

## BENEFIT CASE STUDY

# LLAMASOFT CARDINAL HEALTH



### ANALYST:

James  
**COOKE**

### THE BOTTOM LINE

Cardinal Health deployed LLamasoft's supply design tool to evaluate the makeup of its distribution network and find ways to reduce inventory, transportation and labor costs while improving service to its customers. On the initial project in which Cardinal Health used the LLamasoft solution, Nucleus Research found that the health care provider received positive financial results by combining freight runs to two regional distribution centers (DCs) as the modeling predicted.

- Cut inventory holdings by \$2.8 million in one DC, \$1.9 million in the second DC
- Saved \$430,000 on inventory carrying costs
- Reduced transportation costs by \$276,000

### THE COMPANY

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Cardinal Health Inc. based in Dublin, Ohio earned \$91 billion in health care services in 2014. The company provides distribution of pharmaceuticals and medical products to hospitals, drug stores, physician offices, ambulatory surgical centers and clinical laboratories. It is also a leading manufacturer of medical and surgical products, including gloves, surgical apparel and fluid management products.

The health care services provider delivers to more than 100,000 locations every day. It runs a distribution network with one national facility and 24 regional DCs. Each DC generally carries 55,000 stock keeping units (SKUs.)

### THE CHALLENGE

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In 2014 Cardinal Health decided that it needed a common software platform for modeling projects. Teams were doing separate supply chain analysis for transportation, inventory and labor. Management decided that it would make more sense if all teams used a common software application.

In addition, the health care services providers wanted to speed up the modeling process to get answers more quickly to supply chain questions. At that time it would often take a supply chain analyst three months to develop a model to use as the basis for studying a specific question.

## THE STRATEGY

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The company did an evaluation of two supply chain design applications and ended up selecting LLamasoft. Scott Finley, manager of advanced analytics, said the high degree of support offered by LLamasoft was a key reason for that decision. Cardinal Health purchased a floating license for four seats, installing the application on its servers.

One of the first projects utilizing the LLamasoft tool was a study of the feasibility of combining deliveries to two distribution centers, one in Jacksonville, Miss. and the other in Stafford, Texas. At that time two years ago Cardinal Health was making three weekly replenishment runs from its national DC in Dublin, Ohio to each of those two facilities. The question was: could the company make more frequent deliveries using one truck with half a shipment to each facility and still maintain adequate inventory to meet the pharmaceutical demands of local customers? Because of the labor and time required to unload a full product shipment at the warehouse, management at those DCs had raised the question as to whether the adoption of "milk runs" could spread out the unloading work across two days while still maintaining inventory service levels.

Cardinal Health built a model to depict the present operation of its supply chain network and then examined what-if scenarios to gauge the impact of combo runs on transportation, inventory and labor. The model was built using a year and half of past operational data at the SKU level. Along with network optimization it also did a simulation of the flows. Since this was one of the first projects using the LLamasoft tool, Finley said it took two weeks to complete because the supply chain analysts had to gain familiarity with the software. *"Today we could do that same project in two days,"* he added.

## KEY BENEFIT AREAS

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The network modeling indicated that Cardinal Health could make five combo load deliveries each week to the Jackson and Stafford DCs instead of six individual runs. In fact, the model provided evidence that the health care provider could actually lower inventory in DCs by increasing frequency of delivery. Eliminating one trip also had the potential for transportation savings, an important consideration since the linehauls involved shipments in temperature-controlled trucks.

A year after the switch to double-stop deliveries was made, Cardinal Health realized savings in inventory and transportation and boosted service levels. The company

witnessed a reduction of inventory totaling \$2.8 million in one facility, and \$1.9 million in the other. That translated into a \$430,000 savings with inventory carrying costs. Going from six to five shipments netted the company \$276,000 reduction in shipping costs. Finally, order fill rates for customer orders went up nine basis points in Jackson DC, and 12 points in the Stafford, because Cardinal Health made more frequent resupplies.

*"If we had an out of stock issue, another truck showed up the next day, bringing the item."*

Scott Finley, Manager Advanced Analytics, Cardinal Health

## **BEST PRACTICES**

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As a result of the success of the first project Cardinal Health was able to demonstrate the financial value from supply chain modeling. Since undertaking the first project two years ago it has done 20 additional supply chain studies.

Although supply chain modeling was initially used to examine a specific supply chain question, such the feasibility of combination shipments, Finley said that the company has begun using the supply chain design tool to examine more strategic supply chain issues. Because Cardinal Health can run a what-if scenario now in days as opposed to weeks in the past, supply chain modelers can respond more quickly to management questions and examines the pros and cons of potential business impacts before making network changes.

## **CONCLUSION**

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Because supply chain design software allows a company to examine the current setup of its supply chain and consider possible future changes, businesses can regularly review and fine-tune its operations. Having demonstrated the financial value of modeling to its bottom line, Cardinal Health has embraced supply chain analysis as a best practice to maintain an efficient distribution.