

ABSTRACT

Transportation is an activity to move from one place to another. It is an important process in industry, specifically to deliver products from a company to its customers. But, it doesn't give any additional values to the products. Fuel and travel time used for the delivery is the cost that is big enough to do the distribution industry with regular frequency to many locations. Transportation is always costly, and therefore affect the production and distribution costs up to 10-20% of the total cost of a product. Therefore, this process should be as minimal as possible.

PT XYZ is a joint venture between the synergistic some of Indonesia's largest enterprise groups and international investment group which has one of the services, such as transportation and distribution. One of these services is the process of transportation and distribution of both raw materials and finished goods from the warehouse to the customer which is located especially Jabodetabek area. Problems owned by PT XYZ is not having the calculations to determine the shipping route to 42 customers so frequent delays. As a consequence a total distance of route are very large and have an impact on large transportation costs in addition to the large distances between route and the penalties imposed as a result of delays

This research designs an application that uses a formulation that has an objective function to minimize the total distance for every route and transportation costs. Tabu Search algorithm is used as a method of searching the objective function. This study uses customer location data, time windows, each customer demand and availability of fleet. Where the data is used as input to obtain proposed route to minimize distance and transportation costs so as to reduce the delays in delivery of goods to customers.

Keywords: Transportation, Distribution Center, Tabu Search Algorithm, Geographic Information System.