

Overstock root cause analysis of aftermarket parts and construction of a framework for obsolete inventory

An increase of customer expectations such as demand for more customizable options, shorter lead times and availability, puts more and more pressure on the logistical processes of the company. Together with different kinds of uncertainty in Sandvik's supply network, this has led to severe overstocking of aftermarket parts in the stockrooms located in Africa that needs to be investigated and ideally prevented to avoid unnecessary costs.

Keeping inventory with raw materials or finished goods is not free, such as warehouse fees, insurance and salaries, or also commonly known as inventory holding cost. This cost will inevitably affect the company's profitability negatively. It is therefore in the company's interest to keep the amount of inventory as low as possible without negatively affecting the business as a whole and without running the risk of having too little inventory and losing out on potential sales. Finding and understanding the underlying causes to this phenomenon is of top priority to mitigate or completely prevent this from occurring in the future. However, there will in most cases still be some kind of overstock situation in a stochastic inventory environment, meaning that even if the company takes preventive measures to mitigate overstock, the occurrence of overstock will still be present to some extent. Therefore, it is of interest for the company not only to implement solutions to the identified problems, but also implement a process on how to deal with excessive stock when it inevitably occurs.

Root cause analysis

During the root cause analysis, it was found that the two major causes of overstock were connected to the demand forecast. The first, and arguably the greatest cause of overstock, is the delay of the demand forecast, meaning when demand suddenly disappears completely, but the forecast lags behind and thereby causes stock build-up with inventory that will not be consumed. The second major cause of overstock is when an item demand forecast ramp-up resulted in no demand, meaning that it

was predicted that there would be an increase of sales for this particular item, but this ended up not being the case. It instead led to stock build-up due to no realized demand.

Possibilities of redistributing and scrapping

While mitigating or even preventing the root causes from occurring, exploring the possibilities of removing obsolete and excess inventory from stockrooms is necessary. Interestingly, it was found that just because an item has become obsolete, meaning in this case that it has not been demanded for more than a year, does not mean it is forever in this state and obsolete inventory might very well be demanded again in the future. As much as 85 percent of the obsolete inventory in Africa is currently being demanded somewhere else in the world, within the company. This means that there are great possibilities of clearing out obsolete inventory and ship it somewhere where it is being demanded, i.e., redistribution of inventory. Lastly, the possibility of scrapping was investigated, and the criteria that the item is obsolete everywhere was used, meaning that the item has not been demanded from any customer around the world for over a year. The sum of inventory value that fitted this criterion was neglectable and would therefore not yield much benefit in terms of reduction of inventory value and thereby also reduction of inventory holding cost. Additionally, the probability of an item being demanded again, meaning going from obsolete to non-obsolete, is rather significant, which further strengthens the argument to avoid scrapping.

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Title of the Master's Thesis:

Overstock of aftermarket parts in Africa at Sandvik Stationary Crushing and Screening –
A case study of overstock root causes and construction of an OSMI framework