

Effective Supply Chain Coordination with Hybrid Demand Forecasting Techniques

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Abstract : Effective supply chain is the main priority of every organization which is the outcome of strategic corporate investments with deliberate management action. Value-driven supply chain is defined through development, procurement and by configuring the appropriate resources, metrics and processes. However, responsiveness of the supply chain can be improved by proper coordination. So the Bullwhip effect (BWE) and Net stock amplification (NSAmp) values were anticipated and used for the control of inventory in organizations by both discrete wavelet transform-Artificial neural network (DWT-ANN) and Adaptive Network-based fuzzy inference system (ANFIS). This work presents a comparative methodology of forecasting for the customers demand which is non linear in nature for a multilevel supply chain structure using hybrid techniques such as Artificial intelligence techniques including Artificial neural networks (ANN) and Adaptive Network-based fuzzy inference system (ANFIS) and Discrete wavelet theory (DWT). The productiveness of these forecasting models are shown by computing the data from real world problems for Bullwhip effect and Net stock amplification. The results showed that these parameters were comparatively less in case of discrete wavelet transform-Artificial neural network (DWT-ANN) model and using Adaptive network-based fuzzy inference system (ANFIS).

Keywords : bullwhip effect, hybrid techniques, net stock amplification, supply chain flexibility

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