Abstract

System Dynamics modeling technique is the successfully methodology for analysis of problem on many complex systems. In this study, we have using System dynamics simulation to investigate the problem in the manufacturer. The material stock out can cause by the improper inventory management policy. The production also has suffered form insufficient material, since they incur higher labor cost. The System dynamics simulation is used to evaluate the new inventory management policy, with yield lower operating cost. The inventory management parameters, order point and order quantity, have been accommodated to the new policy. These two factors can cause the improvement in inventory ordering cost, carrying cost, and also labor cost,

From the practice and in this simulation, the material lead-time deviation have considered as normal distribution. All eight policies have been evaluated by System dynamic simulation, during the stable production demand. This can be analyzed for the better parameter for order point and order quantity, which yield the lower cost. From the experiment in this simulation, the order quantity together with safety stock at level of one standard deviation (one-sigma) of material lead-time can caused 6.4% of labor cost reduction. The labor cost reduction has improved, 12.5% lower, when order point level with margin of safety stock set at two-sigma. The study also shows that order quantity at EOQ efficiently reduce inventory cost.