The Mechanisms of Logistics Policy: Connectivity and Coordination in the Intermodal Sector

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Do you believe in magic?

- Promote trade, particularly exports.
- Attract foreign investments in logistics and related sectors.
- Improve the efficiency of the national economy by reducing logistics costs.
- Create employment and economic opportunities.
- Develop managerial capabilities and innovations in logistics.
The Three Pillars of Logistics Policy: Realms of Intervention

**Actors**
- Manufacturers.
- Logistics service providers.
- Shippers.
- Terminal operators.
- Carriers.
- Retailers.
- Wholesalers.
- Regulators.
- Civil society.

**Operations**
- Trade (Customs).
- Procurement.
- Transformation.
- Manufacturing.
- Wholesale and retail.
- Transport.
- Storage.
- Distribution.

**Outcomes**
- Capacity.
- Costs.
- Timeliness.
- Reliability.
- Safety and security.
- Compliance.
- Competitiveness and openness.
- Transparency.

**Who?**

**What?**

**How?**
Logistics Policy Bottlenecks

**Capacity Bottlenecks**
- Lack of terminal or connector capacity.
- Lack or absence of intermodal options.

**Operational Bottlenecks**
- Lack of logistical services.
- Lack of logistical performance (cost, time and reliability).

**Institutional Bottlenecks**
- Lack of clear mandate and jurisdiction.
- Lack of coordination and cooperation.

**Skills Bottlenecks**
- Lack of labor flexibility.
- Lack of qualified labor.
- Lack of training programs.
Transport Connectivity

- Improving connectivity and interoperability of modes and terminals (intermodalism).
- Infrastructure and superstructure improvements (capacity and throughput).
- Synchronizing terminals and hinterland flows to increase throughput and reliability.
The Port Performance Value Chain

Maritime Operations
- Foreland
- Anchorage
- Berthing

Terminal Operations
- Port Terminal
- Storage Yard
- T1
- T2
- T3
- T4

Hinterland Operations
- Warehouse
- H1
- H2

Foreland
- Maritime Shipping Company

In port navigation
- Port Authority

Terminal Operations
- Terminal Operator

Hinterland
- Hinterland Operations

Automation Push
- Automated Ship to Shore Cranes
- Automated Gate Systems

Automated: navigation, tugs, mooring
Automated Guided Vehicles
Automated Stacking Cranes
Container Position Determination
Automated Trucks
Automated Warehouses
Transshipment Volume and Incidence by Major Ports, 2008-14
Commercial Integration

- Trade and commercial agreements. Mergers and acquisitions along the supply chain.
- Cost, time and reliability of transport and distribution services.
- Vertical and horizontal integration of actors and processes.
Vertical and Horizontal Integration in Port Development

Transport Chain

FORELAND (Horizontal Integration)

HINTERLAND (Vertical Integration)

Terminal
- Port
- Rail / Barge
- Distribution Center

Intermediate hub

Inland Port

Port Holding

Port Regionalization

Maritime Shipping

Port Terminal Operations

Inland Modes and Terminals

Distribution Centers
Container Terminal Surface of the World's Major Port Holdings, 2015
North American Intermodal Rail System

Port Traffic, TEU (2015)
- Less than 500,000
- 500,000 to 1.0 M
- 1.0 M to 2.5 M
- More than 2.5M

Intermodal Rail Terminals
- BNSF, KCS and UP
- CN and CP
- CSX and NS

Intermodal Trains per Year
- Less than 250
- 250 to 500
- 500 to 1,500
- More than 1,500

Canadian System (CN & CP)
Eastern System (NS & CSX)
Western System (BNSF, UP and KCS)
Mexican System (FYE)
Other (e.g. short lines)
Customs and Security Integration

- Moving cargo more efficiently across borders through prescreening and inspections.
- Harmonization of customs and security procedures.
- Assessments of cargo contents, cargo integrity, route integrity and information integrity.
Customs Fraud by Misclassification of Goods
Security Along a Maritime Transport Chain

Foreland

- Advance cargo information
- Pre-screening
- Cargo tracking

Port of Entry

- Scanning
- Inspections
- Single window

Hinterland

- Inland custom facilities
- Certifications (trusted traders)
- Audits
<table>
<thead>
<tr>
<th>Initiative</th>
<th>Type</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Targeting System (ATS)</td>
<td>Cargo screening</td>
<td>1999</td>
<td>Weighted model applied to inbound cargo manifests to assign risk factors.</td>
</tr>
<tr>
<td>Customs-Trade Partnership Against Terrorism (C-TPAT)</td>
<td>Certification</td>
<td>2001</td>
<td>Transferring some of the Customs responsibilities to importers and exporters to reinforce overall security levels. Benefits include reduced likelihood that containers of participating firms will be examined.</td>
</tr>
<tr>
<td>Container Security Initiative (CSI)</td>
<td>Cargo tracking and screening</td>
<td>2002</td>
<td>Increasing security related to ocean going containers by targeting and screening high risk containers bound for the US in a foreign port before they are loaded.</td>
</tr>
<tr>
<td>Megaports initiative</td>
<td>Cargo tracking and screening</td>
<td>2003</td>
<td>Installation of radiation detection equipment in key foreign ports. Reducing the illicit trafficking of nuclear and other radiological materials.</td>
</tr>
<tr>
<td>24 hour rule</td>
<td>Advance cargo information</td>
<td>2003</td>
<td>Implementing the cargo-related information at least 24 hours before a container is loaded aboard the vessel at the last foreign port.</td>
</tr>
<tr>
<td>Standards to Secure and Facilitate Global Trade (SAFE)</td>
<td>Certification</td>
<td>2005</td>
<td>Implementing C-TPAT and CSI security practices with foreign trade partners.</td>
</tr>
<tr>
<td>EU Authorized Economic Operator (AEO)</td>
<td>Certification</td>
<td>2008</td>
<td>Identifying reliable traders and providing them with trade facilitation measures.</td>
</tr>
<tr>
<td>Importer Security Filling and Additional Carrier Requirements (ISF, 10+2)</td>
<td>Advance cargo information</td>
<td>2009</td>
<td>Implementing the collection of cargo-related information by requiring information from both the importer (10 information elements) and the carrier (2 information elements) to be transmitted at least 24 hours before the goods are loaded.</td>
</tr>
<tr>
<td>EU Pre-arrival and Pre-departure</td>
<td>Advance cargo information</td>
<td>2009</td>
<td>Advance information on goods brought into, or exported from the Customs territory of the EU (perimeter).</td>
</tr>
<tr>
<td>100% scanning</td>
<td>Cargo screening</td>
<td>2012</td>
<td>Non-intrusive inspection of 100% of all inbound cargo containers.</td>
</tr>
</tbody>
</table>
Regulatory Integration

- Promote modal choice and avoid subsidized modal preference.
- Harmonization of regulations across jurisdictions such as for vehicles, goods handling and transport, land use, labor and finance.
Regulations over Freight Transport Operations

- **Vehicles**
  - Registration
  - Weight and size restrictions
  - Emission standards

- **Facilities**
  - Zoning and permissible locations
  - Technical standards

- **Goods**
  - Perishable goods (sanitary standards)
  - Dangerous goods (safety standards)

- **Labor**
  - Certification
  - Working conditions
  - Compensation and benefits

- **Finance**
  - Insurance requirements and liability
  - Financing sources and conditions
Planning and Funding Integration

- Planning and funding of infrastructure provision from an integrated multi-modal and logistics chain perspective.
- Respective roles and competencies of the public and private actors.
## Forms of Port Privatization

<table>
<thead>
<tr>
<th>Form</th>
<th>Public sector role</th>
<th>Private sector role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure public</td>
<td>Owns and operate port</td>
<td>None (some services)</td>
</tr>
<tr>
<td>Landlord / Regulator</td>
<td>Owns port and regulate private sector</td>
<td>Operations</td>
</tr>
<tr>
<td>Greenfield concession</td>
<td>Negotiation with private companies, regulation</td>
<td>Operations</td>
</tr>
<tr>
<td>Brownfield concession</td>
<td>Negotiation with private companies, regulation</td>
<td>Operations</td>
</tr>
<tr>
<td>Pure private</td>
<td>None (regulation)</td>
<td>Operations</td>
</tr>
<tr>
<td>Publicization</td>
<td>Owns and operates port</td>
<td>Operation and maintenance</td>
</tr>
</tbody>
</table>
Work Practices Integration

- Organizational (managing labor as a group) and skills (managing individual workers) competencies to move cargo efficiently.
- Operational window (working hours), minimal service levels and essential services.
Hours of Operation of Major Container Terminal Facilities and Distribution Centers, United States
Information Systems Integration

- Interconnectivity of information systems with single windows.
- Asset tracking, status monitoring, customs facilitation, freight status information and transport network status information.
Port Community System

- Exporter
- Importer
- Freight Forwarder
- Shipping Agency
- Port Authority
- Container Depot
- Terminal Operator
- Customs
- Ocean Carrier
- Inland Carrier

Foreland → Hinterland
Conclusion: Integration versus Compliance

• Do you still believe in magic?
• A wide array of realms for logistic policy, but effectiveness and outcomes difficult to assess.
• Commercial integration versus regulatory compliance.
• As usual, coordination (PPP) remains a challenge.