

Abstract

Generally, performance enhancement can be divided into two parts. The first is enhancing performance through marketing strategies, which is normally enlarging sale volumes. The other is enhancing it through production approaches, which is reducing production costs. This research emphasizes the second strategy of performance enhancement by considering only ordering cost, holding cost and transportation cost. The objective of the research is then to determine the cost-effective period of supply.

The case study of this research is the packaging process. The process uses many types of boxes but only the five highest usages of box types are considered. The methodology of this research starts with studying the overview of the process. Next data collections of box usages, ordering and holding policies, and their associated costs are done. Then construct a mathematical model, which its objective is to minimize total costs including ordering cost, holding cost, and transportation cost, and its constraints are relating in the packaging process and demands of the boxes. After the model is done, the data are plugged into the model and the result shows that the cost effective period of supply is one day.

Lastly, sensitivity analyses are given. The first one is the analysis where the ordering cost is changed by -50% to +50%. The result shows that the cost-effective period of supply remains at 1 day. The second is the analysis where the holding cost is changed by -50% to 50%. It is found that the cost-effective period of supply turn to be 2 days when holding cost is reduced by 25% and 50%, however when the holding cost is increased, the cost-effective period of supply remains.