

# **Simulation Model of Internal Transportation at a Container Terminal to Determine the Number of Vehicles Required**

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## **Abstract**

The operating efficiency of a container terminal is largely determined by the number of vehicles available for internal transportation. This article presents a discrete event simulation model, combined with scenario analysis, to help determine the adequate number of vehicles to satisfy the demand for internal container movements at a port in the city of Barranquilla. The model assesses the container movements performed by Straddle Carriers (SC) between the container loading/unloading dock and the storage and inspection yards. The results of the experiments performed indicate that when demand increases by more than 10%, the number of vehicles currently available may be insufficient to cover operating requirements in an efficient manner. The simulation model tests the effectiveness of a set of strategies that may be implemented at the studied terminal.

## **Keywords**

Scenario analysis, Container terminal, Discrete event simulation, Straddle Carriers