

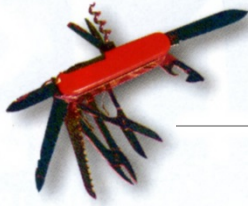


INDUSTRIAL ENGINEERING

# SOLUTIONS

JULY 1997

**Forecasting Software  
Ensures Fast Food  
Customers' Satisfaction**



## applications

**CHALLENGE:** Establish accurate inventory targets for dry goods, packaged items, and food items, while maintaining acceptable levels of customer service.

**STRATEGY:** Use inventory planning system with statistical process control (SPC) capabilities to help users manage inventory, forecast product demand, and deliver the right amount of product in a timely, efficient manner.

**RESULTS:** The company has realized significant inventory reductions—from \$4.7 million to \$3.2 million—and improved inventory turns, customer service, and safety stock levels

When Carl Karcher and his wife, Margaret, bought a hot dog cart for \$326 in 1941, they had no idea it would lay the foundation for a business of more than 600 full-service restaurants. Karcher's hotdog-only menu expanded to include charbroiled hamburgers, chicken sandwiches, prepared salads, stuffed baked potatoes, breakfast items, side orders, and "all you want" beverages. In 1977 Carl's Jr. became the first fast food chain to introduce salad bars at every location. Today, the restaurant is recognized by its star logo and its signature "Famous Star" and "Super Star" hamburgers.

Carl Karcher Enterprises Inc. (CKE), founded in 1945 and based in Anaheim, California, supplies 677 Carl's Jr. restaurants in the western United States and Mexico with more than 1,500 items of inventory. While hard work and determination have contributed to CKE's continued business success, the company's ability to create and effectively manage inventory is just as vital to its prosperity.

"Managing inventory accurately is

crucial when you are dealing with food items with a limited shelf life," says Logistics Manager Hamlet Manouchehri. "Inventory velocity is so high that you must be very accurate to manage it effectively."

CKE works to maintain a balance between inventory investment and customer service. The company faces a continuing challenge of establishing accurate inventory targets for dry goods, packaged items, and frozen, fresh, and dry food items, while maintaining the high level of customer service for which the company is known. CKE distribution centers ship approximately one million cases of hamburger patties, 940,000 cases of french fries, and 310,000 cases of chicken breasts a year.

As the company prospered and inventory grew, CKE realized it was facing new inventory management challenges. Having too much inventory required too much of an investment, tied up assets, and created space constraints in distribution centers. Inventory carrying costs, insurance costs, and taxes soared. On the other hand, if the company pared inventory to more manageable levels, restaurants sometimes experienced shortages of certain items, which disappointed customers. In both cases, the system cost too much money and consumed too much time.

"In the retail industry, there are no second chances. When a customer wants a Super Star burger and can't get one because the store is out of stock, you've lost that piece of business," says Manouchehri.

Prior to 1993, CKE's antiquated inventory planning and management system did not have accurate forecasting capabilities, and was unable to respond adequately to marketing changes. The fast paced, fast growing company was turning inventory quickly and needed an inventory management system that would deliver its product at the right time to the right location in the right quantity.

To address the problem, CKE installed the *Finished Goods Series (FGS)* system from E/Step Software Inc. of Yakima, Washington. A flexible, Windows-based system, *FGS* incorporates statistical process control (SPC) techniques to help users manage their inventory and forecast product demand. The system uses existing demand history for thousands of stock keeping units (SKUs) to generate



forecasts and identify appropriate inventory levels. It employs exception reporting to allow management to focus on items that require human intervention.

Because CKE had no previous forecasting experience, the transition to a new system wasn't easy and required approximately one year to complete. The company had to create macros to accommodate its unique requirements. Also, acting on advice from E/Step Software engineers, CKE created a position solely responsible for forecasting.

Many companies forecast their products monthly—often because that's all their software will allow. This "one size fits all" approach doesn't work any better for forecasting than it does for clothes. For Carl's Jr., the best forecasting frequency is weekly, not monthly.

"Carl's Jr.'s data showed significant seasonality that is crystal clear on a weekly basis but turns fuzzy when viewed monthly," says Robert Duncan,

E/Step Software instructor. "They actually get a lower forecast error—and therefore a lower inventory—with weekly forecasts than with monthly forecasts." *FGS* users can set any SKU to any calendar. The calendars are user-defined, so each item can be put on the most appropriate calendar.

In the five years CKE has been using the *FGS* software, results have been measurable and positive. Inventory in the company's distribution centers has dropped from \$4.7 million to \$3.2 million—a 29 percent reduction. The average retail food chain distribution turns 25-40 times a year. Before implementing *FGS*, Carl's Jr. managed 40 turns a year; today, the company turns inventory 64 times on average.

Customer service levels have improved dramatically as well. In 1993, the average system wide "stock out" per month was 265 SKUs. Today, the average is 176 SKUs—a 34 percent improvement. The volume and cost of distribution center space required for

finished goods inventory also have dropped dramatically.

*FGS* has allowed the company to set logistical goals—including improved customer service, inventory turns, and safety stock—and measure accuracy from its forecast. For example, the company can set a very high goal for meeting customer requirements—99.8 or 99.9 percent—and use *FGS* to determine the investment needed to achieve that goal.

CKE's inventory planner works with marketing personnel to manage the extra inventory needed for special product promotions. Using *FGS*, planners can measure the results of promotions and respond dynamically, adding supplies only where necessary and avoiding the buildup of unnecessary inventory.

CKE made an initial investment of \$65,000 to purchase *FGS*, and spends approximately \$6,000 a year to maintain it. The company reports that the system paid for itself in less than two years.