The State of International Chassis
In North America

The Impact of Trucking Industry Changes on the Supply Chain:

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Background

Chassis Ownership Change
(Relative Ratio Ocean Carriers to Leasing Co’s)

2009: 51% Ocean Carriers, 49% Leasing Companies
2012: 32% Ocean Carriers, 68% Leasing Companies
2013 (Est): 20% Ocean Carriers, 80% Leasing Companies

Reference: OCEMA Estimates

InterPro Advisory
“To develop a Guidebook for beneficial cargo owners, public officials, and other transportation stakeholders that describes the historical and evolving models of international container chassis ownership and management, and the factors unique of each, in order to inform stakeholder decision making for the efficient and cost-effective movement of containerized freight, both import and export, in the United States.”
We interviewed

- 14 Major terminal operators (Marine, Railroads, Operating Ports)
- 10 Steamship Lines
- 10 Major Shippers,
- 30+ Motor Carriers,
- 10 Public officials (State DOTs, MPOs, PoLB, PNYNJ)
- Major chassis leasing companies
- ILA, HTA, ATA, RILA
- Case Studies in South Florida, SSA, COCP, HRCP II, BACP,
Chassis Ownership in the U.S.

**Marine Chassis**
- Ocean Carriers: 32%
- Motor Carriers: 3%

- Total: 565,000 (est.)

**Domestic Chassis**
- Leasing Companies: 65%
- Railroad Controlled: 36%
- Logistics Companies & Motor Carriers: 31%

- Total: 160,000 (est.)
U.S. Ocean Container Chassis Fleet Significantly Larger than in International Jurisdictions:

- U.S. (565,000 Marine Chassis)
- China, 170,000
- Japan, 30,000
- Hong Kong, 15,000
- Other Asia (est.), (100,000)

Example: Asian ocean chassis fleet
Major International Differences:

- In Canada, Europe and Asia, chassis are supplied primarily by motor carriers, logistics companies/3PLs, and to a lesser extent leasing companies.
- Maximum GVW elsewhere tend to be higher than in the U.S.
- Drop and hook operations are common in U.S. supply chains, while live load/unload is the standard elsewhere.
- U.S. has recently implemented strict roadability laws; most international jurisdictions, including Canada and Asia have no equivalent chassis-specific law.
Chassis Supply Models:

- Conventional Ocean Carrier Supply
- Co-op Pool
- Neutral Pool
- Terminal Pool
- Motor Carrier Supplied
Conventional Ocean Carrier Supply Model:

<table>
<thead>
<tr>
<th>Asset Ownership</th>
<th>Owned or leased by ocean carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management/Operation</td>
<td>Chassis procurement, demand/supply, maintenance, logistics, administration, insurance activities performed by ocean carrier</td>
</tr>
<tr>
<td>Facilities Agreement</td>
<td>Storage, inspection and maintenance and repair usually contained within rail or marine terminal master transportation agreement</td>
</tr>
</tbody>
</table>

Typical Metrics Used by Chassis Operators

- Variable operating expense per day
- Loaded lifts/chassis
- Repositioning cost
- Asset utilization
- Street turn-time
- Out of service percentage
# Co-op Pools:

## Asset Ownership
- Owned or triple-net leased by ocean carriers
- Other entities (e.g. leasing companies) which own chassis may contribute to the pool

## Management/Operation
- Chassis procurement, demand/supply, maintenance, logistics, administration, insurance activities performed by professional management company, with contributing ocean carrier Board oversight (e.g. Consolidated Chassis Management [CCM])

## Facilities Agreement
- Separate agreement necessary for storage, inspection and maintenance and repair rules

## Typical Metrics Used by Chassis Operators
- Variable operating expense per day
- Loaded lifts/chassis
- Repositioning cost
- Utilization: total pool, contributor, user, street turn-time, terminal dwell (dwell same as neutral pool)

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**Diagram:**

- Off Terminal Pool:
  - Select chassis
  - In-gate
- On Terminal Pool:
  - Select chassis
  - Load container
  - Grounded: Locate wheeled container
- Out-gate

**Wheeled:** Locate wheeled container
### Neutral Pools:

<table>
<thead>
<tr>
<th><strong>Asset Ownership</strong></th>
<th>Owned by third party (typically a chassis leasing company)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management/Operation</strong></td>
<td>Chassis procurement, demand/supply, maintenance, logistics, administration, insurance activities performed by neutral chassis pool operator, typically leasing company</td>
</tr>
<tr>
<td><strong>Facilities Agreement</strong></td>
<td>Stand-alone agreement for storage, inspection, and maintenance and repair rules between pool operator and terminal, also known as a “hosting contract”</td>
</tr>
</tbody>
</table>
| **Typical Metrics Used by Chassis Operators** | - Revenue rate per day  
- Utilization: total pool, individual user  
- Maintenance and repair cost per day  
- Street turn-time  
- Terminal dwell  
- Out of service percentage |
Terminal Pools:

<table>
<thead>
<tr>
<th>Asset Ownership</th>
<th>Ocean carrier, terminal or leasing company may contribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management/Operation</td>
<td>Chassis procurement, demand/supply, maintenance, logistics, administration, insurance activities performed by terminal operator</td>
</tr>
<tr>
<td>Facilities Agreement</td>
<td>None, since terminal operator controls both terminal and pool</td>
</tr>
</tbody>
</table>
| Typical Metrics Used by Chassis Operators | • Variable operating expense per day  
• Loaded lifts/chassis  
• Repositioning cost  
• Utilization: total pool, contributor, user, street turn-time, terminal dwell (dwell same as neutral pool) |

**In-gate**  
Select chassis  
**Grounded**: Load container  
**Wheeled**: Locate wheeled container  
**Out-gate**
## Motor Carrier Chassis Supply Model:

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<th>Owned or triple-net term leased by motor carrier</th>
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<tr>
<td>Management/Operation</td>
<td>Chassis procurement, demand/supply, maintenance, logistics, administration, insurance activities performed by motor carrier</td>
</tr>
<tr>
<td>Facilities Agreement</td>
<td>N/A - Motor carrier chassis stored off-terminal</td>
</tr>
</tbody>
</table>
| Typical Metrics Used by Chassis Operators | • Operating cost per day,  
 • Capital cost per day |

**Diagram:**

- **In-gate**
  - **Grounded:** Load container
  - **Wheeled:** Must have chassis flipped
- **Out-gate**
## Billing Models:

<table>
<thead>
<tr>
<th>Model</th>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
</table>
| Ocean Carrier Control | DCLI (formerly Maersk), CNS Equipment (HMM)   | - Assets owned by the ocean carrier used by drayage companies are invoiced by related or third-party companies.  
- Motor carriers must have contractual relationship with third parties for chassis use. |
| Co-op Pool (CCM)  | UPC (Unitary Pool Chassis)                  | - TRAC Intermodal, Flexi-Van and CNS are acting UPC agents on behalf of ocean carriers.          
- Contributing assets to CCM pools and invoicing motor carriers for use.                 |
| Neutral Pool       | Bay Area Chassis Pool (Flexi-Van) Metropool (TRAC) | Motor carriers contract with leasing companies for chassis usage and are invoiced accordingly. |
| Terminal Pool      | SSA                                        | SSA invoicing motor carriers using SSA terminal pool chassis in Seattle where ocean carrier has exited. |
Case Studies on Evolving Models:

- Motor Carrier Supplied: South Florida Region
- Co-op Pool: Chicago Ohio Valley Chassis Pool (COCP), CCM
- Neutral Pool: Bay Area Chassis Pool (BACP) Flexi-Van
- Terminal Pool: SSA Terminal Pool Pacific Northwest
- Hampton Roads Chassis Pool (HRCP) II, VIT
Regional Organization of Chassis Supply

LEGEND
CHASSIS MODEL TYPE
- CO-OP
- TERMINAL
- NEUTRAL
- MOTOR CARRIER
- OCEAN CARRIER

WEST COAST
- Oakland
- Los Angeles
- Salt Lake City

NORTHEAST
- Boston
- New York
- Philadelphia
- Baltimore
- Norfolk
- Charleston
- Wilmington
- Savannah
- Jacksonville
- Miami

MIDWEST RAIL TERMINALS
- Minneapolis
- Milwaukee
- Detroit
- Cleveland
- Pittsburgh
- Columbus
- Indianapolis
- Cincinnati

SOUTH ATLANTIC
- Memphis
- Atlanta
- Charleston
- Savannah
- Jacksonville
- Fort Lauderdale
- Miami

GULF
- El Paso
- Dallas
- San Antonio
- Houston
- New Orleans
• Primary chassis interests are cost and service
• Some concern that direct chassis costs and potential for higher charges could change management methods
• Nearly a zero chance of owning chassis in the next two years
• Rated themselves least able to operate
• Prefer the status quo
Stakeholder Perspectives: Ocean Carriers

- Ocean carriers consulted have no plans to further invest in chassis
- Chassis pools gaining favor for transition phase
- 3 Major transition challenges
  - Asset disposition
  - Commercial considerations
  - Motor carrier invoicing accuracy
- Cost per load was the most consistent chassis metric reported by ocean carriers, with a range of $50-$70 being reported
Stakeholder Perspectives: Terminal Operators:

- Focus on quantity (Goldie Locks) and quality
- Pooling reduced chassis counts by 10% to 50% on terminal
- Chassis pools are preferred model during transition phase
- Most terminals prefer motor carrier owned wheels; recognize transition is unlikely in the short term
  - Wheeled terminals (especially rail) still prevalent because of economics even if grounded preferred
Stakeholder Perspectives: Motor Carriers

- Like BCOs, prefer the status quo
- Tri-axle only significant investments to date
- Transition situation confusing (billing models) and little productivity improvement observed
- Initial cost of chassis, requirements for parking and storage were biggest barriers to ownership
- The majority prefer pools if MC is to pay for asset
Public Agencies and Planning Organizations:

- Port Authorities have high interest, low stakeholder consensus
  - Operating Ports
  - Landlord Ports
- State planning agencies and MPOs have varied awareness; leading concerns are:
  - Land use planning for storage/M&R
  - Increased truck traffic
  - Increased congestion
Conclusions

- Future of U.S. ocean container chassis supply remains unclear, but likely to be guided by:
  - Unique historical and structural chassis supply context in the U.S.: Established BCO logistics practices, chassis pool arrangements, wheeled terminal operations, etc.
  - Heterogeneous nature of U.S. chassis landscape: Terminal operators, motor carriers, and other stakeholder have a geographic construct, and as such, chassis model transitions will likely be forged region by region
  - Unaligned interests of chassis supply stakeholders: No one stakeholder group will singlehandedly influence the direction of the chassis supply transition in the U.S.
Conclusions

• In the short/medium term, models in the U.S. will likely continue to evolve toward pooling, in one form or another

• Implications for public policy and planning organizations include increased truck moves/miles, land use implications, particularly with off-terminal storage

• Longer term evolution of chassis supply in the U.S. will be the result of the interplay of various stakeholder interests, influences, a regional differences

One of the aims of the Guidebook is to inform stakeholders of this process and potential implications for each stakeholder
“It may take 10 years to sort it out. I support all arrangements, but whoever does it most efficiently will eventually take over, and the market will settle and we will make do in the meantime.”

– Ocean carrier executive
Questions?

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