

Proceedings of the 2nd Annual World Conference
of the Society for Industrial And Systems Engineering
Las Vegas, NV, USA
November 5-7, 2013

Counteracting the Bullwhip Effect in a Demand Driven Supply Chain

TK Bardhan and C Cupid

Department of Industrial and Systems Engineering
Morgan State University, Baltimore, Maryland 21251-0001, USA

Corresponding author's Email: tridip.bardhan@morgan.edu

Author Note: Mr. Clarence Cupid received his BSIE degree in 2012 and currently pursuing his MEng degree at the Department of Industrial and Systems Engineering of Morgan State University. Mr. Cupid received several awards for his academic achievements and research activities. Dr. Tridip K. Bardhan is currently serving as the chair of the Department of Industrial and Systems Engineering at Morgan State University. He received his undergraduate, master's and doctorate degrees in Industrial Engineering from Wichita State University. Dr. Bardhan's work and research experience involves a wide range from industries, government agencies, and national laboratories. This article is derived from an exploratory research supported by ERG Corporation.

Abstract: To keep pace with reality of minimizing cost and maximizing customer service, advancements must be done to counter the bullwhip effect in traditional supply chains, a forecast driven tool. Bullwhip effect occurs when poor data from the customer ripple back upstream through the supply chain and magnifies demand variability at each stage. The results of this variability are poor customer service, wrong capacity plans, high costs, high buffer inventories, missed production schedules, and inefficient shipping. An overview of the bullwhip effect with a case study from Wal-Mart and Toyota along with some key ingredients of successful supply chain is presented in this paper. In Toyota's case it was shown that when HQ had problems in their supply chain, the entire chain was affected. Wal-Mart in contrast has individual stores operating as its own business, which keeps problems isolated. The most important part is to keep customers happy.

Keywords: Demand Driven Supply Chain, Bullwhip Effects, Robust Supply Chain, Wal-Mart, Toyota