

The Causes, Consequences, And Strategies Of Minimizing The Bullwhip Effect

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Abstract

A supply chain consists of a web of autonomous business enterprises whose responsibility is the satisfaction of the customer by creating another enterprise that conducts procurement, design and goods distribution. Currently, organizations operate as individual firms, which decreases their effectiveness regarding reduced service and increased non-value operational costs (Jüttner et al. 2003). A phenomenon known as the Bullwhip Effect occurs when consumers overbuy goods. This is a result of massive purchases that cause sudden changes in the supply chain management. Consequently, this paper deals in detail with the causes, consequences, and strategies for minimizing the Effect.

Introduction

The bullwhip effect is the increase in inventory due to shifts in consumer demand up against the supply chain. It's a distribution channel phenomenon that involves forecasting to get the supply chain in capability. It includes joint problems through the different stages of supply chain management (Lee & Whang 1997). Some crucial factors such as demand for the supply, inefficient communication and supply of timely order requests usually result in such challenges.

Its occurrence is detected where orders delivered to the manufacturers contribute to a more substantial variance than market sales made to the end consumers of the product. This variance can lead to an interruption of the smooth flow of the supply chain process. This is because all supply chain links will underestimate the demand for the goods, which leads to highly exaggerated fluctuations. The typical idea is that nodes of the supply decisions are based on the demand information from lower enterprises, and the resulting unnecessary details will flow up and down (Lee & Whang 1997).

It is caused by several factors in supply chains, as follows:

Disorganization between the supply chain link. This involves requesting delivery of small amounts of goods needed because marketers are under-reacting to the supply chain.

Minimal communication. Between the links makes it difficult for activities to operate in a concise manner. Top-level managers can perceive a product demand differently, leading to the ordering of several quantities.

Order batching. Firms always accumulate the demand for products first and do not place direct orders with their suppliers. This leads to variability in demand due to an unexpected surge in demand at some point then, followed by no demand after the initial stages (Jüttner et al. 2003).

Demand information. The bullwhip effect is often caused by over-reliance on previous demand data to approximate the current need for a product by consumers in the target market. This does not allow any fluctuations to arise in future times.

Price volatility. Special changes such as price discounts and bonuses can prevent regular buying patterns of customers. Buyers take merit on these discounts given during short time intervals which cause uneven manufacturing and also unreliable demand information.

Potential Risks And Effects On A Corporation

The described effect can cause the inefficient production of goods and large amounts of inventories because manufacturers are required to fulfill the excessive demands of their consumers. Also, the continuous recruitment and dismissal of workers to manage variability induces extra costs as a result of pieces of training and layoffs. The difficulty of safety stock-outs leads to low customer service, then leads to sales loss. The Bullwhip Effect causes an overreaction to certain market changes. This occurs when market demand rises. The volume of the supply chain increases more than the increased market demand. When the market demand increases, the excess inventories in the backlog of a supply chain get into different nodes.

Once the demand reduces, products in the backlog of the inventory cause poor cash inflows and outflows in the supply chain (Giunipero & Eltantawy 2004). It severely affects the excellent operation of the chain and leads to business failures, especially at the end of the intended period of small-scale business enterprises' Companies have to deal with consequences of failed fulfillment, such as contractual penalties and damage to the public image of goodwill due to poor customer service.

Strategies To Minimize Adverse Effects On A Corporation

Adoption of a demand-driven supply chain approach

It is a fact that a lot of information is unreliable therefore actual demand is inevitable to be at variance with most forecast activities. This situation makes firms request raw materials from suppliers in a fast manner. A poor strategy in communication will provoke an overreaction of the supply chain, allowing excess inventories that inflate the cost of goods.

Improving forecast accuracy

A company needs a demand forecast to plan for long periods of time and cover high product demand from prospective customers who order new products. In most cases, it is given that this forecast information is inaccurate. However, several steps improve the accuracy of the data. This includes taking inputs from sales and consumers. Also making sure that the right algorithm to project demand is used correctly (Lee & Whang 1997).

Fast decisions with both insight and visibility

It is crucial to have the right degree of insight so the manager can make informed decisions and avoid guesswork. This will prevent high costs, surplus inventory and consecutive deliveries.

Collaborate with suppliers and consumers.

This is a strategy that improves the effectiveness of the supply chain. When firms relate closely to customers, they will understand their plans and forecasts in order to build promotions and seasonality and provide insight to the suppliers. This will help prevent the proliferation of unwarranted inventory brought about by the bullwhip effect.

The necessary keys to a significant supply chain are visibility, effective communication, and insight. With these attributes, a manager will have lowered the risks of shortage and excess inventories.

Conclusion

The variability in demand gets enlarged as it approaches the final link of the supply chain, which leads to a rise in product cost and decreased profit margin. Information interchange between the participants can achieve a reduction in batch sizes and frequent ordering policies. It can be summarized that the bullwhip effect distorts information and causes procurement delays. And delays in delivering goods and services to the customers. It mainly happens due to the decisions made by the manager at each stage. It's not possible to totally diminish the effect. Information technology acts as a powerful tool used to reduce the effects and potential risks.

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