INTERMODAL TRANSPORTATION CONECTIVITY PLANNING USING DISCRETE EVENT SIMULATION MODELLING ON TELUK LAMONG CONTAINER TERMINAL

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Abstract

This study create a discrete event simulation model for intermodal transportation connectivity on PT. Teluk Lamong Surabaya using Arena software. We made a simulation model that integrated two variety of transportation mode, which are truck container and monorail container. There are five train station for the monorail container located on five different area to serve the container pickup and delivery service. The train station centers operated with ECO based system which prefer using a queueing truck rather than a container yard to minimize the space needed. A number of truck assigned to standby on each train station and prepared the container for loading and unloading as soon as the monorail get to the station center. The number of truck queued on each train station center need to be limited to the optimal value due to prevent the space inefficiency and carbon emission derived from the truck. We conduct some numerical experiments to show the behavior of our proposed model and choosing which operational policy to make the system better. We used four main scenarios, the first and the second scenarios used to generate the best amount of monorail operated on each kind of system loading and unloading policy. The third scenarios used to generate the best composition for the monorail cargo policy. And the last scenario generated to get the optimal amount of truck queueing on each train station centers.

Keywords: Intermodal Transportation, ARENA Simulation Modelling, Intermoda Conectivity
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