

Catalyst Paper Corporation Improves Shipping Efficiency with Simulation Software

Simulation Software from Rockwell Automation Reduces Shipping Cost by \$1 to \$3 Million Canadian

Solutions

Rockwell Software® Arena® simulation software

Information-

Simulation software enables companies to model new or existing systems to better understand how they work:

- Generates simulated results for customized system changes to prevent downtime
- Visual diagrams allow for efficient cost and benefit analysis

Results

- Reduced shipping cost by \$1 million to \$3 million Canadian
- Provided proof points for vendor contract negotiation to reduce overall shipping costs
- Reduced order lead time by 33 percent for improved customer service



Sheets of paper are wound onto large rolls during the final stages of production at Catalyst's manufacturing plant. Once cut, the rolls are shipped to customers all over the world.

Background

In the highly competitive paper industry, it is imperative that manufacturers maintain high productivity rates and keep operating costs as low as possible. Catalyst Paper Corporation, a manufacturer located on the southwest coast of British Columbia, Canada, knows this as well as anyone.

As the largest mechanical paper producer in western North America and the world's largest supplier of telephone directory paper, Catalyst produces more than 1.8 metric tons of specialty paper, telephone directory paper and newsprint each year.

The fundamental goals of Catalyst's manufacturing and shipping branch are to improve order lead time and improve customer service – all while also reducing operation costs.

Challenge

All of the company's manufacturing facilities are located on an island, so coastal barge is the major mode of transportation used to move raw material and finished products between the paper mill and the central warehouse. Barges are planned on a barge-to-barge basis to meet shipping delivery demands. Shipping and storage were costing Catalyst a total of \$10 million to \$20 million Canadian each year.

Barge fees are paid per tug, so each trip from the manufacturing facility to the central warehouse requires payment. Cost also is dependent on the size of the



Once Catalyst implemented fixed barge schedules, order lead time was reduced by 33 percent.

barge. The order-fulfillment team at Catalyst coordinates barges for transport of wood chips and paper rolls based on the number of customer orders and timeframes for delivery.

As a result of the variance in barge loading times and scheduling, the order lead time between production facilities and the central warehouse was planned to accommodate the worst case scenario, slowing down delivery of the product to customers.

The variance of the scheduling system not only had an impact on downtime costs, but also affected customer satisfaction with the delivery of the end product.

Solution

To improve productivity and reduce order lead time, Catalyst needed a simulation tool that could visually analyze the benefits of switching from a barge-to-barge schedule to a more reliable, fixed barge schedule. Catalyst selected Rockwell Software® Arena® simulation software, a tool that helps companies model new or existing systems to better understand how they work. In this case, the company could use the Arena software to test the fixed schedule design using customized variables before making scheduling changes.

Having worked with the Arena application during a collegiate masters program, Ernest

Wu, logistics analyst at Catalyst, was already familiar with the technology. Using his previous knowledge about the technology, Wu implemented the Arena software directly on the barge transit system and programmed the software to model each of the factors in barge operation.

The animation provided by the software program allowed the order-fulfillment team to view and manipulate the schedules under a variety of conditions. Using key inputs such as paper mill production rate, barge loading and unloading rates, barge number and transit time, the team could run the model using different scenarios. Other factors that affect barge transportation on a daily basis, such as weather conditions, also were incorporated into the simulation process.

Catalyst also simulated the cost side of the model to evaluate total cost and operational efficiency in regards to barge scheduling. By manipulating the data inputs, the order-fulfillment team could evaluate the benefits of a fixed barge schedule based on the output provided by the Arena software.

Results

One of the most valuable aspects of the implementation of the Rockwell Software Arena simulation tool was the ability to visualize the operation under a fixed barge schedule. “Many of our stakeholders questioned whether a fixed schedule could handle the variances caused by unscheduled machine down time and weather conditions,” said Wu. “The Arena simulation model was able to utilize historical data, including variances, and instant KPI results, which helped assure our stakeholders that fixed barge schedules were the way to go. The simulation model is essentially a video game representation of the real business. Stakeholders can play with the model to try out scenarios that are not normally tested in real-time business.”

With fixed barge schedules, the company is able to simplify the shipping process,

shorten order lead time, reduce on-hand inventory and minimize product handling. The associated cost savings is estimated at \$1 to \$3 million Canadian per year.

Catalyst has implemented fixed barge scheduling and has reduced lead time in one of the company’s production mills. With better visibility and predictability of the barge schedules, the order-fulfillment team is able to react to customer delivery requests quickly and efficiently. Last-minute customer order changes also are easier to accommodate through optimized production planning.

Additionally, Catalyst uses the real-time business data generated by the Arena software in contract negotiations with barge suppliers. Using combinations of barge volume costs, hiring and towing costs help the company’s order-fulfillment team obtain the best possible pricing point for transportation services.

“In our industry, timeliness is essential. Using the Arena software, we developed a method to deliver our product quickly and efficiently to our customers. Rockwell Automation has provided us with the simulation capabilities that we need to ensure the product quality that our customers have come to expect.”

The results mentioned above are specific to Catalyst Paper Corporation’s use of Rockwell Automation products in conjunction with other products. Specific results may vary for other customers.



Paper rolls are lifted onto a shipping vessel. Arena software allows the order-fulfillment team to improve order lead time and customer satisfaction.

Arena and Rockwell Software are trademarks of Rockwell Automation Inc.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846