

Sustainability Strategies for Third Party Logistics

December 2, 2020

Denise Kearns and Chien Sze, EPA
Larry O'Rourke, ICF



Webinar Housekeeping



The presentation will be available at:

www.epa.gov/smartway/smartway-webinars-events

Note: Today's webinar is being recorded.



Denise Kearns
Moderator






Dr. Chien Sze
Associate Director
SmartWay



Dr. Larry O'Rourke
Senior Transportation Consultant
ICF






Covered Today



-  Provide a review of SmartWay Partnership & Third-Party Logistics (3PL) industry
-  Discuss sustainability strategies for 3PLs, and their benefits
-  Solicit your feedback on these strategies

SmartWay Background



-  Market-based partnership
-  Raise awareness around benefits of freight efficiency
-  Strengthen the industry efficiency, competitiveness
-  Collaboration
-  Save fuel, money, and the environment

Who Participates in SmartWay



2500+ Carriers

- Truck, rail, barge, intermodal, air
- Contract & Private



250+ Shippers

- F-500, medium and small businesses
- Retailers, food & beverage, electronics, CPG, home goods and more

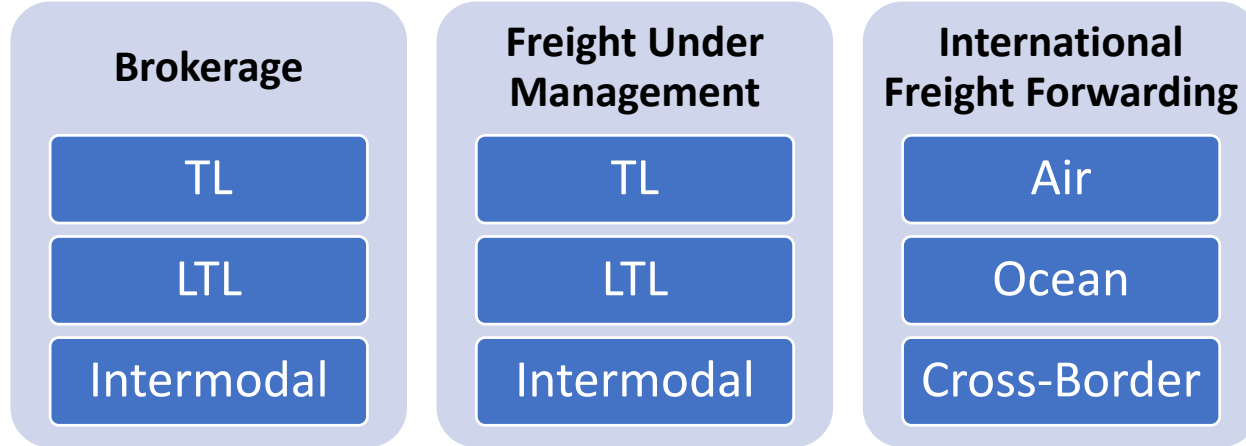


600+ Logistics Service Providers

- Full service logistics providers
- Brokers
- Forwarders



3PL Segments

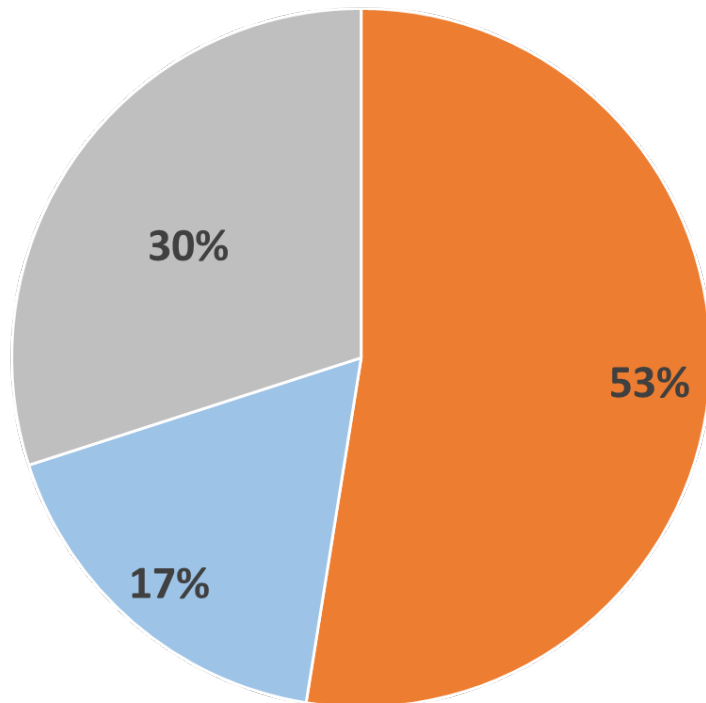


Brokerage: Match shipper demands for transportation with available supply (domestic)

Freight Under Management: Customized services that are integrated with a carrier's operation and typically provided under longer term contracts

International Freight Forwarding: Coordinating the movement of international shipments from point to point

Estimated CO₂ Emissions Impact of 3PL Market Segments*



- Brokerage
- Freight Under Management
- International Freight Forwarding

* *OTAQ Draft Staff Estimates*

Overview of Strategies



- **Continuous Freight Moves Planning** - Create routes where the truck can pick up near where it drops loads off
- **Select Carriers to Reduce Empty Miles** - Select carriers near the pickup point
- **Co-loading** - Create shared truckload multi-stop routes
- **Mode Conversion** - Switch to more fuel-efficient modes
- **Real-time Data to Improve Drayage** - Use information to streamline drayage
- **Right Sizing** - Select carriers that have vehicles that are the “right size”
- **Load Optimization** - Using loading strategies to maximize the cargo capacity of the truck
- **Sourcing** - Select suppliers to minimize transportation cost and fuel use

Which strategies are you most familiar with? (select up to 3)

Response options	Count	Percentage
Continuous Freight Moves Planning	14	18%
Select Carriers to Reduce Empty Miles	16	20%
Co-loading	11	14%
Mode Conversion	15	19%
Real-time Data to Improve Drayage	3	4%
Right Sizing	5	6%
Load Optimization	14	18%
Sourcing	2	3%



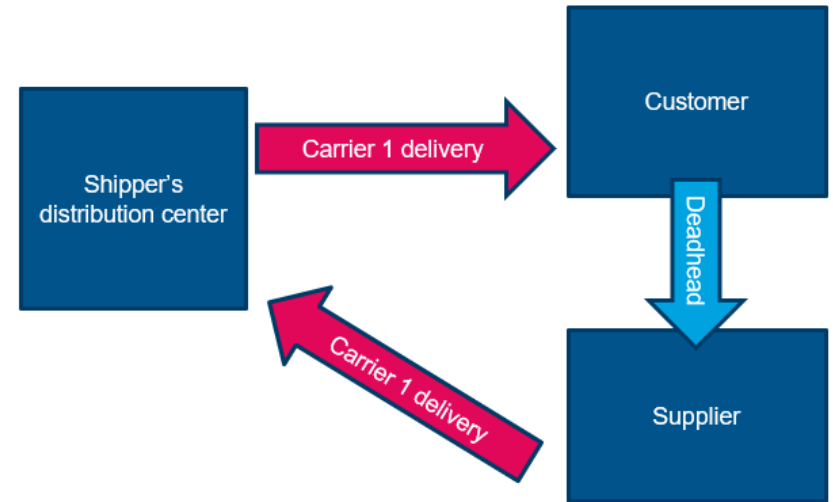
Engagement

80

Responses

Continuous Freight Moves Planning

- 🌿 Shipper and 3PLs build a string of loads for their carriers to reduce or eliminate deadhead mileage
- 🌿 Inbound trucks delivering loads are matched with outbound/ nearby loads to minimize deadhead mileage
- 🌿 Continuous moves planning software helps to predict where opportunities for continuous moves are based on shipment history



Continuous Freight Moves Planning

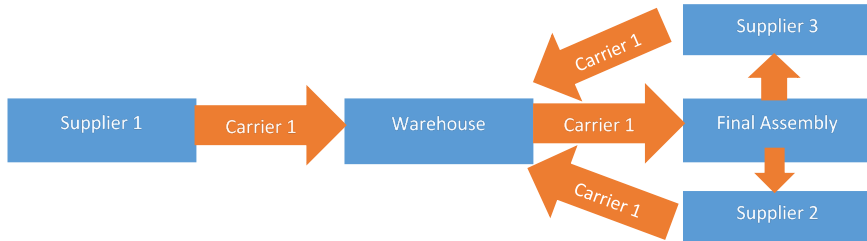


- 🌿 Supply chain characteristics with CMP opportunities
 - Good forward visibility and predictability around loads
 - Control of network
 - Predictable reverse logistics
 - Visibility into a network of customers and their moves
 - Industry clusters with shippers and suppliers located near each other
- 🌿 Costs - Software and management attention
- 🌿 Benefits - Potential cost savings in range of 5 - 15%. Reduced deadhead miles, fuel use, GHG emissions

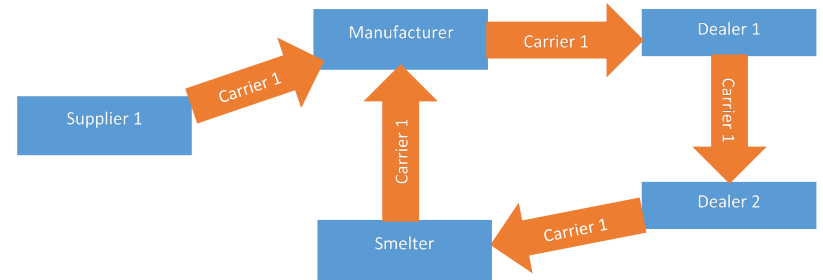
Continuous Freight Moves Planning



Automotive Final Assembly



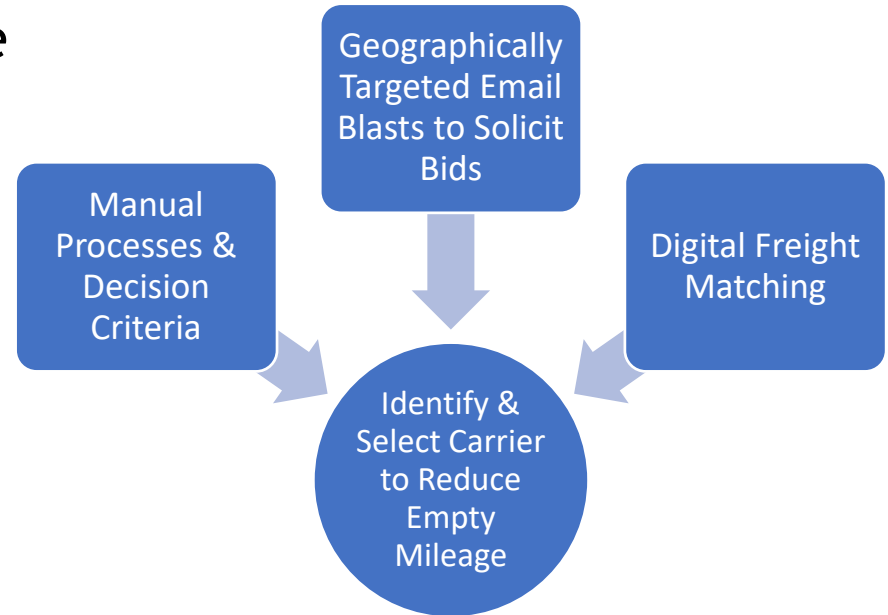
Reverse Logistics Batteries



Selecting Carriers to Reduce Empty Miles



- 🌿 Deadhead truckload (TL) mileage typically between 15 -25%
- 🌿 3PLs can employ manual and automated strategies to select closest carrier



Selecting Carriers to Reduce Empty Miles



Challenges

- Carrier selection processes are complex and includes numerous decision criteria including: preferred carriers, equipment type, customer requirements, hours of service of driver, etc.

Costs

- Management attention to design and implement manual processes
- Commissions & fees from digital freight matching providers

Selecting Carriers to Reduce Empty Miles



Benefits

- Selecting carriers that are closer to the pickup point increases probability of on-time performance
- Reducing deadhead mileage can reduce carrier fuel use, CO2 emissions and fuel surcharges
- Digital freight matching firms have estimated that they reduced average deadhead miles by 16% or more - baseline deadhead mile assumptions hard

Mode Conversion & Mode Optimization



- 🌿 Modes include LTL, TL, rail, waterborne, air
- 🌿 3PLs selects the optimal modes for shipments to minimize cost and GHG emissions while meeting service requirements.
 - Typically involves LTL to TL conversions - done through a transportation management system.
 - Shipments can be consolidated to create truckload shipments
 - Examine ordering history to identify opportunities
 - Collaborate between locations and business units

Challenges

- For LTL conversion - products need to be compatible & fit on same truck
 - Characteristics of commodity or goods – some items can be more easily packaged into a truckload while other items cannot be placed together.
 - Dimensional weight considerations
 - Align within the same timeframe to be transported together.
- Not every shipment can be physically or economically shifted between LTL/TL, air, water, and rail transport modes
- Numerous stakeholders & barriers to data exchange

Mode Conversion & Mode Optimization



Benefits

- LTL conversion
 - Reduce LTL fuel surcharges and other accessorial charges
 - Reduce LTL minimum and small parcel hundredweight charges
 - Reduced GHG emissions
- Rail / intermodal conversion
 - Lower ton-mile cost
 - Reduced fuel use and emissions

Co-Loading

- 🌿 3PLs can "pool" small shipments from multiple shippers into truckload quantities - multi-stop truckload
- 🌿 Co-loading different than LTL - shipments do not go through the hub-and-spoke network for consolidation
- 🌿 Some specialized 3PLs are in a strong position to implement this strategy with customers moving similar freight



Co-Loading



Challenges


- Compatible products, schedules, geography and order of loading and unloading
- Risk of delay due to greater the number of stops on a multi-stop truckload

Shipper benefits

- Reductions in transportation costs (up to 40% on certain lanes)
- Decreased lead times for LTL shipments
- Lower probability of products getting lost or damaged - less loading\unloading than LTL
- Can reduce GHG emissions up to 30%

Receiver benefits - reduction in inventory kept on hand

Right Sizing Equipment

 Ensuring that the right vehicles are used for each task

- Rightsizing equipment: matching the load with the vehicle
- Rightsizing the fleet: matching all vehicles with the business needs



Right Sizing Equipment

Requires data

- On shipment needs - volume and delivery speed
- Available vehicles - size and weight capacity
- Labor - qualified employees suited for the vehicle type & hours or service



Right Sizing Equipment

Challenges

- May have preferred carriers
- Access to relevant data
- Requires analysis of current vehicle capacity and shipping schedules through telematics to understand needs
- Equipment & inventory cost of multiple vehicle types



\$70,000




Save up to \$70K
from purchasing a
class 7 truck
instead of class 8

Benefits

- Fuel savings - switching from class 7 to class 6 trucks boosts fuel efficiency by 9% & reduces GHG emissions
- 3PL fleet managers can minimize the cost of larger vehicles

Real-time Data for Drayage



-  Drayage truck drivers must navigate a complex and congested port environment to track down the right containers
-  Real-time data enhances communication and organization at ports
-  Sensors on trucks or containers, mobile applications, radio frequency identification, and other mobile technology provides information about the location of containers



15 million hours wasted due to trucker congestion at ports in North America each year



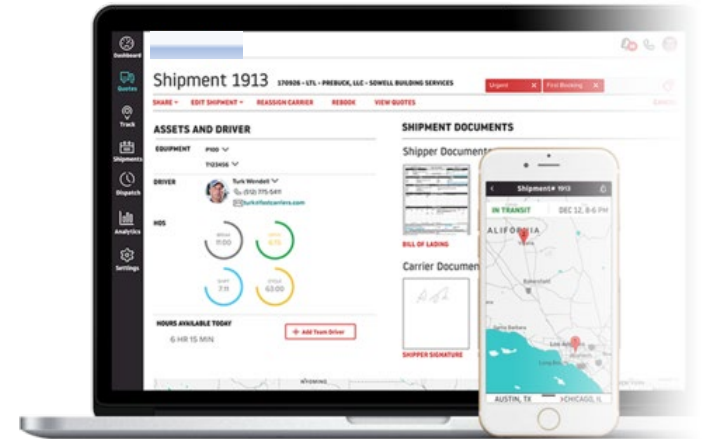
Millions of gallons of fuel wasted due to trucker congestion

Real-time Data for Drayage



Technology

- Software can match truck drivers with containers based on ease of access and load time. 3PLs can utilize these tools.
- Sensors on smart containers provide data about the location and condition of containers
- Drivers more easily locate containers
- 3PLs can analyze data to enhance operations



Real-time Data for Drayage



Benefits

- Reduce time spent idling by 25%
- Reduced fuel use and emissions
- Helps ensure perishable deliveries arrive on time



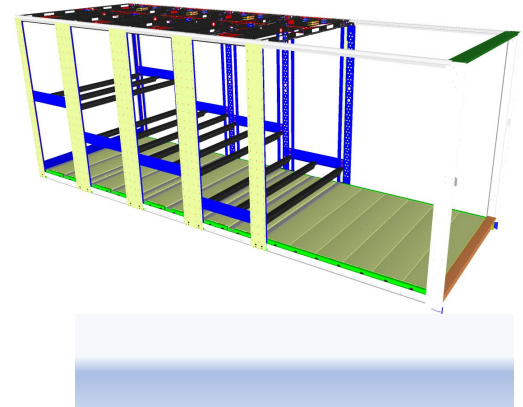
Sourcing



- 🌱 3PLs can use their knowledge of suppliers to help receiving companies identify closer sourcing opportunities
 - Focusing on location as a selection factor for suppliers
 - Reduce the miles driven to transport products, costs and GHGs
- 🌱 Target market is specialized freight under management services
 - One 3PL specializing in power plant logistics used their energy industry knowledge to help clients identify local sourcing opportunities

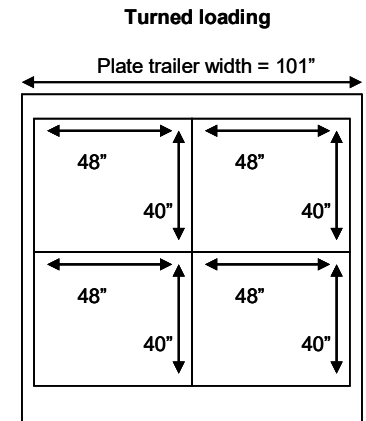
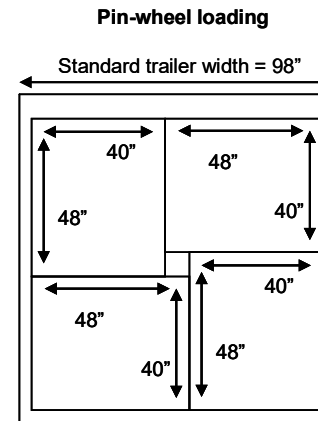
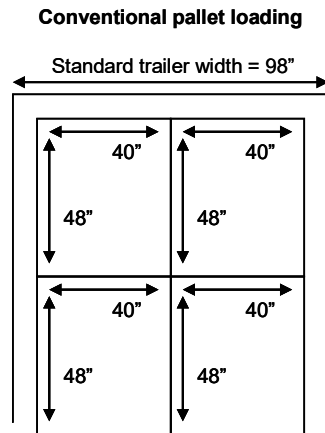
Load Optimization

- Trucks that “cube out” before reaching the weight limit can use loading strategies to fit additional goods into trailers
 - 3D sensors and software tools can boost efficiency during loading
 - In-trailer equipment includes hydraulic lifting double deck systems that can lift cargo onto electronically adjustable shelves
- Reduced packaging volume






Load Optimization

- Standard GMA pallet is 48” long and 40” wide
- Can be strategically arranged to maximize available space
- Standard combination truck can hold 24-26 GMA pallets
- Trucks can fit 26-28 GMA pallets by “pin-wheeling” - rotating every other pallet 90 degrees
- Aluminum trailers allow for “turned loading” - pallet long side is parallel with the doors - fit 30 pallets



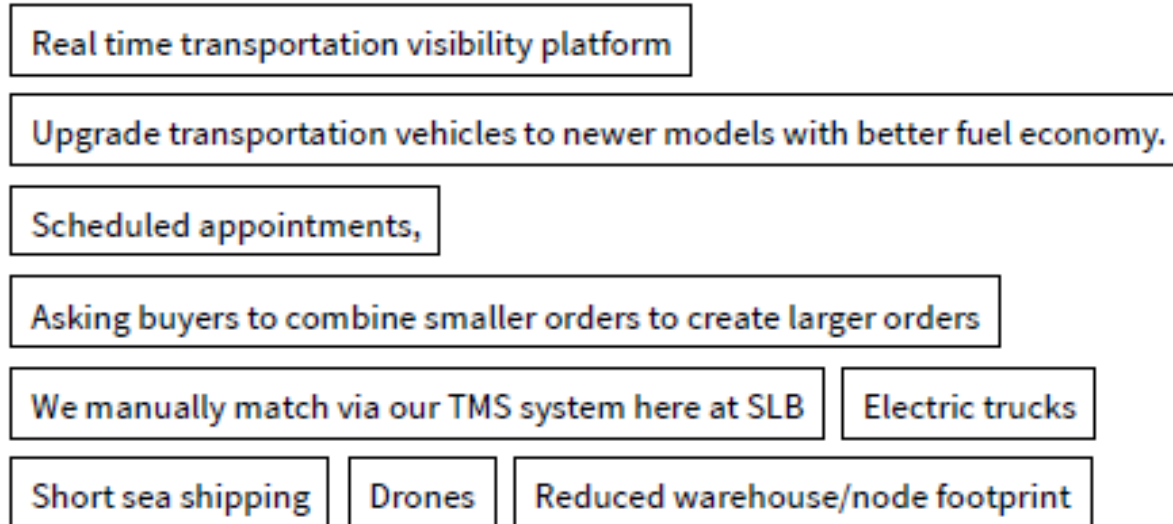
Conclusions



-  Technology is creating new opportunities to improve efficiency and sustainability in logistics
-  Big data, telematics, cloud software and mobile apps are the basis for new tools for 3PLs to use
-  While 3PLs already use many of these strategies, there are still big opportunities to reduce costs, fuel use and emissions

What other strategies can reduce fuel use and emissions and improve freight transportation sustainability?

Responses



Engagement

9

Responses

***Technical problem limited audience participation**

***AUDIENCE POLL**

How has the COVID-19 pandemic affected efforts to advance sustainability in your organization?

Response options	Count	Percentage
1. Much harder to advance sustainability	2	13%
2. Slightly harder to advance sustainability	12	80%
3. No impact	1	7%
4. Slightly easier to advance sustainability	0	0%
5. Much easier to advance sustainability	0	0%



Engagement

15

Responses

***Technical problem limited audience participation**

Thank You!



Thank You for Participating!

If you have examples of best practices to improve sustainability, we'd like to hear from you. Also, feel free to contact me for further information at:

Larry O'Rourke, ICF

617-250-4226

Laurence.O'Rourke@ICF.com



You will be prompted for feedback on this webinar when you leave.