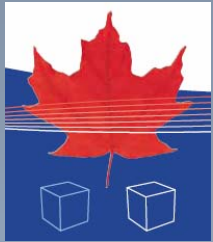


# **The Costs of Supply Chain Congestion, Disruption and Uncertainty**

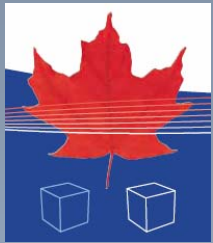
**David Colledge, President  
Colledge Transportation Consulting Inc (CTC)**

**Vancouver, BC - May 4, 2007**



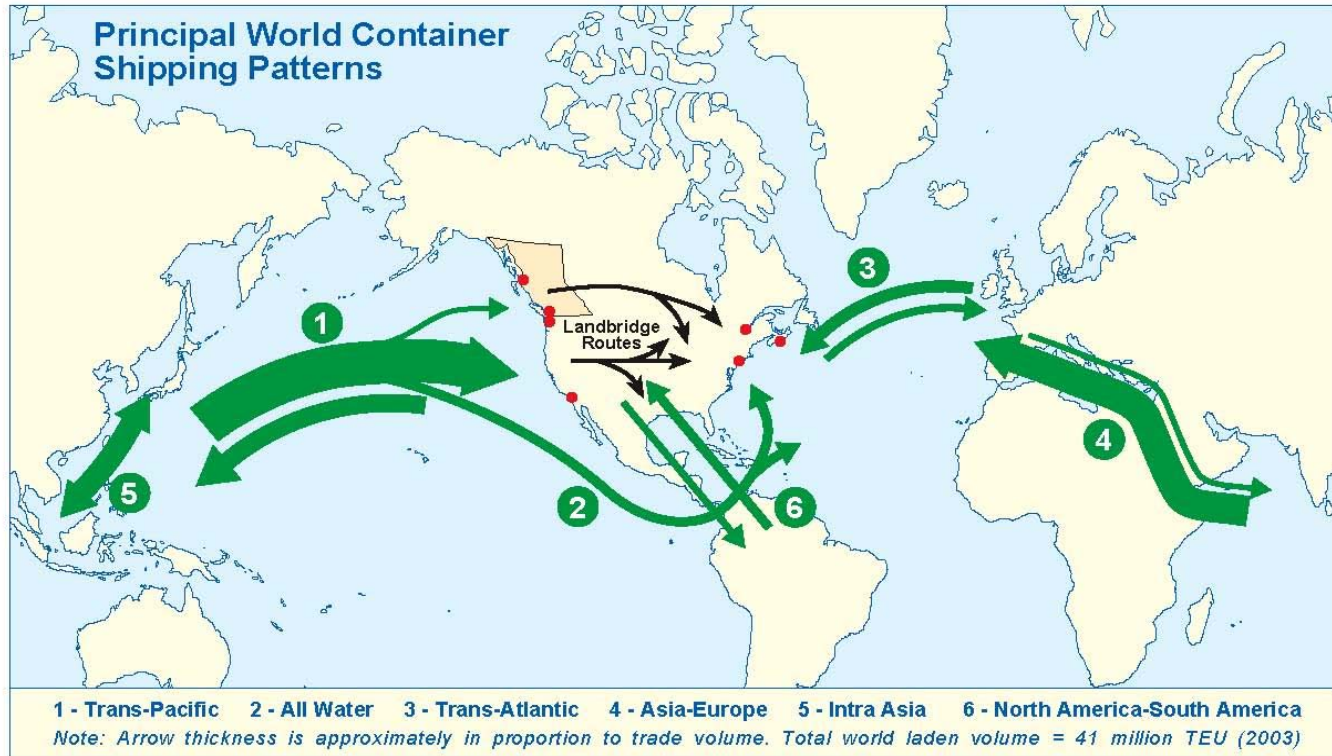
# Today's Topics

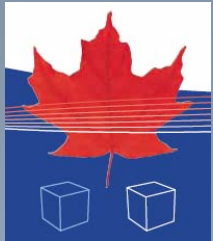
- New Supply Chain Realities
- What's At Stake
- Case Studies



# New Supply Chain Realities

Integrated trade and global supply chains are driving growth

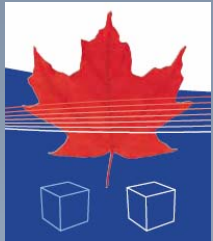




# New Supply Chain Realities

- Supply chains critically impact:
  - International production, consumption and trade
  - National, regional economic growth
  - Competitiveness
  - Productivity and quality of life
  - International reputation

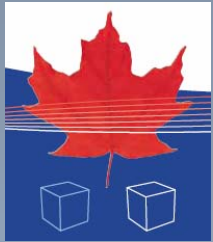




# New Supply Chain Realities

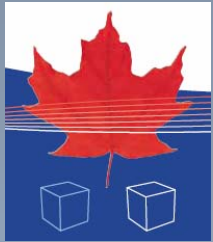
- What the Customer Needs
  - Certainty (minimal delays/unexpected costs)
  - Visibility of inventory
  - Faster and faster transit times
  - Seamless integration from end-to-end
  - Logistics **CAN NOT** fail
- Drive for efficiency = no “slack” in the system
  - Recovery from disruptions may be prolonged
  - Timely capacity expansion more critical than ever





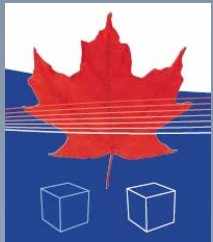
**“ Canada is up against exceptionally well-armed trade competitors . . . all have strong national trade policy and machinery, as do China and leading emerging economies “**

**The Conference Board of Canada, April 2007**



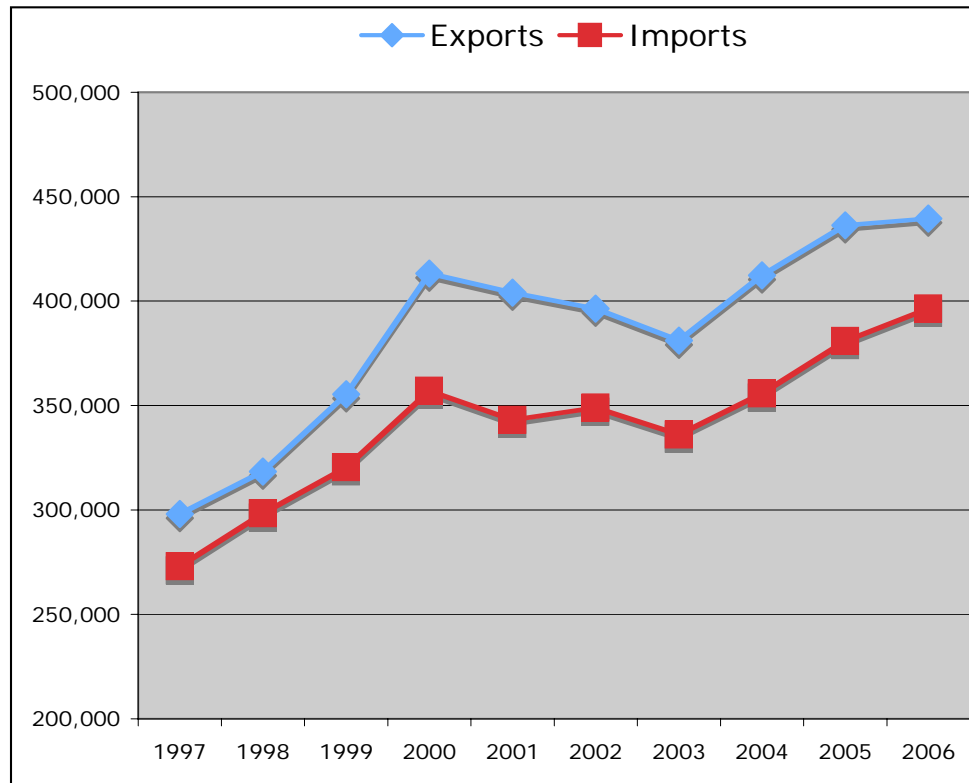
**When you are in deep trouble,  
say nothing, and try to look like you  
know what you are doing . . .**





# What's At Stake

## Continued Expansion of Canadian Trade



**2006:**

Exports \$440 b

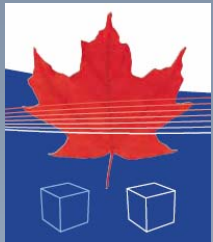
Imports \$396 b

**Average 10-Year  
growth rate:**

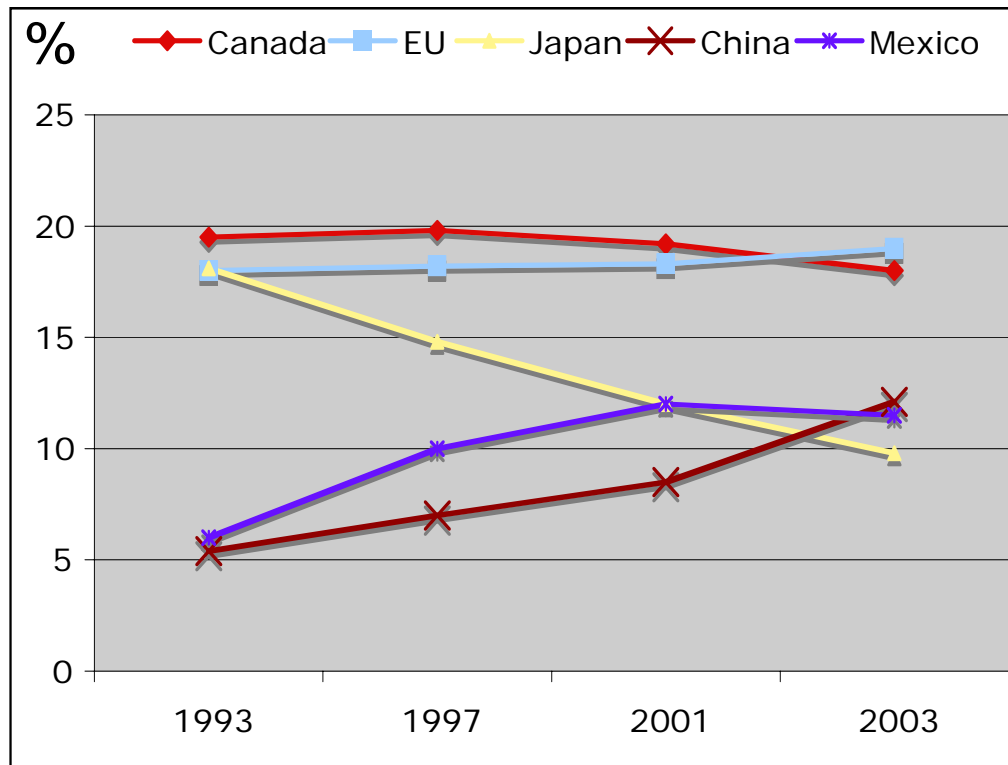
Exports 4.4% /yr

Imports 4.2% /yr

Source: Stats Canada



# Canada's Share of U.S. Imports Declining



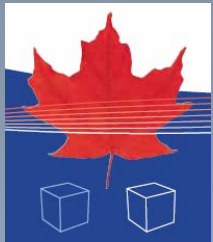
## Share of U.S. Imports (%)

**1993 vs. 2003:**

Canada: 19% 18%

China: 5.4% 12.1%

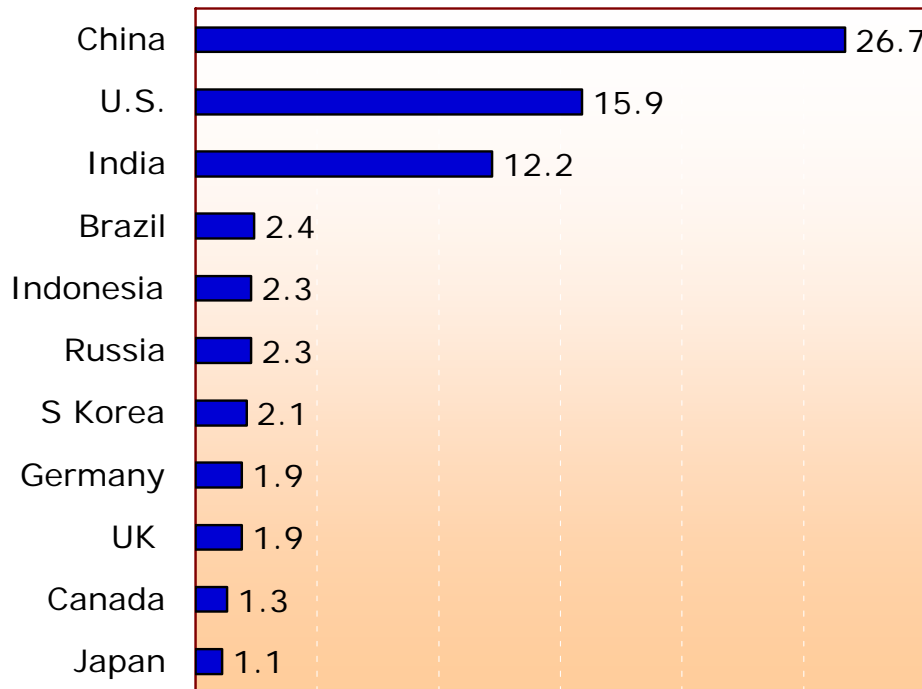
Source: Industry Canada



# Global Economic Power Shift

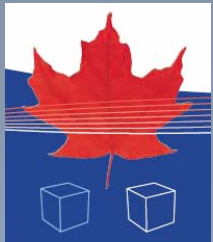
## → Asia Rising

Contribution to global growth: 2006-2020, %



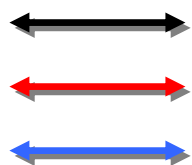
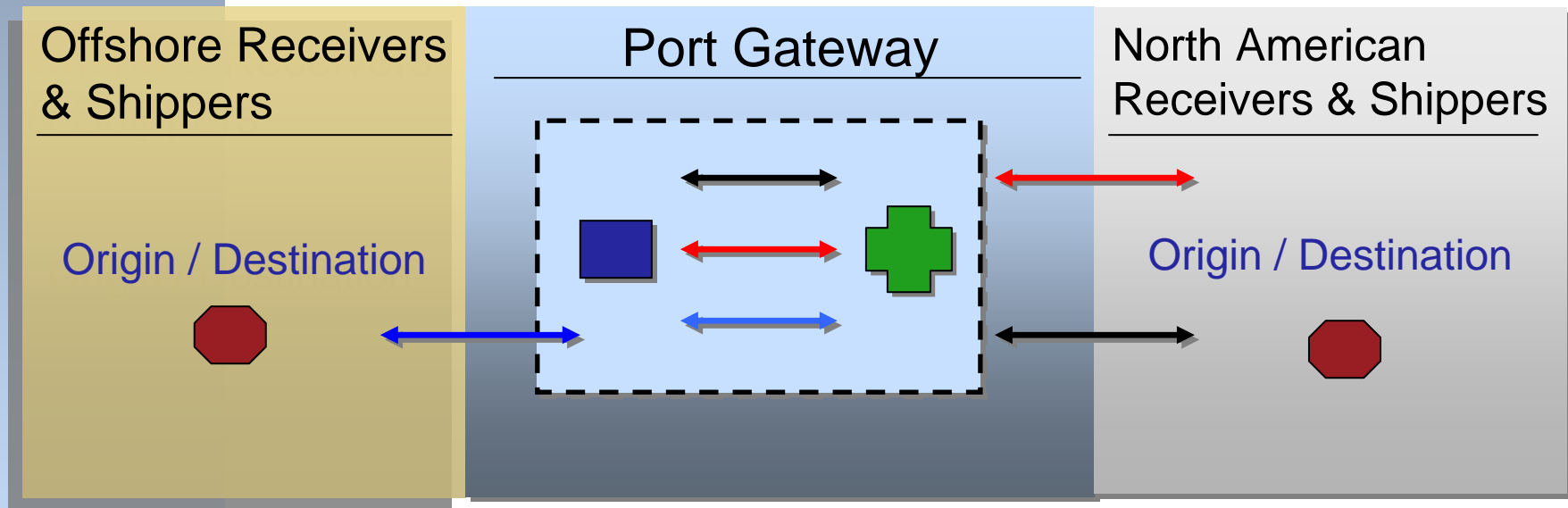
World's Largest Economies	
2005	2020
1. U.S.	1. China
2. China	2. U.S.
3. Japan	3. India
4. India	4. Japan

Source: The Economist Intelligence Unit (at PPP)



# Case Study - Background

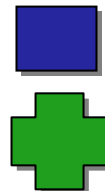
## A Complex Supply Chain Network



Truck

Rail

Deep /  
Short-sea

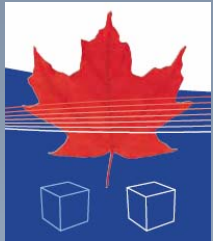


Port terminal

Off-dock terminal



Terminal, factory  
warehouse, mine,  
mill, elevator, etc.



# Many Stakeholders

**Canadian Economy**

**Consumers & Communities**

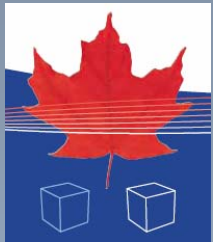
**Businesses & Governments**

Producers,  
manufacturers

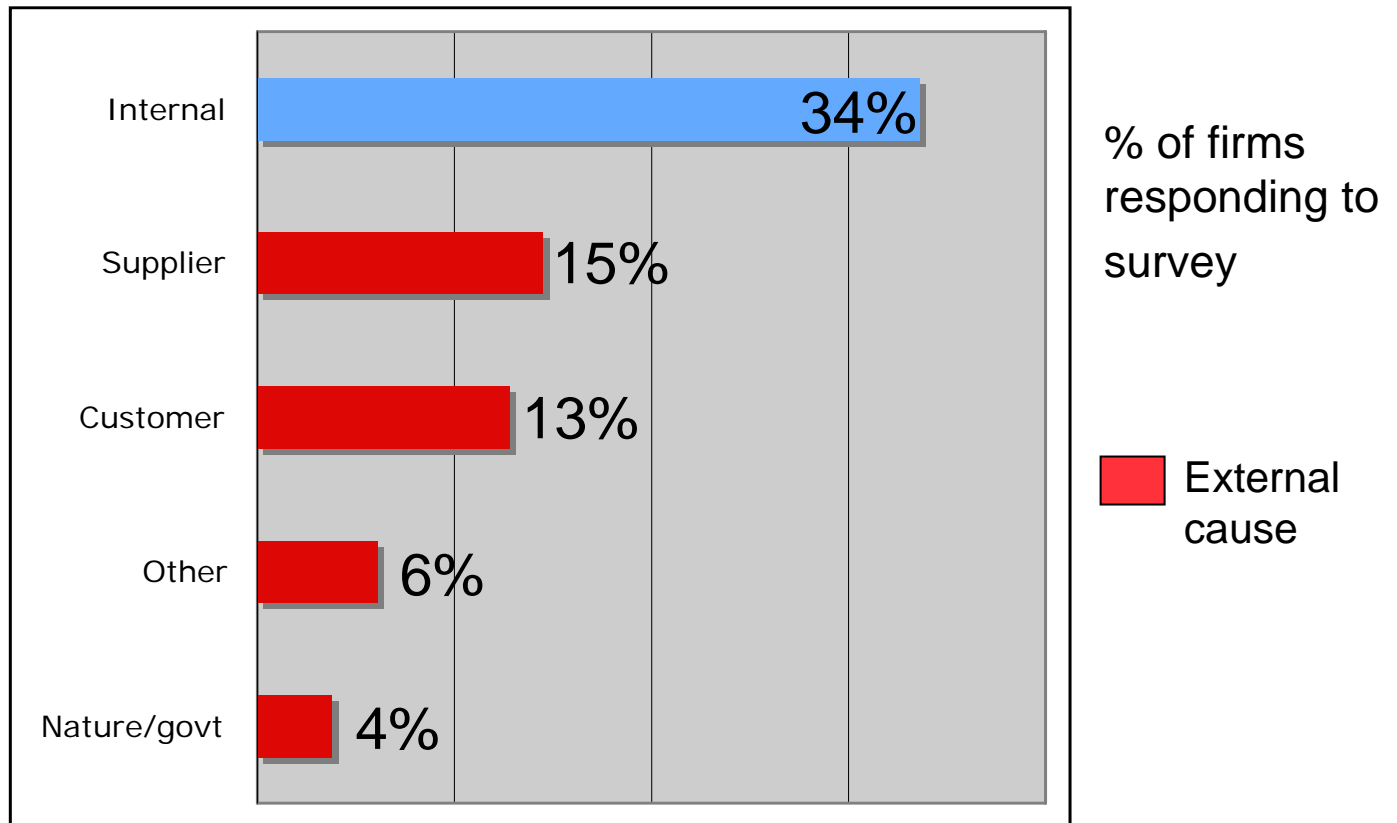
Importers &  
exporters

Logistics service  
providers

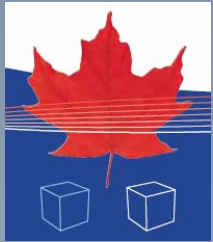
Others  
(e.g. investors)



# Causes of Supply Chain Disruptions

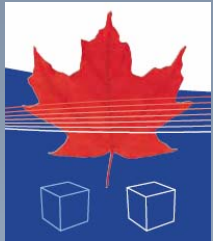


Source: Singhal and Hendricks (2005)



# Cost Categories

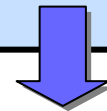
	Examples
Business / Economic	<ul style="list-style-type: none"> <li>● transport costs of route/mode diversion</li> <li>● inventory carrying cost, demurrage</li> <li>● lost sales, manufacturing output</li> <li>● labour costs of added shifts/overtime</li> <li>● value of time/vehicle operating cost of delays</li> <li>● productivity, competitiveness and innovation</li> <li>● long term economic growth, jobs</li> </ul>
Environment, Health, Safety	<ul style="list-style-type: none"> <li>● GHG emissions</li> <li>● security costs</li> <li>● road “rage”</li> </ul>
Reputation	<ul style="list-style-type: none"> <li>● BC/Canada’s international stature/profile</li> <li>● foreign direct investment in supply chain</li> </ul>



# Case Study #1



Product	Logistics Profile - Consumer Goods Importer
Consumer goods in 40' containers	<ul style="list-style-type: none"><li>• Source in 60+ countries - 25,000 TEU/yr</li><li>• Take ownership of goods at point of origin</li><li>• Visibility and control of logistics = customer value</li></ul> <p><b>Normal practice:</b> Vessel - Vancouver/Halifax - intermodal rail to DC's</p> <p><b>Alternative practice:</b> truck from Halifax to Montreal / Toronto (200 - 40 ft. containers)</p>



**Direct Logistics Cost Impact: +37%**



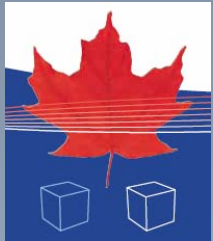
# Case Study #2



Product	Logistics Profile - Patio Furniture Imports
Seasonal goods moving in 40' containers	<ul style="list-style-type: none"><li>• Multiple origin countries - 27,000 FEU/yr (Canada)</li><li>• A “purchasing agent” for the customer</li></ul> <p><b>Normal practice:</b> MLB intermodal rail Vancouver - Toronto</p> <p><b>Alternative practice :</b> terminate shipment in Vancouver - transload - truck to Toronto (470 FEU transloaded, 330 truck shipments)</p>



**Direct Logistics Cost Impact: \$1.4 M**



# Case Study #3

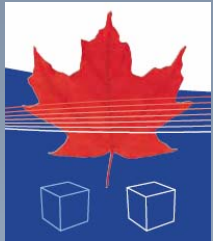


Prairie strong, worldwide

Product	Logistics Profile - Bulk Exporter
Wheat and barley exports through west coast ports	<ul style="list-style-type: none"><li>• US \$3-4 b annual sales to 70 countries</li><li>• 22-24 m tonnes of grain shipped each year</li><li>• Markets grain for 85,000 farmers</li></ul> <p><b>Supply chain disruption: weather delays and rail labour dispute delayed ships and export of 350,000 tonnes. Added demurrage costs of ...</b></p>

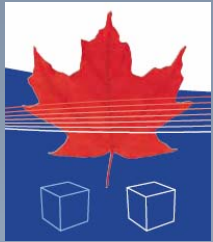


**Direct Logistics Cost Impact: \$ 6-7 M**



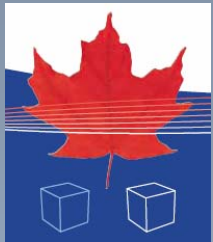
# Case Study #4

Measure	Financial Impacts on Publicly Traded Companies
Corporate Performance	<p><b>Supply chain disruption: based on a study of nearly 800 instances of various disruptions in publicly traded firms (NYSE, AMEX, NASDAQ)</b></p> <ul style="list-style-type: none"><li>● <b>33-40% lower stock returns</b> (3-yr benchmark)</li><li>● <b>increased risk</b> - share price volatility up 13%</li><li>● <b>profitability:</b> 107% drop in operating income; 7% lower sales growth; 11% cost increase</li></ul>



# Conclusions

- View supply chain performance as a national economic/trade issue
- Disconnect? Broad policy goals versus bold actions required to resolve issues (investments and greater accountability)
- Add “buffer capacity” to improve reliability and consistency
- Need improved: information sharing, demand forecasting, supply chain visibility



**Thank You !**

***Colledge Transportation Consulting***  
***Excellence by Experience***

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