Study on Supply Chain Model with Stochastic Demand, Rework, Trade-credit, Variable Transportation Cost and Lead-time Dependent Ordering Cost Reduction

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Abstract

This study investigates a vendor-buyer supply chain system where the lead time demand is normally distributed. Imperfect production and rework of defectives are considered. The reduction of lead-time and ordering cost act dependently. Trade-credit financing and variable transportation cost are also taken into consideration. The aim of this study is to maximize the joint expected total profit by providing an inter-dependent reduction strategy of lead-time and ordering cost and also determine the optimal values of number of deliveries, lead-time, order lot size, ordering cost, and lead-time crashing cost. A suitable solution algorithm and a numerical example are presented to establish the model.

Keywords: Inventory control; supply chain; imperfect production; rework; stochastic demand; lead time reduction; ordering cost reduction; trade-credit; variable transportation cost

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This book covers key areas of engineering research. The contributions by the authors include secure photograph recovery, spotlight inclusion, Biometrics, band notched characteristics, chamfered bevel slots, defective ground plane, monopole antenna, ultra wide band, hybrid cloud, deployment, integration, on-premises, native cloud, artificial intelligence, architecture, data, modern data platform, data lake, data warehouse, applications, legacy systems, infrastructure, resilient, reliable, operationally excellent, performance efficient, high availability, fault tolerance, scalable, environments, electromagnetic energy, wireless communications, water hammer, transient flow, positive and negative pressure, MATLAB, doubly fed induction generator, neural networks, proportional integral, wind power generation, CMOS technology, arithmetic circuits, confusion matrix, hotencoder, Cu-Co oxidized ores, hydrometallurgical processing, ore sulphuric acid leaching, talcaeous minerals presence, slowed settling kinetics, process dysfunctions, vacuum circuit-breaker, multi-break vacuum interrupters, SF6 circuit-breaker, dielectric strength, velocity of dielectric strength, transient recovery voltage, breaking capacity, inventory control, supply chain, imperfect production, rework, stochastic demand, lead time reduction, ordering cost reduction, trade-credit, variable transportation cost, small signal amplifiers, Darlington amplifiers, MOSFET amplifiers, MOSFET in Darlington pair, nano-Silica, Micro Metakaaolin, magnetized water, carbon fibers, Micro slag powder. This book contains various materials suitable for students, researchers and academicians in the field of engineering research.

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