

METROPOLITAN ECONOMIC
MOVEMENT

RELAUNCH **MTL**

ENHANCED ACTION PLAN TO STRENGTHEN THE TRANSPORTATION AND LOGISTICS SECTOR

Co-developed by



CARGOM
GRAPPE MÉTROPOLITAINE DE
LOGISTIQUE ET TRANSPORT DE MONTRÉAL

propulsion
Québec
Grappe des
transports électriques
et intelligents

Content partner





Michel Leblanc

President and CEO

– Chamber of Commerce of Metropolitan Montreal

One of the images we will remember from the pandemic is that of delivery trucks flowing into our neighbourhoods during the lockdown. More fundamentally, the pandemic has shown us the critical nature, strength and potential of players in the transportation and logistics ecosystem, including CargoM, as well as the infrastructure that supports it.

The Chamber has been emphasizing the importance of these strategic assets for several years now, especially when it concerns the enormous potential for recovery represented by eastern Montréal. In December 2018, the Government of Quebec and the Ville de Montréal signed the *Déclaration pour revitaliser l'Est de Montréal*, which provides for land reclamation and upgrade envelopes. This commitment clearly demonstrates the collective will to requalify this sector, but this can only be achieved with an adequate public transit infrastructure.

Much remains to be done to seize the opportunities created by the pandemic in the transportation and logistics sector, including the electrification of transportation. The Chamber, in collaboration with Propulsion Québec, has therefore emphasized in numerous studies the development potential of an intelligent electric transportation system.

The Government of Quebec has also placed the electrification of transportation at the forefront of its 2030 Plan for a Green Economy, which calls for investments of \$3.6 billion. This is key to creating an economy that is truly more sustainable. We have solid assets to help us get there: a strong hydroelectric network and strategic expertise within the ecosystem. However, the crisis has revealed the need to review the role of public procurement and adapt the legislative framework to make more room for innovative green solutions and accelerate their marketing.

Against this backdrop, Relaunch MTL is proposing concrete ways to leverage existing strengths, in both the more traditional transportation and logistics sector and the emerging electric and smart vehicle sector. For these two complementary sectors, it is important to take action that will help reduce our carbon footprint—which is everyone's priority—as well as revitalize eastern Montréal and strengthen our strategic assets for transporting goods and people. These are key factors for increasing our mobility and a successful recovery.



Sarah Houde

President and CEO

– Propulsion Québec

The world is in the midst of a public health crisis without precedent in recent history. Players in the transportation sector, as in all of Quebec, have been affected by the economic recession tied to the COVID-19 pandemic. Against this backdrop, members of Propulsion Québec, the electric and smart transportation cluster, have mobilized and contributed directly to this joint effort to get through the crisis and face this new reality by, among other things, providing personal protective equipment and offering innovative modes of transportation and delivery. The electric and smart transportation sector has established that it provides not only an essential service in this time of crisis, but that it is a real stimulus for the Quebec economy as well.

Today we have an opportunity to realize the full potential of our local businesses and natural resources to secure the future of the transportation industry and improve our environmental record in a sustainable way. To give ourselves the means to achieve our ambitions, it is imperative that we define a 360-degree view of electrification for transporting both goods and people. Our expertise and rich lands are assets that will help us strengthen the electric vehicle industry

to make Quebec “the battery of northeastern North America” by developing the Quebec battery industry. It is by electrifying our institutional and commercial fleets, as well as public transit, that we will achieve our greenhouse gas emission reduction targets. By building on a skilled workforce and developing technological solutions through artificial intelligence, connectivity and data management, together we are defining the future of the transportation industry and improving the mobility of millions of Quebecers.

Propulsion Québec is participating in the Relaunch MTL movement, alongside CargoM and the CCMM, to promote the undeniable competitive advantages of electric and smart transportation, a sector of the future that is growing exponentially for a sustainable and prosperous Quebec society.



Mathieu Charbonneau

Executive Director

– CargoM

CargoM is enthusiastically participating today in the Chamber of Commerce of Metropolitan Montreal's Strategic Forum on Transportation and Logistics. The sector, which was identified as essential during the pandemic, has seen a high level of collaboration between its air, marine, rail and road transport stakeholders to quickly implement initiatives that ensure the smooth transportation of goods. This collaboration is key to ensuring the sector's resilience in difficult times and we must build on it to ensure our economic recovery. Today's CCMM Forum provides us with an opportunity not only to share experiences with other organizations, but to celebrate our successes and identify the resources and tools needed to develop the sector.

In recent months, the sector has had to act quickly to mobilize its resources and ensure the timely supply of medical goods to Canadians. It has also worked closely with the various levels of government to minimize the impact of the closure of many businesses on the accumulation of goods in large transportation hubs. These challenges have led to innovation and the use of technologies such as artificial intelligence in addition to enabling the development of partnerships and collaborations between several stakeholders in the logistics chain.

Labour remains a major challenge for the sector today, and CargoM is working hard with its partners to identify and implement initiatives to address it. These include the organization of a Career Day held last November 3 and a professional immersion program in trucking. In addition, CargoM continues to support cargo transportation and logistics companies in Greater Montréal to promote their resource needs for respecting physical distancing measures in the workplace and to ensure that they have all they need for a prosperous economic recovery. A recent joint effort with Propulsion Québec on an action plan for an innovation zone for sustainable mobility and logistics has helped establish the sector's development priorities for the next decade as well as identify pressing issues to be prioritized. We should also highlight infrastructure improvements and the implementation of structuring projects like the implementation of the new Contrecœur container terminals.

Thank you again for the important Relaunch MTL initiative.

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SUMMARY



OPERATORS

Montréal has several assets that make it an important transportation and logistics hub.

Greater Montréal has a world-class multimodal infrastructure, including two international airports, the largest port in eastern Canada, and major trucking and rail companies.

Greater Montréal is also at the heart of the development of major structuring projects to develop public transit.

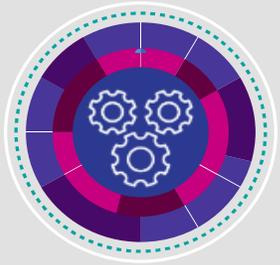
SUMMARY

A need to transform the sector

The lockdown and social distancing have led to an explosion of online shopping and home deliveries. Disruptions in supply chains combined with increased trade volumes for some consumer goods have resulted in high demand for the transportation of goods and the logistics chain. The pressure existed before the pandemic due to increased volumes associated with recent trade agreements Canada has signed.

The health crisis has revealed, if it was even necessary, just how indispensable transportation and logistics are for economic vitality, as evidenced by the government's decision to consider the entire sector an essential service.

The transportation and logistics sector will clearly play a central role in the recovery. We will have to be as efficient as possible to maintain the flow of supplies and deliveries in a context where all sectors will be regaining their energy. We will need to review costs, optimize distribution networks and modernize operations, all while reducing our carbon footprint. It will also be an opportunity to address the sector's transformation needs, no longer by considering each transportation mode separately, but through a systemic approach that takes into account all multimodal solutions and the adoption of new and more efficient technologies.



INDUSTRY PLAYERS

Public authorities must implement the conditions and actions that will enable the electric and smart transportation sector to play a leading role in the Greater Montréal economy.

SUMMARY

The transition to a low-carbon economy is both a forced transition and an opportunity

In addition to the challenge of optimizing the transportation and logistics sector, we must organize to successfully deploy the recent Quebec sector of electric and smart transportation. Even before the pandemic, Canada and Quebec had made commitments under the Paris Agreements to focus on sustainable mobility in order to reduce greenhouse gas (GHG) emissions and ensure a transition to a lower-carbon economy.

We soon realized that this energy transition could be a unique opportunity to make Quebec's land transportation equipment industry a reference with innovative solutions in sustainable mobility and smart transportation. We have seen several elements of such a system being put in place.

A green recovery strategy to emerge from the pandemic is a unique opportunity to make Quebec a true hub of sustainable mobility and smart transportation. To be successful, however, measures to encourage the growth of companies active in the industry must be quickly implemented.

Courses of action

Courses of action for industry

1. Promote advanced logistics activities in the transportation and logistics hub.
2. Make the eastern Montréal area a laboratory for experimentation and demonstration by bringing together strategic players active in innovation, experimentation and the marketing of electric and smart transportation solutions.

Courses of action for governments and industry

3. Define a clear vision to accelerate development of the sector and focus on structuring and mobilizing projects to influence demand and outcomes.
4. Support the expansion and modernization of strategic port and airport assets to maintain the city's international competitiveness.
5. Develop the transportation and logistics hub in eastern Montréal.
6. Ensure integrated data management between transportation and logistics stakeholders.
7. Pool and adopt innovative approaches to urban delivery.
8. Adapt training to new sector realities to ensure an adequate labour pool.

Courses of action for governments

9. Support the development of the electric and smart transportation industry.
10. Make government procurement a strategic tool for economic development and enhanced transportation innovation.
11. Electrify vehicle fleets.
12. Develop the lithium battery sector, from the mine to the recycling facility.

Highlights of the priorities identified during the Strategic Forum on Transportation and Logistics (1/2)

On November 20, 2020, the Strategic Forum on Transportation and Logistics, organized by the Chamber of Commerce of Metropolitan Montreal and its partners, identified the issues facing businesses in the sector. The Forum brought together nearly 450 participants to discuss the highlights of the action plan and reflect on the sector's post-COVID future.

An interactive working session was held during the forum to prioritize issues and courses of action. These were the key findings:

- 1) **Pre-COVID challenges**: The survey respondents identified the **need for skilled labour** as the most important challenge in the action plan.
- 2) **Assistance measures that have strengthened the sector**: Respondents identified **maintaining cross-border access** and **emergency assistance from the provincial government for public transit** as the most important government measures supporting the sector during the crisis.
- 3) **Courses of action for the private sector**: Respondents would like the sector to **prioritize integrated and shared data management among transportation and logistics stakeholders, define a clear vision for accelerating sector development** and structuring and mobilizing projects, and **adapt training** to new sector realities.
- 4) **Courses of action for governments**: We invited the Forum participants to put themselves in the shoes of governments in order to prioritize courses of government action in the sector. Three courses of action were identified as priorities: (1) **support the development of the electric and smart transportation industry**; (2) **make government procurement a strategic tool for economic development and enhanced transportation innovation**; and (3) **electrify vehicle fleets**.

Highlights of the priorities identified during the Strategic Forum on Transportation and Logistics (2/2)

5) Other reactions: The topics of **the city's integrated mobility offering**, **investment in the electrification of public transit**, and the **promotion of smart electric transportation** also emerged as important priorities for the sector during the Forum. The panelists also stressed the importance of **modernizing the sector with new technologies** (such as artificial intelligence), **reviewing public procurement to include innovation**, and **acting on marketing and internationalization**.

Finally, participants had an opportunity to share other ideas in an open-ended question period, which led to the identification of additional courses of recovery action.

Among these, specific to the industry:

- *“Develop multimodal transportation (more efficient rail-to-truck transloading platforms).”*
- *“Create e-commerce logistics platforms for small and medium-sized businesses.”*
- *“Improve the industry's image and reach (to attract labour).”*
- *“Offer support for the energy transition. Education is extremely important to increase interest among fleet managers.”*
- *“Consider stakeholders across the CMA. [...] Greater Montréal would benefit by stimulating innovation in transportation and logistics throughout the CMA, including the surrounding areas.”*

... and specific to governments:

- *“[Include] major public transit initiatives [in] the recovery plans: REM, extension of the Blue Line.”*
- *“Develop a land use strategy that takes into account mobility throughout Quebec to limit urban sprawl.”*
- *“Modify subsidies based on the [country of origin] of products.”*
- *“Eliminate the taxable benefit for employees when an electric vehicle is provided (dollars per kilometre, two thirds of the rental amount).”*
- *“Enhance labour training assistance programs.”*

The combination of the collaborative session highlights and the action plan that follows resulted in the roadmap proposed by Relaunch MTL for a stronger sector. The various stakeholders can implement the roadmap to ensure the recovery of the sector.

INTRODUCTION

Relaunch MTL: an initiative to mobilize key stakeholders in the Greater Montréal economy

The COVID-19 crisis is having a significant impact on society as a whole. Out of this health crisis, an unprecedented economic crisis emerged. Its impacts on the metropolitan economy have varied significantly from one industry to another. While some sectors are experiencing significant losses and must reinvent their business models, others are experiencing growth and facing labour shortages. Despite the significant challenges faced by businesses and industries, there are still many opportunities and the shift to a lower-carbon economy remains a priority.

The current crisis is mobilizing all Montréal stakeholders. The provincial and federal governments, along with the Communauté métropolitaine de Montréal (CMM) and its 82 municipalities, are making considerable efforts to help relaunch their economies on a sustainable basis.

Adding to these efforts, the Chamber of Commerce of Metropolitan Montreal and some 20 partners have introduced Relaunch MTL, which is supported by the Government of Canada, the Government of Quebec, the Communauté métropolitaine de Montréal and the Ville de Montréal, in association with Investissement Québec and in collaboration with the Palais des congrès de Montréal. The goal of this movement is to mobilize all stakeholders in the Greater Montréal economic ecosystem to revive the city's major strategic sectors.

With the help of real-time data and strategy information, each sector will be subject to an issue-specific diagnostic.

The movement seeks to acquire a detailed understanding of the issues facing these sectors, find solutions and assist in decision-making with businesses and the different levels of government. The common goal of these efforts is to successfully relaunch Montréal's economy.

The development of ten sector action plans and a plan for downtown Montréal is part of the movement. They will be enhanced through a series of virtual events that will give us an opportunity to start thinking and take action to propel the long-term recovery of the city's economy and businesses.

This document represents the recovery plan for the transportation and logistics sector

This action plan for the recovery of the transportation and logistics sector was developed as part of Relaunch MTL. The analyses, findings and courses of action follow a rigorous and accelerated approach that takes into account the impacts of the current crisis. They rely primarily on:

- Sustained contributions from CargoM and Propulsion Québec, including studies, data, diagnostics, papers, and approaches to the crisis
- A review of the literature on the consequences of COVID-19, both local and international, and the measures put in place to address them
- Secondary data and supplementary information searches
- Interviews with key stakeholders (see the Appendix for a list)
- KPMG's analytical framework and sector expertise

This plan provides governments and industry stakeholders with priority courses of short-term action, as well as other actions that are part of a sustainable recovery over the longer term. Its scope is metropolitan, covering the territory within the Montréal Census Metropolitan Area (CMA).

It is understood that the courses of action will be further developed at a Strategic Forum on November 20, 2020, through a participatory exercise with ecosystem members.



- CargoM brings together key freight transportation and logistics players from Greater Montréal.



- Propulsion Québec brings together key players in the emerging sector of electric and smart land-based modes of transportation (for goods and people).

TEN SECTORS OF INTEREST:

- Retail trade
- Construction and infrastructure
- Creative industries
- Financial services
- Life sciences and health technology
- Information technology
- Clean technology
- Tourism
- Air transport and aerospace
- Transportation and logistics

Greater Montréal: solid economic performance before COVID-19

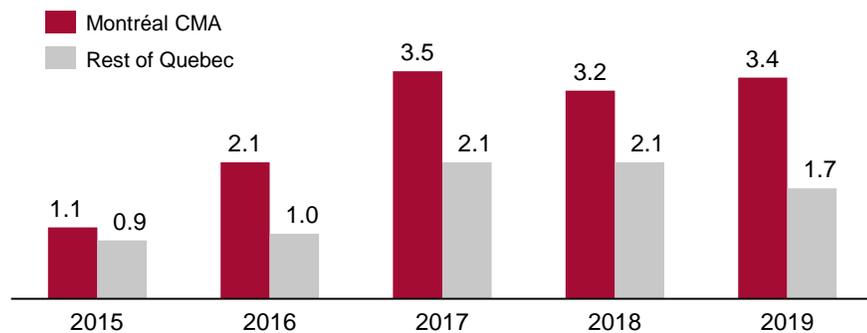
Greater Montréal was at the heart of Quebec’s economic growth in the years prior to COVID-19, acting as a true driver for the provincial economy:

- From 2016 to 2019, economic growth rates in the Montréal CMA were well above those in the rest of Quebec. In 2019, the city’s GDP actually grew at twice the rate than elsewhere in Quebec (3.4% versus 1.7%), outpacing the growth rates of other major Canadian CMAs.

The Greater Montréal economy benefits from:

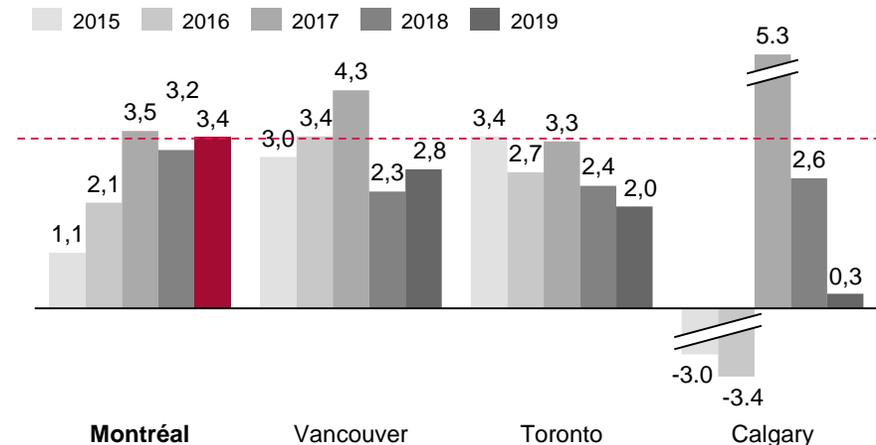
- A critical mass of businesses and jobs in a number of promising sectors, which helps make the city a thriving and innovative metropolis (all sectors are the focus of recovery action plans)
- Massive infrastructure investments, including the Turcot Interchange, the Samuel De Champlain Bridge and the Réseau express métropolitain (REM)
- A housing sector with strong growth—not only on the Island of Montréal, but on the South Shore as well

Annual real GDP growth rates for the Montréal CMA and the rest of Quebec
2015 to 2019, %



Source: Conference Board of Canada.

Annual real GDP growth rates for selected CMAs
2015 to 2019, as a %



Unprecedented impact and impressive rebound

From February to April 2020, employment in the Montréal CMA fell 18 points before rebounding in May and the ensuing months.

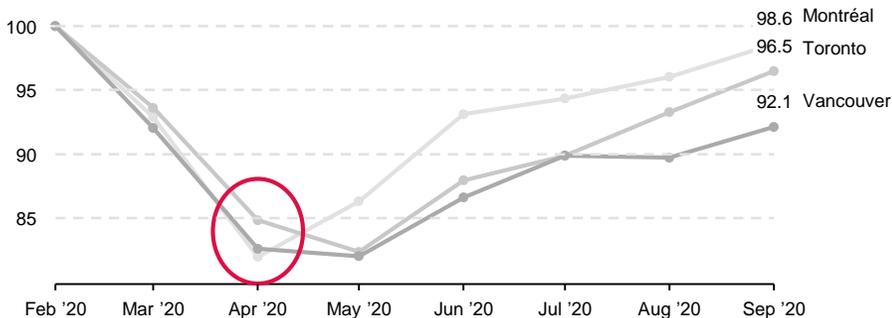
- In September, employment remained 1.4% below its February level, but a decline is possible with October's partial lockdown.

Montréal's rebound is the biggest of the 20 largest major North American cities.

- Strong government intervention, including unprecedented household income support, has limited job losses, and disposable personal income has actually increased.
- The management of the health crisis has also enabled a quicker reopening than what we have seen south of the border.

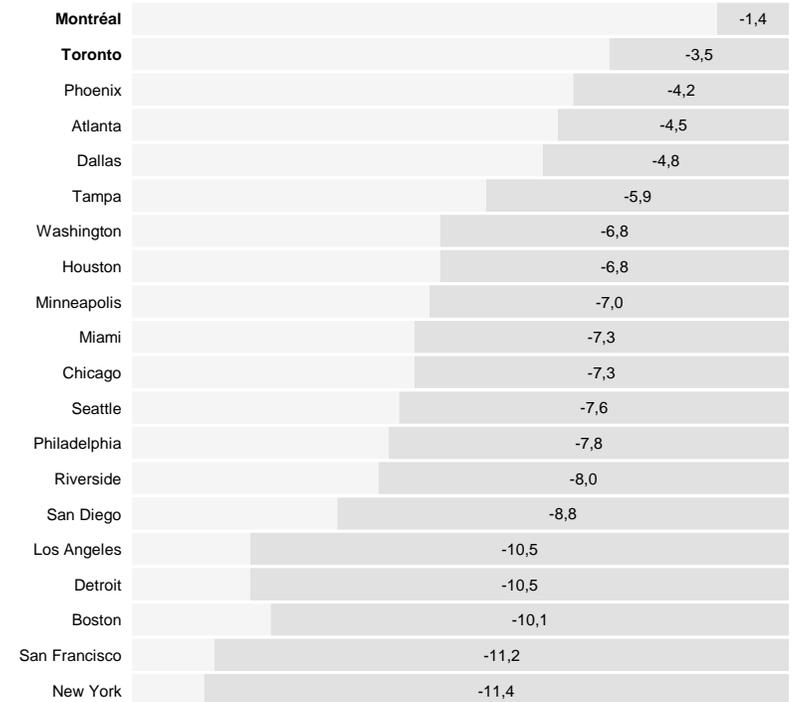
Change in employment, selected census metropolitan areas

February 2020 to September 2020, February 2020 = 100



Change in employment in the 20 largest cities in Canada and the United States

February to September 2020, as a %



Sources: Statistics Canada, Table 14-10-0295-01; Brookings, Metro Recovery Index, 2020.

Consumer and business confidence remains shaken, some health measures are still in place, and the economy's production capacity has been reduced.

The downtown area remains hard hit

The Greater Montréal Area has been hard hit by the COVID-19 crisis, as the lockdown has lasted longer in the city than elsewhere in Quebec. Downtown Montréal has been—and remains—one of the hardest hit areas.

- With its high concentration of jobs that can be done remotely, downtown Montréal was abandoned by its many workers. They are gradually returning, as offices are being allowed to reopen at a maximum 25% capacity. In late September, it was estimated that just over one third of employers would have reached or exceeded the 20% mark.
- With the closing of Canada's borders, international tourists are no longer visiting the city. Vacancy rates in downtown Montréal hotels dropped 83% from summer 2019 to summer 2020, compared to a 25% drop outside of the city core.
- The downtown shows, festivals and other events were virtually all cancelled from mid-March to early August, while theatres, concert halls and museums were put on pause. Following the relaxation of health measures in August and September, when the Greater Montréal Area became a red zone on October 1, a return to the ban on both indoor and outdoor gatherings was imposed.

Change in number of jobs, selected sectors

Quebec, selected periods, seasonally adjusted data

	Change February to April 2020	Change February to September 2020
Accommodation and food services	-36%	-10%
Information, culture and recreation	-36%	-11%
Overall economy	-23%	0%

Source: La Presse, "Les bureaux du centre-ville de Montréal toujours presque vides," 2020; Montreal Gazette, "Bleak summer seen for Montreal hotels, but outlook is better in regions like Charlevoix," 2020; Statistics Canada, Table 14-10-0022-01.

The accommodation and food service sectors, along with the information, culture and recreation sectors, remain the hardest hit to date.

A recovery that varies in speed and intensity depending on the sector and location

Most businesses in the metropolitan area will proceed through four phases in their return to growth.

- While the initial crisis response phase is behind us, some companies in the hardest hit sectors are navigating the resilience phase, while others have started transitioning to the recovery phase, which aims to bring their operations back to pre-crisis levels.

Not all businesses and economic sectors will pass through the different growth recovery stages at the same speed, and some fear setbacks during the second wave. The scope of the changes needed to adapt business models to the new reality will vary by sector.

Most companies have begun to reflect on the new reality that will emerge in the coming months and even years.

The long-term impacts of COVID-19 on business strategies and models are the focal point of current concerns.

The four phases of the return to growth



Source: KPMG, "COVID-19: Sortie de crise : Soutenir la relance de nos clients," July 2020

An action plan structured around five components

This action plan is structured as follows:



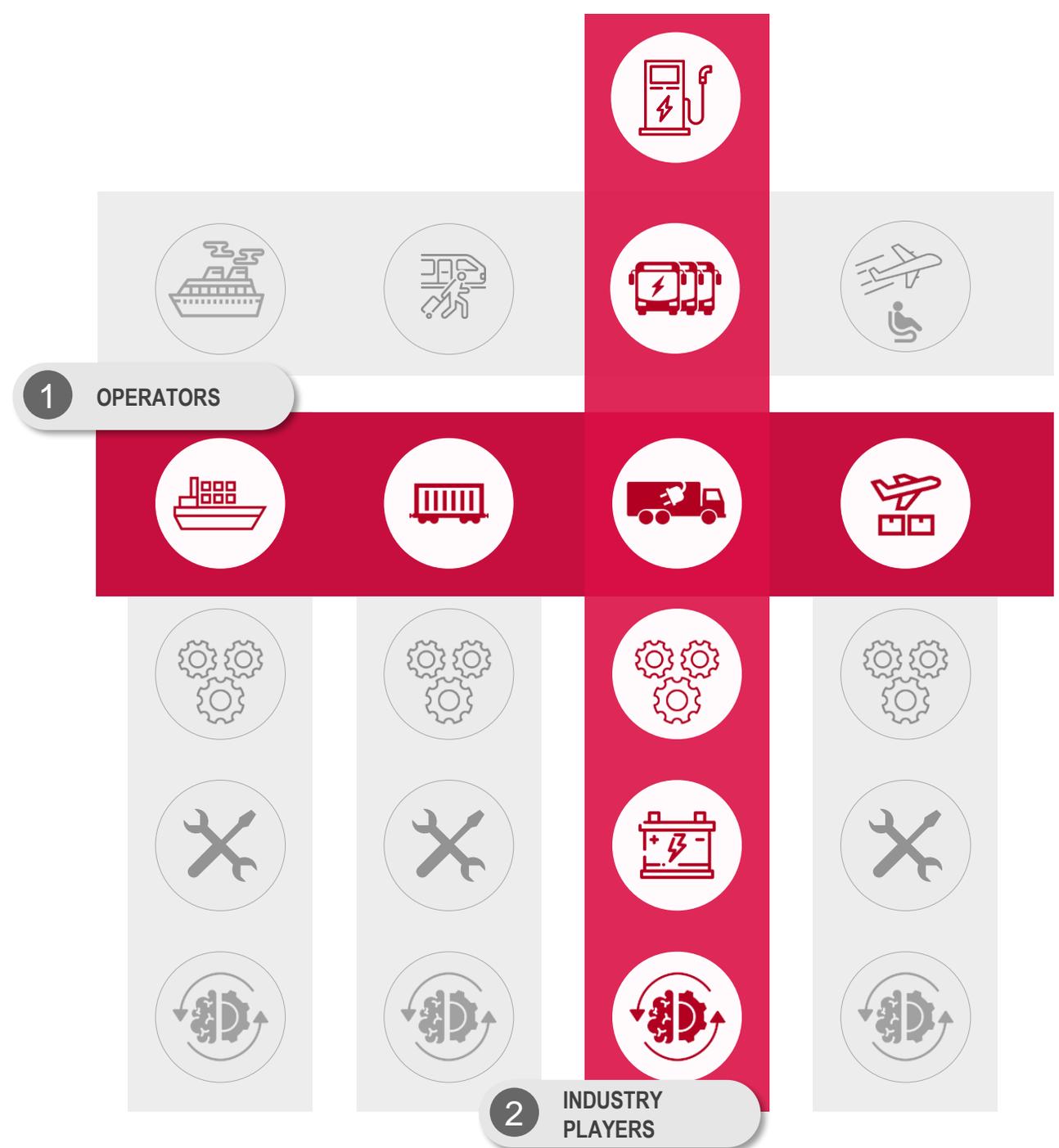
Two focuses of analysis

The two areas of focus for this report are:

- **Operators** ensuring transportation and logistics of people and goods
- **industry players** in the electric and smart vehicle chain

Industrial sectors that support other modes of transportation are excluded, either because they are considered in another sector plan, such as aerospace, or because they are less economically relevant for the greater Montréal area.

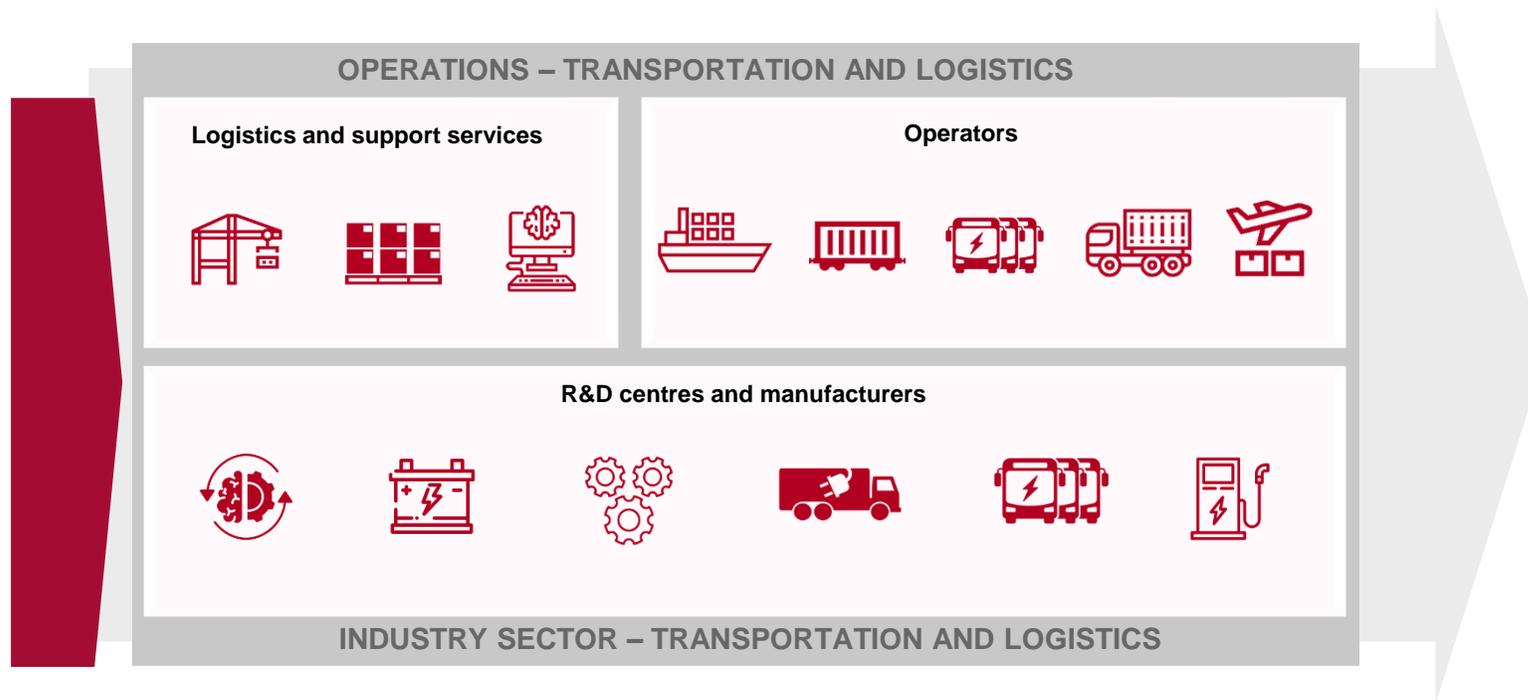
Note that public transit vehicles such as electric buses are covered due to their presence in the metropolitan area's industrial sector.



Operators and industry players operate within the same ecosystem

1 OPERATORS

This group includes companies involved in transportation and logistics for people and goods, including rail, marine, air or road transport, as well as companies that operate marine terminals and provide warehousing, packaging services, or 3PL and 4PL consulting.



2 INDUSTRY PLAYERS

This group includes manufacturers and research centres involved in the design, manufacture and marketing of electric and smart transportation vehicles for both goods and passengers. Passenger vehicles are included in the analysis, given the intrinsic nature of the two subsectors for manufacturing companies on our territory.

1

THE SITUATION BEFORE COVID-19

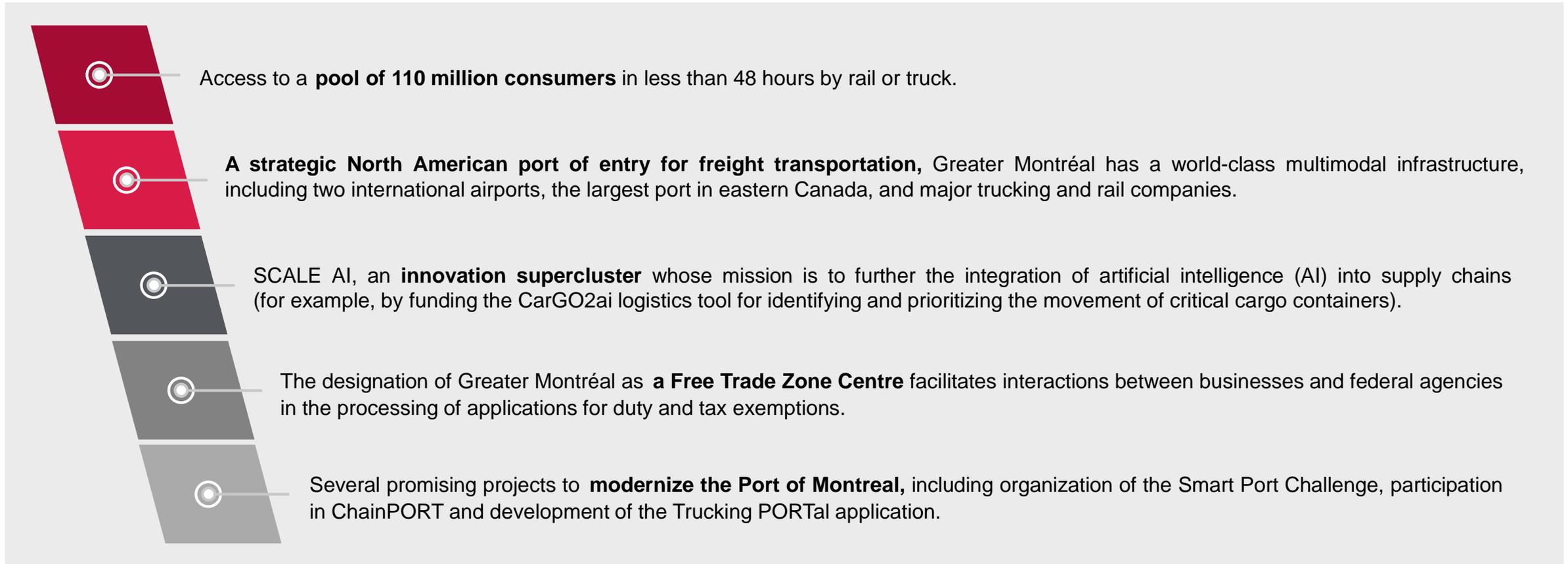
- ▶ • The sector's strategic importance to the metropolitan economy
- Key development issues prior to COVID-19

Greater Montréal: a transportation and logistics hub



OPERATORS

Greater Montréal has historically benefited from a number of assets that have made it one of the most important transportation and logistics hubs on the eastern continent, one perfectly connected to its environment.



Source: CCMM and Montréal International, "International connectivity central to the growth of Greater Montréal," January 2020.

A booming hub

Based on this positioning, several major projects have been initiated to increase the processing capacity of the Greater Montréal transportation and logistics hub.



OPERATORS



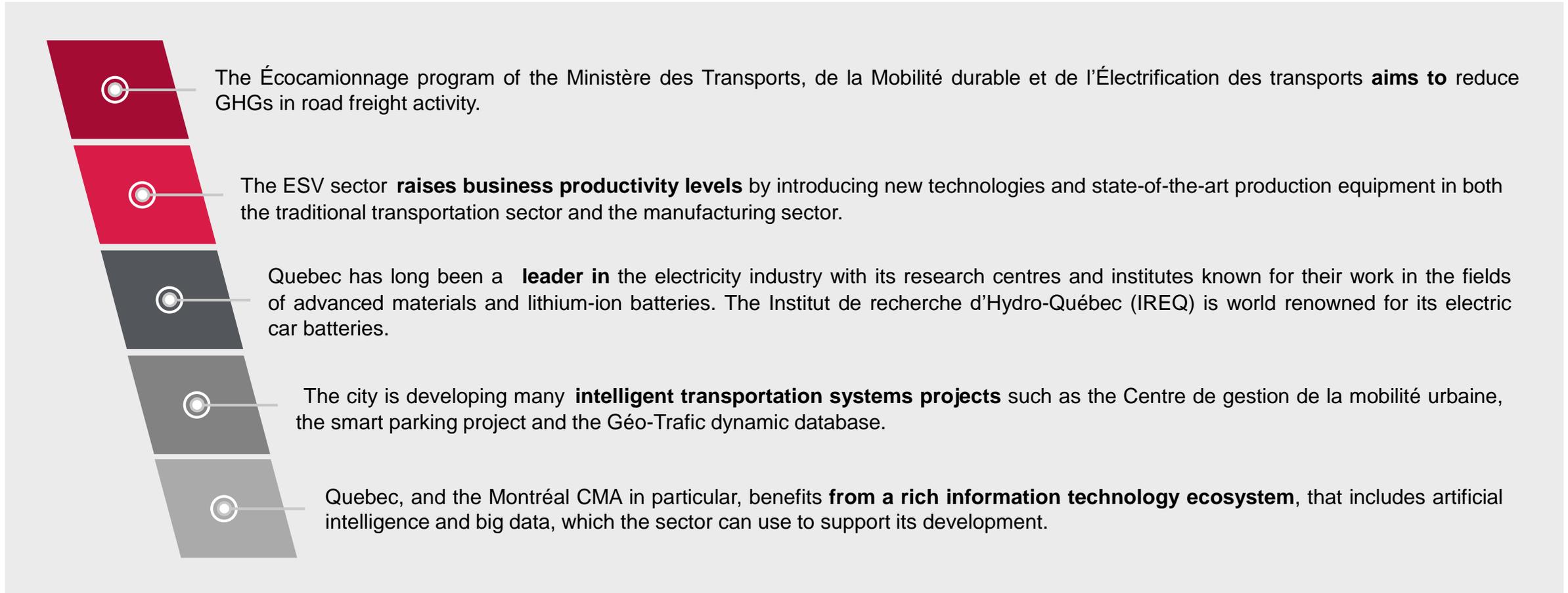
Source: CCMM and Montréal International, "International connectivity central to the growth of Greater Montréal," January 2020.

A key energy transition sector

Over the past decade, a new transportation sector, electric and smart vehicles (ESVs), has expanded and evolved rapidly. More recently, the emergence of an artificial intelligence cluster has created synergies that could considerably strengthen Montréal's place in this industry.



OPERATORS



Source: CCMM and Montréal International, "International connectivity central to the growth of Greater Montréal," January 2020.

A hub that contributes to the city's economy and international connectivity



OPERATORS

In addition to the direct spinoffs from this sector, the entire economic fabric of Quebec benefits from the efficiency of the Greater Montréal supply chain.



Source: CCMM and Montréal International, "International connectivity central to the growth of Greater Montréal," January 2020.

Key transportation players



OPERATORS

The success of the metropolitan hub depends on the presence of major operators.

- **Road transport:** Most transportation companies also provide logistics services, including the Robert Group, TFI International and the Metro Supply Chain Group.
- **Rail transport:** Montréal is served by the two largest railways, Canadian National (CN) and Canadian Pacific (CP).
- **Maritime transport:** The Port of Montreal is served by major container ship owners, including Fednav and Maersk.
- **Air transport:** Four air cargo companies are present at Montréal's airports: Fedex, DHL, UPS and Purolator. Air Canada Cargo and Air Transat Cargo are also major cargo carriers.
- **Public transport:** The greater metropolitan area relies on major public transit companies operating bus fleets, including the Montréal, Laval and Longueuil transit corporations.



Sources: KPMG, "Overview of Montréal's transportation and logistics ecosystem"; Montréal International.



OPERATORS

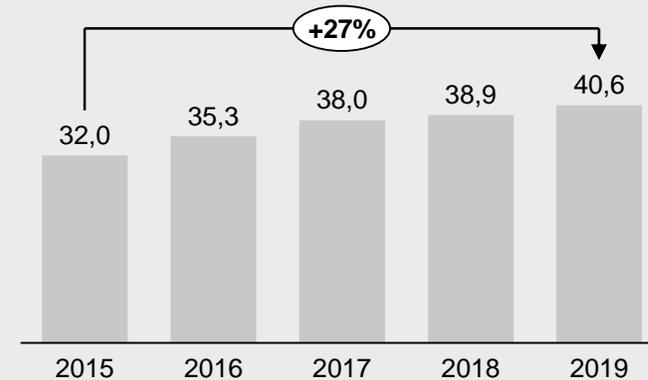
The Port of Montreal is the largest port in eastern Canada

In addition to the direct spinoffs from this sector, the entire economic fabric of Quebec benefits from the efficiency of the Greater Montréal supply chain.

The Port of Montreal, the region's main intermodal platform, is one of the top five ports on the eastern coast of North America.

- **Connected to more than 140 countries**, it is a gateway for goods to North America, particularly from Europe, but increasingly from Asia as well.
- Its activities create more than **19,000 direct and indirect jobs** and generate approximately \$2.6 billion in annual economic spinoffs.
- In 2019, more than **40 million tons of merchandise** were traded there, an **increase of 27% over 2015**.

Evolution of freight traffic, Port of Montreal
2015 to 2019, in millions of metric tonnes



Sources: KPMG, "Survol de l'écosystème montréalais des transports et de la logistique"; Montréal International; Port of Montreal.

Montréal and its port are an intermodal transportation hub.



OPERATORS

6,000 transportation and logistics companies

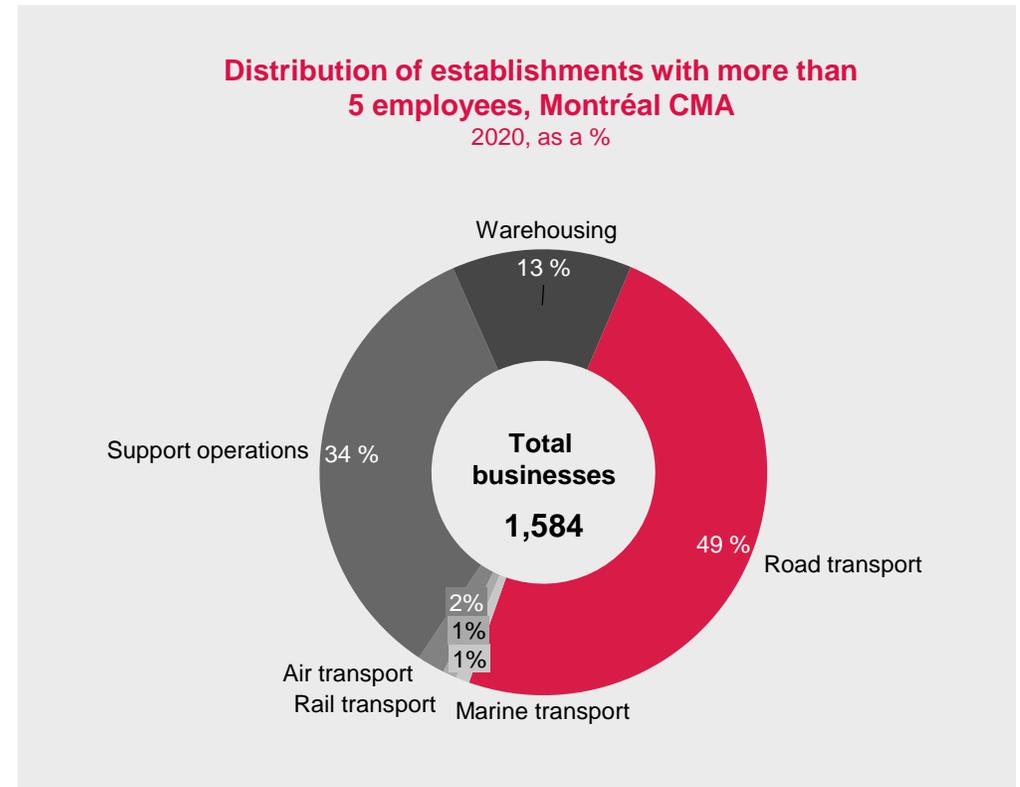
Of the 1,500 companies with more than 5 employees, half are involved in road transportation and one third in support activities.

Number of businesses by sector and size, Montréal CMA

2020, in number of companies

	Micro 1–4	Small 5–99	Medium 100–499	Large 500+	TOTAL
Road transport	3,568	749	20	0	4,337
Maritime transport	12	17	2	1	32
Rail transport	7	16	3	1	27
Air transport	22	26	8	3	59
Warehousing	84	186	16	3	289
Support operations	546	493	37	3	1,079
Total	4,239	1,487	86	11	5,823

Sources: Statistics Canada, Table 3310026901.



Logistics increases efficiency

Of the 1,500 companies with more than 5 employees, half are involved in road transportation and one third in support activities.

Supply chain competitiveness depends on transportation and the coordination of production and distribution operations.

- Smart transportation can include specialized distribution centres (including assembly, packaging, just-in-time management, testing and transshipment), carriers of all transportation modes and manufacturers that process and then distribute products.
- The success of world-class companies is due in large part to the strategic reconfiguration of their logistics chain. Innovation in logistics processes improves reliability, flexibility and speed while reducing costs.
- The prospects for growth in e-commerce are forcing companies to implement innovative solutions with all the partners in the logistics chain.
- Montréal has a great deal of expertise in the sector with institutes, groups and university chairs dedicated to logistics.
- World leaders have recently established automated distribution centres in the region.

Sources: KPMG, "Overview of Montréal's transportation and logistics ecosystem"; Montréal International.



OPERATORS



Logistics is at the heart of Montréal's economic activity and key to improving the efficiency and effectiveness of all sectors.

Strong presence in the ESV sector

For its part, the new ESV sector ecosystem in Quebec includes more than 150 businesses in the vehicle, infrastructure and service subsectors. A significant proportion of these players operate in Greater Montréal.

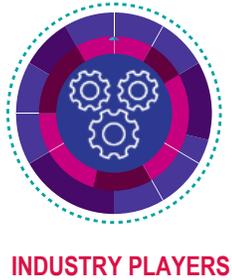


INDUSTRY PLAYERS

	AREAS OF ACTIVITY	NUMBER OF ACTIVE COMPANIES*	EXAMPLES OF SECTOR BUSINESSES ESTABLISHED IN QUEBEC
VEHICLES	- Order maker/assembler of finished vehicles (<i>vehicle design and manufacturing</i>)	27	Bombardier Transport, Devinci, Lion Electric Company, Motrec International INC, Nova Bus
	- Component or system assembler	10	Ecotuned, TM4, Nordresa
	- Design, manufacture or recycling of specialized electric vehicle parts and components	10	Blue Solutions Canada, Ingeniarts (UgoWork), Recyclage Lithion, Johnson Matthey
	- Smart vehicle parts design/manufacturing and specialized components	3	Leddartech, Immervision, Phantom Intelligence
	- Design and manufacture of other parts and components	15	Canimex Inc., Spectra Premium, Targray
	- Materials supplier (raw and refined)	7	RNC Minéraux, Nouveau Monde Graphite, Mason Graphite
INFRASTRUCTURES	- Design and manufacture of electric vehicle charging parts, components or software	16	ABB, AddÉnergie, Bectrol
	- Intelligent systems design and manufacturing	13	Algolux, Alizem, Nuance
	- Design and manufacture of smart infrastructure parts, components or software	6	8D Technologies, Electromega, Orange Traffic
	- Design and manufacture of fleet management systems and related services	10	Algonat, Giro, Ingtech, ProxyBus Technologies
	- Design and manufacture of mobility solutions as a service	16	BIXI, Communauto, Mogile Technologies
SERVICES	- Providers of technical, scientific and other services	25	Genik, Opal-RT Technologies, Hypertronic Technologies

Note: Some companies are active in more than one area of activity.

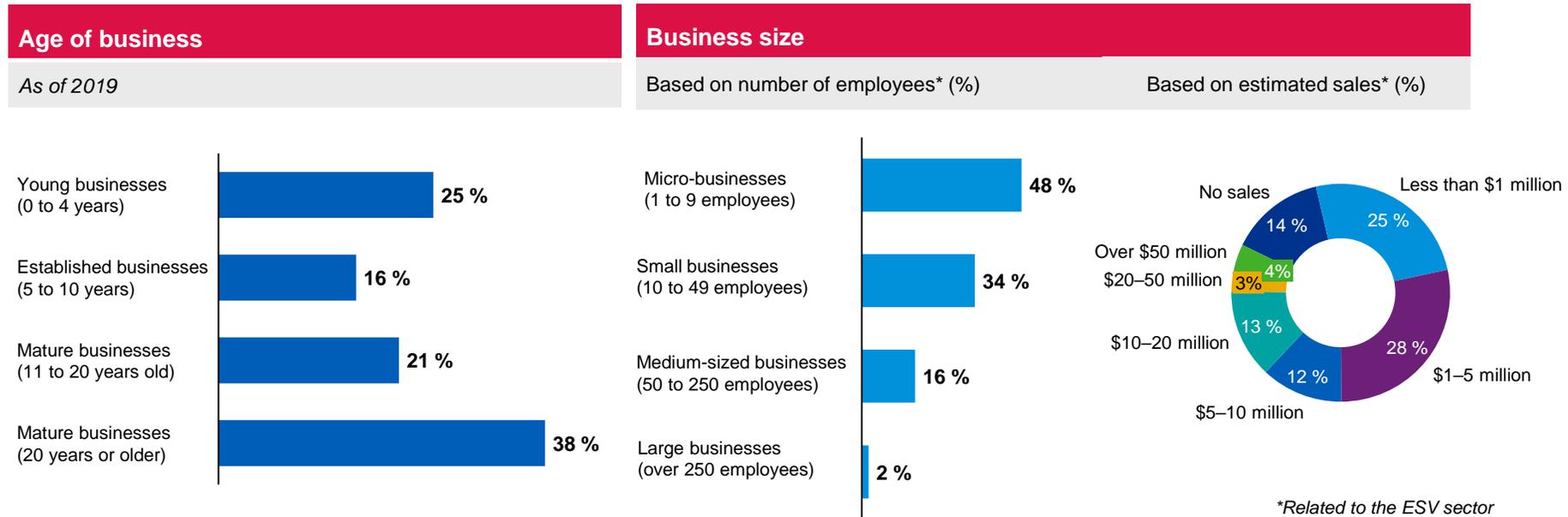
Sources: Propulsion Québec, "Portrait économique de la filière des transports électriques et intelligents du Québec," 2019.



The majority of companies in the ESV sector are small businesses

A significant proportion of businesses (59%) were established more than 10 years ago. Nevertheless, the sector remains characterized by a high proportion of small businesses.

- 48% of businesses have fewer than 10 employees and 82% have fewer than 50 employees.
- 25% of businesses reported revenues of less than \$1 million, while 14% are still in the development stage and did not report any sales in 2018. Within the sector, 4% of large businesses report over \$50 million in annual revenue.

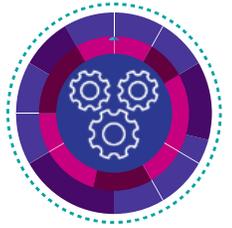


Sources: Propulsion Québec, "Portrait économique de la filière des transports électriques et intelligents du Québec," 2019.

ESC industry contributes \$1.3 billion to Quebec GDP

The 150 companies in the sector generate an estimated \$2.2 billion in sales and \$830 million in exports.

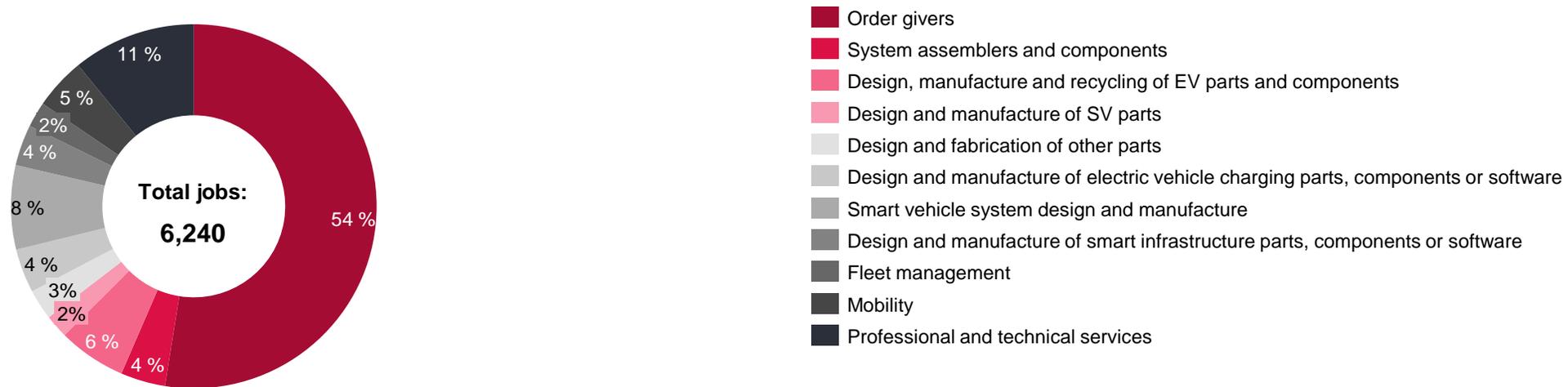
- These companies directly employ 6,240 people in Quebec, more than half of whom are contractors, including Bombardier Transport.



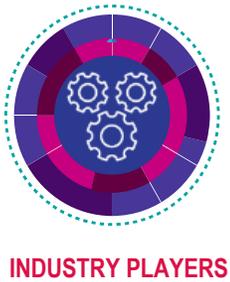
INDUSTRY PLAYERS

Distribution of ESC jobs by subsector

2018, as a %



Sources: Propulsion Québec, "Portrait économique de la filière des transports électriques et intelligents du Québec," 2019.



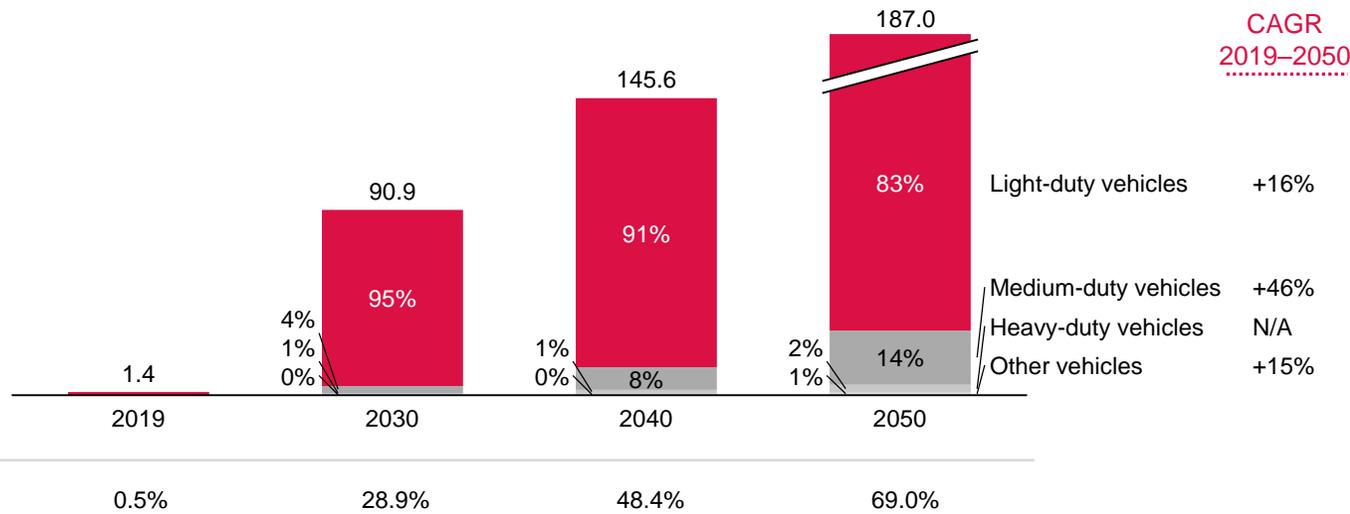
The growing ESV sector

A recent study estimates that growth prospects are particularly high for the vehicles for which Quebec is currently making a name for itself. The number of vehicles in North America that will be electric and/or smart is expected to increase from 1.4 million to 187 million over the next 30 years.

- Quebec specializes in several medium-duty truck niches, including freight vans, ambulances, buses, shuttles, bucket trucks and heavy vehicles, which are sold in America and elsewhere in the world.
- The manufacture of light- and medium-duty vehicle infrastructure is well established in Quebec and will benefit from increasing EV penetration rates in North America, +16% and +46% per year, respectively, from 2019 to 2050.

Evolution of smart and electric land vehicle fleet, North America

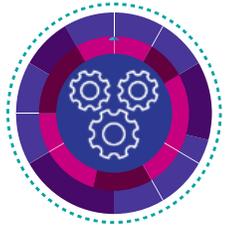
2019 to 2050, in millions of units and as a %



Source: Propulsion Québec, "Horizon 2050 et besoins en main-d'œuvre et formation du secteur des transports électriques et intelligents au Québec," 2020.

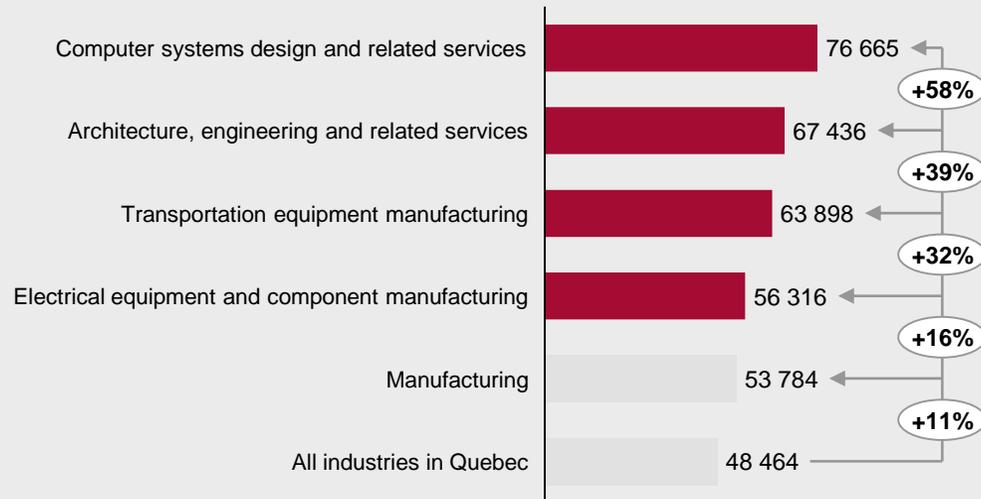
The ESV sector: high value-added jobs

Workers who manufacture vehicles (transportation equipment) and specialized electrical components or perform mechanical engineering and software or computer systems work have average salaries that are 16% to 58% higher than in all industries in Quebec and have a high level of education and degree qualification.



INDUSTRY PLAYERS

Annual compensation in selected sectors related to ESVs, Quebec
2018, in \$



Degree level in selected ESV-related sectors, Montréal CMA
2018, as a %

	No certificate	High school diploma	College, CEGEP diploma	University degree
Information systems design	1%	8%	26%	64%
Architecture, engineering and related services	1%	5%	23%	71%
Transportation equipment manufacturing	5%	13%	44%	38%
Electrical component manufacturing	14%	21%	30%	35%
All industries	7%	18%	33%	42%

Sources: Statistics Canada, Labour Force Survey; Propulsion Québec, "Portrait économique de la filière des transports électriques et intelligents du Québec."

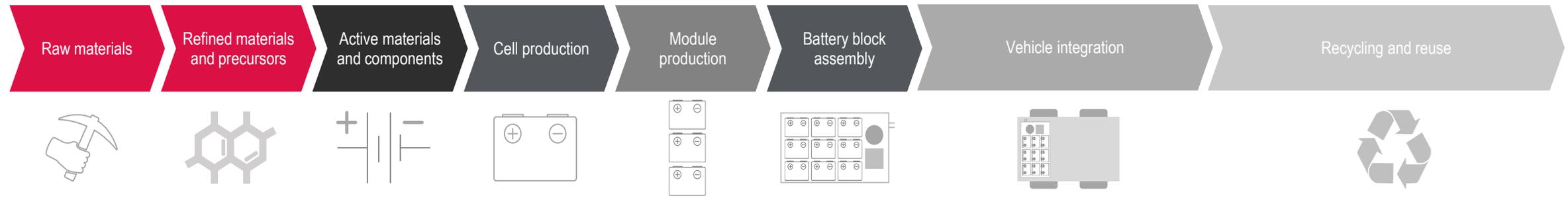
Strategic positioning in battery manufacturing

One of the most promising sector segments involves the design and production of lithium-ion batteries. In addition to the expertise and talents found in companies and research centres, Quebec can benefit from the lithium mines on its territory.



INDUSTRY PLAYERS

Expanded value chain for lithium-ion batteries for electric vehicles



Growth in the electric vehicle market is mainly related to battery developments.

The lithium-ion battery system is rapidly evolving and players are attempting to position themselves in global supply chains.

- Quebec has a clean and competitive energy source, abundant natural resources, pre-industrial expertise in cell production (IREQ), renowned research centres, relative proximity to the market and North American builders, and a strong desire by the government to support the development of an electric battery sector in Quebec.
- Expertise developed in Quebec could become an interesting option for American and European builders seeking an alternative to China.
- Battery production and recycling is a central component of the smart and electric value chain.

Source: Propulsion Québec, "Le développement de la filière des batteries lithium-ion au Québec," 2019.

1

THE SITUATION BEFORE COVID-19

- The sector's strategic importance to the metropolitan economy
- ▶ • Key development issues prior to COVID-19

The sector is facing a number of issues



OPERATORS

INDUSTRY PLAYERS

Transportation and logistics operations were already facing several challenges prior to the pandemic.



PERCEPTION AND ENVIRONMENT – The transportation of goods and people can be perceived as a harmful activity due to the spaces used, pollution, noise and congestion.



GOVERNANCE AND INTERESTS – A complex undertaking with a large number of stakeholders and the cross-sector nature of the proposed initiatives.



LABOUR – Labour scarcity and the desired skill profile are issues.



PORT ACCESSIBILITY – The transfer of goods from ships to other modes of transportation is not optimal.



INTERNATIONAL TRADE – Strong competition between east coast ports and international markets.



BUSINESS FINANCING – The technology development, product demonstration and validation, and industrial development phases have significant funding requirements.



DEMONSTRATION AND MARKETING – Un défi pour les entreprises est l'obtention des premiers clients qui serviront de vitrines technologiques.



MARKETS OUTSIDE QUEBEC – Businesses in the sector need to be better equipped to seize foreign market opportunities.

CHALLENGE 1 – PERCEPTION AND ENVIRONMENT



The transportation of goods and people can be perceived as a harmful activity due to the spaces used, pollution, noise and congestion.

- The distribution of goods in urban areas is essential to a functioning economy, but the presence of trucks in cities causes dissatisfaction.
 - We need to raise people’s awareness of the transportation sector’s importance in supplying the food and goods they consume, and social acceptance depends on it.
 - A sustainable mobility plan must strike the right balance between citizen expectations and the competitiveness of freight transport on the local, regional and international levels.
 - Policymakers must ensure that all road users coexist in harmony, regardless of their mode of transportation.
- Under the Paris Agreement, Canada is committed to reducing its GHG emissions by 30% by 2030, compared to 2005. With its increased emissions, Quebec missed its 2020 target. It has set a new reduction target of 37.5% below 1990 levels by 2030.
- The transportation sector is the largest GHG producer in Quebec, accounting for about 43% of emissions. Road transportation alone, which includes automobiles, light-duty trucks and heavy-duty vehicles, including trucks and buses, is responsible for 80% of emissions for the entire sector.

Quebec GHG emissions in 2013 and 2017

Secteurs d'activité	Émissions (Mt éq. CO ₂)		Variation des émissions de 1990 à 2017		Part du secteur en 2017
	1990	2017	Mt éq. CO ₂	%	%
Transports	27,68	34,06	6,38	23,0	43,3
Transport routier	18,11	27,10	8,98	49,6	34,5
Autres transports	6,80	4,67	-2,13	-31,3	5,9
Transport aérien	0,82	0,72	-0,10	-11,8	0,9
Transport ferroviaire	0,57	0,60	0,04	6,4	0,8
Transport maritime	1,38	0,96	-0,42	-30,3	1,2

Sources: Government of Quebec, “Engagements du Québec”, 2020; Ministère de l’Environnement et de la Lutte contre les changements climatiques, “Inventaire québécois des émissions de gaz à effet de serre en 2017 et leur évolution depuis 1990,” 2019; <https://roulezelectrique.com/electrification-du-quebec-des-objectifs-de-reduction-de-petrole-et-de-ges-realisables/>

**An integrated approach to mobility is required to link transportation with territorial planning.
Coexistence is not only possible but necessary.**

ISSUE 2 – GOVERNANCE AND INTERESTS



A complex undertaking, with its large number of stakeholders and the cross-sector nature of the proposed initiatives.

- Several Quebec ministries (Transport, Économie et Innovation, Environnement, Aménagement du territoire, Énergie et Ressources naturelles) have set policies, strategies and action plans to reduce GHGs, electrify transportation and develop sustainable mobility.
- Transit companies in Montréal, Longueuil and Laval have separate plans and timelines for completion.
- The lack of a common vision and synergies threatens achievement of the government's sustainable mobility plan targets.
- An integrated approach requires the breaking down of barriers between jurisdictions, as well as partnerships and the reconciliation of public and private interests.
- Montréal is having difficulties reconciling the right of citizens to a quality environment with the development of the transportation and logistics sector.

Focus on high-impact structuring and mobilizing projects in order to effectively influence demand and outcomes

ISSUE 3 – LABOUR



Labour scarcity and the desired skill profile are challenges.

- A significant portion of workers are nearing the end of their careers. The profile of available jobs will change with new technologies, both in transportation and logistics.
- The complexity of trade and pressure to shorten delivery times have led to significant changes in the logistics chain, which is more integrated in manufacturing companies. The worker profile is becoming increasingly similar to that of the manufacturing sector.
- Robotics and artificial intelligence are transforming logistics and transportation by optimizing processes. The many SMEs within the sector must integrate these technologies, and this will require employee training and the recruitment of skilled workers.
- Some aspects of the sector, the specialized functions in particular, are unattractive to young people. Employers must make efforts to attract and retain staff.
- The growth of the transportation and logistics sector and ESV sector will depend in part on the availability of a well-trained workforce.
- The industry's transformation is leading to significant changes in labour needs, hence the importance of efforts to retrain some workers.

Labour shortages will force companies to opt for technological solutions.

ISSUE 4 – PORT ACCESSIBILITY



The transfer of goods from ships to other modes of transportation is suboptimal.

- Congestion and work sites pose a major logistical challenge and delay deliveries, penalizing suppliers, carriers and customers.
- A number of companies want to increase their handling capacity and warehousing areas near the port, but constraints set by municipal regulations prevent them from building cost-effective facilities.
- Access to the Port of Montreal's infrastructure remains difficult, which decreases its efficiency. Projects to improve entry and exit from the port without going through Rue Notre-Dame are a priority. The extension of Boulevard de l'Assomption between Rue Hochelaga and Rue Notre-Dame and west of Avenue Souigny, along with the addition of new access ramps to Highway 25, have been a priority for several years.

The smooth flow of goods requires rapid access to port infrastructure.

ISSUE 5 – INTERNATIONAL TRADE



Intense rivalry between east coast ports and international markets

- Montréal, a transportation and logistics hub, is a gateway to North America due to its geographical location and intermodal infrastructure (marine, rail, air, road).
- The Port of Montreal is a destination port. The rail network connects it to western Canada, the Midwest (Detroit and Chicago), and much of North America's East Coast. The smooth flow of its operations and its intermodal infrastructure give it a competitive advantage over other ports on the North American East Coast.
- This advantage is nevertheless threatened by the consolidation of shipowners, particularly those in container shipping, and their expansion into port operations.
- Container handling is heavily concentrated at some North American East Coast ports, creating pressure on logistics networks.
- The Port of Montreal's competitiveness depends on its ability to increase its volume, its intermodality, and improvements to its services and tariff decisions.
- The heightened rivalry comes within a context of uncertainty over the evolution of global trade, which is leading to protectionist measures and a desire to shorten supply chains to build resilience.

The Port of Montreal operates in a changing competitive environment.

There is also strong competition between nations that are investing heavily to develop their ESV industries.

ISSUE 6 – BUSINESS FINANCING

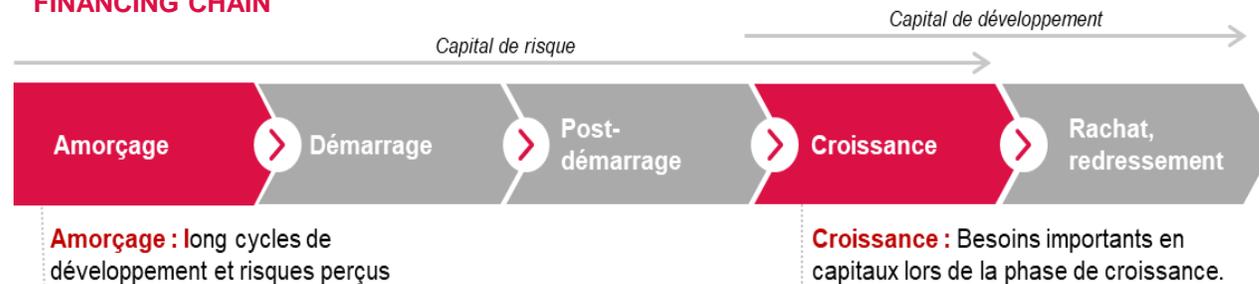
With respect to the emerging ESV sector, the challenges are in line with those in emerging electrical sectors involving financing, demonstration and marketing on the small and medium scale, both locally and internationally.



The technology development, product demonstration and validation, and industrial development phases have significant funding requirements.

- Companies in the ESV sector face significant challenges tied to long product development cycles, high testing and prototyping costs, and the magnitude of capital requirements. Financing commercial pilot projects and demonstrating the commercial and environmental value of technologies is critical for capital-intensive projects.
- The risk level perceived by private financiers is high for companies in their early stages of development. This has the effect of slowing development and limiting funding to more advanced development stages.
- Canada's electric and smart vehicle market is emerging and small, which limits opportunities for growth. Companies are typically smaller and have more limited liquidity.

FINANCING CHAIN



Sources: KPMG, 2018; Duruflé and Carbonneau for Cycle Capital Management, 2016; EY, 2018.

Financing for pilot and demonstration projects is the biggest challenge facing businesses.

ISSUE 7 – DEMONSTRATION AND MARKETING



One challenge for businesses is acquiring initial customers who serve as technology showcases.

- Financing commercial pilot projects and demonstrating the commercial and environmental value of technologies is critical for the clean technology fields that are more capital-intensive. This is a significant challenge for companies in the ESV sector.
- The initial applications of new technologies, as in ESVs, require significant investment, while the benefits often materialize over the long term.
- For ESV purchasers, the risks associated with adopting new technologies go beyond product validation and include the deployment of new infrastructures such as adapted garages and the installation of charging stations. Training programs for maintenance personnel and operators must also be provided. Including capital requirements will potentially increase the break-even point for operations. For manufacturers in the ESV sector, sales cycles are therefore longer and demonstrating solutions technologically and financially becomes more difficult.
- The major transportation companies are reluctant to act as technology showcases
- The public tender process does not encourage electric vehicles, as the lowest bidder rule is too often used, whereas bidders would benefit from conducting life-cycle assessments of equipment, not just assessments at the time of acquisition.
- Municipal regulatory frameworks should also allow pilot and demonstration projects to be carried out to foster innovation.

Transportation companies are reluctant to adopt unproven technologies.

ISSUE 8 – MARKETS OUTSIDE QUEBEC



Businesses in the sector need to be better equipped to seize foreign market opportunities.

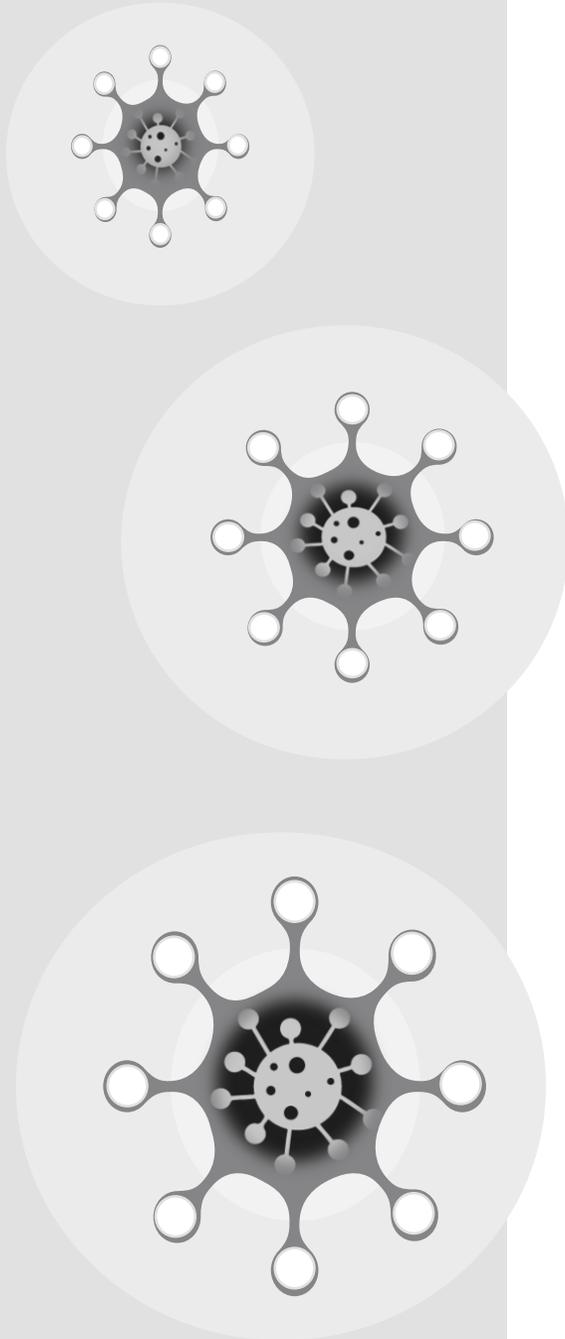
- The size of our domestic market hampers the growth of industry players. Growth opportunities lie in the ability of Quebec businesses to capture foreign markets, especially the American market.
- Compared to the Canadian domestic market, the European market is better developed in terms of both electric vehicle supply and demand. This market is home to large manufacturers who have firmly embraced the electric transition and possess significant research and manufacturing capabilities.
- The Quebec ESV sector is emerging. With some exceptions, it consists mainly of SMEs and a small number of firms with higher revenues.
- ESV companies in Quebec, as elsewhere in the world, are facing challenges tied to long product development cycles, high testing and prototyping costs, and the magnitude of capital requirements.

The constraints associated with the size of the Quebec market mean that the sector must turn to external markets.

2

IMPACTS OF THE CRISIS ON THE SECTOR

Engaging the transportation and logistics sector



- The health crisis has revealed, if it wasn't already known, just how indispensable transportation and logistics are for economic vitality, as evidenced by the government's decision to consider the entire sector an essential service.
- The urgent need for action has fostered collaboration among Greater Montréal logistics chain stakeholders and opened communication channels with a view to rapidly developing initiatives to improve the flow of essential goods processed at the Port of Montreal.
- The industry contributed to the fight against COVID-19 by chartering flights to transport personal protective equipment and converting passenger aircraft to cargo planes to meet customer needs.
- Bikes were used to make nearly 8,000 deliveries for stores closed to the public, a delivery mode that proved profitable, fast and environmentally friendly.
- The sector will play a central role in the recovery, which will be an appropriate time to reduce costs, optimize distribution networks, modernize operations and reduce the carbon footprint.

Source: La Presse, "Montréal veut rendre permanent son Service de livraison urbaine à vélo," October 11, 2020.

A quick adjustment

Impacts



OPERATORS

The pandemic has revealed the importance of transportation to the economy. It was vital during the crisis will play a central role in the economic recovery.



Conversion of aircraft to cargo planes

Before the crisis, all Air Canada cargo was carried on passenger flights. Increased demand, especially for personal protective equipment, has forced the rapid conversion of several passenger aircraft into cargo planes.

1



Loss of connections

Starting with China, one destination after another closed down. Over 80% of the passenger aircraft fleet was grounded, thereby reducing cargo capacity.

2



Increased volumes

The rise of e-commerce has increased the volumes of air cargo specialists like FedEx and Purolator.

3



Changes in logistics operations

Several manufacturing companies were hard hit by the health crisis, leading to a rapid adjustment in carrier logistics. There is a trend toward reviewing urban delivery modes in order to reduce GHG emissions.

4

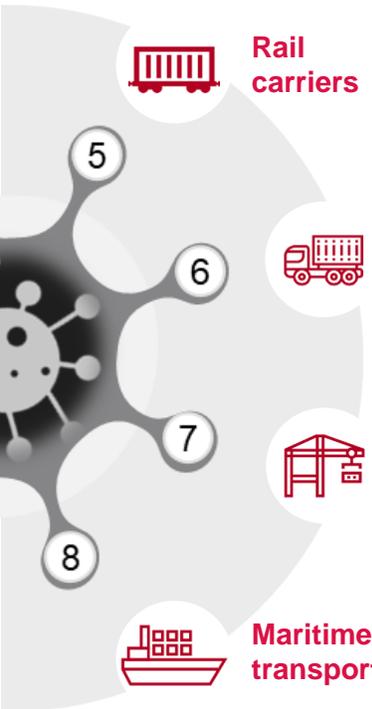
The intermodality challenge

Impacts



OPERATORS

The pandemic has highlighted interrelationships along the entire chain of operations. It was found that any change in one of the links could affect the others.



Rail carriers

Rail transportation has been significantly rebalanced across the continent due to changes in volumes and the nature of imported and exported goods.



Road carriers

The nature of goods, frequency of trips, volumes and destinations were disrupted, and large operators had to adjust quickly.



Port of Montreal

While COVID-19 brought its own challenges, the port longshoreman's strike has also had a significant impact. Several vessels were redirected to Halifax, thus affecting rail intermodality.



Maritime transport

International maritime routes have been disrupted in asynchronously. Vessel travel times are important. COVID-19 could strike the shipping port when the receiving port was ready to receive ships, and the reverse was also true.

Transportation of goods and people: separate reactions

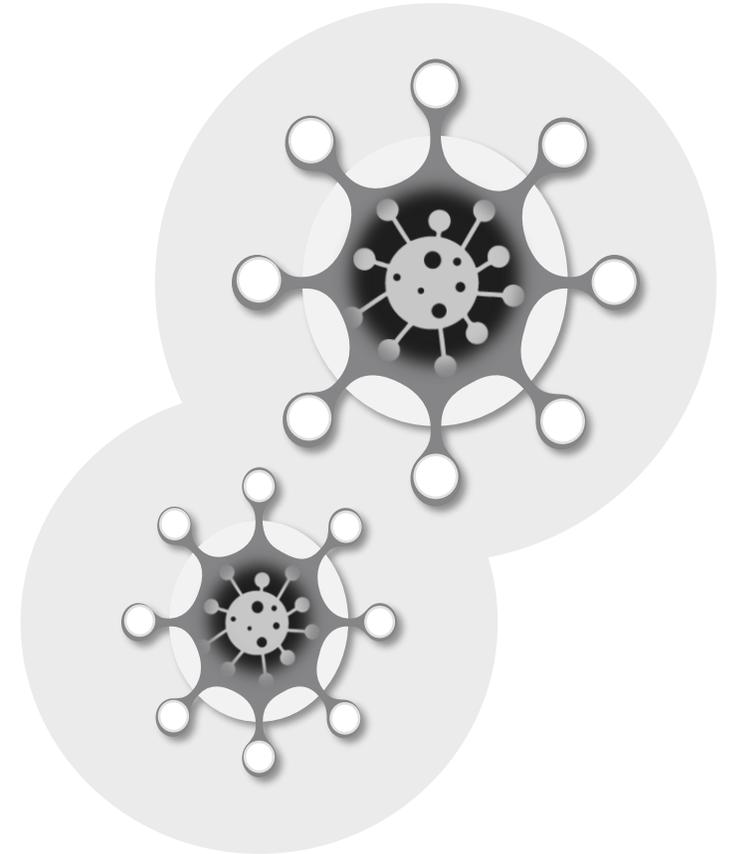


OPERATORS

Impacts

Freight transportation was maintained at all costs, while the transportation of people was severely disrupted.

- The closing of international borders, and sometimes even provincial borders, was decreed by governments. To minimize economic losses, transportation was quickly recognized as an essential service and maintained to transport incoming products and ship processed products from businesses.
- The transportation of goods was quickly identified as an essential service for moving food and other consumer goods to the public.
- The closure of businesses under government orders caused disruptions in the movement of goods to their final destinations, resulting in an accumulation of containers in major intermodal centres.
- Urban and inter-regional transit operators saw their operations and revenues drastically reduced and, in some cases, shut down.

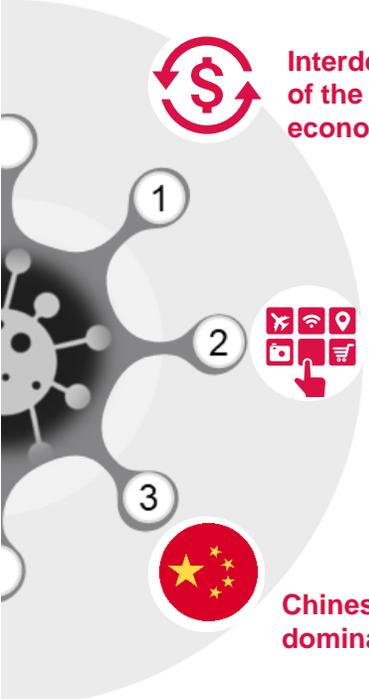




International trade remains key

Impacts

The pandemic has distorted international trade along supply lines. At the same time, there has been very strong demand for the rapid transport of critical crisis-related goods. Operators had to adjust in real time



Global supply and demand were hit simultaneously. The pandemic highlighted the interdependence and fragility of the global economy.

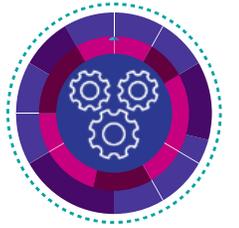
COVID-19 did not result in the dramatic drop in world trade that the WTO feared. Marine freight prices have recently risen on the routes between North America and Southeast Asia, driven by e-commerce and fiscal and monetary stimuli.

The health crisis has demonstrated China's dominance of the supply chain. While nothing new, this observation has shaken the confidence of business and governments.

“The way to make supply chains more resilient is not to domesticate them, which concentrates risk and forfeits economies of scale, but to diversify them.” – *The Economist*

Sources: The Economist, “Has covid-19 killed globalisation?” May 16, 2020; Council of the European Union, “European Strategic Autonomy is Our Generation's Goal,” September 2020; interviews.

Industry players in the impacted ESV sector



INDUSTRY PLAYERS

Impacts

The COVID-19 crisis has impacted businesses differently depending on their stage of development, size, level of diversification or degree of exposure to foreign markets.



Difficult financing

Decrease in venture capital investments, concentration of financing in later development stages, and concern over the availability of financing in years to come.

1



International trade

Border closures, impact on foreign market development, barriers to international trade, supply difficulties, production delays and rising costs.

2



Decline in sales

Economic uncertainty has resulted in deferred or reduced business investment budgets for new vehicles. The sharp drop in oil prices has had a negative impact on the competitiveness of ESVs.

3



Opportunities to be seized

In the wake of the health crisis, several countries have adopted ambitious green recovery plans that will increase opportunities for industry.

4

GHGs that can be reduced



OPERATORS

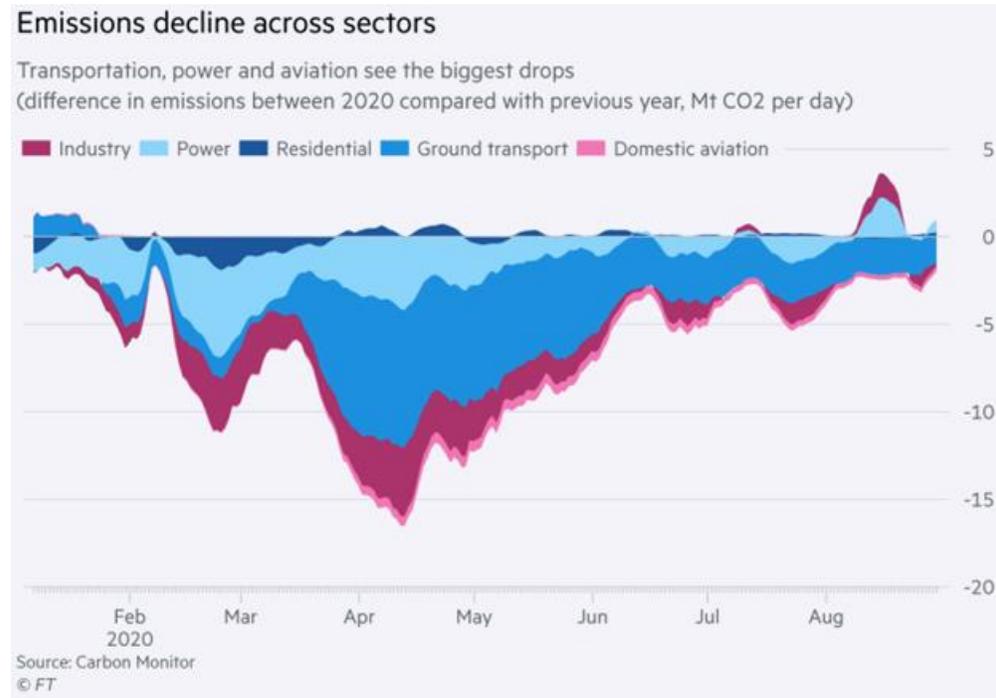
Impacts

One of the positive effects of the crisis has been a dramatic but temporary decline in global GHG emissions. The key challenge will be to avoid returning to previous emissions levels when the global recovery takes hold.

Global GHG emissions fell 8.8% in the first six months due to lockdowns and reduced economic activity. Half of this unprecedented drop is attributed to the decrease in ground transportation.

However, the rapid decline in the movement of individuals was accompanied by a redistribution of modes of transportation. Thus by July 2020, public transit use had decreased by 50% on buses, 70% on subways, and 90% on commuter trains, according to data from the Autorité régionale de transport métropolitain. At the same time, new car sales in Canada increased steadily between May and July.

The modal share of public transit therefore appears to have decreased in favour of personal vehicles and reduced commuting due to telework. The strong pressure these changes are putting on the finances of public transit corporations and the expected increases in GHG emissions are all consequences of COVID-19 that may undermine various long-term objectives of public policymakers and society.



Sources: Nature Communications, "Near-real-time monitoring of global CO2 emissions reveals the effects of the COVID-19 pandemic," 2020; Financial Times, "Global emissions fell 8.8% in first half of 2020, study shows," 2020; ARTM, "L'ARTM fait le point sur les conséquences financières de la pandémie," 2020; Statistics Canada, "New motor vehicle sales," 2020.

3

SECTOR ASSISTANCE MEASURES

Assistance measures for all sectors

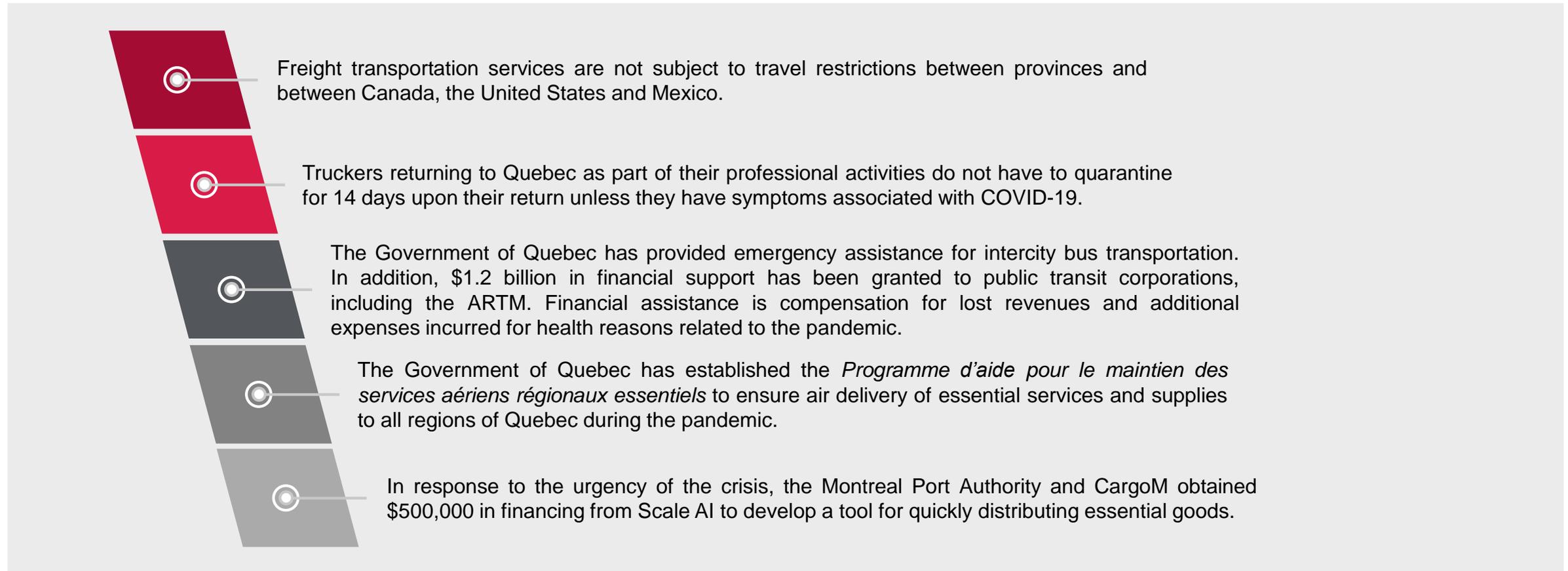
The governments of Quebec and Canada took immediate and important steps to support the various sectors of the economy affected by the pandemic. From the beginning, governments have put all their departments and agencies to work to address the challenges posed by COVID-19 and protect the health of all Canadians.

Canada Emergency Business Account (CEBA)	<p>Under the Canada Emergency Business Account (CEBA), banks and Desjardins have granted SMEs and NPOs interest-free loans of \$40,000, 25% of which will be written off if the loan is repaid by the end of 2022.</p> <ul style="list-style-type: none"> • 70% of Canadian SMEs have taken advantage of it, including 155,000 in Quebec. These loans total \$30 billion, including \$6.2 billion in Quebec. • Addition of a further \$20,000 loan in October, half of which can be written off for businesses still affected.
Concerted temporary action program for businesses (PACTE)	<p>Banks and Desjardins have provided loans of at least \$50,000 that are 80% guaranteed by Investissement Québec under the concerted temporary action program for businesses (PACTE) to absorb COVID-19-related expenditures. These loans total \$1 billion, out of a \$2.5 billion envelope.</p>
Business Credit Availability Program (BCAP)	<p>Two other federal programs that can be accessed through banks have seen very little demand due to design problems and, possibly, the reluctance of businesses to take on more debt. The loans are made by financial institutions, but 80% guaranteed by the government. The Throne Speech promised improvements.</p> <ul style="list-style-type: none"> • The EDC Business Credit Availability Program (BCAP) provides up to \$6.25 million in operating credit and term loans to both exporting and non-exporting SMEs. The BDC Co-Lending Program provides loans of \$1 million to \$12.5 million to finance operational cash flows.
Canada Emergency Wage Subsidy (CEWS)	<p>The other highly popular program is the Canada Emergency Wage Subsidy (CEWS), which has been extended until the summer of 2021, but with a less generous subsidy, decreasing from 85% to 65%. This program is administered by the Canada Revenue Agency, without the assistance of financial institutions.</p>

Source: Université de Sherbrooke, Chaire en fiscalité et en finances publiques.

Specific measures for operators

Transport operations (rail, marine, air, road and passenger) and logistics were included among the so-called essential activities of the governments of Quebec and Canada. The Quebec government directive is open-ended in terms of the types of goods or modes of transportation it covers.



Source: Government of Quebec, "Transport and Logistics and COVID-19"; CargoM.

Measures proposed abroad

The major economies quickly implemented a number of largely regulatory measures to facilitate the movement of goods. Despite inevitable disparities across jurisdictions, responses to the economic measures related to COVID-19 remain fairly comparable and consistent with IMF recommendations.



In the United States, the U.S. Department of Transportation issued a statement exempting truckers carrying essential goods from the requirement to comply with regulated driving hours.



The European Commission has recognized the essential nature of freight transport and logistics since the start of the pandemic.

- In aviation, temporary rules for the provision of ground handling services allow contracts to be extended in the event of bankruptcy to avoid complex calls for tender. There have also been temporary changes to the licensing rules for air carriers.
- For ports, member states and port authorities were allowed to cancel, suspend, reduce or defer the payment of fees owed by port users.
- For trains, a three-month extension of the deadline for some member states to transpose EU rail safety and interoperability legislation.
- For road transport, requests for temporary exemptions granted to several member states for existing driving time and rest period rules. Green lanes established at internal and external borders to give priority to the transportation of goods. Establishment of a framework to temporarily extend the validity of a number of freight, vehicle and personnel certificates and control documents.
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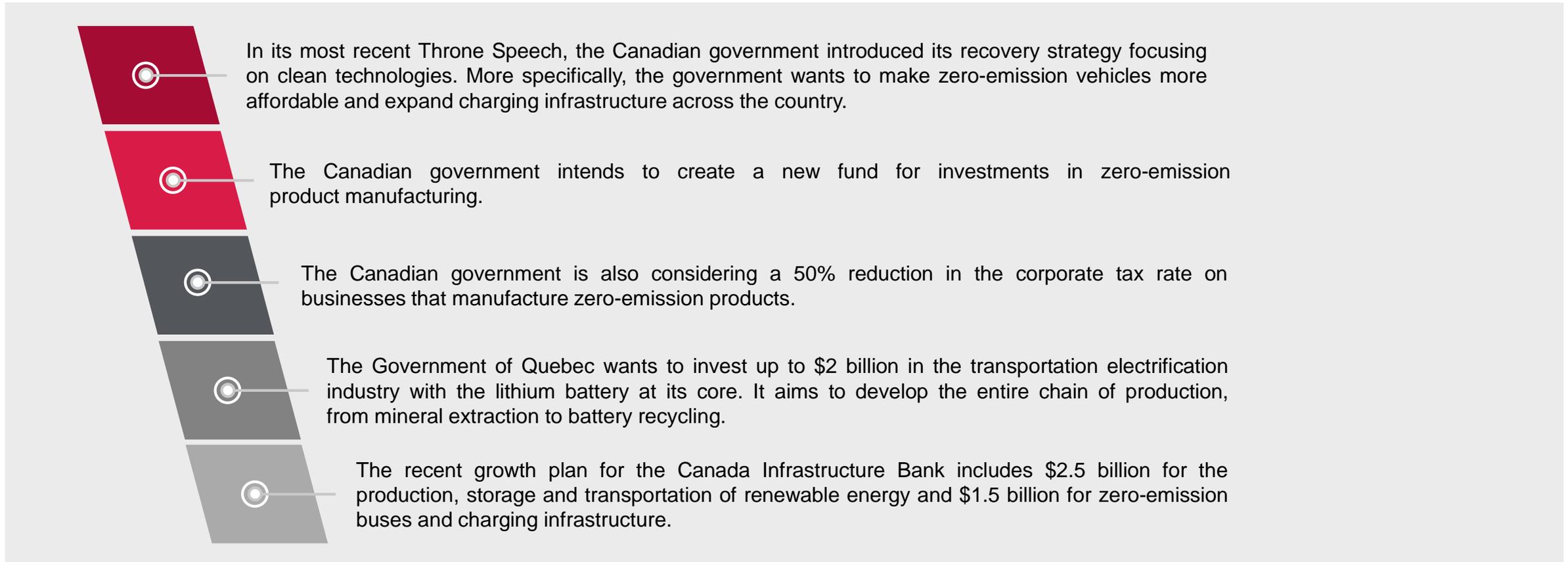
In China, national authorities have kept transportation operations with a number of measures, including:

- Elimination of all highway tolls
- Implementation of a no-stop, no-control, no-fee policy for vehicles carrying emergency supplies and critical personnel
- Financial support for companies affected by the epidemic, particularly small and medium-sized enterprises and those transporting essential goods and basic necessities
- Extension of the validity period for inspecting commercial vehicles and employee qualification certificates
- Insurance companies asked to extend the coverage period and allow deferral of premium payments

Source: European Commission, https://ec.europa.eu/transport/media/news/2020-04-29-coronavirus-package-measures-support-transport-sector_en

Specific measures for industrial players

The Governments of Quebec and Canada have announced their intention to accelerate the energy transition in the transportation sector. Several of the measures are still in the works, however, and expected to be announced in more concrete terms in the coming months.



Source: Government of Canada, 2020; Government of Quebec, 2019; Canada Infrastructure Bank, 2020.

4

BUSINESS OPPORTUNITIES

A systemic vision and approach

This vision must be supported by an action plan that includes specific commitments and structured and budgeted initiatives.

A framework defining the roles of each level of government (municipal, provincial and federal) is needed to ensure that issues are addressed and actions are consistent.



- The sector's transformation needs must also no longer be considered in terms of transportation modes, but through a systemic approach that takes into account all multimodal solutions and the new technologies available.
- A coherent and engaging vision must be built on strong premises:
 - A clear political will, indispensable for developing a concrete vision for Greater Montréal
 - Adequate governance, necessary for accountability and measuring results
 - Optimal coordination, a necessary shift to a new paradigm in freight transportation
 - Urban mobility, in harmony with the distribution of goods, the environment and citizen well-being
- Key levers available to achieve this vision:
 - Pooling of operations that can take the form of a dedicated area for the sector
 - Digital transition as a vector for logistical performance to optimize operations through data analysis and traceability and the establishment of an efficient coordination process between actors
 - Promotion of electric and smart trucks and active transportation like cycling to reduce the carbon footprint
 - Establishment of conditions and implementation of actions enabling the electric and smart sector to play a leading role in the Greater Montréal economy

Electrification of transportation

The industry has strong assets. This is a unique opportunity to strengthen Quebec's role and leadership in the electrification of transportation.



Quebec can stand out along the entire value chain:

- Batteries
- Electric vehicles
(conversion and deployment)
- Smart vehicles
- Charging infrastructure
- Mobility services

- Quebec has several competitive advantages in making a transition to the electrification of road transport, including its immense hydroelectric potential, scientific and technical expertise, and deposits of strategic minerals such as lithium and graphite. From research to manufacturing, Quebec's electric and smart transportation sector is dynamic and growing.
- The purchase price of electric trucks and buses is higher than their fuel combustion equivalents, but their total cost of ownership—including use and maintenance—is lower, providing savings over their life cycle.
- In addition to reducing air pollution, electric trucks and buses produce no noise pollution. They contribute to a cleaner and quieter urban environment.
- From an economic viewpoint, reducing Quebec's dependence on fossil fuel imports has a favourable impact on the trade balance.
- In addition to the undeniable economic and environmental gains, a clear electrification strategy would encourage the emergence of innovative projects with sustainable foundations for Greater Montréal.
- The sector's presence along the entire value chain strengthens its position and attracts foreign companies in the transportation sectors of tomorrow.
- Quebec seems to have lost the battle over the development of electric cars, but the transition to electrically powered buses and light, medium and heavy-duty trucks in commercial and institutional fleets is a promising strategy, while battery manufacturing and the conversion, deployment and manufacture of some types of vehicles can be carried out in Quebec.
- As part of its electrification strategy, Quebec must stimulate its exports in this area.

Land use planning

Access to the Port of Montreal's infrastructure is an issue. Land availability is also important.

There is a consensus among stakeholders on the development of an industrial port zone.



- The Quebec Maritime Strategy has demonstrated the importance of Montréal's industrial port zone, its potential and its future development needs.
- Revitalizing Montréal's east end by developing transportation and logistics in the Pointe-de-l'Île industrial sector is a unique way to strengthen Montréal's competitiveness.
- This development potential is possible due to a large reserve of vacant land and a willingness by stakeholders to develop an industrial port area. The decontamination of high-potential lands is underway, which will significantly increase the potential and appeal of the territory.
- Proximity to the Port of Montreal, accessible industrial land and the intermodality offered by the marine, rail and road transportation modes are conditions sought by potential investors.
- Various roadwork projects at different stages of development are underway on the road network serving the port facilities. These include the Notre-Dame-Souligny/A-25 link, the A-25/Rue de Boucherville axis, and the Rodolphe-Forget/Bourget-Joseph-Versailles axis. These projects aim to increase container processing capacity.

Source: CargoM, "Développement de la filière transport de marchandises et logistique, secteur SIPI," September 2019

Rethinking the last mile

In the delivery process, the last mile is particularly important. Solutions must be put in place to improve its performance.

- The pandemic is an unprecedented opportunity to rethink urban mobility, reinvent ways to coexist and electrify freight transportation.
- The explosive growth of e-commerce highlights the processing limitations of our current logistics capabilities. The resulting increase in home deliveries creates an issue of social acceptability. Delivery trucks, which are often poorly adapted to the urban context, clog residential streets.
- In the transportation and logistics sector, the last mile is a priority issue for urban logistics.



- The last mile refers to the final step in the process of delivering goods to their destination. Its success depends in part on the pooling of goods before their delivery to consumers. The governance of pooling projects is a major challenge to ensuring its effective functioning.
- Several mobility options, including cargo bikes and low-speed vehicles, must be brought forward to improve the flow and speed of goods transportation and the quality of neighbourhood life. The regulatory and normative framework for these options also needs updating to reflect this new reality.

Sources: CCMM and Propulsion Québec, "Faire des marchés publics un outil stratégique de développement économique et de renforcement de l'innovation au Québec," 2020; European Environment Agency report, "The first and last mile – the key to sustainable urban transport," 2020.

An industrial sector to be developed

Public authorities must implement the conditions and actions that will enable the ESV industry to play a leading role in the Greater Montréal and Quebec economy.



- Quebec must quickly focus on sustainable mobility in order to reduce its GHG emissions and transition to a lower-carbon world.
- In addition to providing environmental benefits, this plan must be a unique opportunity to make Quebec's land transportation equipment industry a reference for its innovative solutions in sustainable mobility and smart transportation. Such a sector can contribute greatly to the economic prosperity of the city and Quebec in general.
- Quebec thus has the potential to become a true hub of sustainable mobility and smart transportation. However, measures to encourage the growth of companies active in the industry must be put in place quickly. These measures could include:
 - Strengthening research and innovation to support the design and marketing of new products, processes and applications.
 - Making Quebec a leader in demonstration by creating an environment conducive to the demonstration of our products. The SEPI transportation and logistics hub would be an enabling environment for demonstrating and upgrading innovative technologies.
 - Implementing incentives and potentially burdensome measures to convert commercial fleets to electric propulsion as quickly as possible.
 - Supporting our businesses' commercial efforts on foreign markets, particularly in the rest of the country and on the American market.

Advanced logistics activities

Multimodal infrastructure located in eastern Montréal with direct access to the Port of Montreal infrastructure would encourage advanced logistics activities.



- After seeing a wave of consolidation in recent years to increase market share, Maersk and Hapag-Lloyd are now seeking to increase their profitability. Note that Maersk is investing heavily in integration with more lucrative links in the value chain, such as trucks, warehouses and logistics activities. If Montréal fails to maintain the pace of investment in logistics activities, it risks being downgraded over time.
- The proximity of a major port, an accessible labour pool, available industrial land, and the intermodality of the various modes of transportation are location factors for intermediary businesses at the heart of logistics activities.
- Fortunately, the Pointe-de-l'Île area of Montréal, with its proximity to the Port of Montreal's infrastructure, could usefully meet the above-mentioned location requirements. This proximity would save time during transshipments and thus reduce costs.
- Logistics activities of interest to Montréal could include:
 - Packaging intermediaries: These intermediaries between major players in the logistics chain have the capacity to transform products that serve as inputs and then redirect them to their clients in the form of outputs. This processing consists of actions taken on goods to improve them.
 - Distribution centres: The major distribution centres carry out value-added logistics activities to the extent that they act directly on goods in order to redirect them. These centres also potentially allow for the pooling of electrified distribution activities (such as handling and delivery) for last mile service.
 - Refrigerated warehouses: The construction of refrigerated warehouses could enhance the Quebec agri-food sector's export capacity, in particular to Europe.

Exploiting and valuing big data

Planning and managing the operations of a multimodal hub like Montréal is highly complex, and artificial intelligence (AI) can improve performance. With its AI expertise, Montréal can help this sector reduce costs and better compete with rival destinations.

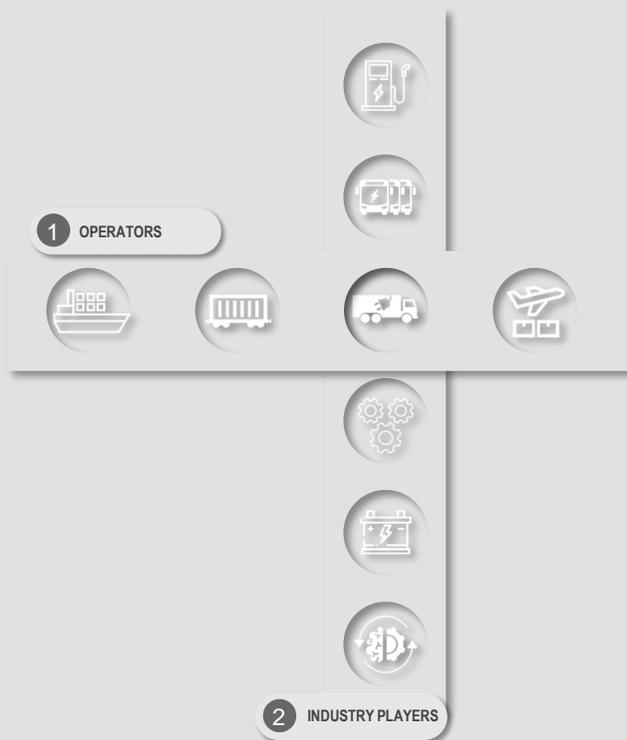


- The success of Montréal's transportation and logistics sector depends on world-class marine, road, rail and airport infrastructure. However, from an operational perspective, in a competitive context with other multimodal hubs, having a large number of players interacting with each other is not necessarily optimal.
- Over the past few years, there has been a consolidation of marine transport players, and at the same time, the largest of them are seeking to more fully integrate their operations. Integration and consolidation optimize their operations to give them a significant competitive advantage.
- In Montréal, the pricing, planning and management of cargo operations are managed directly and individually by the carriers and operators, who rely on big data. The players exchange a lot of information with each other, but for the most part it's limited and done on a transactional basis.
- This context would be particularly favourable to the use of artificial intelligence to optimize these activities. The consolidation, openness and sharing of public and private mobility and logistics data, even in a competitive context, would increase the Montréal ecosystem's efficiency.

Attracting, training and retaining workers

Automation and the digital shift are at the heart of the plan to transform the sector. Its success will depend on its ability to attract and retain a highly skilled workforce.

- The main issues facing transportation and logistics businesses have traditionally been a lack of experienced, skilled candidates, hiring competition with other employers, and an aging workforce. Note, however, that while still current, these issues are now being better controlled by most players.
- Operators' concerns currently relate to their ability to attract and retain a growing category of talents who are younger, more skilled and, most importantly, more sought after. Automation of transportation and logistics activities, financial and operational management tools and, more recently, big data management have increased the need for computing, engineering and financial analysis.
- For their part, in light of anticipated growth in their business volume, ESV chain manufacturers will also face an increased demand for qualified personnel.
- Both operators and industrial players are thus competing with other sectors of the Montréal economy that sometimes have a more inviting brand image and attractive working conditions.
- With the advent of new technologies, both the transportation and logistics sector and the vehicle manufacturing sector are changing, and the desired employee profile will change. Tomorrow's workers will inevitably be different from their predecessors.
- To succeed in the transition, operators and industry must find a way to change perceptions and develop tools to attract, train and retain employees.



5

COURSES OF ACTION TO RELAUNCH THE SECTOR

Courses of action in response to the issues

The identified actions are intended as a direct response to the issues raised in the previous pages and an opportunity to seize the identified business opportunities.

The following courses of action are presented by the Chamber, Quebec’s electric and smart transportation cluster, Propulsion Québec, and the metropolitan transportation and logistics cluster, CargoM. They target both industry and governments.

ISSUES	BUSINESS OPPORTUNITIES	COURSES OF ACTION
 <p>PERCEPTION AND ENVIRONMENT</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Land use planning <input type="checkbox"/> Rethinking the last mile <input type="checkbox"/> Electrification of transportation 	<ul style="list-style-type: none"> <input type="checkbox"/> Develop the transportation and logistics hub in eastern Montréal <input type="checkbox"/> Pool and adopt innovative approaches to urban mobility <input type="checkbox"/> Electrify vehicle fleets
 <p>GOVERNANCE AND INTEREST</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Systemic vision and approach <input type="checkbox"/> Public procurement 	<ul style="list-style-type: none"> <input type="checkbox"/> Define a clear vision to accelerate sector development <input type="checkbox"/> Make government procurement a strategic tool for economic development and strengthening transportation innovation
 <p>LABOUR</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Attraction and training 	<ul style="list-style-type: none"> <input type="checkbox"/> Adapt training to new sector realities to ensure an adequate labour pool
 <p>BUSINESS FINANCING</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Systemic vision and approach 	<ul style="list-style-type: none"> <input type="checkbox"/> Focus on structuring and mobilizing projects in order to effectively influence demand and outcomes

Courses of action in response to the issues

ISSUES	BUSINESS OPPORTUNITIES	COURSES OF ACTION
 PORT ACCESSIBILITY	<ul style="list-style-type: none">❑ Land use planning	<ul style="list-style-type: none">❑ Support the expansion and modernization of strategic port and airport assets
 INTERNATIONAL TRADE	<ul style="list-style-type: none">❑ Advanced logistics activities	<ul style="list-style-type: none">❑ Promote advanced logistics activities in the transportation and logistics hub.
 DEMONSTRATION AND MARKETING	<ul style="list-style-type: none">❑ Big data management❑ Industry sector to be developed	<ul style="list-style-type: none">❑ Ensure integrated and shared data management among transportation and logistics stakeholders❑ Make the eastern Montréal area an experimental and demonstration laboratory
 MARKETS OUTSIDE QUÉBEC	<ul style="list-style-type: none">❑ Electrification of transportation❑ Industry sector to be developed	<ul style="list-style-type: none">❑ Support the development of the electric and smart transportation industry❑ Develop the lithium battery sector, from the mine to the recycling facility

Courses of action



TARGET: INDUSTRY

No. 1: Foster advanced logistics activities in the transportation and logistics hub

- A. Foster the development of advanced logistics activities: manufacturing, packaging intermediaries, refrigerated warehouses and distribution centres.
- B. Accelerate the integration of artificial intelligence and connectivity in the transportation sector by leveraging integrated mobility.

No. 2: Make the eastern Montréal area a laboratory for experimentation and demonstration by bringing together strategic players active in innovation, experimentation and the marketing of electric and smart transportation solutions

Courses of action



TARGET: GOVERNMENTS AND INDUSTRY

No. 3: Define a clear vision to accelerate development of the sector and focus on structuring and mobilizing projects to influence demand and outcomes

A. Align the various development projects to adopt a holistic approach that calls for the breakdown of barriers between jurisdictions, transversality and partnerships.

No. 4: Support the expansion and modernization of strategic port and airport assets to maintain the city's international competitiveness

A. Marine infrastructure: Complete the Port of Montreal expansion project in Contrecœur.

B. Air infrastructure: Support priority projects at Montréal-Trudeau Airport, including the construction of the REM station, creation of a public transit link between the airport and the Dorval VIA Rail station, and airport infrastructure rehabilitation projects.

No. 5: Develop the transportation and logistics hub in eastern Montréal

A. Pool the operations of players within a dedicated area for the transportation and logistics sector. With its proximity to the port infrastructure and its multimodal capabilities, eastern Montréal would lend itself well to such an initiative

B. Accelerate projects for road infrastructure serving port facilities to facilitate access, including completing the road loop at the port with the development of Souigny and L'Assomption.

Courses of action



TARGET: GOVERNMENTS AND INDUSTRY

No. 6: Ensure integrated and shared data management among transportation and logistics stakeholders

- A. Create an independent organization to strategically manage big data from industry players in a transparent and secure manner.
- B. Make the digital shift a driver of logistical performance by optimizing operations through data analysis and traceability and the establishment of an efficient coordination process between stakeholders.

No. 7: Pool and adopt innovative approaches to urban mobility

- A. Develop an urban mobility plan to review the logistics and transportation of goods to homes using sustainable development solutions.
- B. Adapt the normative and regulatory framework to the new reality of electric and smart urban deliveries.

No. 8: Adapt training to new sector realities to ensure an adequate labour pool

- A. Ensure collaboration between industry players to raise their profile among young people.
- B. Support ethical data use in the implementation of artificial intelligence and the development of products and services.
- C. Strengthen the strategy to attract international students.
- D. Develop ongoing training to ensure the existing workforce adapts to new technologies.

Courses of action



TARGET: GOVERNMENTS

No. 9: Support the development of the electric and smart transportation industry

- A. Implement sector-specific tax measures to accelerate research and innovation activities that support the design and marketing of new products, processes and applications.
- B. Implement an electric and smart vehicle fund with Quebec financial partners to grow businesses in the sector.
- C. Explore the possibility of offering additional financial benefits to local and international businesses that choose to locate their R&D, manufacturing and commercial activities in Greater Montréal.
- D. Develop a support program for businesses in the industrial sector by providing financial support and strategic advice for their business activities on foreign markets. Ensure that EDC can actively support sales efforts for Quebec products in foreign markets, in the Americas in particular.
- E. Support the development of structuring public transit projects and the deployment of electric vehicle charging infrastructure.

No. 10: Make public procurement a strategic tool to develop the economy and strengthen transportation innovation

- A. Amend the regulatory framework governing public procurement to increase the promotion of innovation and sustainable development, including through the electrification of transportation.
- B. Review the modes of awarding contracts to promote value rather than price.
- C. Financially support public procurement contracts to have them serve as test beds and technology showcases for innovation.

Courses of action



TARGET: GOVERNMENT OF QUEBEC

No. 11: Electrify vehicle fleets

- A. Implement a financial program to encourage municipalities to transition their bus, vehicle and truck fleets to electric and smart mobility solutions.
- B. Significantly enhance the Écocamionnage program to encourage businesses to make and even complete the transition of their vehicle and truck fleets.
- C. For both municipalities and the private sector, establish conversion targets and develop incentives to accelerate the transition.
- D. Consider additional public funding for public transit agencies to cover the costs of acquiring Quebec electrical technologies.
- E. Adopt a regulatory framework favourable to the electrification of transport, including by extending application of the *Act to increase the number of zero-emission motor vehicles in Québec* to medium- and heavy-duty vehicles.

No. 12: Develop the lithium battery sector, from the mine to the recycling facility

- A. Leverage partnerships and the attraction of foreign investment to integrate Quebec into global electric vehicle manufacturing value chains.
- B. Enhance Quebec's capabilities through all stages of the value chain, from extracting and refining critical materials to producing battery components and cells, to recycling them at the end of their useful life.
- C. Promote development of the sector through public equity investments and other incentives.

APPENDICES

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2. List of organizations consulted

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Logistec	Marie-Chantal Savoy	Vice-President, Strategy and Communications
Groupe Robert	Jean-Robert Lessard	Vice-President, Corporate Affairs
Ray-Mont Logistics	Jonathan Hébert	Vice-President, Finance & Corporate Development
Port of Montreal	Julien Baudry	Director of Public Affairs
Bus.com	Maxie Lafleur	Chief Executive Officer
Effenco	Janine Lam	Public Affairs Advisor
CargoM	Mathieu Charbonneau	Executive Director
Propulsion Québec	Sarah Houde	Chief Executive Officer

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