

Supply chain performance measurement in Latin America

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AGENDA

1. General context;
2. Data availability and coverage;
3. Measurement approaches;
4. Analysis based on logistics chains: An UN-ECLAC perspective;
5. Supply chain clustering: A new paradigm?;
6. Takeaways.



General context

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THE WALL STREET JOURNAL.

U.S. EDITION ▾

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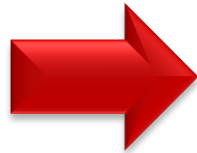


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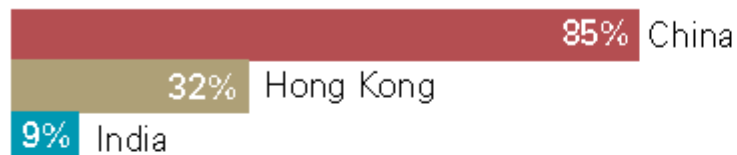
Reverse Globalization: A Potential Solution to Commodity Price Volatility in the Supply Chain

March 27, 2012, 12:00am

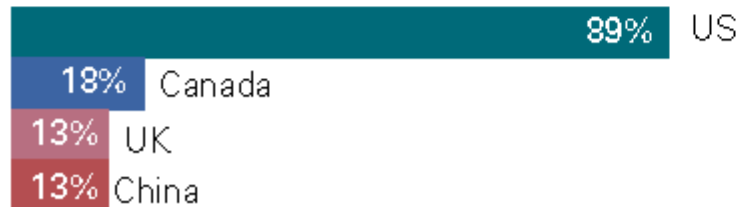
One of the most critical challenges for manufacturing firms is their continual exposure to increases in price level and price volatility. In fact, volatility of commodity prices in the last decade has outpaced the oil price shock experienced in the 1970s, according to Satish Raghavendran, Ph.D., vice president at Deloitte Research, India, Deloitte SVCS India Pvt L, and co-author of the article "Commodity Price Volatility: A Catalyst for Reverse Globalization?" which appeared in Deloitte Research's First Quarter 2012 Global Economic Outlook.

REGIONALIZATION OF SOURCING BASIS

China

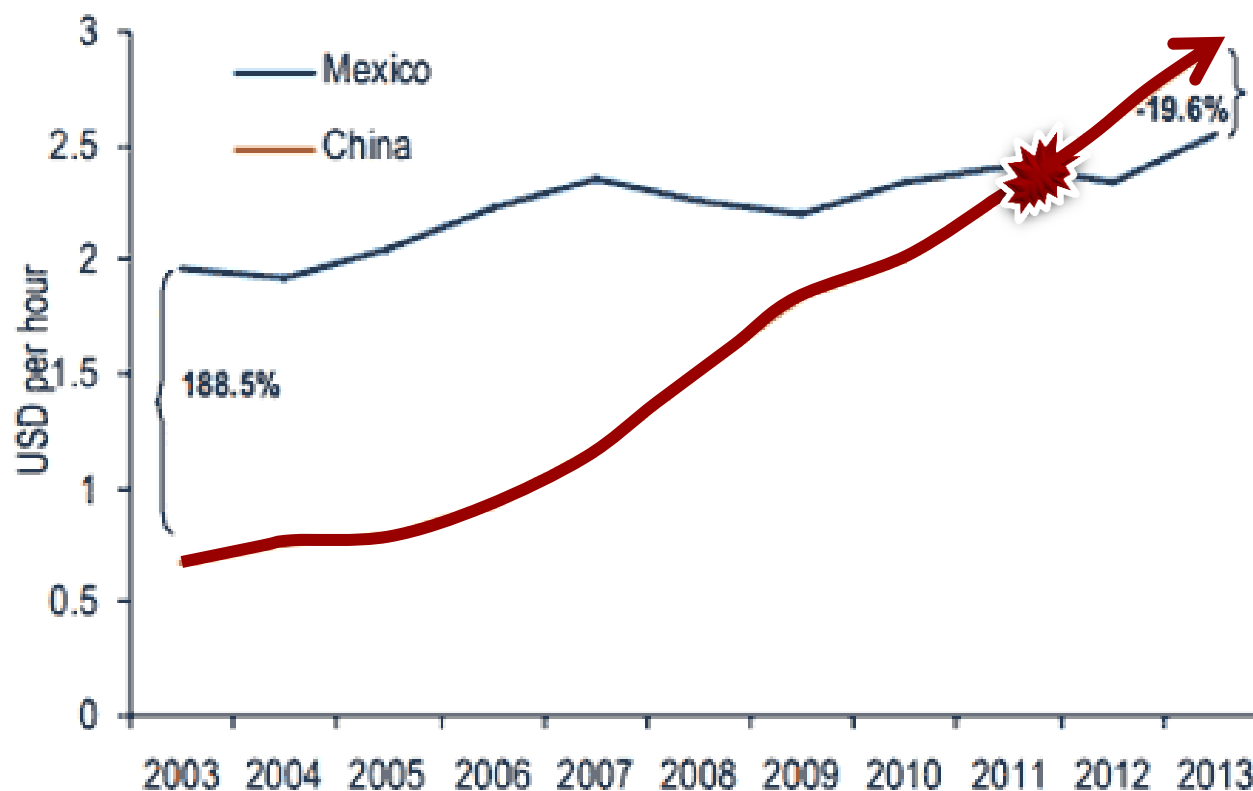


US



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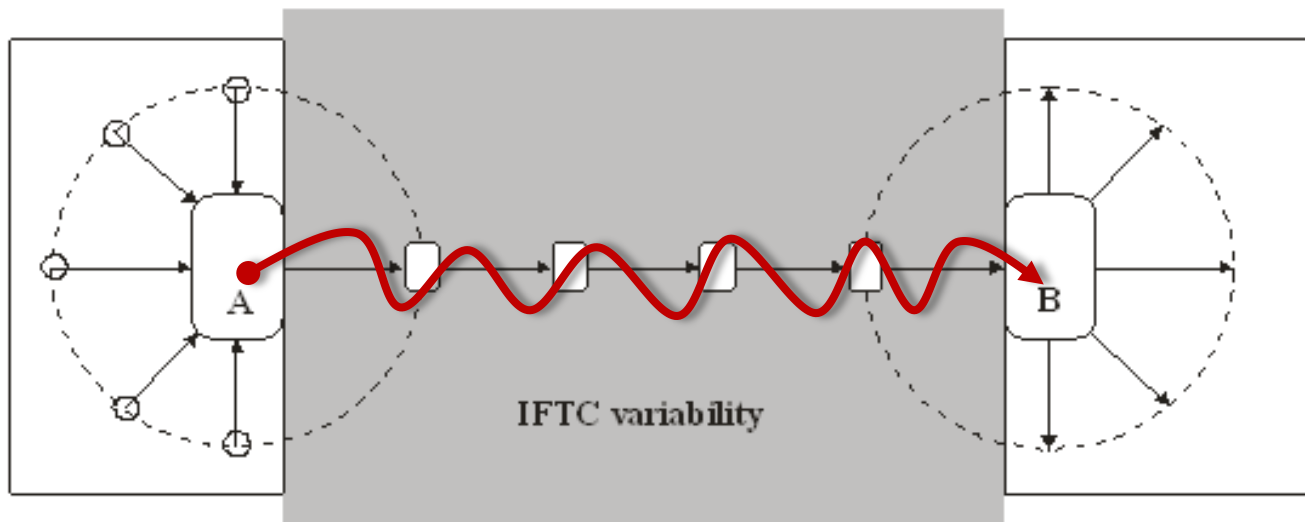
Chart 1: Mexico has overturned China's hourly wages



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RELIABILITY OF LOGISTICS PERFORMANCE

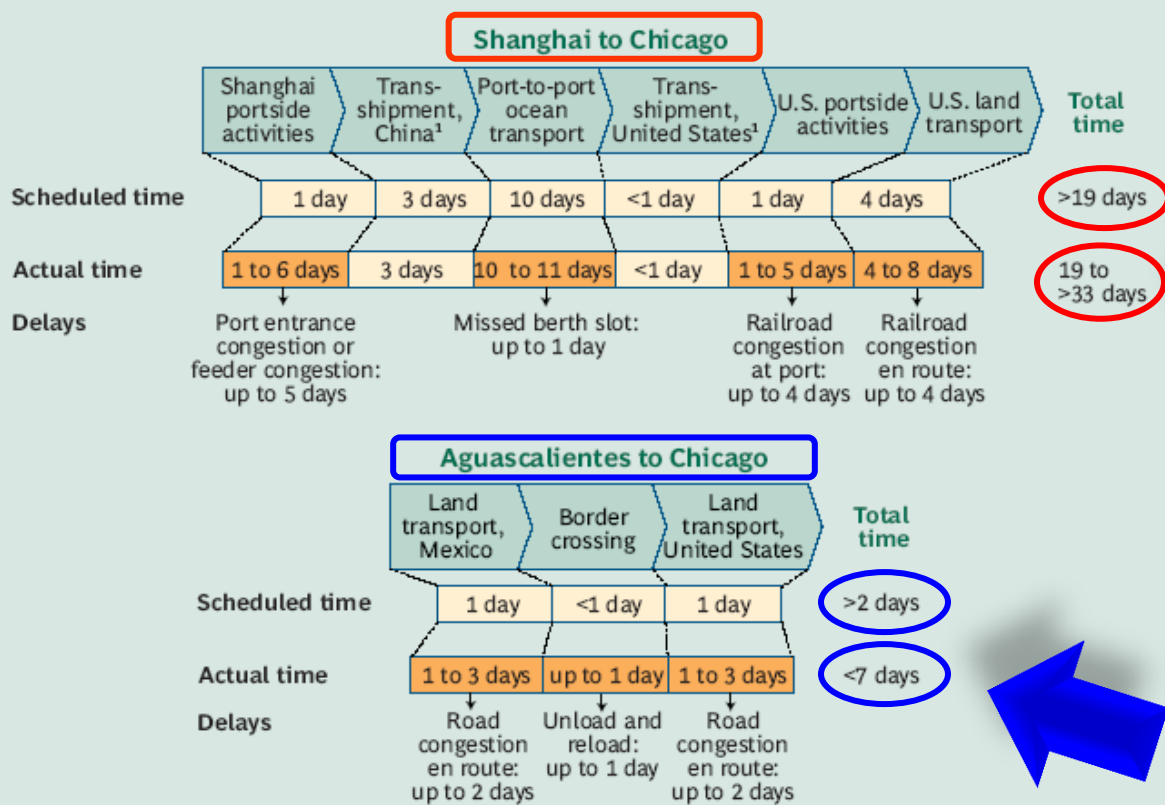
The impact of specific improvements in **logistics performance** (time, cost, and **reliability**) on increased trade.¹



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¹ Hausman, Lee and Subramanian (2013). "The Impact of Logistics Performance on Trade". *Production and Operations Management*, Volume 22, Issue 2, pages 236–252.

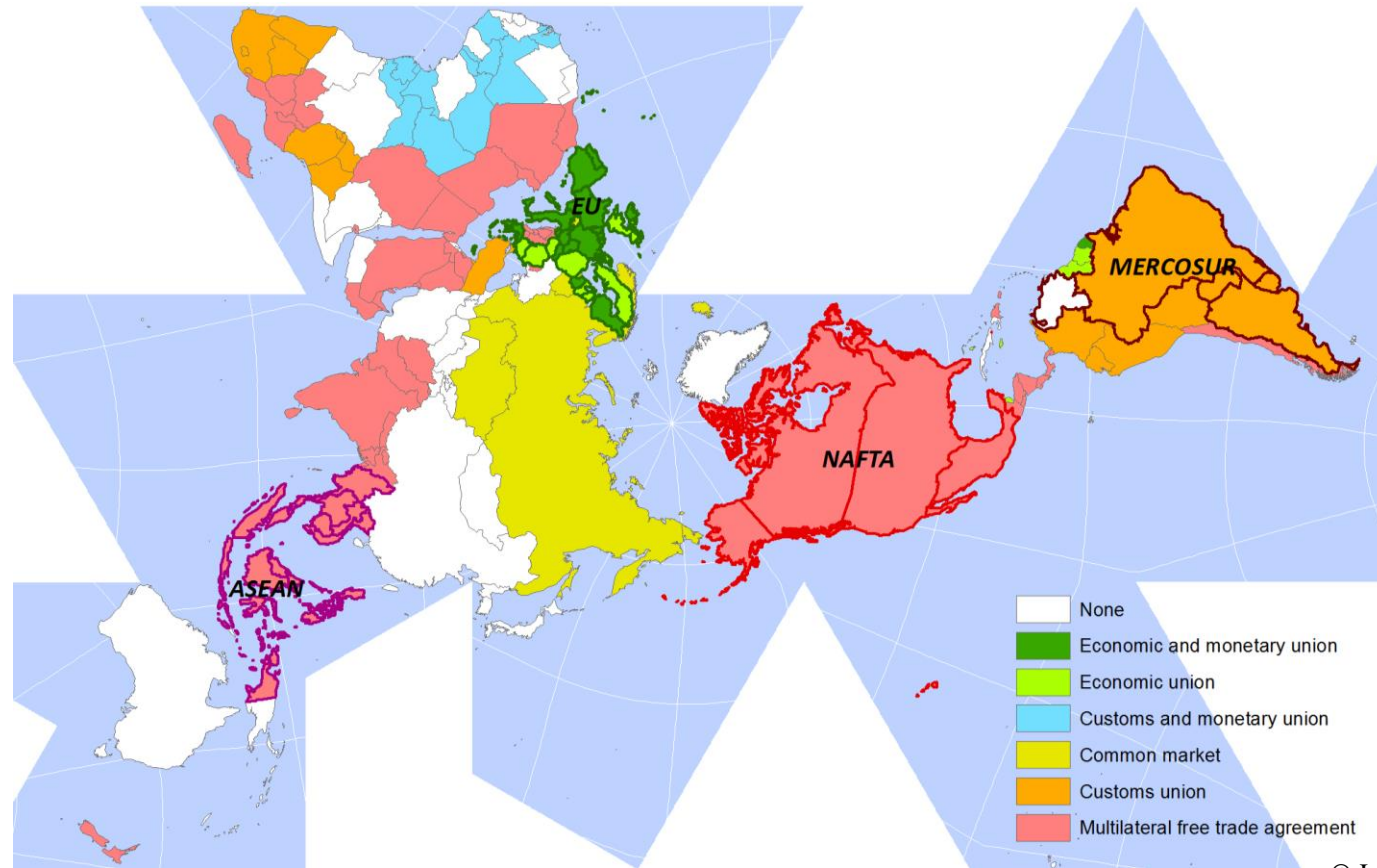
Exhibit 3. Shipping from China to the United States Is Slower and Less Predictable Than Shipping from Mexico



Source: BCG analysis.

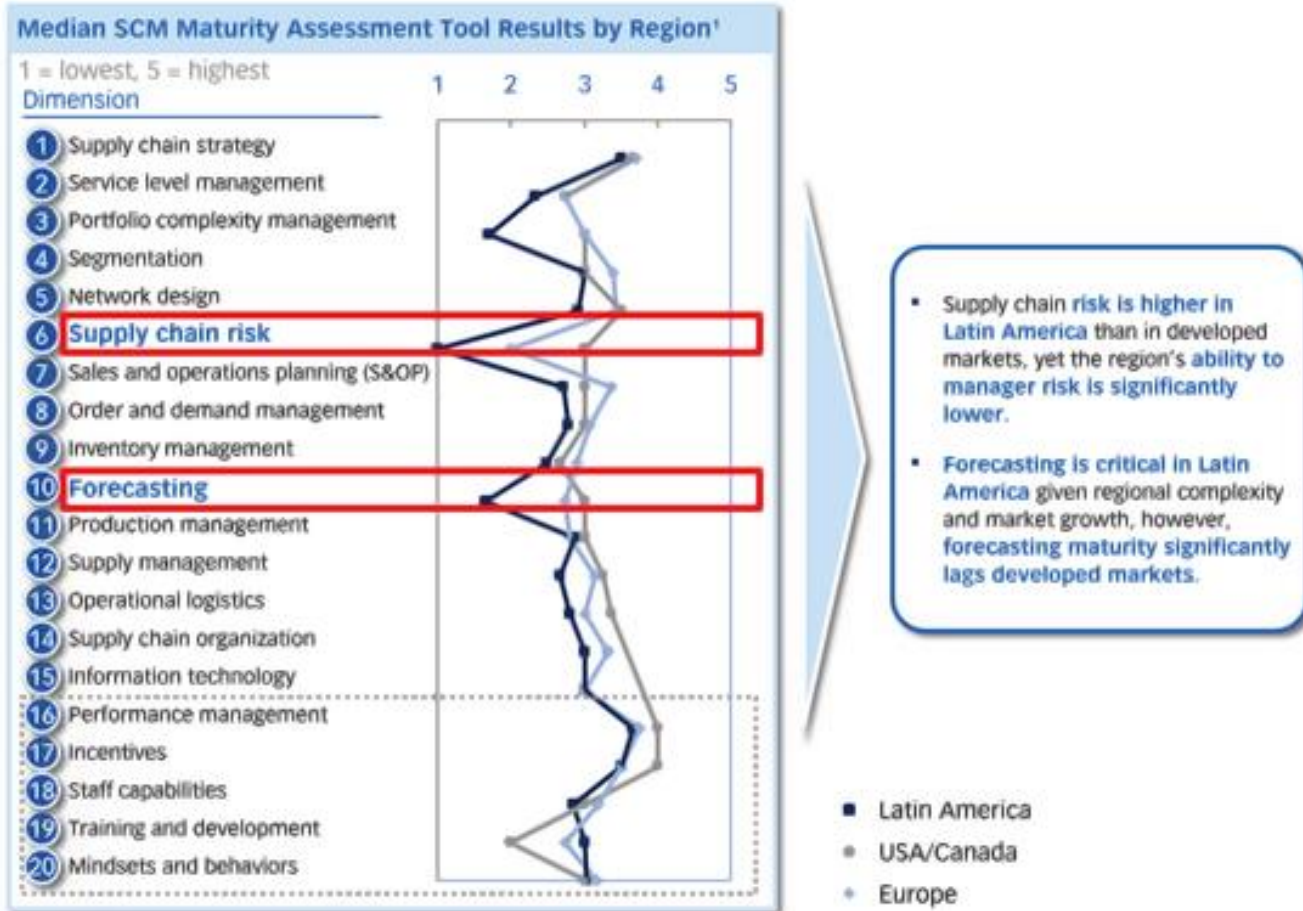
¹Transshipment is the transfer of a container from one conveyance to another, such as from truck to ship or vice versa.

REGIONALIZATION



LATIN AMERICA'S SUPPLY CHAIN MATURITY GAPS

Gaps in Latin America's supply chain maturity are largest in areas that are critical to managing the complexities of the region.



1. Median scores by region, McKinsey's SC360 tool, consumer packaged goods (CPG) industry

2. Average of median scores by region, McKinsey's SC360 tool, consumer packaged goods (CPG) industry

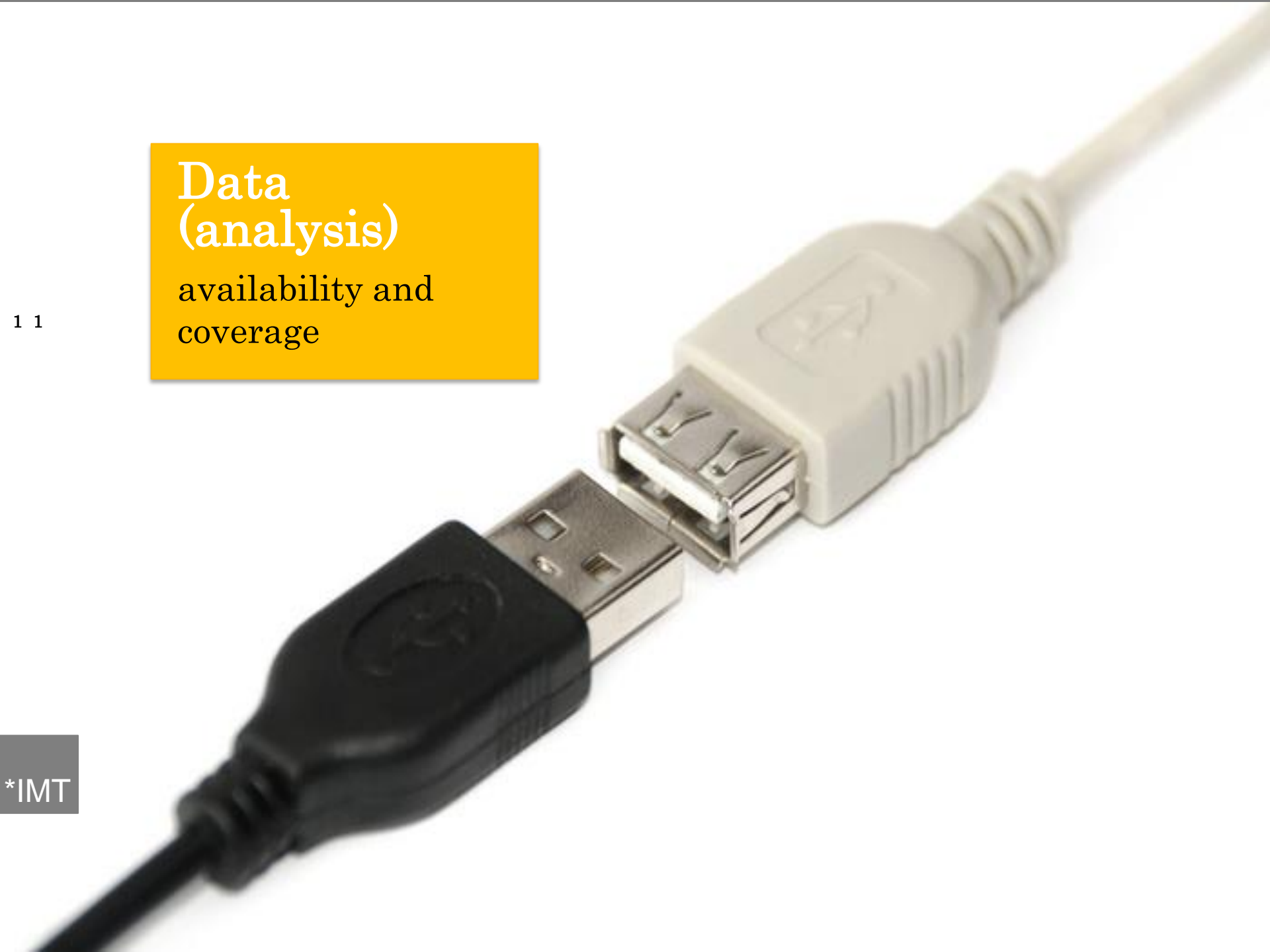
3. www.istoedineiro.com.br

Data (analysis)

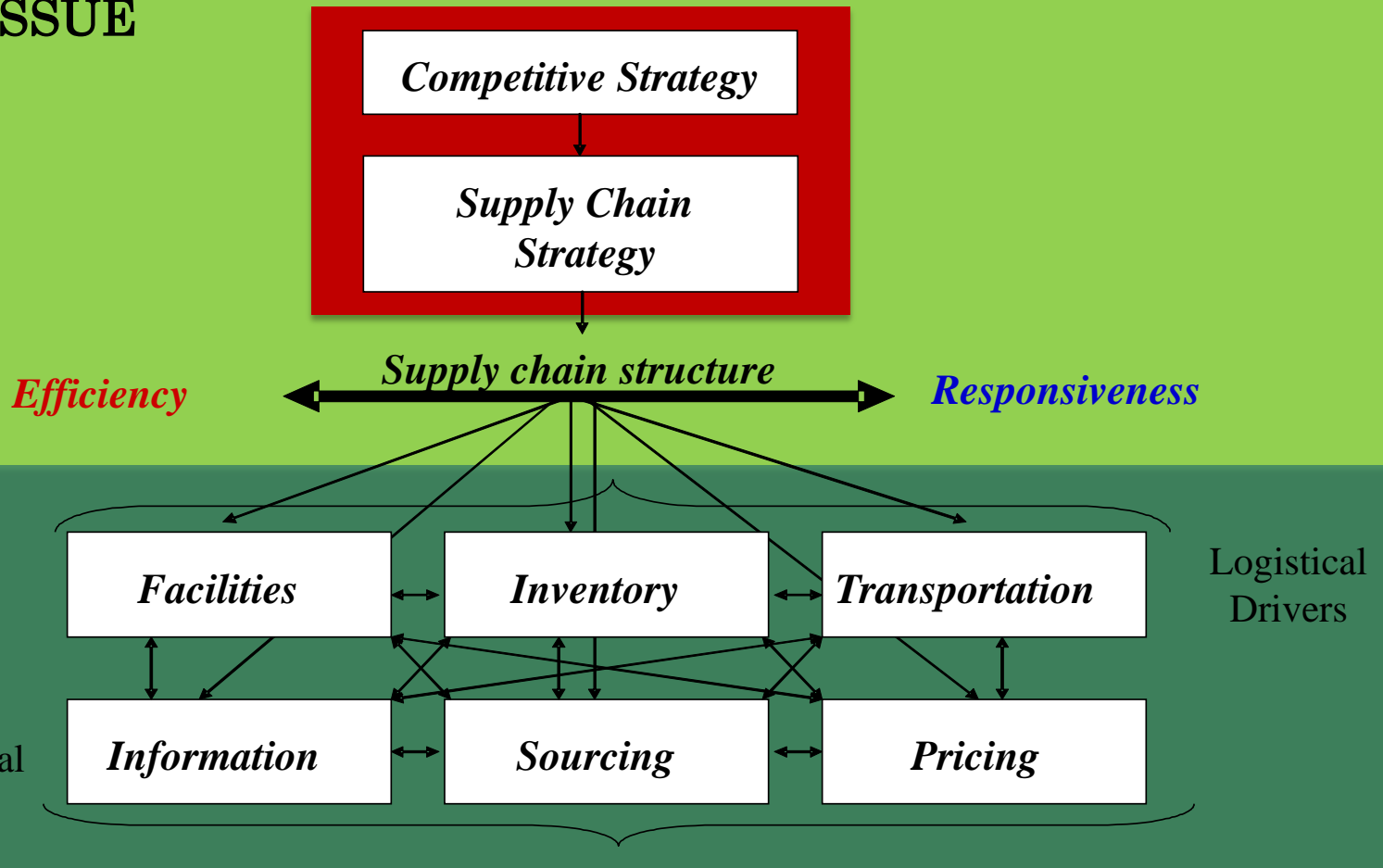
availability and
coverage

1 1

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KEY ISSUE



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SUPPLY CHAIN PERFORMANCE MEASUREMENT STUDIES

- No alignment between a national competitive strategy and supply chain strategy;
- No statistical significance / methodology is not clearly exposed;
- Public approach are not part of the analysis;
- No private - public collaboration (for sharing data).

Measurement

Approaches

AN ACADEMIC PERSPECTIVE

Objective

- **To identify** methodologies when performing research in supply chains.

Analysis:

- Theory building;
- Surveys;
- Case studies;
- Action-Research;
- Modelling



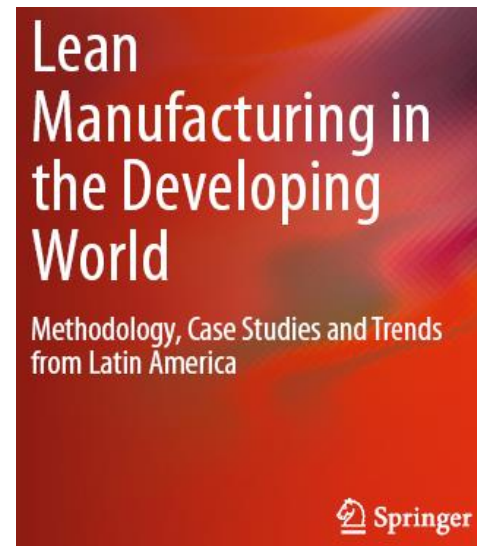
AN ACADEMIC PERSPECTIVE

Objective

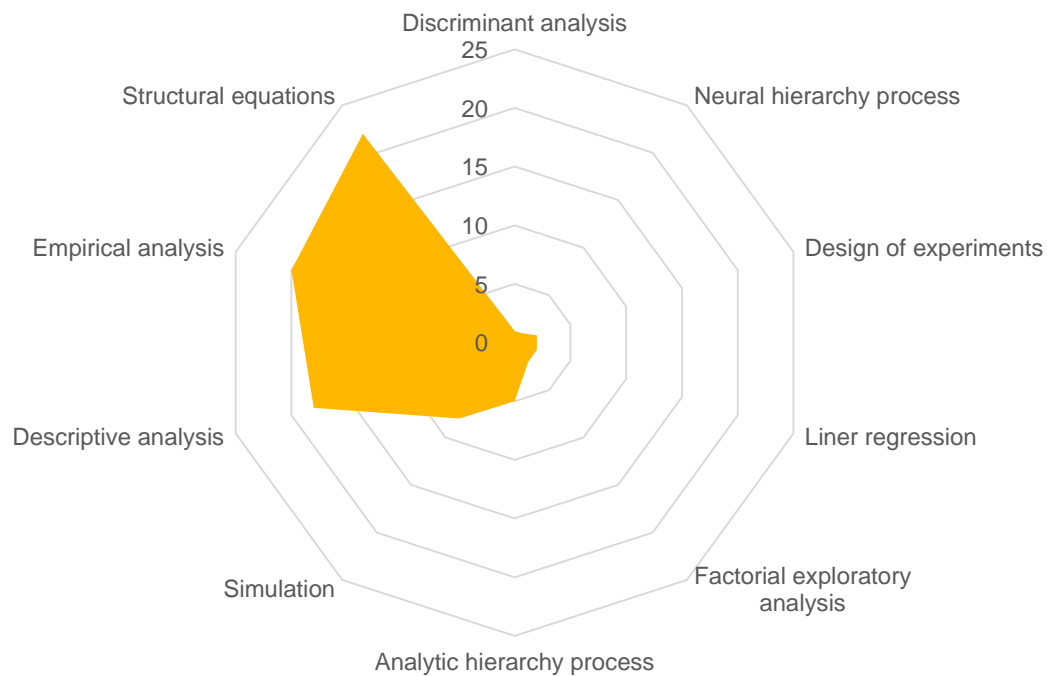
- **To identify** methodologies when measuring supply chain performance under a manufacturing context in emerging markets;

Method:

- Literature review (95 papers);
- Database integration;
- Statistical analysis (SPSS).



AN ACADEMIC PERSPECTIVE



AN ACADEMIC PERSPECTIVE

Main findings

- Two different perspectives: i) financial; ii) operational;
- Most of the papers used only one methodological approach;
- The use of more than an approach to measure SC performance is increasing;
- More attributes are currently being integrated to SC performance analytics.



LatAm perspective

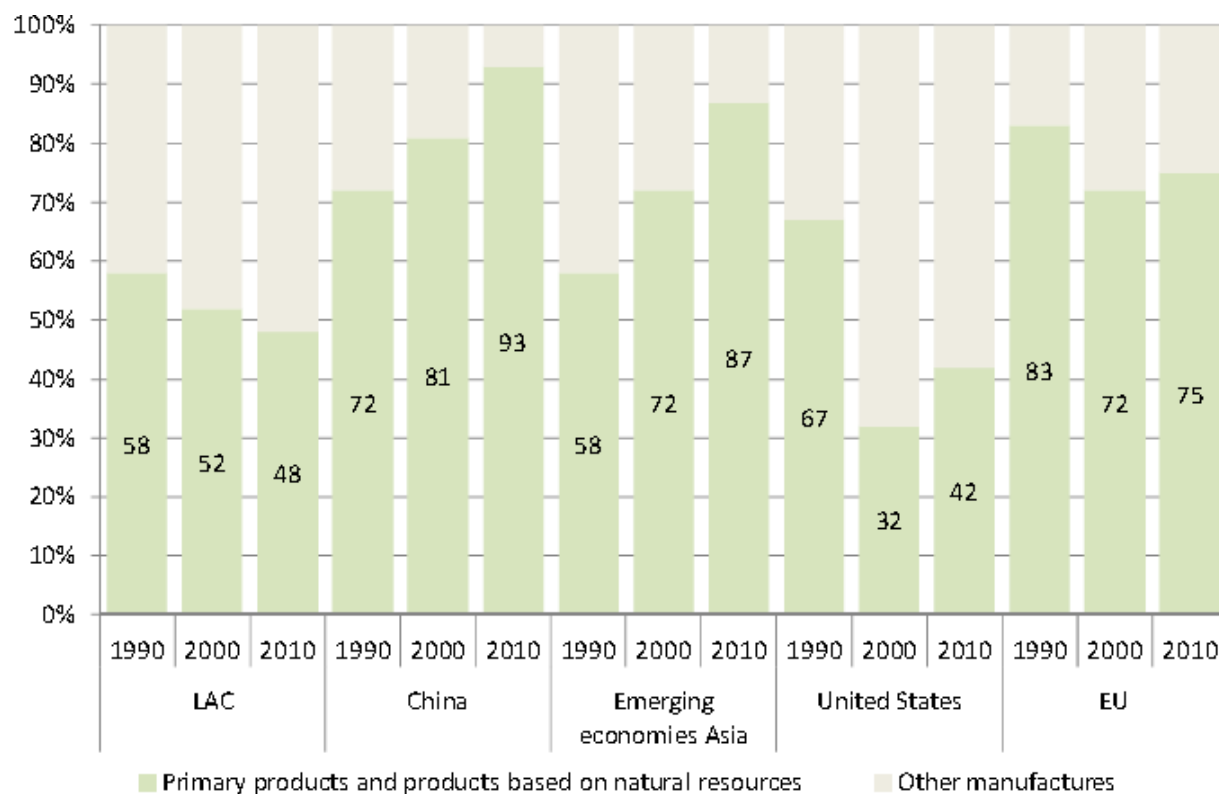
Logistics Cost

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CHALLENGES INCREASING LOGISTICS COSTS

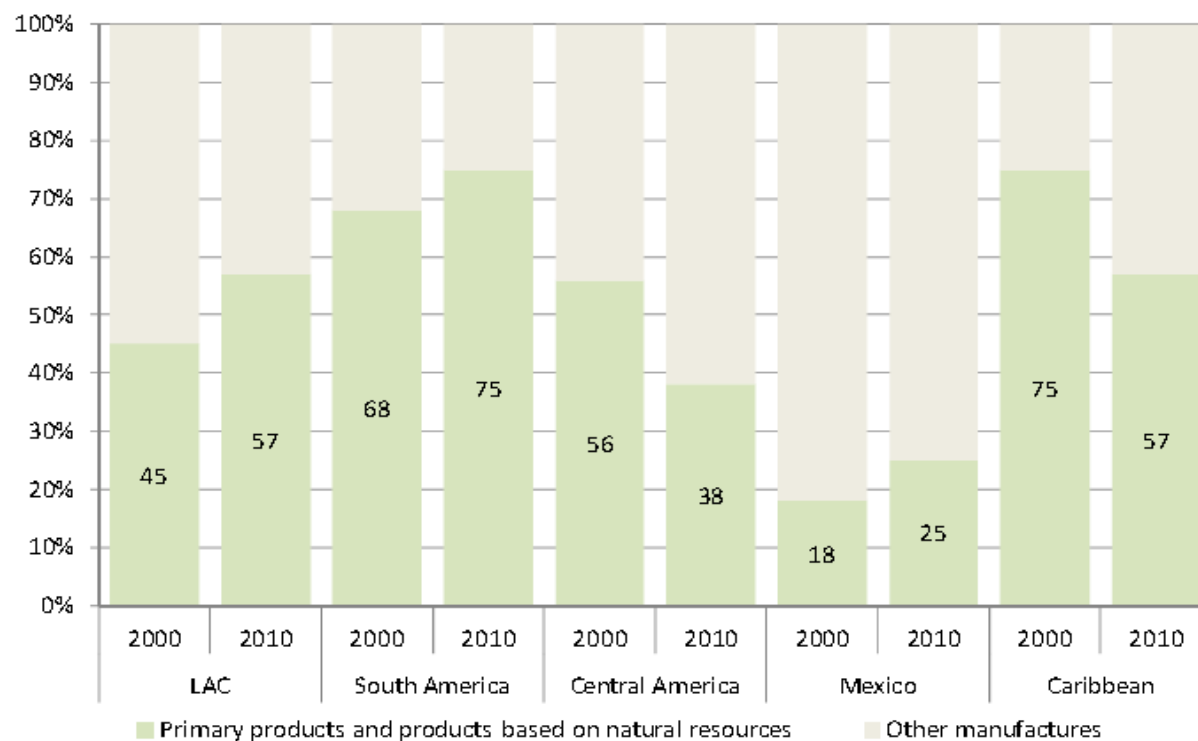
- Infrastructure scarcity;
- Low logistics connectivity;
- Multidimensional issues at border crossings;
- Regulatory rigidities;
- Informality of transport and logistics providers;
- Differences in regulations;
- Security issues;
- Low visibility along the supply chain

LATAM EXPORTS BY REGION



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LATAM EXPORTS INTRA REGION

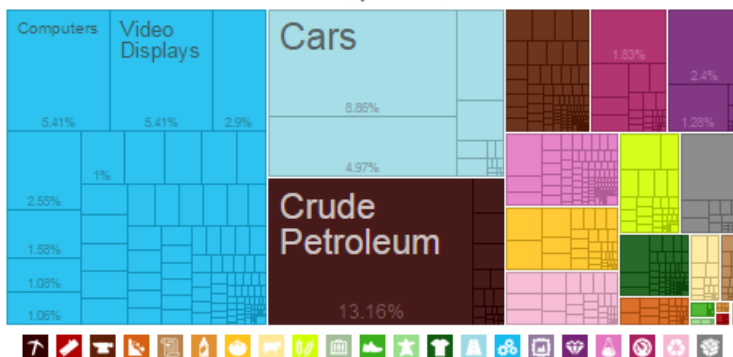


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MEXICO

WHAT DOES MEXICO EXPORT?

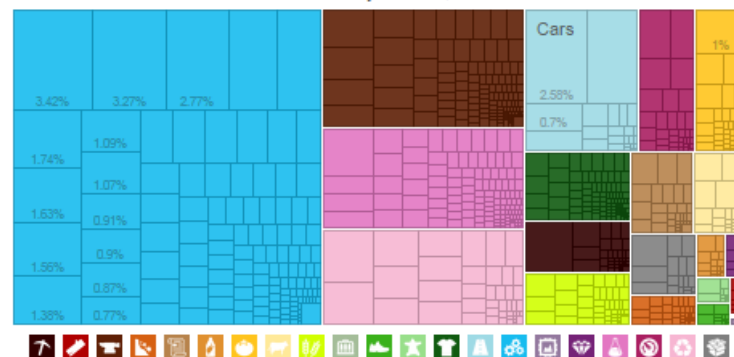
Products exported by Mexico
Total Country Trade: \$349B



WHERE DOES MEXICO EXPORT TO?

WHAT DOES MEXICO IMPORT?

Products imported by Mexico
Total Country Trade: \$295B

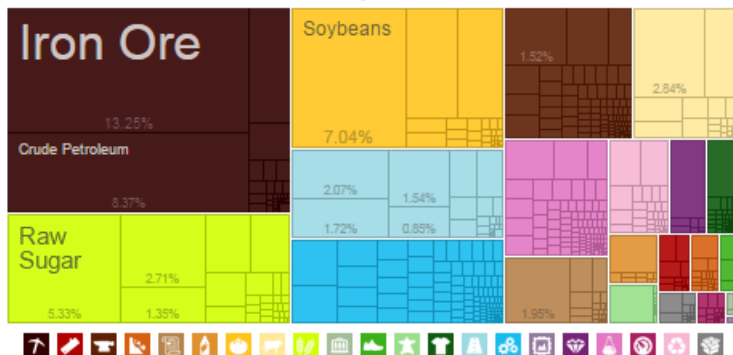


WHERE DOES MEXICO IMPORT FROM?

BRAZIL

WHAT DOES BRAZIL EXPORT?

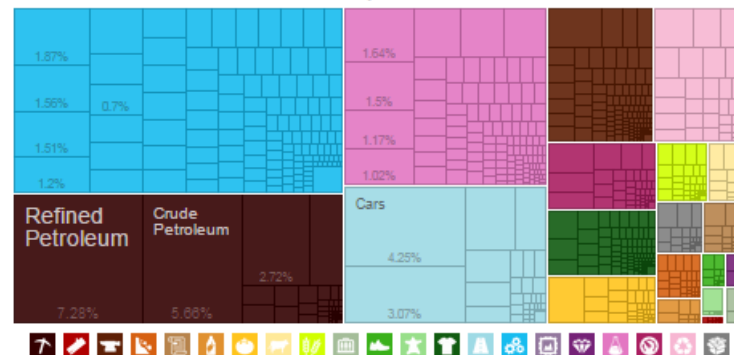
Products exported by Brazil
Total Country Trade: \$247B



WHERE DOES BRAZIL EXPORT TO?

WHAT DOES BRAZIL IMPORT?

Products imported by Brazil
Total Country Trade: \$223B



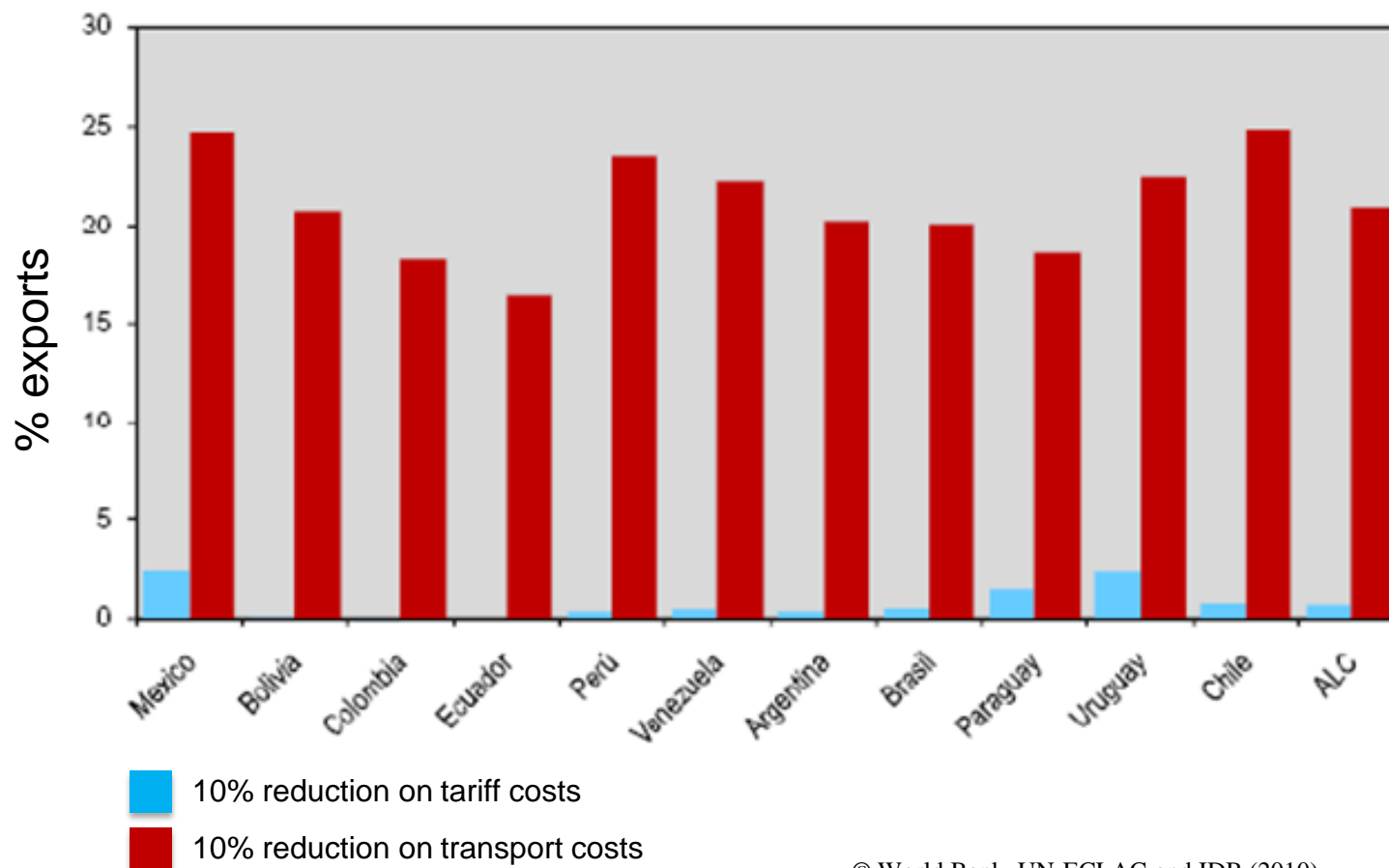
WHERE DOES BRAZIL IMPORT FROM?

TRADE FACILITATION INDICATORS

Indicator	LAC	OECD
Documents required for export (no.)	6	4
Time required for export (days)	17	10
Cost of export (dollars per container)	1 268	1 028
Documents required for import (no.)	7	5
Time required for import (days)	19	10
Cost of import (dollars per container)	1 612	1 080

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TARIFF VS. TRANSPORT COSTS



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COST CATEGORIES

Cost Category	Description
Pre-shipment	Costs related to the activities performed for cargo handling prior to its shipment to its final destination such as: i) packing; ii) labeling; iii) consolidation of cargo and storage of products; and finally, iv) transport of cargo among facilities. It also includes the cost of the activities related to cargo inspection and certifications required by any public agencies.
Shipment to the port of origin	Costs of the land transport from the warehouse of the exporter to the port terminal where it will be transferred.
Port/ Airport/ Border entry	Costs for cargo handling at the port/airport terminal where the cargo will be loaded to a ship. It also includes all the related costs for delays at the gate and within the terminal.
Customs and control agencies	Costs incurred for Customs and other control agencies for the inspection, control and clearance procedures. It also includes those costs incurred for certifications and inspections required by the customer or the country of destination. For the case of road transport, it also includes those costs incurred at the borders.
Shipment to destination	Costs related to the freight shipment that could be either by road, air or sea. It also considers any other handling costs as well as insurances.
Inventory and Finance	Costs such as in-transit inventory costs as well including those incurred due to waiting times. In addition, supplementary costs that resulted because of delays or lead times variability are considered in this category.

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PROPOSED APPROACH: ANALYSIS OF LOGISTICS CHAINS

1. Selection of logistics chains;
 - a. Map of relevant logistics chains;
 - b. Selection of logistics chains;
 - c. Definition of cost categories;
 - d. Identification of information sources;

PROPOSED APPROACH: ANALYSIS OF LOGISTICS CHAINS

2. Cost and over cost analysis;
 - a. Map of relevant logistics processes;
 - b. Cost and over cost analysis to every logistics chain;
 - c. Analysis of logistics inefficiencies and its impact by economic sector as well as to national competitiveness;

PROPOSED APPROACH: ANALYSIS OF LOGISTICS CHAINS

3. Recommendations and proposals to improve public policies;
 - a. Analysis and recommendations;
 - b. Conclusions;

Supply chain clustering

The next logistics paradigm?

KIA

KIA MOTORS



3
2

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INDUSTRIAL SECTOR

4/18/2014

Mexico overtakes Japan as No 2 car exporter to US | Business Recorder

Mexico overtakes Japan as No 2 car exporter to US

April 11, 2014

[LAURENT THOMET](#)

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7th Global car-producing country

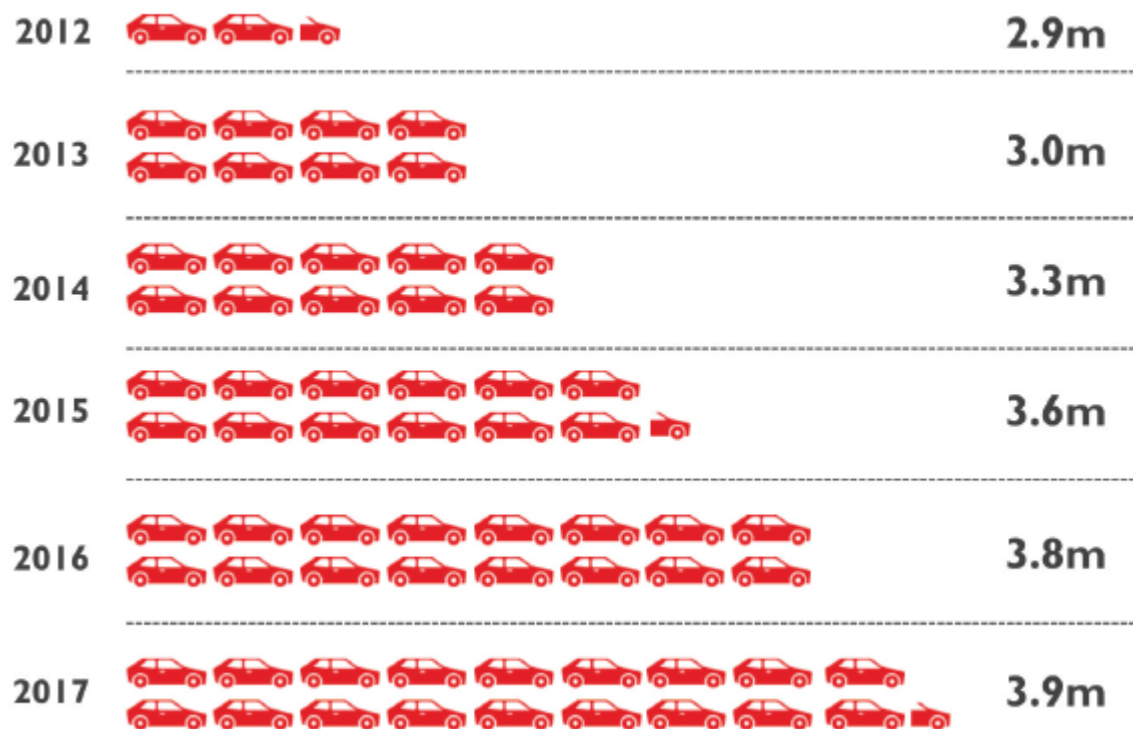


**BUSINESS
RECORDER**

Mexico's booming auto industry has reached a major milestone, claiming to have overtaken Japan as the second biggest car exporter to the United States in the past three months. The Latin American nation now only trails Canada, but experts say Mexico could become the top exporter to its northern neighbour as soon as 2015, a potent symbol of its growing global clout in the sector. Industry analysts had expected Mexico to surpass Japan by the end of the year, but the Mexican Automobile Industry Association (AMIA) says it has happened faster than expected.

AUTOMOTIVE INDUSTRY

By 2017, Mexico's Auto Production Expected to Increase by 1 Million Units



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AUTOMOTIVE SUPPLY CHAINS

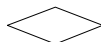
Raw materials
suppliers



Suppliers
Tier 2



Distribution
centers



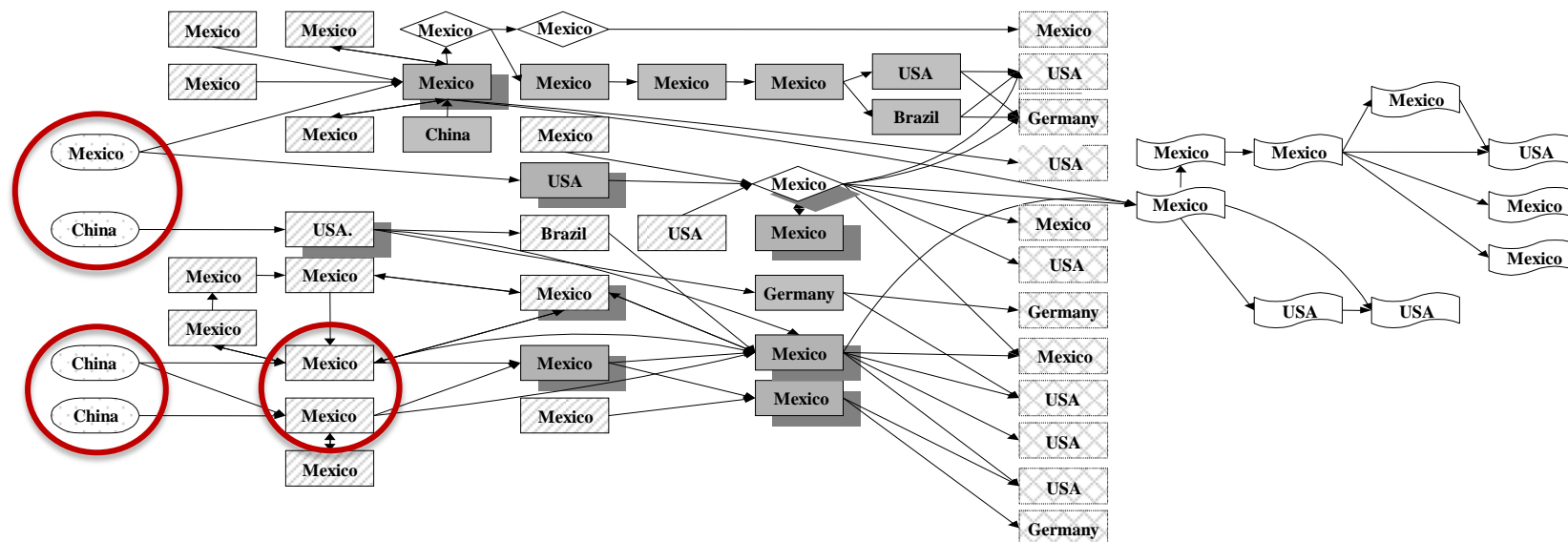
Suppliers
Tier 1



Assembly
plants



After
Market



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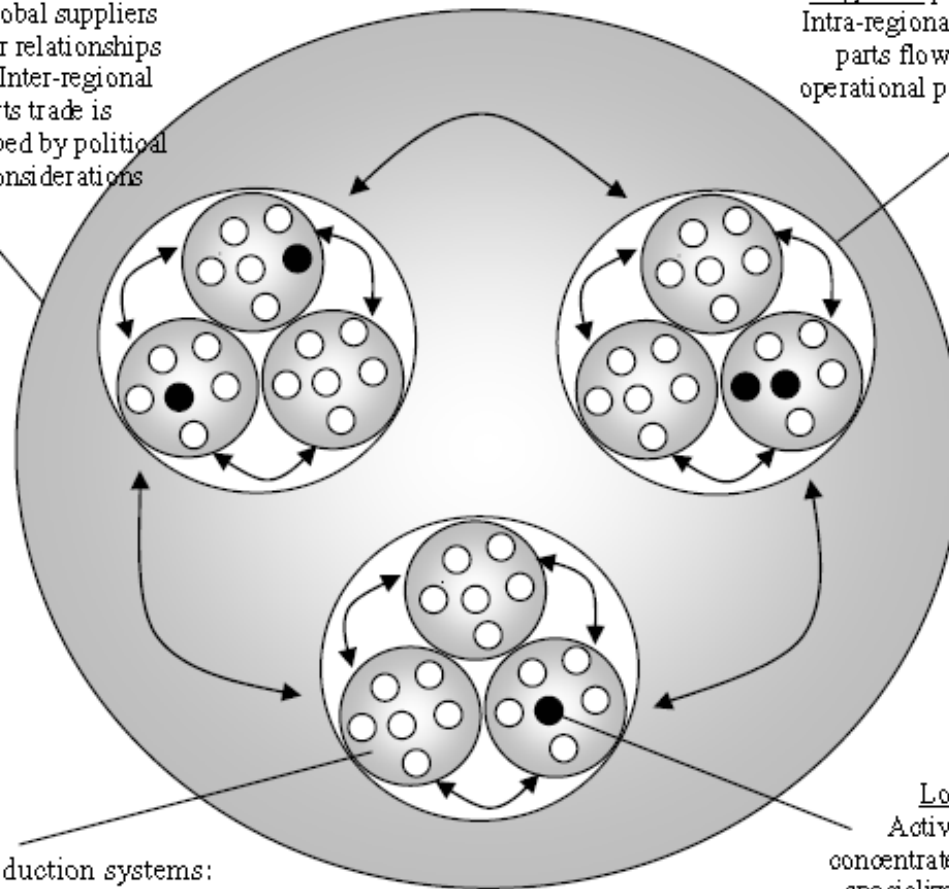
AUTOMOTIVE SUPPLY CHAINS

Selling to:			
Supplying to:	GM	Ford	Chrysler
Chrysler	56	64	-
Ford	51	-	54
GM	-	70	66
Asian OEM	58	65	59
European OEM	37	46	44

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A global industry:
Automakers and global suppliers form buyer-supplier relationships on a global scale. Inter-regional vehicle and parts trade is substantial, but capped by political and operational considerations

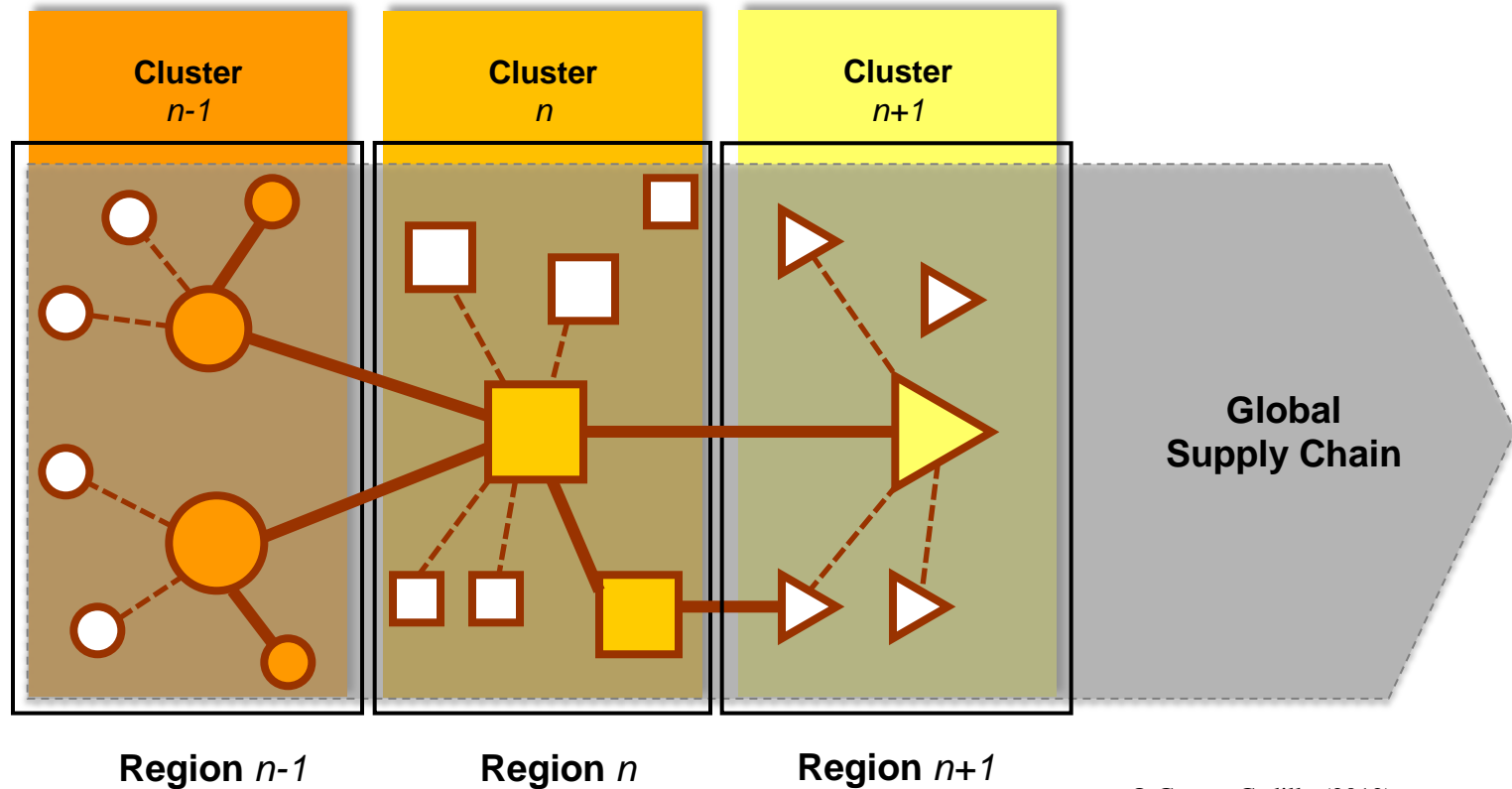
Regional production systems:
Intra-regional finished vehicle and parts flows are the dominant operational pattern in this industry.



National production systems:
Domestic production is still very strong in this industry, and still dominates many national markets.

Local clusters:
Activities tend to be concentrated within clusters of specialized activity, such as
● design and ○ assembly

SUPPLY CHAIN CLUSTERING

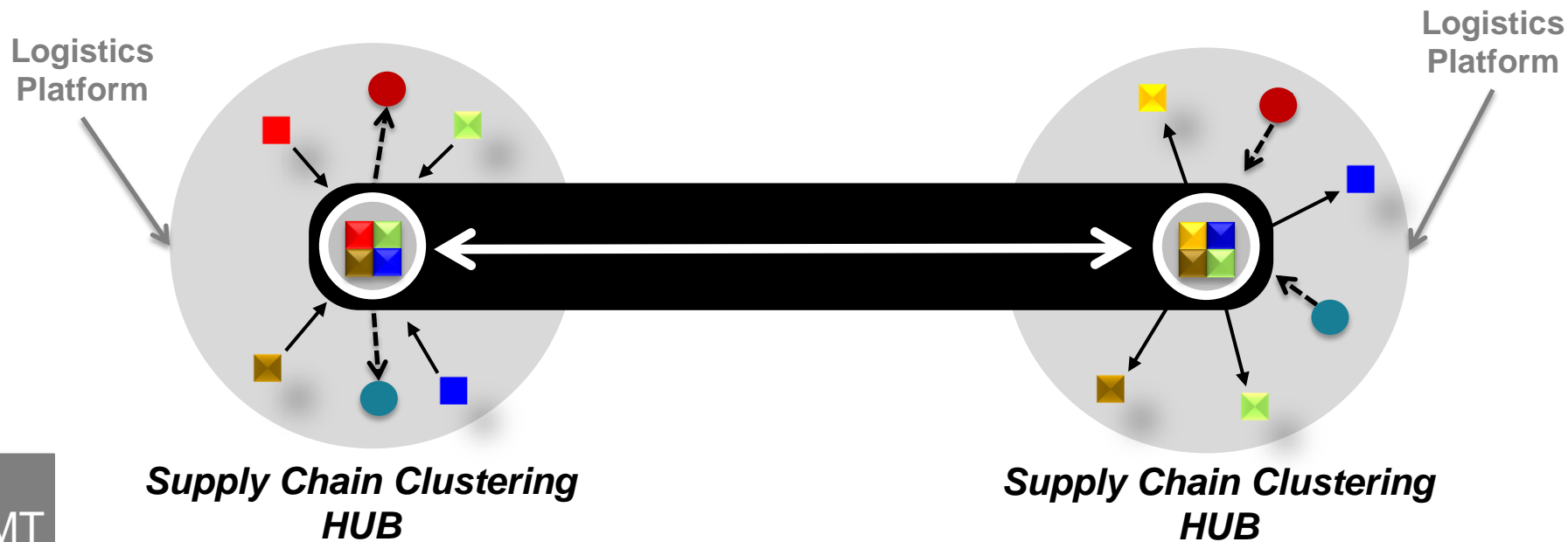


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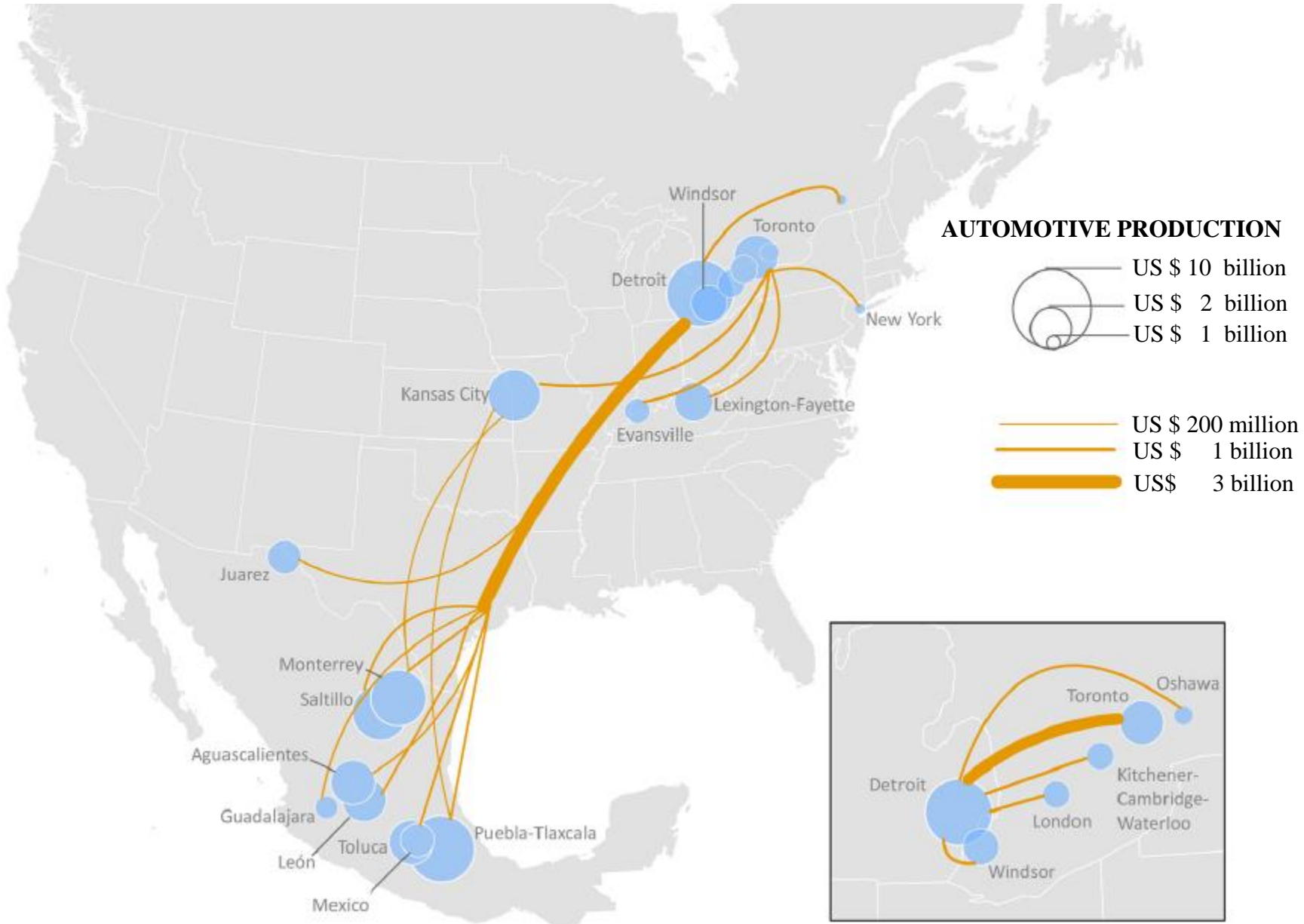
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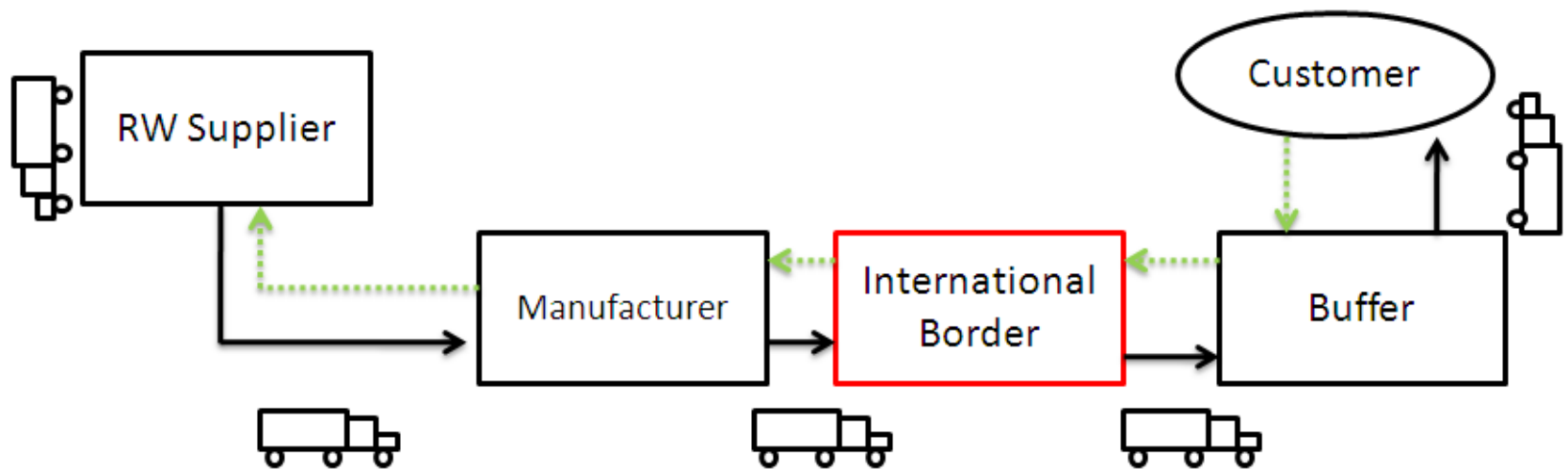
SUPPLY CHAIN CLUSTERING



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KEY ISSUE



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DISRUPTIONS PROPAGATION

Transportation Research Part E 61 (2014) 1–12



Contents lists available at [ScienceDirect](#)

Transportation Research Part E

journal homepage: www.elsevier.com/locate/tre



Dynamic impact on global supply chains performance
of disruptions propagation produced by terrorist acts



Alfredo Bueno-Solano^a, Miguel Gastón Cedillo-Campos^{b,*}

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CROSS-BORDER EFFECT

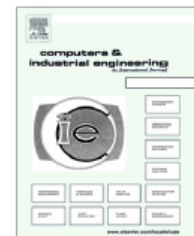
Computers & Industrial Engineering 72 (2014) 261–273



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Computers & Industrial Engineering

journal homepage: www.elsevier.com/locate/caie



Supply chain dynamics and the “cross-border effect”: The U.S.–Mexican border’s case



Miguel Gastón Cedillo-Campos^{a,*}, Cuauhtémoc Sánchez-Ramírez^b, Sharada Vadali^c, Juan Carlos Villa^c, Mozart B.C. Menezes^{d,e}

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^e ICN Graduate Business School, 13, rue Michel Ney, 54000 Nancy, France

TAKEAWAYS

- **Cost** remains critical;
- **Supply chain reliability** is now a key element of economic performance;
- A systems approach to improve **LatAm supply chain performance** (reliability in time, cost, and service) is critical;
- As a result of economic regionalization, Could be Supply Chain Clustering another element in measuring supply chain performance?;
- Serious effort has to be done for improving reliability when performing data collection and analytics.

A man in a dark suit, light blue shirt, and dark tie is holding a small white circular object in his right hand. The object has the International Transport Forum logo on it. The background is dark and out of focus.

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