M-Lab – The Mobile and Ubiquitous Computing Lab

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The Impact of Higher Inventory Accuracy on Supply Chain Performance: A Simulation of Auto-ID Technology in a Retail Supply Chain



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Abstract

Inventory inaccuracy is a main issue in businesses dealing with physical assets. The aim of this paper is to examine the relationship between inventory inaccuracy and performance in a retail supply chain. The results of our simulations indicate that an elimination of inventory inaccuracy can reduce supply chain costs as well as the out-of-stock level. This can lead to significant improvements for all echelons in a supply chain, whereby the distributor is likely to gain most. Automatic identification technology (e.g. RFID) that is becoming available offers the potential to achieve inventory accuracy. In our model, the impact of inventory accuracy on supply chain performance is not sufficient to warrant an investment in RFID technology when the cost for RFID tags are taken into account. To become financially feasible, further benefits such as a reduction in theft have to be achieved.

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