MULTI-PERIODIC DISTRIBUTION PLANNING MODEL FOR PRODUCT MULTI-ITEM

Case Study: PT. PERTAMINA Upms V Surabaya, Bagian Pelumas

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Abstrak

Consolidation among suppliers as a party that sends the product and the retailer as the party that receives the product will be able to be a complete trade-off problems, particularly concerning the fees charged to each such party. Consolidation would produce a better cooperation and coordination between both parties. The supplier wants done the product delivery system with a truckload and a minimum frequency of transport costs to be charged to become increasingly small. However, on the other hand, the retailers want to deliver the products performed as often as possible with a small quantity to the inventory holding cost which they guaranteed the minimum. This is a common phenomenon and occurs in almost all companies, so the need for approaches that can be beneficial to both parties simultaneously. Moreover, for multi-product delivery where demand of each type of product is different from one another. Another constraint is also quite important is that each retailer has no stockout for all products supplied by the supplier.

Therefore implemented a model of multi periodic distribution that can accommodate the trade-off simultaneously. Multi periodic distribution model is implemented on the objective function and parameter modification to declare that the product is a multi-product shipped and delivered simultaneously with consolidation on the basis of the quantity of each type of product is different and add some barrier function of the previous model. The model is located on the system Vendor Managed Inventory (VMI) where the supplier is fully responsible for managing the inventory of retailers. The method used to finish the model that has developed is an integer and linear programming by using the software LINGO.
By doing the modification of this model, the total cost charged to each party, both suppliers and retailers will be a minimum simultaneously. And also we can get the frequency and the optimal delivery quantity for each of these types of products delivered to each retailer. So it can be recommended to the PT. Pertamina Upms V Surabaya Lubricants Section in decisions regarding the delivery of the car lubricant products.

**Keywords:** trade-off, inventory, multi-produk, stockout, VMI, multi periodic distribution model, LINGO.