ABSTRACT

Inventory is needed by almost all of trading companies. The inventory comes from the suppliers to be stocked and to supply the customer's demand. Each trading company uses their efforts to fulfill the customer's demand with the lowest level of inventory. The similar things practiced by PT Hempelindo Surabaya which is a branch from PT Hempelindo Jakarta. This company provides various coating products especially the one used for ships, industries, and offshore buildings.

The main problem at the inventory system of the company is that the availability of the product items and the customer's demand is not balanced. Thus the customer are not satisfied with the service provided by the company and the company has over stocked for unnecessary items. Therefore it is compulsory to make a policy which will balance the stock and the demand in accordance with the demand characteristics and the particular condition, since the satisfaction of the customers and the cost from the inventory system will affect the competitive value and the profit of the company.

A method which is applied to solve this problem should anticipate the complexity of the matter, the nonlinear effect, the uncertainty, and the number of criteria to evaluate the performance of the inventory system. Therefore a simulation method is appropriate to be applied as the main approach to solve this matter. By using this approach, we make a model of the inventory system which represents the real system, from which parameters of the system is then established, and then the model is interpreted in a computer programming. Before the experiment get started, ABC classification is used to classify the product item based on the degree of importance to get the similar approach control.

The policy parameter is then varied and used as an input for the simulation experiment to get the detail of the inventory system performance based on the policy input (alternative) applied. Thus the alternative is selected by Analytical Hierarchy Process to get the best alternative according to the criteria and preference of the management of the company. The result of this research is that the developed inventory policy is better than the previous inventory policy used by the company.