



# Proceedings

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**Stiven Tjen**

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# Demand Forecasting Using Time Series and ANN with Inventory Control to Reduce Bullwhip Effect on Home Appliances Electronics Distributors

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**Abstract.** The Supply chain principle is very useful and suitable for use in large distributor companies. Distributor companies require strong inventory management calculations because they receive goods of many types and quantities. In this study, the subject used as a case study is PT. Pixel Perdana Jaya, a distributor company that encounters the bullwhip effect. This study aims to identify the effect of bullwhip towards PT. Pixel Perdana Jaya and the solution to solve the bullwhip effect in distributors company. Electronic products are very difficult to predict the need for units with precision, this happens because consumer demand for home appliance items is uncertain. Distortion information can lead to increasingly volatile demand patterns in the upstream supply chain especially for distributors. To minimize bullwhip effect on distributors, the proposed strategies for this research are to apply time series and Artificial Neural Network (ANN) for forecasting and Distribution Requirement Planning (DRP).

**Keywords:** Supply chain, Distributors, Bullwhip effect, Forecasting, Artificial Neural Network (ANN), Distribution Requirement Planning (DRP)

## 1 Introduction

A network of organizations or companies working together to create a product and deliver it to the end user defines a supply chain [1]. The supply chain principle not only works for production companies but is useful for all companies that have inventory management. The company must think about its supply chain so that goods go out and enter effectively and optimally. Inventory management is the product or material that a business sells to their customers for its profit [2]. The