

Delivery Strategy at MoonChem

John Kresge was very concerned as he left the meeting at MoonChem, a manufacturer of specialty chemicals. The year-end meeting had evaluated financial performance and discussed the fact that the firm was achieving only two inventory turns a year. A more careful look revealed that over half the inventory MoonChem owned was consignment inventory with its customers. This was very surprising given that only 20 percent of its customers carried consignment inventory. John Kresge was Vice President of Supply Chain and thus responsible for inventory as well as transportation. He decided to take a careful look at how consignment inventory was managed and come up with an appropriate plan.

MOONCHEM OPERATIONS

MoonChem is a manufacturer of specialty chemicals used in a variety of industrial applications. MoonChem has eight manufacturing plants and forty distribution centers. The plants manufacture the base chemicals and the distribution centers mix them to produce hundreds of end-products that fit customer specifications. In the specialty chemicals market, MoonChem has decided to differentiate itself in the Midwest region by providing consignment inventory to its customers. MoonChem would like to take this strategy national if it proves effective. MoonChem keeps the chemicals required by each customer in the Midwest region on consignment at the customers' sites. Customers use the chemicals as needed and MoonChem ensures replenishment to ensure that the customers do not run out of inventory. In most instances, consumption of chemicals by customers is very stable. MoonChem is paid for the chemicals as they are used. Thus, all consignment inventories belong to MoonChem.

DISTRIBUTION AT MOONCHEM

MoonChem currently uses Golden trucking, a full truckload carrier for all its shipments. Each truck

has a capacity of 40,000 pounds and Golden charges a fixed rate given the origin and destination, irrespective of the quantity shipped on the truck. Currently MoonChem sends full truckloads to each customer to replenish their consignment inventory.

THE ILLINOIS PILOT STUDY

John decided to take a careful look at his distribution operations. He decided to focus on the state of Illinois, which was supplied from the Chicago distribution center. He broke up the state of Illinois into a collection of zip codes that were contiguous, as shown in Figure 10.10. He decided to restrict attention within the Peoria region, which was classified as zip code 615. A careful study of the Peoria region revealed two large customers, six medium-sized customers, and twelve small customers. The annual consumption at each type of customer is as shown in Table 10.4. Golden currently charges \$400 for each shipment from Chicago to Peoria and MoonChem's policy is to send a full truckload to each customer when replenishment of consignment inventory is needed.

John checked with Golden to find out what it would take to include shipments for multiple customers on a single load. Golden informed him that they would continue to charge \$350 per truck and would then add \$50 for each drop-off that Golden was responsible for. Thus, if Golden carried a truck that had to make one delivery, the total charge would be \$400. However, if a truck had to make four deliveries, the total charge would be \$550.

TABLE 10.4 Customer Profile for MoonChem in Peoria Region

| <i>Customer Type</i> | <i>Number of Customers</i> | <i>Consumption (Pounds per Month)</i> |
|----------------------|----------------------------|---------------------------------------|
| Small | 12 | 1,000 |
| Medium | 6 | 5,000 |
| Large | 2 | 12,000 |

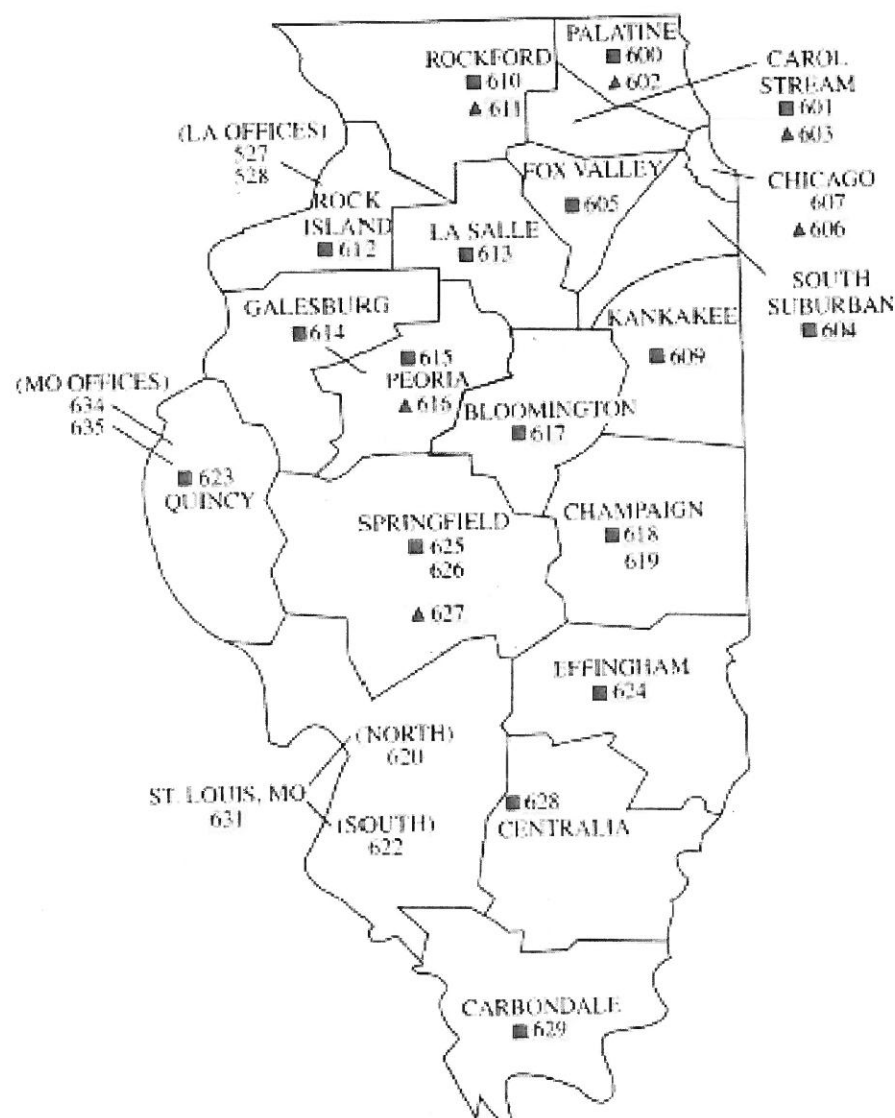


FIGURE 10.10 Illinois Zip Code Map

Each pound of chemical in consignment cost MoonChem \$1 and MoonChem had a holding cost of 25 percent. John wanted to analyze different options for distribution available in the Peoria region to decide on the optimal distribution policy. The detailed study of the Peoria region would provide the blueprint for the distribution strategy that MoonChem planned to roll out nationally.