Optimization Models for Restructuring BASF North America’s Distribution System

Slava Sery
ssery@mindspring.com
7500 Southwind Drive
Apartment 207
Chesterfield, Virginia 23832

Vince Presti
vjpresti@aol.com
BASF Corporation North America
3000 Continental Drive North
Mount Olive, New Jersey 07828

Donald E. Shobrys
dshobrys@home.com
186 Blackburn Road
Summit, New Jersey 07901

By 1995, annual distribution costs for BASF North America’s packaged goods were nearly $100 million. The firm explored trade-offs between customer service and operating costs in a redesign effort using linear-programming-based models. The project team adapted formulations to the extensive available data and used a series of formulations to cope with the scale of the project. A flexible modeling tool aided the team in implementing these formulations. The resulting revised distribution system reduced costs and improved customer service, and the modified distribution network took next-day deliveries from 77 percent to 90 percent. Although the team expected reduction in annual costs of 10 percent, subsequent customer service initiatives reduced the potential savings. In studies following the initial distribution changes the team estimated annual costs savings at six percent, but also identified a one-time nine-percent improvement in cash flow from inventory reductions. BASF also applied the models to operations in Scandinavia, Europe, and the Asia-Pacific area.

The BASF Group, with headquarters in Ludwigshafen, Germany, is one of the world’s leading chemical companies, with sales in 1997 of $32 billion and 100,000 employees worldwide. BASF offers a range of chemical and chemical-