

Case Studies: Capacity Planning Tool for a leading global Automotive Component Manufacturer

Created a advanced Rough Cut Capacity Planning (RCCP) tool based on TOC methodology for achieving a product and sales channel mix for Profit Maximization for use in the monthly S&OP process



Industry

- Automotive Component

Business Scenario

- Demand more than Supply
- SKU and Channel based unit Gross Margin
- Industry related Manufacturing complications

Our Solution

- A TOC based RCCP tool to generate schedules for optimizing profit based on bottleneck capacity
- Enablement of Scenario Generation Flexibility

Benefits

- Reduction in scheduling process time
- Substantial Savings through Optimization

Background

- Client is a Global Tyre Manufacturer and supplies tyres to major automotive companies in India
- Sales were achieved through supplies to 3 channels –OEMs, Replacement Market and Exports.
- Supplies were made directly from its 2 Manufacturing Plants to OEMs, but for servicing the Replacement Market, the distribution network consisted of 26 stocking points in India
- Manufacturing process in each plant consisted of 3 stages – Upstream, Building and Curing

Business Scenario

- Channels were specific to groups of SKUs. Some of the SKUs did not have all 3 channels. Hence the SKU – Channel combination was unique. Pricing was different for an SKU for each channel. The per unit GM was hence unique for a SKU-Channel combination
- Capacity Complications existed in Manufacturing. A tyre could be manufactured in any machine except those whose inner dimensions were less than the size of the tyre. So as the tyre size increased, manufacturing flexibility came down.
- Quality Standards were different for different channels. Due to this a certain percentage of rejects of OEM channel (percentage yield) was converted into supply for the replacement channel
- Capacity for manufacturing was less than the market demand. The client hence needed for each month a scheduling tool for selecting the best product mix to maximize the total gross margin of the company

Our Solution

- We created a high level tool that could optimize the total Gross Margin. The tool scheduled production based on the identified bottleneck stage capacity. Production at other stages were then based on this schedule.
- User could setup different priorities at an SKU or a Channel level or even a SKU-Channel level and could build custom scenarios based on different priorities. The tool enabled comparison of 3 to 4 different scenarios with each other. Machine wise allocation of the optimized schedule was provided
- The Tool enabled data collation from different worksheets and also provided several Management Reports such as Machine Utilization, SKU and Channel wise Sales, Gross Margins, etc

Benefits

- Drastic Reduction in developing manufacturing schedules in the S&OP process
- Substantial savings in the Total Gross Margins due to the optimization