

# Knowledge Insider

Where business meets opportunity | **Transportation edition**

**50**  
years/ans  
1959-2009



**Farm Credit Canada**  
Advancing the business of agriculture

Canada





# Insights from FCC

At Farm Credit Canada, we harness the power of knowledge to guide successful decision making. Knowledge Insider delivers value-added information beyond the borders of conventional thinking to help you track industry trends and plan ahead to your advantage. We are committed to bringing you insights to advance the business of agriculture and the success of your operation.

With its rugged terrain and unforgiving winter weather, building an effective transportation network in Canada is no small task. Throughout history, the challenge has been met by innovative entrepreneurs, determined to create prosperity and unite the country from sea to sea.

It took six years for the Canadian Pacific Railway (CPR) to lay track from Ontario to the Pacific coast, bringing British Columbia into confederation in 1871. In 1889, the CPR opened another rail line joining the Atlantic and Pacific coasts to become the first transcontinental railway company in North America.

Construction of the Trans-Canada Highway began in 1950 and 12 years later, the world's third longest national highway covering 10,781 kilometres, connected 10 provinces.

Canada's contribution to effective transportation extends well beyond transportation systems. In Quebec, Joseph-Armand Bombardier envisioned a machine that could float over snow. In 1958, he designed the modern snowmobile and began commercial production and marketing of the Ski-Doo. Today, Bombardier is a \$17.5B Fortune 500 company and a world leader in aerospace and rail transportation.

This issue of Knowledge Insider offers insights into Canada's transportation system. We'll look at where we are today, what's coming in the future and what it will take for us to get there. We'll examine the importance of logistics, the

implications of green transportation and look at some future technologies. We'll consider the cost of inputs and the value of time. We'll look at Canada's advantages and review the impact of transportation on our reputation as a high-quality, on-time service provider. We'll offer some practical ideas to manage transportation in your business and discuss how you can help to create a strong future for Canadian transportation.

How can you be ready when opportunity knocks?

## In this issue

- Global economic power is shifting. Increased competition calls for innovative solutions.
- Environmental concerns drive actions like carbon taxes and movements to eat food produced locally.
- Canada's transportation infrastructure is vital to the economy and essential to the success of agriculture businesses.
- Availability, service levels and cost define success in transportation systems.
- Canada's transportation advantages work in our favour.
- Cutting-edge tracking and transport technologies can change the way we do things.
- Effective logistics to move goods through the system impact the bottom line of producers and processors.
- New tracking technologies and different modes of transportation provide innovative solutions to meet transportation needs.
- Increases in global security have caused increased congestion.
- Transportation systems do not change quickly. Successful businesses plan realistically, looking for opportunities to influence change or capitalize on trends.

# Transportation



## The world is moving fast

Picture a society without transportation systems. Tiny camps of people went about their daily routine, hunting, fishing and growing the food they needed to feed their small populations. Then caravans began moving between small villages. They traded and learned, sharing new inventions and cultures. The gathering hubs became cities.

With the exchange of items like tools and beads came more selection, more knowledge, more math, paper and compasses. Settlements became permanent and so did fixed trade paths like the famed Silk Road, connecting major cities in China,

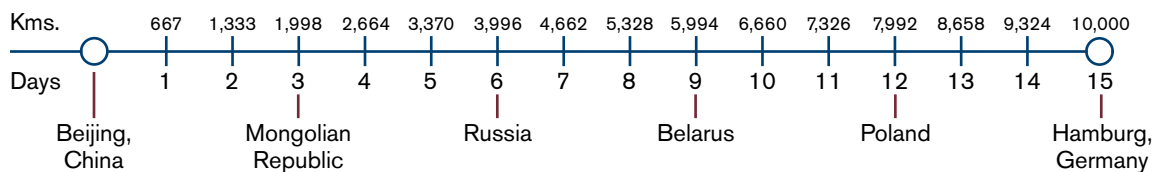
India and Europe. Whoever controlled the routes, owned the market.

Thousands of years of history taught us essential truths. Transportation matters. It moves life through a global ecosystem and is critical to long term sustainability. Today, trade routes follow political boundaries, strategic waterways and natural terrain to connect worldwide hubs quickly and efficiently. Businesses located on these routes or near transportation hubs have a significant economic advantage.

Where does Canada fit in the global transportation network? We have our own silk roads. Our coast to coast network of waterways, railways and highways are a source of pride that binds us together in prosperity and kinship. We are an exporting nation, dependent on an efficient transportation system to grow our economy and support one of the highest standards of living in the world. Transportation is part of our national identity.

Many nations and companies around the world are gearing up to meet the transportation challenge. China has built 18 new intermodal terminals as large, or larger, than the Port of Vancouver. Beijing's new airport terminal is three kilometres long with floor space 17 per cent bigger than all the terminals at London's Heathrow airport, combined.

## Beijing-Hamburg Container Express





In January of this year, the Beijing-Hamburg Container Express travelled across six countries and covered nearly 10,000 kilometres on its journey to Hamburg, Germany. Testing the feasibility of the Eurasian Continental Bridge between China and Europe, the journey took 15 days, arriving five days ahead of schedule in half the time it would take to transport goods by sea.

The Panama Canal is being upgraded to accommodate super ships too large to fit through the existing lock system. After expansion, it will be able to handle vessels carrying 12,000 containers compared to those carrying 5,000.

High-speed trains with cruising speeds of over 300 kilometres per hour are being manufactured and Japan is experimenting with electronically-powered maglev trains without wheels that float above the rail and reach speeds of over 500

kilometres per hour. In November 2007, Siemens landed an \$804 million contract to supply 60 sleek-nosed, high-speed trains to Chinese railroads and signed a preliminary contract to supply more, connecting Moscow and St. Petersburg.

New silk roads are in the making, bigger and faster than ever before! The transportation challenge is ours to master. In today's fast-paced economy, we are uniquely positioned to bring the same courage, vision and innovation to bear as those who came before.

How does Canada measure up against a backdrop of climbing oil prices, increased global competition and higher consumer expectations? As the global economy shifts, will we be ready to embrace new opportunities? Let's explore.



Panama Canal



### Global economic power is shifting

In our first edition of Knowledge Insider, we discussed the impact of economic growth among the BRIC countries, Brazil, Russia, India and China. This economic transformation has far-reaching global effects that are changing production, transportation and consumption patterns. We're just beginning to feel the economic power of these countries and others.

Russia has lifted itself out of crippling debt after the collapse of the Soviet Union. Their reserves have ballooned from close to zero in 1998 to \$480B. They are almost debt-free, have a budget surplus of six per cent of their GDP and a trade surplus almost twice that much. With Russia's immense oil wealth and China's growing consumer power, each has something the other wants and they are positioned to invest heavily in their transportation networks. Most of the infrastructure will be built from scratch. Think of what it means to start fresh and incorporate all of the latest technologies!

India's growth is fueled by increased spending and information technologies. Households that can afford luxuries will grow from eight million today

to 94 million by 2025<sup>1</sup>. While transportation infrastructure remains underdeveloped in India, improved economic conditions will see increased investment.

In 2007, Brazil's economy grew by 5.4 per cent buoyed by increased exports ranging from soy to ethanol and iron ore. Brazil dominates the market in soybeans, grown mostly in the Cerrado area. The savannah-like Cerrado covers 1.9 million square kilometres on Brazil's central high plains and is considered the largest crop-growing area on the planet. Demand for sugar cane ethanol is fueling further development. While their transportation infrastructure is generally poor, steady economic growth is driving private investment in roadways, railways and ports.

It's not only the BRIC countries that are investing in transportation infrastructure. Wherever commodities are available, increased demand is driving government and corporate investment into infrastructure in developed and developing countries.

The Ukraine is a major transit point for grain shipped from Russia, Kazakhstan and Moldova, other major competitors for our market share in

<sup>1</sup> McKinsey Global Institute, [www.mckinsey.com](http://www.mckinsey.com)



grain exports. They have built a new export terminal at Sevastopol and a deep water port in the southern Crimea with strategic access to the Mediterranean sea.

In the last 15 years, more liberal trade and sharp decreases in communication and transportation costs have spurred great increases in the volume of goods traded. Without question, trade relies on transportation.

### The future is green

Consumer awareness about the environment is soaring. A recent survey conducted by Synovate and the BBC concludes that 68 per cent of the world's population is concerned about climate change. People are taking action in the retail aisles. In a recent survey by Ipsos Reid, 70 per cent of Canadians said they are buying more environmentally-friendly products than they did a year ago and 77 per cent agree that most companies don't pay enough attention to environmental responsibilities.

Governments are taking action on greenhouse gas emissions. B.C. and Quebec plan to charge carbon taxes, adding cost to the movement of goods. Environmental groups are putting pressure on businesses to clean up and companies have realized they can turn a profit by being more eco-friendly.

Wal-Mart recently announced a new sustainability strategy called "For the Greener Good," which includes eliminating waste, being 100 per cent powered by renewable energy and showcasing

environmentally-friendly products to consumers. They are investing \$5 million to design sustainable stores and are on track to become the largest buyer of green power in Canada. Cleaning up their corporate image is also a bottom line issue. Today, the company pays millions of dollars a year to throw away wasted packaging. Tomorrow, that packaging won't be needed and the cost of disposal will be eliminated. The savings goes right to Wal-Mart's bottom line. We have seen Wal-Mart initiatives change the supplier's process in the past. Will we see the same trends around green initiatives?

Home Depot is pushing its suppliers to be more environmentally sound. The do-it-yourself chain introduced its Eco Options label in Canada in 2004 and the program was recently implemented in the U.S. To get certified, suppliers must answer an extensive questionnaire looking at factors like energy efficiency, clean air, sustainable forestry and water efficiency. Their 1,200 Eco Options will grow by another 500 this year.

### Food for thought

Whether you ship grain from field to port, put eggs on Canada's breakfast tables, sell freeze-dried blueberries or ice wine to international buyers or move cattle to the U.S., one thing is certain. To remain competitive, you need information to develop a plan that considers transportation in the context of emerging global trends.







Canada's transportation infrastructure is vital to the economy and essential to the success of agriculture businesses. Here are some key considerations to help you understand the national transportation infrastructure and make decisions that will benefit your business.

# By road

Almost everything destined for market starts its journey by truck. Over 900,000 kilometres of roads cover every corner of Canada, making trucks a staple of the transportation system. Shipping by truck accounts for some 75 per cent of the total annual spending on freight. In 2005, total exports shipped exclusively by truck were \$186 billion, while imports totalled \$216 billion.

## Key considerations

There are competing interests between commuters and freight traffic on highways that travel through Canada's major cities. Trucks moving freight add to delays, especially during peak traffic times. Most agriculture products are hauled by trucks and highway traffic is heavier and more frequent as volumes increase. Our massive road system competes for tax dollars with health, education and social programs. One of the ways to improve highways without raising taxes is through toll roads and new technologies make this option more attractive to investors.

The Canadian and U.S. markets are deeply integrated. The Fraser Institute believes that the supply chains spanning the Canada-U.S. border are globally unique and rely heavily on land transportation travelling through a handful of key corridors. Anything that slows down deliveries or disrupts a complex supply chain, affects entire industries.

In the race to get in and out quickly, border issues and documentation are part of the equation. More

efficient loading facilities and faster trains at the destination point won't help if products can't get through customs swiftly. Having the paperwork in order is a good strategy.

Since 9-11, there has been a gradual thickening of the Canada-U.S. border. Under the U.S. Western Hemisphere Travel Initiative, as of January this year, Canadians travelling to the U.S. by air must present a passport or a valid NEXUS card. By June 2009, Canadian citizens will require a valid passport, enhanced provincial driver's license<sup>2</sup> or a valid trusted traveller program card to enter the U.S., whether travelling by air, land or sea. The Secure Border Initiative proposes electronic fences on the U.S. frontiers with Mexico and Canada and biometric identification through fingerprinting, face, iris, voice recognition or hand geometry and even DNA is being investigated.

Thousands of containers that pass through Canadian ports on their way to U.S. markets and the high volume of transcontinental passenger and freight traffic are also security concerns. The Security and Prosperity Partnership, signed by Canada, the U.S. and Mexico in 2004, is meant to offset the negative impact of security measures.

Now that the price of oil is over US\$100 per barrel, the rising cost of fuel is a significant challenge to freight movement.

<sup>2</sup> Enhanced driver's licenses include passport information. They are currently being tested in B.C.



# By rail

Many agriculture exports travel to port by rail. The Canadian National and Canadian Pacific Railways account for the bulk of the traffic. Short-line rail companies use smaller branch lines to funnel cargo into the national system, taking some of the burden off our highways.

In 2006, 284 million tonnes of products, including 31.8 million tonnes of grain, 32 million tonnes of forestry products and about 26 million tonnes of fertilizer rode the rails. As an exporting nation, Canada relies heavily on the ability to move vast amounts of product to international markets. Healthy rail systems are a business imperative.

## Key considerations

Under the Canada Transportation Act, rail companies must haul all producer cars, whether the shipment is large or small. Recent amendments to the Act under Bill C-8 address concerns about service and rates and provide regulatory stability for railways. Although standards have always been in place, legal costs often deterred shippers from dealing with issues. New regulations make this process less costly and less difficult.

Time delays caused by winter weather in mountain passes or through rugged terrain, labour issues, waiting for cars and infrastructure maintenance can be inherent disadvantages for rail transport.







# Intermodal

Containers<sup>3</sup> are used in increasing numbers to transport cargo around the world. Since the 1980s, container traffic has increased from 36 million to 266 million and is projected to reach a staggering 468 million by 2010!

In 2006, around 4.3 million containers travelled through Canada. The Port of Vancouver is ranked fifth in North America for container traffic. Volume grew by almost 25 per cent between 2005 and 2006. The Port of Montreal is ranked 13 overall and railway intermodal tonnage grew by an average of six per cent annually between 1996 and 2005, an increase of 12.7 million tonnes.

## Key considerations

Many imports in containers are manufactured goods with more bulk than weight. Agriculture exports surpass weight limits and ships cannot return with the same number of containers when they are filled with heavier commodities. In 2005, at the Port of Montreal, just over 10 per cent of containers were empty<sup>4</sup>. For every three containers filled with imports arriving through the Port of Vancouver, one is filled for export, one is sent back empty and one is used to ship goods domestically. If we improve our logistical networks, could we find ways to balance heavy and light loads and fill empty containers with agriculture goods or products?

The price of all containers is high because shipping lines want to make money on the backhaul to Asia and Europe. It's more profitable to rush empty containers back to China, load them with high-value goods and send them

back to North America, than it is for them to wait empty for crops. Businesses and communities are looking for ways to get containers closer to the centre of their operations.

The use of containers will continue to grow and there is significant opportunity for businesses that can master the logistics. Some of the options being considered tip the economics in favour of agriculture. Ashcroft, Kamloops and Prince George, B.C., Grand Prairie, Alta, and Moose Jaw, Sask., are looking at building inland terminals to increase access and improve turn around time. The faster containers are loaded and shipped back to port, the more profitable using them becomes.

From among 178 countries, Canada ranks among those who require the least number of documents for import or export and who export and import in the fewest number of days.

Container movement is particularly important for marketing identity-preserved (IP) products from farm to consumer. IP products and specialty grains command higher market value. Smaller amounts of specialized, high-value grains, soybeans and pulses can be moved in containers, protecting them from contamination and preserving their quality. As consumer needs increase, systems that support IP will become even more important.

Producers can increase profit by reducing inventory holds, decreasing transit times, marketing directly to the importer and charging premiums for a higher quality product.

## Trading across borders

Region	Export documents needed	Export time (days)	Cost* per container (\$US)	Import documents needed	Import time (days)	Cost per container (\$US)
Canada	3	7	\$1,385	4	11	\$1,425
United States	4	13	\$960	5	5	\$1,160
Mexico	5	17	\$1,302	5	23	\$2,411
Brazil	8	18	\$1,090	7	22	\$1,240
Russia	8	8	\$2,050	13	36	\$2,050
India	8	18	\$820	9	21	\$910
China	7	21	\$390	6	24	\$430
Australia	6	9	\$930	6	12	\$1,120
New Zealand	7	10	\$725	5	9	\$800
Hong Kong	4	6	\$525	4	5	\$525
Malaysia	7	18	\$432	7	14	\$385
United Kingdom	4	13	\$940	4	13	\$1,267
Sweden	4	8	\$561	3	6	\$619
Eastern Europe and Central Asia	7	29	\$1,393	8	31	\$1,551
Iraq	10	102	\$3,400	10	101	\$3,400
Rwanda	9	47	\$2,975	9	69	\$4,970
Central African Republic	8	57	\$4,581	18	57	\$4,534

Source: World Bank Doing Business project [www.doingbusiness.org](http://www.doingbusiness.org)

<sup>3</sup> A 20-foot equivalent (TEU) is defined as the volume equivalent to that occupied by one ISO 20-foot container.

<sup>4</sup> MariNova, "The Use of Containers in Canada", December 2006.

<sup>5</sup> Includes costs for documents, administrative fees terminal handling and inland transport charges.





# By water

Canada's ports and harbours link road and rail networks to our waterways. Considering the emerging opportunities in Southeast Asia, India, Eastern Europe and South America, strong, efficient Canadian ports are increasingly important to international trade. In North America, our ports are an essential link to imports destined for Canadian consumers.

Cutting through the industrial heartland of North America, the Great Lakes – St. Lawrence Seaway is a unique inland waterway, serving 15 major international ports and some 50 regional ports on both sides of the Canada-U.S. border. The 300-kilometre Montreal–Lake Ontario section has five locks in Canada and two in the United States<sup>6</sup>.

In 2006, 47.1 million tonnes were transported through the Seaway, compared to the Port of Vancouver which shipped 76.5 million metric tons. Grain accounts for 11.5 million tonnes of Seaway traffic and is the number one commodity, by volume, moving through the system. About 95 per cent of all international traffic from the seaway is destined for Northern Europe and the Mediterranean.

The Port of Halifax is an ice-free port with minimal tides and no currents. Through the Suez Canal, it is one day closer to Southeast Asia than any other North American east coast container port. It is a deep-water port and the only east coast port that can handle fully laden post-Panamax container vessels.

On B.C.'s north coast, the Port of Prince Rupert has excellent road and rail transportation systems to western and eastern Canada and is close to major world markets. The port has a large, ice-free harbour sheltered by outer islands and several deep-sea berths. Work is underway to develop container handling abilities that will take advantage of the growing trade from China and excellent access to the midwest U.S. market.

## Key considerations

Water is the most energy efficient way to move goods that are not time sensitive. Increases in ship size and the demands of increasing trade with Asia puts pressure on our west coast ports. Eastern ports are surrounded by growing demands from dense populations. These ports are increasingly important to Canada's competitive ability. Are we using our ports and inland waterways to their fullest potential?



<sup>6</sup> Government of Canada, "Transportation in Canada, 2006".

<sup>7</sup> Post-Panamax refers to ships larger than Panamax that do not fit through the Panama Canal.



# By air

In 2005, some \$856 million in agriculture exports left Canada by air, while \$345 million entered the country. Unlike other modes of transportation, there has not been a substantial increase in air transport. However, it is an important option for some products. Products moving to international destinations by air include a variety of seafood, specifically Atlantic salmon, lobster, shrimp, prawns, tuna, sea urchins and geoducks, mushrooms, ginseng and high-value specialty crops like strawberries, blueberries and greenhouse products.



## Fresh ideas grown here

Every day, dozens of flights touch down at Kenya's Nairobi Airport, unloading hundreds of tourists. When the passenger planes are ready to make the late-night trip home, they're loaded with more than passengers. They carry 60 tonnes of fresh vegetables destined for markets in London, Paris and other European cities.

Vegpro Kenya operates seven farms within a two-hour drive of the airport. Every morning, trucks filled with 30 different varieties of vegetables, arrive at the airport, are washed, sorted, sliced, diced and wrapped by 1,000 workers inside an air-conditioned cargo bay. They arrive at their European destinations the next day.

Using passenger flights to transport fresh produce is part of Vegpro's innovative supply chain management. In addition to the obvious efficiency, Vegpro is cashing in on the growing consumer demand for fresh produce. By purchasing fresh produce from Kenya, consumers support the livelihoods of about one million African people.

Stir fries sell for \$3.50 or more in London and sales are growing by 35 per cent annually.

## Key considerations

Although only a small amount of agriculture products move by air, planes carry fresh, high-value products. Air transport requires more energy than any other mode of transportation. The cost and environmental footprint suggests that we look for alternatives to our current air transport technology.





**Emma Maersk arriving in Port of Göteborg on her first journey – Sept. 2006**

### Key considerations for all modes of transportation

Agriculture is big business that has a significant impact on Canada's economy. In 2006, the value of goods traded domestically topped \$620 billion. Agriculture exports to our top 10 customers tallied \$23.2 billion and imports some \$18.2 billion.

Timing is everything where transportation is concerned. The time that it takes to get goods to market can be affected by a number of factors such as the availability of trucks, railcars, containers or ships, bureaucracy, paperwork, delays in loading cargo and even inclement weather.

In an unpredictable market, every delay could mean additional costs or narrow your profit margins. Awareness is an important first step. Planning ahead and hedging your risks can help avoid unpleasant surprises.

The volume of cargo moving across all modes of transport increases every year and ships are sailing at full capacity. Some transportation consultants such as Transystems Inc., are predicting a wide spread shortage of space across North American ports by 2010.

Cargo ships are outgrowing the transportation infrastructure. Vessels that carry between 8,000 and 10,000 containers already sail the major trade routes and bigger vessels are on the horizon.

Emma, the largest container ship ever built and pride of the A.E Moeller-Maersk line, can carry between 11,000 and 14,500 containers. Few ports have the water depth, terminal facilities and inter-modal connections to handle a vessel of that size. Emma is a prototype for what lies ahead in the shipping industry.

### Service ratings

The Canadian Industrial Transportation Association (CITA) conducts a survey of shippers each year. The following chart shows how different modes compare. Service ratings are based on percentage of on time delivery as reported by members of the CITA.

	2007	2006	2005
Excellent	Air freight		Air freight, smaller than truck load
Good	Courier, marine	Air freight, truck load	Courier, truck load
Acceptable	Truck load, intermodal	Smaller than truck load, courier	Marine
Poor	Smaller than truck load, rail	Intermodal, marine, rail	Intermodal, rail

Source: Dr. Alan Saïpe of Supply Chain Surveys Inc.



### Moving goods to and from the U.S.

In the previous edition of Knowledge Insider, we pointed out that U.S. trade significantly impacts Canada's participation in the global economy and will remain a very important trading partner. We share 130 land border points. Based on volume, 52 per cent of Canada-U.S. trade moves through the Queenston, Fort Erie, Sarnia and Windsor corridors.

We deliver 58 per cent of our agriculture exports across the border, accounting for US\$16.3 billion in revenue. The volume and value of some Canadian commodities, like fertilizer, has grown dramatically. Between 2000 and 2007, exports of fertilizer to the U.S. grew by 17 per cent in volume and more than doubled in value, from US\$1.3 billion to US\$2.9 billion. Canada has a lot riding on its transportation system!

Governments on both sides of the border recognize the economic importance of moving goods efficiently. Canada and the U.S. are partners in NEXUS certification for low-risk, pre-approved individuals frequently crossing the border and the Free and Secure Trade certification (FAST) program, designed to expedite the movement of low-risk goods and truck drivers. FAST certification:

- reduces the information needed for border and customs clearance
- eliminates the need for importers to transmit data for each transaction
- provides dedicated lanes for FAST clearances at border crossings
- reduces the rate of border examinations

### Food for thought

If you are doing business in the United States, consider locating a FAST certified shipper. If you regularly cross the border to do business, investigate these certification options.

### Top Canadian agrifood imports/exports to the United States

Export commodity	2006 value (millions)	Import commodity	2006 value (millions)
Live cattle	\$1,188	Food preparations	\$753
Fresh boneless beef	\$896	Bread, pastry, cakes and bisuits	\$464
Frozen fries	\$653	Dog or cat food	\$421
Bread, pastry, cakes and bisuits	\$646	Soybean oilcake	\$302
Food preparations	\$579	Fresh boneless beef	\$281

Source: <http://atn-riac.agr.ca/stats/unitedstates.pdf>

### Canada's advantages and challenges

Canada occupies the second largest land mass in the world. Our population is concentrated close to the Canada-U.S. border and along the Trans-Canada Highway. We face seasonal and distance challenges. We have overcome monumental barriers within our own borders. Now, in a global market, our geography works in our favour. We have sophisticated east-west corridors across the continent. We have deep water ports capable of handling the world's largest vessels. Although transportation costs may seem hefty, we have advantages compared to many parts of the world.

The World Economic Forum ranks Canada among the top five countries worldwide for roads, rail, air transport, pipelines and ports. From among all the NAFTA countries, Canada has the shortest routes

to Bombay and significantly shorter routes to China and to the EU than the U.S. Even the Port of Churchill is closer to the EU than many eastern U.S. sea ports. We can ship exports at far less cost and we are positioned to land imports for North America cheaper and faster than any other country. We have multiple access points over land to the U.S., the world's biggest market with major populations on the east and west coasts.

Gateways, especially Prince Rupert, are closer to Asia and Europe than anywhere else in North America. We enjoy geographic advantages on both coasts and our railways and highways bind us from Vancouver to Halifax. Canada's air corridors are less congested than others, especially routes over the North Pole.

### Canada's strategic global location



Adapted from Vickerman & Associates LLC



Canada has advantages over the U.S. and Mexico in shipping times. If you are part of a strong transportation network, you will have more options. If you grow pulse crops, you will increase profit margins by moving your product through Prince Rupert. In light of the strong Canadian dollar, if you grow vegetables in Eastern Canada, Europe may deserve another look.

Like many other trading nations, we are investing in our transportation infrastructure.

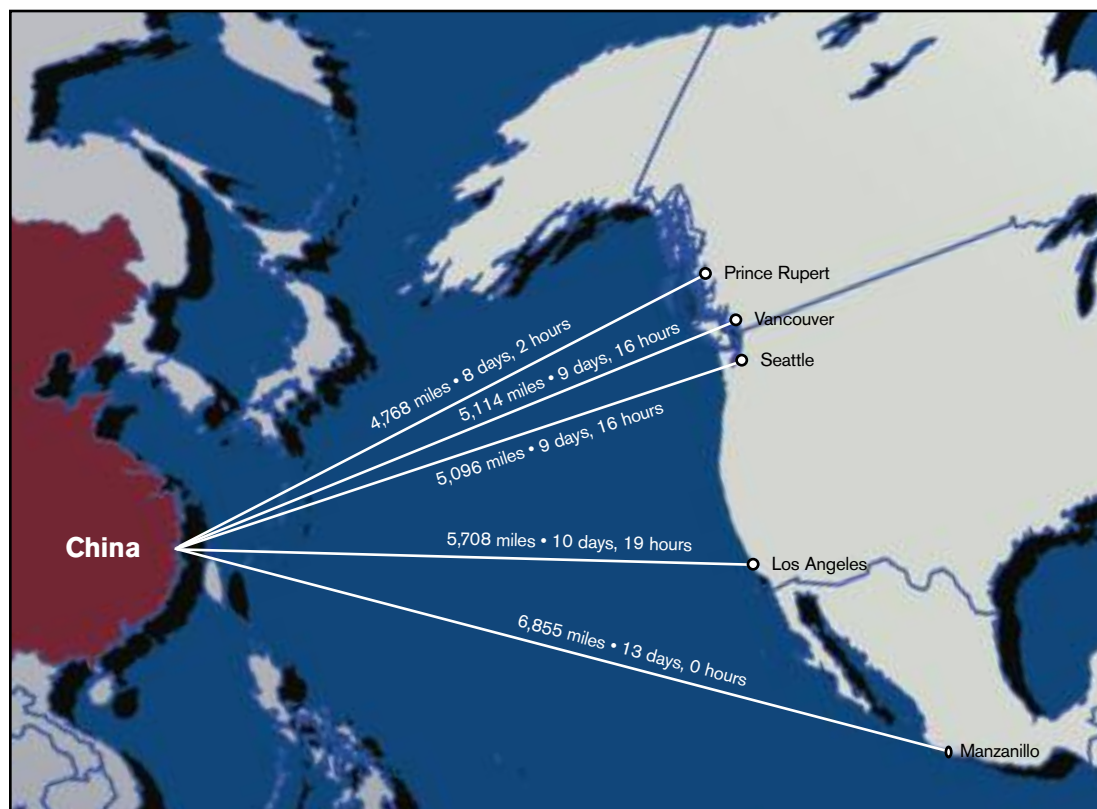
- The Trans-Canada Highway is being twinned through Prince Rupert and parts of the Rockies.
- Major dredging is being done at the Fraser River Port.
- Ontario's 407 highway now has electronic, open-road tolling, weight in motion, weather

monitoring, and video and highway advisory radio abilities.

- Enhancements to the Windsor-Detroit border crossing include customs pre-clearance.
- Some \$3B has been allocated for airport upgrades at Vancouver, Calgary, Edmonton, Winnipeg and Toronto's Pearson airport.

Canada's Asia Pacific Gateway project focuses on making Canada the most competitive exit and entry point in North America for Asian and Canadian goods, services and investment. Funded in partnership by the governments of Canada and British Columbia, the \$4B investment extends beyond transportation infrastructure to include cultural and educational initiatives. In early 2007, the federal government committed an additional

### Distances and transit times along major shipping routes<sup>8</sup>



<sup>8</sup> Conference Board of Canada, "Addressing Gaps in the Transportation Network", October 2007.

Natural and geographic advantages

National Railway System	Canada Port Authorities	National Highway System	National Airport System	Pipelines
50,000 route kilometres, 60 per cent in four western provinces	18 port authorities, over 200 smaller harbours and regional ports and 1000 small ones	900,000 km including 25,000 km in the NHS, 60 per cent in the four western provinces and roughly one-third paved.	26 in NAS and 1800 facilities, these 26 handle 98 per cent of freight	95,000 km of large transmission pipelines and 400,000 for smaller gathering and distribution

\$2.1B to a national fund for infrastructure at gateways and border crossings.

Nova Scotia is promoting an Atlantic Gateway to position Halifax and other regional ports as preferred points of entry and exit for goods between Asia and North America. The Atlantic Gateway will take advantage of capacity constraints at west coast ports in North America, ports in the U.S. northeast and India trade through the Suez Canal.

On the west coast of Hudson Bay, the Port of Churchill is an Arctic seaport that can load Panamax-size vessels. Churchill is the closest ocean port to the vast grain growing area of Western Canada and has a 140,000-tonne elevator on site. The port unloads over 100 rail cars a day and loads over 1,200 metric tonnes per hour into vessels. Churchill is ideal for shipping products to

and from Europe, Russia, Africa, Latin America and the Middle East. While the current shipping season runs from mid-July to the beginning of November, warmer oceans could significantly increase the amount of time that the port is open.

Thunder Bay is the largest outbound port in the Great Lakes – St. Lawrence Seaway system, an inland waterway that stretches 3,700 kilometres into the heart of North America. A one-way voyage through the Seaway to Thunder Bay takes about five days. Both the Port of Thunder Bay and the Seaway system operate 24 hours a day, seven days a week, from the end of March through late-December, with the shipping season extended as weather permits. The port is served by the Canadian National and Canadian Pacific railways and major Canadian trucking companies.



## Is there a Northwest Passage?

Yes, there is. There are many passages through the Canadian Arctic archipelago. In most cases, the draft is shallow and the ice is heavy, so only a few combinations can be navigated. Now, the ice is melting and the sea is warmer. For the first time in history there is a clear passage open to ships with no icebreaker required.

This passage is called "The Canadian Arctic Waters." Within the next 10 to 20 years, climate change could make the Northwest Passage a major shipping lane that holds economic promise for the Canadian shippers.

We're not the only ones with our eyes on the Northwest Passage. A number of countries don't recognize Canada's claim to sovereignty over the waters. The U.S., Japan, Russia, Norway, Denmark and the members of the EU see it as an international sea route available to any sea-going nation. Canada says it is an extension of the northern mainland on the same shelf. When the ice is present, the northernmost region of our country looks like a solid land mass and has been treated as such by northern people and wildlife.

In 2007, the Government of Canada announced that the Canadian Forces would develop a new deep water port at Nanisivik on Baffin Island and a northern army training base at Resolute as part of Canada's commitment to defend its sovereignty over the Arctic. Both bases are located at strategic points along the Northwest Passage.

## Cutting edge tracking and transport technologies can change the way we do things

Although we have maintained and, in some cases, improved the system, economic shifts in Canada and around the world demand a world class system to keep up.

An unprecedented increase in freight is straining our west coast ports. Vancouver's inbound traffic doubled between 1998 and 2005 and grew another 30 per cent in 2006. An increase in the number of

trucks in urban corridors, at border crossings and in other transportation hubs restricts the efficient movement of goods. As traffic increases, so does public pressure to cut down on noise, traffic bottlenecks and pollution.

Radio-frequency identification (RFID) technology retrieves data using devices called RFID tags or transponders. An RFID tag can be applied to or incorporated into a product, animal or person for identification purposes. It is used in supply chain management to track shipments, control inventory and make sure containers move to their destinations. Using RFID in border systems promotes faster transit and better economic relationships.

Growing consumer demand for traceability can be facilitated by RFID. In North America, tags are placed on livestock so that an animal can be traced back to its herd of origin. Spain uses a similar system to track eggs sold in liquid form. Where agriculture is concerned, product traceability and country-of-origin labelling are key considerations.

## Transport technologies

In California, the PierPASS program handles inbound containers during off-peak hours. Carriers pay a premium to keep terminals open in the evenings and on Saturday. Intermodal terminals and local roads are less crowded. More than 40 per cent of container traffic generated by the ports of Los Angeles and Long Beach is moving off-peak.

Hybrid aircraft called airships are in the initial stages of commercial development. Filled with helium and powered by airplane engines, they are used in remote areas to explore diamond mines. The University of Anchorage is considering their use as short haul vehicles.

Development costs make automated highways a longer term initiative. Other ideas like using highway medians as avenues for automated freight movement are being discussed in Europe.



## Final thoughts

Over the next 20 years, the patterns of trade will be shaped by advances in technology, evolving consumer trends and the supply chain strategies.

Unstable energy prices have pushed oil over US\$100 a barrel. Short supply of rail cars, containers and professional drivers has added to increasing transportation costs. Transportation is important to your business plan. Growing consumer demand for green products and border security issues add another layer of complexity.

Successful businesses consider the entire value chain when preparing for the future. Looking at transportation options is just as important as planning your production and market mix or processing schedules. Using logistics professionals, selling local or closer to where you operate or moving facilities to where the consumer is, can all be considered. To make the most of your options, it is important to be informed, networked and involved.

### Food for thought

Our transportation infrastructure is a vital part of our nation's health, identity and sovereignty and vital to our growth and prosperity of the agriculture industry. We have many natural advantages and an enviable global position. How can we work together to shape a promising future as a key player in the world economy?

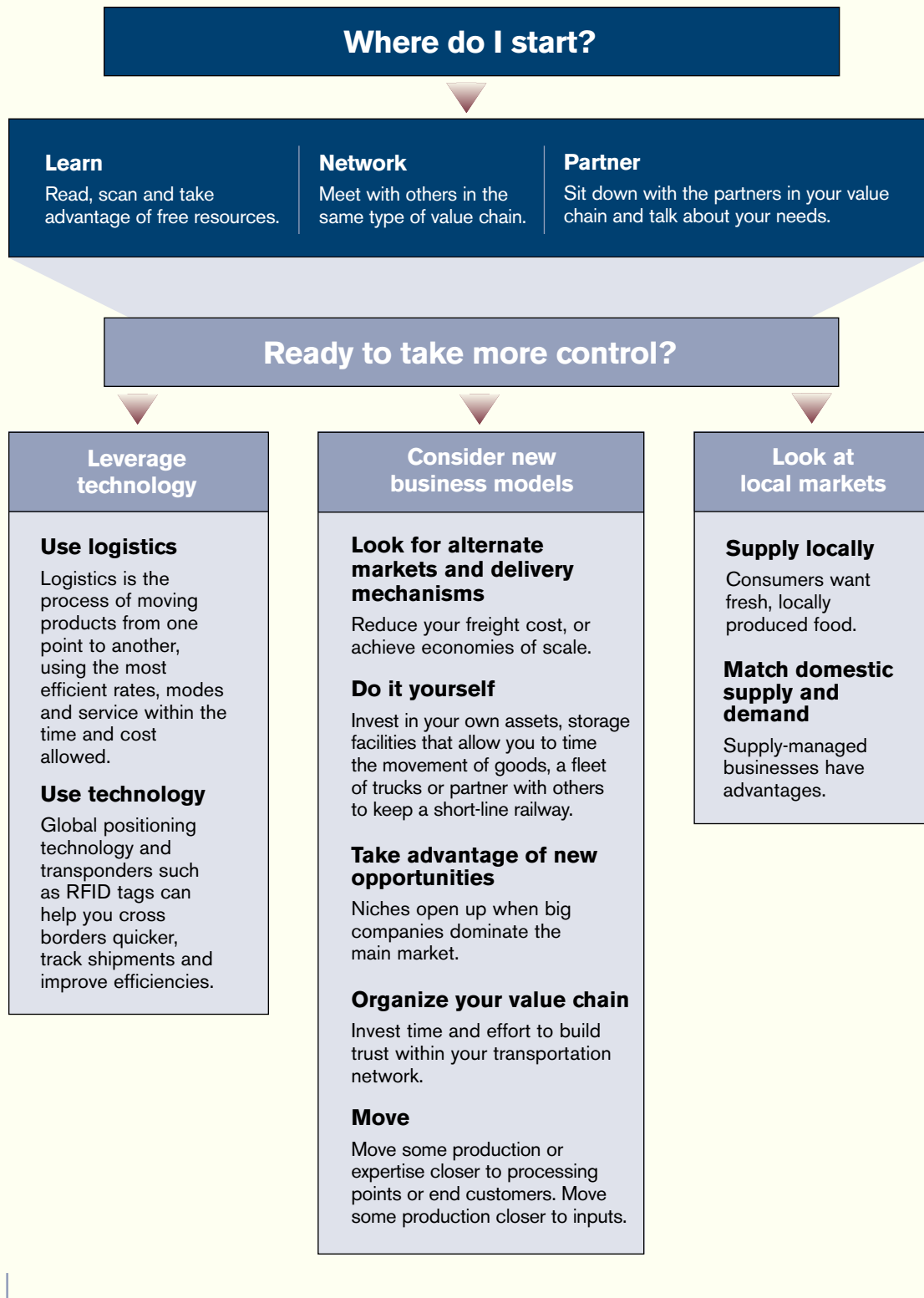
A solid transportation system that delivers efficiently, on time, on budget, to the highest expectations of the customer is fundamental to our ability to compete for domestic and international market share. Other countries are positioning to take advantage of these opportunities. By understanding the system, you can plan your business and tap into Canada's natural advantages. By networking and being involved, you can have a positive impact on the future.



A man in a tan shirt is shown in profile, looking out over a vast, rolling landscape under a dramatic sunset sky. The landscape features green fields, a few small buildings, and a winding road. The sky transitions from a deep blue at the top to a bright orange and yellow near the horizon.

# Knowledge Insider

Tips, tools and strategies | **Transportation edition**



Potential solutions



# Where do I start?

Be proactive and learn how transportation impacts your business.

Investigate free resources. Read all you can. There's plenty of information online and expert help is just a phone call away. Transport Canada and the Canadian Transportation Agency can help you learn how to get access to producer cars and containers. Their specialists will speak with producer groups and organizations on a variety of topics at no cost.

Attend events and conferences that explore Canada's transportation system. Reach beyond the networks you may already have within your industry and look at transportation from an end-to-end perspective. Take advantage of public meetings on gateways, terminals, railways, intermodal facilities and other transportation issues. Join existing groups that you may not have thought of before like the Canadian Industrial Transportation Association (CITA) or the Canadian Trucking Alliance (CTA). If what you learn changes your perspective, review our other tips and tools.

Consider partnering with others in your value chain to bring about change. When you know where government, major industry and capital

budgets are going, you can identify potential niche openings.

Transport Canada has called for proposals that advance transportation planning, integration and connections between modes of transport. Provinces, municipalities, First Nations, registered not-for-profit organizations, private enterprises, public or private transportation authorities and academic organizations may apply. Transport Canada is waiting for industry partnerships to present innovative proposals that will release some of the funds. Get involved.

To influence changes to policies hampering your business, look at the motives driving them. If you need wide trucks and the focus is reducing traffic congestion in a city, it will be a tough sell. See the situation from other perspectives and align with priorities to create partnerships focused on win-win solutions. Your value chain partners are critical to your success.

## Notes

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# My transportation needs are complex

## What you can do

Logistics is the process of moving products from one point to another, using the most efficient rates, modes and service within the time and cost allowed. Third party logistics (3PL) and 4th party logistics (4PL) companies are standard in the export or import business. They specialize in getting anything from origin to destination with minimum time and hassle.

You can address the need for logistics by employing logistics professionals, using integrated logistics teams or contracting out. Solutions can be customized to your needs. Sometimes you may participate in a highly complex logistics system and not even know it.

Logistics get complicated when products cross international and interprovincial borders. Think about all the variables:

- Different countries have different labour standards, scheduling, transportation infrastructure, import restrictions, health and safety codes, taxes, security issues and disease management regulations.
- Different provinces have different rules for road weights and oversized loads that must be taken into account. And when disease like Avian flu or BSE hits part of the industry, supply chain management is even more complex.

A third party service provider can help you cut through the red tape.

Global Positioning technology and transponders such as RFID tags can help you cross borders quicker, track shipments and improve efficiencies.

## Making it work

The more actual and cultural distance there is between you and the end customer, the more difficult it is to build a strong, loyal relationship.

Bissma Pacific produces, processes, trades and distributes pulse crop, oilseeds, grains and natural gums. The 100-year-old Canadian company with roots in Egypt operates in Europe, North Africa, the Middle East, China, India and Pakistan. When Canada became the world's largest pulse exporter, their head offices were moved here.

Martin Chidwick, Senior Vice President, Canada/International Operations, says their success is based on personal knowledge of local conditions, crop production, logistics, local prices, quality and other factors related to exporting or importing agriculture commodities. They have physical operations in exporting and importing nations where they do business. While they don't own transportation vehicles, they have end-to-end ownership of each contract. Company owners never lose sight of how important it is to build decades-long relationships and focus on long term outcomes.

## Notes

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# I am ready to take more control

## What you can do

You could move some of your production or expertise closer to processing points or the end customers by partnering with others or investing with others. If it makes sense for your business, you could move some production closer to inputs. Weigh the risks against the opportunities. Regulations, culture, lifestyle and often language must be considered.

You can gain more control over the impact of transportation on your business by owning a fleet of trucks or partnering in transportation ventures. Or, you can outsource or broker your own transportation.

Make it a point to invest in building good relationships within your transportation network. Your efforts will pay back in collaboration and innovative ideas. Encourage your industry association to use a value chain mentality. If you are in horticulture, does your association meet with the province's trucking association or USDA border services?

Timing and future thinking are important. Transport Canada commissioned MariNova Consulting to look at efficiencies and regulatory issues related to the use of empty containers moving through Canada's west coast ports. Quorum Corporation published a follow-up study on the work, focusing on inland terminals, shipper associations, cooperatives and issues relative to the tariff on international containers.

Robert Bryson, Director of Eastern Canadian Grain Operations for Parrish and Heimbecker, believes that producers can benefit from being informed and proactively managing their transportation needs. A few years ago, he got involved with CITA

to learn about shippers' rights. He learned that producers who are connected to the system can help their shippers in forecasting and scheduling. This level of involvement often leads to efficiencies that are shared throughout the chain.

Any Canadian shipper can get connected through an organization like CITA. Industry associations help you understand policy so you can decide on what approach to take.

## Making it work

Farm businesses can harness the power of their expertise, people and equipment to earn extra money by providing transportation solutions for other businesses.

Bill Richardson and his parents, Blaine and Betty, operated a cash crop farm in Arthur, Ontario. About 20 years ago they started a provincial trucking business. Today they serve long-term, loyal customers including the Goderich salt mines, local grain producers selling to grain depots, crushing plants and elevators and an industry leader in horticulture and composting products. Their midwest Ontario location is ideal, with a concentration of industry, agriculture, manufacturing and lake ports all within reach.

They own a small fleet and use brokerage services for most of their work, so hiring drivers hasn't been a challenge. By taking advantage of third party expertise, they can mix and match equipment and routes on demand.

Why diversification into the trucking business? In 1993, farming was becoming a challenge, so they gradually started a trucking business. Their secret to success? Work hard, especially on your relationships. If you can create loyal customers, you can make a good life.





## Making it work

The poultry industry is committed to producing products for Canadian consumers.

Carolynne Griffith is the Chair of the Egg Farmers of Ontario. While she understands the need for international trade, she strongly believes that Canadian farmers supplying the Canadian market makes good economic and environmental sense. Raised on a dairy farm near Sarnia, Ontario, Carolynne and her husband, Art, own an egg farm near Alvinston, Ontario. Their 27,000 laying hens produce 8,220,000 eggs annually. All eggs travel by truck to Strathroy, Ontario for grading and then are trucked to local supermarkets. "As reports of food shortages and crises headline the news, Canadians can be assured that dairy, poultry and

egg farmers will feed Canadians, first," says Carolynne.

Consumers are increasingly sensitive to where food comes from and the distance it travels. Many food ingredients travel over 16,000 kilometres to market or may make a round trip to reach their destination. A British Columbia fish might travel to China for deboning and then come back to B.C.<sup>9</sup>

Eggs, poultry and milk are a natural choice for the 100-mile diet. It's too early to tell if preferences for local food consumption will grow or remain a niche market, however the desire to know where food came from and how far it travelled is here to stay. Europe is already labelling its food products accordingly.

In supply-managed businesses, transportation costs are pooled to maintain consistency among producers, making the actual cost less apparent on the bottom line. While costs may be hidden, they are still important. The more it costs to produce and transport milk, the more the consumer pays. If the price is high enough, people may find substitutes or consider milk, once a staple, to be a luxury.

Producing food for local consumption is a perfect niche for some businesses and it's growing in popularity. Consider these trends and the challenges or opportunities they present for your operations and products. Study what cooperatives and countries around the world are doing differently. Localchoice™ milk in Great Britain, organic milk co-ops in Canada and new online exchanges in New Zealand have found innovative approaches.

## Notes

[illegible]

<sup>9</sup> The 100-Mile Diet: A Year of Local Eating; Alisa Smith and James MacKinnon. Random House (2007).

# Notes

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



# Knowledge Insider tools

What you'll find	Web address
Transport Canada review of a safe and secure, efficient, affordable, integrated and environmentally-friendly transportation system	<a href="http://www.tc.gc.ca/en/menu.htm">http://www.tc.gc.ca/en/menu.htm</a>
The Canadian Transportation Agency administers transportation legislation, policies and regulations	<a href="http://www.cta-otc.gc.ca/index_e.html">http://www.cta-otc.gc.ca/index_e.html</a>
The importance of transportation in Canada	<a href="http://www.westac.com/pdfs/transportationguide.pdf">http://www.westac.com/pdfs/transportationguide.pdf</a> archives
<b>Strategies: Gateways, containers, intermodal and inland ports</b>	
Transport Canada's Asia-Pacific Gateway strategy	<a href="http://www.tc.gc.ca/canadasgateways/apgci/index.htm">http://www.tc.gc.ca/canadasgateways/apgci/index.htm</a>
The Use of Containers in Canada (2007)	<a href="http://www.tc.gc.ca/pol/EN/Report/Containers2006/Menu.htm">http://www.tc.gc.ca/pol/EN/Report/Containers2006/Menu.htm</a>
Quorum's extensive and colourful report on Container Use in Western Canada (2007)	<a href="http://www.quorumcorp.net/Downloads/SupplementalReports/ContainerUseWesternCanada.pdf">http://www.quorumcorp.net/Downloads/SupplementalReports/ContainerUseWesternCanada.pdf</a>
Sask AgriVision	<a href="http://www.agrivision.ca/">http://www.agrivision.ca/</a>
Read about the Canadian Intelligent Super Corridor and its inland port, hubs and gateway strategies	<a href="http://www.ciscorport.com/">http://www.ciscorport.com/</a>
<b>Talk/Learn: Associations and events</b>	
Many conferences	<a href="http://www.tc.gc.ca/ctrp-prtc/en/300.aspx">http://www.tc.gc.ca/ctrp-prtc/en/300.aspx</a>
Canadian Industrial Transportation Association, The National Voice of The Shipper	<a href="http://www.cita-acti.ca/english/View.asp?x=1">http://www.cita-acti.ca/english/View.asp?x=1</a>
International Air Cargo Association	<a href="http://www.tiaca.org/">http://www.tiaca.org/</a>
Canadian Trucking Association	<a href="http://www.cantruck.com/">http://www.cantruck.com/</a>
Railway Association of Canada	<a href="http://www.railcan.ca/">http://www.railcan.ca/</a>
Chamber of Marine Commerce	<a href="http://www.cmc-ccm.com/cmc/english/index.asp">http://www.cmc-ccm.com/cmc/english/index.asp</a>
Looking for information on Canada's railways? Canadian Pacific Railway Canadian National Railway	<a href="http://www8.cpr.ca/English/default.htm">http://www8.cpr.ca/English/default.htm</a> <a href="http://www.cn.ca/productsservices/en_index.shtml">http://www.cn.ca/productsservices/en_index.shtml</a>
Explore building profitable value chain partnerships with FCC's workshop. Free for customers, fee for non-customers	<a href="http://www.fcc-fac.ca/en/LearningCentre/workshops_e.asp#vcm-learn-to-work-differently">http://www.fcc-fac.ca/en/LearningCentre/workshops_e.asp#vcm-learn-to-work-differently</a>
Global experts in transportation value chains	<a href="http://www.transystems.com/industry_presentations.asp?industry_id=8">http://www.transystems.com/industry_presentations.asp?industry_id=8</a>
Great Lakes – St. Lawrence Seaway system	<a href="http://www.greatlakes-seaway.com">www.greatlakes-seaway.com</a>

<b>Navigating the border</b>	
Canadian Border Services Agency	<a href="http://www.cbsa-asfc.gc.ca/menu-eng.html">http://www.cbsa-asfc.gc.ca/menu-eng.html</a>
U.S. Homeland Security	<a href="http://www.dhs.gov/xcommtrad/">http://www.dhs.gov/xcommtrad/</a>
Learn how to become FAST certified. FedEx tells all.	<a href="http://www.fedex.com/ca_english/international/customservices/fastprogram.html">http://www.fedex.com/ca_english/international/customservices/fastprogram.html</a>
Security seals and the technology that will help you export is at E.J.Brooks Industries Ltd.	<a href="http://www.ejbrooks.com/">http://www.ejbrooks.com/</a>
<b>Technology and suppliers</b>	
ROE Logistics Consulting	<a href="http://www.roelogistics.com/services/index.html">http://www.roelogistics.com/services/index.html</a>
Total Logistics Group of Companies	<a href="http://www.totallogistics.com/en/">http://www.totallogistics.com/en/</a>
Delmar Consulting	<a href="http://www.delmar.ca/english/introduction.htm">http://www.delmar.ca/english/introduction.htm</a>
MariNova is a firm specializing in marine transport	<a href="http://www.marinova.com/index.html">http://www.marinova.com/index.html</a>
High speed rail freight strategy (European)	<a href="http://www.infra.kth.se/jvg/Rapporter/0512_inlaga.pdf">http://www.infra.kth.se/jvg/Rapporter/0512_inlaga.pdf</a>
Check out Wikipedia to learn about high speed train technology or containerization	<a href="http://en.wikipedia.org/wiki/High-speed_rail">http://en.wikipedia.org/wiki/High-speed_rail</a> <a href="http://en.wikipedia.org/wiki/Containerization">http://en.wikipedia.org/wiki/Containerization</a>
Radio Frequency Identification (RFID): Industry Canada examines RFID technology and it's application	<a href="http://strategis.ic.gc.ca/epic/site/dsib-logi.nsf/en/h_pj00115e.html">http://strategis.ic.gc.ca/epic/site/dsib-logi.nsf/en/h_pj00115e.html</a>
<b>Domestic food consumption and 'eat local'</b>	
100-mile diet	<a href="http://100milediet.org/category/about/">http://100milediet.org/category/about/</a>
Food sovereignty, Ontario and Canada versions	<a href="http://www.farmgate5.org/">http://www.farmgate5.org/</a> , <a href="http://farmsandfood.ca/">http://farmsandfood.ca/</a>
<b>Global news</b>	
A comprehensive review of recent news, economic forecasts and politics for some of Canada's global competitors	<a href="http://www.economist.com/countries/?CFID=2006987&amp;CFTOKEN=92560773">http://www.economist.com/countries/?CFID=2006987&amp;CFTOKEN=92560773</a>
NAFTA	<a href="http://www.nafta-sec-alena.org/DefaultSite/index.html">http://www.nafta-sec-alena.org/DefaultSite/index.html</a>
Detailed information and forecasts on many key grain commodities from the USDA Economic Research Service	<a href="http://www.ers.usda.gov/Briefing/">http://www.ers.usda.gov/Briefing/</a>



Farm Credit Canada is proud to present Knowledge Insider, a semi-annual publication offering thought-provoking information to producers and other agriculture entrepreneurs. Trends described in this document are supported with facts and figures and examined in the context of what's on the horizon for Canadian agriculture.

Please direct questions and comments to FCC's Customer Service Centre at 1-888-332-3301 or email [csc@fcc-fac.ca](mailto:csc@fcc-fac.ca)

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