

An integrated production inventory model with shortage for deteriorating  
item in a supply chain

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### Abstract

As the market environment becomes more competitive, supply chain management has become a topic of interests to many researchers. Studies on supply chain management have emphasized the importance of a long-term strategic relationship between the producer, the distributor and the retailer. This study considers a deteriorating item with permissible shortage and develops an optimal joint total cost model using an integrated strategy. A numerical example is given to illustrate the validity of the model. It is shown that the integrated strategy results in a lower joint cost as compared with the independent decision approaches.

Keyword : Integrated approach, supply chain, deterioration; shortage