Profitability of Supply Chain in Open Competition Environment: A Simulation Study Using the Theory of constraints Replenishment Framework.

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- **Abstract:** Supply chain performance and profitability have captured the interest of academics over the past few decades and it not only measures based on individual supply chain partners but also on the overall outcomes. Throughput accounting measures are widely accepted as for the supply chain performance and profitability by the productivity people who follow the Theory of constraints-Dynamic buffer management (DBM) in the supply chain. Though it may maintain the inventory, not to do with negotiations or other man-made causes. In reality, open competition is inevitable among the players on the same product line on both sale targets and price negotiations. Since local efficiency may not be the global efficiency, reward systems, and vendor ratings based on throughput dollar days suggested improving the performance rather than price negotiations. This paper attempted to evaluate the supply chain profitability in the open market where the supply chain players fight for their profitability. In the supply chain model, price-quantity bidding is allowed between the wholesaler and retailer, but not for the final customer to whom the maximum retail price is fixed. In the second model, the retailer can offer different prices to the final customers, but only performance negotiations are allowed between the wholesaler and retailer. These two simulation models are compared and interesting results are obtained.

- **Keywords:** Supply chain performance, profitability, Dynamic buffer management, wholesaler