Supply Chain Integration, Landside Operations and Port Accessibility in Metropolitan Chicago

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October 22, 2015
Highlights

• Chicago’s freight bottleneck - implications for supply chain integration (SCI).
• Drivers of SCI in intermodal transport, cases of Chicago infrastructure activity.
• Pareto analysis of key Chicago freight chain corridors.
• Public/Private infrastructure projects addressing SCI challenges.
• Deep inter-regional corridor functional cooperation on SCI is the key for success.
Chicago Intermodal Region

• Largest and most important container gateway in North America—connects the U.S. East Coast, West Coast, and Gulf Coast.

• Approximately 13 million TEU annually. 46% of all intermodal moves in the U.S. 54% of all moves to/from Sea-Tac and 26% of all moves to/from LA/LGB.

• A connection point and a huge bottleneck for rail and truck moves.

• Concentration of freight movements along key corridors is a source of customer value and competitive advantage. Numerous logistics firms are located in the region.
### Lam and van de Voorde model (2011)

<table>
<thead>
<tr>
<th>m</th>
<th>n</th>
<th>Customer service</th>
<th>Inventory</th>
<th>Transportation</th>
<th>Order processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Setting desirable service level</td>
<td>Setting inventory management policies</td>
<td>Selecting carriers; Selecting ports of call</td>
<td>Determining system design; Order forecasting</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Collecting customers’ feedback</td>
<td>Determining safety stock level</td>
<td>Seasonal capacity adjustments</td>
<td>Assessing backorders</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Handling customers’ requests</td>
<td>Replenishment quantities and timing</td>
<td>Sea transportation; Loading and unloading</td>
<td>Booking; Documentation</td>
</tr>
</tbody>
</table>

**Figure 2. Model for achieving excellence in container shipping supply chains with numbers assigned.**
Chicago Mega-Region

• A Tristate region encompassing Illinois, Indiana and Wisconsin.
Example Pareto Charts: Rail Movements
Chicago Freight Lanes

<table>
<thead>
<tr>
<th>Order</th>
<th>Chain</th>
<th>Code</th>
<th># Categories</th>
<th># of Modes</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Los Angeles</td>
<td>LAX</td>
<td>11</td>
<td>3</td>
<td>West</td>
</tr>
<tr>
<td>2</td>
<td>Detroit</td>
<td>DET</td>
<td>10</td>
<td>3</td>
<td>Northeast</td>
</tr>
<tr>
<td>3</td>
<td>Seattle</td>
<td>SEA</td>
<td>9</td>
<td>3</td>
<td>West</td>
</tr>
<tr>
<td>4</td>
<td>Philadelphia</td>
<td>PHL</td>
<td>6</td>
<td>3</td>
<td>East</td>
</tr>
<tr>
<td>5</td>
<td>New York (NY/NJ)</td>
<td>NY</td>
<td>7</td>
<td>2</td>
<td>East</td>
</tr>
<tr>
<td>6</td>
<td>Baltimore</td>
<td>BAL</td>
<td>3</td>
<td>2</td>
<td>East</td>
</tr>
<tr>
<td>7</td>
<td>Chicago Local Region</td>
<td>CHI</td>
<td>4</td>
<td>1</td>
<td>Local</td>
</tr>
<tr>
<td>8</td>
<td>Laredo</td>
<td>LAR</td>
<td>2</td>
<td>1</td>
<td>Southwest</td>
</tr>
<tr>
<td>9</td>
<td>San Diego</td>
<td>SDGO</td>
<td>1</td>
<td>1</td>
<td>West</td>
</tr>
</tbody>
</table>
Chicago Region collaborative efforts to increase SCI.

- Freight Planning - awkward combination of public and private interests
- No cooperation in development of overall regional transportation strategy.
- Exacerbated by competition between the three states.
CREATE

- Begun in 2003 - untangle rail bottleneck, upgrade 100+ year old infrastructure.
- Full Cost ~ $3.8 billion; 20 projects completed, 9 under construction, 19 in design phase.
- No funding to finish all program projects.
- Costliest project - Belt Junction; 5 railroad tracks → 2, 6 freight, commuter and passenger rail lines cross paths.
- No projects north of O’Hare or south of I-80.
Will County Inland Port- Centerpoint

• Largest inland container port in the North America.
• Served by BNSF and UP from West Coast. CN rail from Canada nearby.
• Massive infrastructure development similar to Inland Empire in California; numerous distribution centers and 3PL facilities.
• Growth of area has come with a vast increase in trucking on local roads, adding traffic to the overburdened I-80 East West corridor.
• An “Alameda Corridor” like project called the Illiana Expressway to shuttle truck traffic to points east was proposed and has been stalled.
Road congestion issues into the future.
South Suburban Airport/"The Third Airport"
Great Lakes Basin Rail Bypass
Lake Michigan Ports

Port of Indiana

Port of Chicago
Conclusions

• Chicago is unique in the US with multiple freight corridors and network combinations for SCI partnerships.

• Development of long distance intermodal corridors to promote SCI is feasible- NSW Heartland Corridor from Port of VA and the CSX National Gateway from the mid-Atlantic to Chicago.

• A greater inter-regional approach between Chicago and the US East and West Coast seaports would boost competitive advantage of both areas.

• Regional government and economic development planners should foster cooperation along key freight corridors.