HOWMET AEROSPACE

Optimizing Working Capital And Network Design

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Howmet Aerospace (Howmet) is a global leader in engineered metal products. The Howmet Wheel Systems (HWS) business unit is a market leader in every country in which it competes, and has warehousing/distribution in ten countries, with manufacturing in the U.S., Mexico, Hungary, China, and Japan. With high growth expected in the commercial transportation market in 2022, HWS is ramping up its North American supply chain.

Due to business effects caused by the COVID-19 pandemic, working capital tied up in inventory at network facilities became a primary target for reduction. Additionally, a shift towards lower-cost international manufacturing and subsequent importation was made, leading to more in-transit inventory and increased supply variability. The Tauber team was asked to reduce work-in-process (WIP), finished goods (FG), and in-transit inventory, as well as decrease supply chain costs where possible.

The Tauber team began the project by conducting extensive stakeholder interviews to understand business challenges. To optimize WIP & FG inventory, the team introduced the concept of postponement, which delays manufacturing and/or distribution differentiation of a product until a customer order has been received. This reduces variability and planning effort by pooling inventory among SKU families. To determine the reduction potential, the team created a tool that calculated the optimal inventory level according to postponement and compared it to the current state. The team also evaluated production run sizes by performing sensitivity analyses on changeover frequency. Some manufacturing lines had unused capacity; therefore, shorter run sizes with more frequent changeovers would lead to lower inventory levels and increased planning flexibility without affecting capacity.

To address in-transit inventory, the Tauber team created a scenario modeler that considered the inbound and outbound flows of the network to determine the cost- and service-optimal logistics lanes to utilize, and provided options to add, remove, or relocate network facilities. The findings of this tool were to close and co-locate the central distribution center with an existing regional distribution center (RDC) with excess capacity, expand the role of a second RDC to service the western US, and utilize additional ports to limit ground transportation of imports.

Implementing production & distribution postponement, alleviating production constraints to enable shorter production run sizes, and other proposed inventory initiatives would have a projected one-time working capital reduction of $11.0M. The optimized distribution model is projected to save $5.0M of inbound and outbound transportation costs annually.