

# Major Electronics Manufacturer Saves Over \$50 Million with Supply Chain Optimization

Arena® Simulation Software Enables Evaluation of Supply Chain Modernization Alternatives

## Challenge

Senior managers wanted to redesign the company's supply chain so they could share resources and channels in a forward and reverse logistics supply chain. Their goal was to determine the best strategy and to design the most effective supply chain design that would maximize customer service and minimize cost.

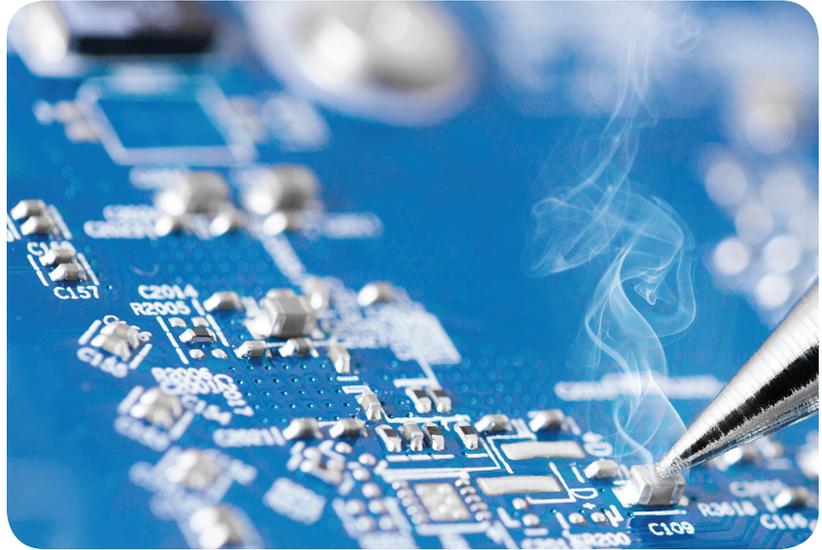
## Solutions

Rockwell Software  
Arena Simulation Software

- The "as-is" simulation model showed the performance of the current service and repair operations for new, repaired, and failed products.
- The supply chain optimization model showed the impact of the design on order lead time, inventory levels, work-in-process (WIP), repair costs, scrap value, and call center utilization.

## Results

Arena's supply chain simulation software resulted in savings well over \$50 million.



## Background

A California-based electronics manufacturing services (EMS) provider, with international locations and maintenance repair operations in Europe, positions itself as the leading provider of integrated supply chain solutions to original equipment manufacturers (OEMs) around the world.

## Challenge

Senior managers wanted to redesign the company's supply chain so they could share resources and channels in a forward and reverse logistics supply chain. Their goal was to use supply chain simulation software to determine the best strategy and to design the most effective supply chain design that would maximize customer service and minimize cost. Forward logistics is the movement of new product from a manufacturer to an end customer. Reverse logistics is the return of repaired product to a customer and the movement of failed product from a customer to the OEM for repair. The supply chain in a combined forward and reverse logistics system is extremely complex due to new, repaired, and failed products flowing through shared channels and using shared resources. To design the most effective supply chain configuration, the manufacturer's senior managers brought in consultants from Rockwell Automation, who teamed with a leading business consulting firm.

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The consultants applied Rockwell Software's Arena simulation software to create a simulation based on supply chain optimization. They built a comprehensive model that reflected the manufacturer's four manufacturing and repair locations in three countries; and nine product lines and repair facilities in nine countries.

## Solution

The "as-is" simulation showed the performance of the current service and repair operations for new, repaired, and failed products. The supply chain optimization model covered over 150,000 Repair Material Authorizations (RMAs), 20 third party logistics providers (3PLs), 15 OEM locations, three logistics centers, 100 depots or remote stocking locations (RSLs), and four call centers. The supply chain optimization model also measured the impact of the design on order lead time, inventory levels, work-in-process (WIP), repair costs, scrap value, and call center utilization. To provide a realistic picture of the true cost of transporting products between countries, the model also included inventory, costs, and taxes related to transportation, with transit times broken down by 3PL provider. After verifying the as-is model by using actual data from the previous 12 months, five "to-be" supply chain network design alternatives were created using Arena's supply chain optimization software. The to-be alternatives reflected changes to the company's logistics structure, inventory management strategy, call center management, inventory replenishment strategy, and repair strategy.

## Results

The supply chain optimization model showed that only two of the five alternative designs met all of the company's goals, but only one of the two had the lowest cost with the highest customer service. This final design projected a 39% reduction in repaired and failed product inventory value and carrying cost. The model illustrated how repair costs could be reduced if the manufacturer repaired failed parts only when needed. Additionally, it showed how engineering change management (ECO) costs could be lowered and where excess and obsolete inventory could be eradicated. The design also projected a 16% reduction in transportation costs by using direct ship as a transport option and instituting advanced ship notices (ASNs). The supply chain optimization model illustrated how to save costs by consolidating inbound and outbound shipments, consolidating 3PLs, and sharing resources across Europe. The model determined that a forward and reverse logistics supply chain would maximize service and minimize costs for handling new, repaired, and failed products. Arena helped discover the ideal logistics strategy and network design for sharing resources and channels in the manufacturer's supply chain. The savings extrapolated as a result of using Arena's supply chain simulation software was well over \$50 million.

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