

Supply Chain Simulation Application Improves Order Processing Efficiency

Arena® Simulation Software Enables Rockwell Automation's CEDC to Improve Order Batching and Reduce Training Time

Challenge

Large variety of orders leads to complex supply chain resulting in opportunity for errors and inefficiency.

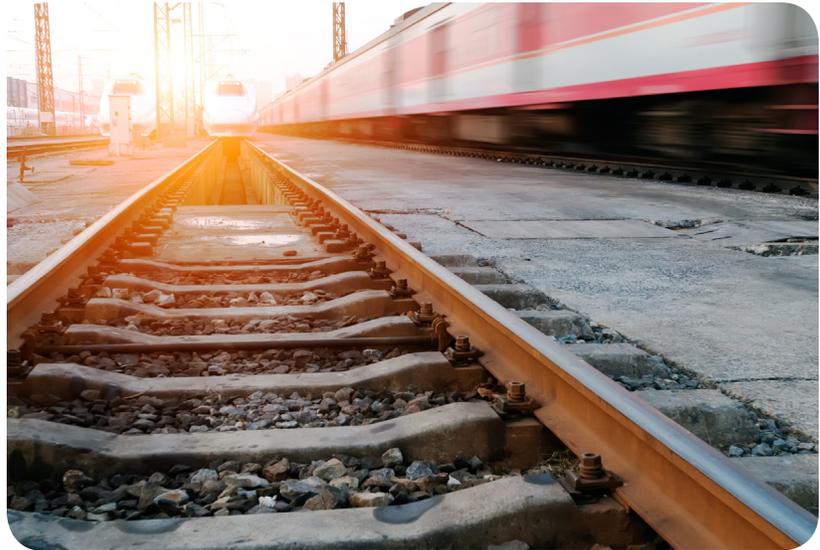
Solutions

Rockwell Software
Arena Simulation Software

Supply chain simulation application to take real-time orders, batch orders and evaluate alternative batching logic.

Results

- Enhanced order processing due to reduced errors
- Rapid evaluation of alternative batching strategies
- Reduced training time from 6 months to 1 week



Background

The Rockwell Automation Central European Distribution Centre, in Best, the Netherlands, is a joint operation between Rockwell Automation and Road Air. In a highly automated warehouse system, 4000 order lines per day are picked and distributed to different customers and affiliates throughout Europe, and to other locations across the globe.

Rockwell Automation is headquartered in Milwaukee, USA. The company currently employs around 23,000 people worldwide. Road Air is a subsidiary of Transport Management International Holding, based in the Netherlands. The company currently employs approximately 1,700 people in the Benelux region.

Challenge

The outbound process in the highly automated distribution centre can be divided in three main areas: the non conveyable products, the fast moving products and the slow moving products. A shipment can include products from every area. To get all those products together on the same shipping chute, the Warehouse Management System has specific procedures per area. To use the system as efficiently as possible and to meet compliance requirements, the operational planner makes batches of orders with the same criteria.

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When the planner makes mistakes in the batching or in the release of batches, under load or overload could occur, totes could block the system and the utilization of the resources could be low. Understanding the complex procedures in order to effectively plan is an intensive and time consuming task. Comprehensive training on the systems could take several months. Even after training, the complexity made it easy to make mistakes.

Solution

The CEDC developed a supply chain simulation model to enable them to better plan and batch orders for shipment.

This Arena simulation model obtained real-time order information from the existing Microsoft Access Database. The database included important data like country, due date, shipment date and quantity.

A special user interface was developed to specify additional parameters, like working hours, resource availability and Quality Control inspections. Through the user interface, it was also possible to test various strategies, such as time-based or quantity-based batching.

With this supply chain simulation model, it was possible to evaluate a variety of scenarios based upon the current order and shipping requirements from the facility.

Results

The supply chain simulation model was able to easily cover 90-95% of the orders from the facility. While running the simulation model did take a few minutes, the resulting efficiency and order accuracy more than made up for the extra time. By utilizing this model, planners were able to rapidly make new batches of orders upon release of previous orders, perform what-if analyses to identify more efficient batching alternatives, evaluate the benefits/impact to utilize multiple carriers.

In addition to these benefits, Rockwell Automation was also able to reduce the required training time for new planners from six months to just one week.

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