

ABSTRACT

The service time is the main factor for container operations management in terminals. This research focuses on improving the service time of gate operation in the inland container terminal by using an analytical method and simulation software. The propose of this study is to investigate the current full container gate-in operations and then find the alternative to reduce the queuing time at the gate that is considered as the longest waiting time. The long waiting time occurs from most of the truck arriving in the same period, the long service time of inspection and registration while the inadequate staff and gate lane cannot accommodate these trucks in time.

The simulation is utilized in this research to simulate and analyze the current process to identify the operation problems. After that the results from the as-is simulation are validated and used for defining the alternative scenarios. Three scenarios are applied to the as-is simulation model. The first scenario emphasizes adding the gate and staff to increase gate lanes for truck services. The second scenario focuses on changing the inspectors and gate staffs' schedule. The third one focuses on adjusting work process flow. Many factor criteria from each scenario are compared to select the most appropriate solution such as average waiting time, average resource utilization, additional costs for improvement and average cycle time.

The results from the simulation indicated that the selected alternative can reduce the truck waiting time by adding four survey staff and processing the two activities: container inspection and registration at the same time instead of operating container inspection before registration. This causes cycle time reduction from 13.60 minutes to 9.76 minutes. Also, the average truck waiting time of this alternative is reduced from 8.40 minutes to 6.14 minutes.