

Simulation Facilitates Apparel Manufacturer's Transition from National to Regional Distribution

Arena® Simulation Software Enables Apparel Company to Migrate Distribution Model without Disruption to Service

Challenge

Apparel manufacturer needed to transition from National to Regional distribution model without disrupting business or negatively impacting customer satisfaction.

Solutions

Rockwell Software
Arena Simulation Software

A detailed simulation model was developed covering source shipments from manufacturing to the distribution facilities and then to the customers.

Results

The company evaluated nine different transition scenarios against cost, resource requirements and customer satisfaction.

As a result of this simulation activity, the apparel manufacturer was able to implement a smooth transition from National to Regional Distribution centers with minimal cost and optimal resource requirements.



Background

A major apparel manufacturer wanted to modify its distribution operations as part of an effort to fulfill customer satisfaction requirements. A corporate re-engineering study had convinced the company to transition from a national distribution center to a regional distribution system.

Challenge

While long-term operational issues had to be evaluated, a more immediate concern was the intermediate product migration from the old system to the new one. Product still had to be received and distributed during the migration phase.

The company decided that a simulation analysis was the best way to evaluate the impact that the migration would have on short-term operations. The results would be evaluated based upon costs, disruption to operations and impact on customer satisfaction. The company chose the Rockwell Automation Arena consulting services team to work with them on this challenge.

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Solution

A simulation model developed with Arena evaluated the flow of product from manufacturing to distribution to customer. The model incorporated historical customer orders (more than 30,000/day), source shipments from manufacturing to their distribution facilities and transportation requirements for all shipments. The Arena model evaluated nine different migration scenarios under various historical and projected system data requirements. Daily staffing and transportation plans were included as input to the model. By utilizing a user-friendly Excel interface, users were able to change shipping, receiving and transportation staffing at each of the distribution facilities on an hourly basis.

The model results included daily values on over 10,000 products at each distribution facility, including inventory valued and missed orders. Staging requirements and dock utilization statistics were also calculated on a daily basis, as were daily transportation costs to and from each distribution facility.

Results

The simulation model demonstrated that several peak days of product receipts and shipments were greatly impacted by the staffing allowances and capacities at the regional distribution facilities. During the analysis phase, the Arena consulting team was able to identify the staffing required to meet target customer satisfaction levels.

The model results detailed the costs associated with each scenario and, along with customer satisfaction criteria, provided a statistical basis for selecting a transition scenario. The range of costs among the scenarios was greater than \$30 million. The simulation results, along with optimal staffing levels for the chosen scenario, provided a smooth transition of distribution systems for the company.

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