Types of Structural Changes in Supply Chain

Supply chain management entails designing and managing seamless, value-added processes across organizational limits to satisfy the needs of the end-customer. The process of integration requires systematic management to facilitate the flow of information and deployment within and across the organization (Schroeder, Rungtusanatham, & Goldstein, 2012). The aim of any structural change or improvement initiative in the supply chain involves facilitating increased coordination to minimize total replenishment lead time or uncertainty in delivery as well as the reducing the total cost of supplying the market. There are different types of structural changes in the supply chain, for instance, forward and backward integration, changing the configuration of the factories, retail or warehouse locations, process simplification, major product redesign, or outsourcing logistics to a third party. Most organizations usually pursue the kind of change that will benefit all parties in the supply chain.

Adopting the forward and backward integration means the manufacturer focuses on determining the level or extent of ownership of the production processes along the value chain. Therefore, when a company opts to purchase a wholesale company and distributes its products exclusively through the wholesaler, this process is referred to as forwarding integration. While in backward integration, the manufacturer solely owns the whole supply chain. Secondly, process simplification is relied on manufacturers to enhance their supply chains especially when the processes are so intricate or obsolete that a significant change is necessary (Schroeder et al., 2012). The third strategy in restructuring the supply chain entails changing the number and configuration of retail sites, warehouses, factories or suppliers through off-shoring or outsourcing. Most companies are keen on calculating the total cost of ownership in both foreign and home country before pursuing the strategy. The fourth structural change is the product redesign, and lastly, some manufacturers have strategically opted to outsource performance of logistics and inventory management distribution to other companies known as third-party providers.

Boeing Case Study

Analysis of the Boeing case study reveals that the company changed the number and configuration of its suppliers, factories, warehouses, and retailed sites by outsourcing or offshoring numerous production functions to other reputable companies globally while manufacturing the Boeing 787 Dreamliner. The firm contracted 43 strategic partners to supply almost 85% of the airplane parts, which would later be transported by plane, sea, rail, or road for assembling. Boeing’s factory in Everett, Washington would only manufacture the vertical fin as part of the strategy. Offshoring or outsourcing allows Boeing to remain competitive as well as speed up production hence, it can meet customers’ needs effectively and efficiently.

How Hewlett-Packard applied Process Simplification and Product Redesign

Hewlett-Packard (HP) a leading American multinational information technology company based in California. The firm sells an extensive variety of computer hardware components, software, and related services in the global market. Stiff competition from companies like Apple Inc., Dell, Toshiba, Samsung, and Lenovo, changing customer preferences, and the need to cut operational costs forced the company to improve its market strategy to secure competitive advantage and survive on the Wall Street (Feitzinger & Lee, 1997).

In nearly all mass markets, firms are increasingly facing a great challenge as customers are demanding their orders to be delivered faster. Similarly, they are also compelling the firms to offer highly customized products and services. Many companies have found it very challenging to fulfill orders promptly and at an average cost even without attempting to customize their products. Similar to Boeing, Hewlett-Packard changed its supply chain structure to remain competitive in the market and meet customers’ needs (Schroeder et al., 2012). The company adopted the famous postponement strategy to mass-customize its products, ensured speedy delivery of the products to the market, and reduced operational costs. As discussed, there are five structural changes of the supply chain, HP employed a combination of process simplification and major product redesign to meet the market pressures in the majority of its businesses such as medical products, printers, and computers. The structural changes allowed the firm to deliver customized products to the market even more affordable and very quickly. Additionally, the firm improved its product variety, reduced costs, and reduced the time they need to fulfill customers’ orders.

HP postponement strategy sought to simplify its processes and technology as well as introducing new product designs to the market. As part of mass-customizing efforts, it postponed the task of differentiating a product for a specific customer until the opportune moment in the supply channel (distribution, manufacturing or supply chain). As opposed to assuming a piecemeal strategy, HP redesigned its products, simplified its processes, technology, and delivery options as well as configured the whole supply network. Such a comprehensive strategy, allowed HP to maximize efficiency and promptly satisfy customers’ needs with a minimum amount of inventory. The mass-customization program was supported by three organizational-design principles, namely: the need to include independent modules in the product redesign to facilitate easy and inexpensive assembly of the product in diverse forms. Secondly, HP redesigned and simplified its manufacturing processes to include independent modules that could be rearranged or moved easily to support diverse distribution-network designs. Lastly, HP redesigned its supply network especially the positioning of the inventory, structure, and number of distribution and manufacturing facilities to provide two important competencies. First, HP was able to affordably supply the basic product to the facilities doing the customization. Secondly, HP improved its responsiveness and flexibility especially while taking individual customers’ orders and it could deliver the finished, customized products quickly.

The structural changes in supply chain led to modular product design that ensured flexibility in the supply network. HP was able to optimize the number of standard components utilized to manufacture its products, assemble the components early, and postponed the inclusion of other parts that differentiate the product (Shah, 2009). Secondly, by manufacturing the different modules simultaneously, HP was able to shorten the total time needed for production. Lastly, HP was able to diagnose production issues easily and isolate all quality issues. Furthermore, HP standardization strategy ensured that its products especially the LaserJet printer sold in North America and Europe could be sold globally by including the universal power supply that worked globally. For instance, HP LaserJet standardization led to a reduction in the total costs of manufacturing, delivery of finished goods, and stocking by almost 5% annually (Schroeder et al., 2012). Similarly, customization of DeskJet printers for Asian and European markets was done at the local distribution centers as opposed to its factories. The products included a country-specific external power supply that allowed users to plug in a while setting up the product. The product redesign strategy reduced total inventory costs, shipping, and manufacturing by 25%.

In conclusion, supply chain management is concerned with designing and managing seamless, value-added processes to satisfy the needs of the end-customer. Changes in supply chain infrastructure focusing on the firm’s products and services are critical towards ensuring customer satisfaction and reducing production costs. Boeing adopted offshored almost 85% of its manufacturing function as part of configuring its factories and suppliers while HP opted for a combination of process simplification and product redesign as part of structural changes in its supply chain network. The mass-customization or postponement strategy allowed HP to meet customers’ needs and reduce operational costs quickly.

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