Challenges of Developing a Logistics Hub

Dr. H. Donald Ratliff
Regents Professor of Logistics
Executive Director – Supply Chain & Logistics Institute
Georgia Tech Supply Chain & Logistics Research and Innovation Centers

- Supply Chain Strategy
- Warehousing & Distribution
- Supply Chain Technology
- Global Transportation
- Health and Humanitarian Logistics
- Resource Scheduling
- Integrated Food Chain
- Manufacturing Logistics
- Logistics & Trade Innovation Centers
- Singapore
- Panama
- Atlanta
- Mexico
- Costa Rica
• Supply chains are not well understood or documented
• Base manufacturing, assembly and sales are often in different countries
• Competition among countries to be included in the chain is increasing
• Complexity and lack of standards make integration difficult
• Increasing fuel cost and lack of capital encourage shorter trade routes
• Shippers are increasingly relying on a “total landed cost” approach to making supply chain decisions
Latin American Logistics and Trade

- Poor logistics performance is a major impediment to trade growth in most of Latin America.
- Each potential trade route must compete based on its cost, transit time and dependability.
- Trade routes generally involve a combination of land and sea components or land and air components, serve multiple customers and products.
- Countries have generally taken a “siloed” approach to investment and regulation that considers the components, customers and products independently.
- Countries must base their policies and investments on a “supply chain” view of the network with a focus on assuring performance of the entire chain in order to increase trade.
- Logistics hubs are a critical component of trade networks but not every location can be hub.
- There is a need for methodologies and analytical tools to assess where countries should invest in their logistics networks.
Trade Network Performance Drivers

• Geography
• Infrastructure
• Connectivity
• Transportation costs and time
• Trade movement requirements
• Shipping dependability
• Transport and trade regulations
Geography

• External geography
  – Positioning of a country with regards to other countries
  – Locations of a country’s points of connectivity such as ports and border crossings
  – Tendency for countries to trade more if they have good external geography
  – Changing external geography either impossible or very expensive (e.g., Panama Canal)

• Internal geography
  – Positioning of the points of generation and consumption of goods within a country relative to each other
  – Positioning of the points of generation and consumption of goods within a country relative to other countries
  – More flexibility in changing transportation times than distances
Infrastructure

- Seaports and roads make up the main infrastructure for intermodal sea network
- Seaports are limited by depth, berth space, storage space and equipment
- Roads are limited by traffic
Of these ports only Panama and DR can handle new-panamax ships.
Connectivity

- In order for infrastructure to provide value, shipping lines must actually use the infrastructure to provide transport services.
- The “connectivity” of a port is the capability actually provided by shipping lines to move containers between the port and other ports in the world.
- Two ports can be connected either directly or via transshipment.
- Transshipment requires the cost of unloading and reloading the container.
- Both seaports and airports are largely at the mercy of the carriers regarding connectivity.
- Different levels of connectivity.
How does transshipment in Panama impact inventory?

- Potential
  - Fewer multi-stop routes
  - More frequency
  - Less in-transit time
- Particular opportunity for “big” ships
Measuring Connectivity Potential for Transshipment

Betweenness based on time vs PCI score: Ports scaled by total degree

- Shanghai
- Singapore
- Kaohsiung
- Port Kelang
- Busan
- Manzanillo, Mx.
- Puerto Limon
- Cartagena
- Rio Haina
- Culceco
- Salalah
- Vostochni
- Port Said
- Algeciras
- Kingston
- Balboa
- Manzanillo, Pa.
Transportation Costs and Times

- **Direct cost of transportation and cost of inventory caused by transportation**
  - Transportation transit time causes in-transit inventory
  - Transit time variability causes safety inventory
- **Direct cost of sea versus land**
  - Sea is cheaper if the distance is sufficiently long
  - The cost of each container lift is about $200
  - Each sea shipment requires at least 2 container lifts
  - Transshipment requires 2 additional container lifts
  - Distance must be long enough to offset the lift cost
Intermodal vs. Land Cost for Central America Ports

Intermodal vs. Land rates

- Intermodal
- Land
• **Value of a 40 ft container of product**
  - Typical Asia to US direct retail = $50,000
  - Furniture = $75,000
  - Small electronics = $300,000
  - Sport shoes = $1,500,000

• **Companies calculate inventory cost as a percent (8% - 20%) of inventory value**
  - A 40’ container of retail Asia/US direct = ($50,000*8%)/365 = $11/day
  - A 40’ container of sport shoes = ($1,500,000*8%)/365 = $329/day

• **Inventory requires capital**
  - Inventory appears on the balance sheet as a capital asset
  - When capital is hard to get companies are forced to reduce inventory
Impact of Frequency of Port Calls

- Daily service Panama to New York transit time = 3 days
- Weekly service Panama to New York transit time = 3 days
  - Max time = 10 days
  - Min time = 3 days
  - Ave time = 6.5 days
- Weekly service adds 3.5 days average inventory
Trade Movement Requirements

- What needs to be moved and when is critical to analysis of transportation networks
- Reasonably good data from customs regarding value and weight of trade between countries
- Generally not good data regarding container shipments between ports
- Generally not good data regarding shipments within countries
- InterAmerican Development Bank is developing “observatories” to address the data problem
- MesoAmerica observatory located in GT Panama Logistics Center
Trade Movement Requirements using Montevideo?

- Uruguay imports and exports
- Argentina, Brazil, Paraguay and Chile imports and exports
- Generally difficult to get adequate data for analysis
- Country to country trade data is available
- Port to port data is mostly not available
- Interamerican Development Bank is developing “observatories”
- Panama Center will house Mesoamerica observatory
Uruguay Exports to Neighbors

- Not sufficient for in-depth logistics analysis!
Shipping Dependability

• Ideally a supply chain works like a conveyor belt
• Dependability of each node and link in the trade network is extremely important to shippers and carriers
• Variability in transit times requires shippers to carry inventory to protect against running out of product
• Whenever there is a disruption in the network, the impact cascades out from the point of disruption
• Transshipment points are particularly critical
Example - Panama Disruption

- Ideally Panama’s ports function as a single port
- Port of Balboa is the largest container port in Latin America with about 2 million containers (3.2 million TEUs) handled in 2011
- About 93% of these containers are transshipped
- Balboa shut down for a few days in April 2012 due to labor problems
- On the worst day one carrier had more than 80,000 containers that had to be repositioned
- Effect cascaded
- Months to return to normal
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Transport and Trade Regulations

- Customs
- Inspections
- Special economic zones
Keys to Successful Logistics Network Development

• **Analysis**
  – Geography
  – Infrastructure
  – Connectivity
  – Transportation costs and time
  – Trade movement requirements
  – Shipping dependability
  – Transport and trade regulations

• **Supply chain investment view**
  – All elements of the chain must perform well

• **Performance measures**
  – Transportation cost
  – Transit time
  – Dependability
Potential for Uruguay

- Sea/land hub – Brazil, Argentina, Paraguay, Chile
- Other countries find Brazil and Argentina difficult to do business with
- Chile and Paraguay are transportation challenged
- Uruguay is an attractive location for expats
- Uruguay needs to be “supply chain” focused
- Uruguay needs to make an concrete value case for being a hub