ABSTRACT

PT XYZ Port consists of more than one terminal, namely CT1 and CT2, the terminal is not equipped with sufficient resources to serve the container request process transported by container trucks. Containers are not only moved between different locations in one terminal but also between several terminals. The movement of containers between different terminals is known as Inter-Terminal Transportation (ITT). However, the ITT process activity and facilities cannot be said to be optimal due to limited resources, especially in the loading and unloading process. With the limited ITT process resources, the container terminal Utility is very low, with a total capacity of 720 container terminal capacities. Terminal CT1 360 and 360 container capacities at CT2, but due to limited resources, it has an impact on the delay in the ITT service process and results in the suboptimal loading and unloading process which makes the container terminal Utility very low. The occurrence of delays due to unfulfilled resource problems can be caused by the driver not being available, the facilities are not ready and thus causing delays in loading and unloading operations at PT XYZ Port. The limitations of the driver of the non-optimal facilities at CT1 and CT2 are not available while the container demand has a maximum operational time limit standard of 20 minutes, with the limitations of the driver and the demand for containers that are quite a lot even though the facilities are met but cause the container terminal Utility to be very low in terms of terminal capacity and facilities that are met and the loading and unloading time is not efficient in the Port and causes a delay in the process in the ITT process. By identifying these factors as the cause of the problem of nonoptimal facilities at PT XYZ Port, the Author limits the problems that have been explained so that the scope of the problem does not deviate and does not expand from solving the problem. The desired target of this study, the author aims to simulate optimal facilities to minimize the delay time of the interterminal transportation process. the author simulates by focusing on the Anylogic tools. Testing the distribution of service time data in this final project uses Arena Training & Evaluation Mode software which aims to find out the service time data on August, 2023 by testing whether the data is normally distributed or not and finding out what distribution the data is to be entered into the Anylogic 8.9 version software. This test is

important for calculations as service time parameters that will be run in this simulation model. This study aims to be able to create port policies using the Agent Based and Discrete Event methods by considering container Utility factors and according to the company's standard time. The recommended policy is the Utility policy at the Port. Based on the results of the research that has been carried out from the data collection stage, data processing, and analysis of simulation results, the following conclusions were obtained: Based on the results of the simulation experiment that has been carried out, there are Target Driver and Terminal Utility values proposed for the company. The value of the resources proposed to be used by the company is 6 drivers. In addition, there is a Terminal Utility value proposed to the company. The proposed terminal Utility to the company is 442 capacity. From the conclusions obtained, the company should implement a Port Utility policy and implement a time policy. Implementation of this policy can help companies reduce operational delay time, increase container terminal capacity and improve operational efficiency.