

Developing a Restaurant Revenue-management Strategy

by Sheryl E. Kimes,
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Propounding theories is one thing, but too often the intended beneficiary hasn't the time or tools to check their usefulness. Here's a case where researchers worked with a local restaurant to test their ideas, make recommendations for improvement, and track the results.

As explained in a paper published last year in this journal, the goal of restaurant revenue management (RRM) is to maximize revenue per available seat hour (RevPASH) by manipulating price and meal duration.¹ In the first paper of the current series discussing the steps of RRM,² co-author Kimes discussed how RevPASH can be measured and used to evaluate restaurant performance, and she presented a five-step approach for implementing RRM. In this paper we explain how we developed a revenue-management strategy for a 100-seat casual restaurant in Ithaca, New York.

¹ Sheryl E. Kimes, Richard B. Chase, Sunmee Choi, Philip Y. Lee, and Elizabeth N. Ngonzi, "Restaurant Revenue Management: Applying Yield Management to the Restaurant Industry," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 39, No. 3 (June 1998), pp. 32-39.

² Sheryl E. Kimes, "Implementing Restaurant Revenue Management: A Five-step Approach," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 40, No. 3 (June 1999), pp. 16-21.

Restaurant revenue management can be defined as selling the right seat to the right customer at the right price and for the right duration. The determination of "right" entails achieving both the most revenue possible for the restaurant and also delivering the greatest value or utility to the customer. Revenue management, or yield management, is commonly practiced in the airline industry and, to a somewhat lesser degree, the lodging industry. Companies implementing revenue management report in-

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creases in revenue of 2 to 5 percent over the results of prior procedures.³

Restaurant operators can manipulate two main strategic levers to manage revenue: price and meal duration.⁴ Price is a fairly obvious target for manipulation, and many operators already offer price-related promotions to augment or shift peak-period demand (e.g., early bird specials, special menu promotions).⁵ More-sophisticated manipulations of price include day-part pricing, day-of-week pricing, and price premiums or discounts based on party or table size. Managing meal duration (i.e., speeding table turns) is a bit more complicated, as we discuss in a moment. For example, meal duration depends in part on the efficiency of the restaurant's service cycle, as well as on the idiosyncrasies of customer-arrival patterns and diners' deciding to linger (or not) after the meal.⁶

³ See, for example: Barry C. Smith, John F. Leimkuhler, and Ross M. Darrow, "Yield Management at American Airlines," *Interfaces*, Vol. 22, No. 1 (1992), pp. 8-31; and Richard D. Hanks, Robert G. Cross, and R. Paul Noland, "Discounting in the Hotel Industry: A New Approach," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 33, No. 3 (June 1992), pp. 40-45.

⁴ *Ibid.*; see also: Sheryl E. Kimes and Richard B. Chase, "The Strategic Levers of Yield Management," *Journal of Service Research*, Vol. 1, No. 2 (1998), pp. 156-166.

⁵ Identification and implementation of classic revenue-management techniques is explained in a series of articles by Bill Quain *et al.* that was published in *Cornell Hotel and Restaurant Administration Quarterly*: "Revenue Enhancement, Part 1: A Straightforward Approach for Making More Money," Vol. 39, No. 5 (October 1998), pp. 41-48; "Revenue Enhancement, Part 2: Making More Money at Your Hotel," Vol. 39, No. 6 (December 1998), pp. 71-79; "Revenue Enhancement, Part 3: Picking Low-hanging Fruit—A Simple Approach to Yield Management," Vol. 40, No. 2 (April 1999), pp. 76-83; and "Revenue Enhancement, Part 4: Increasing Restaurant Profitability," Vol. 40, No. 3 (June 1999), pp. 38-47.

⁶ For a discussion of the effects of altering the service-cycle time, see: Christopher C. Muller, "A Simple Measure of Restaurant Efficiency," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 40, No. 3 (June 1999), pp. 31-37; and, for an analysis of arrival times, see: Brian Sill and Robert Decker, "Applying Capacity-management Science: The Case of Browns Restaurants," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 40, No. 3 (June 1999), pp. 22-30.

To develop an RRM program, managers should (1) establish the baseline of performance, (2) understand the drivers of that performance, (3) develop a revenue-management strategy, (4) implement that strategy, and (5) monitor the strategy's outcomes. In this paper we discuss and illustrate how to establish the baseline and understand its drivers, and how to develop a revenue-management strategy. In the next paper we will discuss implementation and evaluation issues.

The Study Site

As part of our research we developed an RRM system for a small, casual restaurant in Ithaca, New York. Coyote Loco, a 100-seat restaurant, serves California-style Mexican food, and is about a mile from the Cornell University campus. Its average check is approximately \$14. The restaurant has a full bar, and its signature margaritas are particularly popular. The restaurant is open from 11:00 AM to 11:00 PM every day, and has a happy hour from 4:00 to 6:00 PM on Monday through Friday. A manager is always on duty.

The menu comprises fewer than 12 appetizers, 30 to 40 entrees, and about half a dozen desserts. Servers are assigned stations that consist of approximately four tables. Coyote Loco uses a Micros 2700 POS and maintains an electronic journal of all transactions. The kitchen is small and employs four line cooks (including one manager), two dish-machine operators, and three food runners. Food-preparation work is performed during off-peak hours in a basement work area. The main restaurant has 72 seats (two 2-tops, fifteen 4-tops and one 8-top). The bar area, which is used for dining on busy nights (and which also serves as the *de facto* waiting room for not-yet-seated diners), has 27 seats (nine 2-tops and nine bar stools). During Ithaca's

warm-weather months, an outdoor patio provides seating for an additional 66 customers.

The owners and managers of Coyote Loco agreed to help us obtain the data necessary to begin an RRM system. Moreover, they met with us regularly to discuss implementation alternatives and concerns. We began our work at the restaurant in September 1998 and have been able to track its performance over time. We followed the five-step approach discussed in the first RRM paper to develop a RM system and strategies for Coyote Loco.⁷

In the next section we describe the types of data and analysis necessary to establish a baseline, the tools that can be used to understand actual service-cycle performance, and operational tactics that are part of a revenue-management strategy. We use our experience at Coyote Loco to illustrate the discussion.

Step 1: Establish the Baseline

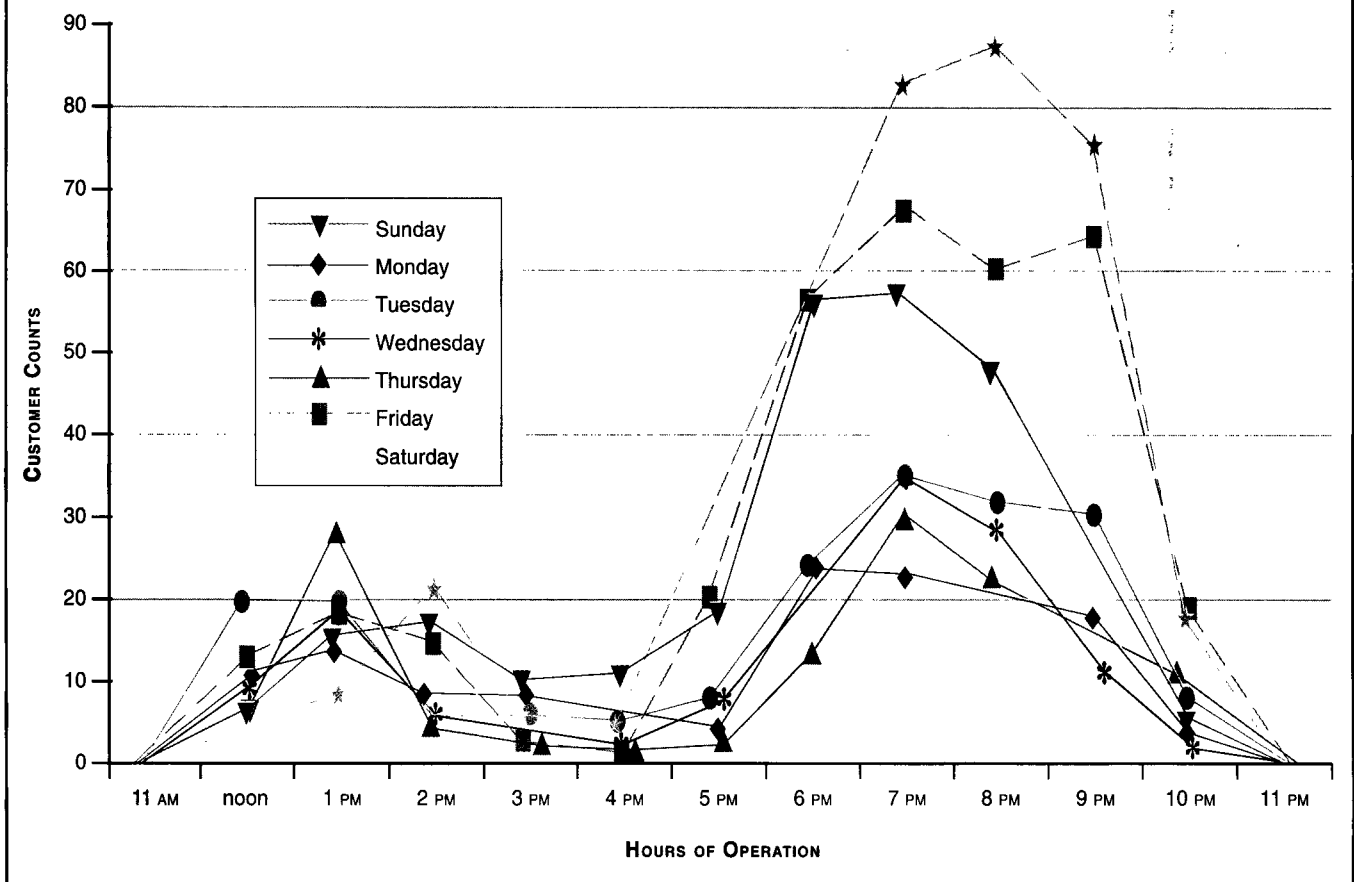
To develop an RRM program, restaurant operators must collect detailed information on arrival patterns, meal times, and RevPASH patterns. Before collecting data, several issues must be addressed—including the appropriate levels of data, the sources of those data, and the potential limitations and problems associated with the data.

Level of detail. At a minimum, managers must collect arrival, meal duration, and revenue data on a day-part basis. Without this level of detail, RRM will not have the necessary information with which to work. Hourly data can help the operator to understand demand and revenue patterns, and they can help provide sufficient information to fine tune the RRM system. Quick-service or family restaurants with short meal times (i.e., service cycles) may prefer to capture data

⁷ Kimes, *op. cit.*

Exhibit 1

Restaurant arrival patterns (October 1998)



for 15-minute periods. Such detail can be helpful; however, the operator must be sure that the additional work required to collect this information is worth the added benefit. (In general, operations with short dining times will benefit from more detailed analysis.)

Sources of data. Data can be collected from the restaurant's POS (point of sale) system, through time study or actual observation, or by customer surveys. POS systems generally collect a myriad of transaction data such as arrival time, meal time, and customer spending, but converting that POS data to a usable form is often difficult and time-consuming. Time study or observation can provide detailed data on arrival time, course timing, meal

time, and revenues, but requires substantial time to train observers and actually to collect the data. Surveys can be used to gauge customer reaction and sensitivity to price, service quality, and overall atmosphere, but administering surveys properly and deciphering the data take a lot of time and careful training.

Potential data problems. As just noted, data sources generally are imperfect. While POS data contain detailed information on all transactions, for example, the opening time of a check may not reflect the guests' true arrival time (how long did they wait to be seated?) and the closing time of the check may not accurately indicate when the guests left the dining room (did the cashier ring up the check as soon as the

table was vacated?). The type of control system used (server banking or cashier banking) can also influence the accuracy of check-closing times. For instance, restaurants that use cashiers may find that all checks are closed at the end of the cashier's shift. This renders the POS data useless for duration estimates.

A time-study approach to collecting data can yield accurate arrival and departure times, and can generate a good level of detail regarding meal timing (drinks to appetizers to entrées to desserts), but we found that it is difficult for the observer to record accurately all transactions for multiple parties. Moreover, while POS systems provide information on all transactions, time-study data cover only a sample

of transactions. That needn't be a major drawback, but care must be taken to ensure that a representative sample of meal periods and days are being investigated and recorded.

Coyote Loco's baseline. The first thing we did at Coyote Loco was to collect data from its POS system. Once we had these data, we performed time studies of the dinner period for six nights. The resulting data were analyzed to develop hourly arrival rates, meal times, and RevPASH. All results presented in this paper are from October 1998, our first full month of observation at Coyote Loco.

We did not want to go through all of Coyote Loco's POS transactions manually, so we used software called Monarch, a report writer, to extract the required data. We extracted data on the date, the check number, the transaction time, the party size, and the transaction amount. Each party at the restaurant usually had multiple transactions for their meal—including when the check was opened, when orders were entered, and when the check was closed. (In a few cases there were just two transactions: when the check was opened with the entire order and when it was closed at the end of the meal. Any voided checks were excluded from the study.)

The usable data were then transferred from Monarch to Microsoft Excel, where the multiple transactions were condensed into a single record for each party. Each record contained information on the date, the check number, the starting time, the closing time, the party size, and the check amount for each party. Data analysis to find the number of hourly arrivals, the mean and standard deviation of meal duration, and the hourly RevPASH was performed using Microsoft Excel and Microsoft Access software.

Arrivals. We determined and graphed the distribution of the

number of arrivals for each hour of each day during October. As shown in Exhibit 1, Coyote Loco was busiest on Friday and Saturday nights between 6:00 and 9:00 PM. Sunday was the next busiest night, with the other nights of the week being much slower. The lunch-time business was relatively slow every day.

One of the problems with the actual-arrivals data that we collected is that the number of arrivals does not represent the true, unconstrained demand. (Unconstrained demand can be defined as the number of customers a restaurant could handle if its capacity was unlimited.)⁸ For instance, some customers who wanted to dine at the restaurant may have been turned away, walked out after waiting a bit, or simply observed that the restaurant was busy and never stopped at all.

A variety of methods, both mathematical and managerial, have been used by hotels and airlines to estimate this unconstrained demand. To gauge the true demand, for example, restaurants can have someone count the number of guests who walk out and track the number of reservations that are turned away during busy periods. Doing so will provide an estimate of the unconstrained demand. At Coyote Loco, we found that approximately 20 customers walked out each night on Fridays and Saturdays.

Meal duration. Analysis of the POS data gave nightly averages of how long it took parties to finish their meals, but we were also interested in the meals' standard deviation (a measure of the variation of guests' meal times). We were interested in reducing both the average meal time and the variability in the meal time.

⁸Eric B. Orkin, "Wishful Thinking and Rocket Science: The Essential Matter of Calculating Unconstrained Demand for Revenue Management," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 39, No. 4 (August 1998), pp. 15-19.

To create a revenue-management program managers must, at a minimum, collect arrival, meal-duration, and revenue data on a day-part basis.

Exhibit 2

Dining time: mean and (standard deviation in minutes)

	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM
Sunday	1:10 (0:25)	1:10 (0:21)	1:07 (0:18)	0:56 (0:19)	0:52 (0:18)
Monday	1:05 (0:31)	1:07 (0:27)	1:00 (0:31)	1:02 (0:32)	0:59 (0:25)
Tuesday	1:17 (0:41)	1:15 (0:40)	1:24 (0:40)	1:05 (0:33)	0:59 (0:30)
Wednesday	1:08 (0:31)	1:07 (0:28)	1:03 (0:25)	1:00 (0:24)	0:57 (0:20)
Thursday	1:14 (0:30)	1:24 (0:25)	1:06 (0:22)	1:09 (0:30)	1:19 (0:30)
Friday	1:03 (0:29)	1:00 (0:22)	1:06 (0:22)	1:03 (0:21)	0:54 (0:27)
Saturday	1:07 (0:36)	1:12 (0:32)	1:10 (0:28)	1:06 (0:27)	0:51 (0:22)

Boldface type represents the maximum and minimum measurements.

Those results were illuminating. On average (using October 1998 data), meals took a little over one hour—with a standard deviation of about 30 minutes. Statistically, the 30-minute standard deviation represents an unusually high variability in dining time. That indicates that Coyote Loco's managers had little control over the length of the meal and that customers may have considered the meal time to be inconsistent (i.e., sometimes it took 35 minutes to eat and sometimes it took an hour and a half to eat—for reasons that weren't always under the customer's control).

When calculating the mean and standard deviation, we eliminated those transactions that took under 20 minutes and over 3.5 hours. This had the effect of removing all take-out business and bar sales, which gave us a more reliable estimate of the mean for the dining room.

The mean and standard deviation varied by day of week and time of day (Exhibit 2). Dining times varied from 51 minutes on Saturday nights at 9:00 PM to one hour and 17 minutes on Tuesday evenings at 5:00 PM. The standard deviation varied from 18 minutes on Sundays at 7:00 PM and 9:00 PM to 41 minutes on Tuesday at 5:00 PM.

RevPASH. To calculate hourly RevPASH, we first calculated the revenue from all the transactions

that began during that hour and divided by the number of available seats. As expected, the RevPASH varied, ranging from \$0.76 on Mondays at 5:00 PM to \$7.33 on Fridays at 8:00 PM. The highest RevPASH was achieved on Fridays and Saturdays between 6:00 and 9:00 PM. Another busy period was on Sundays between 6:00 and 7:00 PM. All other nights of the week had a lower RevPASH than did Fridays, Saturdays, and Sundays, and lunch-time business yielded a surprisingly low RevPASH—usually less than \$1.00 (Exhibit 3).

Meal-course timing. A time study was performed during dinner for six nights in an attempt to understand the timing of the meal and to observe any possible bottlenecks in the system. We first sketched the floor layout of the restaurant and made sure that we were familiar with the table-numbering system. Data were collected on the following variables:

- (1) *The table number.*
- (2) *Number of guests.* This created a problem at times because not all members of the party would be present when the party was initially seated.
- (3) *Time guests were seated.* Note that this time is different than the time the guests arrived. Due to the high volume of business during dinner, it was

almost impossible to identify when particular parties arrived and when they were seated.

- (4) *Time guests were greeted.* This was the time the server approached the table to greet the guests and take drink orders.
- (5) *Time the appetizer was delivered.* Not all guests ordered appetizers, so this time was not recorded for all customers.
- (6) *Time the entrée was delivered.*
- (7) *Time dessert was delivered.* Following completion of the entrée, the server approaches the table and asks whether the guests would like coffee or dessert. Not all guests ordered dessert, but for those that did, we timed when the dessert order was delivered.
- (8) *Time the guests left.* This was defined by when the guests left the table.

Student observers armed with watches sat in an unobtrusive spot and timed the elements and transactions listed above. They used a simple form to record the times.

The time studies helped verify the results from the POS data (Exhibit 4). As expected, average dining times were slightly longer than those found with the POS data because the time study measured the time between when the customer arrived and departed the table rather than when the check was opened and closed.

Approximately 15 to 20 minutes elapsed from when the server first approached the table to when appetizers were delivered. Entrées were delivered a little over 20 minutes after the appetizer was delivered. For those customers who ordered dessert, that took about another half hour. On average the total dining time (arrival at the table to departure) was an hour and 12 minutes, with a standard deviation of about 25 minutes.

Exhibit 3
Restaurant RevPASH (October 1998)

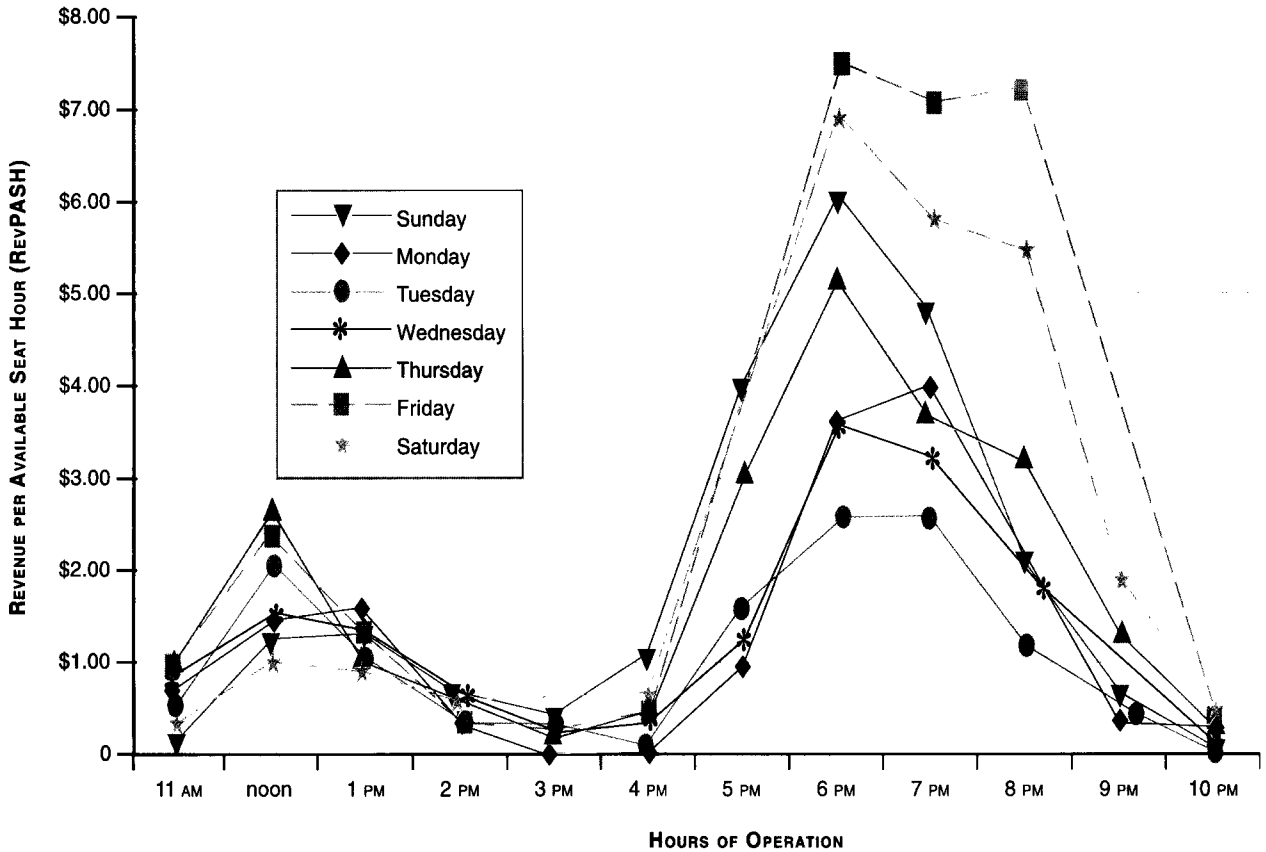


Exhibit 4
Time-study results: mean and (standard deviation in minutes)

	Table arrival to appetizer	Appetizer to entrée	Entrée to dessert	Table arrival to departure
Friday	0:15 (0:06)	0:21 (0:08)	0:30 (0:09)	1:08 (0:22)
Saturday	0:19 (0:08)	0:22 (0:11)	0:33 (0:13)	1:16 (0:27)
Sunday	0:18 (0:07)	0:22 (0:12)	0:45 (0:21)	1:21 (0:33)
Overall mean	0:17 (0:07)	0:21 (0:09)	0:31 (0:11)	1:12 (0:25)

The time studies (left) helped to verify the results from the POS data (above). Average dining times recorded during the time study were slightly longer than those defined by the POS data because the time study measured the time between when the customer arrived and departed the table rather than when the check was opened and closed.

Summary of findings. We were not at all surprised to find that Friday and Saturday nights were busy and profitable, but the low RevPASH and head counts that we recorded for the other nights and all lunch periods were unexpected. The average meal time of almost an hour and a quarter seemed right, but we were alarmed at the high standard deviation of the meal time. Armed with this knowledge and the results of the time study, we decided to proceed to the next step and study the possible causes of our findings.

Step 2: Understand the Causes

A variety of tools can be used to help managers understand the underlying causes behind operational problems, including service blueprints,⁹ process analysis,¹⁰ and fishbone diagrams.¹¹ Those techniques are fairly simple to implement and have been widely used in total-quality-management programs.

Service blueprints can be used to graphically illustrate a service process. The steps in the process are mapped and the connections between steps are identified. One of the key strengths of the service blueprint is the identification of potential delays and failure points.

Fishbone diagrams, sometimes referred to as cause-and-effect diagrams, can be used to help managers understand the causes of a problem. The head of the fish is the problem and the bones of the fish are the possible causes. Typically, possible

causes are divided into the four categories of methods, materials, labor, and equipment, but these categories are not meant to be restrictive.¹²

The causes at Coyote Loco. We developed a blueprint for Coyote Loco and tried to identify potential sources of failure (Exhibit 5). Following this, we developed a fishbone diagram to try to identify the possible causes for the most important failure points.

The service process at Coyote Loco is typical of many casual restaurants except that tables are pre-set with chips, salsa, and water. The steps involved in Coyote Loco's service (its blueprint) and the potential failure points in each of those steps are illustrated and discussed in Exhibit 5.

We decided that the biggest problem at Coyote Loco was the length and variability of dining time. Reducing the mean dining time would be difficult without first reducing the standard deviation of the meal time.¹³ If we could reduce the variation, we felt that we could also reduce the average meal time.

We developed a fishbone diagram in which the problem was defined as the high standard deviation of meal duration, and the problem categories were personnel, information, equipment, methods, and products (see Exhibit 6, overleaf). For each of the categories, we detailed the possible related causes. We found that the main issues influencing the standard deviation of meal time at Coyote Loco were related to personnel and methods. Although there were some equipment and product issues in the kitchen, most of the dining-time problems that we recorded during our six nights of observations were in the front of the

house and involved personnel and procedural issues. Those two sets of problems are discussed below.

Personnel Problems

Training and variable skill levels. The combination of inconsistent training and variable employee-skill levels contribute to inconsistent service. The restaurant offers no formal training program for either new hires or existing employees. In addition, standard operating procedures are not well developed, and what does exist is not clearly communicated to employees.

Host stand and greet time. The host is responsible for the flow of guests into the dining room—one of the most important functions in the restaurant. At Coyote Loco, however, the host was also responsible for take-out orders, seating, and other nonessential jobs. Therefore, during peak hours of operation, the host was not able to attend to the primary responsibilities of greeting guests and managing dining-room flow.

Procedural Difficulties

Greet time. Once guests are seated, a server approaches the table and offers to take a drink order. The time for this varied widely (mean: two minutes and thirty seconds, standard deviation: two minutes). The inconsistency occurred because of lack of communication between the host and server, servers' lack of attentiveness, and servers' being occupied with other activities.

Bussing tables. Coyote Loco employs servers, food runners, and bussers. Even when customers were waiting for a table, however, tables often sat for several minutes before being cleared. One of the major causes was the inconsistency of server pre-bussing. When servers didn't remove items from the table, bussers had more work and were delayed in resetting the table and seating the next party.

⁹G. Lynn Shostack, "Designing Services That Deliver," *Harvard Business Review*, January–February 1984, pp. 133–139.

¹⁰Sheryl E. Kimes and Stephen A. Mutkoski, "The Express Guest Check: Saving Steps with Process Design," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 30, No. 2 (August 1989), pp. 21–25.

¹¹See: D. Daryl Wyckoff, "New Tools for Achieving Service Quality," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 25, No. 3 (November 1984), pp. 78–91; and U. Apte and C. Reynolds, "Quality Management at Kentucky Fried Chicken," *Interfaces*, Vol. 25, No. 3 (1995), pp. 6–21.

¹²See: Wyckoff, 1984; and Apte and Reynolds, 1995.

¹³Eliyahu M. Goldratt and Jeff Cox, *The Goal* (Great Barrington, MA: North River Press, 1984).

Exhibit 5
Service blueprint of Coyote Loco

Customer arrival. Customer-arrival patterns relate to the predictability of arrival. Customers making reservations may be late or not show up, and arrival forecasts may be incorrect.

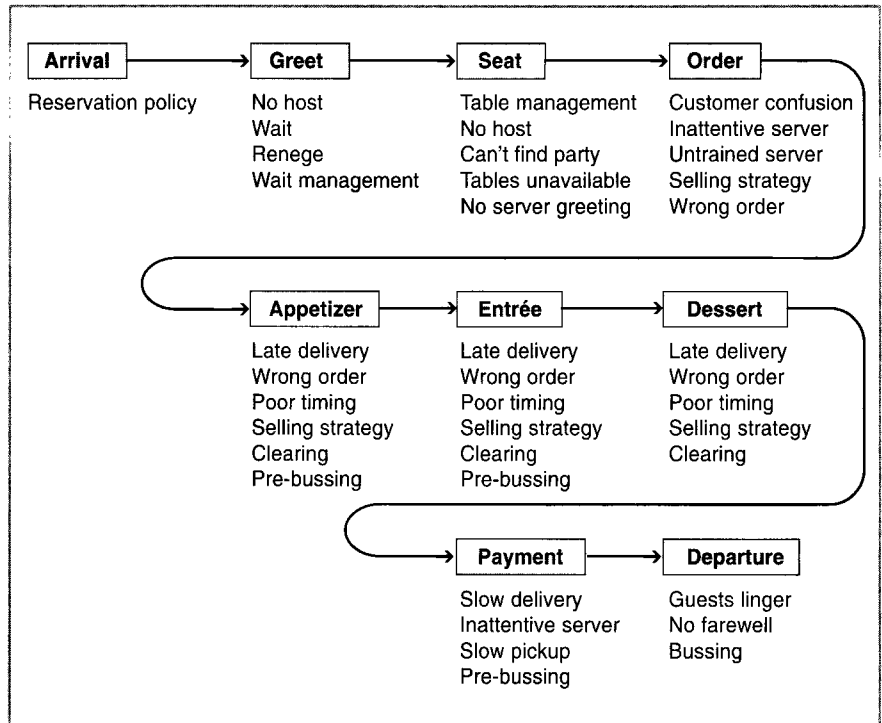
Customer greeting. If a host is not available, customers may be confused upon entering the restaurant and may even decide to leave. The waiting space at Coyote Loco is sometimes inadequate, and approximately 20 customers walk out per night on busy evenings. In addition, the waiting-time estimates communicated to guests by the host are often inaccurate, which can add to customer frustration.

Customer seating. Once a table becomes available, the host is notified and tries to find the next party on the waiting list. There are often lags between when the table is ready and the host is notified, and also between when the host is notified and when the party is found.

Server greeting. Once the party is seated the server is supposed to greet the table and offer to take drink orders. If the server is unaware of the new party, is inattentive, or is already busy, this greeting may be slow and the customers left waiting again, albeit seated.

Drink delivery. At Coyote Loco the servers must walk up stairs to pick up drink orders. On busy nights the bar area is full and servers have difficulty navigating through the customers to the bar. The bartender is also busy at these times, and the drink order may be delayed. If the bartender's orders are backed up, the server may leave to attend to other duties. By the time the server picks up the drinks to deliver to the table, the order may be seriously delayed (which may annoy customers and jeopardize additional bar sales).

Customer order. Once the drinks are delivered, the server offers to take the food order. The size of the menu and the unfamiliar Mexican-style items often cause customer confusion and



may delay the ordering process as the server tries to explain the choices. If servers are unfamiliar with how the various menu items are prepared, more delays can occur. Suggestive selling is used, but may be inappropriate during busy times.

Appetizer and entrée delivery. Not all customers order both appetizers and entrées, especially since the table is supplied with ample supplies of chips and salsa. Order-delivery problems include long delivery time and poor timing of the appetizer and entrée delivery. In addition, food runners may deliver the wrong order to a table. Servers may not notice when customers have completed their appetizers or entrées and may fail to clear the dishes in a timely fashion.

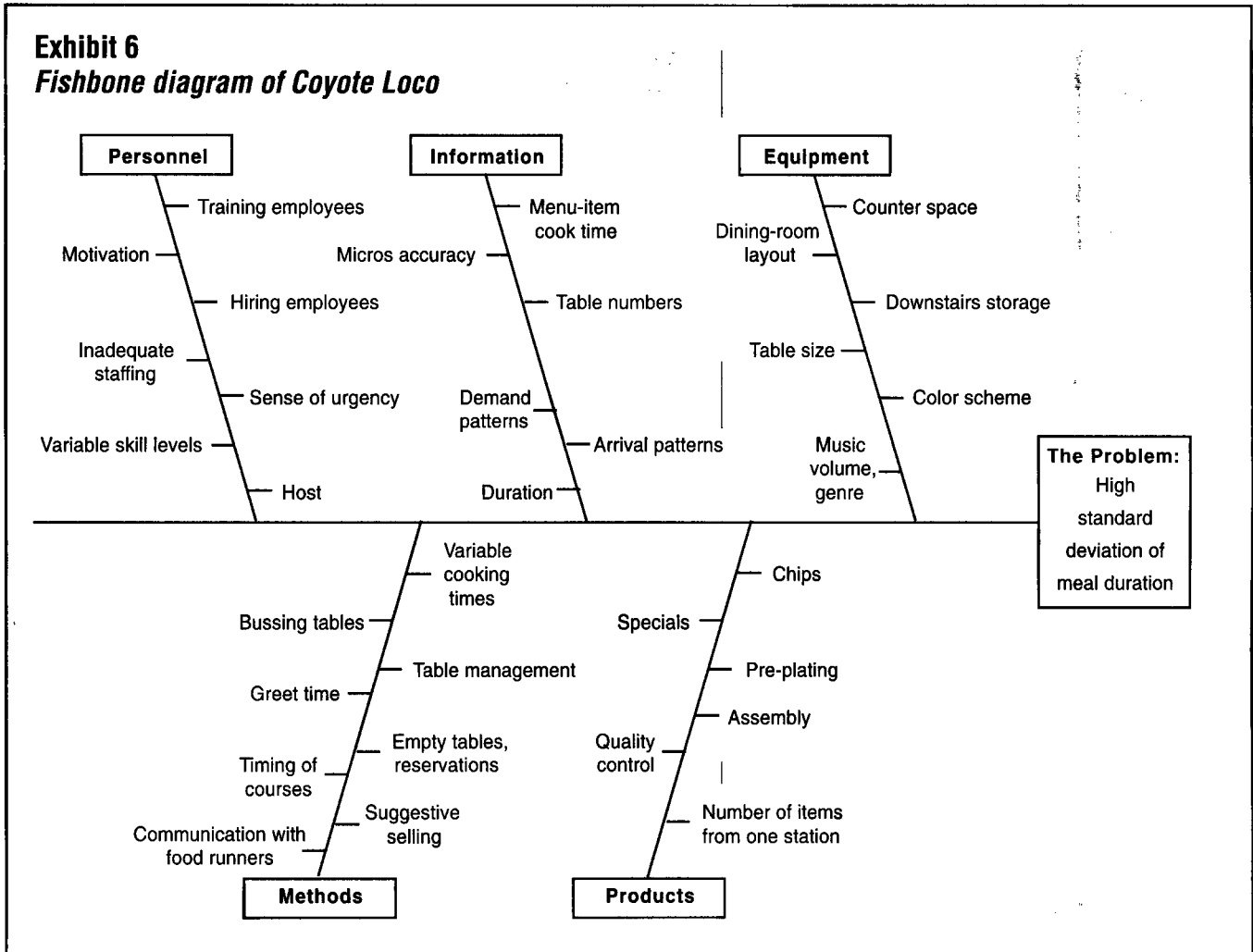
Dessert and coffee order. Once the entrée has been cleared, servers approach the table to offer dessert and coffee. The order-delivery problems mentioned for

appetizer and entrée delivery also exist for dessert delivery. Some customers may choose to linger over dessert and coffee, which is not a problem during slow times but may prevent the restaurant from turning the table during busy times.

Payment. Once the customers have completed their meal, they will request the check. Potential problems here may be customers' inability to notify their server, server slowness in check preparation and delivery, customer slowness in arranging for payment, and server delay in processing the payment.

Departure. Upon payment, most customers get up and leave the table, although some may choose to linger. Again, this is not a problem during slow times but may present a problem when other customers are waiting for a table. When customers do not leave, the host may forget to offer a farewell to the guest, and the server and busser may not notice that the table is ready for bussing and resetting.

Exhibit 6
Fishbone diagram of Coyote Loco



Reservations. Although reservations constitute less than 25 percent of Coyote Loco's business, we noticed that they can create a problem during busy times. When a table becomes available near the reserved time, the host "holds" the table even when other guests are waiting to be seated. The held table may sit empty for some time, especially when the reserving party arrives late. We observed tables that were left empty for over half an hour even when other guests were waiting.

Table management. The host is assigned multiple duties and cannot adequately concentrate on table management. Because of the great variability in diners' meal duration, estimates of the waiting time offered to arriving customers are unreliable.

In addition, there is usually a time lag between when a table is available for seating and when the host can find and seat the next party.

Communication with food runners. Coyote Loco uses food runners to deliver items to tables. Since the food runners do not take the orders from customers, yet occasionally deliver food to the tables, they sometimes deliver the wrong food to the table, which causes further delays in the service process.

Suggestive selling. Although suggestive selling is a good technique for increasing the average check, it may not be appropriate at all times. We saw that during peak periods when customers are waiting, the servers were nonetheless still suggesting appetizers, desserts, and

additional drinks. The additional profit from those items may not be as high as that of serving another party.

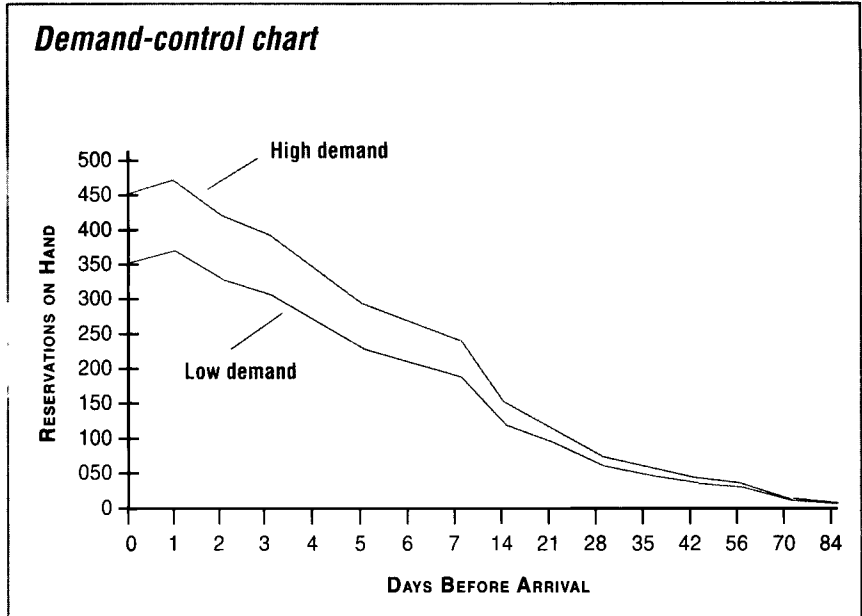
Step 3: Develop a Revenue-management Strategy

After identifying the causes of uneven service and unpredictable meal times, we developed recommendations for Coyote Loco's managers and owners. Our intent was to keep the recommendations as simple as possible, with an aim toward increasing RevPASH. We realized that to succeed we needed the owners' and managers' commitment, and that we also needed to present our ideas in a way that would be appealing to Coyote Loco's front-of-the-house employees.

Revenue-management Strategies

Companies using revenue management must develop methods for profitably managing varying levels of demand. Revenue-management techniques can range from the sophisticated methods currently used in today's airline and hotel industries,¹ to the simple approaches developed for the hotel industry in the late 1980s.² When hotels first started with revenue management, they used a technique called the threshold curve, or demand-control chart (see graph at right). The threshold curve was based on a booking curve that tracked the rate at which reservation requests arrived. When the hotel received more reservations than were expected, demand was considered to be high, and discounted room rates were closed. Conversely, when the hotel had received fewer reservation requests than expected, discounted rates were opened and marketing programs designed to increase demand were launched.

In the late 1980s and early 1990s, Holiday Inn used an interesting variation of the threshold curve. High-demand times were considered to be "hot," low demand times were considered to be "cold," and all other times were considered to be "warm." Holiday Inn's revenue-management system produced daily forecasts for the following two to three months. All forecasts were classified as either hot, warm, or cold.



Managers were encouraged to develop strategies for each of the expected demand levels. For example, hot strategies might be to close all low (discounted) rates or to impose length-of-stay controls, while cold strategies might be to start special promotional programs or to open all discounted rates.

A similar approach could be used in the restaurant industry. "Hot" times could be defined as periods (meal-period, hour intervals, or 15-minute intervals) in which RevPASH was high; "cold" times could be defined as periods in which the RevPASH was low; and "warm" times could be defined as all other periods. To simplify matters, restaurant managers could simply concentrate on hot periods and cold periods and not worry about in-between times (warm periods).

For example, during hot times, managers should try to increase RevPASH by decreasing meal duration (and thereby increasing the number of turns) and possibly by increasing menu prices (by eliminating discounts). During cold times, managers must concentrate on increasing the number of customers and possibly increasing average checks.—S.E.K., D.I.B., and J.E.A.

¹ For example, see Timothy Baker and David Collier, "A Comparative Revenue Analysis of Hotel Yield Management Heuristics," *Decision Sciences*, Vol. 30, No. 1 (Winter 1999), pp. 239–263; Peter Belobaba, "Air Travel Demand and Airline Seat Inventory Management," Ph.D. thesis, Massachusetts Institute of Technology, 1987; Ben Vinod, "Origin-and-destination Yield Management," in *Handbook of Airline Economics*, ed. D. Jenkins (New York: McGraw Publishers, 1995); and Lawrence Weatherford, "Length-of-stay Heuristics: Do They Really Make a Difference?," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 36, No. 6 (December 1995), pp. 47–56.

² See: Sheryl E. Kimes, "Yield Management: A Tool for Capacity-controlled Service Firms," *Journal of Operations Management*, Vol. 8, No. 4, pp. 348–363; and Walter J. Reihan, "The Yield-management Approach to Hotel-room Pricing," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 30, No. 3 (June 1989), pp. 40–45.

Some of our recommendations were appropriate for all levels of demand while others would depend on how busy the restaurant was. Below we outline our overall recommendations and then detail the tactics of the revenue-management strategy we developed.

Overall recommendations:

(1) **Improve training.** Front-of-the-house employees need a formal training program on service procedures and revenue-management tactics. (Specific information on

those procedures and tactics are given below.)

- (2) **Develop standard operating procedures.** The service-blueprint and fishbone diagrams helped illustrate the lack of standard operating procedures, and so we recommended the following:
- **Greet time.** All parties should be greeted within one minute of being seated.
 - **Appetizer delivery.** All appetizers should be delivered within five minutes of ordering.

- **Entrée delivery.** All entrées should be delivered within 12 minutes of ordering or five to seven minutes after the appetizer has been cleared.
- **Course timing.** Entrées should not be delivered until the appetizer has been cleared.
- **Pre-bussing.** When possible, servers should remove any unnecessary dishes from the tables. Servers should always be carrying something when they walk back to the kitchen.

Exhibit 7 Revenue-management strategies for Coyote Loco

Identifying hot, warm, and cold business periods:

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
5:00	\$2.43	\$0.76	\$0.85	\$0.96	\$3.76	\$2.81	\$4.27
6:00	\$4.71	\$2.11	\$1.57	\$2.79	\$4.56	\$6.29	\$6.86
7:00	\$3.02	\$3.15	\$1.78	\$2.84	\$3.26	\$7.20	\$5.28
8:00	\$0.82	\$1.31	\$1.37	\$1.13	\$3.82	\$7.33	\$4.38
9:00	\$0.33	\$0.70	\$0.66	\$1.01	\$1.22	\$2.50	\$1.77

Data collected in October 1998

HOT

WARM

COLD

Identifying which revenue-management strategies to use:

Strategy	Cold	Hot
• Suggestive selling:	Use	Avoid
• Reservations:	Accept	Decline
• Host:	Multiple duties	Dedicated host
• Menu variety:	Wide	Narrow
• Prices:	Regular	Increased
• Promotions:	Available	None
• Chips and salsa:	Brought by server	On table

- (1) *Suggestive selling.* Suggestive selling of appetizers and desserts helps increase average check but may reduce RevPASH during busy times. Suggestive selling of quickly prepared, high-contribution-margin entrées may be helpful during high-demand times. Suggestive selling of appetizers and desserts is appropriate during low RevPASH times but is a poor tactic during high demand times.
- (2) *Reservations.* Many people think that reservations help restaurants manage their demand, but reservations can cause problems when customers do not honor their reservation or show up late. We recommended that Coyote Loco accept reservations only for large parties (six or more people) during high-demand times, but that they not restrict reservations during other times. Other suggestions were either to ask the customer to guarantee the reservation with a credit card or to inform the customer that the table would be held only for ten minutes after the reservation time.
- (3) *Dedicated host.* During high-demand times, Coyote Loco needs to have a dedicated host. An additional person must be hired to handle ancillary duties such as filling take-out orders, answering the phone, and seating guests. If someone is not readily visible to arriving customers on busy nights, they may be confused; and if waiting space is not readily available, they may leave. A dedicated host is necessary to greet arriving guests, put them on the waiting list if necessary, and quote an accurate wait time. The host is also responsible for the flow of tables and must track when tables become available. The host must also notify the seater which parties should be seated and where to find the party. During cold times the host can perform other duties, but should still be aware of arriving customers so that they can be promptly seated.
- (4) *Streamlined menu.* During hot times Coyote Loco should consider reducing the size of its menu. A streamlined menu would reduce customer ordering times and speed preparation time. A streamlined menu could also focus on high-contribution-margin items. During cold times Coyote Loco should consider offering special promotional meals in an attempt to build demand.
- (5) *Increased prices during high-demand times.* Along with streamlined menus, Coyote Loco should consider increasing menu-item prices during peak hours. A special weekend menu should be prepared in which the streamlined menu is offered at slightly higher prices. Conversely, weekday (cold) prices should be discounted in an attempt to increase business. If management is afraid of cannibalization (customers willing to pay a high price being offered a low price), special promotions or special meals could be developed that carry premium prices.
- (6) *Discounts.* Coyote Loco offers two-for-one discounts, happy-hour specials, and frequent-dining programs. Use of discount coupons should be allowed only during cold times. Happy hours should be offered only during cold times. (This suggests that the popular Friday-night happy hour either be eliminated or stopped earlier than 6:00 PM.) Frequent-dining programs should be offered to encourage dining during off-peak times. If customers dine during a cold period, they could receive extra credit, but if they dine during a hot period, they should receive credit only for one meal. Free meals should be redeemable only during cold times.
- (7) *Chips and salsa on the table.* Coyote Loco pre-sets tables with chips and salsa and provides free refills on request. Customers enjoy this amenity and often refrain from ordering appetizers because the chips and salsa diffuse their hunger. During hot times Coyote Loco's servers should continue to offer chips and salsa, but during cold times they should either bring those treats only after the order has been taken or upon request.

- *Payment timing.* Servers should bring the check to customers within two minutes of the request. After the dessert has been ordered (or refused) the server should prepare the check for immediate delivery to the customer upon request (any additional items ordered can always be added and the check reprinted before delivery). The entire payment process should take less than five minutes.
 - *Clear time.* All dirty tables should be bussed continuously during service (especially at the end of the meal) so that when the customer leaves the table, there will be a minimal number of items that still need to be removed. All tables should be cleared and reset within one minute of customer departure.
- (3) *Improved table management.* Managers need to improve their ability to track which course a table is on and be able to accurately predict when the table will be available for the next party. Improved communication between servers and the host and a manual tracking system should help with better table management.

Revenue-management Strategies for Coyote Loco

Using principles drawn from other industries (see the box on page 27), we analyzed Coyote Loco's hourly RevPASH data, classified each hour as either hot, warm, or cold, and developed revenue-management strategies (Exhibit 7). Demand was cold for all lunch periods, on Mondays and Wednesdays from 5:00 to 6:00 PM and 8:00 to 10:00 PM, and on Thursdays and Saturdays after 9:00 PM. Demand was hot on Thursdays and Sundays from 6:00 to 7:00 PM and on Friday and Saturdays from 6:00 to 9:00 PM.

After identifying cold and hot meal periods, we developed strategies to help Coyote Loco increase its RevPASH (each of those strategies is discussed in Exhibit 7). A variety of options is available, and execution of each of the options varies according to demand levels. For example, suggestive selling was considered a good tactic during cold periods, but an undesirable tactic during hot periods. For managers to use these tactics, therefore, they must know when they are in (or about to enter) a cold or hot period and be able to alert employees of the situation.

A Plan of Attack

Restaurant operators can use the methodology that we just presented to develop a revenue-management strategy for their restaurant. By establishing the baseline of revenue performance and then understanding the causes of that performance, managers can develop revenue-management tactics to help increase RevPASH during both cold and hot times. For example, during cold times managers will want to concentrate on raising the average check, while during hot times managers should focus on increasing table turns and serving as many people as possible.

Coyote Loco provided us with an excellent study site, and we are grateful to its employees, managers, and owners for the chance to test our ideas. In the next paper we will discuss the actual implementation of revenue-management strategies at Coyote Loco and present the impact of those tactics on its RevPASH and financial performance. We'll examine methods of establishing appropriate incentive and training programs for servers, managers, and bussers, and present suggestions on how to monitor the success of the revenue-management system. **CQ**

We found that the restaurant required one set of strategies for slow times and an entirely different set for busy times.