

# Increasing revenue by \$1,000,000 a day without increasing costs

**Leading automotive manufacturer Chrysler increased revenue by \$1m a day without increasing costs and coped with increased demand for their new 2015 models.**

Headquartered in Auburn Hills, Michigan, The Fiat Chrysler Group operates 33 manufacturing facilities in four countries and employs more than 52,000 people. The Brampton Assembly plant builds the Chrysler 300, Dodge Charger and Dodge Challenger with an annual output of 200,000 units.

Chrysler's simulation team was tasked with determining if the Brampton Assembly Plant could increase throughput by 39 units per day to cope with increased demand for their new 2015 range.

## The Challenge

In early 2015 Chrysler launched the Chrysler 300, Dodge Charger and Dodge Challenger. Due to the release of the new models an increase in demand was expected and the Brampton Assembly plant was asked to increase its daily rate from 930 to 969 units to ensure that the demand could be met.

Steve Lin, a member of Chrysler's simulation team was tasked with studying the line speed at Trim Chassis Final (TCF) to determine what changes could be made in order to achieve the higher number of units each day. This would require increasing the Jobs Per Hour (JPH) from 64 to 66.

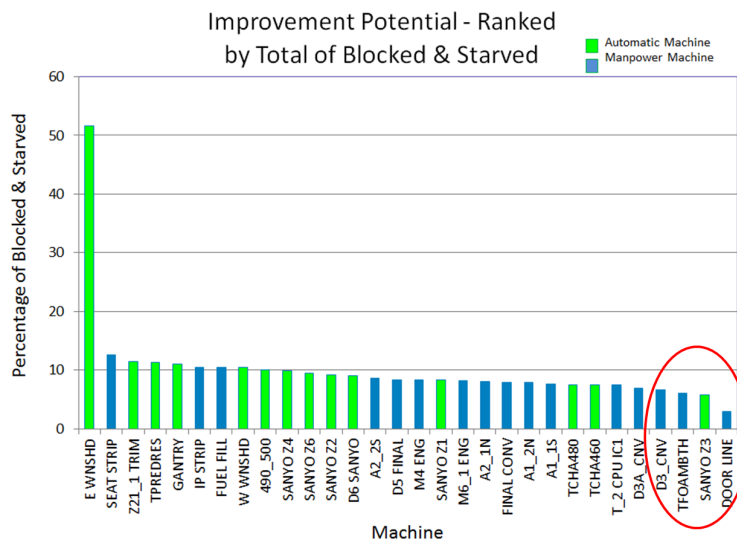
## The Solution

The simulation team used a base simulation of the Brampton assembly plant and was able to change the line speeds to understand the impact this would have. Each plant has its own base simulation and then changes can be made to the simulation depending on the area they are trying to improve.

The first thing that was looked at in this case was the low performing machines, and 2 were identified that were causing a bottleneck. As these were automatic stations, with no staff working at them the team were able to look at what would happen if the cycle times at the machines were decreased.

The simulation model allows ranking of all the lines based on their performance. The poorly performing lines which are the bottlenecks will be sped up. After the first trial, these lines are ranked again and new bottlenecks are identified. Further trials are conducted to speed up the new bottleneck lines until the target has been reached.

In the adjacent chart, Door Line, Sanyo Loop, Foam Booth, D3 are the bottlenecks because they have the least block and starve time. They will be sped up in the first trial.



Chrysler used real life data in their simulation that had been collected from the factory floor using their Factory Information system which collects the data from PLC, a real time recording system which records line speed, cycle time, MTTR and MTBF. This was then imported into the simulation, meaning that the only assumption needed was that MTTR and MTBF would remain the same, all the input data was real.

The simulation was run over a 1 month cycle and used real data that was imported from Excel so that the results would be as accurate as possible. This also allowed for the simulation to be validated by comparing it to actual throughput numbers and therefore know if decreasing the cycle times at these stations would improve throughput.

## The Result

The simulation team was able to identify two machines that could have their cycle times decreased to make the line run faster so the plant could meet the increased throughput schedule of 969 units.

By meeting the increased throughput target and creating 39 extra units per day the plant was able to **increase revenue by \$1,000,000 per day**. Speeding up these lines didn't have any knock on effects in the process and you could see the results of the lines getting better with improved throughput.

Management at Chrysler were able to use this simulation to help make decisions about how to improve TCF in order to meet the desired throughput, and as the simulation used was created from a base simulation, this means it can be used to help make future decisions for the plant too.

## What's next?

Chrysler's simulation team continue to use SIMUL8 across the organization to help make effective business decisions, this can be on projects ranging from pre-launch studies of new plants and lines, to how to make existing lines work more efficiently. Steve Lin and his team are now supporting suppliers with simulation to improve their processes too.

## The Chrysler Story

### Taking the guesswork out of capital investment

Read about our work with The Jefferson Plant and how we helped them **save \$250,000** by taking the guesswork out of capital investment.

### Saving \$5 million with SIMUL8

Read about how the Throughput and Simulation team at Chrysler is on target to save **\$5 million** using a Line Speed Reduction tool created using SIMUL8 software.

For more information on SIMUL8 products and solutions, contact:

t: (Europe) +44 141 552 6888 (US) 800-547-6024 / e: [info@SIMUL8.com](mailto:info@SIMUL8.com) / w: [www.SIMUL8.com](http://www.SIMUL8.com)