iGrafx®

CREATING PREDICTABLE PROCESSES TO OPTIMIZE THROUGHPUT

iGrafx helps predict production weaknesses and strengths, simulating real complexity and interactions

The Story

Novelis is the world leader in aluminum rolling, producing an estimated 19 percent of the world's flat-rolled aluminum products. They are the No. 1 rolled products producer in Europe and South America, and the No. 2 producer in both North America and Asia.

With industry-leading assets and technology, the company produces the highest- quality aluminum sheet and foil products for customers in high-value markets including automotive, transportation, packaging, construction and printing. Customers include major brands such as Agfa-Gevaert, Alcan, Anheuser-Busch, Ball, Coca-Cola, Crown Cork & Seal, Daching Holdings, Ford, General Motors, Lotte Aluminum, Kodak, Pactiv, Rexam, Ryerson Tull, Tetra Pak, ThyssenKrupp and others.

Novelis is also the world leader in the recycling of used aluminum beverage cans. It is globally positioned, operating in 11 countries with approximately 12,300 employees. The company reported revenue of $10.2 billion in its 2009 fiscal year.

The Challenge

The need to prevent and avoid any potential production issue has been an historical management demand. The challenge has been how to develop a "process model" capable to represent the "real process" and accurate enough to consider:

- A specific "family product" within the overall complexity
- The resources utilization
- The queues effect
- The asset available time

- The benefits and the impact of potential different scheduling in advance in order to apply the best one to the real process

The Solution

Despite several attempts by internal and external consultants, nobody until now has produced successful results for modelling the whole system complexity.

To build up a tool by use of a process model of the whole mill area (1 cooling mill, 2 slitters, 5 annealing ovens) has been the goal achieved through the process modeling, in order to analyze the process complexity and then improve the process performance. Participation in the "BPM Excellence Course" proposed by Proxyma in co-operation with the Turin University IT department has been very helpful.

In order to understand the process complexity in the cold mill area, every time during the process we would always have up to 500 aluminum coils:

- Each coil with a potential different process path
- Each path with different number of production phases
- Each phase with a different machine "time consumption"

The process model had to take account of all the real complexity and interactions. With a mouse click you can load the real situation (coil per coil) from the detailed data collection and in addition you can also inject, during the simulation, new customer demand at

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a specific time in order to evaluate the real overall complexity. At the end of the simulation, a specific report, properly interpreted by macros, is provided to inform the planning manager about the potential production weakness/strengths at a specific period of time, for example three to four days in advance.

It is now possible for a proper action plan to be developed and implemented in order to optimize the throughput.

The implemented solution based on iGrafx® Process™ for Six Sigma (born within a Lean Six Sigma Black Belt Project) has been the breakthrough innovation within the company that brought about a mindset change and a different point of view, by generating significant economical advantages to the company.

The Benefits

Thanks to the simulation of the process model it has been possible to reduce the work in process, the lead time and, at the same time, dramatically improving the cash flow, giving optimization of the assets work load and production costs through to the analysis of different scenarios (shifts organization, kanban levels, assets run time, etc.).

The planning department now can predict:

- The process performance (The overall throughput & machine per machine—1 cold mill, 2 slitters, 5 ovens)
- The benefits and the impact of potential different scheduling in advance, in order to apply the most efficient choice in the real process
- The queues distribution
- The work in process
- The process lead time
- The machines utilization

- The right time for the maintenance activity scheduling

...and define a specific action plan thanks to the capability of the process model simulation to predict potential issues in advance.

Therefore we can say... active actions vs. passive reaction.

The implemented iGrafx solution reduced the work in process, the lead time and improved the cash flow.