Good Morning!

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INTERMODAL OUTLOOK
Northwestern University Transportation Center BAC Meeting
November 8, 2018
Solo practice covering surface freight transportation sector

Primary focus on intermodal

Monthly subscription product with weekly updates

Market analysis and project work

www.IntermodalinDepth.com
THE TWO WORLDS OF INTERMODAL

Each sector responds to very different market forces

Includes:
- Domestic Containers (53’, a few 48’)
- Trailers
- Transload Cargo

Affected by:
- Competitive economics with truck
- Truck capacity
- Fuel Prices
- Transload trends

49.4%

Includes:
- ISO Containers (20’, 40’, 45’)

Affected by:
- Trade stats
- Port routings/Import strategies
- Steamship line policies
- Truck competitiveness
- Transload trends

50.6%

Gross Transportation Consulting

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INTERMODAL IS HAVING A GOOD YEAR

<table>
<thead>
<tr>
<th>Y/Y % Change</th>
<th>2016</th>
<th>2017</th>
<th>YTD 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>-2.1%</td>
<td>+4.7%</td>
<td>+6.0%</td>
</tr>
<tr>
<td>International</td>
<td>-3.3%</td>
<td>+6.2%</td>
<td>+5.4%</td>
</tr>
<tr>
<td>Domestic</td>
<td>-0.7%</td>
<td>+3.2%</td>
<td>+6.7%</td>
</tr>
<tr>
<td>Domestic Container</td>
<td>4.1%</td>
<td>+2.7%</td>
<td>+5.4%</td>
</tr>
<tr>
<td>Trailer</td>
<td>-22.1%</td>
<td>+6.3%</td>
<td>+14.8%</td>
</tr>
</tbody>
</table>

Source: IANA ETSO, GTC Analysis, Copyright 2018 GTC
OCTOBER HAS GOTTEN OFF TO A SLOW START SEASONAL PEAK MIA?

North America Total Intermodal Originations
Weekly

Thousands

Y/Y% Change
Originations per Week

Source: AAR, Copyright 2018 GTC
NORMAL AUGUST INBOUND PEAK CAME EARLY THIS YEAR

North America Loaded TEUs (000)

North America Loaded TEU’s - Y/Y Change

Sources: IHS Markit PIERS, Port Reports, GTC Analysis
INTERMODAL IMPORT PARTICIPATION HAS DECLINED LATELY – WEST-TO-EAST SHIFT MAY BE RESPONSIBLE

<table>
<thead>
<tr>
<th>Inbound TEUs</th>
<th>YTD 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>+4.9%</td>
</tr>
<tr>
<td>US West Coast</td>
<td>+3.0%</td>
</tr>
<tr>
<td>L.A./Long Beach</td>
<td>+3.0%</td>
</tr>
<tr>
<td>Northern California</td>
<td>+3.1%</td>
</tr>
<tr>
<td>Pacific Northwest</td>
<td>2.2%</td>
</tr>
<tr>
<td><strong>US East/Gulf Coasts</strong></td>
<td><strong>+7.1%</strong></td>
</tr>
<tr>
<td>Northeast</td>
<td>+6.3%</td>
</tr>
<tr>
<td>Southeast</td>
<td>+7.6%</td>
</tr>
<tr>
<td>Gulf</td>
<td>+9.2%</td>
</tr>
<tr>
<td><strong>Western Canada</strong></td>
<td><strong>+2.9%</strong></td>
</tr>
</tbody>
</table>

Sources: IANA ETSO; IHS Markit PIERS Data, Port Reports, GTC Analysis, Copyright 2018 GTC
DOMESTIC CONTAINER HAS BEEN CAPACITY LIMITED, TRAILERS HAVE HELPED FILL THE GAP

The rail-owned domestic container fleet has had productivity problems. 53’ TOFC has helped fill the gap.
INTERMODAL SERVICE CONTINUES TO BE PROBLEMATIC

4-Week Avg. Intermodal Train Speeds - Total Network

Average Intermodal Train Speeds - Current 4-Week Avg. vs. Previous

Sources: STB Reports, GTC Analysis
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THE INTERMODAL NETWORK IS BEING RE-ALIGNED

• Renewed emphasis on core lanes
• Focus on efficiency (PSR = Longer trains, reduced sorting
• Retreat (with exceptions) from steel-wheel interchange at gateways
• Reduction in service linking secondary, low-volume points
DESPITE TIGHT TRUCK CAPACITY INTERMODAL MARKET SHARE HAS FALLEN FOR TWO QUARTERS

Long Haul* Dry Van/Reefer Freight U.S. Total Intermodal Market Share

![Graph showing Long Haul Dry Van/Reefer Freight share moving in Domestic Intermodal Equipment.]

U.S. Long Haul* Dry Van/Reefer Freight Share Moving in Domestic Intermodal Equipment

*Long Haul = 500 miles or more

Sources: IANA ETSO, Transport Futures, GTC Analysis

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INTERMODAL MARKET SHARE VARIES WIDELY BY MILEAGE RANGE

Domestic Intermodal U.S. Market Share

Sources: IANA ETSO, Transport Futures, GTC Analysis
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DRAYAGE DEMAND INDEX SHOWS CONDITIONS STILL TIGHT BUT BETTER THAN THEY WERE

Drayage Demand Index - Major Markets - 100 = Average

Sources: Drayage.com, GTC Analysis
NEAR-TERM OUTLOOK

• Fall Peak:
  • Moderating international gains
  • Constrained domestic container growth due to fleet capacity issues – concentrated on the rail-owned domestic container fleet
  • TOFC volume stays strong

• 2019
  • International gains continue at a moderate pace
  • Considerably more challenging competitive conditions vs. truck
  • Rates stabilize but gains slow significantly
LONGER-TERM OUTLOOK

• Trade war with China? About 65% of all intermodal volume relates to import/export trades (excludes NAFTA!)

• Service Concerns. It’s not about speed, it’s about service reliability and consistency

• Autonomous Trucks? Fully autonomous operation is a red herring that’s many years away. But semi-autonomous operations (platooning) is a more relevant technology to watch.
Thanks!

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