ABSTRACT

The purpose of this final project is to make container terminal simulation software with Qt programming and open source technology. This simulation software has made to analyze the acceptable yard occupancy ratio (YOR) in BJTI’s international container terminal. This research motivated by the absence of container terminal simulation software in Indonesia and often a debate about the acceptable YOR for container terminal operation especially overbrengen. The debate triggered by the decision of 85% acceptable YOR for container terminal by custom and clearance party.

The activities of container terminal likes receiving, haulage discharge, haulage loading, and delivery are simulated to testing the sensitivity of YOR. The scenario analysis is testing the sensitivity of YOR from its main component. The scenario analysis is testing the sensitivity of YOR due to changes of container throughput and due to changes of dwelling time import and export. The acceptable YOR can be known with the result of variation scenario of dwelling time import and export.

The result of this final project show the maximum YOR with the current conditions of BJTI’s container terminal performance (dwelling time import is seven days and dwelling time export is five days) is 62% with the maximum container throughput of 10,924 TEUs/month. This result shows the decision of 85% acceptable YOR can not be done yet. If this 85% acceptable YOR used for container terminal operations limit, the stakeholders of container terminal industries will be loss. The shipper will be loss 87%, 11% for terminal, and 2% for trucking company. A dwelling time reduction of one day lead to a profit improvement of 20% and maximum YOR limit to 80%.

**Keywords:** simulation software, container terminal, Qt programming, open source, yard occupancy ratio