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Ports and Railroads: Comparisons Illuminate a Winning Partnership

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Ports and Railroads have long been in partnership, each working to help cargo move faster and farther from origin to destination. The rise of intermodal traffic has led to closer cooperation between the two in recent years. Intermodal accounts for 22% of all railroad traffic while port-bound imports and exports account for 50% of US rail intermodal traffic. Understanding the workings of these important pillars of the goods movement industry will provide important insights as to the current success as well as provide a roadmap for additional improvements in the future.

The partnership between rail and ports benefits all in the supply chain, including transportation companies, consumers and producers. Both help lower congestion, pollution and carbon dioxide while having impressive safety records, as compared to the trucking industry. Both rail and ports are also known to be early adopters of technology and automation, contributing to the efficiency of moving goods.

There are many intriguing differences, as well as similarities. For instance, railways, while facing fierce competition with each other as well as with the trucking companies for business, typically have a healthy competitive position with their customers, while ports are in a relatively weaker position with freight shippers. These shippers can simply sail to the next port to find a more favorable situation. As a result, while railroads strive to provide excellent service, their economic reality means they must focus on efficient asset utilization; whereas the ports must be focused primarily on service, such as berth availability and unload time. Both can struggle to fund worthy projects, railroads because of a high internal cost-of-capital, and ports due to limited access to capital.

With respect to operations, railways look to maximize train length so as to efficiently utilize assets, while ports try to unload ships as quickly as possible to provide the best service possible. Railroads constantly work to minimize switching on mainline routes in order to provide reliable service to their customers. Ports move goods in containers and those containers are often handled twice, if not three times, within the port prior to moving out to their next location. To unload ships quickly, container traffic within the port may become unbalanced between full and empty containers. Both railways and ports strive to lower the number of empty containers on their property.

With respect to infrastructure, railways have limited track availability while ports have limited space. However, both railways and ports would like to expand as much as possible. The larger their footprint, the more potential railways and ports have for revenue. Tracks are commonly found in dense urban areas, restricting ease of expansion within an existing right of way. Often, the best the railroads can do is increase capacity incrementally given their many competing priorities for capital investment. Ports,

similarly have difficulty expanding their track due to space constraints and at-grade crossings within their footprint. Ultimately, ports have less ability to increase capacity.

A partnership between railways and ports can be a winning combination as long as their similarities and differences are well understood. Railways are focused on meeting their train schedules, and are generally unable to dispatch additional trains to help ports alleviate short-term surge congestion. Ports meanwhile experience extreme congestion on a regular basis and at times handle containers up to three times in order to provide service to shippers. Both railways and ports can hinder each other's growth and efficiency without proper coordination, but tremendous opportunities abound for enhanced coordination, efficiency, and growth for both ports and railways.

The ports market is transitioning their terminal operations from manually operated, diesel powered equipment towards automated electrically powered yard cranes. This allows intermodal terminals to be designed to handle more cargo in a smaller footprint, providing efficiency gains for both ports and railways. Some shippers are using a new practice called "container stuffing," in which containers that would have previously made their return trip empty, are instead filled with materials whose transport would not have otherwise been economical. Lastly, many ports have increased their draft to allow for larger container ships, increasing the number of containers that can be handled in one delivery. The industry continues to look for equipment innovations that can support growth. Looking to the future, some ports are looking to maximize efficiency by implementing "hot loading," where containers are removed from a ship and directly placed upon a train. This idea requires a strategic commitment from both parties to coordinate equipment usage in advance.

Both ports and railways have explored how to use their capital expenditures on infrastructure to generate long term growth. Many railways have made significant investments to support intermodal traffic, such as CSXT's National Gateway which increased vertical clearances to allow for double stack intermodal containers at various locations across a particular rail route, connecting several intermodal yards. These types of strategic investments are made to increase a railroad's overall intermodal business, allowing them to move goods faster between interchange points and ports. In recent years, the addition of inland ports as an extension of an existing capacity constrained port has been considered by some ports to increase their footprint on a different piece of property. These inland ports are typically developed at sites with beneficial road and rail access.

In summary, the transport industry moves a large amount of cargo efficiently across significant distances. Although rail and port operations face different challenges and constraints, these differences provide openings for increased shipping efficiencies, and opportunities for improvement. Railways and ports that understand their differences can strategically work together to create success for both modes of transportation. All members of the supply chain including Class I railways, short lines and ports, have the opportunity to capitalize on various improvements that will enhance the future of the transportation industry. The cargo industry will reward those supply chains that continue to innovate and make improvements.

Note: At this year's ARDA Executive Forum, which took place in Miami January 26–27, attendees were treated to a presentation about the relationship between ports and rails, given by AECOM's Bill Hjelholt and Lori Baer. This article is based upon the information they shared in their presentation on Ports and Railroads. For more information on this year's ARDA Executive Forum please visit our event page at <http://www.amraildev.com/2016executiveforum>.