support service organizations, *TCRI* (Table de Concertation des Organismes au Service des Personnes Réfugiées et Immigrantes). *TCRI* projects the changes of criteria under the new bill to include the Quebec values test¹⁹³ and plans to give employers more ability to pick their foreign workers, will result in a favouring of white francophone immigrants from

¹⁸⁸ According to the 2016 census, the unemployment rate for visible minorities was 11.7% versus 6.6% for those who did not identify as a visible minority. Statistics Canada (2019a).

¹⁸⁹ Nadeau, Serge & Seckin, Aylin (2010), "The Immigrant Wage Gap in Canada: Quebec and the Rest of Canada", *Canadian Public Policy/Analyse de Politiques* 36(3) : 265-285.

¹⁹⁰ Eid, Paul (2012), *Mesurer la discrimination à l'embauche subie par les minorités racisées : résultats d'un « testing » mené dans le Grand Montréal*, Montréal: Commission des droits de la personne et des droits de la jeunesse (CDPDJ): http://www.cdpdj.qc.ca/publications/etude_testing_discrimination_emploi.pdf

¹⁹¹ CDPDJ (2019), *Xenophobic and notably islamophobic acts of hate*, Montréal: CDPDJ, 7: https://www.cdpdj.qc.ca/Publications/etude_actes_haineux_resume_En.pdf

¹⁹² Armony, Victor, Hassaoui, Mariam & Mulone, Massimiliano (2019). *Les interpellations policières à la lumière des identités racisées des personnes interpellées*, Montréal: Centre de recherche interdisciplinaire sur la diversité et la démocratie (CRIDAQ): <https://cridaq.ugam.ca/publication/les-interpellations-policieres-a-la-lumiere-des-identites-racisees-des-personnes-interpellees/>

¹⁹³ Applicable to Quebec economic immigration programs including the PRTQ, PEQ, the Entrepreneur program, Self-Employed Worker Program and Investor Program. MIFI (2021f), *Attestation of learning about democratic values and the Québec values expressed by the Charter of Human Rights and Freedoms*, Montréal: MIFI: <http://www.immigration-quebec.gouv.qc.ca/en/immigrate-settle/attestation-values/index.html>

Europe.¹⁹⁴ Some sources view the values test as a further stoking of existing tension between the Quebec-born population and immigrants. *CBC* reports the director of a Haitian settlement service said the values test signals to the population that the test is necessary to control inflow of an incompatible immigrant population. It suggests that prior to the existence of this test, there were too many immigrants who did not know or share Quebec values.¹⁹⁵ *Global News* reports a representative from the *Anti-Hate Network* said the test does not contribute anything different than the citizenship test, adding that “Some of the questions do feed into stereotypes about immigrants being backwards or not believing in equality between men and women.”¹⁹⁶ In the same article, the director of the *International Commission of Jurists Canada* projected the added values test may discourage qualified immigrants from applying. Immigrants may see the values test as additional hurdle to an already complex process which signals to them that their values are going to be questioned in Quebec.¹⁹⁷

The bill was passed in June 2019 with the commitment to “temporarily reduce immigration levels to 40,000 newcomers in 2019 while supporting the objective of more effectively integrating immigrants into the job market and Quebec society.”¹⁹⁸ Beyond potential discrimination concerns, to reach this objective, the Quebec government stated their intention to abandon 18,000 already submitted applications under the PRTQ. The Quebec government encouraged those skilled workers already in Quebec to immediately file a declaration of interest so their file would be treated as a priority.¹⁹⁹ In effect, the Quebec government discarded approximately 12,000 already submitted CSQ applications.²⁰⁰ The *Quebec Association of Lawyers on Immigration Rights*²⁰¹ (AQAADI) expressed their view that the law was “one of the most unjust and inhumane laws in Quebec’s recent history.”²⁰² In AQAADI’s press release on PL9, they detail the devastation of immigration candidates who had invested likely thousands of dollars and waited for years for an answer who watched their chances of immigrating disappear.²⁰³

¹⁹⁴ Authier, Philip (2019), *CAQ’s immigration plan blasted for favouring European white francophones*, Montréal: Montreal Gazette:

<https://montrealgazette.com/news/quebec/caqs-immigration-plan-blasted-for-favouring-european-white-francophones>

¹⁹⁵ Shingler, Benjamin (2019), *Quebec will make immigrants pass ‘values’ test*, Montreal: CBC News:

<https://www.cbc.ca/news/canada/montreal/quebec-values-test-immigration-1.5340652>

¹⁹⁶ Abedi, Maham (2019), *Does Quebec’s values test raise the same concerns as Bill 21? Experts weigh in*, Toronto: Global News: <https://globalnews.ca/news/6108208/quebec-values-test-immigration-bill-21/>

¹⁹⁷ Abedi, 2019.

¹⁹⁸ CCMM (2019), *Effectively selecting and integrating immigrants: a business community priority*, Montréal: CCMM, 6: <https://www.ccmm.ca/en/publications/briefs/effectively-selecting-and-integrating-immigrants-a-business-community-priority/>

¹⁹⁹ CCMM (2019), 7.

²⁰⁰ Association Québécoise des avocats et avocates en droit de l’immigration (AQAADI) (2019), *Press Release – June 20, 2019 : Adoption of the Law 9 in immigration*, Montréal: AQAADI: <http://www.aqaadi.com/en/2019/06/20/press-release-june-20-2019-adoption-of-the-law-9-in-immigration/>

²⁰¹ Association québécoise des avocats et avocates en droit de l’immigration

²⁰² AQAADI (2019).

²⁰³ AQAADI (2019).

STEM-related fields are increasingly internationalized, and the mobility of talent is key to the competitiveness and innovativeness of clusters across the world. Labour shortages are becoming more acute as employers struggle to fill vacancies, with important skills gaps persisting even in the context of higher unemployment due to COVID-19. Despite urgent need for specialized skilled workers, recent reforms and policy action indicate the future of Quebec's immigration governance is set on a course for continued decreasing of immigration numbers and more difficult criteria for immigrants seeking to become permanent residents. The current focus on immigrant integration is to minimize linguistic and cultural differences, without measures to address systemic bias against immigrants within Quebec society. These measures will likely fall short of their intended integration purpose, and within the context of COVID-19 will also affect Quebec's potential for economic recovery. Further research will be required to understand the economic impact of this immigration strategy, its effects on both landed and prospective immigrants, and its significance for Quebec's ability to attract, integrate and retain highly-skilled immigrant professionals.

III. Stakeholder Viewpoints

Interviews with stakeholders took place amid the COVID-19 pandemic in Quebec (Fall 2020 – Winter 2021) and were held virtually via phone and video-conferencing technologies. The interviews and stakeholder consultations were held in the format of semi-structured interviews and open discussions and conducted with a number of stakeholders across Quebec who shared deep and relevant insights into the state of skilled immigration and Quebec’s innovation and technology sector and its dependence on foreign-born STEM professionals. Stakeholders included companies in the technology and innovation sector, municipal and provincial government entities, law firms, immigrant settlement services, and economic development agencies. While the viewpoints and insights of the individuals representing specific stakeholders cannot be statistically aggregated and are not representative of the situations of all other stakeholders in Quebec, certain issue areas and challenges became clear during these discussions.

1. Complexities of the immigration system restricting provincial talent supply

Most of the stakeholders considered Quebec’s provincial immigration system as overly complex, inadequate, and ineffective (e.g., because of overly restrictive requirements) in addressing persistent provincial skills and talent shortages. Immigration-policy related constraints imposed on Quebec’s global talent supply are a significant hurdle to economic growth and limit the competitiveness and innovation capacity of Quebec industries.

1.1 French Language Skills Requirement

The French language criteria required by the provincial Ministry of Immigration, Francization and Integration (MIFI) is a distinguishing feature of the Quebec immigration system among those of other Canadian provinces. French is a central element of Quebecois society and, as most of the stakeholders noted, the ability to communicate in the language is essential for integrating into the provincial labour force. A representative from *MIFI* reported that the language-specific selection criteria can present a challenge to the attraction and recruitment of foreign talent, however they also pointed out that the requirements can vary from one government to another, and change in the case of a change of government.²⁰⁴ Stakeholders cited that the essentiality of French particularly impacts non-French speaking international students, resulting in higher rates of secondary migration to other Canadian provinces.²⁰⁵ While students are not required to know

²⁰⁴ Stakeholder Interview, *Ministry of Immigration, Francization and Integration (MIFI), Montreal*

²⁰⁵ Stakeholder Interviews, *MIFI, Montreal; Norton Rose Fulbright, Montreal*

French to start their studies in Quebec, those wishing to stay and to apply for permanent residency must demonstrate intermediate oral proficiency.²⁰⁶

Numerous stakeholders discussed that the supply of global talent is significantly limited due to the existing requirements. The representative from *MIFI* noted that the province prioritizes French speakers including those from Francophone and Francophile countries or those with a French background.²⁰⁷ For this reason, countries in Europe, South America and northwestern and central Africa are notable countries of origin among migrants in Quebec. This was reflected in stakeholders' answers when asked about existing global talent pools.²⁰⁸ France and countries of the Maghreb region were the most frequently mentioned, followed by Côte d'Ivoire, Senegal, Colombia, Brazil, and Belgium, among others. Many of the listed countries (exception Belgium and France) are trailing far behind Canada in terms of innovativeness and advanced STEM education. With regard to STEM talent, the United States and India were also listed as major talent pools, however French is less commonly spoken in these countries.

To integrate migrants into Quebec society and ensure French fluency, the provincial government has developed francization programs especially for immigrants. Language courses are available to those already living in Quebec in addition to individuals awaiting their federal work/study permits abroad. The representative from *MIFI* pointed out the Government of Quebec's initiative to work with the network of *Alliances Françaises* who offer and deliver French courses abroad, which started with a pilot that funded French training for those candidates awaiting their work permit. Presently, in the context of the COVID-19 pandemic, courses are being offered virtually. In addition, there are six hundred teachers affiliated with the *MIFI* that deliver French language courses in Quebec, and it was further mentioned that the province is exploring the possibility for these local teachers to deliver programming virtually to those abroad in the future. Similarly, a stakeholder with a focus on economic development reported that learning and mastering French, specifically at the level of employment, is often a key challenge to long-term retention of landed global talent.²⁰⁹

1.2 Spotlight on the PEQ: Program requirements

To access the pool of talent with Quebec experience, the province launched the Quebec Experience Program (PEQ) in 2010 to accelerate the permanent residency of temporary foreign skilled workers and international students in Quebec. This program, described in detail above, is a major pathway to permanent residency

²⁰⁶ *MIFI* (2021g), *Knowledge of French*, Montreal: *MIFI*: <https://www.quebec.ca/en/immigration/immigration-programs/quebec-experience-program/selection-conditions/knowledge-french>

²⁰⁷ Stakeholder Interview, *MIFI*, Montreal

²⁰⁸ Stakeholder Interviews, *Aéro Montréal*; *Montreal International*; *Orienthèque*, *Sorel-Tracey*; *Québec International*, Quebec City; *Synchronex*, *Quebec City*

²⁰⁹ Stakeholder Interview, *Montreal International*

and a significant initiative for the retention of high-skilled talent. Many stakeholders stated that the latest reform to both the Temporary Worker and Graduate streams implemented as of July 2020 would negatively impact the attraction and retention of talent.²¹⁰ Under the new application criteria, a work experience requirement of a minimum of 12 months was added for graduates, while for temporary workers the requirement was increased from 12 to 36 months of experience. They noted that these changes present a significant barrier to obtaining permanent residency, and furthermore do not favour the retention of skilled workers and students already present and studying and part-time working in Quebec.²¹¹ For temporary workers seeking to obtain permanent residency, the new requirement of an added two years of full- or part-time work experience keeps skilled workers in temporary status for longer. This is a source of frustration for many migrants who wish to remain and establish themselves long-term in the province of Quebec. Representatives from economic development agency *Montréal International* mentioned that the addition of a work experience requirement for Quebec graduates will make the city of Montreal less attractive to prospective students from abroad.²¹²

The Government of Quebec also announced that the July reform would extend the application processing standard of 20 days to a maximum of 6 months. Prior to the reform, the PEQ had accounted for 86% of all CSQs approved in 2019.²¹³ Stakeholders expressed concern that extended processing times would further complicate the process, citing that migrants may be more likely to seek permanent residency in another province or in another country as a result.²¹⁴ This indicates a demand for the provincial government to change their policy and reduce the work experience requirement for graduates and temporary workers in order to retain talent to support provincial growth and innovation.

1.3 Addressing Complexities: The Success of the Global Talent Stream (GTS)

The ‘Global Talent Stream’ (GTS), introduced in 2016 and described in greater detail above, is a program for temporary foreign workers introduced by the Canadian federal government as part of Canada’s ‘Global Skills Strategy’ (GSS). In the province of Quebec, applications are jointly processed by *Economic and Social Development Canada* and the *MIFI*. Eligibility for the GTS is determined by two categories: Category A, which is for companies referred by designated partners who confirm the employer’s need to

²¹⁰ Stakeholder Interviews, *Montréal International*; *Québec International*, *Quebec City*; *Norton Rose Fulbright*, *Montreal*; Bureau d’intégration des nouveaux arrivants à Montréal (*BINAM*), *Montreal*

²¹¹ Stakeholder Interviews, *Norton Rose Fulbright*, *Montreal*; *BINAM*, *Montreal*

²¹² Stakeholder Interview, *Montreal International*

²¹³ MIFI (2020d).

²¹⁴ Stakeholder Interviews, *Montreal International*; *Québec International*, *Quebec City*; *Synchronex*, *Quebec City*

hire unique and specialized talent; or Category B, which is for companies seeking to fill positions identified on the Global Talent Occupations List.²¹⁵

Stakeholders had praise and positive feedback about Canada's GSS and the GTS. A representative from *Québec International*, one of the designated referral partners in Quebec, reports that the GTS is one of the most frequently used immigration programs, making it easier and faster for employers to hire global talent.²¹⁶ The success of Category A of the Stream was echoed by representatives from *Montreal International*, another designated referral partner as part of the GTS. In place of an LMIA, the GTS requires that businesses develop a Labour Market Benefits Plan (LMBP) demonstrating their commitment to activities that will positively impact the Canadian labour market. Moreover, there is no minimum recruitment requirement for the GTS to prove there are no eligible candidates already in Canada. This simplifies the process of hiring global talent, allowing eligible businesses to fill shortages in in-demand occupations and hire specialized talent. A Montreal-based immigration lawyer reported that in cases where intra-company transfer is not possible, Category A of the GTS remains the best option to hire highly-skilled workers.²¹⁷

2. Maintaining Competitiveness Key to Addressing Talent Shortages

The existing and persistent strong need for specialized and highly-skilled talent in the province of Quebec was emphasized by almost all stakeholders. Talent shortages were identified across multiple sectors including AI, ICT, aerospace, life and health sciences, video games, and visual effects and animation. Talent recruitment is essential to addressing shortages and will require the province to actively continue promoting its innovative economies and talent development to remain competitive in the global 'race for talent'. A representative from *Synchronex*, a provincial network of technological training and innovation centers, reported shortages at the technical level, citing a significant need for technicians in STEM fields.²¹⁸ Prior to the start of the COVID-19 pandemic, there was a reported shortage of 140,000 jobs to be filled in Quebec, of which half were specialized and the majority were located in the city of Montreal.²¹⁹ As several stakeholders pointed out, the local labour force is unable to sufficiently respond to the needs of employers for highly-skilled workers and therefore, the recruitment and retention of foreign workers are critical for growth and innovation.²²⁰ A Montreal-based talent acquisition specialist highlighted that while companies

²¹⁵ For a list of updated eligible occupations and their respective mandatory wage floors, please visit: <https://www.canada.ca/en/employment-social-development/services/foreign-workers/global-talent/requirements.html#h15>

²¹⁶ Stakeholder Interview, *Québec International*, Québec City

²¹⁷ Stakeholder Interview, *Norton Rose Fulbright*, Montreal

²¹⁸ Stakeholder Interview, *Synchronex*, Québec City

²¹⁹ Stakeholder Interview, *Montreal International*

²²⁰ Stakeholder Interviews, *Norton Rose Fulbright*, Montreal; *Québec International*, Québec City; *MIFI*, Montreal

generally prefer to recruit locally, hiring from abroad is necessary to fill senior and more specialized positions.²²¹ These shortages are anticipated even after the pandemic, as recruitment of international workers and students was significantly impacted and slowed by global travel restrictions. To maintain global competitiveness in key sectors and support local economic growth, there is a need for greater knowledge exchange and a continued reliance on foreign talent.

In response to these challenges, the *MIFI* formed a global team with a mandate of carrying out promotional activities and facilitating the recruitment of talent abroad. A *MIFI* representative explained that the team functions according to the needs of the labour market to recruit workers for highly-skilled and in-demand occupations, while also prioritizing French speakers.²²² The province currently has five permanent offices located in Paris, Rabat, Los Angeles, Hong Kong, and Mexico City that collaborate with local governments and organizations and coordinate generalized and sector-specific (e.g., information technology, healthcare) recruitment missions, known as ‘Journées Québec’, discussed earlier in this report. These events promote employment opportunities in the province and successful applicants are invited to interview with Quebec companies. An interviewee in the aerospace sector reported that these recruitment missions provide industry employers with access to a large talent pool.²²³ Amid the COVID-19 pandemic which has significantly impacted the inflow of migrants into Quebec, ‘Journées Québec’ missions are being conducted virtually by the government and its partners. The representative from the *MIFI* reported that Quebec depends on positioning itself successfully in the global ‘race for talent’ against other innovative countries and Canadian provinces.²²⁴ To address current and forecasted talent shortages, it is important that Quebec continues to strengthen their presence abroad, while also promoting their best attributes to attract talent.

3. Retention Practices for Long-Term Success

Stakeholders also emphasized the importance of retaining highly-skilled foreign professionals to sustain locally innovative industries and address talent shortages in the face of demographic challenges. It is in their view critical that the provincial government works to better support the integration and successful retention of migrants and their families. Furthermore, this will serve to counteract interprovincial outmigration and ‘brain drain’ of skilled talents to other major Canadian cities and innovation clusters, namely Toronto and Vancouver.

²²¹ Stakeholder Interview, *LD, Montreal*

²²² Stakeholder Interview, *MIFI, Montreal*

²²³ Stakeholder Interview, *Aérospatiale Montreal*

²²⁴ Stakeholder Interview, *MIFI, Montreal*

3.1 Retaining Families

To ensure the successful settlement and long-term retention of talent, accompanying family members must also receive more adequate support. In the Quebec context, this includes providing French language courses to family members, and ensuring that, for example, the spouses of global talents find appropriate employment and children can enrol and participate in the provincial education system. Feedback received from stakeholders highlighted that life planning and family integration are key elements to talent retention and global talents seeking and acquiring permanent residency. In many cases, families choose not to stay in Quebec because their partners are unable to find work, or their families are unable to join them in Canada.²²⁵ Furthermore, migrants looking to establish themselves and their families long-term are often moving from larger cities to smaller urban centers within the province. A representative from *L'Orienthèque*, a settlement and employment services organization in the Montérégie region noted that many migrants wish to leave Montreal for nearby cities such as Sorel-Tracey and Rimouski.²²⁶ The relatively lower costs of living and tranquility associated with smaller cities are considered to be an ideal environment to raise children and is raising the attractiveness of these regional areas. Another stakeholder stated that it would be beneficial to have 'local ambassadors' to promote the settlement of foreign workers and their families to regions throughout the province.²²⁷

3.2 Spotlight on Accompagnement Québec

To address challenges related to the retention of skilled migrants, the province introduced an integration service called 'Accompagnement Québec' offered by the MIFI. A *MIFI* representative reported that the service was put in place in response to a noticeable trend of secondary migration to other Canadian provinces and the United States in the last five years.²²⁸ The free and personalized service allows immigrants to connect with integration assistant agents from the MIFI. The representative also explained that the service is not only available to those already in the province, but also to those abroad with a CSQ or CAQ. This allows immigrants to attend information sessions and learn more about Quebec including its society and economy, prior to their arrival. While still abroad, the service also connects incoming migrants to French language courses offered by a partner institution of the Government of Quebec or delivered virtually. This gives migrants the opportunity to prepare for living and working in French, thereby helping them to better integrate. Upon arrival, migrants can consult with agents to prepare a personalized integration plan and be directed to other services. The representative stated this service goes far to ensuring immigrants successfully

²²⁵ Stakeholder Interview, *Synchronex*, *Quebec City*

²²⁶ Stakeholder Interview, *Orienthèque*, *Sorel-Tracey*

²²⁷ Stakeholder Interview, *Synchronex*, *Quebec City*

²²⁸ Stakeholder Interview, *MIFI*, *Montreal*

integrate and believes that if they are welcome and well supported, they are more likely to establish in Quebec indeterminately.

3.3 Addressing Discrimination and the Importance of Inclusion

Another challenge to long-term retention identified by stakeholders was the success (or lack thereof) of adequate inclusion and diversity management. It is important that employers develop policies and practices that favour diversity as well as the inclusion of foreign talent in the workplace. One stakeholder noted that businesses benefit from diversifying their workforce, as it can simultaneously broaden their networks of consumers, partners, and future talent.²²⁹ By creating a more inclusive work environment, employers can additionally assist with the successful integration of immigrants in Quebec. Stakeholders pointed out that individuals are more likely to leave the province, if they are unable to adapt or establish themselves within a community. Montreal serves as an important landing city with many established cultural and ethnic communities and is home to a population of approximately 70% of newly arrived immigrants.²³⁰ As a result, regionalization and settlement in regions outside of Greater Montreal can be more difficult for migrants owing to a sense of isolation and lack of community.

While not openly discussed within the Quebec context, stakeholders addressed workplace discrimination towards immigrants and emphasized that employers must work to recognize and address biases in the workplace, whether implicit (unconscious) or explicit. In certain cases, acquired stereotypes of specific migrants on the basis on nationality or origin can influence hiring practices based upon positive or negative experiences with an individual or small number of workers from the same group. For example, an employer will often seek to hire talent from an existing employees' country of origin because they are satisfied with their performance, and it is perceived as 'safer' than hiring a candidate from another country. While employers are able to benefit from the professional and social networks of current employees, these generalizations can exclude talent from other immigrant groups that possess similar qualifications and experiences. A representative from the *City of Montreal* discussed a recent and highly relevant initiative to our research that is aimed at improving access to employment for immigrant workers. The strategy, 'Inclusive Montréal in the Workplace' is led by the *Bureau d'intégration des nouveaux arrivants à Montréal (BINAM)* and has a mandate of raising awareness, supporting industry commitments, and providing resources related to the workforce integration of immigrant workers.²³¹ Through programming and campaigns including 'Journée portes fermées', the city aims to highlight Montreal's immigrant population

²²⁹ Stakeholder Interview, *ACCES Employment, Toronto*

²³⁰ Stakeholder Interview, *BINAM*

²³¹ Stakeholder Interview, *BINAM*

and collaborate with local businesses and organizations to improve the inclusion and professional integration of immigrants.

4. Credential Recognition

The processes of accreditation and credential recognition present another major barrier in the recruitment and retention of skilled migrants. Several respondents with experience integrating immigrants into the Canadian workforce, reported that highly-skilled migrants often face challenges in finding meaningful employment that aligns with their qualifications and prior work experience. Deskilling and skill mismatches were identified as significant issues for migrants, as most newcomers are required to navigate the complex system of foreign credential recognition in order to work in their field. In a report published by the City of Montreal, it was reported that the rate of workers practicing the same profession in Quebec as in their country of origin is 19%, while the recognition of acquired professional experience is only 32%, the lowest among Canadian provinces.²³² This not only affects individuals in highly regulated professions, including engineers, physicians, and teachers, but also those in unregulated professions. An interviewee reported that the required steps toward credential recognition complicate access to employment for migrants, and they oftentimes end up working below their skill and education levels.²³³ For this reason, the unemployment rate of migrants, particularly new arrivals, is higher in many regions of Quebec. The devaluation of their foreign experience and credentials is disappointing for migrants, and negatively affects their ability to become accredited and/or find employment in their given profession. This additionally hinders migrants from successful long-term integration in Quebec as well as ruins the efforts of stakeholders to retain skilled talent.

4.1 Upgrading Education

To meet the provincial equivalent of their credentials obtained abroad, migrants may be required in some cases to upgrade their education. A stakeholder discussed how the process of returning to tertiary education for academic upgrading or to repeat their degree or diploma can be long and costly.²³⁴ This contributes to the underutilization of talent as it does not allow skilled migrants to fill in-demand positions at a sufficient rate to address shortages in the labour market. In the sectors of technology and innovation, however, another stakeholder pointed out that new and continuing education may be necessary to keep up with rapidly evolving technological advancements.²³⁵

²³² City of Montreal (2020), *Stratégie Montréal inclusive au travail : Contexte et constats 2020*, Montreal: City of Montreal: https://portail-m4s.s3.montreal.ca/pdf/montreal_inclusive_travail_strategie_constats_vdm.pdf

²³³ Stakeholder Interview, *Orienthèque, Sorel-Tracey*

²³⁴ Stakeholder Interview, *Orienthèque, Sorel-Tracey*

²³⁵ Stakeholder Interview, *ACCES Employment, Toronto*

Comparatively, professional integration and bridging programs offer an alternative approach that does not require foreign-trained professionals to repeat their education. A representative from Toronto/Ontario-based workforce development agency *ACCES Employment* expressed the importance of adequate settlement infrastructure and bridging to support the successful integration of migrants into the Canadian marketplace without requiring those who are highly-skilled to replicate their education obtained abroad.²³⁶ *ACCES Employment* provides resources and offers programs to job seekers, including migrants, to ensure their experience and foreign credentials are recognized by employers. To address the barrier of credential recognition, the agency also offers sector specific bridging programs which require clients to complete a ‘Canadian context academic component’ delivered by a partner post-secondary institution. These programs provide foreign-trained talent with Canadian and sector-specific information, terminology, and skills. Upon obtaining the certification, they are thus able to better explain their foreign credentials and demonstrate their knowledge of the Canadian context without repeating their entire or parts of their education. The issues of deskilling and skill mismatches are not exclusive to skilled workers in Quebec and the experiences and insights of others within Canada can inform how these challenges are impacting talent retention.

4.2 Challenges with the ‘Quebecois/Canadian Experience’

The notion of migrants having ‘Canadian or Quebec experience’ was mentioned during several of the interviews conducted as a condition for employment. This requirement was identified as a barrier facing many migrants as employers have demonstrated a preference for individuals with experience in the Quebec context including knowledge of French. Stakeholders noted how this requirement, in addition to a lack of social capital in Canada, can disadvantage new arrivals, including foreign students, and pointed out the need for employers to recognize and equally value the qualifications and skills of immigrants.²³⁷ As one stakeholder representative reported, employers can be hesitant to hire individuals without Canadian experience because they are unfamiliar with their foreign credentials and may be unable to contact their references.²³⁸ However, in some cases, a respondent reported that employers often also prefer to recruit talent directly from abroad rather than hire an immigrant already in Quebec.²³⁹ This provides businesses with the opportunity to train foreign talent according to their respective values, but this process can be long and costly as well as the potential over-dependence of talent on one employer raises a risk of exploitation. Due to their experience, international students who have completed their education in Quebec are often more attractive to employers. A stakeholder directly involved in the attraction and retention of international workers and students, stated that international students in STEM fields are an increasingly important talent

²³⁶ Stakeholder Interview, *ACCES Employment, Toronto*

²³⁷ Stakeholder Interview, *BINAM, Montreal*

²³⁸ Stakeholder Interview, *ACCES Employment, Toronto*

²³⁹ Stakeholder Interview, *Orienthèque, Sorel-Tracey*

pool and expressed that offering internships and networking opportunities already during their studies is highly beneficial.²⁴⁰ Educational institutions need to better facilitate the transition between study and work to better support the integration of foreign students.²⁴¹ This allows students to gain industry experience as well as the language and communication skills relevant to the Quebec context. Another stakeholder consulted mentioned that some technology companies have established teams dedicated to the training and development of emerging talents to support their participation in company projects in favour of long-term integration.²⁴²

4.3 Praise for the Quebec-France Agreement

Stakeholders held high opinions of the Quebec-France Agreement on the Mutual Recognition of Professional Qualifications and made positive comments in regard to the agreement's facilitation of highly-skilled mobility. Signed in 2009, the agreement allows individuals practicing a regulated profession or trade in France to work in Quebec and vice versa. The mutual recognition agreement covers 81 regulated professions and trades in total, including several in STEM industries. A representative from Quebec's aerospace cluster, *Aéro Montréal* reported that special programs and bilateral agreements are beneficial to the recruitment of the skilled labour force, and that France remains an important talent pool for the provincial aerospace sector.²⁴³ This was echoed by another respondent from employment service organization *L'Orienthèque* mentioned above, who shared that in order to address shortages in the local healthcare sector, workers including doctors and nurses are being hired almost exclusively from France.²⁴⁴ Although there are other talent pools in the field of health sciences, employers recruit from France due to the simplified process of credential recognition owing to the Quebec-France Agreement. This trend underlines the importance of bilateral agreements for the attraction and recruitment of skilled professionals from abroad. It was noted by stakeholders that the province is in need and would benefit from more credential recognition agreements and programs with other migrant sending countries, including leading innovative countries, especially in the sectors of innovation and technology.²⁴⁵

5. The Potential Impacts of COVID-19

It is worth noting that stakeholders interviewed for this project were not overly concerned with the impact of COVID-19 on STEM talent recruitment for the province of Quebec. The barriers that were discussed were already problematic prior to the pandemic. In fact, stakeholders pointed to adjustments that they have

²⁴⁰ Stakeholder Interview, *Québec International*, Québec City

²⁴¹ Stakeholder Interview, *Synchronex*, Québec City

²⁴² Stakeholder Interview, *LD*, Montreal

²⁴³ Stakeholder Interview, *Aéro Montréal*

²⁴⁴ Stakeholder Interview, *Orienthèque*, Sorel-Tracey

²⁴⁵ Stakeholder Interviews, *Aéro Montréal*; *Québec International*, Québec City

made in order to adapt, for example, the *MIFI* representative interviewed mentioned that French classes (key to integrating into Quebecois society) were being done online and it was even likely to continue in this fashion even after the pandemic as it has facilitated better accessibility.²⁴⁶

MIFI's representative did point out that the closure of borders has presented a hurdle to recruitment, as the process to physically arrive is much slower.²⁴⁷ The same was said of international students who are staying in their home countries to do classes remotely. However, even recruitment (e.g., international fairs)²⁴⁸ have been adapted to take place virtually, thus further mitigating the impact of the pandemic in this respect. In spite of travel restrictions, talent from abroad is still applying for positions at Quebec companies, demonstrating continued interest in the province.²⁴⁹

²⁴⁶ Stakeholder Interview, *MIFI*, Montreal

²⁴⁷ Stakeholder Interview, *MIFI*, Montreal

²⁴⁸ Journées Québec (2021), *Activités*, Quebec City: Government of Quebec: <https://journeesquebec.gouv.qc.ca/en/activities.html>

²⁴⁹ Stakeholder Interview, LD, Montreal

Conclusions – Outlook

Quebec's technology and innovation sector has demonstrated its ability to contribute to the province's economic growth and has maintained Quebec's global competitiveness across several key clusters. To address demographic challenges and the intensifying demand for skilled labour, the province has developed policies and programs aimed towards the attraction and successful integration of global talents in Quebec. At the same time, the province has demonstrated its commitment to preserving its unique linguistic and cultural identities. As a result of the impacts of the COVID-19 pandemic on global mobility, the need for skilled talent in Quebec will only intensify.

In the post-pandemic landscape, the expansion and continued growth of Quebec's STEM economy will require the province to focus on the attraction and retention of highly-skilled talent in order to meet current and forecasted local industry demands for labour. Quebec must work towards generating a skilled local workforce, while also increasing its efforts and success to recruit and retain global talent from abroad. To achieve this, continued coordination and consultation is needed between industry stakeholders, educational institutions, employment development agencies, immigrant-serving organizations, and all levels of government. Immigration is key to Quebec's innovation and growth both in the short and long term, particularly in response to the province's economic recovery following the COVID-19 pandemic. Key recommendations from the findings of this report include:

1. Global talent must be sought out to address the insufficient local labour supply.

In response to the concerns expressed by stakeholders regarding the persistent and further growing needs of Quebec's labour market, the provincial government should seek to increase its immigration levels to meet the growing demand for STEM talent. While Quebec benefits from greater independence in their immigration system relative to other provinces and territories, both the provincial and federal governments must continue to work together to reach immigration targets. In the last three years, Quebec has decreased its immigration levels to improve overall immigrant integration, however the province should aim to increase its annual admissions of economic migrants again to meet industry demands. As mentioned by stakeholders, federal pathways to migration including Category A of the GTS, should remain and be more strongly promoted as an effective fast-track option through which employers can hire high-skilled migrants. Standardization, faster processing times, and the ability to consult with immigration agents on individual case files would also be beneficial in facilitating recruitment of talent.

2. Improve immigrant integration with an emphasis on preserving democratic and linguistic values

To better ensure successful labour market integration for high-skilled immigrants in Quebec, government, and immigrant-serving organizations should enhance programming and opportunities for immigrants entering the province to learn the linguistic, cultural, and democratic values of Quebec, even prior to arrival. This will create conditions that favour the successful social and economic integration of migrants and their families into Quebecois society, while also reducing secondary migration and ‘brain drain’ to other Canadian provinces and major North American landing cities. In addition, Quebec must also address systemic bias against and discrimination towards immigrants. Industry stakeholders in Quebec also have a responsibility to take necessary action in supporting the integration of immigrant employees and their families, and providing equal employment for migrants already living in Quebec, including international students. More research is required to understand the biases and specific challenges that migrants face and whether current provincial strategies are effective in ensuring successful integration.

3. Expand bilateral agreements to better facilitate credential recognition

The process of credential recognition is a significant barrier to the integration of migrants in regulated professions, further leading to an underutilization of talent. Stakeholders provided positive feedback on the Quebec-France agreement, citing the simplified process facilitates high-skilled mobility between the two territories and has made France an increasingly important talent pool. To ensure that immigrants have their international competencies and professional qualifications recognized, Quebec should expand bilateral agreements with other countries to allow workers with foreign training in regulated professions and trades, including those in STEM industries, to work in Quebec. This will also increase the attractiveness of the province to candidates and provide employers with access to other global talent pools.

4. Enhance efforts to recruit and retain skilled workers and international students

For continued innovation and growth of the STEM economy, government stakeholders in collaboration with local employers and economic development agencies should be invested in promoting employment opportunities in Quebec more strongly and effectively to candidates abroad. Some initiatives, including *Journées Québec*, already exist and have successfully increased the presence of Quebec abroad, while also effectively promoting the province’s key STEM sectors. Quebec’s MIFI should build upon the successes of its recruitment missions to attract talent across multiple sectors to fill shortages in the most in-demand occupations. Additionally, the promotion of renowned local education institutions abroad will also be important to recruiting and retaining talent. Stakeholders have identified that international students are valuable talent pools that hold knowledge and experiences obtained from Canada and abroad. Pathways to obtain permanent residency should be prioritized for international students that wish to remain in the

province, particularly those that meet French language requirements. In the wake of COVID-19, the provincial government should provide support to businesses facing constraints in their ability to recruit highly qualified and specialized workers in innovative fields. The retention of international students and skilled workers already in Quebec will also be vital to post-pandemic economic recovery.

Appendix 1: Industries included in STEM definition according to the North American Industry Classification System 2017 Version 3.0 (NAICS)

	NAICS	Industry Name
1	3251	Basic Chemical Manufacturing
2	3254	Pharmaceutical and medicine manufacturing
3	3341	Computer and peripheral equipment manufacturing
4	3342	Communications equipment manufacturing
5	3343	Audio and video equipment manufacturing
6	3344	Semiconductor and other electronic component manufacturing
7	3345	Navigational, measuring, electromedical and control instruments manufacturing
8	3346	Manufacturing and reproducing magnetic and optical media
9	3353	Electrical equipment manufacturing
10	3359	Other electrical equipment and component manufacturing
11	3364	Aerospace product and parts manufacturing
12	3391	Medical equipment and supplies manufacturing
13	5112	Software publishers
14	5121	Motion picture and video industries
15	5152	Pay and Specialty Television
16	5171	Wired telecommunications
17	5172	Wireless telecommunication carriers (except satellite)
18	5174	Satellite telecommunications
19	5179	Other telecommunications
20	5182	Data processing, hosting and related services
21	5191	Other information services
22	5413	Architectural, engineering and related services
23	5415	Computer systems design and related services
24	5416	Management, scientific and technical consulting services
25	5417	Scientific research and development services

The selection of which industries were included in this report to define the STEM fields were adapted from *BC's Profile of the British Columbia Technology Sector: 2019 Edition* methodology.²⁵⁰ This report describes the state of BC's 'high technology' sector, which creates a sound methodological basis for a broader STEM definition. The NAICS codes used in the BC Profile were shortened from 6-digits to 4-digits to accommodate constraints on available data. Moreover, the estimations are approximate and more narrow study is required and welcome to create a more robust cross-provincial comparison of Canada's STEM economies.

²⁵⁰ https://www2.gov.bc.ca/assets/gov/data/statistics/business-industry-trade/industry/tech_profile_report.pdf (p.101-102)

Appendix 2: STEM Classified Occupations (NOC codes)²⁵¹

Code	Occupational title
0211	Engineering managers
0212	Architecture and science managers
0213	Computer and information systems managers
2111	Physicists and astronomers
2112	Chemists
2113	Geoscientists and oceanographers
2114	Meteorologists and climatologists
2115	Other professional occupations in physical sciences
2121	Biologists and related scientists
2122	Forestry professionals
2123	Agricultural representatives, consultants and specialists
2131	Civil engineers
2132	Mechanical engineers
2133	Electrical and electronics engineers
2134	Chemical engineers
2141	Industrial and manufacturing engineers
2142	Metallurgical and materials engineers
2143	Mining engineers
2144	Geological engineers
2145	Petroleum engineers
2146	Aerospace engineers
2147	Computer engineers (except software engineers and designers)
2148	Other professional engineers, n.e.c.
2151	Architects
2152	Landscape architects
2153	Urban and land use planners
2154	Land surveyors
2161	Mathematicians, statisticians and actuaries
2171	Information systems analysts and consultants
2172	Database analysts and data administrators
2173	Software engineers and designers

²⁵¹ Frank, Kristyn (2019), *A Gender Analysis of the Occupational Pathways of STEM Graduates in Canada*, Ottawa: Statistics Canada: <https://www150.statcan.gc.ca/n1/en/pub/11f0019m/11f0019m2019017-eng.pdf?st=eYa7GOB->

2174	Computer programmers and interactive media developers
2175	Web designers and developers
2211	Chemical technologists and technicians
2212	Geological and mineral technologists and technicians
2221	Biological technologists and technicians
2222	Agricultural and fish products inspectors
2223	Forestry technologists and technicians
2224	Conservation and fishery officers
2225	Landscape and horticulture technicians and specialists
2231	Civil engineering technologists and technicians
2232	Mechanical engineering technologists and technicians
2233	Industrial engineering and manufacturing technologists and technicians
2241	Electrical and electronics engineering technologists and technicians
2242	Electronic service technicians (household and business equipment)
2243	Industrial instrument technicians and mechanics
2244	Aircraft instrument, electrical/avionics mechanics, technicians, inspectors
2251	Architectural technologists and technicians
2252	Industrial designers
2253	Drafting technologists and technicians
2254	Land survey technologists and technicians
2255	Technical occupations in geomatics and meteorology
2261	Non-destructive testers and inspection technicians
2262	Engineering inspectors and regulatory officers
2271	Air pilots, flight engineers and flying instructors
2272	Air traffic controllers and related occupations
2281	Computer network technicians
2282	User support technicians
2283	Information systems testing technicians