

Quintiq was acquired by
Dassault Systemes in 2014 and is now
DELMIA Quintiq

Case study

Reduced inventory and lead time save Novelis money

NOVELIS SPBU





Novelis: Company profile

Novelis is the world leader in aluminum rolling and beverage can recycling. An estimated 20 percent of global demand for aluminum rolled products is produced by Novelis and more than 25 billion beverage cans are recycled there each year. Novelis produces advanced aluminum sheet and foil products for customers in high-value markets including automotive, transportation, packaging, construction and printing.

Novelis is a global enterprise, operating in 11 countries with approximately 12,500 employees. The company

was formed as a spin off from Alcan in 2004. Novelis first implemented Quintiq Hot Mill Scheduler in Oswego, New York. The success of this implementation led to adding solutions for its cold rolling and finishing manufacturing centers (in both Oswego and Kingston, Ontario), and its recycling and melt/cast center in Oswego. Since 2003, Quintiq has been the commercially supported scheduling tool for the Specialty Products Business Unit, and it is fully integrated with Novelis' existing system environment.



Novelis Specialty Products Business Unit (SPBU)

Novelis Oswego is the company's largest wholly owned and fully integrated aluminum rolling facility in North America. It is one of the few plants in the world that has integrated recycling, hot rolling, cold rolling and finishing capabilities. The plant is located close to Syracuse, New York on Lake Ontario. Across the lake lies Novelis Kingston, the aluminum cold rolling and finishing facility that together with Oswego forms the Novelis Specialty Products Business Unit (SPBU) (referred to as Novelis from this point forward).

The process

At Novelis Oswego, recycling is a key part of production. The plant takes in aluminum beverage cans to recycle and also reprocesses all of its own production scrap. The metal is transported to furnaces in which it is melted while blending in other metals to produce high quality canned sheet alloy.

The Oswego plant is also equipped for ingot casting, where melted aluminum is poured into molds. The molds are then scalped (for a smooth and even surface), preheated and hot rolled. The resulting coils, once cooled, are cold rolled down to their finishing gauge, tension leveled and slit or cut to length to the requested customer dimensions. Customers include the can, automobile and building industries and also Novelis' own downstream foil plants.



The challenge

“I wanted to be able to run a product in either Oswego or in Kingston at the drop of a hat. This demanded a planning and scheduling system that gave transparency and flexibility to do that – and that is exactly what Quintiq gave us.”

– Buddy Stemple,
VP & GM of Novelis SPBU

Novelis was looking for a system that would improve the company’s most important key performance indicators (KPIs):

Customer service

Better management of lead times and delivery performance

Capital asset management

Inventory levels – managing the lowest inventory and shortest lead times against the highest productivity possible

Administrative efficiencies

Efficient entry of new demands into the system and coping with changes

Total cost of ownership

Implementing a standard supply chain planning tool and standard process; leveraging synergies between Oswego and Kingston

“I wanted to be able to run a product in either Oswego or in Kingston at the drop of a hat. This demanded a planning and scheduling system that gave transparency and flexibility to do that - and that is exactly what Quintiq gave us,” said Buddy Stemple, VP and GM of Novelis SPBU.

To achieve that, a single implementation was suggested by Joe Lawton, Continuous Improvement Specialist, and Six Sigma Black Belt. “This was risky at the time because we had an automated system here at our cold rolling mill in Oswego but Kingston had a card system and was hence very manual,” he said.



“We were looking for a long-term partnership, not just for a scheduling solution. After comparing all aspects, Quintiq was clearly the best choice.”

– Joe Lawton
Continuous Improvement
Specialist

Finding the right solution provider

Before talking to solution providers, Novelis drafted a detailed functional requirements document addressing what was needed in each process and why it was needed. This document served as a road map in the solution selection process. Requests for Information (RFIs) were sent out to seven different solution providers, after which the top three were sent some manufacturing, planning and scheduling test data. They were then invited to visit Novelis and demonstrate their solutions using this data. As Lawton explained, “We invited the top three in and used detailed scorecards to evaluate their demos. The discussions that followed resulted in narrowing the list down to Quintiq and one other provider.

“When we got down to the top two, we went back to each firm with some additional questions and talked to them about the process and the detailed cost. We wanted to find out what it was going to take not only to implement this, but then to sustain it and to upgrade it. As our business dynamics change, how will the system evolve with us?”

“We were looking for a long-term partnership, not just for a scheduling solution. After comparing all aspects, Quintiq was clearly the best choice,” concluded Lawton.



“Quintiq is an enabler for excellent results. It allows you to measure many KPIs and drive improvements in the critical ones. The iterative development process was key to Novelis owning the system. Quintiq has exceeded our expectations every step of the way.”

– Buddy Stemple, VP & GM of Novelis SPBU

The solution

Quintiq Metal Scheduler has been implemented to schedule all major machine centers of the Oswego and Kingston plants. These include four recycle furnaces, four melt furnaces, four casters, two scalpers, 22 soaking pits, one pusher furnace, one hot mill, three cold mills, 11 annealing furnaces, three tension levelers and three slitters. Novelis chose to implement Quintiq

Scheduler step by step, rolling out the hot mill area first, followed by the cold mill and finally the recycle and melt/cast areas. Starting in 2003 and going live with the hot mills after only five months, the entire process was completed in 2004. As a result, all detailed scheduling for SPBU is now based on a single, versatile technology.



“Since 2003 we are enjoying a 45 percent increase in on-time production.”

– Mike Domicolo,
Operations Support
Manager Novelis





Benefits achieved

Novelis has enjoyed significant benefits since implementing Quintiq across its manufacturing centers. In the Customer Relationship Management (CRM) arena, additional sales were measured at 59.2 million pounds, where the original requirements document only called for a 2.0 million pounds increase. Also, delivery performance improved significantly. In fact, Novelis lowered its backlog on its hot mill by a consistent 20 percent. On delivery performance improvements, Mike Domicolo, Operations Support Manager at Novelis said, "Since 2003 we are enjoying a 45 percent increase in on-time production."

Quintiq has enabled Novelis to significantly reduce lead times. For example, Novelis can now scalp sheet ingot just in time, thus allowing late sheet ingots to be scalped and immediately placed in a soaking pit. When ingots are received on time, Novelis is running more than 90 percent of the product on time on its hot mill. With the system, schedulers are able to take out large variations in the production process, thus creating additional consistency and reliability.

Following the Quintiq implementation on the cold mills, lead times were reduced by 3.5 days in Kingston and by up to 5 days in Oswego, depending on product lines. Also, despite a more diverse product mix, Novelis has been able to attain a 20 percent improvement in inventory turns. Novelis had a 3 million pound reduction goal in inventory, but an actual reduction of 8 million pounds was recorded. In line with inventory management, Novelis wanted to optimize metal input in its recycle and melt/cast process – it was seeking means of using scrap rather than prime. The numbers showed a planned reduction of 11 million pounds in prime; the actual reduction was over 16 million pounds.

Quintiq has allowed Novelis to replace four independent scheduling systems that were not integrated with one. Not just the financial savings are notable, but also the total cost reduction by having only one tool, one IT support team and one implementation process. The time needed to produce a schedule has decreased dramatically, and there are additional non-quantifiable benefits. For example, transparency across the manufacturing centers enables better decision making

and more energy savings. On the latter, Oswego is running on fewer soaking pits; since metal arrives at the furnaces right on time, the furnaces are not blazing without input, resulting in direct energy savings for the company.

"Quintiq is an enabler for excellent results," Stemple said. "It allows you to measure many KPIs and drive improvements in the critical ones. The iterative development process was key to Novelis owning the system. Quintiq has exceeded our expectations every step of the way."



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