

Lead-Time Reduction In A Stochastic Inventory System With Learning Consideration

Ben-Daya, M; Hariga, M

TAYLOR FRANCIS LTD, INTERNATIONAL JOURNAL OF PRODUCTION RESEARCH; pp: 571-579; Vol: 41

King Fahd University of Petroleum & Minerals

<http://www.kfupm.edu.sa>

Summary

We develop a continuous review inventory model where lead-time is considered as a controllable variable. Lead-time is decomposed into all its components: set-up time, processing time and non-productive time. These components reflect the setup cost reduction, lot size lead-time interaction and lead-time crashing, respectively. The learning effect in the production process is also included in the processing time component of the lead-time. The finite investment approach for lead-time and set-up cost reduction and their joint optimization, in addition to the lot size lead-time interaction, introduce a realistic direction in lead-time management and control. A numerical example and a sensitivity analysis are presented using the design of experiments to investigate the effect of the model parameters and, in particular, those related to the different lead-time components on the the expected total cost.

References:

1. BENDAYA M, 1994, J OPER RES SOC, V45, P579
2. BILLINGTON PJ, 1987, DECISION SCI, V18, P25
3. GALLEGO G, 1992, OPER RES, V40, P614
4. GALLEGO G, 1995, NAV RES LOG, V42, P773
5. HADLEY G, 1963, ANAL INVENTORY SYSTE
6. HARIGA M, 1999, EUR J OPER RES, V113, P42
7. HARIGA MA, 1999, PROD PLAN CONTROL, V10, P434
8. HONG JD, 1993, COMPUT IND ENG, V24, P209
9. JABER MY, 1995, APPL MATH MODEL, V19, P307
10. JOHNSON LA, 1974, OPERATIONS RES PRODU

© Copyright: King Fahd University of Petroleum & Minerals;
<http://www.kfupm.edu.sa>

11. KIM JS, 1995, INT J PROD RES, V33, P41
12. LEE HL, 1993, LOGISTICS PRODUCTION
13. LIAO CJ, 1991, INT J OPER PROD MAN, V11, P72
14. MOON I, 1994, INT J PROD RES, V32, P2795
15. MOON I, 1998, COMPUT OPER RES, V25, P1007
16. NASRI F, 1990, INT J PROD RES, V28, P199
17. OUYANG LY, 1996, J OPER RES SOC, V47, P829
18. PAKNEJAD MJ, 1987, P NE DEC SCI I, P118
19. PAKNEJAD ML, 1988, P NE DEC SCI I, P82
20. PORTEUS EL, 1985, MANAGE SCI, V31, P998
21. PORTEUS EL, 1986, NAV RES LOG, V33, P39
22. SALAMEH MK, 1993, APPL MATH MODEL, V17, P613
23. SARKER BR, 1997, INT J PROD ECON, V49, P237
24. SCHONBERGER RJ, 1982, JAPANESE MANUFACTURI
25. SILVER E, 1993, PERSPECTIVES OPERATI, P23
26. SILVER E, 1998, INVENTORY MANAGEMENT
27. SYNDER RD, 1988, J OPERATIONAL RES SO, V31, P833
28. TREVINO J, 1993, INT J PROD RES, V31, P191
29. ZHENG YS, 1992, MANAGE SCI, V38, P87

For pre-prints please write to: abstracts@kfupm.edu.sa