



## Adding Intermodal to Your Portfolio

Offering greater capacity, increased lane options and improved reliability, shippers should consider Intermodal Rail as part of a robust transportation and distribution portfolio.

By Jerry Porter

## Intermodal service evolves

The full range of interdependent intermodal (IMDL) transportation and distribution services have evolved in recent years and now offer the service breadth and reliability necessary to play an important part in domestic and global supply chains.

Intermodal was once a slow trailers-on-rails alternative to inter-city trucking with less than dependable transit times typically available only between limited sets of origin and destination cities. The service was not integrated operationally with other transportation and distribution components of the supply chain, thereby providing limited and highly localized activities.

Today, intermodal offers dependable, flexible and cost-effective linehaul, dray and transload options for large and small shippers moving products through distribution networks, whether across North America between major population centers, or as the “final mile” component of an international supply chain. Increasingly, intermodal is being leveraged by shippers over relatively short distances at a cost that’s competitive with OTR (Over-the-Road) trucking services.

Intermodal’s value proposition for shippers is driven by the use of multiple, coordinated and highly-managed transportation and distribution services to achieve reliable, lower cost, optimized distribution. These services consist of off-dock and terminal drayage, ocean container to domestic equipment transloading, rail linehaul and destination drayage to effect efficient, cost-effective and risk-managed supply chains. The development of “transloading” services—the consolidation at the inbound port of inbound ocean cargo to inland destination prior to the induction to the intermodal rail network—enables shippers to achieve directional and cubic capacity efficiencies.

These efficiencies drive the utilization of larger interchangeable “domestic boxes” that reflect the weight, length, door size and internal clearances of domestic 53-foot trailers onto intermodal rail stack trains. These mode transfers enable the effective use of intermodal rail from the arrival port to the final domestic destination in order to deliver “truck-like” service at favorable economics and a “lighter” environmental footprint.

Achieving full intermodal optimization puts added pressure on organizations to effectively integrate these various moving pieces comprising an efficient and dynamic intermodal network through an aggressive “control tower” logistics management guiding:

- Visibility to inbound ocean freight and customs clearance;
- On-dock activities;
- Off-dock drayage;
- Transloading based on deferred allocation instructions and final-miles mode optimization;
- Intermodal rail origin and destination ramp drays.

Utilizing the containerized rail component of modern-day intermodal as a piece of an integrated managed supply chain offers a number of advantages when compared to traditional OTR port-to-door trucking. When all direct and ancillary logistics expenses including railroad costs, transloading cost/benefit, and origin and destination ramp and port drayage fees are considered, substituting an intermodal model for a more traditional OTR approach offers shippers a potential savings from 5% to 35%.

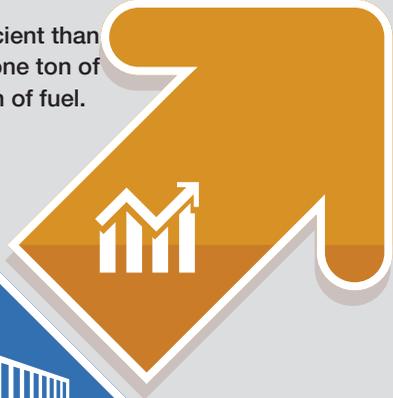
### Key Cost Variables:

- Intermodal linehaul distance; there is a direct correlation between distance shipped and savings compared to OTR savings achieved;
- Number of cargo or trailer handlings avoided;
- Favorable influences on overall rail cost per cargo unit shipped have been driven by:
  - The introduction of stack trains that has doubled trainload capacity without increasing

## Intermodal: By the Numbers

Moving freight by rail is four times more fuel efficient than moving freight on the highway. Railroads move one ton of freight an average of 473 miles on a single gallon of fuel.

America's freight railroads have been reinvesting in the rail network more than ever before. In 2012 and 2013, they invested more than \$25 million back into the network.



Nearly 25 million containers and trailers are moved using intermodal transportation. Commodities include electronics, food, paper products, textiles, auto parts, appliances and grain.



In 2013, U.S. rail intermodal volume was a record 12.8 million containers and trailers, and accounted for 22.9 percent of revenue for major U.S. railroads.



The Federal Highway Administration predicts total U.S. freight shipments to rise from an estimated 19.7 billion tons in 2012 to 28.5 billion tons in 2014—a 45 percent increase. Intermodal rail represents a viable way to meet this growing demand.

Source: Association of American Railroads, Rail Intermodal Keeps America Moving, April 2014

train length and resulted in a reduction in the allocation of variable (labor and fuel) and fixed (track and overhead) railroad operating costs;

- Absorption of existing and improved railroad network capacity;
- Dray distance and available dray capacity at origin and destination rail ramps.

**Capacity:** Railroad infrastructure investments continue to focus on improving service and reliability through improvements to:

- Rail terminal capacity and geographic density;
- Equipment maintenance and condition;
- “Steel wheel” interchange vs. “rubber tire” crosstown moves;
- IT development driving track utilization, railcar switching efficiencies.

OTR capacity and service performance will continue to weaken for the foreseeable future due to highway congestion, which continues to deepen with key interchanges in West-East highway network becoming chokepoints. In addition, Hours of Service (HOS) regulations and driver recruitment remain problematic for OTR and are projected to worsen. In fact, HOS has the potential to adversely impact port terminal and rail ramp drayage unless excessive wait times are addressed.

**Speed and variability:** Although not offering “perfect world” transit times as fast as OTR, intermodal rail does offer regular scheduled and reliable transit times that provide good balanced inbound inventory cycles to distribution centers and warehouses where reliable transit times trump speed. While slower and less expensive, time-definite transit times are often more desirable to high-volume shippers. Primary intermodal lane transit times continue to improve with infrastructure development and streamlined rail interline handoffs.

**Societal factors:** Intermodal results in reduced fuel consumption and reduced emissions per ton of freight moved over a like distance.

**Safety:** Intermodal safety performance is better than OTR.

## Adding intermodal to your portfolio

With intermodal rail offering greater capacity, an increasing number of lane options and improved reliability, Intermodal service should be considered as part of a robust transportation and distribution portfolio.

Intermodal rail is an attractive option for shippers looking for reliable, committed linehaul capacity for consolidated full-box shipments in excess of 750 miles (even 500 miles in certain lanes). With intermodal, the variability and uncertainty of OTR truck driver availability and HOS compliance, together with the risks associated with weather, road construction, and equipment availability and maintenance are reduced.

Intermodal enables shippers to choose which type of transport is most suitable from a service and economic perspective for each section of the managed supply chain. However, because marginally longer lead times may result from a shift to an Intermodal supply chain model from a pure OTR standard, shippers should evaluate the adequacy of their inventory positioning. Factors that need to be considered when evaluating a shift to Intermodal include:

- Length of intermodal tail linehaul opportunities;
- Drayage is the most expensive component of an Intermodal supply chain model on a per-unit/mile shipped basis. Efficient use and active management of this piece of the Intermodal supply chain and identifying optimum destination ramps and dray providers is vitally important.

Taking advantage of the directional and cubic efficiency of transloading services near the destination port in advance of the Intermodal component will, if undertaken as a piece of the overall distribution and allocation planning, minimize both transportation and subsequent inventory repositioning costs.

The inclusion of Intermodal should be considered as a key component to a shipper's supply chain strategy. With competitive and reliable transit times, an increasing geographic reach and compelling opportunities to reduce costs while improving directional and cubic optimization, Intermodal offers a rich value proposition.

The Intermodal industry understands the importance of reliable transit times with low service variability to shippers and has begun to introduce time-definite guaranteed service in certain high traffic lanes as service metrics improve. To take full advantage of a targeted intermodal application, an active management approach to optimize and coordinate each interdependent component of the Intermodal supply chain is critical and should be undertaken internally or with a capable and experienced partner. The partner selection should consider:

- Origin loading designed to enable advance or deferred multi-channel cargo allocations;
- Off-dock terminal drayage;
- Chassis and transload container management;
- Transloading and drayage to rail ramps;
- Access to Intermodal rail;
- DC/warehouse drayage from destination rail ramp.

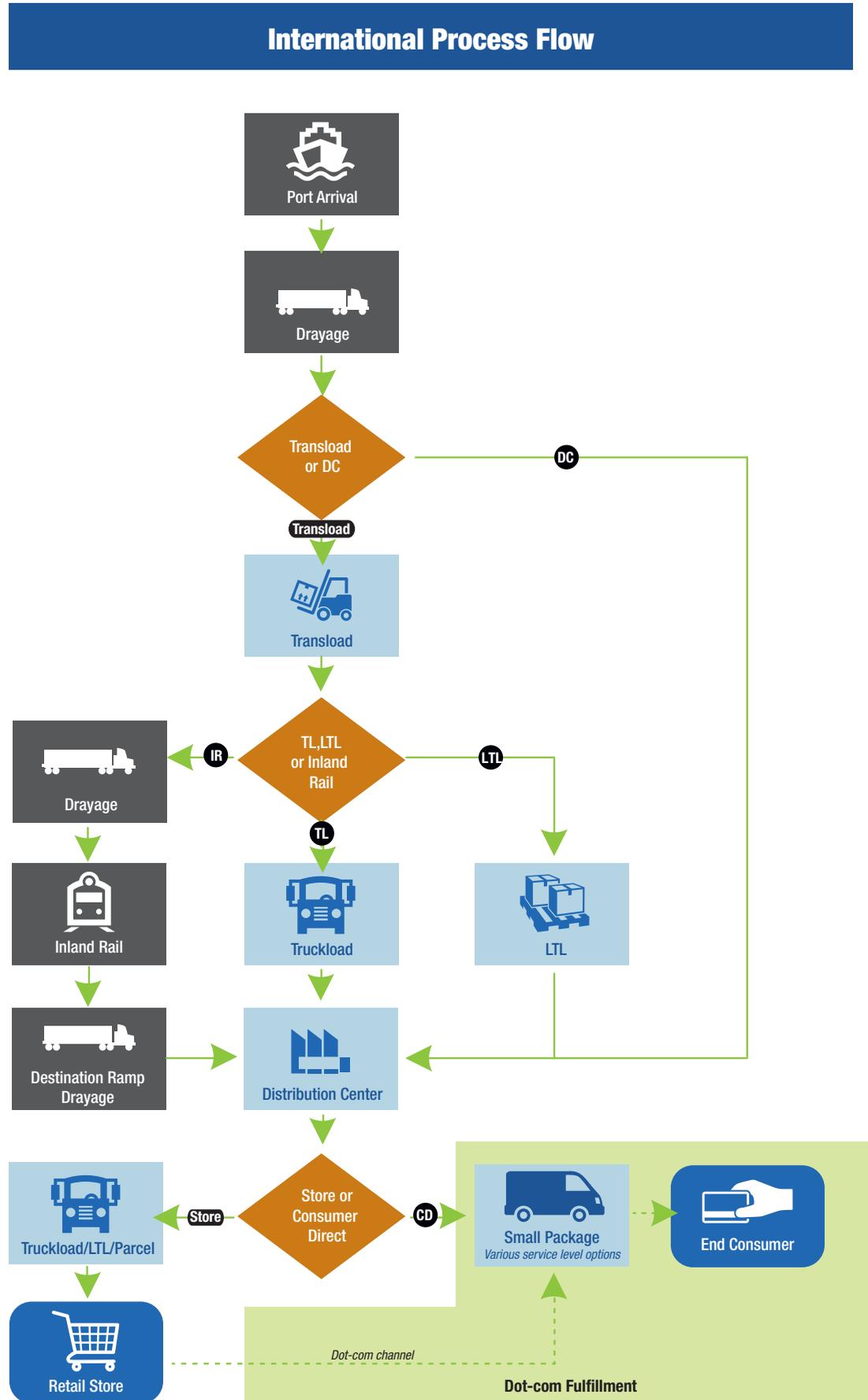
Is Intermodal right for your transportation and distribution operations? According to Cleveland Research Data, of the 535 million annual truckloads hauled by Class 8 tractors, about 45 million are still potentially convertible to Intermodal service. There's a strong chance that Intermodal can play a part in your transportation mix—it's important to find the right service provider for your operations.

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# International Intermodal Flow

Taking advantage of trans-loading services near the destination port can enable the integration of intermodal as a key component of inland delivery and can minimize both transportation and inventory positioning costs for international shipments. Intermodal rail enables shippers to choose which type of transport is most suitable from a service delivery and economic standpoint.

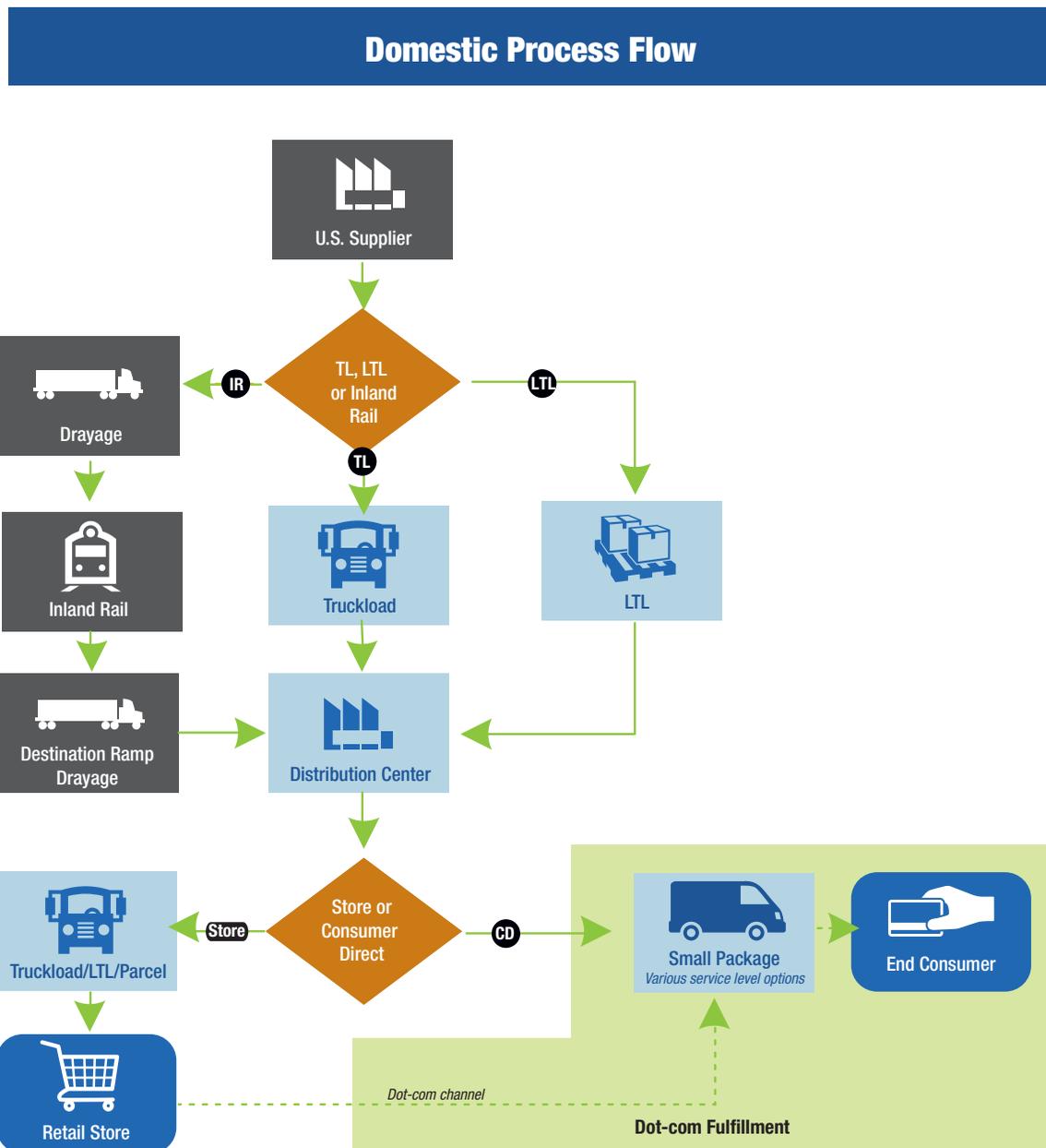
This chart represents key moves within the international intermodal transportation process that can create efficiencies and drive cost reduction. The areas in gray represent the intermodal components in the process flow.



# Domestic Intermodal Flow

Intermodal rail is a viable option for shippers looking for reliable line-haul capacity for shipments in excess of 750 miles. Although not as fast as OTR, intermodal rail offers regular scheduled and reliable transit times that provide balanced inventory cycles to distribution centers and warehouses where reliable transit times trump speed.

This chart shows key moves within the domestic transportation process that can create efficiencies and drive cost reduction. The areas in gray represent the key intermodal components in the process flow.



## About Yusen Logistics

Yusen Logistics is a global logistics and transportation provider that delivers custom supply chain solutions through one of the largest air, ocean and land transportation networks.

We have over 440 offices in 38 countries, with more than 16,000 employees at your service. Combining our services give you greater control and visibility over your supply chain.

For information about our intermodal rail services, e-mail us at [transportation@us.yusen-logistics.com](mailto:transportation@us.yusen-logistics.com) or visit our website at [www.us.yusen-logistics.com](http://www.us.yusen-logistics.com).

