

Eastern Border Transportation Coalition

Detroit, MI - April 19, 2016

Border Crossings of Today and Tomorrow - Gateways to Global Competitiveness? Transportation Trends, Challenges & Market Forces

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Supply Chain Management:

Consists of firms collaborating to leverage strategic positioning and to improve operating efficiency

Supply Chain Strategy:

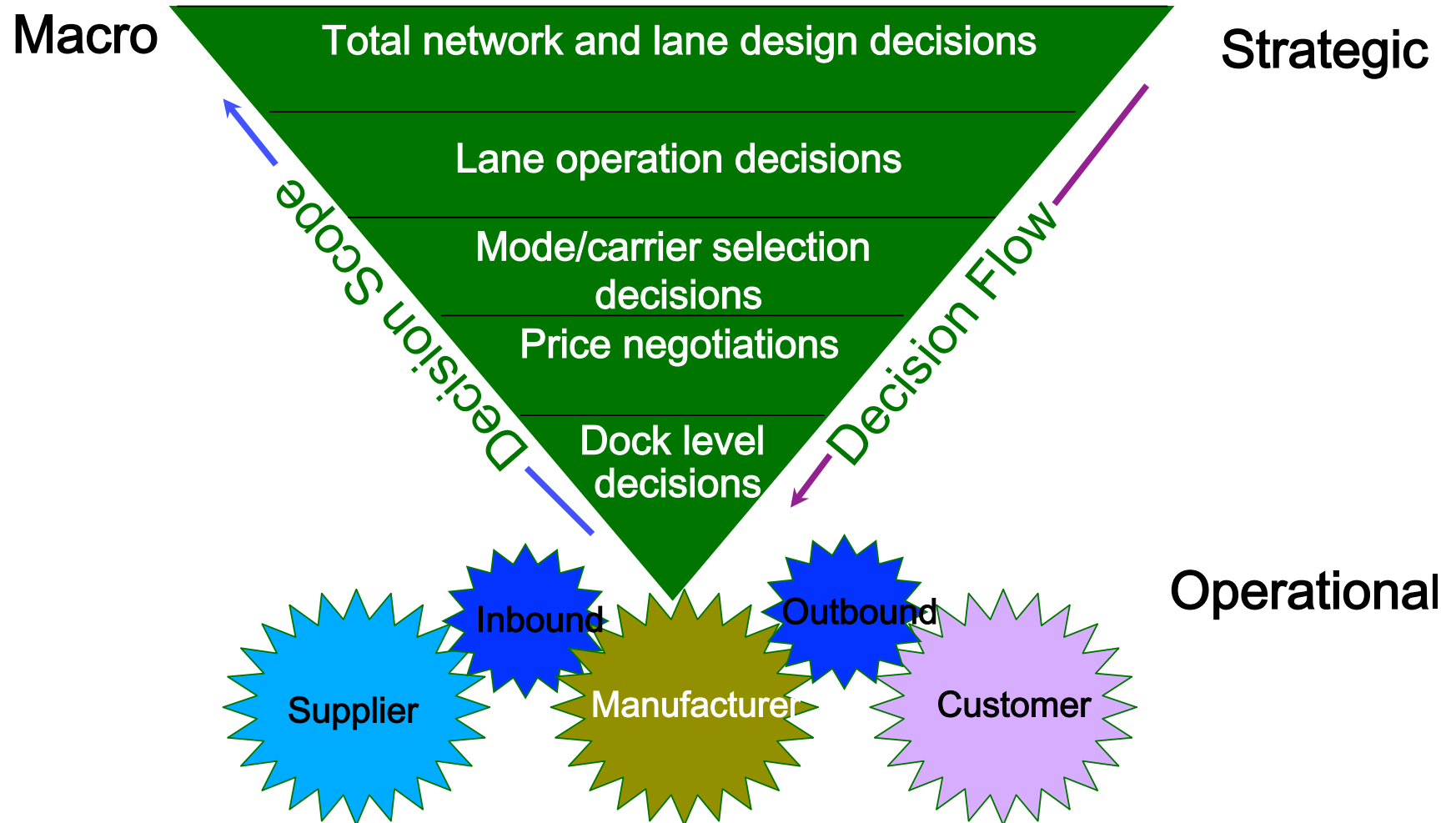
Is a channel and business organizational arrangement based on acknowledged dependency and collaboration

Logistics:

The work required to move and geographically position inventory



A 5 Step Integrated Transportation Decision Making Framework: ITDM



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Mode/Carrier Selection Factors: ITDM Step 3

The Customers View

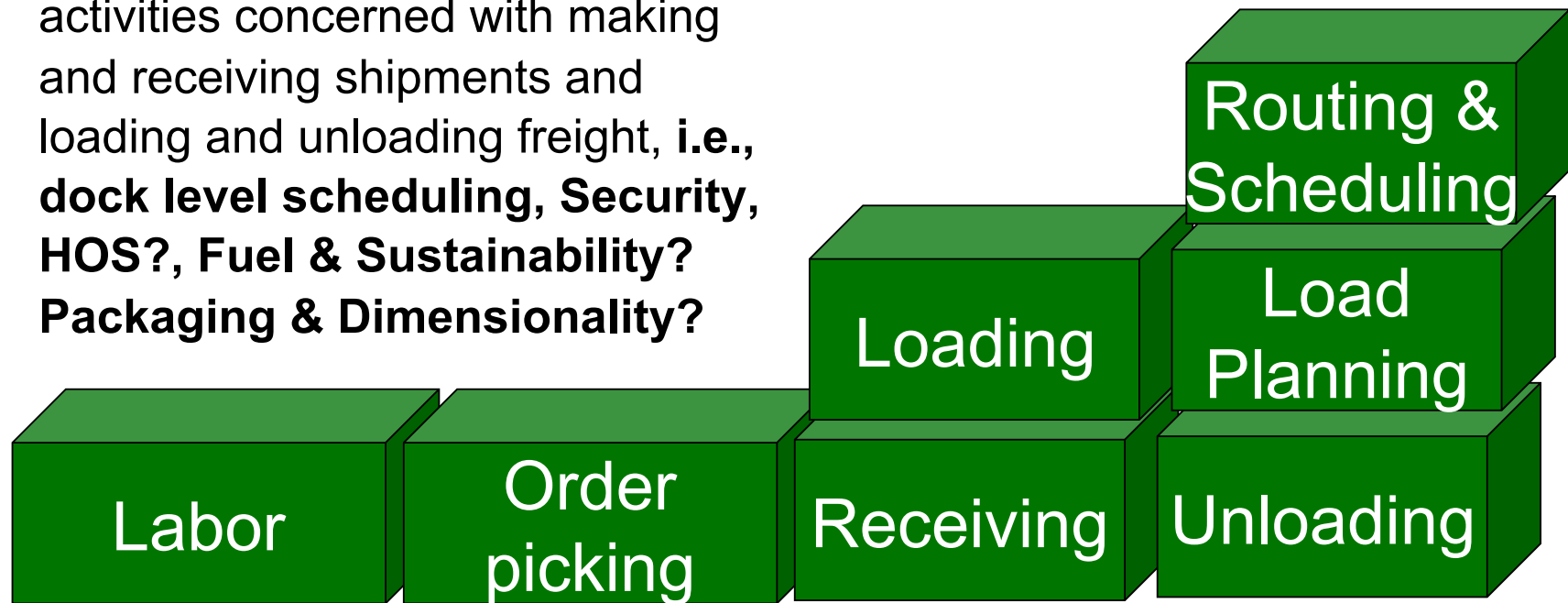
- **Customer service issues, e.g.:**
- **Reliable and consistent transit times!**
- **On-time pick-ups and deliveries**
- **Prompt delivery status**
- Accurate billing/invoicing
- Prompt action on service complaints
- Prompt response to damage and claims
- Quality of dispatch personnel
- **Quality of drivers**
- Competitive rates
- **Security procedures?**
- E-commerce and/or Electronic Data Interchange (EDI)
- **Customs capabilities for international shipments**
- Future Partnership/Alliance potential?

Logistical Dock Level Decisions: ITDM Step 5

An Operational View

Operational planning and control:

activities concerned with making and receiving shipments and loading and unloading freight, **i.e., dock level scheduling, Security, HOS?, Fuel & Sustainability? Packaging & Dimensionality?**



Benefits include:

- *Greater vehicle utilization*
- *Improved and more responsive customer service*
- *Reduced transportation expenses*
- *Reduced capital investment in equipment*
- *Reduced warehousing expenses*

Transportation Trends



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Transportation Trends – Challenges & Market Forces

- Motor carriers handle 77% of the freight volume in the US and 90% in Canada!
- Motor carriers costs are increasing, motor carrier revenue is up by 2% apx.
- Rail prices are up, as are revenues, by 15%
- Intermodal freight volume is up 5%
- Air, Water and Pipeline revenues are flat, or in decline
- Inventory carrying costs are up by 7% due to higher costs of taxes, insurance, obsolescence and depreciation. An important factor in considering location, mode choice and transit times!
- Driver shortages! HOS, & supply chain talent issues!
- Sustainability is ever more important!
- Uncertain global economic, political, tech trends? Dollar? China? 3D printing?
- Natural disasters and climate change impacts?
- Terrorism & risk mitigation effects the supply chain!

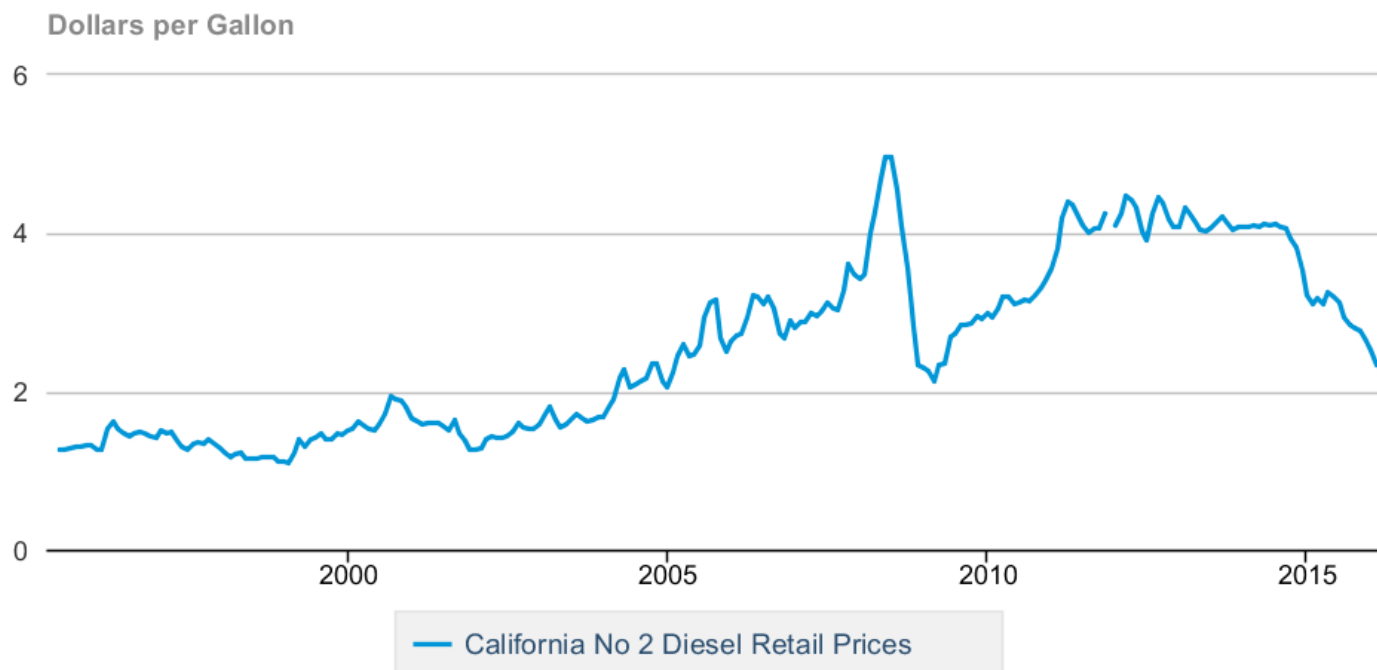
Volatile Diesel Fuel Prices

April 2010 = \$3.23 In CA
April 2011 = \$4.47 In CA
July 2012 = \$3.87 in CA
Sept. 2013 = \$4.22 in CA

Oct. 2014 = \$3.87 in CA
Nov. 2015 = \$2.75 in CA
April, 2016 = \$2.38 in CA

Vancouver gas price 4/16: \$1.15 liter (\$4.36 gal. CAD)

California No 2 Diesel Retail Prices

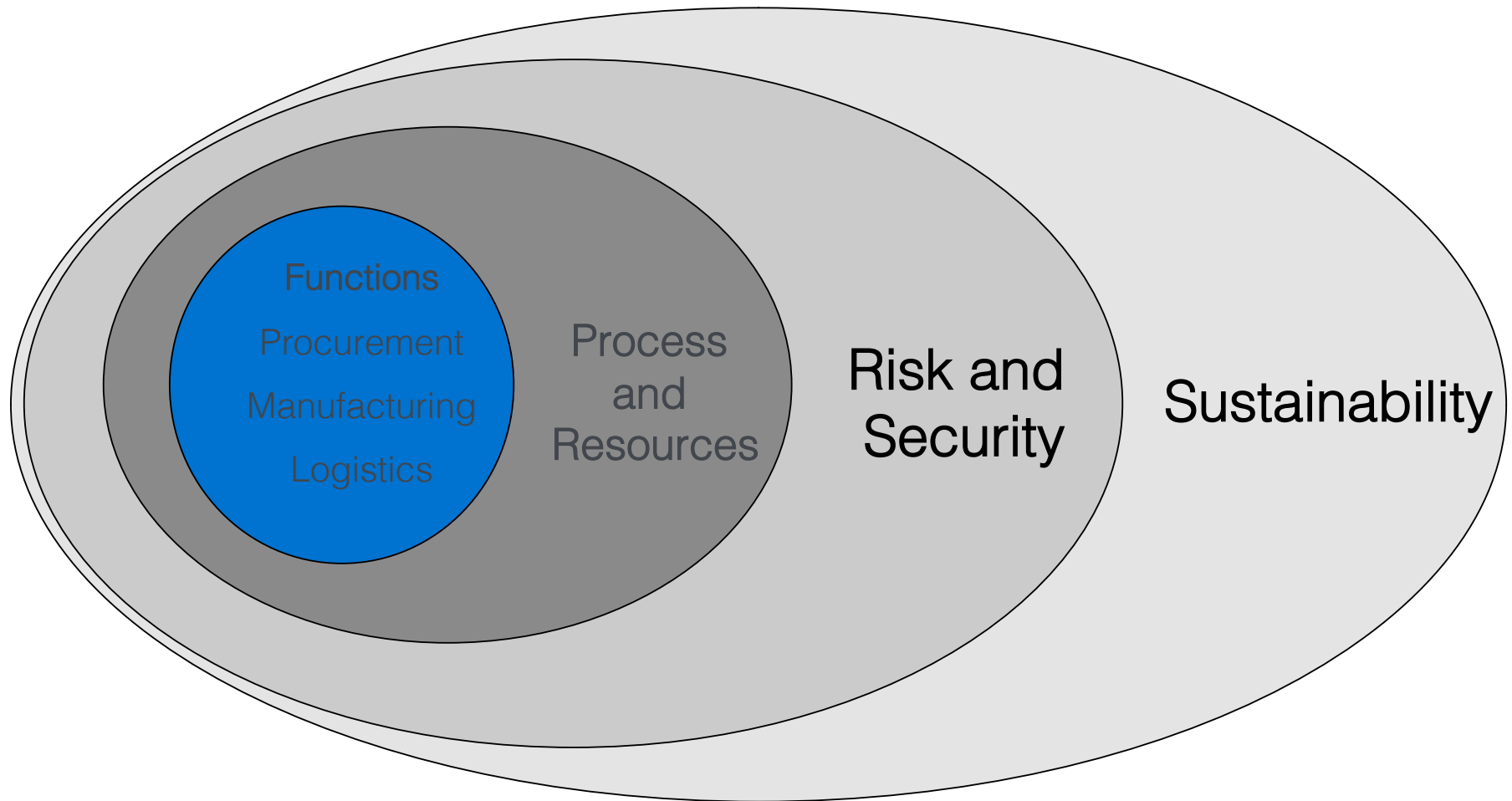


Source: U.S. Energy Information Administration

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Evolving SCM Responsibilities!



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Oh...One More Thing: Sustainability!

- ➡ Only about 10% of companies surveyed by Accenture are actively managing the carbon footprint of their supply chains.
- 37% of supply chain executives are measuring the levels of carbon emissions in their networks.
- 86% have undertaken at least one green initiative in their warehouses, mostly in the areas of recycling, greater reliance on natural light and increased use of energy-efficient bulbs.
- 38% have applied green techniques to their transportation fleets, using options such as streamlined vehicle design, green fuels and hybrid engines.
- Five most promising “commercially viable” areas for cutting down on carbon emissions in the supply chain:
 - ➡ • Clean-vehicle technologies (impacting 175 megatons of CO₂) *
 - ➡ • Slowing down the supply chain (171 megatons) *
 - ➡ • New initiatives in package design (132 megatons) *
 - ➡ • Optimizing networks (124 megatons) *
 - ➡ • Energy-efficient buildings (93 megatons)
- A survey found that sustainability was ranked as the third most important business driver, right behind the current economic conditions and changing customer requirements

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Freight Transport Energy Consumption

The sustainability question = mode selection?

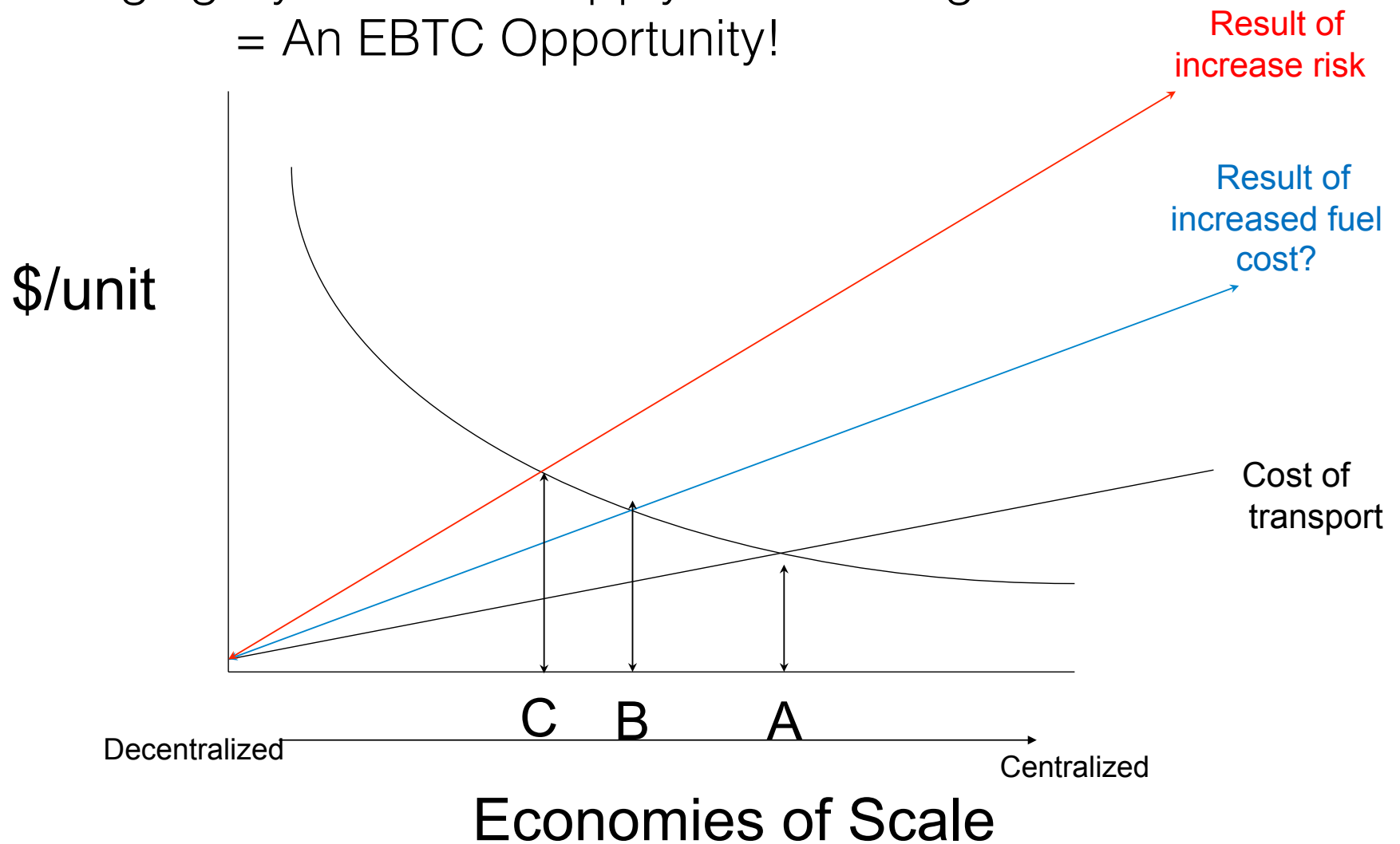
Transportation Mode	Fuel Consumption	Fuel Consumption
	BTU per ton mile	kJ per tonne kilometer
Class 1 Railroads	341	246
Domestic Water	510	370
Heavy Truck	3,357	2,426
Air Freight (apx.)	9,600	6,900

Source: : US Transportation Energy Book

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Changing Dynamics of Supply Chain Design:
= An EBTC Opportunity!





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Supply Chain Managements Strategic Focus:

- Lower Costs
- Reduce Time
- Be Sustainable
- and now...Remove Risk! But How?

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Reducing Risks, e.g., Natural Disasters

In 2011 Japan suffered an earthquake and tsunami.

A number of manufactures were forced to shut down.

Japan based Toyota was forced to reduce production by half!

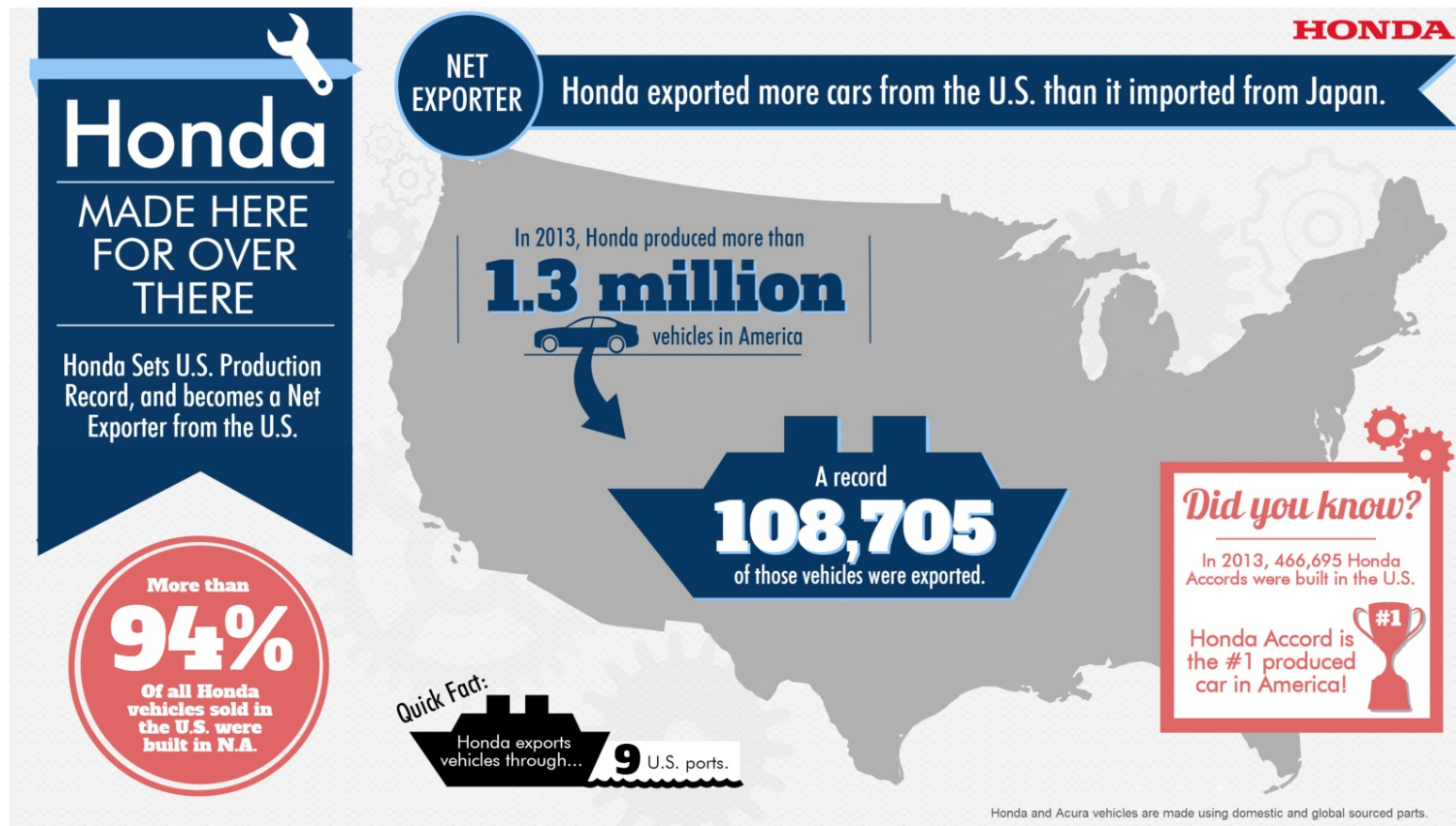
In April, 2016 Toyota and Nissan suspend production at two plants that export vehicles to the U.S. after a strong earthquake in southwest Japan

How do we / you reduce supply chain risks???

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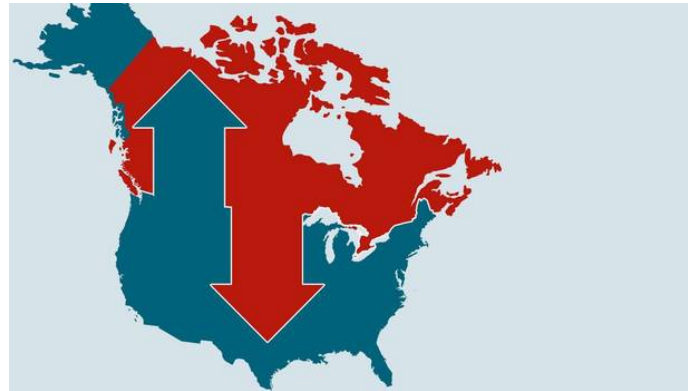
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“NEAR SHORING” The ever evolving role of SCM:
Reducing risk and enhancing sustainability!



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► **\$870 BILLION**

U.S. – CANADA TOTAL TRADE IN 2014

**CANADA - US TRADE: \$2.38 BILLION A DAY IN GOODS AND SERVICES
& 300,000+ PEOPLE PER DAY CROSS OUR BORDERS**

Source: Government of Canada-Global Affairs Canada- North American Transborder Freight Data

♥ Dr. Daniel F. Lynch, 2016

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Canadian Trade & Trends

EXPORTS	2015	2013		IMPORTS	2015	2013
US	75%	62%		US	66%	46%
China	4.7%	7%		China	7.1%	14%
UK	3.2%	2.7%		Mexico	3.4%	5.4%
Japan	1.9%	3.6%		Germany	2.7%	3.8%
Mexico	1.5%	2.5%		Japan	1.9%	4.1%

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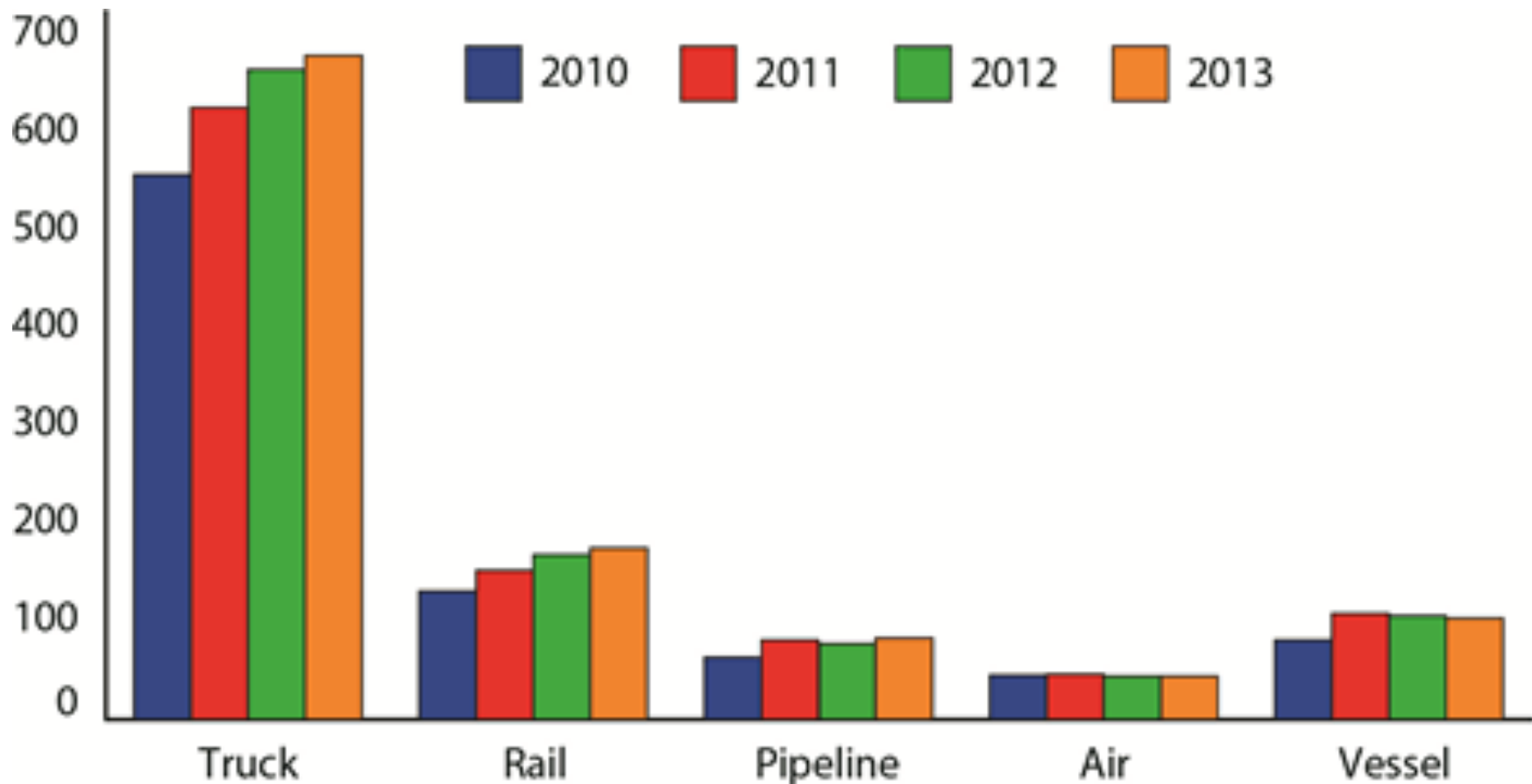
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Canada's Top Trading Commodities - 2015

Canada's Trade with the World, by Product, 2015				
Canadian Imports from World			Canadian Exports to World	
	Merchandise Classification	%	Merchandise Classification	%
1	Motor vehicles, trailers, bicycles, motorcycles	15.95	Mineral fuels, oils	20.63
2	Boilers, mechanical appliances, etc.	15.09	Motor vehicles, trailers, bicycles, motorcycles	15.52
3	Electrical machinery and equipment	9.86	Boilers, mechanical appliances, etc.	7.01
4	Mineral fuels, oils	7.06	Pearls, precious stones or metals	4.89
5	Plastic and plastic articles	3.57	Plastic and plastic articles	3.22
6	Optical, medical, scientific, technical instrumentation	2.92	Aircraft and spacecraft	3.13
7	Pharmaceutical products	2.72	Wood and wood articles, charcoal	3.12
8	Pearls, precious stones or metals	2.60	Electrical machinery and equipment	2.60
9	Iron or steel articles	2.34	Aluminum and aluminum articles	2.16
10	Aircraft and spacecraft	2.10	Paper and paperboard	2.03

U.S. Merchandise Trade with Canada by Modes of Transportation: 2010 - 2013

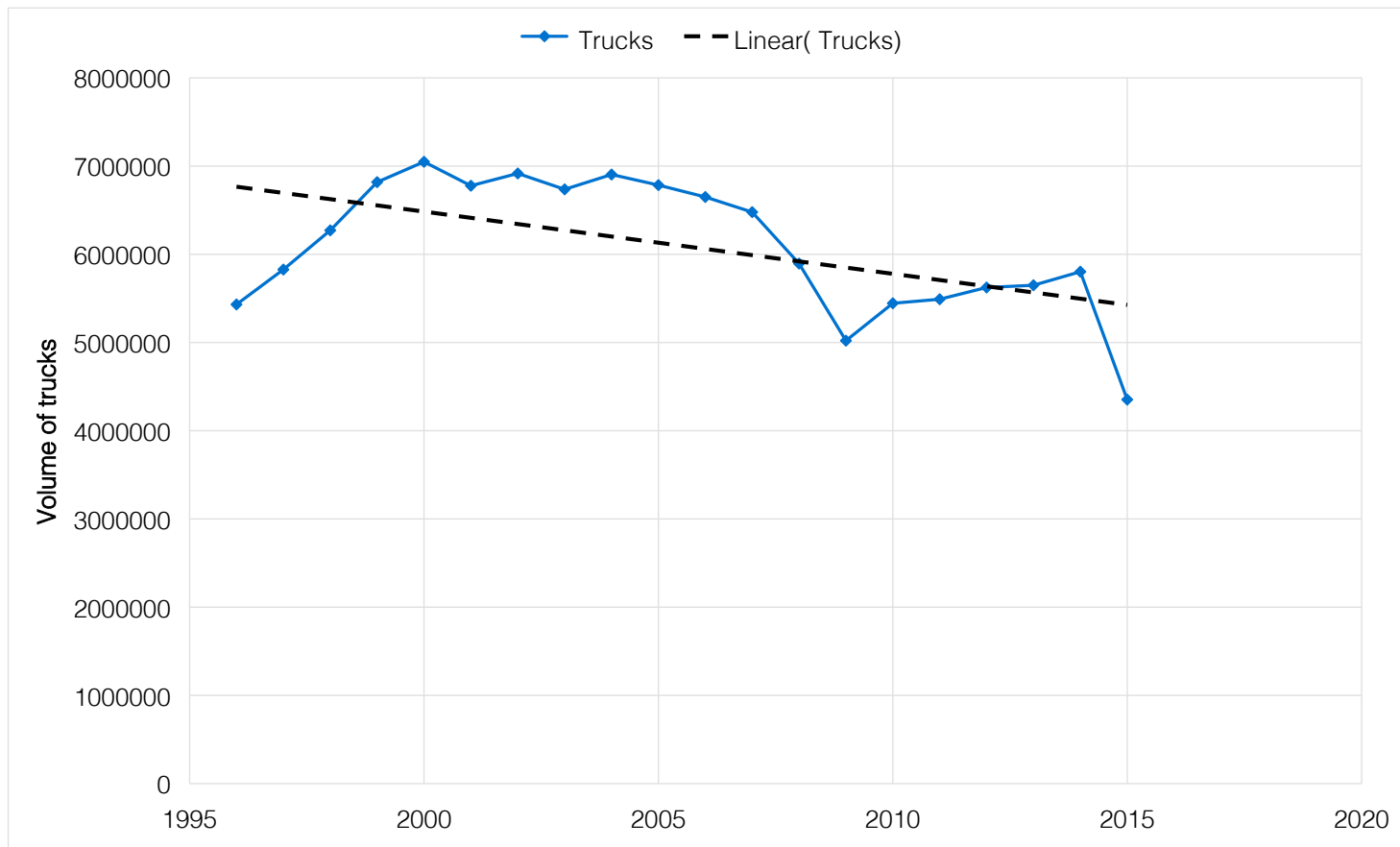
How Do The Goods Move?



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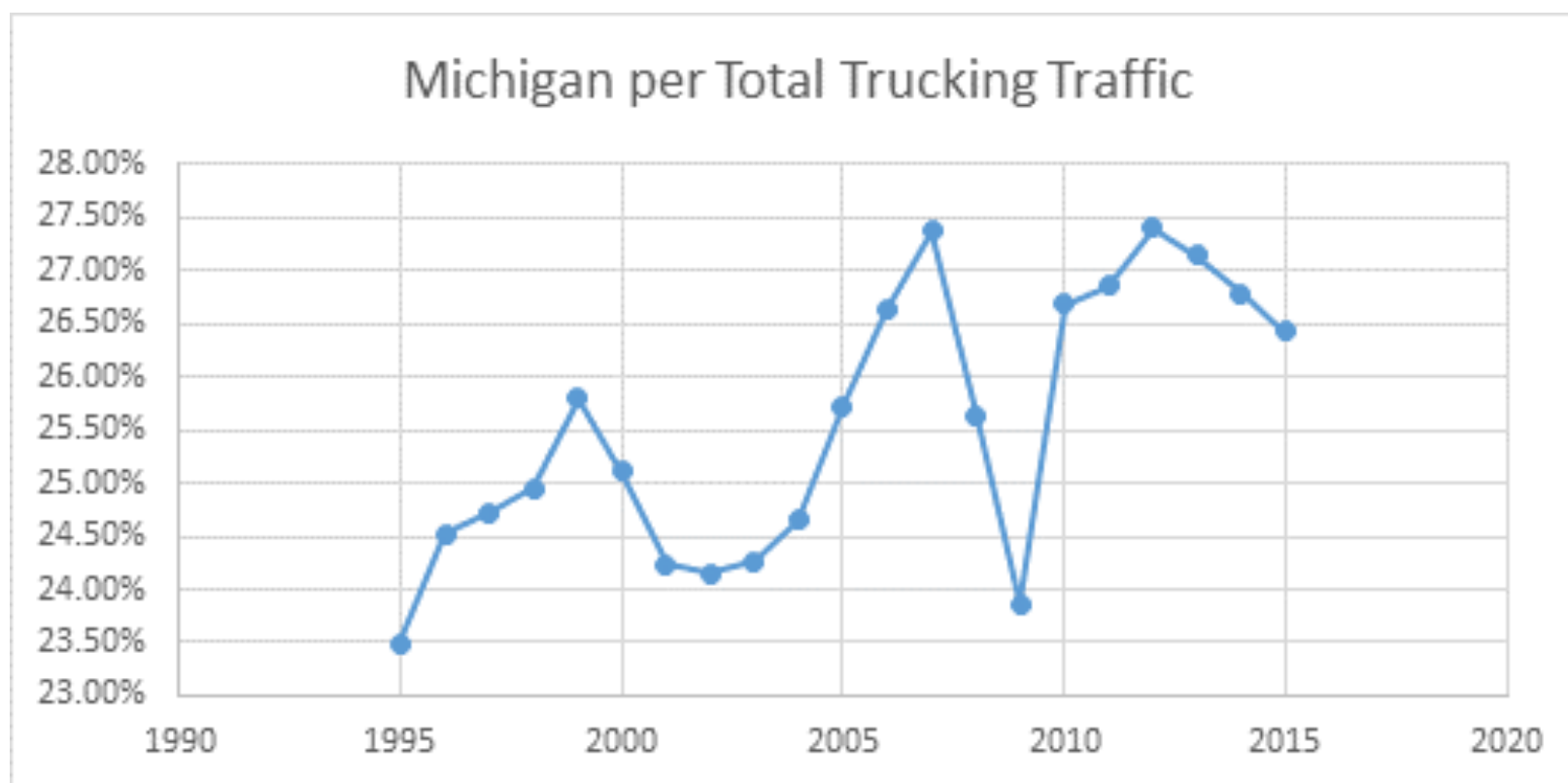
Total Cross-Border Truck Traffic: 1995 -2015



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Detroit, MI Cross-Border Truck Traffic: 1995 - 2015



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US - Canadian Export Particulars

The United States is Canada's largest export partner:

- Between 2005 and 2014, the value of U.S. exports of merchandise to Canada increased by 34%, and Canadian exports to the United States rose by 10%.
- In 2014 alone, Canadian exports to the United States increased by \$45 billion.
- Almost 1 dollar of every 5 that the US exports goes to Canada.

Source: Office of the United States Trade Representative

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The Canada - United States Trade Relationship:

Looking at all modes of transportation:

\$870 billion of goods and services crossed the Canadian-U.S. border in 2015. How much is that?

\$72.5 Billion per month

\$2.38 Billion per day

\$99.3 Million per hour

\$1.65 Million per minute

\$27,583 per second!

Source: Government of Canada-Global Affairs Canada- North American Transborder Freight Data

Top Michigan Imports and Exports by Country

2009-2015 (in millions of dollars)

Importing Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total imports)	59,748,000,000	124,088,000,000	+107%
Canada	28,172,000,000	45,703,000,000	+62%
Mexico	17,216,000,000	43,871,000,000	+154%
China	2,980,000,000	9,180,000,000	+208%
Exporting Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total exports)	32,655,000,000	53,171,000,000	+62%
Canada	15,904,000,000	23,356,000,000	+46%
Mexico	5,214,000,000	11,138,000,000	+136%
China	1,333,000,000	3,213,000,000	+141%

Top Maine Imports and Exports by Country

2009-2015 (in millions of dollars)

Importing Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total imports)	4,279,000,000	3,673,000,000	-14%
Canada	1,865,000,000	1,939,000,000	+3%
China	274,000,000	465,000,000	+69%
UK	85,000,000	109,000,000	+28%
Exporting Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total exports)	2,231,000,000	2,724,000,000	+22%
Canada	858,000,000	1,268,000,000	+47%
Malaysia	468,000,000 ^(2012 value)	208,000,000	-55%
China	175,000,000	208,000,000	+18%

Source: United States Census Bureau

Values in Millions of Dollars

Top New Hampshire Imports and Exports by Country 2009-2015 (in millions of dollars)

Importing Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total imports)	6,322,000,000	9,283,000,000	+46%
Canada	3,669,000,000	4,898,000,000	+33%
China	557,000,000	1,143,000,000	+105%
Germany	458,000,000 ^(2012 value)	524,000,000	+14%
Exporting Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total exports)	3,061,000,000	4,007,000,000	+30%
Canada	449,000,000	545,000,000	+21%
Mexico	767,000,000	503,000,000	-34%
China	212,000,000	282,000,000	+33%

Source: United States Census Bureau

Values in Millions of Dollars

Top Vermont Imports and Exports by Country

2009-2015 (in millions of dollars)

Importing Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total imports)	3,106,000,000	4,023,000,000	+29%
Canada	2,310,000,000	2,878,000,000	+24%
China	217,000,000	265,000,000	+22%
Vietnam	27,000,000 ^(2012 value)	74,000,000	+174%
Exporting Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total exports)	3,219,000,000	3,176,000,000	-1%
Canada	3,122,000,000	1,166,000,000	-62%
Hong Kong	221,000,000	302,000,000	+36%
Malaysia	171,000,000 ^(2012 value)	232,000,000	+35%

Source: United States Census Bureau

Values in Millions of Dollars

Top New York Imports and Exports by Country

2009-2015 (in millions of dollars)

Importing Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total imports)	92,909,000,000	133,086,000,000	+43%
China	16,884,000,000	22,976,000,000	+36%
Canada	16,884,000,000	18,001,000,000	+6%
India	4,914,000,000	10,618,000,000	+116%
Exporting Countries	2009 Total Merchandise	2015 Total Merchandise	% Change
World (total exports)	58,743,000,000	80,059,000,000	+36%
Canada	12,576,000,000	12,411,000,000	-1%
Hong Kong	2,957,000,000	9,549,000,000	+222%
Switzerland	4,232,000,000 ^(2010 value)	8,314,000,000	+96%

Source: United States Census Bureau

Values in Millions of Dollars

Top Canadian Importing Countries 2015

- 1.US
- 2.China
- 3.Mexico
- 4.Germany
- 5.Japan

Top Canadian Exporting Countries 2015

1. US
2. China
3. UK
4. Japan
5. Mexico

Top U.S. Importing Countries 2015

- 1.China
- 2.Canada
- 3.Mexico
- 4.Japan
- 5.Germany

Top U.S. Exporting Countries 2015

1. Canada
2. Mexico
3. China
4. Japan
5. UK

Source: United States Census Bureau

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City shuts down more streets
under bridge following inspection
Windsor Star-10/14/15

Rising cost of crossing border yet another
competitive disadvantage for Windsor
Windsor Star – 7/24/15



Bridge traffic clogs Huron Church Road
Windsor Star-3/15/16

BORDER DELAYS = 🖐 COSTS =
🖐 CANADA – U.S. COMPETITIVENESS!

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Cost of Border Delay\$

U.S. and Canadian border crossings costs
Canada between \$15 and \$30 billion every year
or about 1.4% of GDP

Custom rules and border delays can add an extra
\$800 - \$1500 to the production costs of an
automobile

It's estimated that \$7 billion (U.S.) per year in
potential tourist receipts were lost for the
Canadian economy

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THANK YOU!

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Great Lakes
International Trade
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“To improve is to change; to be perfect is to change often.”

Winston Churchill

or:

“If you don't know where you are going, you might wind up someplace else.”

Yogi Berra