

DuPont Saves Millions by Simulating Transportation Logistics with ProModel

Supply Chain & Logistics

Success Story

Chemicals, Oil, Gas & Energy

ProModel



CHALLENGES

DuPont products touch almost every aspect of our lives; from the clothing we wear to the household products we use, and the food that we eat. DuPont manufactures and delivers products such as; Holoofil II for sleeping bags, Teflon for nonstick cooking surfaces, Tyvek to protect your house and Stainmaster to keep your carpets clean. Manufacturing these chemicals is complex enough, but add to that safe bulk chemical transportation and you have a very complex and costly logistics process. Specialized fleets of rail cars which can range in cost from \$80,000 for a standard tank car to over \$250,000 for more specialized models are required.

OBJECTIVES

According to George Gates, Logistics Consultant with DuPont, there was a perceived need to increase the fleet size based upon past experience. He believed that the real problem wasn't necessarily the shortage of specialized rail cars, but the way in which they were being used. DuPont needed to understand the complete process in order to properly identify and implement solutions that could avoid unnecessary costly capital expenditures.



DuPont needed to understand all phases the process, including the following:

- Production output variability
- Transit cycle times
- Maintenance scheduling
- Sequencing of orders

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SOLUTION

ProModel Simulation was used to model the variability associated with production, the availability of tank cars, transportation times and unloading times at the customer's site. Therefore, DuPont would have a more realistic picture of the problem with all its randomness and variability.

Within just two weeks, Mr. Gates completed the first model and helped DuPont avoid \$480,000 in capital investment. Since that first model, Mr. Gates has pioneered logistics modeling on a variety of product lines, crossing division boundaries and political domains. He's seen some future potential uses for modeling logistics with ProModel and it has been invaluable for improving logistics systems, including international logistics or logistics support for the development of new markets.

VALUE PROVIDED

DuPont used the simulation to avoid costly capital expenditures on the rail car fleets as customer demands changed. Demand changes could involve the purchase of rail cars, better management of existing fleets or even reduction of the fleet size. Old methods of analysis often suggested immediate purchase of expensive rail tankers, but with ProModel they could graphically illustrate the national distribution system under current production levels and current customer demand forecasts. Key players were already convinced that a capital expense was justified, while the model revealed they could actually down size the fleet and still make the required customer deliveries. Without simulation there would have been no way to illustrate and make this point. Dupont saw many opportunities for using ProModel in the future, as well.

George Gates, a supply chain associate for DuPont, has served as change facilitator for Specialty Chemicals. He has combined continuous improvement tools with simulation software tools to optimize fleet sizing and logistical systems.