

Why direct shipment is not a good option for spare parts

Direct shipment is a way to distribute goods without shipping through a distribution center (DC), allowing for a reduction of the costs of both storage space and workload at the DC. The thesis "Analysing the impacts of using direct shipments in the distribution network for spare parts" by Hugo Hedin performs a case study of the distribution network for spare parts at the company Sandvik. The result shows that direct shipments might not be as promising as first thought.

The distribution of goods are an important part of the total supply chain. The costs for distribution are however always tried to be reduced. The fact that direct shipments could potentially both reduce the warehouse costs and solve a congestion issue at the distribution center in Europe, made Sandvik think of it as a potential solution. Sandvik is a global engineering group headquartered in Sweden that provides industrial products to customers world-wide. The division Crushing and Screening provides customers in the mining and construction industries with equipment for stone crushing and screening as well as spare parts for the aftermarket. The distribution network for spare parts comprises of European suppliers, a DC located in Europe and regional DCs (RDCs) located around the world. Direct shipments in the means of Sandvik mean that the demand at each RDC would be shipped directly to the RDCs by the suppliers, bypassing the DC.

It is easy to see the cost-benefits of direct shipments. The costs at the DC can clearly be reduced due to a reduction of used space as well as a reduction of the workload. In practice however, the reduction of the workload has a greater impact since the cost for space is actually a quite small part of the total cost for holding inventory. The drawbacks of applying direct shipments are harder to instantly spot. Classic factor are how direct shipments will split the transportation flow and how the longer lead times will increase the inventory further down the distribution network. The thesis also discovers other factors that can have great impact on the total cost of the supply chain. The most important cost factor is how the number of exports and imports will change, since the fixed costs of performing these actions can be huge compared to other cost changes.

It is however important to not only see direct shipments from a cost perspective, but also from a risk perspective. To ship directly or not can actually be a very strategic decision. Direct shipments can lead to heavily increased reliance on the suppliers and less redundancy in the distribution network. The fact that the distribution network concerns spare parts makes it even less reasonable to ship directly from the suppliers. The demand of each product is generally quite low. This makes it very riskful to increase the inventories further down the distribution network. Also the fact that the purchase prices of customer made spare parts typically have price breaks can massively increase the total cost of the supply chain if direct shipments are implemented.

Direct shipments might not be as beneficial as first thought, especially in the case of shipping spare parts that have rather small demand. The current distribution setup actually suits Sandvik quite well.