

Optimization of aftermarket logistics with dual supply chains for Sandvik

In recent years an exponential trend has been observed in which manufacturing companies are increasingly buying and manufacturing at a global level in order to improve cost efficiency, multiple procurement options and geographically broaden their operational bases. As a result, the challenges of supply chain management are becoming more complex. Companies are now focusing on integrating their supply chain design, planning and management to gain the benefits of operational efficiency, lower costs and increased customer efficiency.

A well-defined and efficient supply chain can give businesses a competitive advantage with reduced costs, increased revenue and greater customer value leading to higher profit margins and long-term relationships with customers. Sandvik, a global engineering company in the mining industry has now recognized the importance of optimizing its aftermarket supply to achieve similar benefits. This master thesis will focus on analysing the decision of optimizing the aftermarket supply for products in order to have a near-optimal logistics setup. The second purpose is also to build a decision model that will act as a framework for the company to follow while making similar optimization decisions in the future.

The analysis will be for the products for which original equipment is assembled in China, however, the aftermarket items are supplied from the production site in Sweden. Sandvik is considering even sourcing the aftermarket parts from the suppliers based in China. Before making the decision, it is important to study the logistics and administrative related factors and its impact on the optimized supply chain. Logistics aspects like annual demand, total costs, lead times, manufacturing times were analysed and compared for both the alternatives. Similarly, administrative aspects like trade compliances and related costs like import duties were taken into consideration. The company's decision to optimize the aftermarket supply chain is considered as a strategic decision which will have long term effects on the cost and administration.

The total cost is observed to decrease considerably in the optimized supply chain. Apart from the cost benefits, the optimization of the aftermarket contributes to simplifying the supply chain. Since both original equipment and aftermarket parts will be sourced from China, it will generate high-quality data in the company's information systems. It was observed that the lead times will be increased in the alternate supply chain. However higher lead times should not be the only deciding factor about the optimization decision and this shortcoming does not overshadow other advantages of having a single supply chain for slow-moving items.

The problem of higher lead time can be overcome by having in place efficient supply chain planning strategies for better customer demand fulfilment. Effective inventory control measures like opting for high order quantity values will help maintain the required service levels which are the backbone of spare parts logistics. Sandvik can use economies of scale to negotiate for better standard costs and induce healthy supplier competition.

Based on the steps followed in the analysis, a generic decision model was developed which acts as a framework for the case company to follow while analysing the decision on optimizing the aftermarket supply chain. It provides a step-by-step procedure to analyse and compare the supply chain before and after optimization. It also provides the user with the type of data that will be required to execute the action mentioned at each step. It also mentions the people who can be contacted to help with the analysis at each stage. We believe the decision model will help the company in all future decision making about the optimization process.