



# TRANSPORTATION MANAGEMENT SYSTEMS AND INTERMODAL RAIL

**An interactive, personalized  
guide to learn more about  
the combined benefits of  
a TMS and intermodal rail**

A WHITE PAPER  
BROUGHT TO YOU BY



# EXECUTIVE SUMMARY

CSX Transportation (CSXT) Intermodal surveyed more than 175 transportation professionals and Transportation Management System (TMS) providers to gain insight as to how technology and intermodal rail are helping shippers meet the challenges of today's transportation environment.<sup>1</sup> The survey sheds light on synergies between the two, while also identifying opportunities to yield greater benefits from each. In today's environment, with heavy focus on cost savings and capacity, adding a TMS, beginning an intermodal conversion journey or gaining best use of both will advance shipper objectives.

1. CSX Transportation Intermodal. (2014). *Transportation Management Systems. Survey.*

## CHAPTERS

Challenging times drive innovative solutions	4
Two independent solutions emerge: a TMS and intermodal rail	5
TMS	6
Intermodal rail	8
The motivation behind modal selection	10
How do a TMS and intermodal rail work together?	11
Getting the most out of a TMS through intermodal rail integration	12
No TMS? No problem	17

## GET THE MOST OUT OF THIS GUIDE

Throughout the following pages, several checkpoints will be presented, allowing readers to either read the full guide from start to finish, or personalize the experience according to knowledge level.

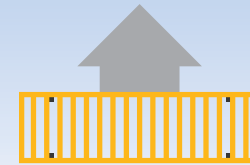
At each checkpoint, choose specific topics to reveal insights that cater to individualized learning. Turn the page to get started learning how shippers can optimize their supply chain through the use of a TMS and intermodal rail.



# CHALLENGING TIMES DRIVE INNOVATIVE SOLUTIONS

Transportation and supply chain managers are facing a growing number of challenges as they strive to improve the performance of their supply chains and control costs. Economic growth has resulted in increased pressure on transportation, challenging shippers to match growing demand to reliable sources of capacity while managing increases in costs, a growing number of regulations, driver shortages and tightening domestic capacity. With freight tonnage forecasted to grow 23.5% by 2025,<sup>2</sup> finding and managing sources of capacity, while controlling costs, will be a long-term requirement. Shippers are turning towards technology and reviewing modal mix to help solve these challenges.

## Transportation Challenges



**Increasing Freight Projections**



**International Sourcing**



**Supply Chain Optimization**



**Fuel Price Volatility**



**Decreasing Driver Supply**



**Regulatory Restrictions**



**Capacity Shocks**



**Sustainability Integration**

2. American Trucking Association. (2014). *Forecast. U.S. Freight Transportation Forecast to 2025*. Retrieved from <http://www.trucking.org/article.aspx?uid=41434596-4c60-444d-bc83-38f06ded539d>

# TWO INDEPENDENT SOLUTIONS EMERGE

As shippers try to manage both rising costs and an environment of tightening capacity, two common solutions emerge: increased use of intermodal rail and the introduction of a TMS. Both a TMS and intermodal are delivering common benefits; therefore, it is important for shippers to appropriately leverage both to maximize key benefits: cost management and scalable capacity.

Demand growth and capacity constriction place increased pressure to do business with a growing number of carriers. Management of multiple relationships, in addition to optimizing to the lowest cost solution, has led shippers to leverage technology to simplify the process. Nearly 80% of shippers surveyed by CSXT utilize, or are exploring, a TMS for transportation management functions. Cost is often the main focus, but access to capacity and service requirements remain at the top of the list for true optimization.

Domestic truckload freight trends have left shippers seeking untapped sources of capacity and a means of hedging rising rates. As a result, shippers are turning to intermodal rail, a transportation mode that provides scalable capacity and sustainable savings, now more than ever. According to a recent survey, shippers expect intermodal to account for 17% of their truckload freight by 2020.<sup>3</sup>

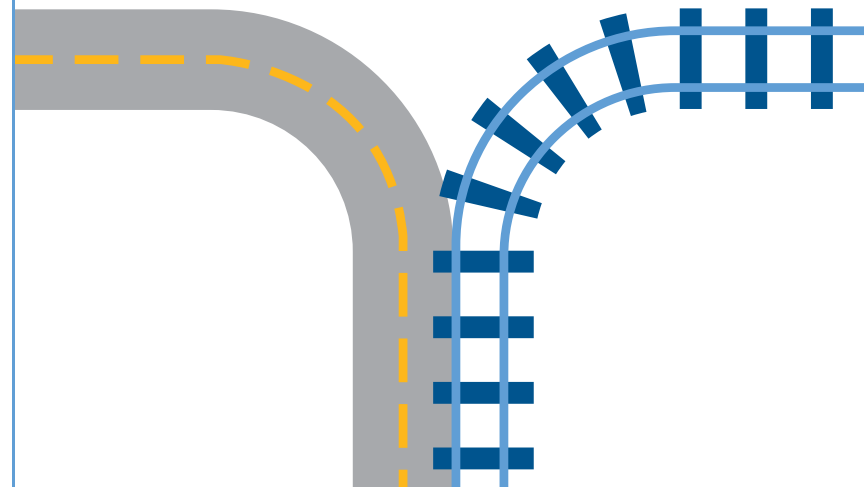
3. Wolfe Research. (2014). *The State of Freight*.

## What Is a TMS?

A TMS is supply chain management software customized to a shipper's need to secure cost-efficient transportation solutions, through carrier selection, rate management, mode selection, load tending and freight payment.

## What Is Intermodal Rail?

Domestic intermodal rail is a mode of transportation by which goods are moved using a mix of trains and trucks. Trains are used for the long-haul portion of the move, taking advantage of the efficiency of rail, while trucks are used to complete the first-mile/last-mile portion of the trip.



## CHECKPOINT

# CHOOSE A PERSONALIZED PATH TO SUPPLY CHAIN OPTIMIZATION

Learn about the benefits of a TMS

6

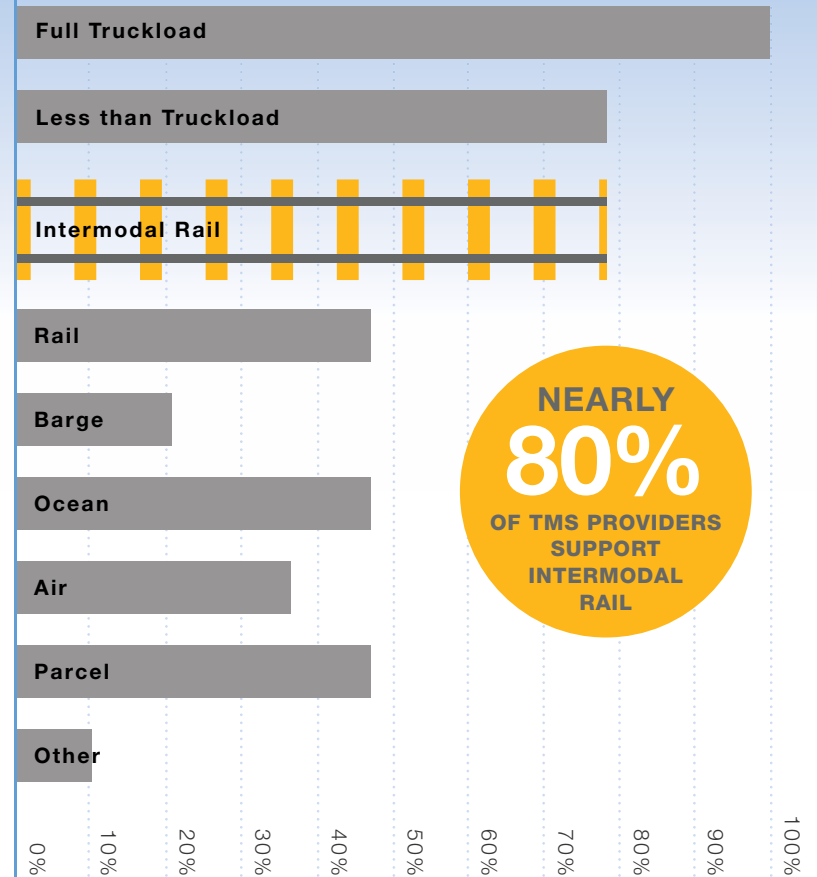
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Discover the benefits of intermodal rail

# HOW A TMS FITS WITHIN A SUPPLY CHAIN

A TMS can support many different modes used within supply chains, including full truckload, less than truckload, intermodal rail, ocean, air and more. When TMS solution providers were asked which modes their platforms supported, 100% indicated full truckload freight, while 80% reported that intermodal rail is a supported mode. The large percentage of platforms that support full truckload freight and intermodal rail indicate that supply chains comprised of domestic, over-the-road freight moves have multiple TMS solutions from which to choose. Varying modal capabilities of these tools, in addition to the ability to coordinate transactions between multiple carriers within each mode, makes complex relationship structures more manageable for shippers using a TMS.

## Modes Supported by a TMS



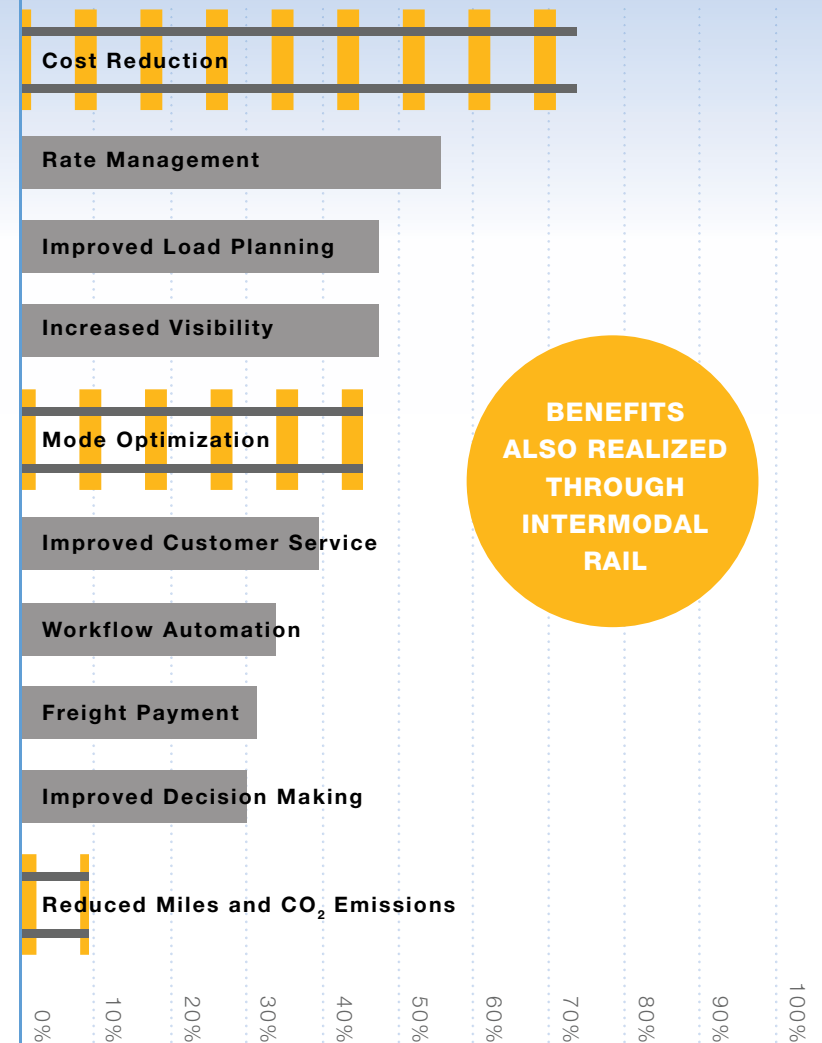
# THE BENEFITS OF A TMS

When asked to rank the top benefits realized from the implementation of a TMS, cost reduction and rate management were top of mind for most shippers. While these two were the most common, it is clear that improving service and increasing efficiency are other expected outcomes. A TMS is often implemented to yield several benefits, including:

- Cost Control
- Modal Selection
- Manage Service Reliability
- Carbon Emissions Reduction
- Time and Labor Savings
- Supply Chain Visibility

## Top Realized Benefits by Implementing a TMS

(Ranked in order of perceived importance)





## CHECKPOINT

# CHOOSE A PERSONALIZED PATH TO SUPPLY CHAIN OPTIMIZATION

Discover the benefits of intermodal rail

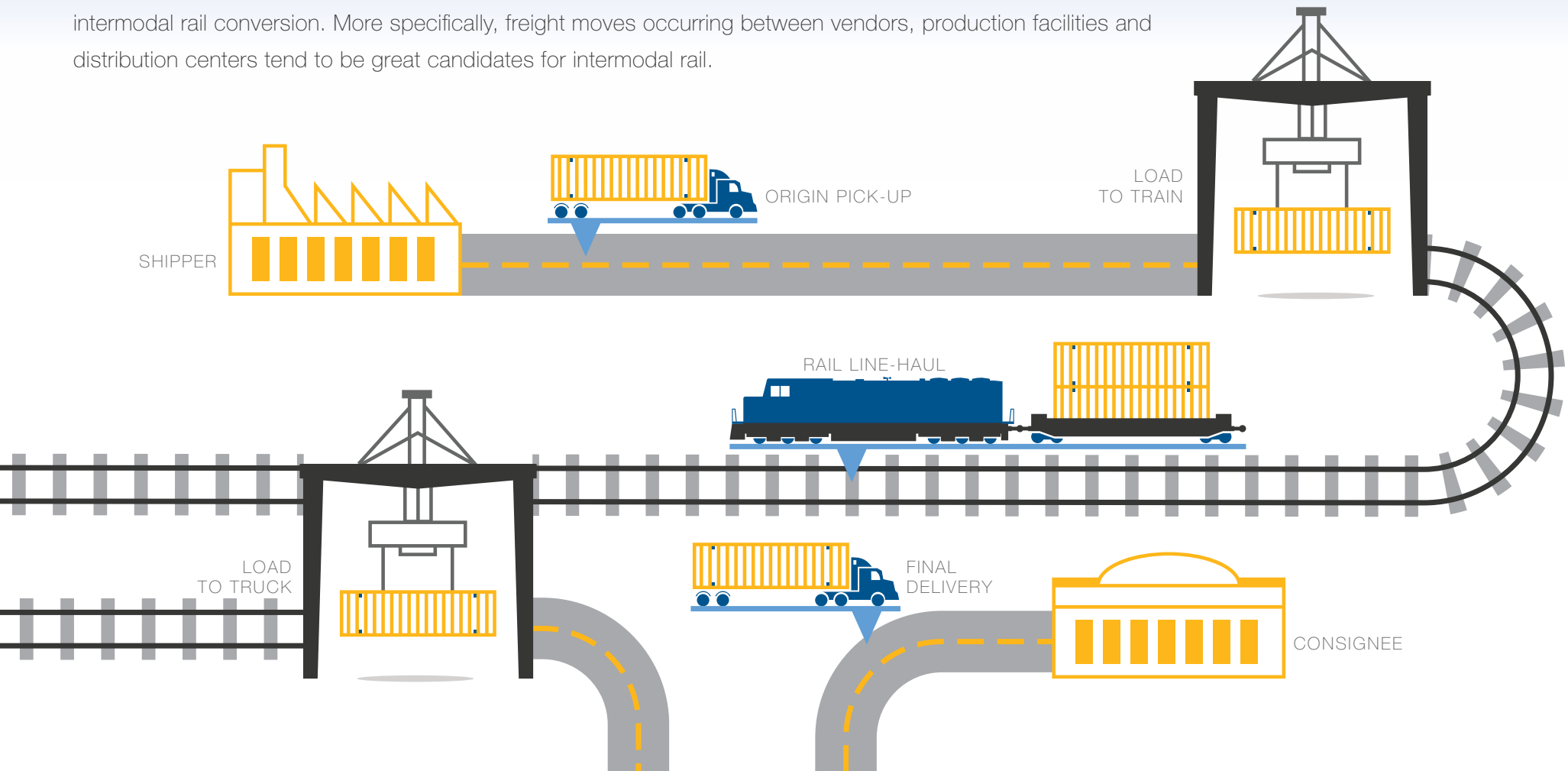
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Learn about the motivation behind modal selection

# WHERE DOES INTERMODAL RAIL FIT WITHIN A SUPPLY CHAIN?

Domestic intermodal rail is used to transport a wide variety of goods that range from electronics, component parts and inputs, to finished products, including household items, auto parts, clothing, groceries and more. Supply chains that use over-the-road transportation, moving freight 500 miles or greater, are generally a best fit for intermodal rail conversion. More specifically, freight moves occurring between vendors, production facilities and distribution centers tend to be great candidates for intermodal rail.

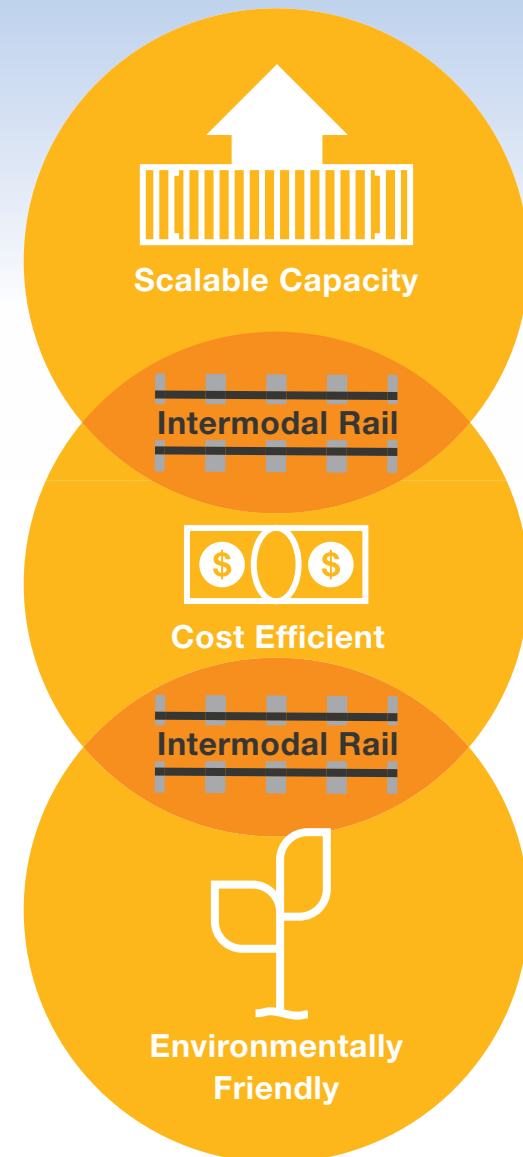


# THE BENEFITS OF INTERMODAL RAIL

Transportation costs comprise 61.5% of total logistics expenditures,<sup>4</sup> so finding cost-saving opportunities in this arena is essential to managing overall supply chain costs. Intermodal rail is a cost-efficient freight shipping solution that provides shippers access to capacity while delivering a sustainable, environmentally friendly transportation option.

Shippers currently moving full truckload freight 500+ miles over the road should evaluate their current modal mix to ensure they are taking advantage of the most cost-efficient modes available. CSXT has found that 96% of shippers have truckload freight in their supply chains with an available intermodal option.<sup>5</sup> On average, shippers that convert freight from over the road to intermodal rail save 10-40%.

## Intermodal Rail Delivers Economic, Capacity and Environmental Benefits



4. Gimore, Dan. (2014). *State of the Logistics Union 2014*. Retrieved from <http://www.scdigest.com/ASSETS/FIRSTTHOUGHTS/14-06-17.php?cid=8190>

5. Based on all shipper truckload files analyzed in 2014 by the CSXT Intermodal H2R Optimizer.

## CHECKPOINT

# CHOOSE A PERSONALIZED PATH TO SUPPLY CHAIN OPTIMIZATION

Discover the motivation behind modal selection

10

11

See how a TMS and intermodal rail work together

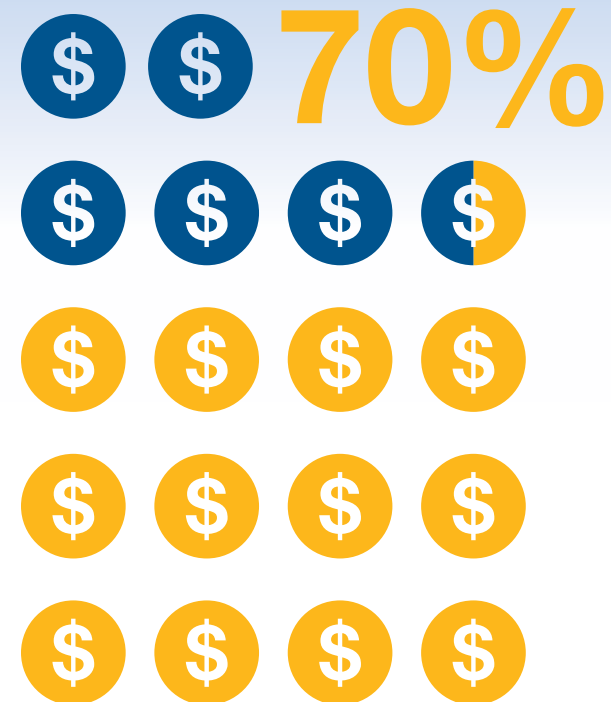
# THE MOTIVATION BEHIND MODAL SELECTION

When surveyed, shippers indicated the primary factor driving modal selection was price. Price as a motivation for modal selection was a central theme identified by shippers that leverage both a TMS and intermodal rail.

- Over 70% of shippers indicate cost savings as the goal for using a TMS
- 95% of shippers identify savings as the primary driver for converting freight from over the road to intermodal rail<sup>6</sup>

Based on survey findings, shippers that implement a TMS and convert freight from the highway to intermodal rail seek the common goal of cost savings. Individually, a TMS and intermodal rail can provide shippers with a viable solution to reducing costs within the supply chain. Turn the page to see how the integration of these two components together can offer even more savings and scalable capacity.

**Over 70% of Shippers Indicate Cost Savings as the Goal for Using a TMS**



**95% of Shippers Indicate Savings as the Primary Driver for Converting Freight from Highway to Rail**



## CHECKPOINT

# CHOOSE A PERSONALIZED PATH TO SUPPLY CHAIN OPTIMIZATION

See how a TMS and intermodal rail work together

11

12

Learn how to get the most out of a TMS  
through intermodal rail integration

# INTERMODAL RAIL AND A TMS WORKING TOGETHER

CSXT's survey results show how these two independent and very different solutions, a TMS and intermodal rail, deliver complementary value. While adoption of each of these solutions is growing among shippers, fewer industry leaders are looking at the combined solution of growing intermodal use in a TMS controlled environment.

BENEFITS	TMS	INTERMODAL RAIL	TMS + INTERMODAL RAIL
Cost Savings	Provides an average of 6% reduction in transportation costs <sup>7</sup>	Provides sustainable savings of 10-40%	Ability to control costs through increased visibility to most cost-efficient mode
Capacity	Easily manages rates and load tenders of a growing number of carriers	Increases access to a scalable source of capacity	Access to capacity in tightening markets by having visibility to lanes with intermodal options
Efficiency	Automates transportation management functions	One freight train can carry the equivalent freight of 280 trucks	When intermodal solutions are uploaded into a TMS, mode optimization becomes more streamlined

7. Banker, Steve. (2014). *ROI Is Driving Growth In Transportation Management*. Forbes. Retrieved from <http://www.forbes.com/sites/stevebanker/2014/09/04/roi-is-driving-growth-in-transportation-management>

**Yes, a TMS and intermodal rail can work together.**

**80%**

**OF TMS PROVIDERS STATE THEIR PRODUCT SUPPORTS INTERMODAL RAIL**

## A TMS and Intermodal Rail are Synonymous in the Ability to:

 <b>Reduce Costs</b>	 <b>Maximize Capacity</b>
 <b>Improve Efficiency</b>	 <b>Provide Optimization</b> <small>specialized for each customer</small>

## CHECKPOINT

# CHOOSE A PERSONALIZED PATH TO SUPPLY CHAIN OPTIMIZATION

Learn how to get the most out of a TMS  
through intermodal rail integration

12

17

No TMS? Discover ways to optimize a supply chain  
in an environment without a TMS



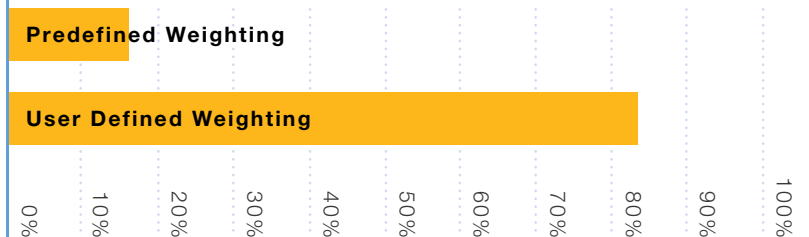
# GETTING THE MOST OUT OF A TMS THROUGH INTERMODAL RAIL INTEGRATION

With the majority of survey respondents, both TMS providers and shippers, stating that rate is the primary factor for decision making within a TMS, it would seem as though intermodal rail, an inherently cost-effective mode, would be strongly leveraged by such a tool. However, the survey findings uncover two real gaps shippers may not be aware of that could be leaving potential savings on the table and additional capacity untapped. A TMS may unintentionally be holding back greater savings and access to a growing source of capacity due to two primary factors: the TMS customization process and lack of inclusion of intermodal rail solutions.

## Configuring TMS Weighting Criteria to Identify Intermodal Rail Solutions

One of the major gaps presented in the survey findings was that many shippers are not fully leveraging TMS capabilities to optimize truckload and intermodal solutions. While 80% of TMS providers state support for intermodal rail is built-in, only 52% of shippers believe this functionality exists within a TMS product currently in use. A TMS requires input from the end users to ensure all desired modal solutions, for each lane, are appropriately considered; otherwise, the full benefit of both the TMS and intermodal rail will not be realized.

## How is the Weighting Applied to the Factors Used for Modal Selection?



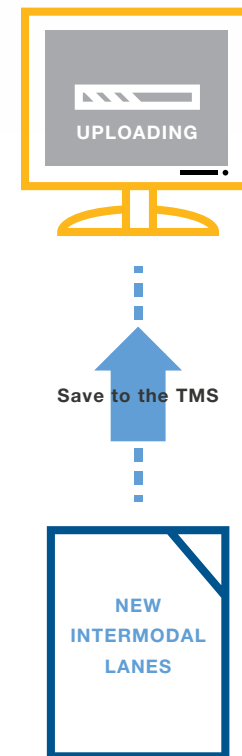
**A User Must Configure the TMS to Accommodate Intermodal Rail**

# A TMS DOES NOT INHERENTLY KNOW THE AVAILABLE INTERMODAL RAIL SOLUTIONS

TMS solutions have not yet evolved to incorporate a full view of domestic North American intermodal rail routes available to shippers, leaving a TMS dependent upon its users to specify what modes are available for each freight lane. A TMS cannot identify new or unused intermodal rail solutions that have not been set as options.

**A TMS Alone Will Not  
Maximize the Full Benefits  
of Intermodal Rail**

**Remember to Upload New  
Intermodal Lanes into TMS**



# CSXT'S H2R OPTIMIZER ENSURES OPTIMAL USE OF INTERMODAL RAIL WITHIN A TMS

With such a keen focus on cost savings and securing capacity in the current marketplace, shippers can ensure that both a TMS and intermodal rail are leveraged together to maximize benefits by conducting a thorough analysis of freight moving in a supply chain and identifying opportunities for highway to intermodal rail conversion. By inputting the results of such an analysis, a TMS will be fully equipped to review all available domestic intermodal rail options, ensuring all cost savings and capacity opportunities are considered.

CSX Transportation's **Highway to Rail (H2R) Optimizer** is a proprietary tool that identifies, on a large scale, the freight within a network that is most attractive for intermodal conversion. Using this data, transportation savings and access to capacity can be maximized, which is vital to any supply chain. By providing the origin and destination zip codes along with volumes for each lane, a complimentary analysis can be completed by CSXT. The results of the H2R Optimizer indicate that 96% of shippers have truckload freight in their supply chains with an available intermodal option.



The H2R Optimizer helps maximize value for a TMS

**TO REQUEST A  
COMPLIMENTARY  
ANALYSIS, VISIT  
[H2ROPTIMIZER.COM](https://www.h2roptimizer.com)**

## H2R INTERMODAL CONVERSION ANALYSIS // SAMPLE OUTPUT

Shipper Lanes	Recommended Intermodal Rail Solution	Current OTR Miles	Origin Dray Miles	Destination Dray Miles	Estimated Transit Days	Annual Loads
Montreal, QC x Jacksonville, FL	Valleyfield, QC x Jacksonville, FL	1305	40	13	7.6	1010
Westfield, IN x Bronx, NY	Indianapolis, IN x Little Ferry, NJ	758	34	13	2.6	570
Atlanta, GA x Reserve, LA	Atlanta Hulsey, GA x New Orleans, LA	501	2	39	2.8	100
Matteson, IL x Miami, FL	Bedford Park, IL x Miami, FL	1367	26	13	3.9	925
Victorville, CA x Seymour, IN	City of Industry, CA x Louisville, KY	2049	64	62	7.6	250

# TOGETHER, A TMS AND INTERMODAL DELIVER RESULTS

Often, shippers believe intermodal rail is only a good fit for freight moving long distances. However, intermodal rail is a viable solution for loads moving 500 miles or greater.

Significant and ongoing investment in United States rail infrastructure has enabled new intermodal solutions in non-traditional routes, bringing new capacity solutions to today's shippers. A modern supply chain can not afford to exclude intermodal rail from the review process. Supply chains must continuously be analyzed against these evolving solutions to ensure optimal mode mix.

A TMS is a critical component of a growing number of supply chains, delivering increased efficiency and reduced costs to users. At the same time, the growth of intermodal rail is accelerating as shippers seek more cost effective and efficient modes by which to move freight. Use of a fully leveraged TMS, including intermodal solutions will generate maximum benefits.

**NEXT PAGE >>>>>>>>**

ADVANCE FOR A  
CHECKLIST OF ACTION  
ITEMS TO ENSURE  
AN INTERMODAL RAIL  
SOLUTION IS BEING  
FULLY LEVERAGED  
WITHIN A TMS

# THE PATH FORWARD: ACTION STEPS TOWARDS INCREASED OPTIMIZATION

A TMS can not optimize a solution it does not know.

**To get the most out of a TMS, shippers must:**

- 1 Ensure the system supports *all* modes of transportation.
- 2 Ensure modal selection criteria are customized to maximize results.
- 3 Request your complimentary H2R Optimizer analysis to identify intermodal solutions. Visit [H2ROptimizer.com](https://www.h2roptimizer.com) for more information.
- 4 Input the intermodal solutions identified by the H2R Optimizer into the TMS for consideration when the tool evaluates freight moves.
- 5 Continuously evaluate intermodal offerings to ensure the TMS dataset is up to date and evaluating all options when determining modal selection. CSXT Intermodal is available to re-run the H2R analysis to assist shippers in incorporating new intermodal service offerings into their dataset.

For additional supply chain optimization resources, visit [intermodal.com](https://www.intermodal.com)

HOW TOMORROW MOVES



# NO TMS? NO PROBLEM

## ADDITIONAL WAYS TO OPTIMIZE A SUPPLY CHAIN

For an organization not currently utilizing a TMS, analyzing existing transportation moves becomes even more imperative to running a lean and optimized supply chain. Proper modal selection for the movement of goods is a critical component of managing an optimal supply chain. CSXT Intermodal provides shippers the ability to easily target freight for highway to intermodal rail (H2R) conversion.

CSX Transportation's **Highway to Rail (H2R) Optimizer** is a proprietary tool that identifies, on a large scale, the freight within a network that is most attractive for intermodal conversion. Understanding freight at a deeper level and identifying sub-optimal freight has never been easier. It's time to challenge legacy transportation networks, and discover enhanced solutions for today's shipments. By providing the origin and destination zip codes along with volumes for each lane, a complimentary analysis can be completed by CSXT. The results of the H2R Optimizer indicate that 96% of shippers have truckload freight in their supply chains with an available intermodal option.



The H2R Optimizer identifies opportunities to optimize current freight moves without the use of a TMS

**TO REQUEST A  
COMPLIMENTARY  
ANALYSIS, VISIT  
[H2ROPTIMIZER.COM](https://www.h2roptimizer.com)**

### H2R INTERMODAL CONVERSION ANALYSIS // SAMPLE OUTPUT

Shipper Lanes	Recommended Intermodal Rail Solution	Current OTR Miles	Origin Dray Miles	Destination Dray Miles	Estimated Transit Days	Annual Loads
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# THE PATH FORWARD: ACTION STEPS TOWARDS INCREASED OPTIMIZATION

For an organization not currently utilizing a TMS, follow the three steps below to get on the path to supply chain optimization.

- 1 **Request a complimentary supply chain analysis using the H2R Optimizer. Evaluate all full truckload moves that are shipping 500+ miles.**
- 2 **Analyze the supply chain on a routine basis as newly introduced service offerings can create additional intermodal rail conversion opportunities.**
- 3 **Evaluate whether or when a TMS is an organizational fit. Learn more about the benefits of a TMS on pages 6 and 7 of this guide and how to get the most out of a TMS and intermodal rail on page 12.**

For additional supply chain optimization resources, visit [intermodal.com](http://intermodal.com)

HOW TOMORROW MOVES

