CIPS KNOWLEDGE

Demand driven supply chain

At P&G, we decided to stop being so company-centric, and start being customer-centric and demand driven. We found that when you do that, some amazing things happen (Ralph Drayer, former Chief Logistics Officer at P & G)

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Introduction

In a traditional supply chain producers and manufacturers were forecast-based and sales- driven and the products were pushed downstream towards end customers. In other words, products were 'driven' to markets (de Argaez, 2011).

The concept of the demand-driven supply network (DDSN) was introduced in 2003 by AMR Research (Barrett, 2007). Contrary to the transitional approach, DDSN is driven from the 'front' by customer demand. Instead of being 'driven' to markets, products are 'pulled' to market by customers. This does not apply that DDSN removes or limits the abilities of a company, but merely defines that companies in a supply chain work more closely to shape market demand by sharing and collaborating information. By doing so, they achieve greater and more timely visibility into demand (de Argaez, 2011).

The uniqueness of the DDSN model is that it is capable of incorporating a range of organisational processes and functions, including demand management (marketing, sales, service), supply management (manufacturing, logistics, sourcing) and product management (R&D, engineering, product development) (Barrett, 2007).

When planning a demand-driven supply and to achieve the capabilities it can offer, a company should consider the following: agility as the ability to respond quickly to short-term change in the demand and supply equation and manage external disruptions more effectively, adaptability as the ability to adjust the design of the supply chain to meet structural shifts in markets and modify supply network strategies, products, and technologies and alignment as the ability to create shared incentives that aligns the interests of businesses across the supply chain (Hau Lee, 2004). Achieving agility, adaptability and alignment can lead to collaboration and eventually balance between market demand and production. Overall, DDSN allows to balance a 'pull' from customers with an equal and opposite 'push' from supply chain members (de Argaez, 2011).

Definition

Demand-driven supply chain, also known as demand-driven supply network (DDSN), is a sys- tem of technologies and processes that sense and react to real-time demand across a network of customers, suppliers and employees (Doherty, 2005).

Successful Application

The big challenge when transforming supply chain from transitional to demand-driven lies in implementing new IT systems and retooling manufacturing processes. DDSN requires partners to have fully integrated supply chains, where synchronising the data exchanged enhances efficiencies and detail and standardisation of master data optimises the entire network. Sensing technology allows planners to accurately assess demand and thus forecast more precisely. Once trading partners are synchronised and use a consistent and accurate forecasting methodology, a dynamic supply chain can put forecasting into action (Panley and Boerner, 2006).

Steps to Successful Application

- Harmonise: the first step in becoming demand-driven is to standardise processes, data, and technology within your current environment. This would typically start with establishing performance management and aligning the master data.
- Assess logistics, production and trade management process within the organisation to make sure they are suitable for integrating supply and demand.
- Increase responsiveness by driving forecasting and visibility past the distribution centre to the source of demand. On the supply side, this means extending past traditional purchase orders to supplier availability and capability.
- Refine the capabilities of a new framework to quickly and effectively adapt to changes. This may require new levels of data, time resources and increased flexibility across the network.

Panley and Boerner (2006)

Hints and Tips

- A demand-driven supply network requires the use of appropriate technology to be successful (Kinax- is, 2008).
- DDSN requires good relationship skills and the ability to rapidly and collaboratively assess many 'what-if' alternatives (Kinaxis, 2008).
- To optimise the response to change, users throughout an organisation and supply chain need to have the global visibility to actionable data (Kinaxis, 2008).
- DDSN requires a comprehensive scoring mechanism that accurately predicts the impact of proposed responses and weighs alternatives against company goals and customer requirements so that the best option can be implemented (Kinaxis, 2008).

Potential Advantages

- DDSN can lead to improvements in demand forecasting: an AMR Research report in 2004 revealed that DDSN allows companies to excel at demand forecasting achieving 15% less inventory, 17% stronger order fulfilment and 35% shorter cash-to-cash cycle times than typical companies (O'Marah, 2005; Barrett, 2007).
- DDSN allows companies to achieve a balance between the cost and service tradeoffs of supply chain excellence resulting in 60% better profit margins and two to three times the return on assets achieved by 'laggards' (O'Marah, 2005; Barrett, 2007).
- DDSN's most fundamental capability is the elimination of inefficiencies and constraints across the supply chain (Panley and Boerner, 2006).

Potential Disadvantages

- DDSN can cause the bullwhip effect (O'Marah, 2005).
- Failing to account for variability is not problematic for a factory with known task cycle times but can cause problems across a network of flexible productive nodes. (O'Marah, 2005).
- DDSN can result in no support for product innovation (O'Marah, 2005).

Case Studies

- In January 2002, IBM set out to transform its traditional supply chain to a demand-driven supply chain to gain market share, grow revenue and profit, improve cash flow and enhance customer satisfaction. The company expected to slash up to US$2bln from the nearly US$40bln it spent on its supply chain. By 2003, IBM managed to reduce its supply chain costs by US$7bln, or US$27m a day. The company also reduced inventory to the lowest levels in 20 years while at the same time pushing customer satisfaction to an all-time high (Vision magazine, 2005).
- A demand-driven supply chain allowed Dell to build a US$40bln business that is a fundamentally make-to-order process. Demand drives a network of 25 key suppliers that account for 75% of the R&D effort that gets new product to market. Dell ships 20m products per quarter with only three days of inventory. Inventory in this model is a liability (0.6% component price declines per week) and not an asset. Dell's business is based on three master performance metrics: growth, profitability and liquidity (O'Marah, 2005).
- Elie Tahari, the high end global fashion retailer, has a demand-driven supply chain that helps to avoid critical store operational issues such as delayed shipments, excess stock or, worse, empty shelves. The company can rapidly identify the popularity of items, predict upcoming demands and adjust the supply chain to ensure timely delivery and optimal inventory. By implementing a demand-driven supply chain Elie Tahari achieved a 10% sale increase and a 30% reduction in the managing costs of its supply chain (Waldron, 2010).

Further Reading/References

Web Resources

- New Demand-Driven Operations Highlights ://www.onenetwork.com/2013/01/the-new-demand-driven-operations-3
- The concept of demand-driven supply: blogspot ://www.supplychainshaman.com/demand/demanddriven/what-happened-to-the-concept-of-deman-driven
- The Panasonic case ://www.scdigest.com/assets/FirstThoughts/06-05-18.cfm

Books

- Demand Driven Supply Chain, Mendes, ISBN 978-3642199912
- The Relationship Driven Supply Chain, Emmett & Crocker, ISBN 978-0566086847
- Creating Demand Driven Supply Chains, Langabeer & Rose, ISBN 978-1904298403
- How Companies Win, Kash & Calhoun, ISBN 978-0062000453
- Planning Demand Driven Disassembly for Remanufacture, Inderfurth & Langella, ISBN 9783835007758

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