



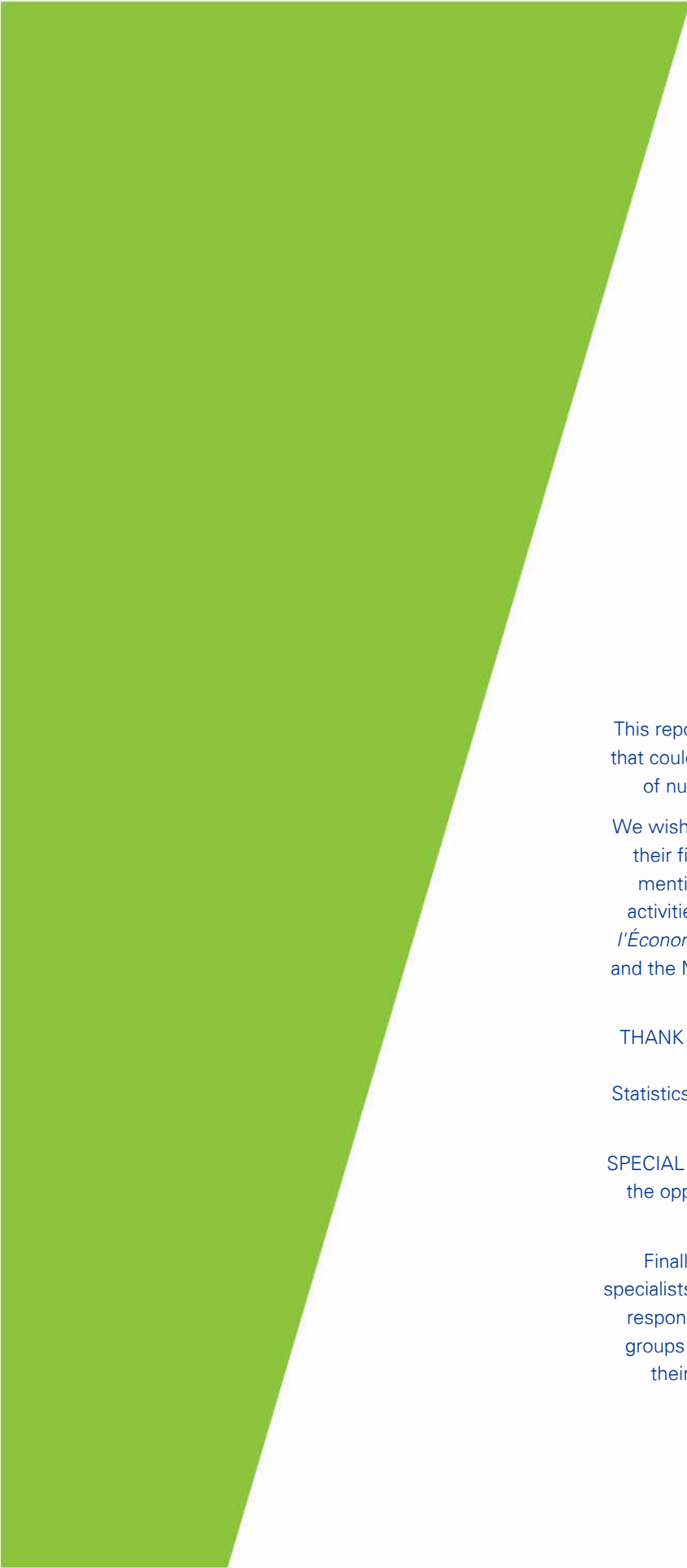
LOGISTICS AND TRANSPORTATION SECTOR

Profile of the Logistics and Transportation Sector in Greater Montreal



CARGOM





This report is the result the KPMG consulting team's efforts that could not have seen the light of day without the support of numerous individuals and other outside resources.

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Glossary

3PL	Third party logistics provider that has the responsibility to perform a more or less significant part in the clients' logistics. It ensures an outsourcing service with particular regard to warehouse management and transportation and all associated and related services.
4PL	Logistics integrator responsible for performing all logistics functions of its clients. It outsources in turn part of the logistics functions he can not achieve. Nevertheless he remains responsible for coordinating all logistics activities outsourced to subcontractors.
ACQ	Quebec Trucking Association (Association du camionnage du Québec)
AEC	Attestation of College Studies
AEP	Attestation of Vocational Studies
CPA	Canada Port Authorities
CLSC	Canadian Logistics Skills Committee
MMC	Montreal Metropolitan Community
CN	Canadian National
CP	Canadian Pacific
DEC	Diploma of College Studies
DEP	Diploma of Vocational Studies
FTE	Full-time Equivalent Employee
TEU	Twenty-Foot Equivalent Unit
GMA	Greater Montreal Area
MM\$	Million dollars
GDP	Gross Domestic Product
CMA	Census Metropolitan Area
NAICS	North American Industry Classification System

Executive Summary

This study conducted on behalf of CargoM aims to provide a complete profile of the logistics and transportation industry in the Greater Montreal Area (GMA). Extensive research was first undertaken to collect information from previous studies. However, findings mostly rely on a survey conducted with major GMA companies that provide or use logistics and transportation services. To ensure a better understanding of the issues and identify improvement opportunities, several focus groups were held and a series of interviews were conducted with subject matter experts and important organizations such as Aéroports de Montréal, Port of Montreal, the Quebec Trucking Association, Transports Québec and Transport Canada.

Quebec's logistics and transportation industry represents approximately 20% of Canada's in terms of jobs, establishments and volume handled by all transport modes: road, rail, air and marine. Research also reveals that 40% of Quebec's volume transit through the GMA, which represents approximately 8% of Canada.

The surveys helped gain more insight into the business perspective of three major areas. Following are some of the highlights:

- **Workforce and training:**

- The ageing of workforce is a real issue facing organizations;
- Most companies expect an increasing demand for labor over the next three years, despite the relative stability of recent years;

- **Industry revenues and expenditures:**

- 54% of company expenditures in transportation and logistics are incurred on outsourced services;
- In turn, providers of these services also subcontract 29% of their logistics expenses;

- **Competitiveness factors of the GMA and its level of performance:**

- According to the companies surveyed, the three most important competitiveness factors are as follows:
 1. Labor costs, which are at an average level (respondents gave it a score of 2.9/5);
 2. Quality of GMA road infrastructure received the lowest rating (score: 2/5);
 3. Regulation, considered being at a moderate-low level for the GMA (score: 2.5/5).

The factor with the best performance review is the **quality of port infrastructure**. This evaluation is also reinforced by the market and industry experts, based on operations fluidity and productivity.

On the other hand, carriers, logistics service providers and local companies share their concerns regarding the worst rated factor: **quality of road infrastructure**. Ongoing work on roads and bridges has a significant effect on the costs and quality of logistics services and may impact the competitiveness of GMA's industries.

Despite relatively low cargo volumes, **air transport** plays a strategic role to support companies in developing new products and trading internationally. However, having two separate airports for freight and passenger transportation makes Montreal less attractive to leading airlines. Another disadvantage for Montreal is the low frequency of flights in and out of other major transportation hubs in the world.

The arrival of **CSX**, a new rail line in the Montreal area, is one of the upcoming issues that could have a significant impact on the industry:

- Competition with two major Canadian lines (CN and CP);
- Impact on local road transport;
- More direct rail link with the Southeast American market.

Regarding **logistics services**, focus groups have indicated that the real estate context in Montreal makes it difficult to find land sites or buildings with the required size and quality. Therefore, companies that wish to set up or expand their activities are increasingly turning to other competing cities.

To maintain and reinforce its position as a logistics hub in North America, Montreal faces **a fierce competition with other cities like Norfolk and Savannah** in the United States, where real estate and labor costs are similar. The opening of the Panama Canal in 2014 could exacerbate this situation. However, the **Canada-European Union trade agreement** could create opportunities for volume growth in a market where Montreal could play a key role regarding both import and export flows.

1

Presentation of the study

1 Presentation of the Study

1.1 Purpose of the Study

CargoM is the new logistics and transportation cluster created in 2012 for metropolitan Montreal. Its mission is to bring together all the players in logistics and transportation of goods in Greater Montreal whose activities support the Montreal hub with common goals and concerted action, with a view to promoting cohesion, competitiveness, growth and expansion.

The CargoM plan of action included six workgroups to be established over a period of two years. Three of these were launched in 2013: L&T Development Opportunities (Workgroup I), Communication and Outreach (Workgroup II) and Fluidity and Access for Trucking (Workgroup III). This study falls within the activities of the Communication and Outreach workgroup, but the results will also be used as supporting material for projects under Workgroups I and III. The other three workgroups – regulatory, workforce and innovation – will be launched in 2014.

Although many studies have been done on this sector, there is a severe lack of aggregate data for the Greater Montreal Area. Indeed, most current statistics on the transportation of goods consist of individual data segmented into road, marine, rail and air transportation.

The primary purpose of this study is to establish a profile of the logistics and transportation industry in the Greater Montreal Area and to develop a tool for measuring the performance of GMA logistics and transportation.

Therefore, the study has two main components as well as a case study:

- Create a profile of the logistics and transportation industry in Greater Montreal;
- Analyze supply chain performance in the Greater Montreal Area;
- Study the case of a manufactured product in the agri-food sector.

1.2 Approach

Each section in this report has its own specific methodology. This section, however, outlines the overall methodology for the entire report.

1.2.1 Scope

For the purposes of this study, the transportation industry is defined as comprising the transportation of goods by air, rail, sea or road. The study also includes companies that provide transportation support services, such as forwarding agents and customs brokers, warehousing services and third-party logistics providers, commonly called 3PL companies, as well as integrated logistics operations or 4PL. Readers are invited to consult the glossary for 3PL and 4PL definitions.

The following sectors of activity are not included in the study:

- Moving services;
- Passenger transportation;
- Pipeline transportation;
- Postal services;
- Courier and parcel delivery services.

1.2.2 Geographic Coverage

In this study, the definition of the Greater Montreal Area or “GMA” is the same as the one used by the Montreal Metropolitan Community or “MMC”. It defines the GMA as a region comprising 82 municipalities grouped together in five geographic entities: Urban Agglomeration of Montreal, Urban Agglomeration of Longueuil, City of Laval, North Shore and South Shore. Readers are invited to consult Appendix A for a list of the 82 municipalities and a map illustrating the GMA.

The GMA is the driving force behind the Quebec economy. It accounts for 49% of the Quebec population and jobs. It is also the source of 49% of Quebec’s gross domestic product (GDP) along with \$32 billion in Quebec government revenue.

1.2.3 Chosen Approach

The first part of this study covers the **profile of the logistics and transportation industry** in the Greater Montreal Area. In order to develop this profile, KPMG proceeded with a brief review of literature as well as a survey. The survey consisted of three parts:

- An online questionnaire was completed by companies offering transportation and logistics services;
- A questionnaire sent by email was completed by companies that use outsourced services offered by transportation and logistics service providers;
- Follow-up interviews were carried out to validate certain data provided by the companies and deal with some questions of a more qualitative nature.

In addition, KPMG carried out an economic impact study for each field of activity, i.e. for air, rail, marine and road transportation, as well as warehousing. To do this, models developed by Statistics Canada and the *Institut de la Statistique du Québec* were used.

The second part of the study is a **performance analysis of the GMA supply chain**. KPMG began with a review of literature. Then focus groups were set up and interviews were held with key industry stakeholders. KPMG also carried out a performance analysis of GMA logistics for four industry supply chains:

- retail trade;
- agri-food;
- aerospace;
- pharmaceuticals.

To do so, KPMG carried out interviews with key stakeholders in each industry. We also performed an international benchmarking study comparing GMA performance with comparable cities identified by CargoM. A brief review of literature, interviews with international experts and a focus group were carried out. A dashboard showing performance indicators relating to the transportation and logistics industry was developed upon completion of the research and interviews done by KPMG.

In order to better illustrate Montreal’s positioning relative to industry supply chains, a **case study** was also done based on a sampling of companies in the agri-food sector.

2

Industry profile



2 Industry Profile

2.1 Background

2.1.1 Globalization

The escalation of globalization over the past two decades has brought sweeping changes to traditional economic balances and international trade. The emergence of new economic regions and their growing importance in international trade are certainly the most obvious illustrations of this trend. Moreover, globalization and technology have drastically changed the way things are done. More complex production systems, extended supply chains, shorter delivery times, higher energy costs, increasingly demanding customers in terms of prices, quality and branding, have all brought great pressures to bear on transportation and logistics systems. As a result, these systems have become an increasingly integral element of competitiveness between companies and indirectly between regions where the companies are located.

Competition is indeed becoming more intense between countries and between economic regions. The opportunities that come with globalization are as big as the risks and threats of exclusion it holds. In such an environment, safe and efficient transportation systems that facilitate trade offer key competitive advantages. There are many examples to illustrate this. A new airport in Hong Kong, a modernized port in Shanghai, the ambitions of Doha or Dubai to become new major hubs in the international air travel system, or Rotterdam and Antwerp with their modernized port infrastructures and newly accessible city centres all show how much the question of transportation lies at the centre of political and economic decision-makers' concerns. Transportation infrastructure is a major part of their strategy to attract an ever-increasing share of world trade to their zone of influence, increasing their competitiveness and thus ensuring the prosperity of their region.

2.1.2 Canada and Quebec

Canada and Quebec are no exceptions to the rule and their present and future prosperity depends largely on their ability to provide national and international economic players with a quality transportation system. Canada, with 45% of its GDP dependant on exports, already has other countries competing with it on its main export market and is not in a position to be complacent about this major concern. In 2010, China already replaced Canada, despite its geographic location, as the top supplier of US imports and it could become the top economic partner of the US for all economic exchanges within the next five years. In order to maintain a privileged position with its American neighbour and remain a competitive economy, Canada's strategy must therefore give priority to optimizing its system of transportation with the United States. In addition, Canada and Quebec must together move beyond the US market and reach out to the rest of the world. New trade ties are being developed and they too depend on a first-rate system of transportation and logistics.

With this in mind, the Ontario-Quebec Continental Gateway and Trade Corridor has been developed. Since 2007, this joint initiative of the transportation ministries of three governments (Federal, Ontario and Quebec) has looked to the Continental Gateway as "a key component of Canada's multimodal transportation system." Although the initiative has been put on hold since 2009, the driving principle remains viable. The central location of the Continental Gateway facilitates international trade and domestic commerce in support of foreign trade with the United States and other key trading partners. The Continental Gateway includes sea and lake ports, airports, intermodal facilities and strategic border crossings as well as essential road, rail and marine infrastructure that ensures this transportation system's connection to and seamless integration with Canada's other gateways: Asia-Pacific and Atlantic.

2.1.3 Montreal

Montreal and its port constitute a major hub for intermodal transportation in this economic system. It offers direct access to 135 million North American consumers within a radius of 1,000 kilometers, or less than a day of transportation. Of approximately 128 million metric tons that go through the Port of Montreal, more than 40% are containerized. The various destinations of these goods offer an excellent illustration of transportation intermodality, with almost a third going through routes in Quebec, one quarter heading for Ontario by road or by rail, and another third taking railways to the American Midwest and Canadian West.

Moreover, beyond transportation per se, the entire logistics management system constitutes the key to the growth of the value added that occurs on this territory. Transportation is of course an essential component, but the competitiveness of the supply chain also depends on the coordination of production and distribution operations. This “coherent” transportation may include, for example, specialized distribution centres (including assembly, packaging, just-in-time management, testing, transshipment, etc.), carriers of all types and manufacturers specializing in the conversion of products for later distribution. Customs brokerages may also be additional component used to expedite transactions.

2.2 Canada's Position in the World

Every two years since 2007, the World Bank has been publishing its report entitled *Connecting to Compete: Trade Logistics in the Global Economy*, the latest being the 2012 edition. Canada is in 14th place in this measurement of performance on a global scale.

2012 Logistics Performance Index			
Country	Ranking	Score	% of top score
Singapour	1	4.13	100.0
Hong Kong SAR, China	2	4.12	99.9
Finland	3	4.05	97.6
Germany	4	4.03	97.0
Netherlands	5	4.02	96.7
Denmark	6	4.02	96.6
Belgium	7	3.98	95.3
Japan	8	3.93	93.8
USA	9	3.93	93.7
United Kingdom	10	3.90	92.7
Austria	11	3.89	92.5
France	12	3.85	91.2
Sweden	13	3.85	91.2
Canada	14	3.85	91.2
Luxembourg	15	3.82	90.3
Switzerland	16	3.80	89.7
United Arab Émirates	17	3.78	88.9
Australia	18	3.73	87.2
Taiwan, China	19	3.71	86.6
Spain	20	3.70	86.4

Canada is ranked 3rd in the world (behind Singapore, 1st, and Germany, 2nd) **on the delivery times indicator.**

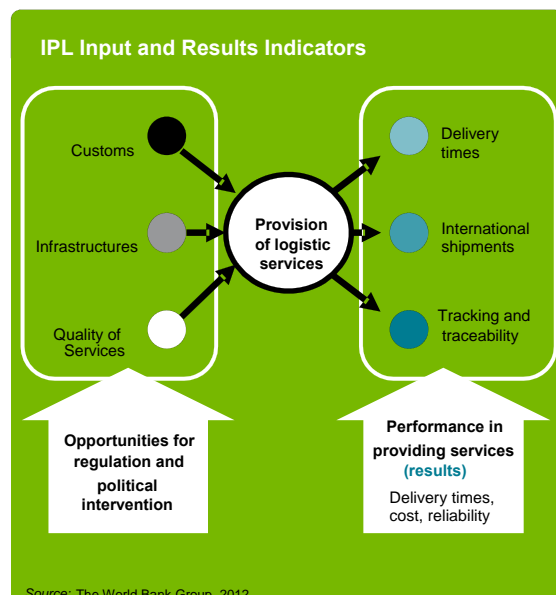
On other indicators, **Canada generally ranges from 12th to 17th among the 155 countries studied.**

Logistics Performance Index

Canada ranks 14th in the world (World Bank)

Six performance indicators:

1. Efficiency of the release process by customs inspections and agencies
2. Quality of trade and transportation infrastructure (ports, railways, roads, information technology)
3. Ease of arranging shipment at competitive prices
4. Competence and quality of logistics services (transportation operators, customs brokerages)
5. Tracking ability and traceability of consignments
6. Frequency of shipment arrivals at destinations within planned delivery deadlines



2.3 The Industry in Canada and Quebec

Highlights

- Quebec accounts for approximately 20% of the transportation and warehousing jobs, establishments and tonnage handled in the country.
- Over 65% of the establishments registered in Quebec are microbusinesses consisting of four or fewer employees; a similar pattern is found throughout the country.
- Road transportation represents 54% of the volume in tonnes in Quebec. This is slightly different from the rest of Canada (60% road transportation), mainly because of a higher marine volume (32% in Quebec vs. 24% for Canada).

The following tables show the number of jobs and establishments connected with the transportation and warehousing industry, including primary activities as well as support activities consisting of services to other transportation establishments (single or multimodal).

2.3.1 Number of Jobs

Industry (NAICS code)	Quebec		Canada
	Nb employed	% of Canada	Nb employed
Air Transportation (481)	12,710	20.1%	63,300
Scheduled Air Transportation (4811)	9,555	18.9%	50,430
Non-Scheduled Air Transportation (4812)	3,155	24.5%	12,870
Rail Transportation (482)	6,635	19.6%	33,775
Water Transportation (483)	1,765	15.0%	11,805
Deep Sea, Coastal and Great Lakes Water Transportation (4831)	1,655	15.9%	10,430
Inland Water Transportation (4832)	110	8.0%	1,375
Truck Transportation (484)	50,915	21.8%	233,095
General Freight Trucking (4841)	34,330	22.3%	154,245
Specialized Freight Trucking (4842)	16,585	21.0%	78,850
Support Activities for Transportation (488)	26,665	23.6%	113,120
Support Activities for Air Transportation (4881)	6,715	20.7%	32,460
Support Activities for Rail Transportation (4882)	1,045	17.9%	5,850
Support Activities for Water Transportation (4883)	4,035	30.7%	13,145
Support Activities for Truck Transportation (4884)	6,195	27.8%	22,265
Freight Transportation Arrangement (4885)	7,515	21.5%	34,920
Other Support Activities for Rail Transportation (4889)	1,160	25.9%	4,480
Warehousing and Storage (493)	6,225	13.9%	44,780
TOTAL Transportation and Warehousing	104,915	21.0%	499,875

Source: Statistics Canada

2.3.2 Number of Establishments

Number of establishments by size of workforce 2011											
Quebec						Canada					
Sector	Micro 4	1- Small 5-99	Medium 100-499	Large 500+	Total	Micro 4	1- Small 5-99	Medium 100-499	Large 500+	Total	
Transportation Services	Air	52	75	7	2	136	313	490	44	11	858
	Rail	2	18	3	3	26	14	43	17	11	85
	Water	26	35	6	0	67	115	155	26	4	300
	Truck	4,954	1,831	51	1	6,837	23,402	7,553	220	19	31,194
Total transportation	5,034	1,959	67	6	7,066	23,844	8,241	307	45	32,437	
Support Activities for Transportation	790	795	35	5	1,625	3,987	3,195	148	22	7,352	
Warehousing and 3PL	152	322	14	1	489	947	1,323	83	13	2,366	
Couriers and Messengers	423	191	22	4	640	1,682	816	103	15	2,616	
Total	6,399	3,267	138	16	9,820	30,460	13,575	641	95	44,771	

Source: Statistics Canada

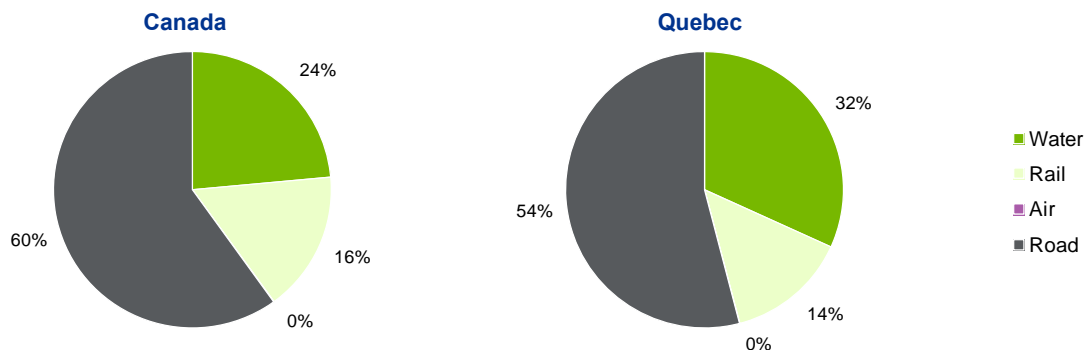
Over 65% of the establishments registered in Quebec are “microbusinesses” consisting of four employees or fewer. This pattern is also found throughout the country. This is due to the fact that many truckers operate independently.

2.3.3 Tonnage Handled per Mode of Transportation

In 2010, over **1,910 million tonnes** were handled in **Canada**, primarily by the road transportation sector, which moved 60% of the volume handled. The marine and rail industries are handled 450 and 313.5 million tonnes respectively, while air transportation accounts for a negligible tonnage handled with just over 1 million tonnes of freight.

In **Quebec**, the distribution of the **375 million tonnes handled** is not significantly different from that of Canada as a whole, although the volume of goods handled by the marine sector is slightly higher, at the expense of road tonnage.

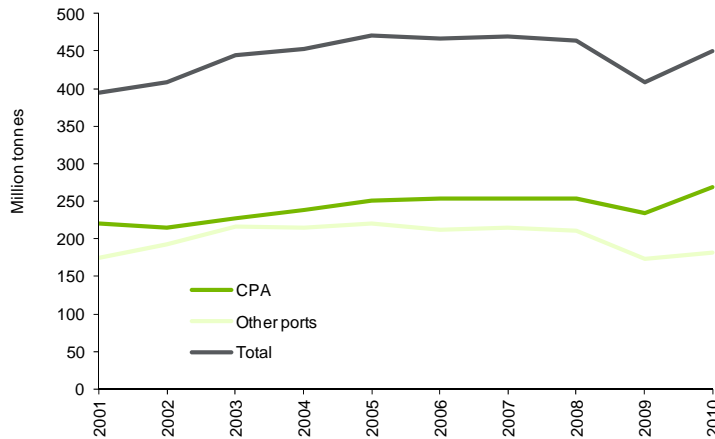
Distribution of Tonnage Handled per Mode of Transportation



2.3.3.1 Marine

Over a period of 10 years, the amount of freight handled in Canada increased by 14%. As shown by the chart below, this growth is greater through the *Canadian Port Authorities* (CPA) with a 22% increase.

Total Tonnage Handled by Canada's port system



Port	2009	2010
1 Port Metro Vancouver	90.4	104.7
2 Saint John	26.4	30.6
3 Montreal/Contrecoeur	23.8	24.8
4 Sept-Îles/Pointe-Noire	20.1	24.6
5 Québec/Lévis	22.3	24.6
6 Prince Rupert	11.3	15
7 Hamilton	8.2	11.4
8 Halifax	10.2	10.2
9 Thunder Bay	7.2	6.8
10 Windsor Ontario	4.7	5.3
11 Trois-Rivières	2.5	2.9
12 Belledune	2.6	2.1
13 Toronto	1.6	1.5
14 St. John's	1.4	1.5
15 Nanaimo	0.8	1.3
16 Port Alberni	1.1	1
17 Chicoutimi (Saguenay Port)	0.3	0.4
Other ports	175.3	181.4
Total tonnes	410	450

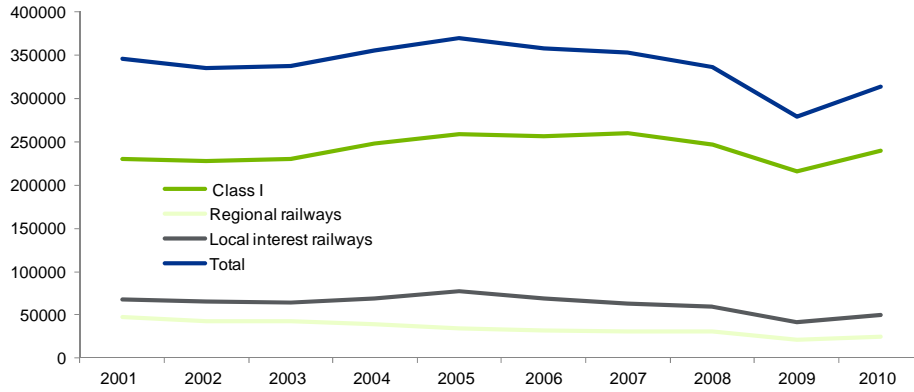
Indeed, the volume of freight moved through CPAs rose from 220.4 in 2001 to 268.6 million tonnes in 2010: an annual growth rate of 1.8%.

Approximately 26% of this freight was handled by Quebec ports (Montreal, Quebec City, Sept-Îles, Trois-Rivières and Saguenay) when the volume of other private ports is included such as Port Cartier (almost equivalent to the port of Sept-Îles).

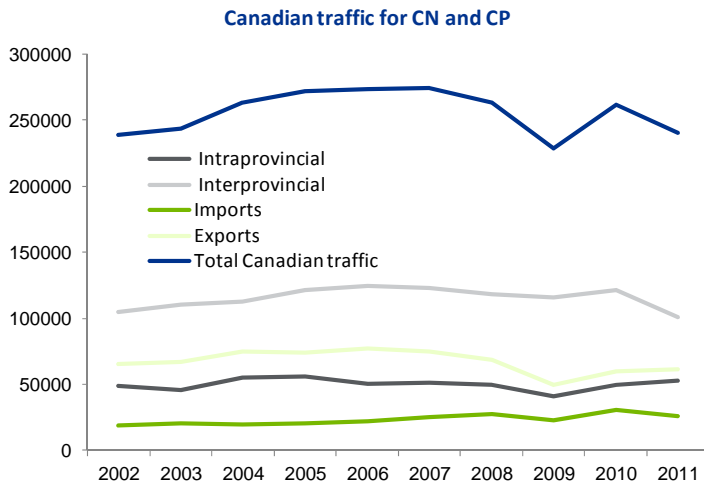
Of the 450 million metric tons traded in Canada, almost 27% comes from freight transshipped in Quebec ports and over 20% is handled by the four largest Quebec ports. Of these, Montreal/Contrecoeur is the largest and its 24.8 million tonnes handled account for over 5.5% of Canada's total. The port facilities at Sept-Îles/Pointe-Noire, Québec/Lévis and Port Cartier complete the list of Quebec's four largest ports. It should also be noted that of all ports in the province, it was Sept-Îles/Pointe-Noire that handled the most freight going to or coming from international markets – totalling more than 22.6 million tonnes.

2.3.3.2 Rail

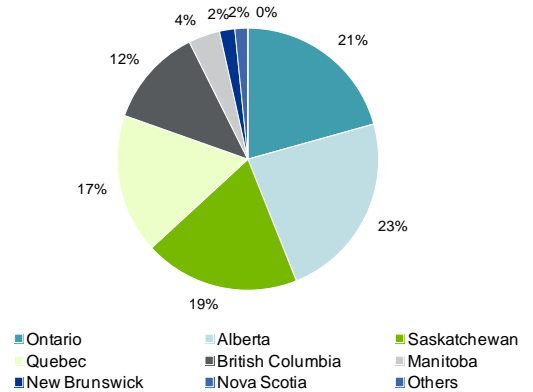
In 2010, over 313.5 million tonnes were shipped by the railway sector in Canada.



More than 80% of this volume is handled by CN and CP. Over the last 10 years, the volume fluctuations shown in the chart below for these two railway lines illustrate the sustained growth that took place until 2008, when the industry began to feel the effects of the recession.



% of Imports/Exports Tonnage by Province



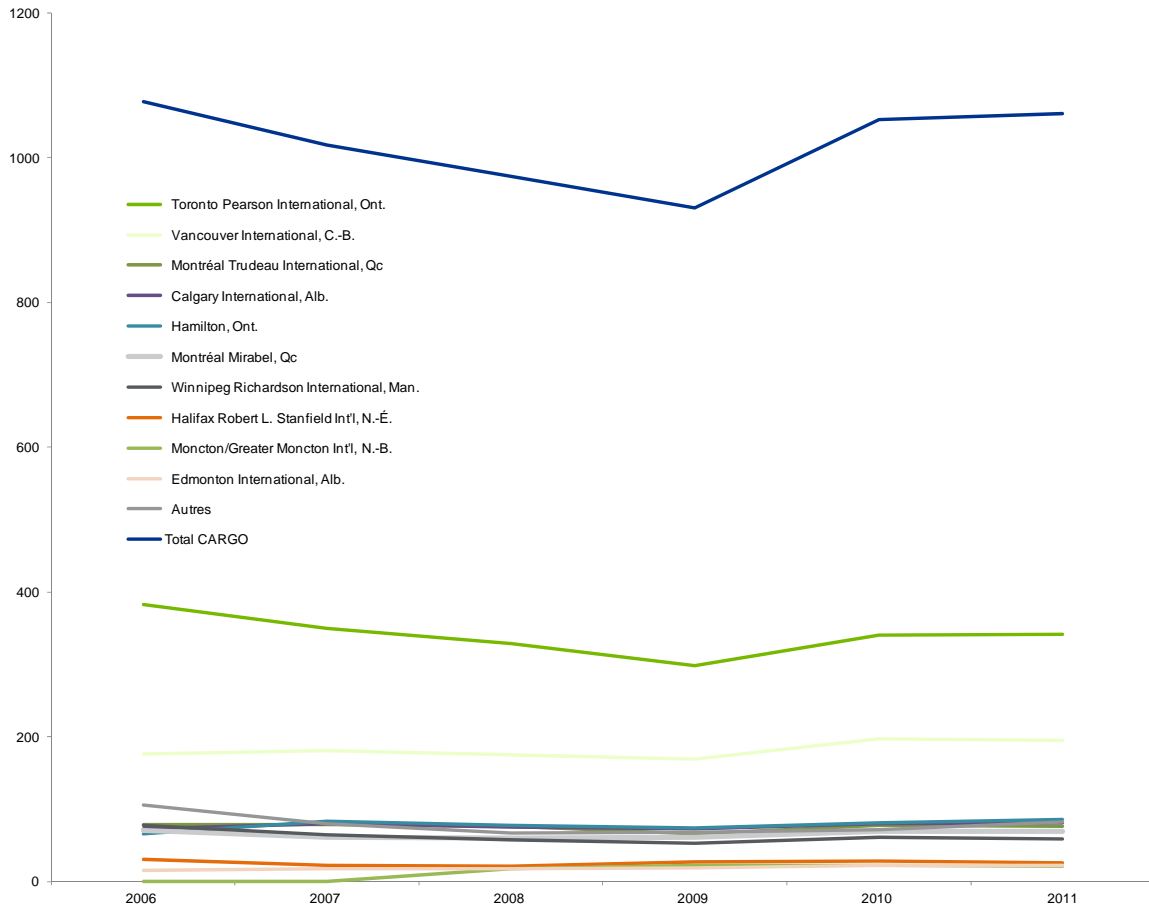
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Shares of volume handled are hard to define on a province-by-province basis. As an indication, however, the **Province of Quebec accounts for approximately 17% of overall export and import tonnage**. Based on this ratio, it can be reasonably approximated that **over 53 million tonnes are moved by rail in Quebec**.

2.3.3.3 Air

After a significant drop in 2008 and 2009, air freight grew sharply, increasing by almost 15% in 2010 and reaching a volume in excess of the million metric tonne mark. This growth then stabilized in 2011 with over 1,044 million tonnes of freight loaded and unloaded. It should be noted that along with the rise in freight shipments, Canadian airports experienced a 2.8% increase in the number of cargo flights in 2011.

The chart below shows the 10 largest airports in Canada, including **Montreal-Trudeau** and **Mirabel**, which between them **account for 13.7% of the total volume.**



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Quebec ranks 3rd among Canada's provinces for air freight volume, after Ontario and British Columbia. **Of its 146,000 tonnes of cargo loaded and unloaded, over 99.9% are handled at the two Montreal airports.** Indeed, 76.6 thousand tonnes were recorded by Montreal Trudeau in 2011, while Montreal Mirabel accounted for 69.2 thousand tonnes in the same year. As in airport facilities all across Canada, there were sharp increases in 2010 that stabilized in 2011, contrasting with the drops recorded until 2009.

Portrait of the industry – Online survey results
Services provided

The tables below show the commodities that were most heavily shipped by air. Since air transportation is relatively expensive, air cargo is usually made up products of high unit value (e.g. gold or specialized equipment such as telecommunications items or optical readers).

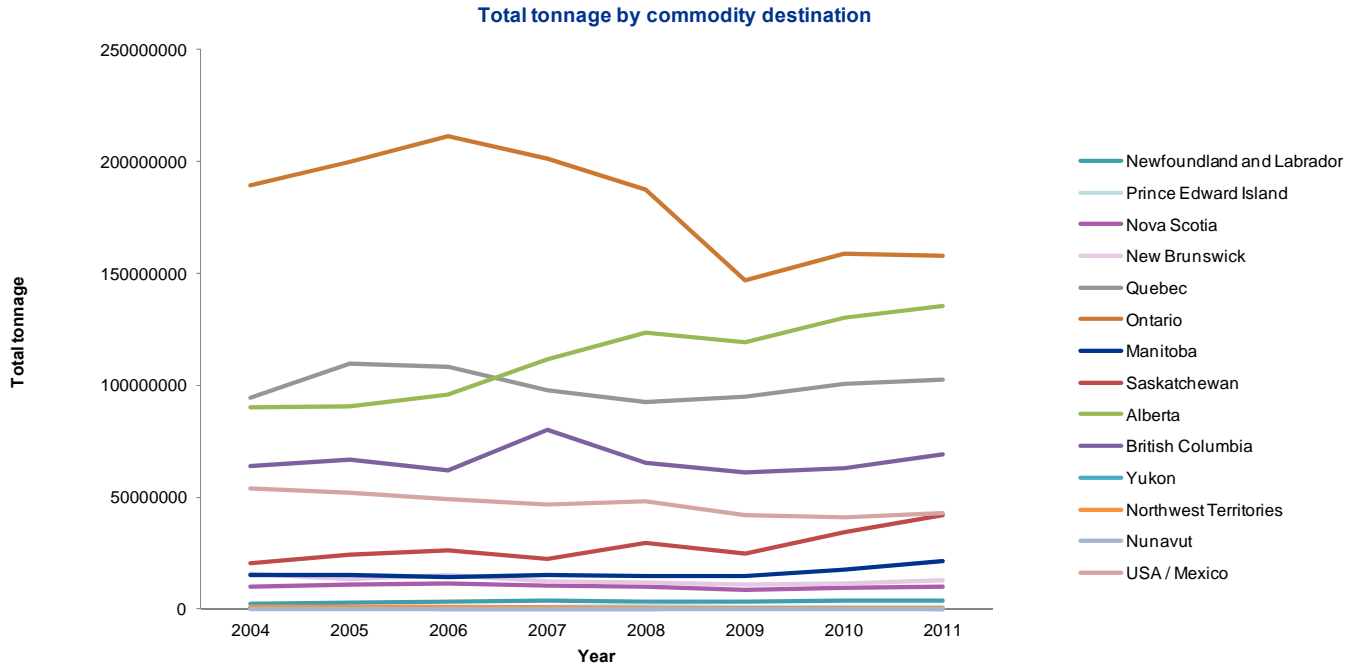
Exports				Imports			
Rank	Product	Value (MM\$)	Import Rank	Rank	Product	Value (MM\$)	Export Rank
1	Gold	13.1 \$	1	1	Gold	9.2 \$	1
2	Aircrafts	5.9 \$	6	2	Telephone equipment	6.5 \$	5
3	Aircraft engines	2.9 \$	5	3	Pharmaceutical	4.7 \$	9
4	Diamonds	2.2 \$	21	4	Optical devices	3.8 \$	8
5	Telephone equipment	1.1 \$	2	5	Aircraft engines	2.9 \$	3
6	Aircraft parts	1.1 \$	8	6	Aircrafts	1.6 \$	2
7	Coins	0.9 \$	88	7	Blood products	1.5 \$	31
8	Optical devices	0.8 \$	4	8	Aircraft parts	1.5 \$	6
9	Pharmaceutical	0.8 \$	3	9	Integrated circuits	1.2 \$	13
10	Precious metals waste	0.8 \$	10	10	Precious metals waste	1.1 \$	10
Other products		17.3 \$		Other products		27.5 \$	
Total		46.8 \$		Total		61.5 \$	

Source: Statistique Canada, International Trade Database, 2013

At Montreal, the aerospace industry is one of the heaviest users of air transportation. That being said, it is important to note that a major part of aircraft volume consists of vehicles that fly on their own rather than cargo that is loaded and unloaded from airplanes.

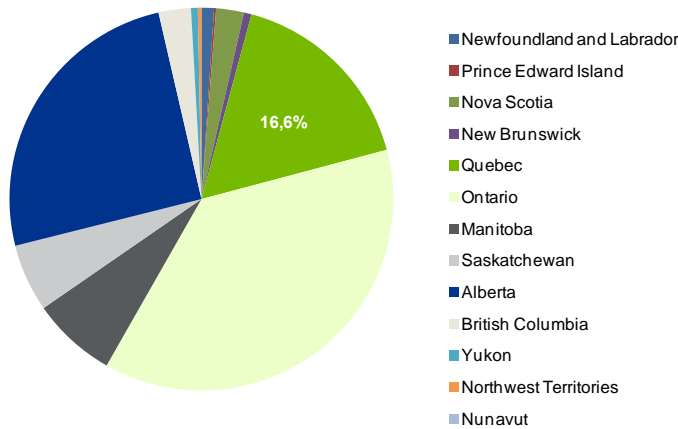
2.3.3.4 Road

In 2011, slightly more than 1.2 billion tonnes were handled in Canada (i.e. 7.7% more than in 2004, representing an annual growth rate of 1.1%). The chart below shows changes in volume handled per province. Over the years, Alberta has gained significantly in volume, reaching 270.7 million tonnes and overtaking **Quebec**, which handled **207.6 million tonnes in 2011. Quebec accounts for 17.3% of Canada’s road tonnage.**



Quebec’s portion is also confirmed by the percentage of vehicle-kilometres travelled by heavy vehicles.

% of Vehicle-Kilometers traveled by heavy vehicles by province



Source: Statistics Canada, Trucking commodity origin and destination survey – March 2013

2.4 GMA Industry Profile

Highlights

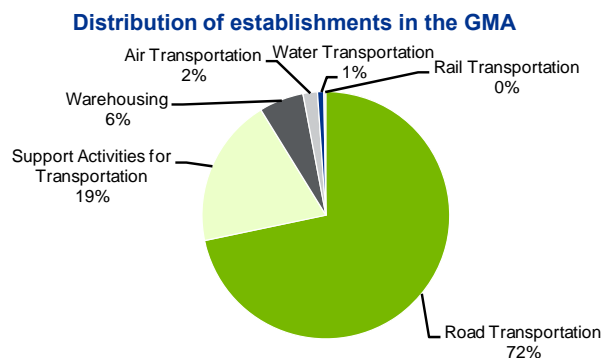
- The GMA has nearly 1,200 establishments (with five or more employees) in the transportation and logistics industry.
- At 42%, trucking companies represent the largest portion of these establishments. Companies offering support activities, also constitute a significant proportion at 36%.

This section presents a brief profile of the transportation and logistics industry based on a review of literature. It includes the number of establishments in the GMA and the number of jobs generated in the GMA. Data on different modes of transportation are also included.

2.4.1 Number of establishments

According to Statistics Canada, almost 6,300 establishments in the transportation and logistics industry are located in the GMA.

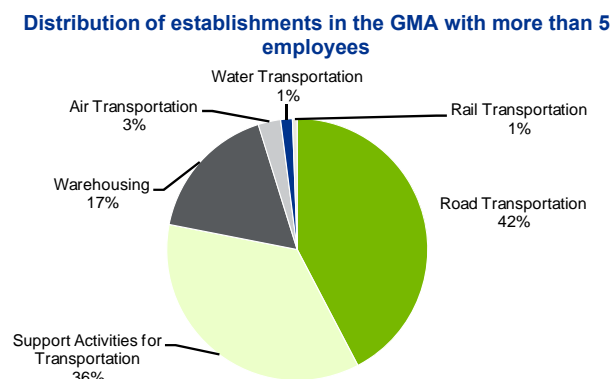
Establishments in the GMA (December 2011)			
	Sector of Activity	Nb Establishments	%
1.	Road Transportation	4,516	72%
2.	Support Activities for Transportation	1,228	20%
3.	Warehousing	366	6%
4.	Air Transportation	119	2%
5.	Water Transportation	52	1%
6.	Rail Transportation	16	0%
Total		6,297	100%



Source: Statistics Canada, Business Register for the Census Metropolitan Area (CMA) of Montreal

It should be noted that the above table shows all the establishments in the GMA. Once those with an indeterminate number of employees and those with fewer than five employees are excluded, the number drops from 6,297 to 1,186 establishments. As a result, for 81% of the establishments located in the GMA, the number of employees is either indeterminate or under five. Therefore, there may be a high proportion of small players in the industry.

Establishments in the GMA with more than 5 employees (December 2011)			
	Sector of Activity	Nb Establishments	%
1.	Road Transportation	502	42%
2.	Support Activities for Transportation	424	36%
3.	Warehousing	203	17%
4.	Air Transportation	33	3%
5.	Water Transportation	17	1%
6.	Rail Transportation	7	1%
Total		1,186	100%



Source: Statistics Canada, Business Register for the CMA of Montreal

It is important to point out Statistics Canada’s definition of the transportation and logistics industry is not the same as that used for this study. Moreover, the definition of the GMA is not the same for the MMC as for Statistics Canada. Readers are invited to consult Appendix B for greater details on the differences between the definitions used.

2.4.2 Number of Jobs

Highlights

- According to Statistics Canada, almost 44,000 jobs were generated by the transportation and logistics industry in the GMA.
- If internal logistics operations among manufacturers, wholesalers and retailers are taken into account, the industry can add another 70,000 jobs, which raises the total to nearly 115,000 in the GMA alone.
- Trucking companies generate 40% of the jobs (i.e. about 60% of the jobs in transportation) and transportation support companies generate 23%. As shown in the distribution of numbers of establishments by sectors of activity, these two types of business are the largest in the industry.

The number of jobs in the transportation and logistics industry in the GMA break down as follows based on NAICS codes (North American Industry Classification System):

Number of jobs in the GMA (in thousands)				
NAICS Code	Nb Employed according to Statistics Canada		Nb Employed adjusted by KPMG	
	Canada	%		%
Truck Transportation	24.4	46%	24.4	56%
Truck Transportation (484)	20.9	40%	20.9	48%
Support Activities for Truck Transportation (4884)	3.5	7%	3.5	8%
Water Transportation	2.1	4%	0.0	0%
Water Transportation (483)	0.0	0%	0.0	0%
Support Activities for Water Transportation (4883)	2.1	4%		
Warehousing and Storage (493)	5.9	11%	5.9	13%
Rail Transportation	2.4	5%	3.6	8%
Rail Transportation (482)	2.4	5%	3.6	8%
Support Activities for Rail Transportation (4882)	0.0	0%	0.0	0%
Support Activities for Transportation	3.3	6%	3.3	8%
Freight Transportation Arrangement (4885)	3.3	6%	3.3	8%
Air Transportation	14.7	28%	0.0	0%
Air Transportation (481)	11.5	22%	0.0	0%
Support Activities for Air Transportation (4881)	3.2	6%	0.0	0%
Total	52.8	100%	37.2	85%

Source: Statistics Canada, 2012 Labor Force Survey for the MCA of Montreal

Note: Adjustments were assessed to remove jobs related to passenger transportation

Specialized logistics service providers aside, manufacturers, wholesalers and retailers also perform logistics and transportation operations. According to data from Statistics Canada, there are more than 500,000 jobs in this business category in the Montreal area alone. Based on survey answers, 5 to 10% of manufacturers’ and retailers’ costs come under logistics, which allows us to ascribe nearly 30,000 jobs to them. In the case of wholesalers, the nature of their activities is in itself a matter of logistics. On the other hand, as we will see further on (Section 3.3.2), more than 50% of those activities are typically outsourced. So wholesalers may add

Services provided

another 40,000 to their 100,000 jobs in Montreal. Therefore, when logistics service provider jobs are added to those of manufacturers, wholesalers and retailers, this industry accounts for at least 120,000 jobs in the Montreal area alone.

It should be pointed out that more work on employment numbers appears under Section 2.6: Economic Impact Study.

Highlights

- Air transportation volume declined by nearly 10% in cargo handled during the recession period (2009). This loss has been regained since then with 143,000 tonnes now shipped by domestic flights (28%) and international flights (72%).
- Almost twice as much rail freight arrives in Montreal than leaves for other destinations.
- Containerized freight represents 42% of total volume in 2012. The Port of Montreal handled 1,375 million TEU (twenty-foot equivalent units). Similar to rail transportation, freight handled by the Port of Montreal moves to and from Ontario and the US Midwest (in addition to volume inside Quebec).
- Montreal ships out and receives 96.2 million tonnes by truck transportation. Apart from “local” trucking (Quebec and Ontario), the great majority of volumes traded with the US involve the Midwest and Northeastern states.

2.4.3 Air Transportation in the GMA

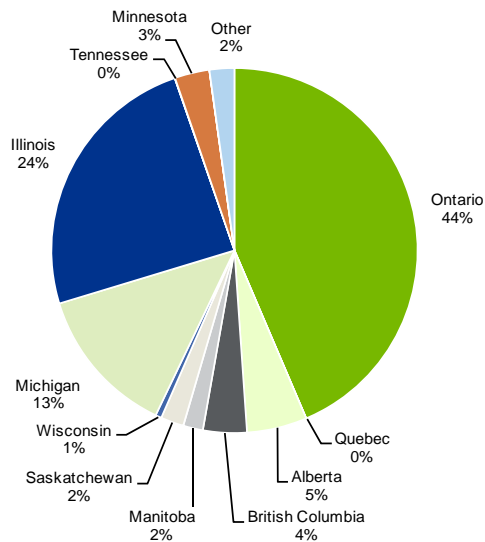
Airport	Year													
	Flight Type		2007				2009				2011			
	Interior	International	Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded	Loaded	Unloaded
Calgary	10.9	18.5	26.3	24.7	13.1	19.4	19.9	20.5	16.1	22.6	17.6	27.2		
Edmonton	4.9	10.4	1.2	1.0	4.6	10.0	2.0	2.8	6.4	9.8	2.2	4.5		
Halifax	7.5	6.8	7.0	1.1	11.5	9.5	4.1	1.6	13.8	10.0	1.2	0.5		
Hamilton	47.0	26.2	4.7	5.0	40.6	23.3	3.6	6.2	38.8	27.5	8.5	10.3		
Montreal-Mirabel	12.1	7.9	18.3	22.9	17.3	14.0	12.3	17.2	15.0	13.3	15.4	23.2		
Montreal-Trudeau	5.0	11.7	27.7	34.5	4.3	7.3	24.3	30.5	5.8	5.9	27.0	37.8		
Toronto	25.7	26.6	124.2	172.7	29.2	29.1	102.3	137.9	33.0	31.4	120.9	153.7		
Vancouver	41.6	31.2	46.8	60.7	39.5	31.0	43.9	54.5	41.6	35.7	54.2	54.8		
Winnipeg	26.7	27.3	4.9	5.9	23.9	23.2	1.7	4.7	28.7	29.4	1.9	5.2		

Slightly more than 143 thousand tonnes of cargo were handled by the airports of the GMA in 2011, including 28% on domestic flights and 72% on international flights. The all-cargo airport at Mirabel accounted for 47% of this volume, leaving 53% to be handled by Pierre Elliott Trudeau Airport, the great majority of which was loaded into the cargo holds of passenger flights.

2.4.4 Rail Transportation - GMA

Commodity	ORIGIN		DESTINATION		TOTAL	
	Cars	Tonnes	Cars	Tonnes	Cars	Tonnes
Refined petroleum products	8,879	624,761	29,054	2,286,126	37,933	2,910,887
Agricultural and food products	16,352	433,323	41,031	1,878,634	57,383	2,311,956
Plastics & Chemicals	23,954	879,810	16,252	728,565	40,206	1,608,375
Forest products	11,562	170,416	18,310	588,330	29,872	758,746
Cars and other transportation	3,164	23,877	37,141	574,499	40,305	598,377
Base metals and articles of base metals	4,634	154,941	4,853	143,792	9,487	298,733
Waste and scrap	2,807	89,826	2,065	121,609	4,872	211,435
Machinery and equipment	2,551	30,087	4,770	45,391	7,321	75,479
Minerals, ores and concentrates	978	39,795	731	34,175	1,709	73,970
Cement and non-metallic mineral products	1,570	29,583	835	19,483	2,405	49,066
Intermodal (COFC / TOFC)	72,710	148	21,925	684	94,635	832
Coal	1	17	11	123	12	140
Iron ore and concentrates			1	89	1	89
Other manufactured and miscellaneous goods	285,019	4,473,127	349,017	4,860,294	634,036	9,333,421
Total	434,181	6,949,713	525,996	11,281,792	960,177	18,231,505

Freight Movements to and from Montreal



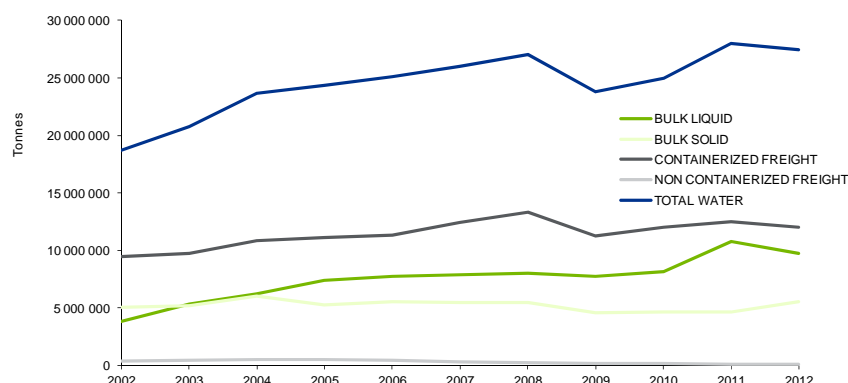
In 2011, over 18.2 million tonnes were handled to and from Montreal by rail. Incoming freight amounted to nearly twice the outbound volume.

The destinations with which Montreal trades the most goods are Ontario and the US Midwestern states of Illinois and Michigan. Road transportation is favoured over rail for shipments to and from the Northeastern United States.

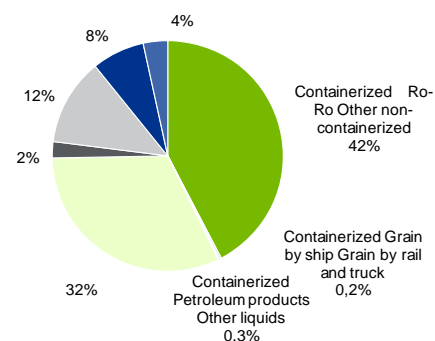
2.4.5 Marine Transportation

As indicated in Section 2.3 (see table showing traffic volumes for CPA ports), the Port of Montreal (including its Contrecoeur site) is Canada’s third largest after the ports of Vancouver and St. John’s. The growth of the Port of Montreal over the past 10 years is noteworthy. This can be explained largely by the growth of liquid bulk traffic – particularly petroleum products.

Traffic (Tonnes) in the last decade



Breakdown of tonnage by product type (in metric tonnes)

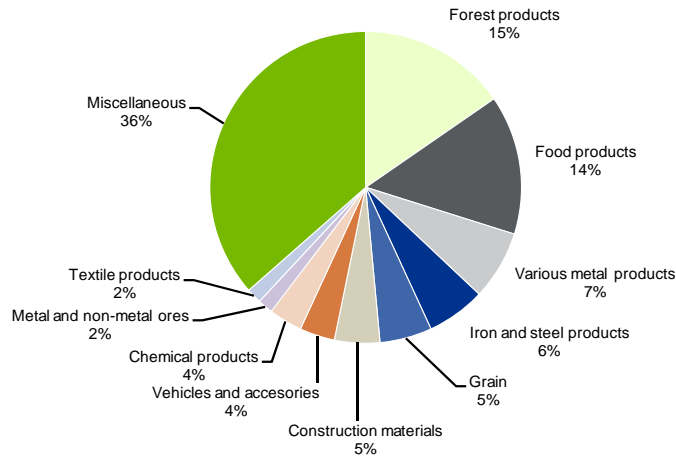


Containerized freight accounted for **42% of the volume** in 2012; the Port of Montreal handled **1,375 million TEU** (20-foot equivalent units). For freight entering and leaving by water, markets in the North Atlantic, Northern Europe and the Mediterranean countries represent the majority of the port’s containerized trade at 65.8%.

Tonnage breakdown by initial origin for imports and final destination for exports - 2012 (in metric tonnes)

Initial origin or final destination	Entries	Exits	Total
North Atlantic			
United Kingdom and European continent	3,116,618	2,511,568	5,628,186
Mediterranean	1,547,148	740,679	2,287,827
Subtotal North Atlantic	4,663,766	3,252,247	7,916,013
Overseas			
Africa	68,301	372,110	440,411
Latin America	294,568	413,634	708,202
Asia	412,859	1,234,122	1,646,981
Middle East	379,110	516,816	895,926
Oceania	18,065	27,476	45,541
Subtotal Overseas	1,172,903	2,564,158	3,737,061
North America			
United States	-	-	-
Canada	35,892	344,000	379,892
Subtotal North America	35,892	344,000	379,892
Total	5,872,561	6,160,405	12,032,966

**Breakdown of containerized cargo by product type (in metric tonnes)
- 2012**



Forest products and food products are the Port of Montreal's top freight trade.

The containerized freight is traded in North America – Canada and the United States. The table below shows the distribution of tonnage based on the final destination of freight entering the port and the point of origin of freight leaving the port (in metric tons):

Markets	2012			2012
	Import	Export	Total	
Canada	4,722,304	4,461,544	9,183,848	76.3%
Quebec	2,694,807	2,296,040	4,990,847	41.5%
Ontario	1,612,398	1,196,672	2,809,070	23.3%
Other Canadian provinces	415,099	968,832	1,383,931	11.5%
United States	1,150,257	1,698,861	2,849,118	23.7%
Northwestern United States	71,053	442,886	513,939	4.3%
Southeastern United States	8,007	29,586	37,593	0.3%
Midwestern United States	1,046,008	996,903	2,042,911	17.0%
Gulf United States	5,966	10,861	16,827	0.1%
Western United States	19,223	218,625	237,848	2.0%
General total	5,872,561	6,160,405	12,032,966	100.0%

In Canada, the great majority of the tonnage moves to and from the "local" market in Quebec and Ontario. In the US, the Midwest market, the main states being Illinois, Michigan, Minnesota and Wisconsin, make up 17% of the traffic volume.

2.4.6 Road Transportation

According to the *origin/destination* figures, **Montreal sends or receives 96.3 million tonnes by truck**, i.e. 46% of the 207.6 million tonnes moved by trucking in Quebec. The table below summarizes the origins/destinations for this traffic. Most trucking moves locally within Quebec and to and from its closest neighbor, Ontario. The great majority of the trucking trade with the US takes place with the Midwestern and Northeastern states (5.6%), i.e. over five million tonnes.

North American Region	Tonnes (thousands)	%
Canada	89,296	92.9%
Quebec	72,412	75.3%
Ontario	13,694	14.2%
Other Canadian provinces	3,190	3.3%
United States	6,856	7.1%
Gulf United States	468	0.5%
Midwestern United States	1,808	1.9%
Northeastern United States	3,554	3.7%
Western United States	300	0.3%
Southeastern United States	726	0.8%
Mexico	2	0.0%
General Total	96,154	100.0%

Although greatly dispersed, the **principal commodities** traded with the Greater Montreal Area are related to **food, fuel and base metals** (such as iron, nickel, lead and zinc).

Commodities	Sum of tonnes C	%
Food products, oils and fat industries	7,870	8.19%
Gasoline and aviation turbine fuel	7,536	7.84%
Basic metals	7,321	7.61%
Cut or building stones	5,258	5.47%
Natural sands	5,019	5.22%
Wood Products	5,012	5.21%
Non-metallic mineral products	4,067	4.23%
Gravel and crushed stone	3,372	3.51%
Non-metallic mineral	3,311	3.44%
Waste and debris	2,700	2.81%
Fuel oil	2,300	2.39%
Pulp, paper and paperboard	1,802	1.87%
Articles of paper or cardboard	1,782	1.85%
Agricultural products (excl. : animals, cereal grains or drilling pr.)	1,589	1.65%
Plastics and rubber	1,403	1.46%
Articles of base metals	1,348	1.40%
Products of petroleum and coal refining	1,263	1.31%
Other commodities	33,198	34.53%
General Total	96,151	100.00%

2.5 Economic Impact Study

Highlights

- Over 4.2 billion dollars in value added were generated by the transportation and logistics industry in the GMA in 2012.
- More than 52,000 jobs were supported by the transportation and logistics industry in 2012, either directly or through its chain of suppliers.
- In all, wages paid in the GMA by this industry and its suppliers exceeded 2.1 billion dollars in 2012 and the average pay of the employees in the sector was higher than that of the overall regional economy.
- The government of Quebec collected revenue approaching 341 million dollars in taxes and duties generated by these activities in the GMA and the federal government collected almost 215 million dollars.

This section provides a summary of economic spin-offs generated in 2012 by the transportation and logistics industry in the Greater Montreal Area (GMA). It includes value added, number of jobs and other sectors benefiting from the industry, as well as government revenues.

2.5.1 Value Added and Jobs Generated by the Industry

The activities of the transportation and logistics industry help increase income and economic wealth in the GMA. Value added generated by this industry provides a measure of its impact. Value added is the effect on the GDP, or the actual increase in economic wealth.

Economic impact of the transportation and logistics industry in the Greater Montreal area			
<i>2012; Greater Montreal area; in millions of dollars and person-years</i>			
<i>In millions of \$</i>	Direct effects	Indirect effects	Total effects
Total value added, including	3,657	635	4,292
Wages and salaries before taxes	1,914	292	2,207
Net income of individual companies	59	34	92
Other income before taxes	1,683	310	1,993
<i>In person-years</i>			
Number of jobs	44,649	7,393	52,042
Salaried	41,225	6,631	47,857
Other workers	3,424	762	4,186

Note: Due to rounding, the sum of the components may not be equal to the stated total.

Sources: Estimates from ISQ and Statistics Canada simulations.

In 2012, it is estimated that value added by the transportation and logistics industry amounted to 4.2 billion dollars for the Greater Montreal Area. Most of these spin-offs, i.e. 1.9 billion dollars, were in the form of wages paid directly by companies operating in the sector. Other pre-tax income, particularly profits earned, accounted for the largest part of the remaining value added, i.e. 1.7 billion dollars. In addition, nearly 635 million dollars in additional income were generated among the industry's suppliers.

Portrait of the industry – Online survey results

Services provided

As seen earlier, the transportation and logistics industry in 2012 accounted for direct employment amounting to 44,650 jobs. These direct jobs were shared between the road, rail, marine and air sectors, as well as the related warehousing and transportation support sectors. Moreover, approximately 7,400 indirect jobs were supported for the same year in the chain of Montreal suppliers. These 52,000 jobs supported directly or indirectly amounted to approximately 2.6% of total GMA jobs. The majority of these jobs are well paid, as shown by the mean annual pay of \$44,000 for both direct and indirect jobs, as compared to the average Montreal CMA rate of about \$41,000. Jobs in the transportation and logistics industry and those they generate thus produce a premium of about \$3,000 annually as compared to the area average.

The magnitude of economic spin-offs varies of course depending on the industry subsectors. In 2012, the trucking subsector accounted for more than a third of the wealth creation produced by the industry (i.e. \$1.6 billion in direct and indirect value added, or 38% of the total), transportation intermediaries and support services for one third (\$1.4 billion or 33%) and all remaining transportation and logistics activities for slightly less than a third (\$1.3 billion or 29%). The latter group included in descending order rail transportation (\$534 million), warehousing (\$368 million), marine transportation (\$298 million) and air transportation (\$64 million).

The distribution of direct and indirect jobs among industry subsectors is slightly different from the above picture, as some sectors generate more value added per job or have high job multipliers. Trucking, for example, supported 26,434 jobs in 2012, or over 50% of the jobs in the industry, and transportation intermediaries supported 12,476 jobs, or 24% of the total. We can see immediately that the weight of the trucking subsector is even higher in jobs than in value added, and that this is not the case in the second largest subsector, transportation intermediaries or support services. Moreover, warehousing generated 13% of the other jobs in the transportation sector, followed by rail transportation with 8%, marine transportation with 3% and finally air transportation with 2%.

Economic impact of the transportation and logistics industry by sector in the Greater Montreal area							
2012, Greater Montreal Area, in millions of dollars and person-year							
							Total
In millions of \$							
Total value added	1,622	298	534	63	368	1,406	4,292
Direct	1,394	249	488	46	326	1,153	3,657
Indirect	228	49	46	17	42	253	635
In person-years							
Jobs	26,434	1,660	4,129	837	6,507	12,476	52,042
Direct	23,985	1,125	3,602	600	6,002	9,334	44,648
Indirect	2,449	535	527	236	505	3,142	7,394

Note: Due to rounding, the sum of the components may not be equal to the stated total.

Sources: Estimates from ISQ and Statistics Canada simulations.

These differences in job and value-added breakdown are a result of greater or lesser value added per job depending on the subsector. Value added per job was highest in the marine (\$179,518) and rail (\$129,329) transportation subsectors, and lower in trucking (\$61,360) and warehousing (\$56,554). Transportation support services (\$112,696) and air transportation (\$75,269) came between those two groups.

In addition, some subsectors generated more indirect spin-offs per direct spin-off, or in other words, had a higher job multiplier. For example, it takes 12 direct jobs in the warehousing sector to generate one indirect job (among suppliers), while it only takes two direct jobs in the marine transportation subsector. The air transportation and transportation support subsectors were also among those that generated more indirect jobs (i.e. three direct jobs for one supplier job). The trucking and rail subsectors were intermediate (with ratios of 10 to one and seven to one).

Portrait of the industry – Online survey results

Services provided

Moreover, it is also important to point out that the transportation and logistics industry has a very large degree of interaction between its own subsector activities. The reasons for this are the growth of intermodal transportation over the past few years and the presence of large intermodal platforms in the GMA. The different modes of transportation are both customers and suppliers to each other. As an example, trucking has, by order of importance, marine, rail and air transportation as inputs to its own operations. The same type of interrelationship can be seen for the other modes of transportation.

However, other GMA industries also benefit from the presence of the transportation and logistics sector. For the most part, these beneficiaries are service industries. The following table shows the top six supplier activities for each transportation industry subsector.

Trucking	Marine	Rail	Air	Warehousing	Intermediaries
1 Employment services	1 Financial intermediation	1 Construction and repair	1 Office administrative services	1 Office administrative services	1 Food and accommodation
2 Trade	2 Trade	2 Financial intermediation	2 Trade	2 Trade	2 Trade
3 Financial intermediation	3 Office administrative services	3 Legal services	3 Management of societies and companies	3 Employment services	3 Management of societies and companies
4 Management of societies and companies	4 Transportation of passengers	4 Employment services	4 Rent lease	4 Support services for companies	4 Financial intermediation
5 Postal services and messaging	5 Advertising	5 Rent lease	5 Financial intermediation	5 Management of societies and companies	5 Services for buildings
6 Repair and maintenance	6 Repair and maintenance	6 Accounting services	6 Engineering services	6 Construction and repair	6 Telecommunications

2.5.2 Government Revenue from the Industry

Activity and income of this magnitude clearly support government coffers. Transportation and logistics industry operations in the GMA, together with those of its suppliers, produced government revenue totalling \$1.1 billion in 2012. Tax revenues apart from incidental taxes amounted to \$556 million. Nearly two thirds of these revenues came from income tax on wages and salaries while the remaining third were generated by various taxes such as GST and Quebec sales tax. Further, it should be noted that this total underestimates the total contribution of the industry to government revenue as it fails to include corporate income tax.

Government revenues from the transportation industry and logistics in the Greater Montreal area			
<i>2012; Greater Montreal area; in millions of dollars =</i>			
In millions of \$	Direct effects	Indirect effects	Total effects
Quebec government tax revenue	235	106	341
Taxes on wages and salaries	161	25	185
Sales and specific taxes	75	81	156
Federal government tax revenue	168	48	215
Taxes on wages and salaries	131	21	152
Sales and specific taxes	36	28	64
Quebec parafiscality (RRQ, CSST, RPAQ, Health Fund)	383	50	433
Federal parafiscality (employment insurance)	112	15	127

Note: Excluding corporate income tax. Due to rounding, the sum of the components may not be equal to the stated total.

Sources: Estimates from ISQ and Statistics Canada simulations.

Quebec government tax revenues amounted to a total of \$341 million, or 61% of the government revenues for both levels of government, and those of the federal government came to \$215 million, or 39% of the total.

2.6 Labor and Training

2.6.1 Age and Gender

Highlights

- For marine transportation, over 35% of the Quebec workforce is over 50 years old and this workforce is mainly made up of men.
- As for road transportation, the average age of the Quebec workforce ranges from 36 to 46 years of age and it also consists mainly of men.
- 29% of the Canadian logistics workforce is over 46 years old and 59% is made up of men.

As we already mentioned, there are no studies providing a recent picture of the overall transportation and logistics industry in the GMA. As a result, the data given in this section will represent sectors of activity in the industry. KPMG may not have found studies for a specific sector of activity.

Air and Rail Transportation

No studies were found showing labor force distribution by age groups or gender. Interviews used as follow-up on the online questionnaire enable us to point out that the two rail carriers have an aging workforce from which departures due to retirement will be a significant factor in the next few years.

Marine Transportation

Zins Beauchesne and Associates did a study for the *Comité sectoriel de main-d'œuvre de l'industrie maritime* in April 2008. The study is entitled *Étude sectorielle sur les effectifs de la main-d'œuvre au Québec* (Sector Study on the Size of the Marine Workforce in Quebec). Some of the data in this study comes from public sources while others are from a survey of 72 companies.

According to the survey, over 35% of the employees in the following jobs are over 50 years old:

- First-class engineer (49%);
- Pilot (43%);
- Third-class engineer (40%);
- Other engine-room jobs (40%);
- Bridge watch rating (39%);
- Safety and security personnel (39%);
- Maintenance and repair (38%);
- Master Mariner (36%).

Portrait of the industry – Online survey results

Services provided

Moreover, still based on their survey, these postings are for the most part held by men except for two administrative positions:

- Administrative support (72 %);
- Human Resources manager/professional (46 %).

Distribution of the marine workforce in Quebec in terms of age and sex (n:72)							
	Less than 30 years old	Between 31 and 40 years old	Between 41 and 50 years old	Between 51 and 60 old	More than 60 years old	Women	Men
Navigating personnel on the deck							
Master Mariner	16%	19%	29%	21%	15%	3%	97%
Chief Mate	15%	22%	33%	22%	8%	4%	96%
Deck officer on watch	21%	43%	25%	12%	0%	8%	92%
Driver, buildings with a gross tonnage of more than 5 tonnes	73%	14%	9%	0%	5%	13%	88%
Deckhand	33%	23%	23%	16%	5%	8%	92%
Bridge watch rating	12%	24%	25%	33%	6%	2%	98%
Ship's cook	30%	17%	29%	18%	6%	35%	65%
Other positions on the deck	46%	14%	25%	12%	3%	9%	91%
Pilot	5%	26%	26%	27%	15%	2%	98%
Engine room							
First-class engineer	3%	12%	37%	36%	12%	0%	100%
Second-class engineer	4%	25%	47%	18%	6%	0%	100%
Third-class engineer	7%	23%	30%	25%	15%	6%	94%
Fourth-class engineer	27%	25%	25%	12%	11%	0%	100%
Electrician	31%	0%	42%	28%	0%	0%	100%
Engine room sailor	12%	30%	24%	23%	11%	0%	100%
Other positions in the engine room	60%	0%	0%	40%	0%	0%	100%
Ground personnel							
Administration							
Manager / HR professional	12%	36%	22%	21%	10%	46%	54%
Other managers and professionals	12%	19%	34%	33%	3%	28%	73%
Administrative support	25%	29%	32%	12%	2%	72%	28%
Other administrative positions	12%	47%	23%	18%	0%	4%	96%
Service and Repair							
Longshoremen/ stevedores	17%	28%	35%	20%	1%	1%	99%
Service and Repair	13%	20%	30%	33%	5%	3%	97%
Staff safety and security	0%	0%	61%	39%	0%	0%	100%
Other items of operations / handling	27%	23%	24%	25%	0%	8%	92%

Source: Étude sectorielle sur les effectifs de la main-d'œuvre maritime au Québec, Zins Beauchesne and associates, 2008

Road Transportation

Zins Beauchesne and Associates performed a study for CAMO-Route in January 2012. This study was entitled *Diagnostic de la main-d'œuvre dans le secteur du transport routier de marchandises au Québec* (Workforce Diagnostics in Freight Transportation by Road in Quebec). Some of the data in this study comes from public sources while others are from a survey of 102 companies.

According to the survey, the average age in road transportation ranges from 36 to 46 years of age depending on the job. Jobs also appear to be held for the most part by men, except for administration, where women represent 57% of the workforce.

Distribution of the workforce in road transportation in Quebec by age and sex (n: 102 companies, 3,845 employees)							
	Less than 30 years old	Between 31 and 49 years old	Between 50 and 65 years old	More than 65 years old	Estimated average age	Women	Men
General Administration	12%	55%	30%	3%	44 years	57%	43%
Operations							
Driver - Class 1 driver's license	5%	66%	28%	1%	45 years	3%	97%
Driver - Class 3 driver's license	8%	52%	38%	2%	46 years	12%	88%
Driver - Class 5 driver's license	27%	45%	21%	6%	41 years	14%	86%
Handler	42%	43%	15%	0%	36 years	3%	97%
Mechanic	23%	51%	25%	2%	42 years	1%	99%
Splitter	8%	60%	33%	0%	45 years	21%	79%
Owner-operator driver	3%	66%	27%	4%	46 years	5%	95%
Others	26%	53%	21%	0%	40 years	32%	68%

Source: *Diagnostic de la main-d'œuvre dans le secteur du transport routier de marchandises au Québec*, Zins Beaudesne and Associates, 2012

Logistics

A study was carried out by the Canadian Logistics Skills Committee (CLSC), which sent out a survey to collect data on the logistics industry.¹¹ According to the results of the survey, which was answered by 743 employees in the industry, the distribution of logistics employees by age in Canada was as follows:

Distribution of logistics employees in Canada by age (n: 743 employees)	
Age category	%
Under 25 years old	8%
Between 26 and 35 years old	29%
Between 36 and 45 years old	34%
Between 46 and 55 old	23%
Over 55 years old	5%
Unknown	1%
Total	100%

Source: *Strategic Human Resources Study of the Supply Chain Sector*, CLSC, 2005

Also, still based on the survey results, 59% of the employees were men and 37% were women (4% of respondents failed to give an answer).

¹¹ Strategic Human Resources Study of the Supply Chain Sector, Canadian Logistics Skills Committee, 2005

2.6.2 Future Labor Demands

Highlights

- For marine transportation, approximately 2,625 persons are expected to be hired between 2013 and 2018. The most in demand will be: deckhands, master mariners, administrative staff and longshoremen/stevedores.
- Data for Quebec is scarce. The most frequently vacant jobs are those of stokers and mechanics.
- The Canadian logistics industry is currently facing a labor shortage as a result of retirements.

There are few recent studies on this subject. No studies were found on labor demand forecasts in the air and rail transportation sectors.

Marine Transportation

The only relatively recent study dealing with labor demand forecasts was the one done by Zins Beauguesne and Associates for the *Comité sectoriel de main-d'œuvre de l'industrie maritime* in April 2008. According to that study, the marine transportation industry was expected to have hired approximately 4,825 persons between 2008 and 2013 and should take on approximately 2,625 persons between 2013 and 2018. Estimates by Zins Beauguesne and Associates showed that the Quebec marine workforce consisted of 12,400 persons in 2008 (including approximately 2,425 jobs in cruise and ferry lines. It should be noted that the marine industry was defined in a broader manner in the Zins Beauguesne and Associates study than in this study, since it included passenger transportation. It nevertheless allows certain findings to be elucidated. Indeed, a considerable number of hirings are foreseen for the next few years. Over 50% of hirings between 2013 and 2018 for marine personnel in Quebec will be due to retirements. The remainder will be divided equally between the creation of new jobs and the replacement of existing personnel due to turnover.

Reasons for the future hiring of marine personnel in Quebec over the next few years			
	Hires by 2011	Hires between 2011 and 2013	Hires between 2013 and 2018
Navigating personnel			
New positions (business expansion, etc.)	17%	20%	20%
Retirements only (not including layoffs, voluntary departures, etc.)	45%	46%	51%
Replacement of existing staff (resignations, turnover)	39%	34%	29%
Non-navigating personnel			
New positions (business expansion, etc.)	31%	20%	23%
Retirements only (not including layoffs, voluntary departures, etc.)	51%	59%	57%
Replacement of existing staff (resignations, turnover)	19%	21%	20%

Source: *Étude sectorielle sur les effectifs de la main-d'œuvre maritime au Québec*, Zins Beauguesne and Associates, 2008

Still based on the Zins Beauguesne and Associates study, the jobs that marine industry enterprises will need the most will be large numbers of shipboard personnel from now until 2018, primarily deckhands (unspecialized) and master mariners (in particular masters, limited).

As far as non-shipboard personnel are concerned, company requirements in large numbers will be mainly for administration staff (managers and administrative support) and longshoremen/stevedores.

Road Transportation

For road transportation, the only study found on the Quebec workforce is the one carried out by Zins Beaudesne and Associates for Camo-route in 2012. Labor demand forecasting was handled through the survey they did. The period covered for hiring forecasts ran from 2011 to 2013. The study showed the following:

- 10 to 20% of the companies surveyed plan on creating new positions and 20 to 30% plan to be hiring to replace people in existing jobs;
- The jobs for which most of the hiring will be done to replace existing personnel are material handlers and drivers holding a Class 1 licence;
- Newly created jobs are more in the area of material handlers and mechanics.

Two other reports from which Quebec data could be extracted were produced by the Canadian Trucking Human Resources Council in 2012.² According to these reports, projected jobs growth for Quebec will be -5.6% from 2011 to 2017 and -12.4% from 2011 to 2021. It should be noted that no explanation was given for this anticipated drop in job numbers.

According to the data for Canada, an increase in job numbers of approximately 12% is foreseen from 2012 to 2017 and an increase of 20% is expected from 2012 to 2021.

In addition, these reports mention that among the Quebec companies responding to their survey the most commonly vacant positions in 2011 were drivers and mechanics, representing about 7% of the jobs in these categories.

Logistics

The study that KPMG uncovered on the logistics industry workforce dates back to 2005, i.e. Strategic Human Resources Study of the Supply Chain Sector carried out by the Canadian Logistics Skills Committee. The data presented in this study on job number projections in the industry are not current enough to be used in our study. Although the Canadian Supply Chain Sector Council updated this study in 2012, no data are provided on future labor demand. It is mentioned that the industry "will now be faced with a shortage of specialized labor resulting from the retirement of experienced employees." Retirements and raiding are serious problems in all areas and companies of all sizes. However, the data shows that the raiding effects are a greater concern in large organizations

The expected increase in outsourcing of certain logistics operations should also have an increasing impact on labor demand in this sector of activity.

² *Beyond the Wheel – Final Report for Industry – 2012 and Beyond the Wheel – Survey Technical Report – 2012*

2.6.3 Available Training

In order to put together a portrait of training available in the GMA, KPMG consulted a number of data sources:

- Strategic Human Resources Study of the Supply Chain Sector, produced by the Canadian Logistics Skills Committee in 2005;
- *Diagnostic de la main-d'œuvre dans le secteur du transport routier de marchandises au Québec*, Zins Beaudesne and Associates, 2012;
- *Étude sectorielle sur les effectifs de la main-d'œuvre maritime au Québec*, Zins Beaudesne and Associates, 2008;
- Website <http://www.railwaylearning.com/>;
- Website <http://inforoutefpt.org>

Appendix G indicates training offered at the secondary level (vocational), colleges and universities. It also includes training offered by various industry associations. Generally, courses offered by associations are conducted on line. Moreover, some training programs do not lead to a diploma and are not offered by the associations. Such programs have been classified under the heading "Professional Development."

From the training availability viewpoint, consulting the different sources showed no difficulty in this respect with the exception of aircraft pilot training. The succession problem appears to be more related to a lack of attraction to the industry than a training availability problem.

3

Survey of GMA companies



3 Survey of GMA Companies

3.1 Methodology and Limitations

Highlights

- Two company “populations” were surveyed: service providers and users
- In terms of overall volume of goods traded in the GMA, the respondents handled slightly more than 20% of the estimated tonnage

In order to put together a portrait of the freight transportation logistics industry in the Greater Montreal Area, a questionnaire was sent to companies in the industry. Two categories of businesses were surveyed:

Suppliers or service providers: all businesses engaged primarily in providing transportation and logistics services to local or international enterprises that are active in the supply of goods.

Users: all businesses in a variety of industries having their own internal transportation operations (including drivers and vehicle fleets) and logistics facilities (warehouses or distribution centres).

Since the study focused primarily on the T&L industry (rather than a comprehensive profile of all companies and industries), the suppliers survey targeted a larger number of participants. For this reason, the form intended for these businesses was sent to them electronically to capture and compile a large number of responses more easily. The methodology followed in administering the questionnaire and gathering the data for suppliers is described in Appendix C.

Selection of the businesses to be surveyed online comes from a compilation of several lists of enterprises provided by various associations, as described in Appendix C. The surveyed businesses are not from a large sampling pool size and are not the result of a statistical approach enabling a simple, direct extrapolation of results to the overall industry. They do however allow a determination of certain trends and findings.

3.1.1 Approach to Analysis of Supplier Results

This section provides an analysis of results obtained from the questionnaire. The number of respondents retained for analysis is 53 as explained in Appendix C. It should however be noted that this number may vary from table to table, since some respondents may not have answered certain questions and some partial answers have been retained. Moreover, several answers were possible for some questions. The number of respondents may therefore be other than 53. In all, the 53 respondents handled nearly 29 million tonnes of cargo, which amounts to 23% of the volume measured for the GMA.

Also, respondents were asked to identify their primary sector of activity. They could choose from the following sectors:

- Carrier;
- Forwarding agent;
- Brokerage;
- Logistics integrator (4PL);
- Warehousing and distribution (including 3PL);
- Terminal operator;
- Other.

For confidentiality reasons, responses from forwarding agents and brokerages were merged, as were those of logistics integrators and warehousing and distribution companies. In fact, only two brokerages responded to the survey. These were transportation brokers rather than customs and clearance brokers and it is reasonable to merge their answers with those of the 15 forwarding agents who answered the questionnaire, since their activities are of a similar nature. Also, two logistics integrators and three warehousing and distribution companies responded to the survey. Their answers were combined as well because their activities are similar.

Two respondents identified their primary sector of activity as “other.” They were in fact companies that could not be grouped together with other sectors for analysis purposes. For confidentiality reasons, KPMG will not disclose the activity sectors in which they operate, but they are definitely involved in the transportation and logistics industry.

A further level of analysis was added for certain responses from carriers. The type of carrier was determined – air, rail, marine and road. Based on the answers received from our respondents, it was relatively easy to identify a carrier’s primary mode of transportation. Looking at the distribution of income from the services offered by the respondents enabled us to identify the primary mode. For most of them, over 60% of income came from one particular mode of transportation. For two respondents, it was a follow-up interview that enabled KPMG to determine the primary mode. It is worth mentioning that the two rail carriers who responded to the questionnaire were Canadian National, or officially the Canadian National Railway Company (CN), and Canadian Pacific (CP).

To see our analysis of the results of each question in the online survey, readers are invited to consult Appendix F.

3.1.2 Approach to User Survey

The survey of user companies is intended as a sampling of industries to gain a customer perspective of transportation and logistics services. This more limited survey was sent to nearly 80 large companies in various industries to the direct attention of persons responsible for logistics functions and operations. The targeted manufacturers, wholesalers and retailers received their forms by email and returned them the same way. Compilation of results was carried out manually and follow-up calls were made in order to validate the information received.

The subjects covered in the user survey are basically the same as in the service provider survey. Despite the sensitivity of the information that was shared, 13 companies answered this version of the survey. In all, these respondents handled nearly three million tonnes of goods, or 2% of the volume determined for the GMA.

3.2 Earnings of Responding Companies

Highlights

- Over half of the respondents generated more than \$50 million in 2012.
- The GMA share varies from one enterprise to another and it is difficult to determine a trend comparing the size of the company and the GMA share of total company earnings.

In order to quantify their magnitude, all the companies responding to the questionnaires, including logistic service PROVIDERS and USERS, were surveyed on their earnings.

For logistics service PROVIDERS, over half of the respondents had generated more than \$50 million in 2012. The large players are therefore overrepresented in our sampling, which is explained by the fact that KPMG was targeting the largest possible portion of the industry in terms of earnings generated.

Among the USER companies, 12 of the 13 respondents (92%) had income in excess of \$50 million, although their products and services ranged beyond the scope of this study. The earnings aspect will not be further pursued here.

3.2.1 Earnings of Transportation and Logistics Service Providers

3.2.1.1 Total Earnings and GMA Share of Total Earnings

Only logistics service providers were surveyed about their earnings. Over half of the respondents had generated more than \$50 million in 2012. The large players are therefore overrepresented in our sampling, which is explained by the fact that KPMG was targeting the largest possible portion of the industry in terms of income generated.

Earnings of transportation and logistics service providers in 2012		
	n	%
Less than 1MM\$	3	6%
Between 1 and 5 MM\$	7	13%
Between 5 and 10 MM\$	3	6%
Between 10 and 25 MM\$	6	11%
Between 25 and 50 MM\$	4	8%
Over 50 MM\$	30	57%
Total	53	100%

Source: KPMG 2013 online survey

A total company earnings breakdown in terms of the GMA share of those earnings enables us to show that the GMA share varies from company to company. Thus there are as many companies that generate less than 40% of their income in the GMA as those for which the GMA accounts for 60% of their income. Consequently, the territory covered by the sampling of respondents is vast: local for some local and international for others.

Distribution of total earnings in 2012 according to the share of earnings generated in the GMA												
	Less than 20 %		%		%		%		80 % and up		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Less than 1MM\$	2	67%	0	0%	0	0%	0	0%	1	33%	3	100%
Between 1 and 5 MM\$	0	0%	0	0%	1	20%	2	40%	2	40%	5	100%
Between 5 and 10 MM\$	0	0%	0	0%	0	0%	0	0%	2	100%	2	100%
Between 10 and 25 MM\$	1	17%	1	17%	0	0%	2	33%	2	33%	6	100%
Between 25 and 50 MM\$	1	33%	1	33%	0	0%	1	33%	0	0%	3	100%
Over 50 MM\$	8	31%	8	31%	0	0%	3	12%	7	27%	26	100%
Total	12	27%	10	22%	1	2%	8	18%	14	31%	45	100%

Source: KPMG 2013 online survey

3.2.1.2 Medium-term Trend for GMA-generated Earnings

Highlights

- Respondents are optimistic about the short-term future of the industry, as nearly two-thirds expect their earnings to grow over the next three years, with a mean projected growth of 9.5%.

Of the 44 respondents who answered the question on their projected change in earnings over the next three years, 28 were expecting an increase, with a mean projected earnings increase of 9.5%; 14 responded that their earnings would remain stable and only two said they were expecting a decline, by an average of 22.5%. So respondents are optimistic about the short-term prospects of the industry, since almost two-thirds foresee an increase in their billings. As for the two respondents who expected a drop in income over the next three years, KPMG did a follow-up interview with one of these companies and the reason given for the decline was the expected economic situation.

Expected earnings change over the next three years (2013 to 2015)									
	Increasing		Δ Predicted average	Stable		Decreasing		Δ Predicted average	Total
	n	%		n	%	n	%		
Earnings	28	64%	9.46%	14	32%	2	5%	-22.50%	44

Source: KPMG 2013 online survey

Forwarding agents are more optimistic than the overall group of respondents in terms of expected change in earnings in the GMA over the next three years. Indeed, 77% of them foresaw an increase compared to 64% among the overall group of respondents. As regards the stability of future earnings, the terminal operators are the least optimistic at 60%.

Distribution of the predicted change in earnings over the next three years per primary sector of activity								
	Predicted change in earnings over the next three years							
	Increasing		Stable		Decreasing		Total	
	n	%	n	%	n	%	n	%
Carrier	12	63%	7	37%	0	0%	19	100%
Forwarding agent	10	77%	3	23%	0	0%	13	100%
3 and 4 PL	3	60%	1	20%	1	20%	5	100%
Terminal operator	2	40%	3	60%	0	0%	5	100%
Other	1	50%	0	0%	1	50%	2	100%
Total	28	64%	14	32%	2	5%	44	100%

Source: KPMG 2013 online survey

3.3 Logistics Services Offered by Companies

3.3.1 Services offered by Logistics Service Providers

3.3.1.1 Primary Sector of Activity

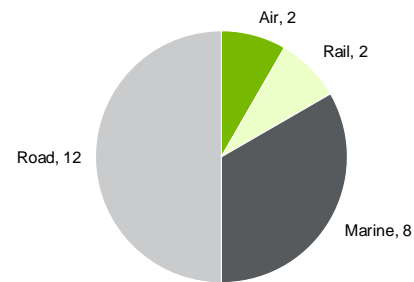
Highlights

- Carriers are the largest group in the sampling, representing 45% of all respondents. Half of these are road carriers and one-third are marine carriers.
- The sampling includes an overrepresentation of marine carriers and companies offering transportation support activities. Road carriers and companies offering warehousing services are underrepresented.
- Rail and marine carriers and terminal operators who responded to the survey are large-scale operations.

Carriers are the most represented sector of activity in the sampling, with 45% of all respondents. Of those 24 carriers, two specialized in air transportation, two in rail transportation, eight in marine transportation and 12 in road transportation.

Companies' primary sector of activity		
	n	%
Carrier	24	45%
Forwarding agent	17	32%
3 and 4 PL	5	9%
Terminal operator	5	9%
Other	2	4%
Total	53	100%

Primary sector of activity of the carriers



Source: KPMG 2013 online survey

When the primary sector of activity is compared with Statistics Canada data showing the number of establishments in the GMA by NAICS code, it can be seen that marine carriers and companies offering transportation support services are overrepresented in the sampling, whereas road carriers and companies offering warehousing services are underrepresented.

Comparison between the number of establishments by primary sector of activity					
Sector of activity	According to survey		According to Statistics Canada		Δ
	Number of respondents	%	Number of establishments with more than 5 employees	%	
Air transportation	2	3.8%	502	42.3%	-38.6%
Rail transportation	2	3.8%	424	35.8%	-32.0%
Marine transportation	8	15.1%	203	17.1%	-2.0%
Road transportation	12	22.6%	33	2.8%	19.9%
Support activities for transportation	24	45.3%	17	1.4%	43.8%
Warehousing	5	9.4%	7	0.6%	8.8%
Total	53	100%	1,186	100%	-0.0%

Sources: Statistics Canada, Canadian Business Register, Montreal CMA (December 2011) and KPMG 2013 online survey

Industry Profile –2013 Survey

Services Offered

Carriers, particularly rail and marine carriers, are larger than the sampling average, whereas forwarding agents are more diversified in size and include fewer companies with more than \$50 million in earnings compared to the overall sampling.

Distribution of total earnings in 2012 according to the sector of activity												
	Carrier		Forwarding agent		3 & 4 PL		Terminal operator		Other		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Less than 1MM\$	1	4%	1	6%	1	20%	0	0%	0	0%	3	6%
Between 1 and 5 MM\$	2	8%	4	24%	1	20%	0	0%	0	0%	7	13%
Between 5 and 10 MM\$	0	0%	3	18%	0	0%	0	0%	0	0%	3	6%
Between 10 and 25 MM\$	2	8%	2	12%	1	20%	0	0%	1	50%	6	11%
Between 25 and 50 MM\$	2	8%	1	6%	0	0%	1	20%	0	0%	4	8%
Over 50 MM\$	17	71%	6	35%	2	40%	4	80%	1	50%	30	57%
Total	24	100%	17	100%	5	100%	5	100%	2	100%	53	100%

Source: KPMG 2013 online survey

Distribution of total earnings in 2012 by primary sector of activity										
	Air		Rail		Marine		Road		Total respondents	
	n	%	n	%	n	%	n	%	n	%
Less than 1MM\$	0	0%	0	0%	0	0%	1	8%	3	6%
Between 1 and 5 MM\$	0	0%	0	0%	0	0%	2	17%	7	13%
Between 5 and 10 MM\$	0	0%	0	0%	0	0%	0	0%	3	6%
Between 10 and 25 MM\$	0	0%	0	0%	0	0%	2	17%	6	11%
Between 25 and 50 MM\$	1	50%	0	0%	1	13%	0	0%	4	8%
Over 50 MM\$	1	50%	2	100%	7	88%	7	58%	30	57%
Total	2	100%	2	100%	8	100%	12	100%	53	100%

Source: KPMG 2013 online survey

3.3.1.2 Services Offered

Highlights

- Most respondents offered a more or less extended range of services with an average of almost four services per respondent.
- 3PLs and 4PLs offer the most services.

All Respondents

Most of the respondents offer a more or less broad range of services, with an average of 3.8 services per respondent. 3PL and 4PL service providers as well as forwarding agents are the companies that offer the most services with an average of 6.6 and 5.6 services respectively.

Distribution of services offered in the GMA per primary sector of activity												
	Carrier		Forwarding agent		3 and 4 PL		Terminal operator		Other		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Road transportation	16	26%	15	16%	5	15%	1	9%	0	0%	37	18%
Marine transportation	9	15%	17	18%	2	6%	0	0%	1	50%	29	14%
Warehousing	9	15%	8	8%	5	15%	2	18%	0	0%	24	12%
Transportation management	4	6%	11	12%	5	15%	1	9%	0	0%	21	10%
Air transportation	4	6%	14	15%	2	6%	0	0%	0	0%	20	10%
Value added activities	6	10%	5	5%	5	15%	1	9%	0	0%	17	8%
Transshipment	6	10%	3	3%	2	6%	5	45%	0	0%	16	8%
Customs brokerage and clearance	1	2%	11	12%	2	6%	0	0%	0	0%	14	7%
Rail transportation	4	6%	7	7%	2	6%	0	0%	0	0%	13	6%
Administrative services	2	3%	2	2%	2	6%	1	9%	0	0%	7	3%
Supply chain management/integration	1	2%	2	2%	1	3%	0	0%	0	0%	4	2%
Other service	0	0%	0	0%	0	0%	0	0%	1	50%	1	0%
Total	62	100%	95	100%	33	100%	11	100%	2	100%	203	100%

Source: KPMG 2013 online survey

Note: Transportation management includes choice of carrier, cargo tracking, road fleet management and price negotiations.

Value-added activities include product packaging, product marking and labelling, product repairs, component or product assembly and installation, selected manufacturing operations and reverse logistics.

Transshipment operations include terminal operators.

Administrative services include management of orders and returns, customer service and factoring (transaction financing).

Supply chain management/integration includes purchasing, procurement and ownership of inventories.

Industry Profile –2013 Survey
Services Offered

Carriers

Among the carriers, road carriers offered the most services, with an average of 3.4. Moreover, most of them, i.e 75%, provide warehousing services. Air carriers, on the other hand, only offer air transportation.

Distribution of services offered in the GMA according to the carriers' primary sector of activity										
	Air		Rail		Marine		Road		All respondents	
	n	%	n	%	n	%	n	%	n	%
Road transportation	0	0%	1	20%	3	21%	12	29%	37	18%
Marine transportation	0	0%	0	0%	8	57%	1	2%	29	14%
Warehousing	0	0%	0	0%	0	0%	9	22%	24	12%
Transportation management	0	0%	0	0%	1	7%	3	7%	21	10%
Air transportation	2	100%	0	0%	0	0%	2	5%	20	10%
Value added activities	0	0%	1	20%	0	0%	5	12%	17	8%
Transshipment	0	0%	1	20%	1	7%	4	10%	16	8%
Customs brokerage and clearance	0	0%	0	0%	0	0%	1	2%	14	7%
Rail transportation	0	0%	2	40%	1	7%	1	2%	13	6%
Administrative services	0	0%	0	0%	0	0%	2	5%	7	3%
Supply chain management/integration	0	0%	0	0%	0	0%	1	2%	4	2%
Other service	0	0%	0	0%	0	0%	0	0%	1	0%
Total	2	100%	5	100%	14	100%	41	100%	203	100%

Source: KPMG 2013 online survey

3.3.1.3 Distribution of Earnings between Services Provided

Highlights

- 35% of respondents' earnings are generated by marine transportation and 23% by road transportation.
- Carrier earnings sources are largely related to their respective primary modes of transportation. Of the four carrier modes, road carriers are the ones that have the most diversified sources of earnings.

All Respondents

Two services generate 58% of the income in the sampling: i.e. 35% for marine transportation and 23% for road transportation. This can be explained in part by the fact that 38% of the respondents are road and marine carriers.

Income distribution in 2012 from services offered in the GMA based on primary sector of activity						
	Carrier (n: 24)	Forwarding agent	3 and 4 PL (n:5)	Terminal operator (n:5)	Other (n:2)	Total (n:53)
Road transportation	32%	54%	7%	0%	50%	35%
Marine transportation	42%	6%	22%	3%	0%	23%
Warehousing	9%	15%	6%	0%	0%	10%
Transportation management	2%	0%	1%	83%	0%	9%
Air transportation	4%	3%	33%	3%	0%	6%
Value added activities	8%	1%	3%	0%	0%	4%
Transshipment	0%	13%	3%	0%	0%	4%
Customs brokerage and clearance	1%	6%	6%	9%	0%	4%
Rail transportation	1%	1%	13%	1%	0%	2%
Administrative services	0%	0%	0%	0%	50%	2%
Supply chain management/integration	1%	0%	6%	1%	0%	1%
Other service	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Source: KPMG 2013 online survey

Carriers

For carriers, earnings sources are largely tied to the primary mode of transportation. However, the earnings sources of road carriers are slightly more diversified. Indeed, 81% of their income comes from road transportation, while 7% comes from warehousing. The remainder of their earnings are equally divided between marine transportation, air transportation, transshipment operations, value-added activities and administrative services.

Income distribution in 2012 from services offered in the GMA based on the carriers' primary sector of activity					
	Air (n:2)	Rail (n:2)	Marine (n:8)	Road (n:12)	All respondents (n:53)
Marine transportation	0%	0%	94%	2%	35%
Road transportation	0%	3%	3%	81%	23%
Air transportation	100%	0%	0%	2%	10%
Transshipment	0%	0%	3%	2%	9%
Warehousing	0%	0%	0%	7%	6%
Rail transportation	0%	97%	0%	0%	4%
Courtage en douane et dédouanement	0%	0%	0%	0%	4%
Transportation management	0%	0%	0%	2%	4%
Valued added activities	0%	0%	0%	2%	2%
Other service	0%	0%	0%	0%	2%
Administrative services	0%	0%	0%	2%	1%
Supply chain management/integration	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%

Source: KPMG 2013 online survey

3.3.1.4 Services Outsourced by Logistics Suppliers

Highlights

- 80% of respondents had used outsourcing for their transportation and logistics operations. On the average, respondents were relying on outsourcing for close to four services.
- The four transportation modes and warehousing are the services that are outsourced most frequently.

All Respondents

The four transportation modes and warehousing are the services that are outsourced most frequently. The respondents relied on outsourcing for an average of 3.9 services.

Ranking of outsourcing services used in the GMA in 2012 based on the primary sector of activity																
	Carrier			Forwarding agent			3 and 4 PL			Terminal operator			Other	Total		
	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank		n	Imp.	Rank
Road transportation	14	9.69	1	13	10.08	2	4	9.2	1	1	6	1	ND	32	9.56	1
Marine transportation	6	3.56	3	13	11.62	1	1	2.2	5	0	0	5	ND	20	6.08	2
Warehousing	8	5.38	2	6	3.92	5	3	5.8	2	0	0	5	ND	17	4.61	3
Air transportation	2	1.06	9	11	9.08	3	1	2.4	4	0	0	5	ND	14	4.08	4
Rail transportation	6	3.25	5	9	5.92	4	1	1.8	7	0	0	5	ND	16	3.83	5
Customs brokerage and clearance	5	3	6	5	3.31	7	0	0	9	1	6	1	ND	11	2.86	6
Transportation management	3	1.56	8	6	3.77	6	2	4.4	3	0	0	5	ND	11	2.67	7
Transshipment	5	3.56	3	1	0.46	9	1	1.6	8	1	5.5	3	ND	8	2.28	8
Value added activities	3	1.63	7	2	0.77	8	1	2.2	5	1	5	4	ND	7	1.58	9
Administrative services	1	0.56	10	1	0.23	11	0	0	9	0	0	5	ND	2	0.33	10
Supply chain management/integration	0	0	11	1	0.31	10	0	0	9	0	0	5	ND	1	0.11	11

Source: KPMG 2013 online survey

Carriers

The use of subcontractors for road transportation is similar between the respondents, with this service in first or second place among the most commonly outsourced services. Even for road carriers, road transportation is the most frequently used form of outsourcing. Transshipment operations are more commonly outsourced by marine

Industry Profile –2013 Survey Services Offered

carriers than the overall group of respondents, which is consistent with the marine transportation business model. Transportation management is a service that is more commonly outsourced (3rd place) by 3PL and 4PL operators and road carriers than by the overall group of respondents.

Ranking of outsourcing services used in the GMA in 2012 for carriers											
	Air	Rail	Marine			Road			Total		
			n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank
Road transportation	ND	ND	5	7.14	1	8	11.75	1	32	9.56	1
Marine transportation	ND	ND	3	5	3	3	2.75	5	20	6.08	2
Warehousing	ND	ND	2	3	6	5	6.63	2	17	4.61	3
Air transportation	ND	ND	0	0	8	2	2.13	7	14	4.08	4
Rail transportation	ND	ND	3	4.71	4	3	2.38	6	16	3.83	5
Customs brokerage and clearance	ND	ND	2	3.14	5	3	3.25	3	11	2.86	6
Transportation management	ND	ND	0	0	8	3	3.13	4	11	2.67	7
Transshipment	ND	ND	4	6.71	2	1	1.25	9	8	2.28	8
Value added activities	ND	ND	1	1.43	7	2	2	8	7	1.58	9
Administrative services	ND	ND	0	0	8	1	1.13	10	2	0.33	10
Supply chain management/integration	ND	ND	0	0	8	0	0	11	1	0.11	11

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

3.3.2 Logistics Services of User Companies

The sampling of respondent user enterprises includes a variety of retailers, distributors and manufacturers in a range of industries, as illustrated by this table.

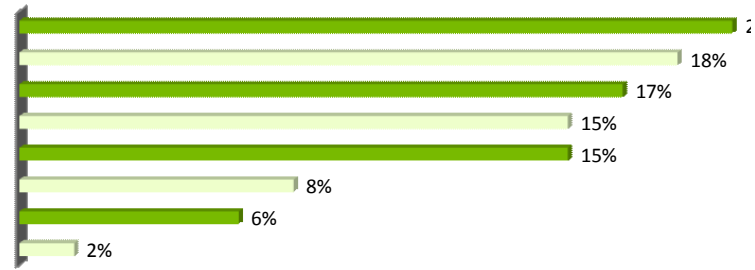
Merchandise type	Retailer	Distributor	Manufacturing	Total
Food and drink		1	3	4
Food retailer	1			1
General merchandise store	1	1		2
Health products and personal care	2	1		3
Metal products			2	2
Clothing and accessories	1			1
General total	5	3	5	13

Source: KPMG 2013 online survey

As the section on logistics expenditures will show, the logistics operations of respondent businesses are outsourced to a degree of 54%. The tables below show ranges of internal and outsourced services according to the nature of the operations and distribution of expenditures. Since the “management” functions (supply chain integration, administration, transportation management, etc.) are of critical or strategic importance, the great majority of companies keep these services as part of their internal operations. Outsourced services are generally related to transportation, road transportation being the most important mode.

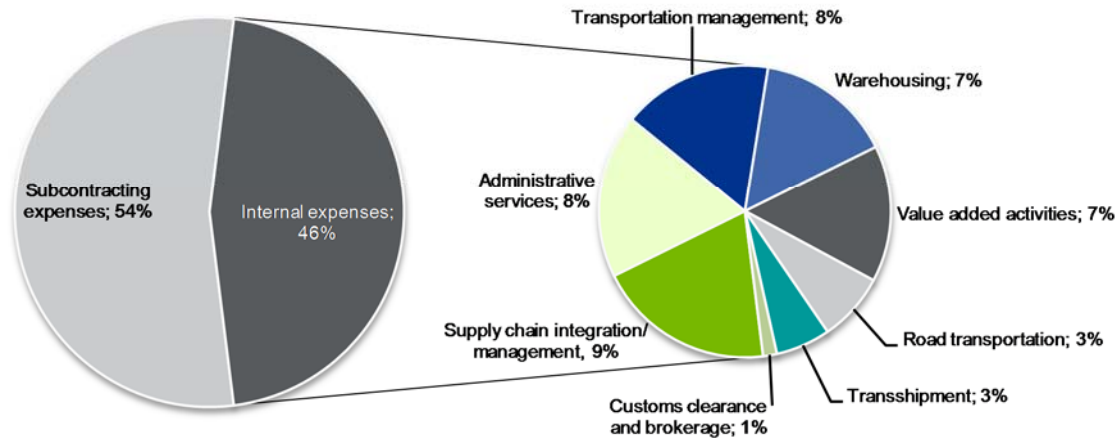
Industry Profile –2013 Survey
 Services Offered

Transportation and logistics services offered by your company in the GMA	Nb	%
Management / integration of the supply chain - including purchases, procurement and ownership of inventories	13	20%
Administrative Services - including orders and returns management, customer service and factoring (trade finance)	12	18%
Transportation management - including carrier selection, merchandise tracking, fleet management and tariff negotiation	11	17%
Storage - including cargo handling, consolidation of shipments and inventory management	10	15%
Value-added activities - including product packaging, marking / labeling, product repair, assembly and installation of components or products, selected manufacturing operations and reverse logistics	10	15%
Road transportation	5	8%
Transshipment - including terminal operator	4	6%
Customs brokerage and clearance	1	2%
Total	66	100%



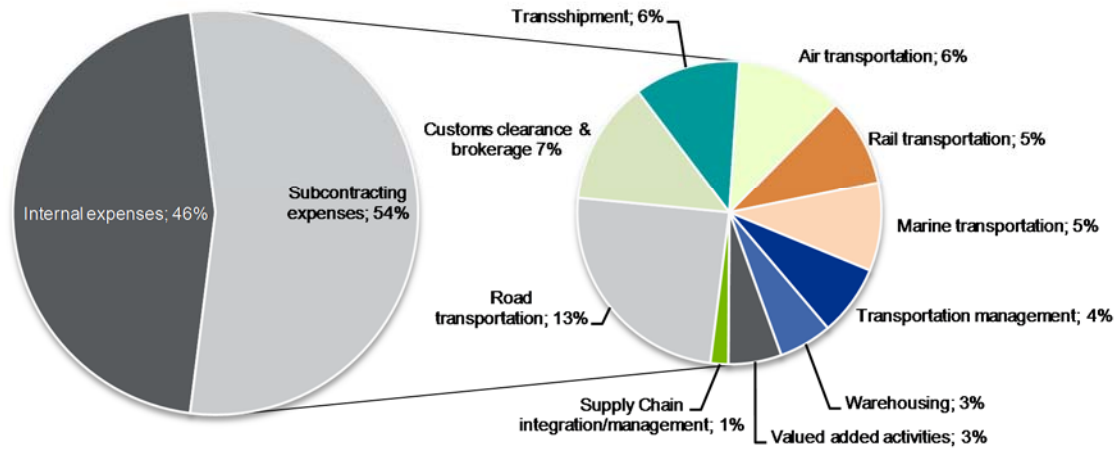
Source: KPMG 2013 online survey

Proportion between domestic /outsourcing spending and distribution of domestic spending



Source: KPMG 2013 online survey

Proportion between domestic /outsourcing spending and distribution of domestic spending



Source: KPMG 2013 online survey

3.4 Expenditures

3.4.1 Expenditures of Logistics Service Providers

3.4.1.1 Breakdown of Logistics Service Provider Expenditures

Highlights

- Payroll represents the largest expenditure, accounting for 38% of total payout.
- The great majority of respondents rely on services provided by other logistics suppliers to complete their offerings. Outsourcing places second with 29% of total expenditures.

All Respondents

Payroll represents the largest expenditure in this sampling with 38% of total payout. Outsourcing expenditures are also significant as they account for 29% of total company expenditures. However, this is an expenditure that remains within the industry, since the contractors used are for the most part companies that provide logistics and transportation services. Outsourcing is widely used in the sampling. Indeed, 80% of the respondents relied on contractors for transportation and logistics activities in the GMA in 2012. The other expenditures generally consist of maintenance and repair costs, insurance, administration expenses and management expenses as well as taxes and duties.

Expenditure report for 2012 in the GMA per primary sector of activity						
	Carrier (n:15)	Forwarding agent (n:12)	3 and 4 PL (n:4)	Terminal operator (n:3)	Other (n:2)	Total (n:36)
Wages	37%	30%	38%	62%	54%	38%
Subcontracting	20%	52%	24%	2%	0%	29%
All other expenses	18%	3%	10%	20%	28%	13%
Rent	4%	9%	18%	4%	5%	7%
Fuel	13%	1%	5%	4%	0%	7%
Equipment amortization	4%	1%	6%	5%	12%	4%
Equipment rental	2%	2%	0%	0%	0%	2%
Building amortization	1%	2%	0%	2%	2%	1%
Total	100%	100%	100%	100%	100%	100%

Source: KPMG 2013 online survey

Carriers

The breakdown of carriers' expenditures shows that outsourcing is used slightly less than by the overall group of respondents, while their other expenditures and fuel costs are higher than for the overall group. With respect to fuel expenses, a higher cost than for the overall group of respondents is normal, since carriers use fuel in greater amounts than the other sectors of activity.

Forwarding Agents

Expenditures by forwarding agents arise for the most part from outsourcing (52% of total payout) and payroll (30%). Given the business model of forwarding agents, it is normal for outsourcing expenditures to be so high.

3PL and 4PL

The proportion of expenditures devoted to buildings (rent and amortization) is higher for 3PL and 4PL operators than for the overall respondent group (16% for 3PL and 4PL compared to 8% for the overall sampling), which can be explained by the fact that the floorspace of their buildings must normally be greater for companies offering warehousing services (33% of 3PL and 4PL earnings come from warehousing) than for other sectors of activity.

Terminal Operators

Wages are a major expenditure for terminal operators, accounting for 62% of total expenditures. They do not use outsourcing extensively (2% of total expenditures).

Carriers by Mode of Transportation

The breakdown of expenditures for carriers illustrates the fact that air and marine carriers rely more on outsourcing than road carriers. Proportions of payroll and fuel expenditures are relatively similar for each type of carrier.

Expenditure report of 2012 in the GMA according to the carriers' primary sector of activity					
	Air (n:2)	Rail	Marine (n:3)	Road (n:9)	All respondents (n:36)
Wages	37%	ND	33%	40%	38%
Subcontracting	36%	ND	35%	15%	29%
All other expenses	5%	ND	15%	17%	13%
Rent	8%	ND	4%	3%	7%
Fuel	10%	ND	11%	15%	7%
Equipment amortization	5%	ND	1%	5%	4%
Equipment rental	0%	ND	2%	3%	2%
Building amortization	0%	ND	0%	1%	1%
Total	100%	ND	100%	100%	100%

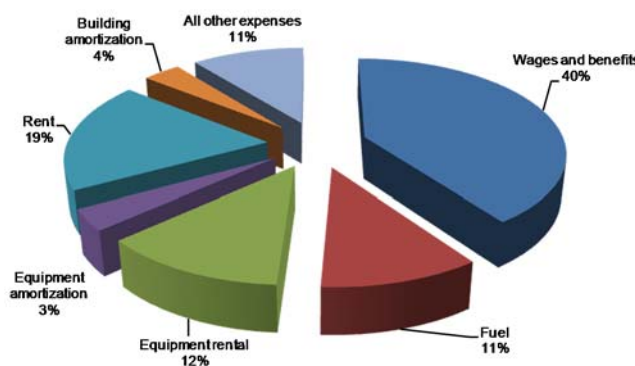
Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

3.4.2 Internal Expenditures for User Companies

In terms of types of expenditures (rather than services), labor costs (wages and benefits) remain the largest component of internal logistics costs (excluding outsourcing costs). The second-largest expenditure involves infrastructure costs, which amount to 23% (rent and building amortization).

Outsourcing, which is excluded from this breakdown, represents 54% of the expenditures of user companies, as mentioned in the previous section.



3.5 Operational Data

Highlights

- The overall group of respondents, both suppliers and users, handled a total of 31 million metric tonnes in 2012, or just over 20% of total estimated tonnage for the GMA.
- For logistics service providers, over 60% of handled tonnage was in containers and nearly 25% were in the form of dry materials. However, this breakdown changes depending on the respondents' primary sector of activity.
- Logistics service users, over 80% of cargo is in dry form, since it mainly consists of the handling involved in their shipments.

3.5.1 Tonnage Handled in the GMA by Logistics Suppliers

3.5.1.1 Tonnage Handled per Mode of Transportation

In the overall respondent group, marine transportation occupies the largest proportion of the tonnage handled in the GMA in 2012, whether in thousands of metric tonnes or twenty-equivalent container units.

Type	Air	Rail	Marine	Road	TOTAL
Tonnes					
Total	94	3,825	19,708	4,928	28,555
Nb. respondents	8	7	22	17	30
Average	11.8	546.4	895.8	289.9	951.8
Containers (TEU)					
Total	5,387	12,326	850,897	179,978	1,048,588
Nb. respondents	5	5	19	18	24
Average	1,077	2,465	44,784	9,999	43,691

Source: KPMG 2013 online survey

Over 80% of the respondents handled less than two million metric tonnes in 2012. In fact, on the average, they handled nearly one million tonnes in 2012. The 30 companies that answered this question handled nearly 29 million tonnes in 2012.

Total tonnage handled in the GMA in 2012 (in thousands of metric tonnes)		
	n	%
Less than 2,000	23	82%
From 2,000 to 3,999	3	11%
From 4,000 to 5,999	0	0%
From 6,000 to 7,999	1	4%
From 8,000 to 9,999	0	0%
10,000 and up	1	4%
Total	28	100%

Source: KPMG 2013 online survey

3.5.1.2 Breakdown of Tonnage for Logistics Suppliers

All Respondents

The breakdown of the total tonnage handled in the GMA in 2012 shows that over 60% of the tonnage is containerized and nearly 25% are dry materials (e.g. boxes). The breakdown changes however depending on the

primary activity sectors of the respondents. In the four sectors shown, forwarding agents are the ones who have the largest portion of cargo handled in containerized form, i.e. 83% of their tonnage. For 3PL and 4PL operators, containers and dry materials are handled in almost the same proportions with 46% and 51% of total tonnage respectively. As for terminal operators, they are the ones who handled the highest proportion of bulk liquids at 20% of total tonnage handled. Surprisingly, the six marine carriers who answered this question, gave a breakdown of total tonnage handled in the GMA as follows: 67% for containers and 33% for bulk solids. Therefore, the bulk liquids handled by terminal operators must be moved by marine carriers who did not respond to the survey.

Breakdown of cargo types handled in the GMA in 2012 according to the primary sector of activity						
	Carrier (n: 17)	Forwarding agent (n: 9)	3 and 4 PL (n: 5)	Terminal operator (n:5)	Other	All respondents (n:37)
Container	53%	83%	46%	72%	ND	61%
Dry	28%	7%	51%	2%	ND	24%
Solid bulk	12%	10%	3%	6%	ND	10%
Liquid bulk	7%	1%	0%	20%	ND	6%
Total	100%	100%	100%	100%	ND	100%

Source: KPMG 2013 online survey

Carriers

The proportion of containers is very high for air carriers, with 97% of their total tonnage handled in the GMA in 2012. As mentioned in the paragraph above, it is not possible to determine a relationship between the breakdown of cargo types handled in the GMA in 2012 by terminal operators and marine carriers, which can only be explained by the fact that the marine carriers who responded to the survey do not necessarily do business with the terminal operators who responded.

Breakdown of cargo types handled in the GMA in 2012 according to carriers' primary sector of activity						
	Air (n:2)	Rail	Marine (n:6)	Road (n:8)	Other	All respondents (n:37)
Container	97%	ND	67%	31%	ND	61%
Dry	3%	ND	0%	56%	ND	24%
Solid bulk	0%	ND	33%	0%	ND	10%
Liquid bulk	0%	ND	0%	13%	ND	6%
Total	100%	ND	100%	100%	ND	100%

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

3.5.2 Tonnage Handled by Users in the GMA

Only six of the 13 logistics service user respondents gave their cargo tonnage, which amounted to a total of 2.2 million tonnes (an average of 354 thousand tonnes per respondent). 20.4% of this freight was handled by contractors. It is important to understand that the majority of our respondents accounted for their tonnage only in terms of outbound shipments (inbound shipments being mostly the responsibility of their suppliers). Over 80% of the tonnage was in the form of dry materials.

3.5.3 Refrigerated and/or Frozen Goods and Hazardous Materials

Highlights

- For the overall group of respondents, 11% of the tonnage handled was devoted to refrigerated and/or frozen goods and 8% to hazardous materials.
- The proportions of refrigerated and/or frozen goods and of hazardous materials varies from one respondent to another.
- Some companies appear to have developed a service differentiator by specializing in the handling of these types of materials.

Note: Only logistics service providers were surveyed about refrigerated goods and hazardous materials.

In terms of the mean total tonnage handled by the respondents in the GMA in 2012, 11% dealt with refrigerated and/or frozen goods and 8% with hazardous materials.

However, upon analysis of the breakdown of these percentages, it can be seen that they vary from one respondent to another. Indeed, for over half of them, less than 5% of the total tonnage handled was devoted to refrigerated and frozen goods. Moreover, for more than 40% of the respondents, none of the cargo handled was refrigerated or frozen. On the other hand, there is reason to believe that this service is a differentiator for some companies, since almost 10% of the respondents reported proportions of refrigerated and/or frozen goods of 50% or more. During follow-up interviews, it was said that most refrigerated and/or frozen cargo is made up of agricultural and food products and pharmaceuticals that need to be kept at a controlled temperature.

As for hazardous materials, over 70% of the respondents report that these represent less than 5% of the total tonnage they handled. Moreover, more than 45% of respondents handle no hazardous materials. As in the case of refrigerated and frozen goods, certain companies appear to be specializing in transportation and logistics for hazardous materials, since 50% or more of their handled tonnage involves hazardous materials. Most of the hazardous materials that are handled are petroleum products or chemicals (or products containing chemicals such as electronics).

Percentage of total tonnage handled in 2012 related to refrigerated and/or frozen merchandise		
	n	%
Less than 1 %	15	42%
From 1 to 4 %	4	11%
From 5 to 9 %	4	11%
From 10 to 19 %	7	19%
From 20 à 49 %	3	8%
50 % and up	3	8%
Total	36	100%
Percentage of total tonnage handled in the GMA in 2012 related to hazardous materials		
	n	%
Less than 1 %	16	44%
From 1 to 4 %	10	28%
From 5 to 9 %	4	11%
From 10 to 19 %	3	8%
From 20 à 49 %	1	3%
50 % and up	2	6%
Total	36	100%

Source: KPMG 2013 online survey

3.6 Sectors of Customer Activity

Highlights

- The breakdown of total tonnage handled in the GMA in 2012 per respondents' customers' sector of activity shows that the largest sectors are wholesale trade and retail trade.

Note: Only logistics service providers were surveyed about the sectors of their customers.

The largest sectors of activity were wholesale trade (24%) and retail trade (22%). Agriculture, hunting & fishing and manufacturing each occupy 13% of the total tonnage handled in the GMA in 2012.

Breakdown of total tonnage handled in the GMA in 2012 per respondents' customers' sector of activity	
Sector of activity of the clients	%
Wholesale	24%
Retail business	22%
Agriculture, hunting and fishing	13%
Manufacturing	13%
Construction	6%
Extraction and mining	5%
Forestry	4%
Oil and gas extraction	4%
Waste management and sanitation services	3%
Accommodation and food services	2%
Health care and social assistance	2%
Arts, entertainment and recreation	1%
Public administrations	1%
Service companies	1%
Total (n: 34)	100%

Source: KPMG 2013 online survey

3.7 Labor and Training

3.7.1 Numbers of Employees among Logistics Suppliers

Highlights

- The respondents employed an average of 250 full-time equivalents. The numbers however vary from one respondent to another.
- The overall group of respondents accounted for almost 11,500 FTE jobs in the GMA in 2012, i.e. nearly 26% of all direct jobs in the GMA.

All Respondents

On the average, respondents employed 250 full-time equivalents (FTE³) in the GMA in 2012. However, the job numbers vary from one company to another. Indeed, almost half of the companies employ 10 to 100 FTE. The overall group of respondents employed nearly 11,500 FTE in the GMA in 2012.

The breakdown of employee numbers is hard to analyze based on the primary sector of activity of the respondents, since such an analysis needs to be done in conjunction with the size of the company (earnings). Now the answers to the questionnaire do not inform us of the magnitude of the earnings generated in the GMA by the respondents. It is only possible to say that the carriers are the ones who have the most FTE jobs in the GMA in 2012, since over half of them employed more than 150 FTE.

Number of full-time equivalent employees in 2012 in the GMA based on sector of activity												
	Carrier		Forwarding agent		3 and 4 PL		Terminal operator		Other		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Less than 10	1	5%	2	15%	1	20%	1	20%	0	0%	5	11%
From 10 to 49	4	19%	5	38%	2	40%	1	20%	1	50%	13	28%
From 50 to 99	3	14%	2	15%	2	40%	2	40%	0	0%	9	20%
From 100 to 149	2	10%	3	23%	0	0%	0	0%	0	0%	5	11%
From 150 to 499	5	24%	1	8%	0	0%	0	0%	1	50%	7	15%
500 and up	6	29%	0	0%	0	0%	1	20%	0	0%	7	15%
Total	21	100%	13	100%	5	100%	5	100%	2	100%	46	100%

Source: KPMG 2013 online survey

Carriers

The two rail carriers each employed over 500 FTE in 2012 in the GMA. Road carriers also employed proportionally more FTE than the overall group of respondents with 30% employing 150 to 499 FTE and 40% employing over 500 FTE.

Breakdown of full-time equivalent employee numbers in 2012 in the GMA based on the carriers' sector of activity									
	Air	Rail		Marine		Road		All respondents	
		n	%	n	%	n	%	n	%
Less than 10	ND	0	0%	1	14%	0	0%	5	11%
From 10 to 49	ND	0	0%	1	14%	2	20%	13	28%
From 50 to 99	ND	0	0%	2	29%	1	10%	9	20%
From 100 to 149	ND	0	0%	2	29%	0	0%	5	11%
From 150 to 499	ND	0	0%	1	14%	3	30%	7	15%
500 and up	ND	2	100%	0	0%	4	40%	7	15%
Total	ND	2	100%	7	100%	10	100%	46	100%

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

³ A full-time equivalent job is calculated on the basis of a normal 40-hour work week.

3.7.1.1 Changes in Job Numbers in the GMA

Highlights

- Over the past three years, the number of respondents' FTE employees has ranged almost evenly from increase to stability to decline. The forwarding agents had a greater proportion, i.e. 46%, of declining FTE job numbers in the GMA.
- The future appears to somewhat more promising since 57% of respondents foresee an increase in their number of the FTE jobs in the next three years.

Changes in numbers of full-time equivalent employees working in the GMA over the past three years varied greatly from one respondent to the next. Answers are nearly evenly divided between increase, stability and decline. For those whose answer was an increase, the mean percentage rise was 13%, while for those who reported a decline, the mean percentage decrease was 21%.

Change in full-time equivalent employee numbers in the GMA over the past 3 years (2010 to 2012)

	n	%	Δ Average
Increasing	17	37%	13.07%
Stable	18	39%	0%
Decreasing	11	24%	-20.73%
Total	46	100%	

Source: KPMG 2013 online survey

For carriers, the number of full-time equivalent employees in the GMA rose or remained stable in a larger proportion than among the overall respondent group (95% for carriers vs. 76% for all respondents). Forwarding agents, on the other hand, experienced a larger drop in numbers of employees working in the GMA than the overall group of respondents, since almost half of them had a decline in employee numbers over the past three years compared to just under one-quarter in the overall group of respondents. 3PL and 4PL companies all had stable or increased job numbers over the past three years.

Breakdown of the change in employee numbers in the GMA over the last three years per primary sector of activity

	Change in employee numbers over the past three years							
	Increasing		Stable		Decreasing		Total	
	n	%	n	%	n	%	n	%
Carrier	9	43%	11	52%	1	5%	21	100%
Forwarding agent	4	31%	3	23%	6	46%	13	100%
3 and 4 PL	2	40%	3	60%	0	0%	5	100%
Terminal operator	2	40%	1	20%	2	40%	5	100%
Other	0	0%	0	0%	2	100%	2	100%
Total	17	37%	18	39%	11	24%	46	100%

Source: KPMG 2013 online survey

Industry Profile – 2013 Survey Filled Positions

Respondents are more optimistic about the future, given that over half expect to have more full-time equivalent employees working in the GMA over the next three years, for a mean increase of 8%. Again for the next three years, more than one-third of respondents see stable employee numbers and slightly over 10% anticipate a decline, with a mean decrease of 10%. It should be kept in mind that, as it was pointed out in the section on earnings (section 2.6.4.), almost two-thirds of respondents expected an increase in earnings generated in the GMA over the next three years, at a mean rate of 9%, that slightly less than the remaining third foresaw stable earnings, and that 5% expected a decline averaging 22.5%. So respondents are slightly more optimistic about income growth generated in the GMA in the next three years than they are about increases in numbers of full-time equivalent jobs.

Predicted change in full-time equivalent employee numbers over the next three years (2013-2015)									
	Increasing		Δ Predicted average	Stable		Decreasing		Δ Predicted average	Total
	n	%		n	%	n	%		
Number of full-time equivalent employees	26	57%	7.67%	15	33%	5	11%	-10.00%	46

Source: KPMG 2013 online survey

Predicted change in earnings over the next three years (2013-2015)									
	Increasing		Δ Predicted average	Stable		Decreasing		Δ Predicted average	Total
	n	%		n	%	n	%		
Earnings	28	64%	9.46%	14	32%	2	5%	-22.50%	44

Source: KPMG 2013 online survey

The above table showed that nearly half of forwarding agents had experienced a decline in numbers of full-time equivalent jobs in the GMA over the past three years. The future seems more promising than the past has been, since 77% of them expect to see an increase in FTE jobs over the next three years and none of them are expecting a decline.

Breakdown of the predicted change in employee numbers in the GMA over the next three years per primary sector of activity								
	Predicted change in employee numbers over the next three years							
	Increasing		Stable		Decreasing		Total	
	n	%	n	%	n	%	n	%
Carrier	10	48%	8	38%	3	14%	21	100%
Forwarding agent	10	77%	3	23%	0	0%	13	100%
3 and 4 PL	3	60%	1	20%	1	20%	5	100%
Terminal operator	2	40%	3	60%	0	0%	5	100%
Other	1	50%	0	0%	1	50%	2	100%
Total	26	57%	15	33%	5	11%	46	100%

Source: KPMG 2013 online survey

Moreover, when compared against each other, the answers to questions on past and future changes in numbers of full-time equivalent jobs in the GMA show that of the 17 respondents who experienced an increase in numbers of employees over the previous three years, 14 (82%) also expect an increase in their workforce numbers over the next three years. Furthermore, of the 11 respondents who experienced a reduction in numbers of employees over the previous three years, only two (18%) expect once again to see a drop in their workforce

Industry Profile – 2013 Survey
 Filled Positions

numbers over the next three years. One of those two respondents explained the consecutive drops in numbers of employees by a new strategy of cost rationalization and operations optimization.

Comparison of responses between past and future change in employee numbers						
Change in employee numbers over the next three years	Change in employee numbers over the past three years					
	Increasing		Stable		Decreasing	
	n	%	n	%	n	%
Increasing	14	82%	7	39%	5	45%
Stable	2	12%	9	50%	4	36%
Decreasing	1	6%	2	11%	2	18%
Total	17	100%	18	100%	11	100%

Source: Survey

3.7.1.2 Breakdown of Numbers of Employees by Filled Position

Highlights

- The main filled positions in the the industry are operations positions, representing 34% of all jobs, as well as support and administrative positions, at 26% of all jobs.

All Respondents

The principal filled positions in the industry for the GMA are operations positions, which represent 34% of all jobs, and support and administrative positions, representing 26% of all jobs.

A breakdown of the numbers of employees per primary sector of activity shows that the proportion of senior executives is greater among forwarding agents than in other sectors of activity. The same can also be said for personnel dealing with transportation coordination, distribution and supply chain operations, a situation which can probably be explained by the business models of forwarding agents. Moreover, the forwarding agent business model must certainly explain why the proportion of operations personnel is low compared to other sectors of activity.

Breakdown of filled positions in the GMA in 2012 per primary sector of activity						
	Carrier (n:17)	Forwarding agent (n: 12)	3 and 4 PL (n:5)	Terminal operator (n:5)	Other (n:2)	Total (n:41)
Senior executives	3%	9%	6%	2%	5%	5%
Middle management executives	11%	8%	12%	18%	15%	11%
Supervisory personnel	7%	11%	9%	5%	14%	8%
Administrative personnel	24%	37%	14%	14%	47%	26%
Transport, distribution and supply chain coordination personnel	10%	28%	14%	9%	0%	15%
Operations personnel	46%	6%	45%	52%	21%	34%
Total	100%	100%	100%	100%	100%	100%

Source: KPMG 2013 online survey

Note: The following are examples of roles mentioned for the corresponding positions:

- Senior executives: president, general managers and vice-presidents
- Middle management executives: directors, managers and professionals
- Supervisory personnel: foremen and crew leaders
- Administrative personnel: clerks, office staff and administrative staff
- Operations personnel: mechanics, warehouse handlers, drivers and workers

Carriers

The breakdown of filled positions according to the carriers' primary sector of activity shows that each type of carrier has its own specific job breakdown. Rail carriers have the largest proportion of administrative and support staff in the GMA compared to the overall group of respondents, while their proportion of middle management executives is smaller than in the overall group. Among marine carriers, the proportion of middle management executives and administrative and support staff in the GMA is greater than in the overall respondent population. However, the proportion of operations personnel working in the GMA is almost four times smaller than in the overall group. For road carriers, two-thirds of their employees in the GMA work in operations positions, which is almost twice as much as in the overall group of respondents.

Breakdown of filled positions in the GMA in 2012 according to the carriers' primary sector of activity					
	Air	Rail (n: 2)	Marine (n:5)	Road (n:9)	All respondents (n:41)
Senior executives	NA	1%	4%	4%	5%
Middle management executives	NA	4%	23%	5%	11%
Supervisory personnel	NA	6%	11%	5%	8%
Administrative personnel	NA	43%	42%	12%	26%
Transport, distribution and supply chain coordination personnel	NA	12%	11%	8%	15%
Operations personnel	NA	36%	9%	66%	34%
Total	NA	100%	100%	100%	100%

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

3.7.2 Numbers of Employees among Users

Highlights

- Although respondent companies are medium and large enterprises (over 150 employees), the personnel assigned to transportation and logistics roles are relatively small in number.
- None of the respondents foresee a declining workforce over the next three years.
- Many respondents expect to see a growing workforce in the coming years despite having had a stable number of employees over the previous three years.

The majority of the respondents are medium (150 to 500 employees) and large (over 500 employees) enterprises, including retailers, distributors and manufacturers. However, when looking at those employee numbers in terms of the jobs they do, the size of the logistics teams is more irregular: seven of the 13 respondents have less than 100 employees in transportation and logistics.

Number of full-time employees per sector of activity							Number of employees in transportation and logistics per sector of activity										
	Retailer		Distributor		Manufacturing		Total			Retailer		Distributor		Manufacturing		Total	
	n	%	n	%	n	%	n	%		n	%	n	%	n	%	n	%
Less than 10	0	0%	0	0%	0	0%	0	0%	Less than 10	1	20%	0	0%	1	20%	2	15%
From 10 to 49	0	0%	0	0%	0	0%	0	0%	From 10 to 49	1	20%	0	0%	3	60%	4	31%
From 50 to 99	0	0%	0	0%	0	0%	0	0%	From 50 to 99	2	40%	1	33%	0	0%	3	23%
From 100 to 149	1	20%	0	0%	0	0%	1	8%	From 100 to 149	0	0%	0	0%	0	0%	0	0%
From 150 to 499	2	40%	2	67%	2	40%	6	46%	From 150 to 499	0	0%	2	67%	1	20%	3	23%
500 and up	2	40%	1	33%	3	60%	6	46%	500 and up	1	20%	0	0%	0	0%	1	8%
Total	5	100%	3	100%	5	100%	13	100%	Total	5	100%	3	100%	5	100%	13	100%

3.7.2.1 Changes in Employee Numbers in the GMA

As the following tables will show, the overall group of respondents appears “optimistic.” Despite a majority of respondents who already had stable workforces over the past three years, four of the 12 respondents tend to believe that their employees will grow in number in the next three years.

Breakdown of change in employee numbers in the GMA over the last three years per primary sector of activity								
	Change in employee numbers over the past three years							
	Increasing		Stable		Decreasing		Total	
	n	%	n	%	n	%	n	%
Retailer	2	67%	3	33%	0	0%	5	42%
Distributor	1	33%	2	22%	0	0%	3	25%
Manufacturing	0	0%	4	44%	0	0%	4	33%
Total	3	100%	9	100%	0	0%	12	100%

Source: KPMG 2013 online survey

Breakdown of predicted change in employee numbers in the GMA over the next three years per primary sector of activity								
	Predicted change in employee numbers over the next three years							
	Increasing		Stable		Decreasing		Total	
	n	%	n	%	n	%	n	%
Retailer	4	57%	1	20%	0	0%	5	42%
Distributor	1	14%	2	40%	0	0%	3	25%
Manufacturing	2	29%	2	40%	0	0%	4	33%
Total	7	100%	5	100%	0	0%	12	100%

Source: KPMG 2013 online survey

Comparison of responses between past and future change in employee numbers						
Change in employee numbers over the next three years	Change in employee numbers over the past three years					
	Increasing (average = 20%)		Stable		Decreasing	
	n	%	n	%	n	%
Increasing (average = 26%)	2	67%	5	56%	0	0%
Stable	1	33%	4	44%	0	0%
Decreasing	0	0%	0	0%	0	0%
Total	3	100%	9	100%	0	0%

Source: KPMG 2013 online survey

3.7.2.2 Breakdown of Employee Numbers in terms of Positions Held

The table below shows a different profile of jobs performed among manufacturers compared to retailers and distributors. Although this is based on a small number of respondents, manufacturers appear to have a high ratio of executive and supervisory personnel relative to their pool of operations employees.

Breakdown of filled positions according to primary sector of activity				
	Retailer(n=4)	Distributor (n=2)	Manufacturing (n=2)	Total (n=8)
Senior executives	0.3%	0.9%	2.4%	0.8%
Middle management executives	1.4%	1.8%	8.6%	2.8%
Supervisory personnel	3.2%	3.9%	13.4%	5.2%
Administrative personnel	2.4%	3.0%	3.8%	2.8%
Transport, distribution and supply chain coordination personnel	2.7%	4.2%	5.2%	3.5%
Operations personnel	90.0%	86.3%	66.7%	84.9%
Total	100%	100%	100%	100%

Source: KPMG 2013 online survey

3.7.3 Minimum Level of Education Required

Highlights

- For operations and coordination jobs, the required minimum level of education is, for the most part, the secondary level.
- For supervisory jobs, college is the minimum required education level.
- For executive positions, the minimum required education is the college or university level.

The table below shows the required levels of education for different logistics jobs among logistics service providers. The majority of respondents require a university degree for senior executives. For middle management executives, the minimum desired level ranges primarily from college to university, whereas employee supervisory personnel, administrative and support staff as well as transportation, distribution and supply chain coordination personnel, the desired minimum range from the secondary to college levels. For operations personnel, the minimum desired education is primarily the secondary level.

Minimum level of education required								
	None		Secondary		Collegial		University	
	n	%	n	%	n	%	n	%
Senior executives	1	3%	2	5%	5	13%	30	79%
Middle management executives	0	0%	2	5%	16	43%	19	51%
Supervisory personnel	1	3%	12	38%	16	50%	3	9%
Administrative personnel	1	3%	20	53%	15	39%	2	5%
Transport, distribution and supply chain coordination personnel	1	3%	16	55%	11	38%	1	3%
Operations personnel	4	15%	22	81%	1	4%	0	0%
Total (n:38)	8	4%	74	37%	64	32%	55	27%

Source: KPMG 2013 online survey

We get a similar breakdown for respondents who are logistics service users.

Minimum level of education required- total users					
	None	Secondary	Collegial	University	Total
Senior executives	0	0	0	10	10
Middle management executives	0	0	4	7	11
Supervisory personnel	0	5	4	0	9
Administrative personnel	0	6	2	0	8
Transport, distribution and supply chain coordination personnel	1	2	6	0	9
Operations personnel	2	8	0	0	10

Source: KPMG 2013 online survey

3.7.4 Human Resource Challenges

Highlights

- Challenges in the area of human resources are very important to the respondents, the average degree of importance being rated 4 out of 5.
- Maintaining the workforce has the highest priority among challenges faced by respondents now or in the next three years.

At the time of the survey, participants were asked to list by order of importance the challenges related to human resources facing their companies currently or in the next three years for their transportation and logistics activities in the GMA.

For logistics service providers, human resources challenges are very important to the respondents, with an average degree of importance of 4 out of 5. Maintaining the workforce is the top priority challenge for over 55%, who gave it an importance of 5. Labor relations and succession planning rank second and third respectively in terms of importance.

Importance of human resource challenges that companies are currently facing or will face over the next three years												
	Not at all important 1		2		3		4		Very important 5		Total	Average importance
	n	%	n	%	n	%	n	%	n	%		
Employee retention	3	7%	1	2%	2	4%	14	31%	25	56%	45	4.27
Labor relations	1	2%	2	4%	5	11%	19	42%	18	40%	45	4.13
Planning (both in the business succession and succession of employees)	1	2%	3	7%	7	16%	16	36%	18	40%	45	4.04
Compensation and competitive advantages	0	0%	2	4%	10	22%	19	42%	14	31%	45	4.00
Attracting employees	2	4%	3	7%	9	20%	13	29%	18	40%	45	3.93
Education	2	4%	2	4%	6	13%	22	49%	13	29%	45	3.93
Continuing education	1	2%	4	9%	10	22%	15	33%	16	35%	46	3.89
Inexperience of employees	0	0%	5	11%	17	39%	15	34%	7	16%	44	3.55
Total												3.97

Source: KPMG 2013 online survey

3.7.4.1 Breakdown of Human Resources Challenges by Primary Sector of Activity

Highlights

- Human resources challenges are more important for 3PL and 4PL operators and for carriers than the average among the overall group of respondents.
- There are major labor shortage problems in the industry. Some trades are not attracting young people.

Challenges related to human resources are more important to 3PL and 4PL companies and for carriers than the average among overall respondents. Compared to the average for the overall respondent group, for whom lack of employee experience is the least important human resources challenge, this is the highest priority among 3PL and 4PL respondents (equal to labor relations). Lack of employee experience appears to be a lesser challenge for carriers than for the average of all respondents.

During the follow-up interviews, it was noted that a labor shortage was an important factor in the industry. Some trades are not attractive to young people. The jobs that are hard to fill are mainly truck drivers, mechanics and shipboard crew members. Atypical work schedules (evenings and weekends) and prolonged periods away from home are often mentioned as factors explaining the low attractiveness of certain jobs and the difficulty in keeping employees. Since there is a shortage in the industry, several initiatives have been taken to attract and retain employees. This subject will be covered in greater detail in section 4.5.5. One of those initiatives involves offering competitive pay and benefits. To attract employees, company strategies include using headhunters, employee testimonials, advertisements in trade papers and taking part in job fairs. The industry is also faced with an aging workforce, particularly among truck drivers and rail and marine transportation employees. For forwarding agents, the hardest jobs to fill are sales positions and certain administrative jobs.

Importance of human resource challenges per primary sector of activity						
	Primary sector of activity					All respondents (n:45)
	Carrier (n:20)	Forwarding agent (n:13)	3 and 4 PL (n:5)	Terminal operator (n:5)	Other (n:2)	
Employee retention	4.6	3.92	4.4	4	3.5	4.27
Labor relations	4.4	3.62	4.6	3.6	5	4.13
Planning (both in the business succession and succession of employees)	4.25	3.92	4.2	3.2	4.5	4.04
Compensation and competitive advantages	4.15	3.46	4.4	4	5	4.00
Attracting employees	4.15	3.92	4.2	2.8	4	3.93
Education	4.3	3.62	4	3.6	3	3.93
Continuing education	4.29	3.77	4	2.6	3.5	3.89
Inexperience of employees	3.37	3.54	4.6	3.2	3.5	3.55
Total	4.19	3.72	4.30	3.38	4.00	3.97

Source: KPMG 2013 online survey

Industry Profile – 2013 Survey
Human Resource Challenges

Among logistics service users, respondents tend to place attracting employees and employee training at the top of the list. For distributors in particular, succession planning appears to be the most important issue.

Importance of human resources challenges per primary sector of activity				
	Primary sector of activity			All respondents (n:12)
	Retailer (n:5)	Distributor (n:3)	Manufacturing (n:4)	
Attracting employees	4.25	3.67	4.75	4.22
Continuing education	3.75	3.67	4.75	4.06
Planning (both in the business succession and succession of employees)	3.4	4.33	4.25	3.99
Education	3.75	4	4	3.92
Labor relations	3.6	3.33	4.5	3.81
Inexperience of employees	4.25	3.67	3	3.64
Compensation and competitive advantages	3.5	3.67	3.75	3.64
Employee retention	3.8	3	4	3.60
Total	3.79	3.76	4.14	3.90

Source: KPMG 2013 online survey

3.7.4.2 Breakdown of Human Resources Challenges by Numbers of Employees

Highlights

- Whatever their workforce numbers, the average importance of human resources challenges is relatively similar among respondents.
- Succession planning is the most important challenge for the small businesses in our sampling.
- Retaining the workforce on the other hand, is the most important challenge for the large enterprises.

The table below shows the relative importance of human resources challenges based on the number of employees. It is difficult to determine trends because most workforce categories report similar average levels of importance for this type of challenge. As a result, both small businesses and large companies are facing significant challenges in the area of human resources. Succession planning is the greatest challenge for small businesses while keeping the workforce is the most important for large companies.

Importance of human resource challenges according to the number of employees							
	Numer of employees						All respondents (n:45)
	Less than 10 (n:4)	From 10 to 49 (n:12)	From 50 to 99 (n:9)	From 100 to 149 (n:4)	From 150 to 499 (n:9)	500 and up (n:7)	
Employee retention	3.75	4.75	3.67	3.6	4.5	4.57	4.27
Labor relations	4.25	4.42	3.78	3.6	4.67	4.14	4.13
Planning (both in the business succession and succession of employees)	4.5	3.92	3.89	4.2	4.67	3.57	4.04
Compensation and competitive advantages	3.75	4.08	3.67	3.6	4.67	4.29	4.00
Attracting employees	2.75	4	3.44	4.4	4.33	4.14	3.93
Education	3.75	4.42	3.44	3.8	3.67	4.14	3.93
Continuing education	3.75	4.25	3.44	4	3.71	4.29	3.89
Inexperience of employees	3.5	3.58	3.56	3.5	3.5	3.57	3.55
Total	3.75	4.18	3.61	3.85	4.20	4.09	3.97

Source: KPMG 2013 online survey

3.7.5 Level of Satisfaction with Training

Highlights

- The general level of satisfaction with transportation and logistics training is reported at 3 out of 5.

Analysis of the level of overall respondents' satisfaction (suppliers and users) with the transportation and logistics training offered in the GMA shows that the average level of satisfaction is relatively similar for executive personnel and administrative personnel. However, it is not as high for operations personnel.

In terms of the ratings respondents were to give to express their levels of satisfaction, 3% gave the assessment "Entirely unsatisfied" and 8% gave "Very satisfied." Slightly more than half (58%) responded with "Moderately satisfied", an assessment of 3 out of 5. Generally speaking, the knowledge level of new candidates gives rise to a higher level of satisfaction than the initial training programs and continuing education offerings. The initial training programs for operations personnel receive the lowest satisfaction rating.

Level of satisfaction with transportation and logistics training - Suppliers & Users												
	Entirely unsatisfied 1		2		3		4		Very satisfied 5		Total	Average level of satisfaction
	n	%	n	%	n	%	n	%	n	%		
Executive personnel												
Level of knowledge of the new candidate	1	2%	5	12%	28	68%	14	34%	4	10%	52	3.29
Initial training programs	1	2%	8	20%	26	63%	11	27%	4	10%	50	3.18
Offer in continuing education	0	0%	7	17%	29	71%	12	29%	4	10%	52	3.25
Total	2	2%	20	16%	83	67%	37	30%	12	10%	154	3.24
Administrative personnel												
Level of knowledge of the new candidate	1	2%	8	20%	21	51%	18	44%	4	10%	52	3.31
Initial training programs	1	2%	9	22%	20	49%	18	44%	3	7%	51	3.25
Offer in continuing education	0	0%	9	22%	27	66%	11	27%	5	12%	52	3.23
Total	2	2%	26	21%	68	55%	47	38%	12	10%	155	3.26
Operations personnel												
Level of knowledge of the new candidate	3	7%	13	32%	19	46%	13	32%	2	5%	50	2.96
Initial training programs	3	7%	15	37%	21	51%	9	22%	2	5%	50	2.84
Offer in continuing education	2	5%	13	32%	24	59%	9	22%	2	5%	50	2.92
Total	8	7%	41	33%	64	52%	31	25%	6	5%	150	2.91
General level of satisfaction	12	3%	87	24%	215	58%	115	31%	30	8%	459	3.14

Source: KPMG 2013 online survey

4

GMA Logistics Chain performance

4 GMA Logistics Chain Performance

4.1 Background

Necessary Grouping of Logistics

For several years now, stakeholders in the field of economic development have acknowledged the importance of adopting approaches including chains, niches of excellence and clustering of multiple sectors. The performance and growth of these sectors are indeed greatly facilitated when companies are able to work within productive, competitive regional systems of innovation. Quebec started down that road as early as the nineties and the approach has since developed further with the strategic initiative of the ACCORD project in 2002. The Montreal area has adopted it in many of its strong, outward-radiating sectors.

The metropolitan area has seven structured clusters which, upon completion of the activation phase, were able to mobilize industrialists, move projects forward and acquire a degree of international recognition. Important impacts can be seen for Greater Montreal.

These clusters contribute to the international reach of the metropolitan area by attracting the direct foreign investment and highly qualified workers that are needed to vitalize the players in the clusters.

The clusters stimulate entrepreneurship in the metropolitan area through a combination of geographic, intercompany and interorganizational factors. The interactions generated by cluster dynamics enable the establishment of relationships and complementary ties that are essential to the startup of new businesses.

The clusters improve the ability to innovate (creativity, learning) and increase productivity by facilitating interactions and complementary relationships between their member enterprises.

The dynamics generated by the clusters foster the development of the territory's social capital, which is defined by the entirety of the resources mobilized (financial capital, information, etc.) through a more or less extensive and mobilizable network of relations that bring a competitive edge to the metropolitan area by offering larger returns on investments. Components of the social organization such as networks, standards and confidence facilitate coordination and cooperation.

In Montreal, in addition to the logistics and transportation cluster covered in this study, there are strong clusters in sectors such as aerospace, movies and television, life sciences, financial services, information technology (IT) and other technologies.

This cluster approach is not specific to Quebec alone. Numerous territories elsewhere have even applied it to a number of logistics-related fields. Some, such as Savannah and Norfolk, have gone even further and are developing structured poles of activity around transportation and logistics. Certain regions in North America, such as Memphis, have also clearly identified themselves as logistics centres.

The existence of these other clusters or centres throws light on the necessity and potential benefits of bringing Montreal's resources together in this way. The imperatives of international competition – not just in the logistics and transportation sector, but also for all Quebec and Canadian economies – argue in favour of this kind of grouping of the strengths of different players. Foreign examples of clustering show that participants are better equipped to face the issues of information, labor, innovation, new technologies, the environment, security, regulation, infrastructure and development – to name just a few that the logistics and transportation sector is facing.

Section Presentation

This section of the study presents an assessment of the performance of the GMA as well as the supply chains of four industries. Regional and international benchmarking is also provided. This section enables an evaluation of

the strengths and weaknesses of the GMA and compare it with other logistics clusters. It also points out the opportunities for improvement that are available to the GMA.

4.2 Survey Responses on Industry Challenges

4.2.1 Background

The survey questionnaires raised the subjects of transportation and logistics challenges faced by the companies as well as competitiveness factors for the companies and an assessment of GMA performance on the same factors. The next sections present the survey results. To see an analysis of the results for each question in the online survey, readers are invited to refer to Appendix F. Comments voiced in the focus groups are also presented in the next section.

4.2.2 Challenges

Respondents were asked to identify the principal transportation and logistics challenges they had had to meet in the previous three years or would have to face in the next three years.

The responses were collected and grouped in the following categories:

- **Human resources challenges:** A section of our report deals with the challenges in the area of human resources. A great majority of the challenges raised in response to this question are covered in the section of the report devoted to human resources. Readers are invited to refer to Section 3.8.4 for more details.
- **Regulatory challenges:** In this category, respondents raised the problem of increasingly strict environmental regulations as well as increased government regulation of the industry, which is interfering more and more with company activities.
- **Challenges involving economic conditions and international dynamics:** A weakened global economy, falling Canadian exports due to a high Canadian dollar, upward fluctuations in gasoline prices and rapid changes in the supply chain (e.g. decline in the importance of China causing a return to manufacturing in Mexico and the US) were factors cited in this category of challenges.
- **Challenges related to the market and the economy in the sector:** General competition and competing modes of transportation, problems of capacity (overcapacity in some cases), market volatility, the potential for strikes, a lack of balance between numbers of containers entering and leaving the Port and equipment problems were mentioned in this category.
- **Internal challenges:** Internal challenges are company-specific. Maintaining and increasing market shares and adapting to changing and ever more exacting demands of customers are the challenges raised most often.
- **Infrastructure challenges:** The remainder of this section deals with competitiveness factors and an evaluation of the performance of the GMA. Infrastructure difficulties and road problems in particular are raised in the company responses. A large number of respondents identified challenges related to road infrastructure: constant traffic problems in the GMA, deteriorating infrastructure and ever-present worksites on the road system. Another challenge described in this section is the water level in the St. Lawrence River depending on precipitation and snow melt. When the level is too low, marine carriers need to operate with reduced loads.
- **Cost-related challenges:** Contending with ever-increasing costs (e.g. fuel and labor costs) and optimizing costs were the two most commonly mentioned challenges.

4.2.3 Competitiveness Factors

Highlights

- The five most important factors related to the competitiveness of respondents are, by order of importance, the following:
 1. Cost of labor
 2. Quality of road infrastructure
 3. Regulation
 4. Transportation fluidity
 5. Quality of port infrastructure
- The order of importance of the competitiveness factors varies from one sector of activity to another and from one carrier type to another.

4.2.3.1 All Supplier Respondents

The five most important factors related to competitiveness are, by order of importance: cost of labor, quality of road infrastructure, regulation, transportation fluidity and quality of port infrastructure.

With regard to labor costs, there is no doubt that this is an important competitive factor, considering that almost 40% of total respondent costs involve wages and benefits. Since a large portion of our respondents represent road and marine transportation companies, it may seem reasonable that the quality of road and port infrastructure, as well as transportation fluidity, are cited as important factors of competitiveness. In addition, knowing that road transportation is widely used in moving goods because it connects with to all destinations and points of departure, a feature that no other mode of transportation can offer, it is easy to understand why the quality of road infrastructure is rated in second place. Moreover, many forwarding agents and road carriers responded to the survey. As for regulation, this was rated an important factor of competitiveness for companies because regulatory considerations play an important role in the industry. Respondents often associated fluidity of transportation with road traffic fluidity, which very probably explains why it was rated fourth among competitiveness factors.

Ranking for competitiveness factors by primary sector of activity																		
	Carrier			Forwarding agent			3 & 4 PL			Terminal Operator			Other			Total		
	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank
Cost of labor	19	8.55	2	12	7.79	1	3	5.6	7	4	8.4	4	2	11	2	40	8.1	1
Quality of road infrastructure	17	7.09	4	12	7.57	2	4	8	1	5	10.2	2	2	9.5	4	40	7.75	2
Regulation	22	9.27	1	11	6.07	5	3	2.6	12	4	7	6	2	8	5	42	7.35	3
Transport fluidity	18	7.86	3	9	5.21	8	4	7.8	2	4	6.6	8	2	10	3	37	7.04	4
Quality of port infrastructure	17	6.45	6	9	5.93	7	2	3.6	9	5	11.8	1	2	12.5	1	35	6.81	5
Access to skilled labor	18	7	5	8	5.14	9	4	7.8	2	4	3.8	9	1	1.5	12	35	5.98	6
Diverse range of logistics services and quality service offering	16	5.77	7	11	6.57	3	4	7.8	2	4	2.4	12	1	2	11	36	5.71	7
Business enabling environment	14	4.5	9	11	6.57	3	4	7	5	5	6.8	7	1	3.5	9	35	5.56	8
Quality of rail infrastructure	13	4.18	10	10	5.14	9	2	2.6	12	4	7.8	5	1	6	6	30	4.75	9
Tax environment	12	3.23	12	9	3.79	11	3	4	8	5	9.6	3	2	5	7	31	4.21	10
Technological innovations	15	4.09	11	9	3.93	12	4	5.8	6	4	3.6	10	1	2.5	10	33	4.1	11
Availability of intermodal services	14	4.64	8	9	2.71	13	3	3.6	9	4	3.2	11	1	5	7	31	3.83	12
Quality of airport infrastructure	13	1.95	13	10	6.07	5	2	2.8	11	4	0.8	13	1	0.5	13	30	3.06	13

Source: KPMG 2013 online survey

When the results are presented based on the primary sector of activity of the respondents, it can be found that certain competitiveness factors are not as important for one sector as for another. For example, a diversified offering of logistics services and an offering of quality along with a positive business environment are rated third as a competitiveness factor for forwarding agents, whereas for the overall group of respondents, these fall respectively in seventh and eighth place. The quality of airport infrastructure is the lowest company competitiveness factor and this is true of each primary activity sector except for forwarding agents, for whom it places fifth. Access to competent workers appears to be a more important competitiveness factor for 3PL and 4PL companies than for the overall group of respondents. The quality of port infrastructure is the most important competitiveness factor for terminal operators. The tax environment ranks third for terminal operators, a higher rating than found among the other sectors of activity (12th place for carriers, 11th for forwarding agents and 8th for 3PL and 4PL companies).

Carriers

A positive business environment is a more important competitiveness factor for rail carriers than for marine and road carriers. Availability of intermodal services placed fourth among competitiveness factors for marine carriers. This is higher than the rating given by the other carriers (7th for rail carriers and 12th for road carriers) and by the overall group of respondents (12th).

Ranking for competitiveness factors per primary sector of activity													
	Air	Rail			Marine			Road			Total		
		n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank	n	Imp.	Rank
Cost of labor	NA	2	8	5	7	9	3	8	8.5	4	40	8.1	1
Quality of road infrastructure	NA	2	8.5	4	4	4.5	7	10	9.4	1	40	7.75	2
Regulation	NA	2	9	3	8	10.25	1	10	8.3	5	42	7.35	3
Transport fluidity	NA	2	6	10	4	5.38	5	10	9.4	1	37	7.04	4
Quality of port infrastructure	NA	2	12	1	7	9.38	2	7	4.2	8	35	6.81	5
Access to skilled labor	NA	2	8	5	6	5.25	6	9	9.3	3	35	5.98	6
Diverse range of logistics services and quality service offering	NA	2	3	12	5	4	11	7	7	6	36	5.71	7
Business enabling environment	NA	2	9.5	2	5	4.5	7	6	3.8	10	35	5.56	8
Quality of rail infrastructure	NA	2	7	9	3	4.13	10	7	4.3	7	30	4.75	9
Tax environment	NA	2	7.5	7	3	1.38	12	6	4	9	31	4.21	10
Technological innovations	NA	2	3.5	11	6	4.25	9	6	3.6	11	33	4.1	11
Availability of intermodal services	NA	2	7.5	7	5	6.13	4	6	3	12	31	3.83	12
Quality of airport infrastructure	NA	2	1.5	13	3	0.38	13	6	1.7	13	30	3.06	13

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

4.2.3.2 All User Respondents

Logistics service user respondents rate similar competitiveness factors at the head of the list, but not necessarily in the same order. Moreover, regulation falls to 7th place whereas transportation fluidity is placed at the top of the list.

Factors	Average	Rank
Transport fluidity	3.18	1
Cost of labor	3.38	2
Quality of road infrastructure	4.18	3
Diversity and quality of services	4.30	4
Access to skilled labor	4.33	5
Technical innovations	4.89	6
Regulation	5.25	7
Business enabling environment	5.88	8
Availability of intermodal services	6.44	9
Tax environment	8.38	10
Quality of rail infrastructure	9.43	11
Quality of port infrastructure	10.80	12
Quality of airport infrastructure	11.80	13

Source: KPMG 2013 survey

4.2.4 GMA Performance Evaluation

Highlights

- Respondents gauged the performance of the GMA at an average 2.79 out of 5. This does not necessarily vary from sector to sector.
- Quality of road infrastructure and tax environment are the points that produced the lowest performance indices.
- Quality of port infrastructure earned the best rating with 3.5 out of 5. This is a strong point for the industry.
- Quality of road infrastructure is an issue for the industry because it is the second most important factor for the competitiveness of companies although it has the lowest evaluation.
- Road carriers and terminal operators are the ones that gave the GMA the lowest performance rating.

4.2.4.1 Evaluation of All Supplier Respondents

Once the respondents had indicated their company's competitiveness factors by order of importance, they were asked to rate the performance of the GMA in terms of the same factors.

It can be said that the factors quality of road infrastructure and tax environment are the ones that were rated lowest (1 out of 5). The poor condition of the roads, numerous traffic congestion problems and large numbers of road repair sites impeding the flow of traffic were often cited as reasons for the poor performance of road infrastructure. As for the tax environment, it was high property taxes, fuel taxes, deductions at source, small businesses tax rates and personal income tax that were given as reasons for poor performance.

GMA Performance Evaluation													
	Weak 1		2		3		4		Strong 5		Total		Average score
	n	%	n	%	n	%	n	%	n	%	n	%	
Quality of port infrastructure	1	2%	5	11%	14	32%	20	45%	4	9%	44	100%	3.48
Quality of airport infrastructure	0	0%	4	10%	21	51%	15	37%	1	2%	41	100%	3.32
Quality and efficiency of logistics services	0	0%	2	5%	28	68%	11	27%	0	0%	41	100%	3.22
Quality of rail infrastructure	4	10%	3	8%	18	46%	12	31%	2	5%	39	100%	3.13
Quality of intermodal services	1	3%	8	20%	19	48%	12	30%	0	0%	40	100%	3.05
Cost of labor	2	5%	11	25%	21	48%	9	20%	1	2%	44	100%	2.91
Access to skilled labor	3	7%	13	30%	17	39%	11	25%	0	0%	44	100%	2.82
Transport fluidity	6	14%	14	32%	14	32%	10	23%	0	0%	44	100%	2.64
Degree of technical innovation	6	14%	9	21%	22	52%	5	12%	0	0%	42	100%	2.62
Regulation	6	13%	15	32%	21	45%	4	9%	1	2%	47	100%	2.55
Business enabling environment	8	19%	12	28%	19	44%	4	9%	0	0%	43	100%	2.44
Tax environment	10	24%	13	31%	17	40%	2	5%	0	0%	42	100%	2.26
Quality of road infrastructure	15	33%	21	46%	7	15%	2	4%	1	2%	46	100%	1.98
Total (n: 39)	62	11%	130	23%	238	43%	117	21%	10	2%	557	100%	2.79

Source: KPMG 2013 online survey

The GMA performance across the board is 2.79 – an average performance rating. During follow-up interviews, it was said that the GMA had certain strong points, such as port and airport infrastructures, along with quality and efficiency of logistics services. The latter point is important, since it serves as an argument to attract companies to do business in the GMA. Multiculturalism, Montreal’s geographic location and access to an educated workforce were also cited as strengths for the GMA. Among its weaknesses, apart from the previously covered points, the Port business hours, the strong union presence, the poor level of technological innovation and the oligopolistic situation of rail transportation lead to high prices and may explain the lengthy delays that are not treated with the necessary care.

In terms of improvement pathways, the following were mentioned: restore the condition of road infrastructures, solve traffic congestion problems (particularly around the Port and Montreal-Trudeau Airport), improve communications between different industry players with better integration and automation of processes, as well as establishing a free zone near the Port.

Comparative Importance of GMA Competitiveness Factors and Performance Evaluations

When comparing competitiveness factors and GMA performance evaluations based on those factors, it can be seen that the quality of the road infrastructure is truly an issue for the industry. Indeed, the quality of the road infrastructure is the second most important factor for company competitiveness and it is also the factor that received the worst rating. Another issue for the industry brought out by this comparison is the regulatory environment. Regulation represents the third most important factor in company competitiveness while it was given the fourth worst evaluation. This result warrants further study. It would be interesting to know why the regulatory situation is so important to company competitiveness and why its rating is so low, since it is actually partly the same between countries. The quality of port infrastructure facilities, the factor that received the best performance rating, was actually the fifth most important factor in company competitiveness. This is therefore a strong point for the industry.

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Challenges

Comparative importance of GMA competitiveness factors and performance evaluation					
	Importance of competitiveness factors			GMA Performance Evaluation (n:39)	
	n	Imp.	Rank	Score	Rank
Cost of labor	40	8.1	1	2.91	6
Quality of road infrastructure	40	7.75	2	1.98	13
Regulation	42	7.35	3	2.55	10
Transport fluidity	37	7.04	4	2.64	8
Quality of port infrastructure	35	6.81	5	3.48	1
Access to skilled labor	35	5.98	6	2.82	7
Diverse range of logistics services and quality service offering	36	5.71	7	3.22	3
Business enabling environment	35	5.56	8	2.44	12
Quality of rail infrastructure	30	4.75	9	3.13	4
Taxenvironment	31	4.21	10	2.26	11
Technological innovations	33	4.1	11	2.62	9
Availability of intermodal services	31	3.83	12	3.05	5
Quality of airport infrastructure	30	3.06	13	3.32	2
Total				2.79	

Source: KPMG 2013 online survey

Ranking: 1 = best performance

Evaluation: 1 = poor

Evaluation by Primary Sector of Activity

The evaluation of GMA performance by primary sector of activity shows a fair degree of consistency among the respondents. Firstly, the average evaluation of GMA performance is relatively similar from one sector of activity to another, ranging from 2.58 to 2.98. The ranking of factors is quite similar from sector to sector with the exception of ranking by 3PL and 4PL companies. Among the latter contributors, the factor with the highest rating is labor costs. Another factor rated differently by 3PLs and 4PLs is regulation. They gave regulation a mean evaluation of 3.2 out of 5, putting this factor in second place (tied with quality of airport infrastructure and efficiency of logistics services) while the overall respondents group rated it at an average 2.55 out of 5, ranking it in 10th place.

GMA performance evaluation per primary sector of activity												
	Carrier (n:16)		Forwarding agent (n:12)		3 & 4 PL (n:5)		Terminal operator (n:4)		Other (n:2)		Total (n:39)	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality of port infrastructure	3.22	2	3.79	1	3	5	3.6	1	4.5	1	3.48	1
Quality of airport infrastructure	3.41	1	3.31	5	3.2	2	3.25	2	3	5	3.32	2
Quality and efficiency of logistics services	3.11	3	3.33	3	3.2	2	3	5	4	2	3.22	3
Quality of rail infrastructure	3	4	3.33	3	2.6	7	3.25	2	4	2	3.13	4
Quality of intermodal services	2.81	6	3.46	2	2.4	9	3.25	2	3.5	4	3.05	5
Cost of labor	2.95	5	2.93	6	3.4	1	2.75	7	1.5	10	2.91	6
Access to skilled labor	2.8	7	2.85	8	2.8	6	3	5	2.5	7	2.82	7
Transport fluidity	2.55	10	2.85	8	2.6	7	2.25	8	3	5	2.64	8
Level of technical innovation	2.78	8	2.92	7	1.8	13	2.25	8	2	9	2.62	9
Regulation	2.59	9	2.62	11	3.2	2	2	10	1.5	10	2.55	10
Business enabling environment	2.39	11	2.85	8	2.4	10	1.6	13	2.5	7	2.44	11
Tax environment	2.29	12	2.54	12	2.2	11	1.8	12	1.5	10	2.26	12
Quality of road infrastructure	2	13	2	13	2	12	2	10	1.5	10	1.98	13
Average rating	2.75		2.98		2.68		2.58		2.69		2.79	

Source: KPMG 2013 online survey

Ranking: 1 = best performance

Evaluation by Carriers

Road carriers

Road carriers are the respondents who gave the lowest evaluation of GMA performance with an average rating of 2.49, while rail carriers gave it the highest rating, at an average 3.31.

GMA performance evaluation according to the carriers' primary sector of activity									
	Air	Rail (n:2)		Marine (n:5)		Road (n:7)		All Respondents (n:39)	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank
Quality of port infrastructure	NA	4.5	1	3.33	2	2.63	5	3.48	1
Quality of airport infrastructure	NA	4	2	3.33	2	3.29	1	3.32	2
Quality and efficiency of logistics services	NA	3.5	6	3	5	3	2	3.22	3
Quality of rail infrastructure	NA	4	2	3.63	1	2.38	8	3.13	4
Quality of intermodal services	NA	4	2	3.2	4	2.38	8	3.05	5
Cost of labor	NA	3	9	3	5	2.89	3	2.91	6
Access to skilled labor	NA	4	2	2.86	8	2.44	6	2.82	7
Transport fluidity	NA	3.5	6	3	5	2	12	2.64	8
Level of technical innovation	NA	2.5	10	2.67	9	2.88	4	2.62	9
Regulation	NA	3.5	6	2.63	10	2.3	10	2.55	10
Business enabling environment	NA	2	12	2.5	11	2.44	6	2.44	11
Tax environment	NA	2	12	2.33	12	2.25	11	2.26	12
Quality of road infrastructure	NA	2.5	11	2	13	1.8	13	1.98	13
Average rating		3.31		2.88		2.49		2.79	

Source: KPMG 2013 online survey

NA: Data not available for reasons of confidentiality

Ranking: 1 = best performance

4.2.4.2 Overall Evaluation by User Respondents

The same question was put to logistics service users. The overall average for the GMA was a similar evaluation of 2.89 (compared to 2.79 from suppliers).

Factors	1	2	3	4	5	Average	Rank
Quality and efficiency of logistics services	0	1	3	6	1	3.64	1
Degree of innovation	1	2	3	5	1	3.25	2
Quality of airport infrastructure	1	1	5	2	1	3.10	3
Quality of port infrastructure	1	0	7	1	1	3.10	4
Quality of rail infrastructure	2	0	5	2	1	3.00	5
Cost of labor	1	2	5	4	0	3.00	6
Business enabling environment	1	1	8	1	1	3.00	7
Access to skilled labor	0	3	7	2	0	2.92	8
Availability of intermodal services	1	1	7	0	1	2.90	9
Tax environment	1	1	9	1	0	2.83	10
Transport fluidity	2	4	5	0	1	2.50	11
Regulation	4	3	3	2	0	2.25	12
Quality of road infrastructure	4	4	2	0	1	2.09	13

Source: KPMG 2013 survey

Comparative Importance of Competitiveness Factors and GMA Performance Evaluation

Comparison of GMA competitiveness and performance evaluation				
Factors	Importance		Performance	
	Average	Rank	Average	Rank
Transport fluidity	3.18	1	2.50	11
Cost of labor	3.38	2	3.00	6
Quality of road infrastructure	4.18	3	2.09	13
Diversity and quality of services	4.30	4	3.64	1
Access to skilled labor	4.33	5	2.92	8
Technological innovations	4.89	6	3.25	2
Regulation	5.25	7	2.25	12
Business enabling environment	5.88	8	3.00	7
Availability of intermodal services	6.44	9	2.90	9
Tax environment	8.38	10	2.83	10
Quality of rail infrastructure	9.43	11	3.00	5
Quality of port infrastructure	10.80	12	3.10	4
Quality of airport infrastructure	11.80	13	3.10	3

In service users' perception of performance among the competitiveness factors they consider most important, the two factors that stand out most are **transportation fluidity** and **quality of road infrastructure**. These are indeed current themes considering the scale of the works in progress and planned for the city along with the traffic congestion they cause. This was discussed at length by the focus groups and will be covered in the next section.

4.3 Presentation of Comments Obtained from Focus Groups

After the surveys conducted with the companies, focus groups were organized to gain a more open interpretation of the survey results on industry issues in the GMA and performance factors. The three focus groups brought together experts and executives from specific industries:

- Transportation and logistics service providers
- Food industry
- Retail trade.

The discussion points on the agenda for these groups mainly covered the following themes:

- Overview of the transportation and logistics industry in the Greater Montreal Area (GMA)
- Problems and issues for the industry in general and for the GMA in particular
- Competitive advantages over other cities
- Applicable best practices and opportunities for improvement.

This section presents a summary of the discussion points and arranges the subjects covered in a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats). It is important to understand that these points are not necessarily presented in order of importance.

4.3.1 GMA SWOT Analysis

4.3.1.1 Strengths

- **Montreal holds a favourable geographic position on the continent for access to North American markets**
 - Compared to competing cities along the East Coast, Montreal benefits from the St. Lawrence River with the access it provides to the heart of the consumer markets of inland North America. This enables cargos to be brought to a port near the large eastern cities (in Canada and the US) with easy access to rail and road systems. Given that two-thirds of the North American population is located east of the Mississippi, it is generally easier to receive goods in the East and deliver them overland to the rest of the market than to deliver them from the West Coast.
 - When goods are imported from Asia, the transit time by sea is 22 to 27 days before reaching Vancouver. To reach Montreal, it takes 14 more days if the boat arrives via Europe. Despite the added time, this route has its advantages:
 - Lower costs for containerized shipping
 - Lower costs for reaching the North American market via rail and road transportation
 - May reduce warehousing costs (in-transit storage) and increase cash flow depending on the chosen incoterms
 - Faster movement and easier customs processing make Montreal a more practical port of entry into the North American market than some other cities in the US, such as New York or Norfolk.
- **The Port of Montreal is one of the most productive ports in North America**
 - One of the most efficient ports considering the amount of goods handled for the port area
 - Good unloading time
 - Loading capability directly from ship to rail (unique service)
 - Very reliable services all year long
 - Expansion work in progress (opening scheduled for 2014) will increase handling capacity and facilitate access for trucks entering and leaving the site

- **A highly functional intermodal system**
 - Direct port-site rail system
 - Two large rail lines with intermodal facilities
 - Frequent trains to the American Midwest, Ontario and Western Canada
 - Competitive times and costs
- **Canada-USA-Mexico Free Trade Agreement (NAFTA)** facilitating trade exchanges
 - PIP, C-TPAT and e-Manifest programs have improved customs throughput in recent years. Service users and providers confirm greatly improved customs clearance times.
- New **A30 and A25** infrastructures facilitate city bypass for transporting goods that do not need to enter Montreal Island. This applies well to destinations that remain on the South Shore of the St. Lawrence. On the other hand, it is still a problematic issue for destinations that require access to Autoroute 40 on the North Shore.
- **Other strengths or advantages raised in focus groups:**
 - Montreal offers access to a large pool of quality workers: productive, well educated and bilingual
 - Population pool with great ethnic diversity – possible to find employees who speak a great number of languages
 - Mirabel Airport, devoted exclusively to cargo, can operate on a 24-hour basis.
 - Montreal airports have frequent direct flights to Paris and London
 - Good prices for container transportation: “Montreal is \$300-400 less expensive for a Toronto destination than going through Vancouver”

4.3.1.2 Weaknesses

- **Obsolete and damaged road infrastructure**
 - Works in progress to “save” our infrastructure instead of investing in growth
 - Heavy rush-hour traffic (worse in the event of snowstorms or other weather disturbances) giving rise to extra costs for carriers
- **Perception of strong union presence in Quebec with attendant limitation of operational flexibility**
 - Quebec labor standards (Code 45) impose limits on outsourcing
 - Many well-known companies have established themselves in Cornwall and Hawkesbury (near Ontario border) partly in order to avoid Quebec union regulations
 - Local companies see this constraint as less threatening, but competing Canadian cities cultivate this perceived threat
- **All-cargo air freight split between two airports**
 - The most common practice, as seen at Toronto or New York JFK, aims to ensure a high degree of freight handling synergy between passenger and all-cargo flights belonging to the same airline. The problem of cargo operations restricted to Mirabel makes Montreal less attractive to large air cargo players for establishing operations and offering flights.
 - Limited hours of operation at Montreal-Trudeau (YUL)

- **Greater number of head offices and larger consumer population pool in Ontario** (Toronto in particular)
- **Quality of available buildings and facilities**
 - Companies turn to land on the North or South Shore to set up new operations. This moves operations away from the local consumer market but, in terms of costs and time, has little impact on companies. On the other hand, for inbound supplies, access to the port and multimodal facilities is more complicated.
 - Buildings on the Island are not of the same quality at comparable market prices as real estate in Toronto (larger floorspace with more overhead clearance).
- **Other weaknesses or problems raised during focus group discussions**
 - Regulatory burden (spring thaw restrictions, restricted access in many streets and municipalities)
 - The political “machine” (municipal, provincial and federal combined) slows decision-making
 - Fewer direct flights from Montreal to large US cities and other international hubs (e.g. no flights to China)
 - Limited operating hours at the Port and among terminal operators
 - Quarterly port shutdown for union meetings
 - Reliability problems (perceived) and stability of service offered by marine companies (slow steaming, transshipment operations) lead to preferences for American ports (not delayed by marine companies due to greater volume)

4.3.1.3 Threats

- **Competitiveness of other cities and ports along the US East Coast**
 - **Halifax Gateway** has been working for several years to make its marine and rail transportation more competitive
 - Attractive costs and container transportation times
 - Facilities compatible with Post-Panamax ships
 - Port served only by CN
 - Unattractive road transportation due to distance from consumer markets
 - **Toronto** is very competitive in the areas of air and road transportation
 - **American cities:** Savannah, Norfolk, NY/NJ
 - Direct access to US market (larger than Canada’s)
 - Significant US subsidies and tax credits in support of the industry
- **Opening of the Panama Canal** (and *Post-Panamax* ships)
 - Could be advantageous to American coastal cities (Norfolk and possibly NY/NJ)
 - Montreal (St. Lawrence River) cannot receive Post-Panamax ships directly in its port. The Port of Montreal is better positioned for cargo traded through other large European ports (e.g. Antwerp)
- **Arrival of CSX: customers of US East Coast maritime shipping**
 - Threat to volume outbound by sea that would normally go through the Port of Montreal. Some companies could give precedence to US East Coast ports to reach North American markets
- **Autoroutes 30 and 25**
 - Green Belt regulations prevent the expansion of industrial zones along Autoroute 30
 - Non-automated toll payment slows traffic and causes delays
 - Toll bridges are not necessarily suited to trucks and businesses. With return crossings costing \$21, many companies tell their drivers not to use such toll infrastructures if they are able to make their deliveries without additional expense before their shift ends.

- **Other threats raised during focus group discussions**

- Marine carriers want to create scarcity. If a customer has a low volume, he may lose his priority in favour of large players, thus reducing the reliability of service.
- Road carriers may add a traffic surcharge for local deliveries
- Increasingly common practice of penalty charges for delays (Walmart, Shopper's Drugmart, etc.)
- Exacting customer demands regarding delivery hours (e.g. between 7 am and 10 am)
- Demands over shipment traceability

4.3.1.4 Opportunities

- **Free Trade Agreement with European Union**

- Food industry development potential:
 - Cheese imports
 - Meat exports (beef, pork)
- Possibly a number of years' head start over a possible US-EU agreement

- **Arrival of CSX with new intermodal centre at Valleyfield** (additional 100,000 containers)

- Additional transportation volume that could arrive from Eastern US players
- In addition to trade (two-way) with the American Southeast (presently minimal rail and road volume)

- **Alliance now in discussion between three marine carriers (Maersk, MSC, CMA-CGM) could offer greater flexibility** (increased frequency) **and lower costs for container transportation**

- **Increased use of the GMA network to the Eastern US and the West for well-positioned markets**

- Compete with ports on the West Coast by emphasizing seaway trade with Atlantic countries (Europe, Africa, South America)

- **Post-Panamax: prospecting strategy should stress the capability to link Europe and China with the Northeastern US** (e.g. via the Suez Canal)

- Additional delays offering in-transit warehousing ("free of charge") vs. competitive costs

- **Other opportunities raised in focus groups**

- Better use of free zones
 - E-commerce: distribution centres dedicated to e-commerce (global market) help avoid customs clearance difficulties
- Montreal marine transportation could be well positioned to route and transport cargos to and from South America and compete with rail transportation or trucking
- Establish partnerships between companies for large technology investment projects (shared services) or promote such partnerships

4.4 Supply Chain Analysis for Four Industries

4.4.1 Retail

For this study, a focus group was organized with five companies working in retail areas involving a variety of products including food, pharmaceuticals, other supplies and consumer products.

4.4.1.1 Retail Issues in the GMA

Retailing depends on three important areas:

- The **real estate market** to determine locations for outlets to reach a mass consumer population;
- **Marketing** products that are in demand;
- **Cost controls** to maximize margins while remaining competitive.

With the arrival of **new American retailers** in recent years (e.g. *Home Depot* and *Target*), competition is becoming more and more important and local companies need to adapt accordingly.

Consumer habits are also evolving, given the **rise in popularity of e-commerce**. Many retailers are changing their business models to allow for this market while at the same time using their retail outlets in a complementary capacity.

Real estate conditions play a role not only in the choice of retail outlet locations, but also the **location of manufacturing sites and distribution** centres. In view of increasing constraints involving buildings and land on the Island of Montreal, companies are turning more and more to the suburban the North and South Shores. In terms of consumer markets to be reached locally, in the province and across the country (or even around the globe for e-commerce), a distribution centre outside the city is not necessarily more costly in transportation and has the advantage of easier access to the other key freeways.

In the city, the issues for the great majority of retailers remain **delivery to retail outlets during increasingly difficult rush hours** due to **infrastructure work causing significant traffic problems**.

4.4.1.2 Competitive Advantages over Other Cities

Shipping parcels or cargos of goods across the country or the world is relatively similar in costs and scheduling when comparing cities such as Montreal and Toronto (as points of departure), although this is not the case for other Canadian cities such as Vancouver or Halifax. Whether in terms of e-commerce or large retailers, Montreal's competitive edge lies in its geographic location amid a large consumer population near its port. This involves more competitive costs and delivery times for inbound cargo involving a distribution hub in the GMA.

4.4.1.3 Applicable Best Practices and Opportunities for Improvement

- Many companies are looking for new options for transporting goods at night and during weekends. The challenge involved in this solution is in changing the business hours of all the supply chain players beginning with support services (including the Port and intermodal centres) as well as factories, assembly lines and distribution centres right down to the retail outlets.
- Coordination of deliveries and backhaul between retailers. This role can also be assumed by carriers in order to coordinate synergic relationships between compatible businesses.
- Logistically, Montreal receives more containers than it ships out through its port and intermodal centres. Some retailers manage to obtain better transportation rates by using empty containers to ship and forward goods to the Canadian West.

4.4.2 Food

A focus group was set up for this study with five companies operating in the food sector: one manufacturer, two wholesalers, one retailer and a carrier specializing in food transportation.

4.4.2.1 Industry Issues in the GMA Environment

The food industry is by definition a complex sector for a number of reasons:

- **Very high volume** of goods to be moved, processed and handled and these need to be done **within very tight time limits** in order to keep the goods fresh
- Very **small profit margin**
- Increasingly stringent **sanitary requirements**, regulations and certifications to be observed
 - Cold chain to be preserved
 - Supply chain, production and distribution traceability
 - HACCP and SQF certification
- Increasingly diverse **proliferation of products** and SKUs entering the market
 - Repackaging required by retailers and customers
 - Marketing of new products with high-frequency promotional cycles

In terms of transportation and logistics, the industry is changing through consolidation of volumes to be delivered. Indeed, most of the retail food chains try to **reduce the number of direct store deliveries** (DSD) to their outlets and are negotiating with their suppliers to deliver to their distribution centres for later final store delivery by their own means.

4.4.2.2 Competitive Advantages over Other Cities

The food industry is a very strong sector in Quebec. The GMA includes a great number of important food and beverage producers with access to rich agri-food resources.

Having the United States next door with free trade, the GMA has a supply of fresh, quality products all year long.

As mentioned earlier, the arrival of a new player, **CSX**, in the railway sector opens the door to a more significant supply and markets in the **Southeastern US**.

The recently concluded **free trade agreement between Canada and the European Union** will very probably have a major impact on the food industry in particular. Indeed, many experts concur in predicting a large volume of dairy products entering the Canadian market. In exchange, large volumes of meat (beef, pork) will have access to the European market. Montreal, and particularly its port, should play a large part in this changing situation.

4.4.2.3 Applicable Best Practices and Opportunities for Improvement

- A number of companies with compatible operations exchange data and plan their transportation to help identify major savings.
- Considering the importance of preserving the cold chain throughout transportation and warehousing operations, companies benefit from sharing resources with more rigorous specifications. Along the same lines, a number of carriers and service providers (3PL and 4PL) are positioning themselves to offer logistic services at competitive prices.
- On a broader scale, organizations such as CTAC (*Conseil de la Transformation agro-alimentaire et des produits de consommation*) are organizing events or round tables to enable companies to exchange ideas about their best practices.

4.4.3 Pharmaceuticals

In the last few years, Montreal's pharmaceutical industry has been experiencing a decline in the number of research centres in some of the large corporations located here. On the other hand, a large number of companies in the GMA produce and distribute pharmaceuticals and healthcare products. This industry remains one of the most important in Montreal, which explains the creation of an industry-specific cluster: **Montreal InVivo**. In this study, interviews were conducted within this industrial cluster as well as with several other major players in the industry.

4.4.3.1 Industry Issues in the GMA Environment

Observance of GMP regulations and Health Canada requirements is an unavoidable issue in this industry.

Pharmaceutical companies have different types of supply chains:

- Raw materials, ingredients and medicinal substances that make up the products themselves;
- Documents and packaging components accompany products and medicines to constitute finished products for local and international markets.

Typically, the **ingredients** pose supply challenges in terms of required quality assurance, competitive purchase prices and delivery times. Therefore, ingredients are sometimes supplied by marine or road transportation (if a North American source), but **often by air** (e.g. products from India). Inventories take up less room and turnover (inventory rotation) is not as fast because purchases are made in large quantities in order to obtain competitive pricing.

On the other hand, **packaging components** such as bottles and packaging and shipping cartons, are generally bulkier and inexpensive when considering their share of the finished product. Components are generally sourced locally. Since the suppliers are generally located within a few hours or days, the inventory often takes up 50-60% of the warehouse space but it rotates more quickly.

By working closely with the suppliers of these components, many of whom are in the GMA, companies can often improve their performance and reduce their logistics costs.

4.4.3.2 Competitive Advantages over Other Cities

- Access to a large well-educated bilingual population with several universities offering programs in the field.
- Operating costs of companies in the healthcare field are relatively low in Montreal, i.e. 5 to 25% less when compared to other large North American cities such as Toronto, Philadelphia, Boston or San Diego.
- Many local companies, such as manufacturers of plastic bottles and vials or packaging cartons and printed products, can support pharmaceutical production operations by aligning activities with real-time supply of materials.

4.4.3.3 Applicable Best Practices and Opportunities for Improvement

- In order to reduce inventory levels of packaging components, companies coordinate their production operations with suppliers. This is done in different ways:
 - They work together to share and plan demand and production schedules with suppliers in an S&OP (Sales and Operations Planning) process; this may include a gateway giving real-time access to suppliers.
 - For less critical products or supplies, suppliers support pharmaceutical company operations using a VMI (Vendor Managed Inventory) process with an eye on the inventories of their components or consignments, thus allowing the company to take formal possession of inventories they already have in stock, but only when they are about to be used.
 - Within a strict standards qualification program, companies give prior authorization to suppliers who have consistently shown superior performance in the quality control of their products. Indeed, the quality control that has to be performed upon delivery requires a strict product sampling process followed by lab analysis with the goods kept in quarantine until released upon acceptance. A prequalification program allows for the acceptance process to be accelerated until the products enter production without increasing the number of lab analyses.

4.4.4 Aerospace

The Montreal aerospace industry, one of the city's largest, world-class industries, has been in a period of strong growth for several years. In the GMA, there are four prime manufacturers at the head of the industry: aircraft manufacturers Bombardier and Bell Helicopter (finished products), CAE Electronics (flight simulator manufacturers) and Pratt & Whitney (large aircraft engine manufacturer). These prime manufacturers are supported by an impressive number of local suppliers and multinational corporations that have establishments in Montreal. An industrial cluster, **Aéro Montréal**, was established to support the growth of this industry. In this study, interviews were conducted with this industrial cluster along with several players of importance in the industry.

4.4.4.1 Industry Issues in the GMA Environment

The aerospace market operates on a global scale. Competition from emerging countries is stronger and stronger, thus forcing our prime players to constantly reevaluate themselves and innovate to introduce new products and gain access to new markets. The issues that arise from this affect all the players in the industry:

- Reduce time to market

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- Reduce costs
- Meet commitments

Indeed, aircraft producers are faced with the challenge of increasing production rates while maintaining the required quality standards and documentary materials. In order to succeed in this, the prime players are looking more and more for ways to reduce the number of suppliers by switching to a more modular model – Tier 1 and Tier 2 suppliers. As a result, they choose suppliers that offer integrated solutions, are capable of managing supply chain complexities and agree to share technical and financial risks.

Transportation and logistics play an important role in this supply chain, but the challenges are involved not so much with time lines, but much more with documentation, quality of information (and of course quality of products and parts) and precise traceability of components.

4.4.4.2 Competitive Advantages over Other Cities

- Access to a large well-educated multilingual population with several universities offering programs in the field.
- Montreal-Trudeau is at the heart of a large industrial cluster consisting of Bombardier assembly plants for Challenger and Global Express business aircraft, CAE Electronics for building flight simulators and Rolls Royce Canada for engine repairs.
- Mirabel Airport continues to be a hub for a large community of companies operating in the sector, such as Bell Helicopter, Bombardier (C Series) and large suppliers.

4.4.4.3 Applicable Best Practices and Opportunities for Improvement

- Rates of production are a major issue and companies are constantly reassessing their practices with Lean-Six Sigma initiatives that today work not only at the individual company level, but also extend to all the players in the supply chain. Many companies have their quality programs assessing and recognizing (certification program) the progress of their production teams.
- Exposure and cooperation programs and technology supporting the coordination of activities among different supply chain players: planning, production monitoring, parts traceability.

4.5 Benchmarking Best Practices and Regional Initiatives

In the course of the surveys and interviews, companies told us of current improvement initiatives (recently implemented, in progress or soon to be implemented). Such projects can be grouped in six categories:

- Initiatives to reduce harmful effects on the environment
- Improvement of company productivity and performance
- Costs Reduction (operating, production)
- Application of information technologies
- Employee attraction and retention

4.5.1 Environmental Initiatives

- **LEED certification** (Leadership in Energy and Environmental Design) is granted to buildings designed to internationally accepted standards for design, construction and operation of high-efficiency green buildings. New buildings built to these standards are slightly more expensive than traditional establishments, but they have operating advantages for owners and tenants. Such buildings may include some of the following features (partial list):
 - White roofs (warehouses) – where applicable
 - Solar panels
 - Geothermal energy – where applicable
 - Natural gas – where applicable
 - Water recovery and reuse
 - Cooling system integrated with heating – where applicable
 - Motion detector lighting
- **Reduction of Greenhouse Gas Emissions**
 - Programs of the **Cap & Trade** type (e.g. Smartway) measure the carbon footprint of companies to monitor and limit their environmental impact and grant levels of certification. Some of these programs allow more high-performing companies to build up credit that can be traded for goods and services from other companies.
 - Improvement of equipment aerodynamics by means of various implements
 - **New engines**
 - **Liquefied Natural Gas (LNG)** is a new alternative fuel that is gaining in popularity among carriers. Tractors with this type of engine cost significantly more than traditional models (almost \$90 K per tractor), but enable the use of a less expensive fuel. As this technology is just at its beginning, there are not many refuelling stations with public access. Companies that have invested in this technology such as Robert Transport have private stations located at strategic points in their network. Users of this type of fuel appear to agree that these trucks are economical on long hauls, but less appropriate for short distances or city deliveries.
 - Hybrid and electric trucks
 - Trucks using DEF (diesel exhaust fluid - urea)
 - Volvo – compressed gas engines
 - New engines yet to be introduced using hydrogen or propane for short distances
 - Solar panels mounted on trucks
- The great majority of large carriers are working on **good driving practices**. Indeed, conscientious use of good driving habits can reduce fuel consumption by 10 to 20%.

- Reduction/elimination of idling
- Reduced speeds (e.g. 90 km/h limit)
- Driver monitoring systems combined with GPS systems in trucks now offer companies the possibility of accurately measuring the routes and habits of their drivers. This information becomes an important means of control enabling discussions with delivery personnel to identify problems and provide appropriate feedback.
- Use of **recyclable containers**, such as plastic pallets (instead of wood), bins (retractable) and other customized holders to reduce waste materials
- **Recycling of materials** (paper, cardboard, stretch wrap, wood) can be facilitated by waste management companies
- **Electric power consumption programs** (equipment and lighting). Hydro-Québec offers local consulting services on energy use and supports companies with possible subsidies for investments in more energy-efficient equipment (for production, heating and/or lighting).

4.5.2 Performance

- **LEAN/6 Sigma Initiatives**

The most efficient enterprises, such as Toyota (long said to be the incubator for Lean Manufacturing), apply the **LEAN principles** to supply chain management. In terms of “waste elimination,” the application of LEAN to logistics can be summarized by three basic rules (Jim Womack – Lean Enterprise Institute):

1. Position the customer as the sole order point in the logistics chain
2. Re-order each item frequently depending on quantities sold at each stage all along the supply chain
3. “Compress” the supply chain by using technology and appropriately scale facilities so that all the participants in the chain will be able to react simultaneously to a customer order.

Current continuous improvement efforts affect not only direct production and distribution

operations, but also the entire supply chain. The most important thing in applying these principles is to understand the impact that can be seen on transportation and logistics operations:

- Purchase of goods in **smaller quantities with more frequent deliveries**. This generally involves higher transportation costs, particularly for road transportation.
- Delivery of goods in smaller quantities is carried out at competitive rates by organizing “**milk runs**,” which requires a carrier to visit several suppliers in order to fill a trailer. This also applies to marine transportation where companies call on the services of agents to combine a cargo of different products to fill a container.
- Companies will tend to choose Incoterms that allow them to **keep control over operations and transportation costs**.
- **Products that are consumed on a more stable and foreseeable basis** can be ordered and delivered by less expensive means of transportation with longer shipping times (marine and rail transportation) from low-cost sources (e.g. Asia).
- **Products whose demand is highly variable** are preferably ordered from local sources with very short delivery times in spite of a higher cost of acquisition in order to limit investments in inventory (e.g. North American sources).
- For many products, a **mixed supply model** is worthwhile: local supply as well as low-cost sources in order to limit inventory costs while ensuring product availability and an adequate level of service.
- The LEAN approach also aims to minimize waste by using **recyclable containers** in order to reduce packaging work and waste materials. This often involves establishing a **reverse logistics** process to complete the loop.

- The **application of technology** allows supply chain participants to gain exposure and cooperate in the planning and execution of logistics activities.
- In order to save costs and effort, companies are increasingly considering the use of “**bi-trains**” (two container carriers) and/or **long combination vehicles (LCV)** (two trailers) for long-distance hauls. This concept works well in cases where the points of departure and arrival have facilities with large enough yards to handle the trailers/trains to dock at loading facilities.
- In many cases, it is also useful to use a centrally located **relay yard** to change driver teams. This form is often used for hauls between Montreal and Toronto since a return trip takes 12 hours without accounting for potential effects of traffic in both cities. When two loads are travelling in opposite directions, two drivers can cover half the distance and change trailers at an agreed rendez-vous point and then return to their respective starting cities.
- **Carrier alliances** enable the exploration of various options such as sharing infrastructure or exchanging information for improved collaborative coordination of transportation routes (e.g. identification of complementary routes to avoid no-load trips).
- **Appointment system** for collecting containers (not as flexible, but reduces waiting times, and consignees have warehouses open 24 hours) – e.g. Vancouver.
- Several cities are looking for ways to improve road traffic fluidity by means of **designated traffic lanes**. Two options have been proposed: designated lanes for public transit (e.g. bus lanes) or truck lanes. Alternatives may also include identified road sections, direction changes and hours of application.
- **Cooperation with customers/suppliers** makes it possible to share strategies and knowledge in planning promotional initiatives and demand levels, followed by implementation and risk sharing. Collaborative initiatives generally have two issues to overcome: the sensitivity of the shared information (or the strategic risk attached to the entities with which it is shared) and the technology to support common processes.
- Implementation of **Bulk Containers** enables greater flexibility for intermodal transportation and pursuant costs.

4.5.3 Application of Information Technology

- **Mobile Technology Tools**

Several mobile technology products, alone or in combination, are now available to companies to better plan activities and monitor their execution. Indeed, truckers are called upon more often to use various tools, changing their roles and their expectations about their responsibilities. Drivers today do more than simply deliver loads; they also complete transactions and perform data entry.

- **GPS – Global Positioning System**

- Global positioning makes it possible to know the location of rolling stock at all times, enabling a number of applications:
- Manage, reduce and monitor waiting times for unloading at customer destinations
- Support companies in monitoring driving habits
- Adjust the distribution of routes (traffic considerations) and optimize trip schedules
- Plan arrival times for communication to customers

- **Onboard Information Systems**

- Guide truck drivers in carrying out delivery orders
- Two-way communication with dispatching
- Data entry

- **Hand-held units** for customer interactions (representation, invoicing, inventory management, delivery documenting, etc.)
- **Transportation management systems – Route optimization**
 - Static routes reviewed periodically to balance territories and workloads
 - Dynamic route optimization based on day-to-day changes in deliveries
 - Continuous (real time) load movement analysis system (Airclic): allows a driver, for example, to accept a return and enter the particulars in the system instead of requiring the customer to call the customer service centre; allows redirection of drivers
- **Transportation management systems – Carrier selection**

Depending on the size and weight of goods as well as their destination, these systems allow rates to be compared to identify the carrier, print out shipping documents and labels, report the pickup request and produce the shipping manifest.
- **WMS – Warehouse management system**

This system is designed to optimize warehousing and distribution operations while ensuring a highly accurate inventory control. The market offers several systems and levels of sophistication to suit company needs and means. These systems generally support different types of user interface, including bar codes, voice recognition and RFID.
- **ITS – Intelligent transportation systems**

An ITS can be any one of a large range of technologies applied to transportation to make existing infrastructures more efficient, more reliable and more environment-friendly without necessarily modifying the existing infrastructure. Montreal already has several examples:

 - OPUS card – public transit
 - Priority measures for buses
 - Photo radar
 - Pay&Go parking pay stations
 - Surveillance camera systems
 - Virtual clearance warnings
 - Traffic light management
- **Customs systems** (e.g. eManifest) providing officials with electronic records and documents for clearing goods through customs.
- Other systems mentioned by survey respondents:
 - **Electronic transactions** (EDI – Electronic Data Interchange) for various applications (e.g. ASN – Advanced Shipping Notice – to simplify the receiving process for suppliers’ shipments at customer destinations)
 - Software for using **tide changes** to move upriver in the St. Lawrence
 - **Marine gateways** to monitor ship contents and travel times
 - **Dashboards** (Business Intelligence) – Systems enabling analysis of huge amounts of data and production of reports to support companies in monitoring their operations and decision-making.

4.5.4 Cost Reduction

Companies responding to the surveys reported a number of cost-reducing initiatives in addition to those mentioned in the previous three sections.

- **Inventory reduction** to reduce cash flow investments and warehouse space

- **Reduction/elimination of no-load backhauling (deadheading)** by planning cargo pickups from a supplier following a delivery to a nearby customer.
- **Partnerships** between companies with compatible transportation needs (not only between carriers)
- **Slow steaming** – Marine carriers reducing navigating speeds to save on fuel consumption.
- **Intermodal transportation** (train, ship vs. trucking) – Comparing costs and times between modes of transportation, e.g. converting a road delivery to rail, thus lowering the cost while increasing the delivery time.

4.5.5 Employee Attraction and Retention

Whatever our survey respondents may tell us (stable labor requirements), attracting and retaining employees remains an important issue in the industry. Apart from normal aging of the population, most players in the transportation and logistics industry concur in confirming a lack of qualified personnel, particularly among local delivery and long-haul truck drivers. Required qualifications are more and more demanding and employees must also use technology to complete transactions and enter data. Companies therefore need to cope with a high labor turnover rate and increasingly diverse languages and cultures among their employees. Here are a few strategies undertaken:

- **Recruiting**
 - Establish relationships and collaborate with schools and trainees in the development of programs
 - Referencing programs to encourage identification of candidates
 - Hiring of immigrants
- **Training**
 - More structured onboarding program in order to quickly train employees about company operations, rules and policies and task expectations
 - Continuing driver training education internally and by outside consultants to improve adaptation to regulatory changes (axles, working hours, etc.)
- **Operations Management**
 - Use of retired workers. They are experienced, available on weekends, part-time, in summer (unionized companies use them through agencies)
 - Flexible hours to facilitate balance between work and family life
 - Properly manage onboarding of immigrants, since they are the sector's target labor group (e.g. Port of Vancouver where all information or documents are produced in three languages, including Hindi since many truckers are of Indian origin)
 - Guaranteed regular hours to foster retention of employees who work evenings (e.g. students)
 - Offer 4-day weeks to older employees and the extra day to student employees
 - More attractive evening, weekend and overtime bonuses
- **Continuous Improvement – Employee Engagement**
 - Clear communications with employees, including figures, on the importance of continuously improving productivity to keep inhouse jobs (avoiding outsourcing)
 - Providing proper guidance, communication and motivation for the new generation, assigning them varied tasks and explaining their prospects for advancement. Teach supervisors to communicate properly with them and give them feedback.
- **Company Benefits**
 - Daycare services

- Flexibility in vacation management (different ways to accumulate time and flexible hours)
- **Incentive (Bonus) or Recognition Programs Based on Different Factors**
 - Productivity
 - Identification of ideas for continuous improvement
 - Support for coaching

4.6 International Benchmarking

- As mentioned for regional benchmarking, approaches of the **Lean/6 Sigma** type, including principles such as Just-in-Time or Quick Response, are intended to reduce inventories by increasing the frequency of smaller deliveries. This puts pressure on the transportation system, which extends to the international level as well, particularly in marine and rail transportation.
- **Process automation** has been gaining in popularity in recent years. Although in greater use in Europe and the US (larger volumes, plus more expensive and less available industrial land), technology involving handling systems and robots to perform complex warehousing tasks and order assembly are becoming more common in Canada and Quebec. Projects examined by a number of companies require significant investment in new infrastructure, generally built on multiple levels to limit the land area occupied, but offer the advantage of 24-hour operation with a relatively small supporting crew. Once they are up and running, companies that run such operations tend to want to profit from their investment by increasing quantities of goods handled.
- Increased use of regional **transshipment centres** (enabling a reduced number of kilometers covered by truck drivers)
- **E-commerce**, a constant growth sector, is an integral part of company business models, not to mention consumer habits. On an international scale, it is interesting to see companies customizing their retail operations with e-commerce for the purpose of making the two approaches complementary.
 - Reduced floor space in stores in large city centres
 - Reduced number of SKUs available in stores with sales completed by fast home delivery
 - All products available to customers
 - Growth of returns – Reverse logistics
 - Some retail chains use their sales outlets as return merchandise processing points
- **Transportation services industrial clusters and/or logistics poles**
 - Investments in process automation/optimization for shared services
 - Dedicated modes of transportation (e.g. dedicated rail lines)
 - Industry-specialized logistics clusters (e.g. aerospace, automobile, agri-food, etc.)
 - Government investments/support
 - Partnerships with educational institutions
 - Integrated communications systems
- **CCS – Cargo Community Systems** allow intermodal transportation players (marine, rail and road) to gain exposure and integration in order to better coordinate operations.
 - Scheduling
 - Reservations
 - Instructions for shipments and terminals
 - Customs clearance information
 - Hazardous materials management

- Monitoring and traceability of goods
- Data integration and report production
- Better use of **Free Trade Zones** (e.g. Holland, Singapour, Memphis (TN), Savannah (GA), Dallas (TX),) to set aside customs duties and complete assembly operations on products for re-export.
- **Involvement of the logistics function in product design** remains one of the best practices used in high-performance businesses. Considering not only the usefulness of products but also their packaging, significant gains are secured by making better use of space and improving the ease of product handling.
- **Cargo tracing systems**
- **Tax credits** based on business indicators (e.g. Virginia, USA)
 - Growth of cargo volume handled
 - Use of barge and railway transportation
 - Use of international exchange facilities (logistics pole)
- **Techniques to deal with traffic problems**
 - Review traffic regulations. For example, Dutch cities introduced a tax per mileage driven in 2012. In New York a penalty is under consideration on trucking during daytime hours.
 - Traffic circles
- **Review outsourcing models**

Indeed, companies need to consider outsourcing, particularly when there is a gain to be made by improving flexibility, productivity and costs through sharing of infrastructure and services with those of logistics services providers.

4.7 Dashboard Tool

4.7.1 Performance Indicators

When a company is trying to identify a location to set up its manufacturing or distribution operations, the logistics indicators to consider generally concern fluidity, efficiency of materials flow through the chain of operations, as well as costs. The following indicators show relevant data describing the GMA, as well as a comparison with other cities' performance measurements: Cornwall (ON, Canada), Portland (Oregon, USA), New York (NY, USA), Norfolk, Savannah and Antwerp (Belgium).

4.7.1.1 Cargo Volume and Fluidity

Marine

City/Port	Montreal	Cornwall	Portland, OR	New York / N-J	Norfolk	Savannah	Anvers
Tons of goods ('000)	12,033	NA	1,780	38,524	13,851	20,171	184,135
Volume handled (in '000 TEUs)	1,375	NA	210	5,530	2,106	2,966	8,635
Average time spent by container (days)	2.4	NA	NA	NA	NA	NA	NA

It should be noted that only the port of Norfolk is currently able to receive Post-Panamax ships (dockside depth and compatible cranes). In Canada, the ports of Prince Rupert (BC) and Halifax are also able to receive 12,000 TEU ships. New York is planning to be ready in 2017 following the required construction work on the Bayonne Bridge (clearance modification). Portland currently has the required cranes, but is lacking in navigable depth. That being said, a post-Panamax ship is able to navigate the St. Lawrence as long as it contains less than 6,000 TEU, which makes Montreal accessible as a final delivery point on the route of such a ship.

Rail

City	Montreal	Cornwall	Portland, OR	New York / N-J	Norfolk	Savannah
Tons of goods ('000)	18,232	NA	NA	NA	NA	NA
Volume handled (in '000 TEUs)	960	NA	NA	NA	NA	NA
Average time spent by container (hours)	13.7	NA	25.9	30.9	28.1	29.5

Cargo tonnage handled by the different cities. Nevertheless, the average container dwell times recorded by railway companies are indicative of the efficiency of the GMA system. The determining factor for the fluidity of rail line use, either in the Port or one of the intermodal terminals, remains the capacity and frequency of incoming freight trains. Schedules are not available to the public, but Montreal is known for frequent trains to and from Ontario and the American Midwest, as well as southern Quebec connecting with the Maritimes.

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Air

City	Montreal	Cornwall	Portland, OR	New York / N-J	Norfolk	Savannah	Anvers
Tons of goods	143,522	NA	194,513	2,158,065	31,751	7,595	479,862
Average time spent in customs clearance	unknown	NA	unknown	unknown	1-2 hrs	unknown	unknown

Similarly, the determining factor of fluidity is the frequency of flights (departure/arrival) and this plays a preponderant role in delivery times. As seen in the table below, Montreal offers direct flights to Europe. All of the important world destinations can be reached from Canada through Toronto.

Destination	Aircraft type	Montreal	Ottawa	Toronto	Calgary	Vancouver	Atlanta	Chicago	New York
London (LHR)	Passenger	14	7	46	14	18	52	124	394
Amsterdam	All Freight						0	9	3
	Combination			4			0	12	10
	Passenger	7		11	7	8	47	25	62
Paris (CDG)	All Freight			1			2	12	2
	Passenger	33		16			54	38	144
Frankfurt	All Freight						9	19	10
	Passenger	7	7	22	9	10	28	54	96
Dubai	All Freight						0	2	0
	Passenger			3			14	0	32
Shanghai	All Freight					2	3	28	6
	Passenger			7		18	14	28	28
Hong Kong	All Freight			2		1	6	17	14
	Passenger			20		21	0	28	76
Seoul	All Freight			2			10	17	19
	Passenger			7		11	20	38	42
Sao Paulo	All Freight			7			0	0	0
	Passenger						14	14	78

Trucking



It is important to note that in the case of air transportation, total costs and delivery times involve a land transportation segment that cannot be set apart. Carriers will often take this into account by exchanging aircraft time (availability of flights) with compensation for trucking.

From the fluidity viewpoint, trucking is the most flexible mode of transportation. With the exception of time spent for customs clearance and traffic congestion, scheduling is relatively predictable and reliable depending on the destination. The chart given here shows delivery times from Montreal to North American destinations.

Industry Profile – 2013 Survey Challenges

4.7.1.2 Local Labor Costs per City

City	Montreal	Cornwall	Portland, OR	New York / N-J	Norfolk	Savannah
1st level supervisor	57,990 \$	55,994 \$	62,502 \$	67,132 \$	57,460 \$	57,291 \$
Heavy load driver (tractor and trailer)	35,048 \$	39,520 \$	43,760 \$	49,001 \$	39,266 \$	38,254 \$
Delivery man (light truck)	31,200 \$	29,120 \$	41,197 \$	41,724 \$	36,630 \$	34,362 \$
Transportation workers, all other	NA	NA	37,083 \$	39,425 \$	37,231 \$	NA
Forklift operator	39,520 \$	43,680 \$	37,495 \$	36,514 \$	34,626 \$	38,433 \$
Handler (manual)	25,116 \$	28,600 \$	29,468 \$	31,219 \$	27,190 \$	28,806 \$
Packer (manual)	24,024 \$	25,043 \$	23,224 \$	23,625 \$	23,794 \$	21,231 \$

4.7.1.3 Cost of Industrial Space

City	Montreal	Cornwall	Portland, OR	New York / N-J	Norfolk	Savannah
\$ / sq.ft. in rent - LOW	5.15 \$	5.00 \$	6.31 \$	7.38 \$	6.61 \$	2.37 \$
\$ / sq.ft. in rent - HIGH	6.70 \$	6.00 \$	7.06 \$	9.30 \$	7.57 \$	5.80 \$
Building purchase - LOW (\$ / sq.ft.)	52.00 \$	4.69 \$	71.72 \$	129.26 \$	67.50 \$	31.64 \$
Building purchase - HIGH (\$ / sq.ft.)	70.00 \$	10.69 \$	87.54 \$	167.83 \$	86.36 \$	40.08 \$

4.7.1.4 Other Factors

- Availability of qualified workers
- Tax credits
- Subsidies

4.7.1.5 Conclusion

From the cargo fluidity viewpoint, Montreal holds its own among high-performance cities for marine, rail and road transportation services. Air transportation remains a challenge for the GMA, mainly because of its low frequency of flights to and from other large cities. Apart from frequent flights between Montreal and Paris, the GMA cannot easily compete with Toronto and other large cities in the US.

From the cost viewpoint, Montreal labor is quite competitive. On the other hand, significant differences are seen in real estate costs. This can be further enhanced by tax credits, subsidies and other advantages that can sometimes be negotiated with municipalities and/or governments.

In the particular case of Cornwall, located in Ontario just outside the Quebec border, competitive land prices compete aggressively to attract companies. At the same time, the city's location allows companies that establish themselves there to take advantage of Montreal's services and infrastructure without having to contribute through taxes and duties.

4.8 Recommendations

Over the last decades, Montreal faced fierce competition while maintaining its position as a transportation hub in North America. Indeed, with the rise of Asia as the world's low-cost manufacturer and more recently as a growing consumer market, logistics flows now come mostly from the Pacific Ocean.

However, there is been migration of commercial exchanges over the past few years.

- Several domestic companies anticipate the consequences of long lead times and prefer procurement (occasionally using a hybrid approach) from sources with slightly higher costs but shorter delays like **South America, Eastern Europe or India** (West Asia with access to Mediterranean ports through the Suez Canal), not to mention Africa.
- The opening of the **Panama Canal** in 2014 might have an impact on the routes used by vessels, which could increase the cargo volume arriving via the Atlantic Ocean. In such circumstances, Montreal would compete again with northeastern cities of North America.
- The entry of **CSX** in Valleyfield as a provider of rail transport services could enable a more competitive access to south-east American market but could also favour certain American port cities (like Norfolk or Savannah) for importing goods through marine transport.
- More recently, **Canada-European Union trade agreement** could create opportunities in the important European market that could greatly benefit Montreal.

Based on these socio-economic factors, the following recommendations were formulated to improve and reinforce the position of the Greater Montreal Area as a major logistics hub in North America and in the world.

- Strategy to **attract and retain capital investments** to Montreal.
 - Identify key prospects in most promising markets by focusing on the proximity of Montreal to a large consumer base from northeastern North America.
 - Companies with consistent final markets seeking a reliable and proven supply chain delivering goods to western Canada, mid-west and eastern United States.
 - Analyze the future of South America – Marine supply chain instead of rail and road network.
 - Companies importing/exporting from or to Europe and Americas.
 - Targeting distributors (with few if any light assembling activities) rather than manufacturers.
 - The logistics and transportation industry in Montreal cut across all modes of transport and consists of service providers with access to all resources necessary to satisfy business needs. Companies willing to establish themselves in Montreal can realistically, in the short-term, start operations at competitive costs through services offered by logistics providers (3PL and 4PL). Once a market is established and growing, in the medium and long term, more complex and specific operations can be developed to support business development.

- **Improve fluidity of road traffic**

The major roadwork currently under way are both improvements (such as Pie-IX interchange or the Notre-Dame boulevard expansion project) and upgrades to ensure the sustainability of infrastructure (e.g. Champlain and Mercier Bridges). However, road traffic remains an undeniable problem, accentuated during rush hours, that needs to be addressed by the City of Montreal. Here are some opportunities for improvement:

- **Review restrictions** on trucking in areas where limits are imposed.

One particular point raised by focus groups with regard to trucking restrictions was noise levels generated by trucks, especially those with refrigeration systems. This issue has now become less relevant with new temperature controlled trucks.

- **Reschedule delivery services outside rush hours**

Changing delivery hours is a concept that is simple but hard to implement due to the following challenges:

- Difficulty for employees who prefer day shifts.
- Schedule conflicts with suppliers to pick delivered items on return trip.
- Clients with atypical working hours.

Modifying business hours implies a cultural shift because many stakeholders would be called upon to adapt their activities. Some cities (e.g. New York) have introduced measures and sanctions against driving trucks during specific hours.

- A system of **reserved lanes** for public transportation has been put in place in many places in Montreal but the same concept could **also apply for trucking**. Lanes could even be dedicated to buses during the day and to trucks during the night. Considering the efforts requested to Montreal to identify reserved lanes (which compete with parking spaces and bikeways), designating “shared” lanes is probably necessary to make the concept viable.

- **Adjust the price of bridge tolls** to encourage their use by truckers. Meetings with discussion groups revealed that several companies targeted by the new bridges (A30 and A25) don't use them due to the absence of return on costs. Utilization statistics should therefore be analyzed to validate if this trend is relevant and widespread in order to measure its impact on road traffic.

- **Expand the role of docks in Contrecoeur** to free up capacity at the Port of Montreal. Work currently under way at the Port of Montreal will increase its container throughput capacity from 1.6 to 1.8 million TEU (1.375 million TEU handled in 2012). Depending on the growth that will be achieved in the years to come, Port capacity could become an issue. Given the proximity of Contrecoeur operations and the recent extension of Highway 30 (A30), companies may benefit from receiving goods directly on the south shore of Montreal.

- **Demystify the role to be played by Montreal in the choice of air transport.** Once air transport is chosen by an organization, lead times and costs of delivering goods to their final destinations depends on road transport. If the frequency of flights is not an issue, Montreal is an air terminal as competitive (in terms of delays and costs) as other cities like Toronto, Boston or New York to serve the North American market.

- Promote an alliance between businesses and carriers by building a shared platform for freight management and transportation.
 - The establishment of a **CCS – Container Community System** should be explored, considering the small number of players in the industry. Most companies, starting with the Port of Montreal, CN, CP and major road carriers, should benefit from such a system.
 - Businesses and carriers both benefit from exchanging their needs and available road transport capacity. Synergies could be achieved and costs could then be minimized. The idea of creating a logistics cluster focused on sharing services and infrastructure could also play the role of catalyst for such exchanges since the tools and processes would be implemented to create synergies between users.
- To face **workforce challenges**, businesses have been collaborating very closely with schools and universities over the past years. Since the labor shortage particularly affects the logistics industry (specifically trucking), it will be important to communicate to young people entering the labor market that this industry offers many advantages such as employment stability and versatility.

In conclusion, the development of clusters in the most important sectors for the GMA is a major milestone in revitalizing Montreal. Furthermore, the creation of CargoM is essential since logistics and transportation services cover a set of functions that support the growth of other sectors. In this context, a **partnership with other clusters or specialized agencies** (e.g. CTAC in the food industry or the MEQ) would be valuable. Indeed, through surveys and discussion groups, it is clear that industry has its own issues and priorities but many of them are related to logistics, transportation and supply chain management.

5

The Agri-food Industry from the Montreal viewpoint

CASE STUDY



5 Case Study – The Agri-food Industry From the Montreal Viewpoint

5.1 Purpose of the Study and Approach Followed

To follow up on our profile and performance review of the supply chain, we are presenting here a *case study* to provide a better illustration of transportation and logistics as a strategic issue for businesses. The primary aim of this section of the study is therefore to **measure the impact of the Montreal area's logistics chain on a specific type of product**. To serve as an example, we have chosen the **agri-food industry** to evaluate this impact.

Several companies in the agri-food industry were approached to provide in-depth insights on the subject with concrete examples. A great majority of them were interested in taking part in the study, but saw a risk, in a study available to the public, in sharing facts and data about their supply chain. Indeed, the agri-food area is known for its highly competitive market. In general, businesses in this industry need to market a growing variety of products at very competitive prices, consequently working at high volume with low profit margins. The supply chain is for each a strategic component of their success. Secrets are seen as too sensitive to be revealed.

In order to respect the confidentiality of information and the anonymity of participating companies, we adopted an approach in this study that comprised meetings and focus groups with several companies. With a good number of players and products as examples, we are able to better determine the incidence that Montreal and area transportation and logistics have on their operations and services.

Four large enterprises took part in the encounters:

- Turnover ranging from **\$100 million** to **\$10 billion**;
- Having **100** to **10,000 employees**;
- Businesses operating at **multiple sites** with several plants and/or distribution centres both locally and elsewhere in North America;
- **Original products and private brands** for large customers;
- Serving **national** and **international** markets;
- **Head offices** all located in the **Greater Montreal Area**.

5.2 Background

5.2.1 Size of the Agri-food Industry in the GMA

The agri-food industry is one of the largest in Quebec and Greater Montreal. In fact, **10-15% of the total goods and jobs** in transportation and logistics are connected to this industry.

- **Volume of goods handled:**
 - Road transportation: 9.9% of the tonnage moved in the GMA – 9.5 / 96.2 million tonnes (2011 figures):
 - Products of food, fats and oils industries: 8.2% - 7.8 M tonnes
 - Agricultural products: 1.7% - 1.6 M tonnes
 - Rail: 12.7% of GMA tonnage – 2.3 / 18.2 million tonnes

- Marine: 14% of containerized tonnage in the GMA – 1.7 / 12 M tonnes:
 - Grains alone account for 13% of bulk tonnage – 2.1 / 15.3 M tonnes

- **Job numbers**

The agri-food industry (producers) supports more than **30,000 jobs** in the GMA alone:

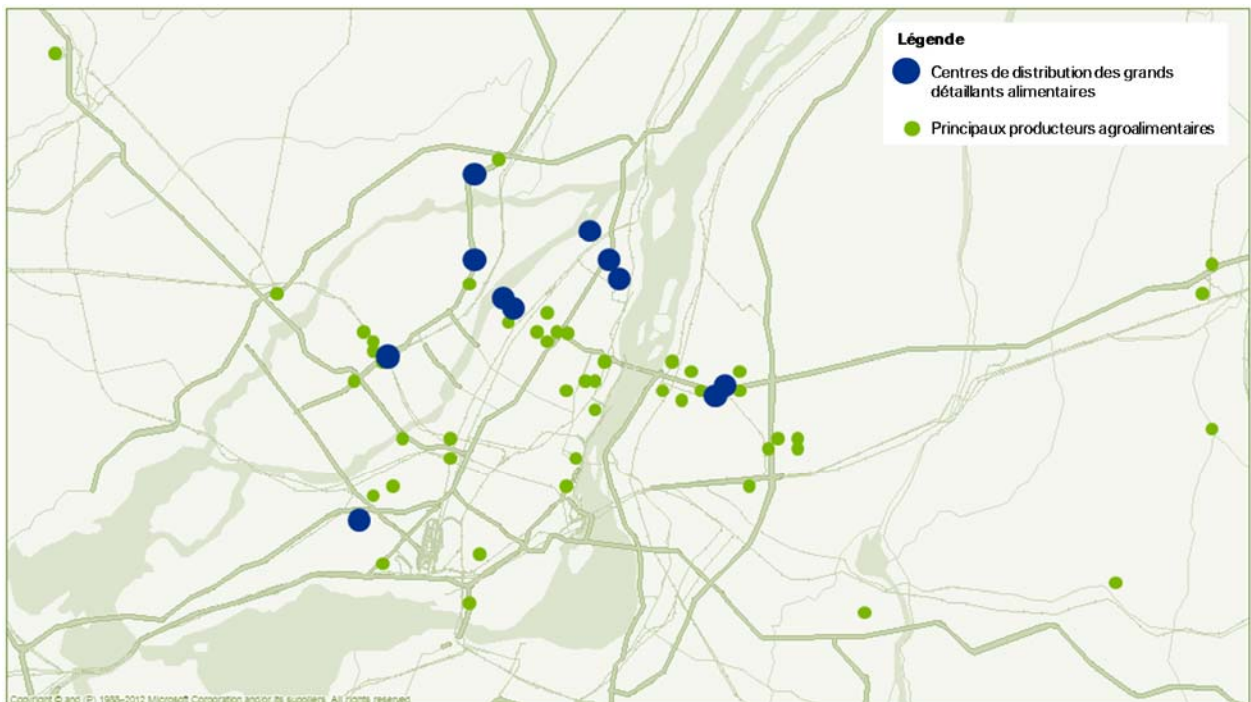
- Agriculture (farms, aquaculture and farming support activities): 7,000 jobs;
- Food manufacturing: 26,000 jobs;

... **and over 100,000 if wholesalers and retailers are included:**

- Wholesalers (agriculture, food and beverage products): 14,400 jobs;
- Food retailers: 60,600 jobs.

5.2.2 Location of Manufacturing and/or Distribution Facilities

A brief look at the largest agri-food businesses in the Greater Montreal Area shows a greater concentration on **Montreal Island and the South Shore**. Indeed, when one looks at the large-scale locations (green spots on the map below), very few businesses are established north of Mille-Iles River while a limited number are located on the actual island of Laval. Heavier concentrations of spots are seen on the Island of Montreal and also on the South Shore as well as more distant boroughs.



In terms of supply, producers generally obtain their raw materials from a number of local farms (outside the city): grains, dairy, eggs, animals, etc. Some materials are at times imported and arrive most often from the United States and occasionally on ships in the Port of Montreal (e.g. various additives or vitamins). Food processors generally need to complete their products with necessary packing components, usually from local sources (many on Montreal Island). Local supplier deliveries are usually made daily (timed just-in-time with production/processing), whereas imports arrive generally at weekly or monthly intervals.

Given the freshness requirement in this industry, food producers need to have easy access to their sources of supply, and above all they need to be near their customers at the same time, since **deliveries are made on a daily basis** to what are usually large numbers of destinations (consumers). As a result, an established presence in the GMA is unavoidable. Our discussions showed that businesses setting up new operations are undeniably looking more and more for off-island sites for two good reasons: the land and facilities are more affordable and they need better access to the freeway system for deliveries in the city and around the province. For national producers/suppliers, most use the railways to reach Western Canada.

In order to reduce costs and inventory in their stores, large food retailers (Loblaw, Metro, Sobey's, etc.) have all taken the step in recent years to convert most of their **direct store deliveries (DSD) to warehouse deliveries**. As a result, a large number of food producers and suppliers have seen a significant change in their transportation networks, which formerly supplied retail outlets with delivery or sales personnel (or agents). More and more, these suppliers are now making daily deliveries to retailers' distribution centres where the retailers consolidate orders for each retail outlet. The map above shows blue spots for large retailers' distribution centre locations. Many of these are located in the eastern part of the GMA near Autoroute 25 which connects the island with the North and South Shores.

The majority of the companies in this industry have **internal operations** and are very often unionized, with little call for outsourced services. Outsourcing is generally used for more specific reasons:

- External warehouses (outsourced) are often used to meet seasonal high-traffic needs;
- Transportation, particularly for standard services (palletized products in 53-foot trailers), is increasingly outsourced in order to take advantage of return trips with loads (backhauling or trips combined with other customers), thus reducing costs. Some of these food companies, which traditionally had an internal truck fleet, have privatized their fleets by creating new companies that offer transportation services to other customers.

5.3 Why Locate in Montreal?

Many companies admit that the choice to locate in the Montreal area is sometimes governed by "organic" organizational growth, but above all for reasons that are fundamental to their competitiveness. By organic growth, we mean the growth that companies experience increasingly often by the acquisition of other frequently competing or complementary organizations. In recent years, a clear trend can be seen toward enterprise groupings and agri-food is no exception. Indeed, agri-food producers whose operations are growing through acquisitions eventually have no choice but to reorganize their entire network in order to optimize their assets by synergizing their different sites. As a result, all companies, whatever their mode of "evolution", must necessarily make choices as to the operational locations to be prioritized. The following are the reasons most often given for locating in Montreal:

- **Proximity to consumer markets:**

Generally speaking, food-producing companies produce more outbound loads than inbound; a packaged end product usually takes up more space than raw materials and packaging components. Therefore, being close to customers (consumer market) is given precedence in order to limit transportation costs. The Greater Montreal Area alone accounts for 40% of Quebec's consumer markets. Proportionally, the Montreal market is 1/3 North Shore, 1/3 South Shore and 1/3 Montreal Island, which explains the preference for central locations on the island.

More specifically, a growing number of agri-food businesses appear to be locating on the South Shore both to be closer to their suppliers (nearly 25% of Quebec farms are located in Montérégie) and to avoid city traffic congestion.

- **Availability of labor:**

A larger population pool generally gives access to well-qualified labor at more competitive prices. An obvious asset that sets Montreal and its area apart in terms of worker access is their public transit system. Indeed, the subway system that now connects Montreal Island to Longueuil and Laval, combined with the bus system, offers more flexible travel to employees and a less expensive alternative to the automobile. To meet the needs of a growing population, the City of Montreal is making greater use of the railway system to extend access to the suburbs, not to speak of numerous projects to improve passenger flow such as reserved lanes on principal city arteries or a new train planned for the new Champlain Bridge.

5.4 Issues Affecting the Industry

5.4.1 General Industry Issues

The key element in the food sector comes down to the **quality and freshness of products offered**. So it is not surprising to find the following issues most frequently raised by agri-food producers, including those related to the requirements of HACCP standards (Hazard Analysis and Critical Control Points):

- **Maintaining the cold chain:** temperature control at all points through all the supply chain stages, from raw materials to finished products beginning at the farm and passing through producers, wholesalers, distributors and on to the retailers;
- **Traceability of foods** through checks on batch numbers of product components to monitoring of point-of-sale supply inventories. This information is essential in cases of food recalls requiring retailers, distributors and producers to remove foods identified as dangerous from circulation;
- **Sanitary condition of premises** with measures to prevent any contamination by bacteria or parasites;
- **Observance of quotas** established by various countries and governments to limit the dangers of food contamination through customs measures (e.g. poultry exports sold in the US are limited to 1% of local production) and above all to protect markets and benefit local producers (e.g. quotas limiting dairy imports);
- Retailers and points of sale are attempting more and more to limit inventories on hand in their facilities. Consequently, there is increasing pressure on food suppliers to keep inventory in their own facilities and deliver them on a just-in-time basis. **Warehousing** thus becomes a service and a differentiating feature for competition between suppliers;
- Along the same lines, supply chain participants have an advantage in maintaining their inventories at the lowest possible levels by replenishing them frequently in small quantities. With the increasing variety of products on the market, demand planning becomes more difficult, even impossible, to do accurately. Companies now try to operate on a **demand pull** basis: sell first, then produce;
- “Synchronizing” operations between participants is becoming another significant challenge. Many distributors and retailers are requiring that appointments be made to ensure more efficient coordination of their operations. Several large organizations (e.g. Walmart, Target, Shoppers Drug Mart) go so far as to impose **penalties for delayed deliveries or order errors**. In the course of the past few years, these companies have developed a real profit centre out of maintaining the discipline of their suppliers. Today’s reality for agri-food producers involves assuming a position of balance between access to large retailers with massive sales, but high risk, and simply settling for sales by other more flexible players.

5.4.2 Advantages of Montreal

In the previous chapters of this study, the benefits of Montreal compared to other large cities is a matter that has already been raised, particularly in terms of **competitive prices** for doing business in general (land and labor costs) and the **fluidity of logistics services**. For local agri-food businesses in particular, Montreal is also located at a “crossroads” for access to other domestic and international markets. Through this **intermodal network**, companies have strategic access to multiple options for shipment to important destinations such as:

- **Ontario** and the **Maritime provinces** by the highway system;
- **Western Canada** by the railway system;
- **Asia**, for which the route via Vancouver is almost mandatory for the food industry (by rail and water); sea routes through the Suez Canal increase the number of ports of passage and delays;
- **Europe** – direct access through the Port of Montreal;
- **Australia** – for which one of our interviewees gave a routing example that passed by truck to Beauharnois, train to the Port of NY/NJ (using the newly installed CSX system) and ship via the Panama Canal.

In brief, there is no doubting the importance of the local GMA consumer market, but companies that locate in Montreal have a clear advantage for successful marketing of their products in other parts of the country and internationally. All products that keep for longer periods can gain access to other large markets. In our encounters and focus groups, many participants gave examples of countries with stricter **food quotas or regulations** (e.g. Japan); this is often the nature of the challenges that deter our businesses from moving in such directions.

5.4.3 Constraints and Disadvantages

As we mentioned earlier, product freshness requires frequent, daily deliveries. Companies that supply food to retailers and points of sale need to cope with local deliveries that are more and more complicated and subject to **traffic congestion** in the city, particularly when entering and leaving. Indeed, road capacity problems and **infrastructure difficulties** in Montreal have now become a major issue for our companies. For an example, we need only look to the load limits on road transportation in Quebec during thaw periods. Moreover, with the intermodal centres, airport and a container port located on the island, companies are increasingly dependent on the operation of our bridges and tunnels for moving goods.

Given the greater demand for residential properties on Montreal Island, there is an increasing scarcity of **available industrial land and buildings**, forcing companies to turn to the suburbs to set up new facilities. This only increases the importance of road access to the island.

Another problem raised involves a **lack of container balance** in Montreal. The agri-food companies that we met say there is often a lack of containers in Montreal (possibly worse for refrigerated containers) and that this can cause additional costs and delays in shipping goods.

5.4.4 General Trends Perceived or Experienced

In spite of readily available labor in Montreal compared to other areas, companies concur in saying they feel a shortage (e.g. strong competition to attract workers on the South Shore). Retail outlets are tending to **close or curtail their night operations**, particularly in response to labor issues – and this is not just a local trend. As a result, the option of running deliveries at night to avoid rush hours and traffic congestion is less and less feasible.

Along the same line of thought, many companies in this industry are joining a trend toward **automating** many of their manufacturing processes (e.g. packaging, labelling and palletizing) and distribution operations in order to reduce their risks at the prospect of labor shortages. Automation also allows them to increase their production capacity with operating hours that are easier to extend to evening and night shifts.

The Canadian Food Inspection Agency (CFIA), which is responsible for overseeing the **observance of food safety standards**, does not appear able to apply the rules in a consistent manner across all provinces; Quebec is known for more stringent monitoring. Indeed, several of the companies we met gave examples of practices witnessed at different sites in their domestic supply chain that showed a lack of uniformity of tolerance thresholds.

The **Comprehensive Economic and Trade Agreement (CETA) concluded in late 2013 with the European Union** may have a considerable impact on the agri-food industry. It gives access to a market of 505 million persons in Europe and offers an opportunity for Canadian businesses. It should not be overlooked that this opportunity works both ways; new competitors may make an appearance in Canada. From the viewpoint of local businesses, this opportunity may look promising at first sight, but it quickly becomes more complex when seen in terms of the numerous countries involved that are known for their different food safety rules, sometimes exceeding the requirements of Canadian standards (e.g. laws governing product labelling, types of packaging, palletization and other aspects). This leads us to believe that increased exports of our food products to Europe is possible, but could occur at a gradual rate.

5.5 Opportunities for Improvements to the Logistics Chain and Recommendations

For the agri-food industry, certain lines of improvement are of course close to those described in Section 4.8 of this report. Those mentioned most often are the following:

- **Review of restrictions** on trucking in some municipalities;
- Shifting **delivery hours** toward evening and night operations.

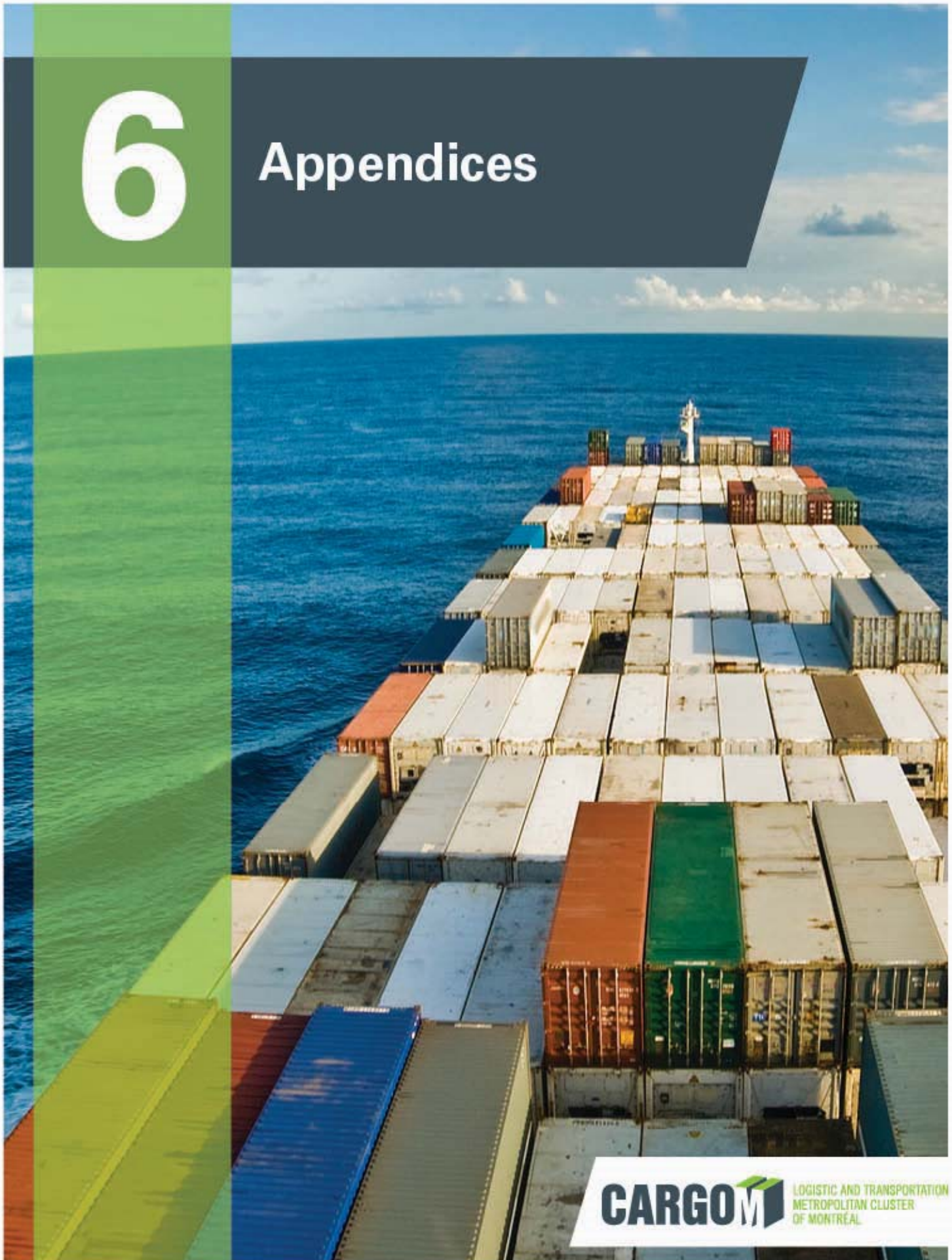
Given the importance of the South Shore to this industry, the recommendation to **extend the role of the Contrecoeur docks** becomes even more valid as a means of avoiding traffic congestion entering and leaving the city.

The question was also raised of **sharing services and infrastructure** by developing and implementing a logistics pole. For the food industry, this concept could require the creation of decentralized facilities separating operations specializing in the storage and handling of dry materials from refrigerated operations. Central coordination by such an organization could also play a key role in improving container availability.

Finally, the GMA would also gain by **restoring the value of its industrial real estate inventory**, particularly on the Island of Montreal, which remains a prime place to operate. There is some availability of land and buildings, but many need improvement and require work to make them safe and acceptable for business operations.

6

Appendices



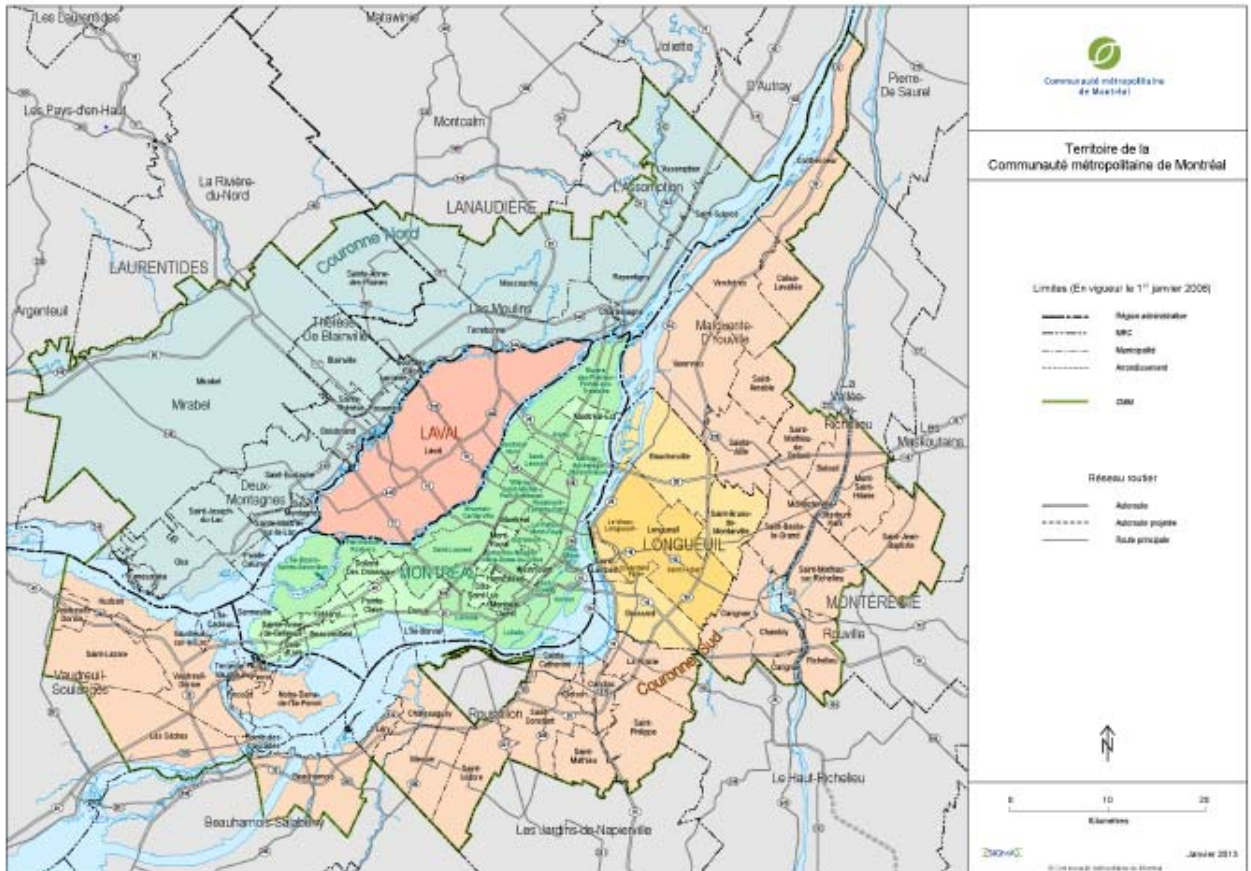
Appendix A- Greater Montreal Area

List of GMA's 82 Municipalities

List of GMA's 82 municipalities				
Baie D'Urfé	Delson	Mascouche	Richelieu	Sainte-Anne-de-Bellevue
Beaconsfield	Deux-Montagnes	McMasterville	Rosemère	Sainte-Anne-des-Plaines
Beauharnois	Dollard-Des Ormeaux	Mercier	Saint-Amable	Sainte-Catherine
Beloeil	Dorval	Mirabel	Saint-Basile-le-Grand	Sainte-Julie
Blainville	Hampstead	Mont-Royal	Saint-Bruno-de-Montarville	Sainte-Marthe-sur-le-Lac
Bois-des-Filion	Hudson	Mont-Saint-Hilaire	Saint-Constant	Sainte-Thérèse
Boisbriand	Kirkland	Montréal	Saint-Eustache	Senneville
Boucherville	L'Assomption	Montréal-Est	Saint-Isidore	Terasse-Vaudreuil
Brossard	L'Île-Cadioux	Montréal-Ouest	Saint-Jean-Baptiste	Terrebonne
Calixa-Lavallée	L'Île-Dorval	Notre-Dame-de-l'Île-Perrot	Saint-Joseph-du-Lac	Varenes
Candiac	L'Île-Perrot	Oka	Saint-Lambert	Vaudreuil-Dorion
Carignan	La Prairie	Otterburn Park	Saint-Lazare	Vaudreuil-sur-le-Lac
Chambly	Laval	Pincourt	Saint-Mathias-sur-Richelieu	Verchères
Charlemagne	Léry	Pointe-Calumet	Saint-Mathieu	Westmount
Châteauguay	Les Cèdres	Pointe-Claire	Saint-Mathieu-de-Beloeil	
Contrecoeur	Longueuil	Pointe-des-Cascades	Saint-Philippe	
Côte-Saint-Luc	Lorraine	Repentigny	Saint-Sulpice	

Source : CMM Internet Website

GMA Map



Source: CMM Internet Website

Appendix B – Differences Between Definitions Used by Statistics Canada and the Ones Used in this Study

(Original French version)

Industrie du transport et de la logistique

La définition utilisée pour cette étude exclut certains codes SCIAN que Statistique inclut dans sa définition de l'industrie. KPMG a dû, à l'occasion, soustraire certaines données relatives à des codes SCIAN exclus dans sa définition de l'industrie, lorsqu'il lui était possible de le faire. Par ailleurs, les entreprises intégratrices de la logistique, les 4PL, ne font pas partie de l'industrie du transport et de la logistique de Statistique Canada, mais plutôt de l'industrie des services. De plus, pour certains codes SCIAN, tels le transport aérien et des activités de soutien, il n'était pas possible de dissocier le transport de marchandises et le transport de personnes.

Grande région de Montréal (GRM)

La définition de la GRM n'est pas la même pour la Communauté métropolitaine de Montréal (« CMM ») que pour Statistique Canada. En effet, Statistique Canada utilise une donnée représentée par la région métropolitaine de recensement (« RMR ») de Montréal. La RMR de Montréal comprend 91 municipalités comparativement à 82 pour la GRM définie par la CMM. Le tableau suivant illustre les différences entre les deux définitions :

Differences in the cities of the GMA according to MMC and the cities of the CMA according to Statistics Canada	
Cities Included in the GMA according to MMC and not Statistics Canada	Cities Included in the CMA according to Statistics Canada and not MMC
Calixa-Lavallée	Coteau-du-Lac
Contrecoeur	Gore
Saint-Jean-Baptiste	Kahnawake
	Kanesatake
	L'Épiphanie (ville et paroisse)
	Lavaltrie
	Les Coteaux
	Saint-Colomban
	Saint-Jérôme
	Saint-Placide
	Saint-Zotique

Sources : Sites Internet de la CMM et Statistique Canada

Appendix C –Online Survey Methodology

(Original French version)

Mise en œuvre du questionnaire

Définition de l'industrie du transport de marchandises et de la logistique

L'industrie telle que définie à la section 1.2.1, soit l'industrie du transport de marchandises, que ce soit par voie aérienne, ferroviaire, maritime ou routière, ainsi que les entreprises de services de soutien au transport tels les transitaires et les courtiers en douane, les entreprises de services d'entreposage et tiers fournisseurs de services logistiques, communément appelés les 3 PL, de même que les entreprises intégratrices de la logistique, soit les 4PL.

Les secteurs d'activité suivants étaient exclus de l'étude :

- Déménagement de biens;
- Transport de personnes;
- Transport par pipeline;
- Services postaux;
- Services de messenger et messagerie.

Définition de la grande région de Montréal

La GRM telle que définie à la section 1.2.2, soit la même définition que celle utilisée par la CMM. Cette dernière définit la GRM comme étant une région qui comprend 82 municipalités regroupées en cinq régions : l'agglomération de Montréal, l'agglomération de Longueuil, la Ville de Laval, la couronne Nord et la couronne Sud. Voir l'Annexe A pour la liste des 82 municipalités et une carte de la GRM.

Autres définitions

Il est à noter que les données recherchées concernaient le dernier exercice financier terminé des répondants. Aux fins de simplicité, le questionnaire mentionnait l'année 2012. Par ailleurs, la devise utilisée dans le questionnaire était le dollar canadien.

Développement du questionnaire

Un questionnaire a été préparé afin de collecter des informations au sujet des entreprises de l'industrie du transport de marchandises et de la logistique dans la grande région de Montréal. L'objectif du questionnaire était de permettre de dresser un portrait réaliste et à jour de l'industrie. Une version préliminaire du questionnaire a été présentée à deux firmes évoluant dans l'industrie afin d'obtenir leurs commentaires. La première version préliminaire a ainsi été ajustée afin de tenir compte de leurs commentaires. Lors de ces rencontres, KPMG a voulu valider la terminologie utilisée dans le questionnaire, la complexité de certaines questions, ainsi que la clarté et la possibilité de mauvaise interprétation de certaines questions. Une version préliminaire ajustée a été présentée à CargoM. Certains ajustements ont été proposés par ces derniers. Une version préliminaire finale, en français et en anglais, a été mise en ligne le 21 juin 2013, afin que dix entreprises, sélectionnées par CargoM, participent à l'approche préliminaire. Encore une fois, l'objectif était de s'assurer que le questionnaire était complet, n'était pas trop complexe, était clair et que la terminologie utilisée était exacte. Des dix entreprises sondées lors de l'approche préliminaire, quatre ont répondu totalement au questionnaire. Des entrevues de suivi ont été effectuées avec chacune d'entre elles afin de recueillir leurs commentaires et ajuster le questionnaire.

La version finale du questionnaire a été approuvée par CargoM et mise en ligne le 26 juillet 2013.

La version finale du questionnaire comporte 21 questions regroupées sous quatre sections :

- Description de l'entreprise et de ses secteurs d'activité :

Cette section traite :

- de la taille de l'entreprise en termes de revenus et la part de la GRM dans ses revenus totaux;
- du secteur principal d'activité de l'entreprise et des services offerts dans la GRM;
- de la ventilation des dépenses de l'entreprise et de son utilisation des services de sous-traitance.

- Défis et facteurs de compétitivité :

Cette section traite :

- des principaux défis liés au transport et à la logistique auxquels l'entreprise fait face;
- des facteurs de compétitivité de l'entreprise;
- de l'évaluation de la performance de la GRM;
- de différentes initiatives mises en place par l'entreprise.

- Ressources humaines :

Cette section traite :

- du nombre d'employés de l'entreprise, de leur répartition en fonction du poste occupé et du niveau minimal de scolarité recherché pour chacun des postes;
- des variations passées et futures au niveau du nombre d'employés;
- des défis liés aux ressources humaines auxquels l'entreprise fait face;
- du niveau de satisfaction quant à la formation.

- Opérations

Cette section traite :

- des données sur le tonnage et sa répartition selon le type de cargaison;
- de la répartition du tonnage selon le secteur d'activité des clients.

Une copie du questionnaire en version finale est présentée à l'Annexe D.

Collecte de données

Développement de la liste d'entreprises à qui le questionnaire allait être envoyé

Lors du développement de la liste d'entreprises, l'objectif était d'envoyer le questionnaire aux joueurs importants de l'industrie. Étant donné qu'aucune liste exhaustive de l'ensemble des entreprises présentes dans l'industrie du transport et de la logistique de la grande région de Montréal n'existe, KPMG a dû créer la liste d'envoi. Pour ce faire, KPMG a utilisé les sources suivantes :

- Liste fournie par le Port de Montréal et utilisée lors d'événements promotionnels;
- Liste fournie par l'Association du camionnage du Québec (« ACQ ») incluant 38 entreprises dont les activités représentent environ 70 % des activités de transport routier dans la GRM;
- Liste fournie par Aéroports de Montréal incluant divers acteurs de l'industrie;
- Liste des entreprises étrangères de l'industrie du transport et de la logistique ayant un bureau dans la GRM fournie par Montréal International.

Une fois ces listes colligées, KPMG a nettoyé la liste combinée afin de supprimer les entreprises ne faisant pas partie de l'industrie ou n'ayant pas d'activité dans la GRM. Cette liste combinée a ensuite été analysée afin de s'assurer qu'aucun joueur majeur de l'industrie dans la GRM n'avait été oublié. Cet exercice s'est fait grâce à la connaissance de l'industrie de KPMG et de CargoM ainsi qu'à des experts du transport aérien et des services de courtage. En ce qui concerne les entreprises pour lesquelles KPMG n'avait pas de personne-ressource et/ou ses coordonnées, des appels ont été effectués afin d'obtenir les noms et coordonnées des personnes-ressources.

La liste d'envoi finale a été approuvée par CargoM. Pour une copie de la liste d'envoi finale, voir Annexe E.

Taux de réponse

Le questionnaire a été envoyé à 218 entreprises. De ces 218 entreprises, 47 ont terminé le questionnaire et 14 y ont répondu de manière partielle.

Sommaire des réponses reçues au questionnaire		
	Nombre	%
Questionnaires envoyés	218	
Questionnaires totalement répondus	47	21,6%
Questionnaire partiellement répondus	14	6,4%
Nombre total de réponses reçues	61	28,0%
Nombre total de réponses conservées	53	24,3%

Parmi les 218 entreprises, KPMG a identifié 60 joueurs majeurs dans l'industrie évoluant dans la GRM. Le taux de réponses de ces joueurs majeurs est présenté ci-dessous :

Sommaire des réponses reçues des joueurs majeurs		
	Nombre	%
Questionnaires envoyés	60	
Questionnaires totalement répondus	26	43,3%
Questionnaire partiellement répondus	5	8,3%
Nombre total de réponses reçues	31	51,7%
Nombre total de réponses conservées	29	48,3%

Plusieurs moyens ont été utilisés afin d'avoir un taux de participation le plus élevé possible :

- Au moins trois appels de suivi ont été effectués par KPMG auprès des joueurs majeurs afin de les encourager à participer;
- Toutes les entreprises qui ont reçu le questionnaire ont été contactées au moins une fois par KPMG afin de s'assurer qu'elles avaient bien reçu le questionnaire, de leur expliquer l'étude et de les inciter à participer;
- Toutes les entreprises qui ont répondu partiellement au questionnaire ont été appelées par KPMG au moins une fois afin de les inciter à finir de répondre au questionnaire;
- CargoM et deux de ses membres ont été approchés afin qu'ils contactent certains joueurs majeurs pour lesquels ils pourraient avoir de l'influence afin de les inciter à participer à l'étude.

Le questionnaire a finalement été fermé le 18 septembre 2013.

Des 61 réponses reçues, huit réponses ont été retirées. Cela s'explique par le fait soit que les réponses obtenues étaient trop partielles (par exemple, on avait répondu seulement une question), soit que l'entreprise ne faisait pas partie de notre définition de l'industrie. Ainsi, le nombre total de réponses conservées est de 53.

Entrevues de suivi

Afin de s'assurer de la qualité des données collectées, KPMG a procédé à 39 entrevues de suivi. Ainsi, la grande majorité des entreprises ayant terminé le questionnaire ont été interviewées. Les entreprises employant moins de cinq employés n'ont pas été contactées pour une entrevue de suivi, ce qui représente trois entreprises. Par ailleurs, lors de ces entrevues de suivi, KPMG a profité de l'occasion pour poser davantage de questions qualitatives et pour clarifier certaines réponses.

Appendix D – Online Survey Questionnaire

(Original French version)

Lettre d'introduction



PERSONNEL ET CONFIDENTIEL

ÉTUDE SUR LE PROFIL DE L'INDUSTRIE DU SECTEUR DE LA LOGISTIQUE ET DU TRANSPORT DE LA GRANDE RÉGION DE MONTRÉAL

Collecte de données auprès des entreprises du secteur

Présentation de CargoM

CargoM est la nouvelle grappe métropolitaine de logistique et de transport de Montréal créée en 2012. Elle a pour mission de rassembler tous les acteurs de la logistique et du transport de marchandises du Grand Montréal, dont les activités favorisent la plaque tournante de Montréal autour d'objectifs communs et d'actions concertées, en vue d'en accroître la cohésion, la compétitivité, la croissance et le rayonnement.

Dans son plan d'action, CargoM a décidé de mettre en place six chantiers sur une période de deux ans. Trois chantiers ont été amorcés en 2013, soit opportunités de développement sectoriel (chantier I), communication et rayonnement (chantier II) et fluidité et accès par camion (chantier III). La présente étude s'intègre dans les activités du chantier communication et rayonnement, mais les résultats serviront également à documenter les projets des chantiers I et III. Les trois autres chantiers — réglementation, main-d'œuvre et innovation — débiteront en 2014.

Pourquoi nous vous sollicitons ?

Bien que de nombreuses études aient été menées sur le secteur, nous manquons cruellement de données agrégées à l'échelle de la grande région de Montréal pour :

- dresser un portrait réaliste et pertinent pour les milieux des affaires ainsi que de la logistique et du transport. C'est pourquoi les informations que vous fournirez permettront, pour une première fois à l'échelle de la grande région de Montréal, de faire prendre conscience de l'importance de l'industrie et de ses retombées (retombées économiques, emplois générés, etc.);
- déterminer avec vous les priorités qui doivent être abordées auprès des autorités et organismes compétents pour favoriser vos activités, ainsi que pour améliorer les opérations et la fluidité des accès aux différents terminaux intermodaux et aux centres de distribution.

Quelles retombées aura l'étude pour vos activités ?

À l'aide des résultats de l'étude, CargoM compte :

- Faire reconnaître l'importance de la logistique et du transport dans la grande région de Montréal;
- Mettre en place des projets et initiatives pour favoriser vos activités quotidiennes et pour stimuler le développement des affaires.

CargoM a déjà commencé ses actions avec :

- Une publicité sur le secteur de l'industrie et du transport;
- Des projets pilotes pour cerner les problèmes d'accès et de fluidité par camion et mettre en place des mesures de mitigation pour améliorer les performances;

- D'autres actions qui sont à venir dès l'automne 2013.

Présentation de l'étude de KPMG

Tel que précédemment mentionné, à l'heure actuelle, et malgré de nombreuses études menées sur la logistique et le transport dans la grande région de Montréal, les informations pour obtenir un portrait précis des intervenants et des retombées de l'industrie logistique et du transport sont partielles. C'est pourquoi CargoM a demandé à KPMG de réaliser une étude sur le profil de l'industrie du secteur de la logistique et du transport de la grande région de Montréal.

La réalisation de cette étude permettra à CargoM de définir les champs d'action prioritaires et le lancement de projets structurants. Ces projets auront pour dessein de doter la plaque tournante logistique d'infrastructures, de systèmes d'information, de politique et de ressources qui hisseront la région de Montréal aux premiers rangs des grandes régions de logistique et de transport.

Afin de pouvoir réaliser l'étude, KPMG se doit de colliger certaines informations sur les activités des principaux acteurs de l'industrie. C'est pourquoi nous sollicitons votre participation. Votre participation est essentielle au succès de l'étude. Notre objectif consiste à ce que toutes les entreprises visées remplissent le questionnaire.

Dans le cadre de cette étude, KPMG s'engage à assurer la confidentialité des données fournies par votre entreprise. En aucun cas, les données individuelles ne seront communiquées, mentionnées ou diffusées à CargoM ou à ses membres. Les résultats seront toujours présentés sur une base agrégée et devront représenter le Grand Montréal.

Vous recevrez un courriel dans les prochaines heures avec le lien pour le sondage et les instructions.

Nous comptons sur vous et vous remercions à l'avance de votre précieuse collaboration.

Madame Sylvie Vachon

*Présidente de CargoM et
Présidente-directrice générale du Port de Montréal*

Monsieur Mathieu Charbonneau

Directeur général de CargoM



ÉTUDE SUR LE PROFIL DE L'INDUSTRIE DU SECTEUR DE LA LOGISTIQUE ET DU TRANSPORT DE LA GRANDE RÉGION DE MONTRÉAL

Collecte de données auprès des entreprises du secteur

Introduction

Il y a quelques heures, vous avez reçu un courriel vous expliquant l'étude sur le profil de l'industrie du secteur de la logistique et du transport de la grande région de Montréal pour laquelle CargoM a mandaté KPMG. Vous trouverez ci-dessous les informations concernant le questionnaire.

Nous tenons à vous rappeler que, dans le cadre de cette étude, KPMG s'engage à assurer la confidentialité des données fournies par votre entreprise. En aucun cas, les données individuelles ne seront communiquées, mentionnées ou diffusées à CargoM ou à ses membres. Les résultats seront toujours présentés sur une base agrégée et représenteront le Grand Montréal.

Questionnaire

Pour accéder au questionnaire en ligne, veuillez cliquer sur ce lien : [Questionnaire CargoM](#)

Il est à noter que plus d'une personne dans votre entreprise peut répondre au questionnaire. Pour ce faire, le premier répondant doit répondre à sa partie et sauvegarder lorsqu'il a terminé. Par la suite, il peut transférer ce courriel à une deuxième personne. Il est à savoir que le courriel ne peut être transféré à plus d'une personne à la fois, qu'une seule personne à la fois peut répondre au questionnaire en ligne et que la deuxième personne verra les réponses du premier répondant. Le courriel peut être transféré à une troisième personne si cela s'avère nécessaire.

Par ailleurs, vous trouverez en pièce jointe à ce courriel un document en français et en anglais illustrant les questions qui se retrouvent dans le questionnaire en ligne. Vous pouvez imprimer ce document aux fins de référence. Vos réponses doivent toutefois être remplies en ligne.

Renseignements et informations

Pour de plus amples informations concernant la présente démarche, nous vous invitons à contacter la responsable du projet auprès de CargoM, madame Magali Amiel (par téléphone au 514-508-2609 poste 223 ou par courriel à mamiel@cargo-montreal.ca), ou les chargés de projet chez KPMG, monsieur Thierry Crête (par téléphone au 514-840-2556 ou par courriel à tcrete@kpmg.ca) ou madame Karine Forget (par téléphone au 514-840-2614 ou par courriel à kforget@kpmg.ca). Par ailleurs, pour toute question relative au questionnaire, nous vous invitons à contacter les chargés de projet chez KPMG; ils se feront un plaisir de vous aider.

Échéancier et délais

Le temps nécessaire pour remplir le questionnaire est approximativement de 30 minutes. Nous vous demandons de répondre au questionnaire avant le **12 août 2013**.

Nous comptons sur vous et vous remercions à l'avance de votre précieuse collaboration.

Madame Sylvie Vachon

Présidente de CargoM

Présidente-directrice générale du Port de Montréal

Monsieur Mathieu Charbonneau

Directeur général de CargoM

Appendix E – List of the Companies Who Received the Invitation to Participate in This Survey

List of the 218 companies who received the invitation to participate in this survey		
A.G. Logistics	Chartwell Shipping Ltd.	Groupe Guilbault
A.G.O. Transportation Inc.	CMA CGM (Canada) Inc.	Groupe Lafrance
A.N. Deringer, Inc.	Colley Motorships Ltd.	Groupe Nadeau
Absa Canada International	Congébec	Groupe TYT
Administration Portuaire de Montréal	Container Express Inc.	GT Group
Admiral Marine Inc.	CTO International Ltd.	GTI Global Freight Systems Inc.
Aéroports de Montréal	Cyberfreight Systems Inc.	Guy Tombs Ltd.
Affiliated Agents en Douanes Ltée	Danaca Transport	Hanjin Shipping
AGD Verchères Express	Danfor Shipping & Trading Inc.	Hapag-Lloyd (Canada) Inc.
Agility Logistics, Co.	David Kirsch Forwarders Ltd.	Harnois
Air Canada	Day & Ross Supply Chain Solutions	Highland Transport
Air France Cargo	Delmar International Inc.	Hunt Refrigeration (Canada) Inc.
Air Transat Cargo	Despradelle Canada Inc.	Inchcape Shipping Services Inc.
Albacor Shipping Inc.	DHL Global Forwarding	IntellCargo Inc.
Alitalia Cargo	Distribution Marcel Dion	Intercontinental Cargo Canada
Atlas	DSV Air & Sea Inc.	ITN Transport International
Andersen-Sima Maritime Inc.	DTX Logistics	J. René Hébert Ltée
Atlas International Freight Forwarding Inc.	Duponmar Inc.	J.E. Fortin Inc.
Avimar International Transport Inc.	Ecu-Line Canada Inc.	J.F. Hillebrand Canada Inc.
Axxess International Inc.	Empire Stevedoring Co. Ltd.	JAF Transport
Beacon International Despatch Ltd.	Eurofret Canada Inc.	Karlo Marine Group
Bellville Rodair International Ltd.	Expeditors Canada Inc.	Katoen Natie Canada
Bethune Import/Export Ltd.	Fastfrate	KB Cargo Logistik
BGL Brokerage Ltd.	Fedex Trade Networks	Keenan Mercantile Logistics Inc.
C.H. Robinson International, Inc.	Fednav Inc	Kildair Services Inc.
Canada Steamship Lines Inc.	FLS Transportation Services	Kintetsu World Express (Canada) Inc.
Canadian Atlantic	Genesee & Wyoming Canada Inc.	Korean Air Cargo
Canadian National	GHL Transport	Kristom Canada Inc.
Canadian Pacific Railway	Gibson Canadian & Global Inc.	Kuehne & Nagel
Canformav Inc.	Gillespie-Munro Inc.	Laurentide Forwarders (Canada) Inc.
Canterm terminaux canadiens inc.	GillShip Navigation	LCL Navigation Ltd
Cargo Conveyor	Globe Express Services	Les entreprises Dupont 1972 inc.
CargoJet	Gosselin Express Ltée	Les Services JAG
Cargolution Inc.	Goudreau Cargo Int'l Inc.	Léveillé & Fils, Inc.
Cargomax International Inc.	Gresco Ltd.	L'Express du midi inc.
Carson International	Groupe Bellemarre	Livingston - Division Milne & Craighead
Cerescorp Company	Groupe de chaîne d'approvisionnement Metro	Locher Evers International
Ceva Logistics	Groupe Desgagnés Inc.	Logfret Canada
CFT Corporation	Groupe Force du Nord	Logistec
CH Express	Groupe Goyette	LS Distribution

List of the 218 companies who received the invitation to participate in this survey (continued)

LSU	Remco	Transforce
M. Larivée International Inc.	Renaissance International Freight Forwarding	Transit King City Northway Forwarding Ltée
M.O.T. Intermodal Shipping Inc.	Ridgeway North America Ltd.	Trans-Ontario Express
Maersk Canada Inc.	RM Logistics	Trans-Plus V.M.
Manitoulin Transport	Robert Reford	Transport Bourassa
Mantoria Inc.	Robert Transport	Transport Eastern Inc.
MapRoute Logistics Inc.	Rodmarc Enterprises Inc.	Transport Gilmyr
Mayfield Cargo	Royal Jordanian	Transport Hervé Lemieux
McLean Kennedy Inc.	Rutherford Global Logistics Inc.	Transport Morneau
Mediterranean Shipping Company (Canada)	Ryder	Transport Nanuk Inc.
Melrose Int'l Trading Ltd.	Scandia Shipping Agencies Inc.	Transport PAD
Metz Logistix Canada Inc.	Schenker du Canada Ltée	Trimac Transportation
MGT	SCI Group Inc.	Tri-Marine Shipping
Milgram International Shipping Inc.	SDV Logistics (Canada) Inc.	Universal Logistics Inc.
Montreal Marine Services Inc.	Seagulf Marine Industries	UPS SCS, Inc.
Montship Inc.	Seamont Brokerage & Transport	VA Transport
Nippon Express Canada	Seanautic Marine Inc.	Vandick International Forwarders Ltd.
Nirint Inc.	Seawest Logistics Inc.	Versacold
Northern Force Group, Inc.	Securit	Vinpac Lines (Quebec) Inc.
Nova Cargo International	SGT 2000	Viterra Inc.
Ocean Group Inc.	Shipco Transport, Inc.	Vopak Terminals of Canada Inc.
Oceanex Inc.	Simard Transport	W.J. Deans Transport
Odyssey Shipping Ltd.	SKN Logistics	W.J. Jones Co. Ltd.
OEC	Soenar Logistics International Inc.	Wagenborg Shipping North America Inc.
OOCL (Canada) Inc.	Swiss World Cargo	Wahba Trading & Logistics Int'l Inc.
Optimal Logistique Services	Systèmes de fret mondial GTI, Inc.	WB Global Logistics
Panalpina Inc.	T.G.E. Sales & Logistics	West India Trading Co. Inc.
Pival	Terminal Maritime Contrecoeur inc.	West Jet Cargo
Protos Shipping Ltd.	Terminal Norcan inc.	World Lines Inc.
Purolator Courier Ltd.	Termont Montreal Inc.	XTL Group of Companies
R.O.E. Logistics	The CSL Group	Yang Ming Shipping (Canada) Ltd.
Ramsay's Express Inc.	Trac-World	Yanke Group of Companies
Ray-Mont	Transco Food Trading Inc.	

Appendix F –Online Survey Answers

Company Description and Sectors of Activity

Q1 -Total income for transportation and logistics activities of companies in 2012		
	n	%
Less than 1 MM\$	3	6%
From 1 to 5 MM\$	7	13%
From 5 to 10 MM\$	3	6%
From 10 to 25 MM\$	6	11%
From 25 to 50 MM\$	4	8%
50 MM\$ and up	30	57%
Total	53	100%

Q2- Share of GMA in total earnings for transportation and logistics activities in 2012		
	n	%
Less than 20 %	12	27%
From 20 to 39 %	10	22%
From 40 to 59 %	1	2%
From 60 to 79 %	8	18%
From 80 to 100%	14	31%
Total	45	100%

Q3a-Principal sector of activity		
	n	%
Carrier	24	45%
Forwarding agent	17	32%
3 and 4 PL	5	9%
Terminal operator	5	9%
Other	2	4%
Total	53	100%

Q3b- Transportation and logistics services offered by companies in the GMA (multiple answers possible)		
	n	%
Road transportation	37	18%
Marine transportation	29	14%
Warehousing	24	12%
Transport management	21	10%
Air transportation	20	10%
Value-added activities	17	8%
Transshipment operations	16	8%
Customs brokerage and clearance	14	7%
Rail transportation	13	6%
Administrative Services	7	3%
Supply chain management /integration	4	2%
Other service	1	0%
Total	203	100%

Q3c- Breakdown of earnings in 2012 based on the services offered by companies in the GMA

Offered Services	%
Marine transportation	35%
Road transportation	23%
Air transportation	10%
Transshipment operations	9%
Warehousing	6%
Rail transportation	4%
Customs brokerage and clearance	4%
Transportation management	4%
Value-added activities	2%
Other service	2%
Supply chain management/integration	1%
Administrative services	1%
Total (n: 53)	100%

Q3d- Data on warehousing for 2012

(n:21)	Average	Sum
Interior Warehousing		
Storage area (in square feet)	430,375	10,329,000
Storage capacity (in pallet positions)	11,734	234,680
Average utilization rate of storage capacity	62%	-
Exterior Warehousing		
Storage capacity (20 feet equivalent containers or 53 feet equivalent trailers)	1,065	22,370

Q4- Expenses breakdown for transportation and logistics activities in 2012 in the GMA

Expenses	%
Wages	38%
Subcontracting	29%
All other expenses	13%
Fuel	7%
Rent	7%
Amortization of equipment	4%
Equipment rental	2%
Amortization of building	1%
Total (n:36)	100%

Q5a- Use of sub-contractors for transportation and logistics activities in the GMA in 2012

	n	%
Yes	37	80%
No	9	20%
Total	46	100%

Q5b-Ranking of outsourcing services used in 2012 in the GMA			
Subcontracted Services	n	Importance	Rank
Road transportation	32	9.56	<i>1</i>
Marine transportation	20	6.08	<i>2</i>
Warehousing	17	4.61	<i>3</i>
Air transportation	14	4.08	<i>4</i>
Rail transportation	16	3.83	<i>5</i>
Customs brokerage and clearance	11	2.86	<i>6</i>
Transportation management	11	2.67	<i>7</i>
Transshipment operations	8	2.28	<i>8</i>
Value added activities	7	1.58	<i>9</i>
Administrative Services	2	0.33	<i>10</i>
Supply chain management / integration	1	0.11	<i>11</i>

Challenges and Competitiveness Factors

Q7-Ranking of competitiveness factors of companies regarding their transportation and logistics activities			
	n	Importance	Rank
Cost of labor	40	8.1	1
Quality of road infrastructure	40	7.75	2
Regulation	42	7.35	3
Transport fluidity	37	7.04	4
Quality of port infrastructure	35	6.81	5
Access to skilled labor	35	5.98	6
Diverse range of logistics services and quality Service offering	36	5.71	7
Business enabling environment	35	5.56	8
Quality of rail infrastructure	30	4.75	9
Tax environment	31	4.21	10
Technological innovations	33	4.1	11
Availability of intermodal services	31	3.83	12
Quality of airport infrastructure	30	3.06	13

Q8-GMA Performance Evaluation													
	Weak 1		2		3		4		Strong 5		Total		Average Score
	n	%	n	%	n	%	n	%	n	%	n	%	
Quality of port infrastructure	1	2%	5	11%	14	32%	20	45%	4	9%	44	100%	3.48
Quality of airport infrastructure	0	0%	4	10%	21	51%	15	37%	1	2%	41	100%	3.32
Quality and efficiency of logistics services	0	0%	2	5%	28	68%	11	27%	0	0%	41	100%	3.22
Quality of rail infrastructure	4	10%	3	8%	18	46%	12	31%	2	5%	39	100%	3.13
Quality of intermodal services	1	3%	8	20%	19	48%	12	30%	0	0%	40	100%	3.05
Cost of labor	2	5%	11	25%	21	48%	9	20%	1	2%	44	100%	2.91
Access to skilled labor	3	7%	13	30%	17	39%	11	25%	0	0%	44	100%	2.82
Transport fluidity	6	14%	14	32%	14	32%	10	23%	0	0%	44	100%	2.64
Degree of technological innovation	6	14%	9	21%	22	52%	5	12%	0	0%	42	100%	2.62
Regulation	6	13%	15	32%	21	45%	4	9%	1	2%	47	100%	2.55
Business enabling environment	8	19%	12	28%	19	44%	4	9%	0	0%	43	100%	2.44
Tax environment	10	24%	13	31%	17	40%	2	5%	0	0%	42	100%	2.26
Quality of road infrastructure	15	33%	21	46%	7	15%	2	4%	1	2%	46	100%	1.98
Total (n: 39)	62	11%	130	23%	238	43%	117	21%	10	2%	557	100%	2.79

Human Resources

Q10. Number of full-time equivalent employees working in the GMA in 2012

	n	%
Less than 10	5	11%
From 10 to 49	13	28%
From 50 to 99	9	20%
From 100 to 149	5	11%
From 150 to 499	7	15%
500 and up	7	15%
Total	46	100%

Q11a- Distribution of employees working in the GMA in 2012

Filled positions	%
Senior executives	5%
Middle management executives	11%
Supervisory personnel	8%
Administrative personnel	26%
Transport, distribution and supply chain coordination personnel	15%
Operations personnel	34%
Total (n:41)	100%

Q11b- Minimum level of education required

	None		Secondary		College		University	
	n	%	n	%	n	%	n	%
Senior executives	1	3%	2	5%	5	13%	30	79%
Middle management executives	0	0%	2	5%	16	43%	19	51%
Supervisory personnel	1	3%	12	38%	16	50%	3	9%
Administrative personnel	1	3%	20	53%	15	39%	2	5%
Transport, distribution and supply chain coordination personnel	1	3%	16	55%	11	38%	1	3%
Operations personnel	4	15%	22	81%	1	4%	0	0%
Total (n:38)	8	4%	74	37%	64	32%	55	27%

Q12- Changes in full-time equivalent employee numbers in the last three years (2010 to 2012)

	n	%	Δ Predicted average
Increasing	17	37%	13.07%
Stable	18	39%	0%
Decreasing	11	24%	-20.73%
Total	46	100%	

Q13- Predicted change in full-time equivalent employee numbers and income in the next three years (2013 to 2015)

	Increasing		Δ Predicted average	Stable		Decreasing		Δ Predicted average	Total
	n	%		n	%	n	%		
Number of full-time equivalent employee number	26	57%	7.67%	15	33%	5	11%	-10.00%	46
Income	28	64%	9.46%	14	32%	2	5%	-22.50%	44

Q14- Importance of human resources challenges that companies are currently facing or will face over the next three years

	Not at all important 1		2		3		4		Very important 5		Total	Average Importance
	n	%	n	%	n	%	n	%	n	%		
Employee retention	3	7%	1	2%	2	4%	14	31%	25	56%	45	4.27
Labor relations	1	2%	2	4%	5	11%	19	42%	18	40%	45	4.13
Planning (both in the business succession and succession of employees)	1	2%	3	7%	7	16%	16	36%	18	40%	45	4.04
Compensation and competitive advantages	0	0%	2	4%	10	22%	19	42%	14	31%	45	4
Attracting employees	2	4%	3	7%	9	20%	13	29%	18	40%	45	3.93
Education	2	4%	2	4%	6	13%	22	49%	13	29%	45	3.93
Continuing education	1	2%	4	9%	10	22%	15	33%	16	35%	46	3.89
Inexperience of employees	0	0%	5	11%	17	39%	15	34%	7	16%	44	3.55
Total												3.97

Q15- Level of satisfaction concerning available training in transportation and logistics in the GMA

	Not at all Satisfied 1		2		3		4		Very Satisfied 5		Total
	n	%	n	%	n	%	n	%	n	%	
For Executive Personnel											
Level of knowledge of the new candidate	1	2%	5	12%	22	54%	12	29%	1	2%	41
Programs of initial training	1	2%	8	20%	23	56%	8	20%	1	2%	41
Offer in continuing education	0	0%	6	15%	25	61%	8	20%	2	5%	41
Grand total	2	2%	19	15%	70	57%	28	23%	4	3%	123
For Administrative Personnel											
Level of knowledge of the new candidate	1	2%	8	20%	17	41%	13	32%	2	5%	41
Programs of initial training	1	2%	8	20%	17	41%	14	34%	1	2%	41
Offer in continuing education	0	0%	8	20%	23	56%	7	17%	3	7%	41
Grand total	2	2%	24	20%	57	46%	34	28%	6	5%	123
For Operational Personnel											
Level of knowledge of the new candidate	3	7%	10	24%	17	41%	11	27%	0	0%	41
Programs of initial training	3	7%	13	32%	18	44%	7	17%	0	0%	41
Offer in continuing education	2	5%	12	29%	18	44%	8	20%	1	2%	41
Grand total	8	7%	35	28%	53	43%	26	21%	1	1%	123
General Satisfaction Level	12	3%	78	21%	180	49%	88	24%	11	3%	369
Average General Level of Satisfaction											3.02

Operations

Q16- Operational Data for 2012								
n:21	Air Transportation		Rail Transportation		Marine Transportation		Road Transportation	
	Average	Sum	Average	Sum	Average	Sum	Average	Sum
Total thousand metric tonnes handled in the GMA	3	94	142	3,825	13,925	403,828	183	4,928
Equivalent number of 20-feet containers handled in the GMA	269	5,387	587	12,326	31,515	850,897	8,181	179,978

Q17- Total thousand metric tonnes handled in the GMA in 2012		
	n	%
Less than 2,000	23	82%
2,000 to 3,999	3	11%
4,000 to 5,999	0	0%
6,000 to 7,999	1	4%
8,000 to 9,999	0	0%
10,000 and up	1	4%
Total	28	100%
Total thousand metric tonnes handled in the GMA in 2012 by the respondents		37,191

Q18- Distribution of total tonnage handled in the GMA in 2012	
	%
Container	61%
Dry (eg. Cardboard boxes)	24%
Bulk Solid (eg. Grains, minerals)	10%
Bulk liquid (eg. Petroleum)	6%
Total (n:37)	100%

Q19- Percentage of total tonnage handled in the GMA in 2012 related to refrigerated and/or frozen merchandise		
	n	%
Less than 1%	15	42%
From 1 to 4%	4	11%
From 5 to 9%	4	11%
From 10 to 19%	7	19%
From 20 to 49%	3	8%
50% and up	3	8%
Total	36	100%

Q20- Percentage of total tonnage handled in the GMA in 2012 related to hazardous materials		
	n	%
Less than 1%	16	44%
From 1 to 4%	10	28%
From 5 to 9%	4	11%
From 10 to 19%	3	8%
From 20 to 49%	1	3%
50% and up	2	6%
Total	36	100%

Q21-Breakdown of total tonnage handled in the GMA in 2012 according to the clients' sector of activity	
Clients' sector of activity	%
Agriculture, hunting and fishing	13%
Forestry	4%
Extraction and mining	5%
Oil and gas	4%
Construction	6%
Manufacturing	13%
Wholesale	24%
Retail Business	22%
Waste management and sanitation services	3%
Accommodation and food Services	2%
Arts, Entertainment and recreation	1%
Government	1%
Service business	1%
Health care and social assistance	2%
Total (n: 34)	100%

Appendix G – Training Courses Available for Transportation and Logistics

Secondary, College and University Training Offered in the GMA

Training courses in the GMA (secondary and college)			
Diploma of Vocational Studies ("DEP")	Diploma of College Studies ("DEC")	Attestation of college studies ("AEC")	Attestation of college studies ("AEC")
DEP en mécanique de véhicules lourds routiers École des métiers de l'équipement motorisé de Montréal Centre de formation professionnelle Paul-Guérin-Lajoie, Vaudreuil	DEC en techniques de la logistique du transport Cégep André-Laurendeau, LaSalle Cégep Lionel-Groulx, Ste-Thérèse	AEC en logistique du transport Collège LaSalle, Montréal AEC Specialist in Transportations & Logistics Collège Champlain, Saint-Lambert	AEC en logistique du transport et distribution internationale Cégep Lionel-Groulx, Ste-Thérèse AEC en perfectionnement en dédouanement de marchandises Cégep André-Laurendeau, LaSalle
DEP en transport par camion L'École du routier professionnel du Québec, Montréal Extra Centre de formation, Longueuil École nationale de camionnage et équipement lourd, Terrebonne	Vanier College, Montréal	AEC en gestion de la chaîne d'approvisionnement et logistique Cégep André-Laurendeau, LaSalle AEC en gestion des approvisionnements dans le secteur public québécois Cégep André-Laurendeau, LaSalle AEC en logistique intermodale internationale Cégep André-Laurendeau, LaSalle	AEC en perfectionnement en gestion du transport de marchandises (1) Cégep André-Laurendeau, LaSalle AEC en procédures douanières (1) Cégep André-Laurendeau, LaSalle AEC en transport ferroviaire - Chefs de train (2) Cégep André-Laurendeau, LaSalle

Notes :

(1) Existing programs but not offered at the moment.

(2) This course is no longer available since the training offered February 8, 2010 was postponed to a later date pending better economic signs for employability of train conductors

Training courses in the GMA (university)		
HEC Montréal	UQAM	McGill
Certificat en gestion des opérations et de la logistique Baccalauréat en administration des affaires, concentration opérations et logistique D.E.S.S. en gestion de la chaîne logistique Maîtrise ès science en logistique internationale Maîtrise ès science en gestion des opérations Maîtrise en administration des affaires (MBA), spécialisation en gestion des opérations et logistique	Certificat en administration de services Baccalauréat en administration des affaires avec concentration en gestion des opérations Maîtrise en administration des affaires avec concentration en logistique et en transport	Certificate in Supply Chain Management and Logistics Bachelor of Commerce with concentration in Operations Management Graduate Certificate in Operations Management Diploma in Supply Chain and Operations Management Master in Manufacturing Management
Concordia	Polytechnique	
Certificate in maritime transportation Baccalaureate in administration, major in supply chain operations management	Maîtrise modulaire (OU D.E.S.S.) en génie industriel option logistique	

Secondary, College and University Training Offered Outside the GMA

Training courses outside the GMA (secondary)		
Diploma of Vocational Studies ("DEP")		Attestation of college studies ("AEC")
DEP en mécanique de véhicules lourds routiers	DEP en transport par camion	AEP en mécanique de véhicules lourds routiers
Centre de formation professionnelle Lac-Abitibi, La Sarre	Centre de formation du transport routier Saint-Jérôme, Mirabel	Centre de formation en mécanique de véhicules lourds, Saint-Romuald
Centre de formation professionnelle Pavillon-de-l'Avenir, Rivière-du-Loup	Centre de formation professionnelle de Matane	Commission scolaire de l'Énergie, Shawinigan
Centre de formation professionnelle Wilbrod-Bherer, Québec	Centre de formation Rimouski-Neigette	Commission scolaire des Chênes, Drummondville
Centre de formation en mécanique de véhicules lourds, Saint-Romuald	CFP du Fleuve-et-des-Lacs, Cabano	
Centre de formation professionnelle Paul-Rousseau, Drummondville	CFP du Fleuve-et-des-Lacs, Trois-Pistoles	
Centre de formation professionnelle 24-Juin, Sherbrooke	Centre de formation en transport de Charlesbourg	
Carrefour Formation Mauricie, Shawinigan	École nationale de camionnage et équipement lourd, Québec	
Centre de formation professionnelle de l'Outaouais, Gatineau	Centre de formation professionnelle Paul-Rousseau, Drummondville	
Centre de formation en équipement motorisé, Chicoutimi	École du Routier G.C. inc., Drummondville et Trois-Rivières	
	Centre de formation des Bâisseurs, Sainte-Marie	
	CFPGM SAE, Baie-Comeau	
	Centre de formation professionnelle du Haut-Saint-François, East Angus	
	Centre de formation professionnelle le Granit, Lac-Mégantic	
	CFP de la Haute-Gaspésie, Sainte-Anne-des-Monts	
	Centre l'Envol, Carleton-sur-Mer	
	Centre de formation professionnelle Pavillon-de-l'Avenir, Rivière-du-Loup	
	Centre de formation Harricana, Abitibi-Témiscamingue	
	Centre de formation de routiers Express, Montérégie	

Training courses outside the GMA (college)		
Diploma of College Studies ("DEC")	Attestation of college studies ("AEC")	DEC-BAC Programs
DEC en techniques de la logistique du transport Cégep de Drumondville	AEC en logistique du transport Cégep de Trois-Rivières	DEC en techniques de la logistique- BAC en administration des affaires Cégep de Trois-Rivières en partenariat avec l'Université du Québec à Trois-Rivières
Cégep François- Xavier Garneau, Québec	Cégep de Sherbrooke	DEC en logistique du transport- BAC en
Institut maritime du Québec, Rimouski	AEC en répartition de marchandises de transport routier	Cégep François-Xavier Garneau en partenariat avec l'Université Laval, Québec
Cégep de Rimouski	Cégep François- Xavier Garneau, Québec	
Cégep de Saint-Jean-sur-Richelieu	AEC en organisation du transport	
Cégep de Trois-Rivières	Cégep de Trois-Rivières	
Cégep de Lévis Lauzon, Lévis	AEC en gestion du transport routier	
DEC en navigation	Cégep de Saint-Jean-sur-Richelieu	
Institut maritime du Québec, Rimouski	Cégep de Drumondville	
DEC en génie mécanique de marine	AEC en techniques de la logistique du transport multimodal	
Institut maritime du Québec, Rimouski	Cégep François- Xavier Garneau, Québec	
DEC en techniques de pilotage d'aéronef	AEC en pilotage professionnel d'aéronefs: qualification multimoteur aux instruments	
Cégep de Chicoutimi	Collège Lafèche, Trois-Rivières	
	AEC en transport ferroviaire	
	Cégep de Sept-Îles	

Training courses outside the GMA (university)	
Université Laval	Université du Québec à Rimouski
Baccalauréat en administration des affaires avec concentration en opérations et logistique	Baccalauréat – majeure en transport maritime mineure en administration
Maîtrise en administration des affaires avec concentration en gestion manufacturière et en logistique	Maîtrise en gestion des ressources maritimes
Ph.D avec concentration en gestion manufacturière et logistique	

Training Courses by Associations (Offered Anywhere in Quebec)

Training courses by associations (offered anywhere in Quebec)		
American Production and Inventory Control Society (APICS)	Canadian Society of Customs Brokers (CSCB)	Canadian Institute of Traffic & Transportation (CITT)
Certified Supply Chain Professional (CSCP)	Certified Trade Compliance Specialiste	Designation de l'ICTT
Certified in Production and Inventory Management (CPIM)	Spécialiste certifié en douanes (SCD)	Canadian International Freight Forwarders Association (CIFFA)
The Logistics Institute	Supply Chain Management Association (SCMA)	Certificate in International Freight Forwarding
Certificate P.Log. (Professional Logistician)	Supply Chain Management Professional (SCMP)	Materials Handling and Management Society
CLP (Certified Logistics Practitioner)	Courses in Supply Management	Certified Associate in Materials Handling (CAMH)

Continuing Studies

Training courses for continuing studies	
Logistics	
Cégep André-Laurendeau, LaSalle	
Logiciels spécialisés en logistique du transport Services aux entreprises dans le secteur des procédures douanières, gestion d'entrepôt ainsi que logistique et transport	
Road transportation	
École du routier professionnel (DMI Groupe Conseil), Montréal	Centre de formation de routiers Express, Montérégie
Formation sur le transport de marchandises dangereuses	Véhicules lourds (classe 1)
Certification du Conseil canadien de la sécurité en matière de conduite préventive	Véhicules lourds (classe 2)
Certification ontarienne sur le système de freinage pneumatique	Formation loi 430 concernant les propriétaires
Certification ontarienne sur le système de roulement des véhicules commerciaux	Formation sur la transmission et l'économie d'énergie
Certification de conducteurs de produits pétroliers	Formation sur les normes de charges et les dimensions des véhicules
Conducteurs de véhicules d'urgence menant à l'obtention de la classe 4A du permis de conduire	Vérification avant le départ
Service aux entreprises (expertise et conseil)	Formation sur l'arrimage
Centre de formation du transport routier, St-Jérôme	Formation sur les matières dangereuses
Règlement sur les heures de conduite et de travail	Formation sur les douanes
Conduite préventive et hivernale	Frontières simplifiées
Les freins pneumatiques	Écoles de conduites spécialisées en véhicules lourds (dans la plupart des régions du Québec)
Perfectionnement et efficacité énergétique	Conduite écoénergétique (volets théorique et pratique)
Instructeur chauffeur	Ronde de sécurité / Vérification avant départ
Pré-embauche ou préformation	Heures de conduite et de repos des conducteurs de véhicules lourds
Conduite préventive énergétique sur le simulateur de conduite	
École nationale de camionnage et d'équipement lourd, Terrebonne	
Services aux entreprises :	
- Cours loi 430	
- Nouvelle réglementation sur les heures de conduite et de travail aux Etats-Unis	
- Services de vérification des carnets routiers	
Marine transportation	
Collège de la Garde côtière canadienne	Institut maritime du Québec
Programme de formation d'officiers pour membres d'équipage- Brevet d'officier de mécanique maritime ou d'officier de navigation (4 ans)	Formation réglementaire continue (Cheminement en emploi)
Programme Formation d'officiers Services de communication et de trafic maritimes – Brevet d'officier (25 semaines)	Institut de Formation des Marins du S.I.U. Cours de formation et perfectionnement pour ses membres du Syndicat International des marins canadiens



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