

Optimization of the Receiving and Delivering subsystem operations in a seaport container terminal.

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Due to the standardization of the maritime freight transport the seaport container terminals throughput has been increasing. Added to the lack of space to improve facilities and capacities of container terminals are the main items of decision-makers. Their aim is to avoid problems like congestion and to assure a good efficiency and profitability of the operational systems that works in container terminals.

Ports, considered as one of the main point of the logistics commercial processes, must offer an efficient service to road and maritime transport like trucks and vessels. Besides, ports have to take care of the goods stacked on the yard.

In order to offer a service related with the demands of clients and managers and to attend accurately all the requirements of the different components of terminals, several approaches have been published in the past suggesting a division of the terminal in four subsystems interrelated, but also with a reduced autonomy. This paper is focused on the analysis of the receiving and delivering subsystem of container terminals. In particular, the objective of these investigations is to develop different strategies to optimize terminal operations.

Receiving and Delivering (R/D) subsystem is focused on the process of container transport by straddle carriers between the container truck and the container yard. The main objective is to offer a minimum quality service, which usually does not fulfill the transporters expectative. The great success in sea freight transportation during the last decades and the future increases has forced the decision-makers of container terminals to develop strategic plans, which will try to minimize the delay times of road transport and furthermore the increase of final price of the products.

Due to the former reason, optimization of Receiving and Delivering subsystem by simulation is used to solve congestion problems which affect a large part of worldwide seaport terminals.

Simulation tool has been widely applied to design and achieve decisions that will be used to improve the seaport terminals processes. Even more, simulation has been used to test different hypothesis, targeting for and improvement of quality service and a large efficiency by using terminal facilities combined with low cost.

Construction phase with calibration and validation processes of the simulation model are the main steps to success and to get real results. These steps require special attention, because the target of this study is to develop a port simulator able to solve a generic sort of seaport container terminal departing from a particular study case (Barcelona's Port).

That methodology will allow solving the main problem that container terminals suffer nowadays, and therefore it will produce an increasing of competition between seaports, specially geographically close ones, as a result of standardization and globalization processes.

The last decision will be achieved as a balance between customers and managers of container terminals, regarding macroeconomic and optimization processes.

