

Prioritizing Inbound Transportation

by

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ABSTRACT

Retailers must coordinate inbound shipments from a large number of vendors. In order to manage capacity, retailers need to have a system to prioritize inbound loads with capacitated carriers. This practice creates a constraint when the number of loads exceeds the capacity of committed carriers due to seasonality and consumer shopping behaviors. A prioritization mechanism needed to be developed to support decision making for the selection of loads when capacity is constrained. This research applied the Analytic Hierarchy Process to define prioritization logic for each inbound load and solved a Knapsack model to optimize the assignment. This decision-making model allows the retailer to properly assign load priority based on company objectives. Further, opportunities were found to optimize load priority by up to 8.3 percent as compared to the current assignment. Similar retailers can leverage this research not only to prioritize inbound loads but also to prioritize other decisions such as which initiatives to pursue.

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