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Consignment stock of inventories in the presence of obsolescence

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Abstract

The Consignment Stock (CS) inventory policy is becoming an important strategy that companies adopt to face new manufacturing and supply chain management challenges. A CS policy implies great collaboration between the buyer and supplier, pushing them towards a complete exchange of information and a consistent sharing of management risks. In such a context, the effects of the obsolescence of products have to be carefully evaluated since they fall onto both actors, causing an increase in total supply chain costs. This paper proposes an analytical model able to take into account the effects of obsolescence in a supply chain managed with a CS policy. The deterministic single-vendor, single-buyer CS model is used as a base to develop the proposed model. A comparison with a non-obsolescence optimal solution available in the literature is presented. Moreover, the stochastic behaviour of the product lifetime

estimation is also taken into consideration. Results demonstrate that the effects of obsolescence can consistently influence the global optimum condition.

Keywords:

Consignment stock | Inventory management | Obsolescence | Supply chain

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