Optimizing a multi-product continuous-review inventory model with uncertain demand, quality improvement, setup cost reduction, and variation control in lead time

Abstract

- In this paper, a continuous-review inventory model is developed for multi-products with fuzzy demand. Two constraints as service level and storage space are considered.

- Furthermore, this study considers the process quality improvement, setup costs reduction, and controllable lead time. Lead time demand is an any arbitrary distribution and only mean and standard deviation are known. For this, a distribution-free procedure is employed. Total cost is minimized according to the decision variables for the worst possible distribution situation. A numerical example is given to illustrate the significance of the proposed model. Finally, conclusions and future research directions are given.

Existing sytem

- In a continuous-review inventory system, earlier it was considered that lead time demand followed a normal distribution. However, it is not the same case in real life situations and mostly lead time demand distribution is unknown or it is very difficult to obtain the demand information during lead time..

- ,Since then many of the researchers in different fields used this procedure for the unknown distribution problems. This procedure originally was expressed beautifully but it was quite difficult for researchers to understand and apply totheir problems.

Hardware requirement

- Processor   -   Pentium –III

- Speed   -   1.1 Ghz

- RAM   -   256 MB(min)

- Hard Disk   -   20 GB

- Floppy Drive   -   1.44 MB

- Key Board   -   Standard Windows Keyboard

- Mouse   -   Two or Three Button Mouse

- Monitor   -   SVGA

Software requirement

- Operating System   -   Windows 7/8

- Application Server   -   Tomcat 5.0

- Front End   -   JAVA

- IDE   -   NETBEANS 7.1

- Back-End   -   HEIDISQL 3.5

Proposed system

- A continuous-review inventory model is developed for multi-products with fuzzy demand. Two constraints as service level and storage space are considered. Furthermore, this study considers

- the process quality improvement, setup costs reduction, and controllable lead time. Lead time demand is an

- any arbitrary distribution and only mean and standard deviation are known. For this, a distribution-free procedure is employed. Total cost is minimized according to the decision variables for the worst possible distribution situation.

Conclusion

- The proposed model extended a continuous-review inventory model considering multiple products with stochastic lead

- time, fuzzy demand, and space constraint. The important and major aim of this model was to develop and investigate model for multi-product continuous-review inventory system with the stochastic fuzzy demand to minimize the total cost. For the setup cost reduction and to decrease imperfect production, two logarithmic expressions were used. Managers could reduce both, the imperfect production as well as the setup cost, by using the given strategy for the multi-product.

Reference

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