

INTERACTIVE SESSION: TECHNOLOGY**Land O'Lakes Butter Becomes Fresher with Demand Planning**

Originally founded in 1921 by representatives from 320 individual creameries as the Minnesota Cooperative Creameries Association, Land O'Lakes has grown to one of the largest producers of butter and cheese in the United States. The company handles 12 billion pounds of milk annually and generates revenues of over \$14 billion. The company also owns several other brands, such as Purina, a major producer of animal feed, which it acquired in 2001. Land O'Lakes also runs Winfield Solutions, which sells farm seeding and crop protection products.

All businesses dealing in consumer goods must deal with issues of supply chain efficiency and inventory management. For Land O'Lakes, the importance of those issues is heightened because its products are perishable and sales volume and product mix change greatly from season to season. In the winter, for example, Americans use more butter for baked goods, and demand spikes as high as 65 percent. The company must be prepared to adjust production and inventory accordingly.

Because of these fluctuations in demand and short product shelf life, Land O'Lakes needs to take special care to plan its inventory so that it can handle customers' needs in every season without incurring unnecessary costs. To that end, in 2010, Land O'Lakes implemented Oracle's Demantra Demand Management software to more effectively plan production on a weekly, monthly, and seasonal basis. Land O'Lakes hoped to reduce the amount of inventory it had on hand, simplify its supply chain, and predict demand before it develops. By improving its production planning, the company stood to reduce costs across the board.

The Land O'Lakes supply chain is complex, and involves several different entities. For example, when a stick of butter is made at a Land O'Lakes production plant in California or Pennsylvania, the company ships it to one of its distribution centers, and then on to the distribution centers of its customers, such as Shoprite Supermarkets or A&P. From there, the stick of butter travels to retail supermarket and grocery store locations, restaurants, and food service companies, but it's important that it travel as quickly as possible through Land O'Lakes's part of the supply chain so that it is still fresh when it arrives at its final destination. Supply chain efficiency is of the utmost importance.

Inventory management is similarly important. Land O'Lakes must keep a sufficient amount of store-ready product on hand, but any excess inventory that can't be sold before products start to spoil must be discarded, damaging the company's bottom line.

Additionally, the more inventory a company keeps on hand, the more that company must pay to maintain the inventory. Land O'Lakes sought to create a system where it would be able to predict shifts in demand and keep just enough inventory on hand to satisfy demand, but not so much that it was discarding a significant portion of its goods.

Land O'Lakes wanted to achieve this goal by implementing a demand-sensing solution to help predict and adjust to shifts in demand. The company had already installed Oracle's JD Edwards EnterpriseOne ERP system, so it relied on Demantra to extend the functionality of the ERP solution to improve demand sensing. Demantra's focus is exactly what Land O'Lakes had desired—getting the best possible value from a lean inventory. First, the system analyzes the optimal way to manage raw materials. It helps company managers determine how much milk is turned into butter, how much is turned into cheese, and what types of cheese to make.

Demantra extracts data on shipment history, open customer orders, and key master data on customers and products from the EnterpriseOne system to create models for future demand. Using these data with sophisticated statistical modeling and algorithms that calculate consumption, order lead time, and consumption allocation, Land O'Lakes is able to create accurate forecasts, especially for the next four weeks. Land O'Lakes uses EnterpriseOne to plan production of all of its goods to maintain a "just enough" inventory and keep costs as low as possible while ensuring that the right products are available for the right customer at the right time.

Demantra generates long-term, medium-term, and short-term reports that aid in the planning process. Long-term reports that forecast demand 18 to 24 months in the future help managers plan which type of product to make and ensure milk sheds will provide enough to satisfy demand at that time. Medium-term reports forecast demand 2 to 6 weeks out. Short-term reports are used to determine which customers need shipments immediately. Supply chain managers rely on Demantra for a combination of these reports to determine which Land O'Lakes facilities should be assigned to produce and distribute products. Reducing the distance between the factory and the customer lowers costs for fuel, transportation and overall production.

Demantra has helped Land O'Lakes cut their total inventory of finished product on hand by four full days, resulting in millions of dollars in savings. Adhering so closely to the "just enough" principle leaves Land

O'Lakes more vulnerable to sudden spikes in demand, but over the long run it saves the company much more. In the consumer packaged goods industry, the accuracy rate of demand forecasting is approximately 50 percent—thanks to Demantra, Land O'Lakes improved from 40 percent accuracy to 70 percent accuracy.

Land O'Lakes also relies on Oracle Transportation Management to plan its transportation, execution, freight payment, and business process automation. When Land O'Lakes trucks are loaded and ready to go, they have to get to the right destination as quickly and efficiently as possible. Shipments going bad because of inefficient routes or other unforeseen issues also hurt the company's bottom line. Oracle Transportation Management integrates with the EnterpriseOne system

and Demantra. Using information about which distribution centers need more goods and which need to unload goods, the system automatically plans the best routes for shipment trucks when they leave Land O'Lakes plants. Using this system, Land O'Lakes can pack its trucks with more goods, improving their average truck weight by 4 percent to 40,000 pounds. This saves the company money on transportation costs, and for a nation-wide business like Land O'Lakes, the total amount saved is significant. Land O'Lakes can rechannel these savings to expand into international markets.

Sources: Land O'Lakes, "Land O'Lakes Reports 2012 Results," February 26, 2013; Monica Mehta, "Milking Demand," *Profit Magazine*, February 2012; Monica Mehta, "Oracle Transportation Management," *Profit Magazine*, February 2012; www.landolakes.com, "About Us," accessed March 10, 2013.

CASE STUDY QUESTIONS

1. Why are inventory management and demand planning so important for Land O'Lakes? What is the business impact of not being able to manage inventory or predict demand for this company?
2. What people, organization, and technology issues had to be considered when selecting Oracle's Demantra as a solution for Land O'Lakes?
3. How did implementing Demantra change management decision making and the way that Land O'Lakes ran its business?
4. Describe two decisions that were improved by implementing Demantra.

Demand-Driven Supply Chains: From Push to Pull Manufacturing and Efficient Customer Response

In addition to reducing costs, supply chain management systems facilitate efficient customer response, enabling the workings of the business to be driven more by customer demand. (We introduced efficient customer response systems in Chapter 3.)

Earlier supply chain management systems were driven by a push-based model (also known as build-to-stock). In a **push-based model**, production master schedules are based on forecasts or best guesses of demand for products, and products are "pushed" to customers. With new flows of information made possible by Web-based tools, supply chain management more easily follows a pull-based model. In a **pull-based model**, also known as a demand-driven or build-to-order model, actual customer orders or purchases trigger events in the supply chain. Transactions to produce and deliver only what customers have ordered move up the supply chain from retailers to distributors to manufacturers and eventually to suppliers. Only products to fulfill these orders move back down the supply chain to the retailer. Manufacturers use only actual order demand information to drive their production schedules and the procurement of components or raw materials, as illustrated in Figure 9.4. Walmart's continuous replenishment system described in Chapter 3 is an example of the pull-based model.

The Internet and Internet technology make it possible to move from sequential supply chains, where information and materials flow sequentially from company to company, to concurrent supply chains, where information flows in many directions simultaneously among members of a supply chain network. Complex supply networks