CHAPTER 11

Waiting for Service

HOSPITALITY PRINCIPLE: MANAGE THE GUEST'S WAIT

Hurry up and wait.

—Old military saying

All things come to him who waits—provided he knows what he is waiting for.

—Woodrow T. Wilson

The other line always moves faster.

—Murphy's Law

LEARNING OBJECTIVES

After reading this chapter, you should understand:

- How to plan and manage the wait.
- How to make any wait for service as short and pleasant as possible.
- How to make any wait for service *seem* short and pleasant.
- How to plan for capacity shortages.
- How to manage the guest's perception of the wait.
- How to offset the wait's negative effects by managing the value of the experience provided to the guest.
- How to use queuing theory to plan the wait.
- How to simulate a wait.

KEY TERMS AND CONCEPTS

queues
managing the wait
arrival patterns
capacity day
queuing theory
waiting-line theory
queue discipline
single-channel, single-phase queue
single-channel, multi-phase queue
multi-channel, single-phase queue
multi-channel, multi-phase queue
virtual queue

How long we wait and how long we are willing to wait are fascinating subjects. While solid scientific evidence is hard to find, various estimates suggest that we wait in line about two to three years in a lifetime. To see a cardiologist in Minneapolis, you'll need to wait, on average, forty-seven days. To get a table for two at Citronelle, in Washington D.C., you may need to wait nearly three months for your reservation. Some parents put their children on the waiting lists for exclusive preparatory schools before their children are born. And, if you want season tickets for the Green Bay Packers or the Philadelphia Eagles, at the present rate the "line" is moving, you may need to wait several hundred years.

Nobody likes to wait in line. Yet, almost every hospitality organization relies on waiting lines or **queues** to match its serving capacity with the number of guests who want service. Planning and managing the wait of the customers are among any service provider's fundamental concerns. This chapter presents some strategies for planning and managing the reality and the perception of the guest's wait for service. These include both quantitative and perceptual strategies. The secret to managing the guest's wait effectively is to use all available techniques, in the right combination, to make a seemingly endless wait acceptable, perhaps even enjoyable, to the guest. Since nearly every service experience, whether in an actual queue or online, has a wait in it somewhere, planning for and **managing the wait** are sufficiently important to merit their own chapter.

In some respects, the wait is an inevitable part of the service experience since no organization can perfectly prepare itself to serve all guests, whenever and whatever they want. In another respect a wait is a service failure. When the wait between courses at a fine-dining restaurant is too short, because guests have anticipated a more leisurely experience, or a wait at a quick-serve drive-thru window is too long, the guest is disappointed. Even when the wait at a popular attraction is no surprise and, therefore, "meets the guest's expectations," the guest generally doesn't like it.

WHEN THE WAIT BEGINS

The guest experience often starts off not with a wow but a wait. The wait for service begins at the entrance to the restaurant, the automated message on the phone, the log-on to a Web site, or the line in front of Space Mountain at Walt Disney World Resort. The prospective guest or customer assesses the Space Mountain line, the number of cars in the restaurant's parking lot, the estimate in the automated message on the help-line, or the turning hourglass on the computer screen, and decides whether to walk to the next attraction, drive on to the next restaurant, hang up the phone, click to another Web site—or to wait. What makes that guest wait or leave can be anticipated and managed—if waiting lines are understood. If no other eating places are within eyesight, or the exceedingly hungry guest does not know what other restaurants are available nearby and doesn't have the

wireless or GPS technology to find out, or the guest is absolutely convinced that he must eat in that restaurant because the quality or uniqueness of the dining experience is said to be unsurpassed, he will probably pull into the parking lot, walk inside, and wait in line.

High expectations of guests explain the large crowds usually standing outside an Outback Steakhouse or a Cheesecake Factory. The people waiting believe that the quality or the value of the dining experience will outweigh the costs to them of waiting, despite the full parking lot and the crowd standing in line outside the restaurant waiting to be served. In fact, sometimes guests view a line as a signal of quality. If there are two restaurants next to each other, one with a line and one without, a person might actually prefer the restaurant with the line, thinking that the one where people are waiting must be worth a wait. The same high expectations can explain the lines next to Space Mountain and the other popular attractions throughout the Walt Disney World Resort. In effect, each person makes an opportunity-cost judgment. If the expected benefits of the wait outweigh the costs (boredom and impatience, to name just two) of idly standing around, then the guest will wait. If they don't, the guest will leave and go elsewhere for the service.

For those customers who decide to wait rather than leave, how can planners be sure that the wait will be as short and as pleasant as possible? No matter how good the Space Mountain ride or the Cheesecake Factory meal is, if the customer begins the experience angry, distressed, or unhappy about having to wait for service, then that customer's expectations will be much harder to meet.

CAPACITY AND PSYCHOLOGY: KEYS TO MANAGING LINES

Managing the wait has two major components. First is to keep the wait as short as possible by planning for and building the appropriate capacity into the service facility to minimize the wait for the anticipated number of guests arriving at the anticipated rate. Second is to ensure that the guests who are waiting have their physiological and psychological needs and expectations met while they wait.

The capacity decision results from careful study of the expected demand pattern. Whether one is trying to plan for how many two-top versus four-top tables to place in a restaurant, how many registration booths to open at a convention, how many reservation agents to staff at each hour of the day, or how many blackjack tables to put in a casino, the need to make an accurate capacity estimate is the same. Planners must predict three factors that drive the capacity decision: how many people will arrive for the service, at what rate they will arrive, and how long the service will take.

If, on every day that the organization is open for business, the same number of people were to arrive for service every day, their arrivals were evenly spaced throughout the day, and serving each person took the same length of time, the capacity decision would be easy. For example, a psychiatrist can schedule eight patients per day, schedule them to arrive on the hour, then serve each patient for forty-five minutes and use the remaining fifteen minutes to write up notes on that patient and prepare for the next. That psychiatrist has an easy capacity decision (assuming that no emergencies occur and everyone is on time): one service facility (an office) containing one chair for the psychiatrist and one couch for the patient, plus other furnishings and equipment for one office. If the service is a guided tour through a museum, the service provider knows how long it will take, but the museum's planning staff must predict how many people will arrive for service. If the

service experience has a less definite beginning and ending time, like a meal or a day at a ski resort, both the number of persons arriving for service and the average time taken to deliver each part of the network of events that make up a service experience will have to be estimated or predicted.[1] We will discuss several methods for making these predictions later in this chapter.

Capacity designs can affect perceptions of service quality. While a restaurant with too little capacity will fail to meet guest expectations for prompt service and short waits, a restaurant with too much capacity can also fail to meet guest expectations. A restaurant with too many seats will appear empty to diners and may lead them to conclude that the food or service is not up to par. This assumption predisposes guests to expect a poor experience. Further, they may feel foolish for choosing a restaurant that is so obviously unpopular. The chefs and the servers have two strikes against them, just because the restaurant designers put in too many seats.

Of course, from the restaurant owner's point of view, the excess capacity costs money! Fixed costs are tied up in unused tables, silverware, equipment, rent, and so forth. Too much capacity may mean higher variable costs as well. The manager may schedule too many servers who end up being paid simply to wait around.

Capacity

In an ideal world, planners would be able to determine the exact capacity required to serve each guest at the moment when the guest expects service. Each customer for Cheesecake Factory or Space Mountain would arrive just when a table or an empty car was available to receive the desired experience. Guests want that kind of service, and organizations want to provide it. Both are frequently disappointed.

What to Do?

Because people do not arrive at service operations in neat, ordered patterns, they sometimes have to wait for service. When hospitality managers see that waiting lines are becoming long, they have several choices.[2] Customer-focused research can identify the best options. The goal is to find the decision that ensures customer satisfaction with the lowest capital cost. Managers should choose the option that allows both customers and the organization to come out ahead.

1. ***Close the Doors to Further Customers***. This choice is highly undesirable, but sometimes the movie theater manager or rock show entrepreneur must tell those waiting, "Sorry, we're sold out."
2. ***Add Capacity***. Because this alternative is usually expensive, organizations do not usually choose it unless they believe the high demand causing the waiting lines will continue. The organization will be particularly hesitant to add capacity if its design-day capacity is already at a high percent level, meaning that the organization is already at or below capacity most of the time. Stopgap measures for adding capacity temporarily are sometimes available. For example, employees can be asked to work overtime or on flexible schedules, cross-trained employees can be reassigned from their normal areas to help unclog a service bottleneck, temporary help can be hired, or temporary changes in physical facilities can be made, like adding tents to provide additional exhibit space at a convention or busses for increasing capacity to move people at special events.
3. ***Manage Demand***. Simply informing guests of when the busy and slack times occur may smooth out demand. Service providers can also schedule appointments or offer inducements to customers to use capacity at nonpeak demand times.

Requiring reservations at a restaurant is an example of the first method, and early-bird specials or discounts on airline travel or hotel rooms at off-peak times are examples of the second.

Some organizations, such as airlines and hotels, can ask that guests make reservations, even guaranteed reservations in some cases, to help manage demand. Customers are often willing to call for reservations with such organizations because they do not want to take a chance on not getting a flight or a room. No one wants to arrive at the cruise-ship dock only to find that all rooms are occupied. But many hospitality organizations do not have the market stature or have too many similar competitors for most customers to help them in their capacity decisions by requiring reservations. Guests will make reservations when the alternatives are few or they do not have the flexibility regarding time, desire, or distance to do something different if their primary choice is at capacity. Thus, guests are willing to pay for a guaranteed hotel-room reservation at the bottom of the Grand Canyon more than a year in advance to ensure that the room will be waiting for them after they walk to the end of the Bright Angel Trail. But, they may not see any value in making a reservation at the nearby Carrabba's since, if that restaurant is at capacity, many similar alternatives are probably available near Carrabba's.

Another way to manage demand is by shifting demand from peak-capacity use times to off-peak times by offering guests inducements to change their **arrival patterns**. When the wait times for popular attractions became excessive, Disney shifted demand by creating a special after-hours ticket called "Magic Kingdom's E-Ride Nights." The tickets were sold for under $15 and provided guests with unlimited access to the nine most popular attractions for an additional three hours after the normal park closing. To guarantee the guests minimal wait times on the nine attractions, the tickets sold each night were limited to a fixed number of guests and were sold in advance at the Disney resorts on a first-come, first-served basis. The actual number of tickets sold was limited to match the capacity of the nine attractions.

The guests who paid less than $15 for the right to spend an extra three hours after normal closing time to ride their favorite rides as many times as they wanted to were happy and thought they got a great deal. They did not have to stand in long lines with everybody else waiting for these rides during the day. Regular daytime guests were also happier; their lines were shorter because the E-Ride Nights guests were no longer in the lines during the day. In effect, Disney expanded park capacity by shifting demand, but unlike the power company that gives customers a lower rate at off-peak times or the restaurant that offers low-cost early-bird specials, Disney was able to charge more and guests were happy to pay; they felt they got good value for their money.

4. *Allow the Line to Form and Then Manage the Line by Diverting Customers.* When lines are unavoidable, one way to keep customers happy is by offering people waiting in line something else to do. Having a gift shop in a Hard Rock Cafe or Rainforest Cafe gives patrons an opportunity to go and do something while they wait for their table to be ready. These diversions not only benefit the guest by creating the perception that the experience has begun, but they can be highly profitable, sometimes more profitable than the service product itself. Rainforest Cafe even calls itself "A wild place to shop and eat." An organization may go so far as to close down some available capacity to ensure that people wait long enough to become "diverted" to the gift shop, with its high-margin items for sale. Or an organization may keep a phone caller on hold longer than absolutely necessary to present a recorded message promoting other services. Many restaurants suggest guests wait in the bar, where they can order drinks and appetizers, until their table is ready.

A related strategy is to upgrade a low-demand aspect of the organization's service to divert customers toward it and away from high-demand features. For example, a resort hotel could upgrade its pool bar to attract people away from the main lobby bar at peak times. A cruise ship could upgrade a currently underutilized restaurant to be family friendly so it takes pressure off the main dining facility. A golf course could upgrade its practice area with computerized swing-analysis equipment, to take pressure off the course during the most popular tee times.

From their own daily experience, most people can cite numerous examples of organizations that planned and managed the wait well or poorly. The best organizations know what steps they need to take when lines start to form.

5. ***Do Nothing***. The organization can accept the fact that it will make customers unhappy with a wait and hope that they aren't so unhappy that they leave and vow never to return. Maybe lines form only rarely, and so the organization is not willing to spend money to address an occasional problem. Some establishments actually seem to benefit from doing nothing. For example, the long lines at some night clubs or restaurants signal an establishment that is trendy, in demand, and exclusive.

Design Day

Whether they realize it or not, or whether they do it consciously or not, all hospitality organizations use the design-day concept (also discussed in Chapter 2). The design day is the hypothetical day that the facility, attraction, or service was designed to handle comfortably, but not too comfortably. Planners set the design-day capacity to handle a predetermined amount of demand without compromising guest satisfaction. If demand is less than the design-day capacity, then guests are happy but the facility is underutilized. If demand exceeds the design-day capacity, then some guests will probably be unhappy. Planners know that waiting lines may form on design days, but they should not become so long that guests perceive a decline in the quality or value of their experience.

Benchmark organizations know just how long the lines can be and still remain within limits acceptable to guests. Some, like restaurants, even know how long a wait can be in each phase of the experience before guests become dissatisfied.[3] Others, such as a major theme park with a network of rides and events, may use a fifteen-minute average wait as a criterion across the entire park experience. On the design day, the park doesn't want anyone to wait longer than this average time in any queue because guest surveys have shown that the quality and value of the experience decline sharply beyond this time length. Because fifteen minutes is an average, it may take much longer for guests to get on a popular ride. However, based on the accumulated data, a fifteen-minute average may be the best balance between having too much capacity and not enough. A truly guest-focused theme park may set its design day at a very high level, say 80 to 90 percent—meaning that supply will be adequate for demand on 80 to 90 percent of the days of the year—because it appreciates the fact that most guests have traveled a long way, have limited vacation time, and have no choice but to wait once inside the park. To provide a guest experience with as little waiting as possible, the planners will set the design-day percentile high and build more capacity than might otherwise be practical. The cost of an unhappy guest to a major theme park that relies on return guest visits must be carefully balanced against the costs of building capacity.

The Capacity Day

Design days are the times when capacity is the best trade-off for both the guest and the facility—not ideal for either one, but satisfactory. Many organizational planners also calculate and use a **capacity day**, the maximum number of customers allowed in the facility

in a day or at one time. This number is often set by the fire marshal based on the number of square feet each customer must have available. The capacity day may be set by the organization itself, to represent a point beyond which overall customer dissatisfaction with crowds, lines, or delays in service is unacceptable. Hospitality organizations know that guests disappointed because they did not have the guest experience at all are preferable to dissatisfied, angry ones who did.

QUEUING THEORY: MANAGING THE REALITY OF THE WAIT

Few organizations in any industry have the luxury of adjusting capacity quickly or managing demand by getting customers to show up when the organization wants them to, instead of when customers want to come. Most hospitality organizations must, therefore, rely on predicting and managing the inevitable waiting lines that are created when customers arrive looking for service.

The general problem for planners is that adding capacity costs money, such as by hiring more servers, but reduces the wait, which improves guest-experience quality, guest satisfaction, and guest loyalty. Reducing capacity saves money but increases the wait, which decreases guest-experience quality, guest satisfaction, and guest loyalty. How is the hospitality organization to find the proper cost-benefit balance?

The place to begin is in the use of **queuing theory**, sometimes called **waiting-line theory**, and the mathematical solutions that this technique offers. A typical queuing-theory problem facing an organizational planner might be: If an average of forty cars arrive per hour at a drive-thru window with a single server, and if the server takes an average of two minutes to fill an order, how long does the average car spend in line? During an average hour, how many minutes will the server be working and how many minutes idle? Most applications of waiting-line theory in the hospitality industry are based on the idea that people do not arrive in neat patterns. The typical approach is to sample the arrival and service patterns of guests and use this information to simulate the distribution that best matches the reality for the particular organization's guests. A restaurant might actually count all its guests over a period of time or sample them over a longer period using some appropriate sampling methodology and let the actual guest patterns represent the distribution of both arrival and service times.

Characteristics of Waiting Lines

All waiting lines have three characteristics that any model must include:

1. ***Arrival Patterns: The Numbers of Guests Arriving and the Manner in Which They Enter the Waiting Line.*** The arrivals could be random such as patrons to a restaurant, in bulk such as a busload of tourists, or in some other distribution that is difficult to describe, such as patients coming to a hospital emergency room in varying but not completely random intervals. Queue management is easiest when customer arrivals can be scheduled through reservations. Even if arrivals cannot be strictly scheduled, they may be controlled. Charging extra at peak times and offering discounts during the off-season would be examples of arrival-control strategies.
2. ***Queue Discipline: How the Arriving Guests Are Served.*** Options are first-come, first-served; last-come, first-served (not a formula for hospitality success), or some other set of service rules. For example, guests with reservations or wanting takeout food only may be served first, or restaurant parties of two may be served when a two-seat table is

available regardless of how many parties of three or more are in line ahead of them. Guests understand such a service rule.[4] They don't understand service rules that seem unfair to them or have no explanation. And, they really don't understand an implicit rule such as the following, which seems to be in effect at numerous service locations: "Answer a phone call from someone sitting at home before serving the customer or guest standing right in front of you who may have traveled miles to do business with you." The point is that a **queue discipline** must be obvious and familiar, or managers must find ways to carefully explain what the rules are and why they are fair.

The guests themselves can usually be counted on to maintain the discipline of the first-come, first-served queue. If someone breaks into the line in front of you, queue etiquette requires you to object and those in line behind you to support you. If the queue discipline in a certain grocery store line is first-come, first-served, no more than ten items, customers count each other's items and may forcefully object to a number over ten.

3. *Time for Service: How Long It Takes to Serve Guests*. The time boundaries of some service experiences can be carefully planned, like a flight from Boston to Atlanta, or a ride on a roller coaster car. But customers in most service settings vary, voluntarily or involuntarily, in the time it takes them to receive the service. Some diners want to eat and run; others wish to savor the meal. Likewise, some hospital emergency-room patients suffer from severe injuries while others have trivial problems. The amount of time it takes to serve the different customers can be as unpredictable as the people themselves. If the waiting-line model is to be an aid in managing the line, planners must take this variation into account. Although the previous examples involve people, waiting-line theory can be applied to anything that waits in line for something to happen to it. An automobile waiting in a fully automated painting line or a meal waiting to be served is as queued up and in need of managing as the newly arriving guest at the hotel front desk.

Line Types

Organizational planners must decide what line types will best meet customer needs and expectations. In the following discussion, "channel" refers to a *server*, and "phase" refers to a *step* in the service experience once it is underway.

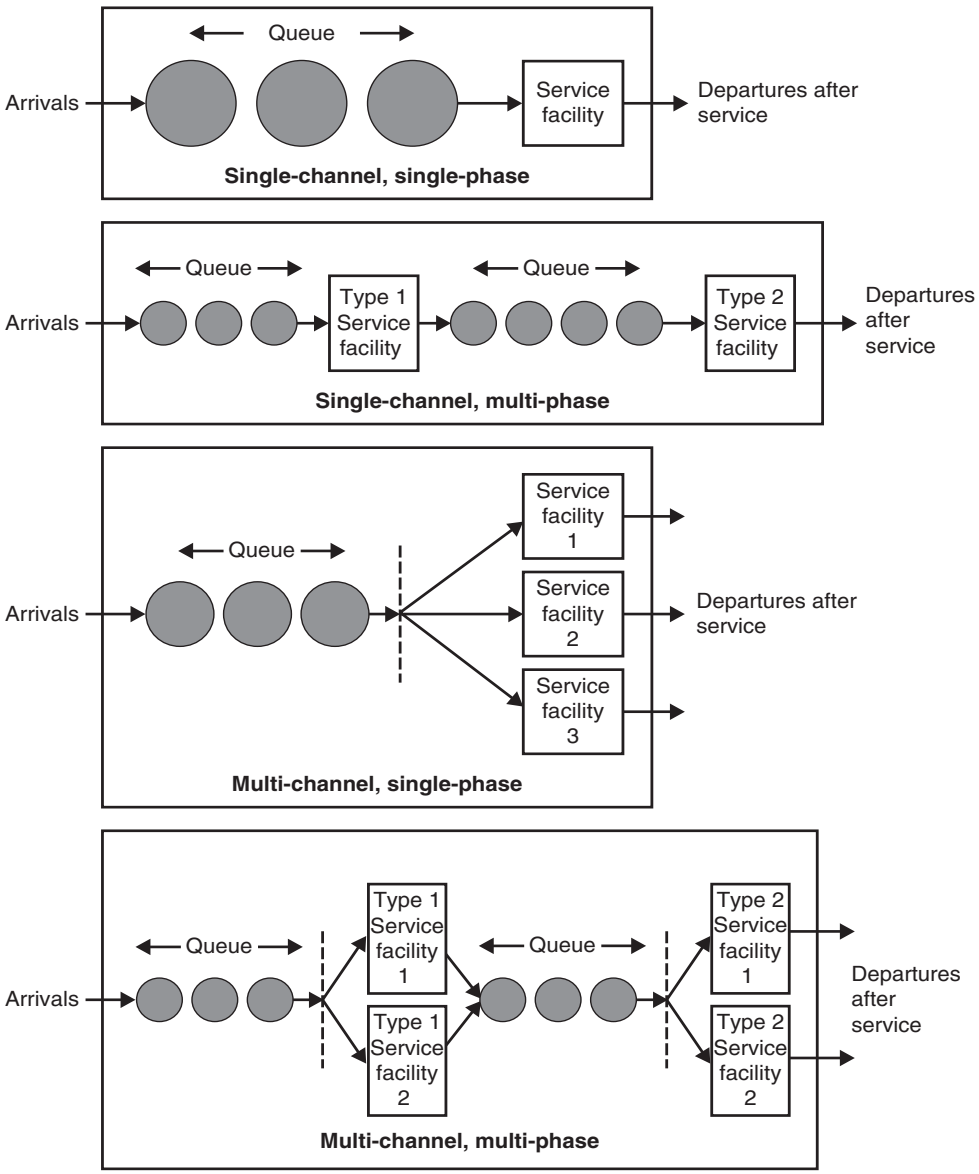
Single-Channel, Single-Phase Queue

The basic line type is the **single-channel, single-phase queue**—one server, one step. This queue type is represented at the top in Figure 11-1. Mary Blaine has a one-chair hair salon. Customers come in, wait their turn, and have their hair cut in the single service phase. Indoor customers at some quick-serve restaurants stand in any one of several single-channel, single-phase queues. The customer looks the lines over, chooses one, stands in it waiting for service, and eventually reaches the counter to begin the single service phase. In that phase, the counter person takes the order, assembles and delivers it, and collects the money. Highway toll plazas and McDonald's counters are not the sites of multi-channel queues, even though they may have multiple servers. They consist of a group of single-channel, single-phase queues, with one server per queue.

Single-Channel, Multi-Phase Queue

The second queue type in the figure is the **single-channel, multi-phase queue**, such as a cafeteria line or the drive-thru at a limited-menu, quick-serve facility. Essentially, it is two or more single-channel, single-phase queues in sequence. The guest waits in one queue for

FIGURE **11-1** Some Basic Queue Types



service from a single server, and then moves on to wait in another queue for another phase of service from another single server. At a typical drive-thru restaurant, customers queue up for the first phase. Each customer drives up to the order microphone, tries to understand what the person (the server, the single channel providing the first phase of service) inside the restaurant is saying, places an order (end of first phase) and then queues up again waiting to move forward to the window to receive and pay for the order (second phase, meaning another single channel for service with a single server). In this guest experience, the customer interacts with the organization twice, at two different places.

A drive-thru is a typical example of a single-channel, multi-phase queue.

Multi-Channel, Single-Phase Queue

A third type of queue is the **multi-channel, single-phase queue**. The customer begins in a single line that then feeds into multiple channels or stations for the service, each staffed by a server. The customer waits to get to the front of the single line, and then goes to the next available channel (server) for service. An example would be a bank or airport waiting line where everyone stands in a single queue, often snake-shaped to fit into available space, waiting for an open channel to any one of multiple servers. The queue discipline is to call the next person in the line to the next available teller, airline-counter attendant, telephone operator, or career counselor, who renders a single service in a single phase. The Federal Personnel Office uses this method for incoming telephone calls. The automated system tells each caller how many callers are ahead, so the caller can decide whether to wait or call back later. The single phase of service is to have a phone call answered. The multiple channels for obtaining this service are the many operators handling calls. The queue is managed by having the next available operator handle the next caller waiting in line. Many hospitality organizations find this method the most efficient way to manage their lines as it accounts well for the varying lengths of time that it takes to serve different customers. Everyone has had the experience of choosing to stand in one of several available single-channel lines—at the movie-theater refreshment stand, for example, or the hotel front desk—then watching all the other lines move much more quickly. The use of a multi-channel, single-phase system eliminates this feeling of unfairness or bad luck; everyone starts out in the same line. From the guest's perspective, the multi-channel, single-phase line feels faster as it moves people quickly to the multiple servers.[5]

Multi-Channel, Multi-Phase Queue

The last type of waiting line shown in Figure 11-1 is the most complicated to manage: the **multi-channel, multi-phase queue** system. Essentially, it is two or more multi-channel, single-phase queues in sequence. The guest waits to get to the front of one line, then goes to the next available server. After receiving the first phase of service, the guest then gets in another line, waits to arrive at the front, then goes to the next

Lines to check in at an airport are typically multi-channel, single-phase queues.

available server/channel to receive the next phase of service. Most airports use this queue type for security screening where the line for the first phase checks passenger documents and the second screens people and carry-ons. The Pepper Market, a cafeteria in Orlando's Coronado Springs Hotel, uses this pattern between its single-channel entry and exit points. At the entry point, the guest lines up to receive a "charge card" to be used at the different food stations. The guest then sees lines leading to each of several entrées and takes a place at the end of, say, the seafood line. The guest waits to become first in line, then goes to the next available seafood entrée server. The guest follows the same procedure for bread, dessert, vegetable, and so forth. The guest then gets in a checkout line and turns the charge card in to a cashier, who totals up all the purchases.

A hospitality organization will often have numerous queues linked in various combinations. For example, a restaurant will have a line for people waiting to be seated, a wait time while the server serves other customers in a queue ahead of you before taking your order, a line of orders queued up for processing by the cook, a queue of servers waiting while the food is being prepared, and a line of people at the checkout. To consider just the line of people waiting to be seated, it is a multi-channel, single-phase queue, if the restaurant tables are considered to be channels and being seated is considered to be a phase. Managing the wait times associated with single and multiple channels and phases is difficult, but it is critical for ensuring excellent guest service and minimizing service failures.

Virtual Queues

A final type of queue that is becoming increasingly popular is the **virtual queue** or the line that isn't visible. Most people don't like to stand in line, and the virtual queue enables them to avoid doing so. This type of queue, based on the idea underlying Disney's FASTPASS™,[6] was first introduced at Walt Disney World Resort in 1998 in response to a need to better manage waiting times to allow more efficient time use for guests and more efficient capacity use by the company. Disney found that guests using this virtual

queue system spent significantly less time in lines, spent more per capita, saw significantly more attractions, and as a result had significantly higher overall levels of satisfaction. After a series of initial tests and refinements FASTPASS™ was expanded to all Disney Parks worldwide and is now used by millions of guests annually.

This virtual queue system is quite different from the waiting-line experience of most guests. When guests approach a FASTPASS™ attraction, they are instructed to insert their park admission ticket into a specially designated FASTPASS™ turnstile to enter a virtual queue in the computer. Based upon how many guests are in front of the ones who are just joining the virtual queue and the current flow of guests at the attraction, the computer estimates how long it will take for the newly arriving guest's space in the virtual queue to get to the front of the line. This estimated time is automatically printed out on each guest's FASTPASS™ ticket and is the designated time to return and gain immediate entry into the attraction with no wait. Customers can let the computer hold their space in the virtual line while they visit other attractions, eat, shop, or whatever they may want to do throughout the park before returning at any time within an assigned sixty-minute window. This sixty-minute flexibility was created to ensure that guests have the opportunity to engage in other activities during the wait time without worrying that they might be late for a specific entry time. They know that if they arrive back at the attraction within the sixty-minute window, they can walk right in.

A key point in making the FASTPASS™ system work is that guests always have a choice between a FASTPASS™ virtual line and the actual "stand by" line. It turns out that most of the guests in the standby line are people who are currently holding a FASTPASS™ ticket for another attraction and are using that time to experience a second attraction by standing in line for it. Since seeing attractions is a key driver for guest satisfaction, these guests are usually very satisfied, because they are able to see two attractions during the time they would have previously only been able to see one.

The FASTPASS™ system at Walt Disney World is a practical application of a virtual queue.

In addition to the primary benefits already described, the innovation of the FASTPASS™ virtual queue system provides many secondary benefits. During peak days, many guests previously waited in line as many as three to four hours in a day for the most popular attractions. The use of FASTPASS™ resulted in guests seeing more attractions during the day as well as greatly increased the utilization of the other secondary attractions in the park, which previously had little or no wait times. Another secondary benefit was that guests also used some of the time "freed up" from lines to engage in other revenue-producing activities, such as dining and shopping, without taking time away from visiting other attractions. Lower perceived wait times have led to higher customer satisfaction levels, and at the same time, Disney officials have seen increased revenues on food and merchandise per person in the parks.[7] Helping people to avoid standing in line benefits both Disney and its guests.

The virtual-queue concept has many potential applications in hospitality. Cruise ships and resorts are similar to theme parks in that guests have many activities from which to choose, so virtual queues could be used in the same way. Restaurants that hand out paging devices to indicate to guests when capacity is available can keep queued-up guests from having to stand in actual lines. These guests can spend time (and money) in nearby retail shopping or bar areas. Any free-standing attraction that experiences long lines for admission and entry is also a potential site for creating a virtual queue.

Which Queue to Use?

Guest preferences drive planners' decisions about queue types at the best organizations. McDonald's believes that using multiple single-channel, single-phase lines meets customer desires for quick service. Wendy's, Burger King, and most other quick-serve restaurants have a different opinion: They use the single-channel, multi-phase queue, with customers placing an order with a server at one location and moving to another server to pick it up. At some other quick-serve restaurants and many airline counters, all customers get into one line, often a "serpentine" line that snakes between posts and velvet ropes. Once customers reach the head of the line, they wait to enter whichever channel leads to the next available server or attendant. These different queue choices by company planners are based on their studies of what guests want in particular situations.

Common sense suggests that the best queue type for an organization to use is the one that guests perceive as enabling them to begin receiving service as quickly as possible. The guest-focused planner knows that the best line type is the one that customers prefer, and that may not be the type suggested by common sense. For example, guests may prefer to stand in a certain type of line because they think they will be served faster, even if they won't.

Anat Rafaeli and her colleagues suggest that planners need to consider at least four factors when choosing a queue type for a given situation.[8] Planners should select the queue that best provides customers with all the following:

1. A sense of progress toward their goal or service experience.
2. A sense of control over what is happening.
3. Activity.
4. A sense of fairness with how their wait was managed.

People generally seem to prefer the single serpentine queue—with several channels at the end of it, each leading to a server—even though the length of the single line can be intimidating. They don't have to think or worry about which line to choose, whether to

Virtual queues offer a means for guests to avoid long lines, like this one, and instead go on other rides while still "waiting their turn" at the original ride.

change lines if the present line seems slow or another line seems to have gotten shorter, or whether someone joining the next line over will be unfairly served more quickly.

In short, while a single serpentine line may yield the same average wait as multiple lines, the variance in wait times is much smaller. With multiple lines, you have the chance to get through much quicker than customers in other lines, but you also run the risk of being much slower. The serpentine line guarantees first-come, first-served. It is also becoming more widely adopted—at hotels, banks, by Wendy's and Burger King, BestBuy, and many others. McDonald's, Wal-Mart, Target, and most grocery stores continue to employ multiple lines.

Line Simulation: A Gift Shop

While planners can use a statistical distribution to describe the arrival and service patterns of many standard queues, in some situations only a simulation will yield the quality of data necessary to explain and predict the reality of a particular queue. Here is how a simulation might work.

The Christmas Tree is an extremely successful Christmas-themed restaurant; their slogan, "Make every day like Christmas!" appeals to young and old. Because Christmas-related items are available in regular stores only during Christmas season, Rudolph's Gift Shop attached to the Christmas Tree does a huge business during the rest of the year. In fact, many customers shop at Rudolph's rather than dine at the Christmas Tree.

Rudolph's has twenty checkout counters, which if fully staffed would require two people at each, for a total of forty people. If on an average day only fifty customers are typically in the shop at any one time, then full staffing of the checkout counters would be an obvious waste of money because the probability of all fifty people moving to the checkout lines at the same time is extremely small. But, if Rudolph's opens only one checkout counter, a long line will soon form. Planners must decide what staffing level best balances the cost of staffing Rudolph's checkouts against the cost of lost customers who vow never to return because of the long lines or lost sales as customers abandon their carts full of Christmas items and walk out. How might planners help the shop manager to make this decision?

Observing the Flow

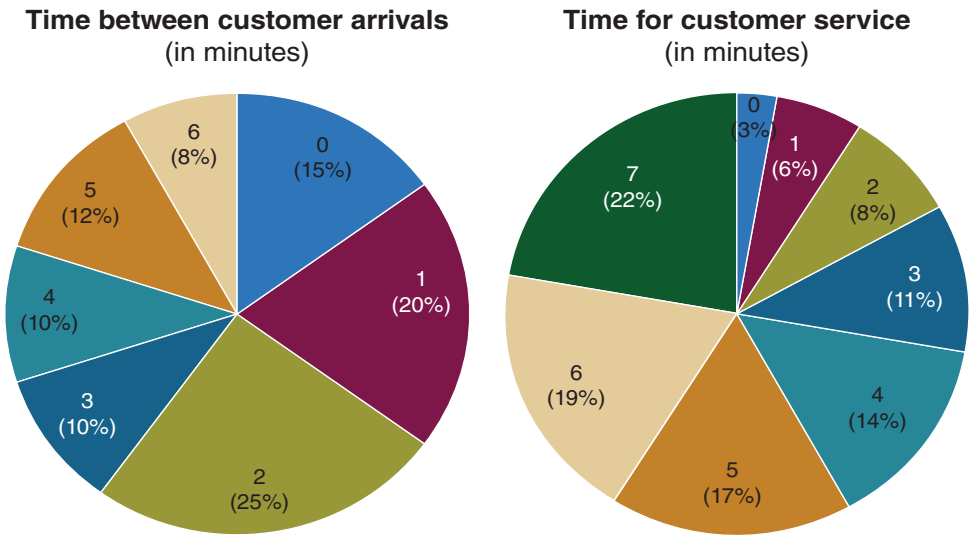
Over several weeks the shop manager can observe the flow of customers and time how long they are in the shop. If sufficient observations are made, the shop manager can create distributions that accurately describe customer arrival patterns, the quantity of items that they bring to the checkout stand, and their time spent in Rudolph's shopping for those items. With this information the manager can then simulate the shopping experiences of Rudolph's customers to determine how to staff the checkout counters appropriately at different times and on different days of the week. Here is how that might be done.

Allocation Wheels

In her office, the manager could set up the two roulette type wheels as shown in Figure 11-2. Spaces are allocated on the first wheel to represent, in percentage form, the time between customer arrivals at the checkout counters. From the observations already made, the shop knows that for 15 percent of their observations, the time between arrivals at checkout was zero minutes; people arrived simultaneously. For 20 percent the time between arrivals was one minute; for 25 percent, the time was two minutes; for 10 percent the time was three minutes. For another 10 percent, the time was four minutes; for 12 percent, five minutes; and for 8 percent, six minutes. The wheel has spaces reflecting the likelihood of each arrival time. To simulate the arrival patterns of the customers at checkout, the manager would merely spin the wheel and write on a chart the arrival interval noted in the section of the wheel when it stopped.

The second wheel in Figure 11-2 is, in similar fashion, portioned off to represent the observations about how long the customers took to go through the checkout process. This total would include the time to scan the purchased items, write the checks or pay cash, and wrap or bag the purchases. Since people vary in both quantity of purchases and speed of writing checks or making payment, the time for service and the proportions on the wheel representing those times would likewise vary. The observations might reveal

FIGURE **11-2** Wheels Representing Time Between Arrivals and Time for Service at Checkout



that customers were served with no wait three percent of the time, had a one-minute wait six percent of the time, a two-minute wait eight percent of the time, a three-minute wait 11% of the time, a four-minute wait 14% of the time, a five-minute wait 17% of the time, a six-minute wait 19% of the time, and a seven-minute wait 22% of the time.

Now the manager can execute the simulation by spinning the first wheel to randomly determine the time between customer arrivals and spinning the second wheel to determine how long each guest took to be served once in a checkout line. By recording the numbers on a simple chart that notes the time between arrivals, times for service and, finally, the time customers were waiting, the entire day's activities can be simulated to determine the maximum, minimum, and average length of time customers waited for service plus the total waiting time for all the customers. The chart would simulate a day's activities by beginning when the shop opens and recording the arrivals throughout the day until it closes. Running this simulation many times (typically more than 1000 on a computerized model) would allow Rudolph's manager and planning staff to draw some statistical conclusions about the length of waiting time, checkout capacity utilization, and the impact on waiting (and guest perception of the quality and value of the experience) that opening up more checkout stands and adding more capacity would have.

Although this is a fairly simple illustration and in all likelihood the entire simulation would be conducted on a computer, it does show the usefulness of mathematically determining the relationship between the service provider's capacity and the average waiting time for guests in a way that allows the hospitality organization to find the ideal balance between the two. This same technique can be used to determine the ideal number of monorails in a theme park, toll booths on a turnpike, front desk people in a hotel, servers and cooks in a restaurant, spaces in a parking lot, ski lifts on a ski slope, or any other application where an organization needs to balance the costs of providing capacity with the quality of the service experience.

Certain basic forces affect waiting lines, and they can be expressed mathematically. An explanation of the mathematics of waiting lines appears in the chapter appendix.

Balancing Capacity and Demand

Determining the proper balance between supply and demand requires more calculations than just the basics. The gift shop planners in the earlier example should gather more data about customer behaviors and expectations. If, for example, they find in interviewing or by simply observing customers that when the wait is longer than five minutes they will put down their selections and leave the shop without buying anything, then a wait longer than five minutes is unacceptable no matter what the remaining data might reveal. On the other hand, if the surveyed customers reveal that the uniqueness of the shop or the nature of the clientele makes waiting time an insignificant issue, then planners might recommend letting the lines grow without much adjustment. The essential feature of the calculation is to determine that point beyond which the length of the wait damages the quality of the guest experience beyond the level acceptable to the guest and the organization.

Once the capacity-and-demand balance decision has been made, planners must determine how to accommodate the inevitable lines created by uneven demand patterns. Here the challenge is to plan and manage the wait in such a way that the guest is satisfied with it. Two major dimensions are involved. The first is the way the time spent waiting *feels* to the guest, and the second dimension is how to minimize the negative effects of the wait by managing the *value* of the experience to the guest. The organization wants each guest to conclude that the experience was well worth the wait.

MANAGING THE PERCEPTION OF THE WAIT

Understanding what makes time fly while guests wait in line is a fundamental concern for planners seeking to improve the quality of the wait. Guestologists have found that time flies not only when they're having fun but also under other circumstances. Hospitality planners must remember that everyone is different, and these differences will influence how people feel about waiting in line. How customers feel about the wait is at least as important as how long the wait is.

1. ***Occupied Time Feels Shorter Than Unoccupied Time.*** If you are busy doing something while you are waiting, the time seems to go by faster. Most line waits can be made more enjoyable and made to feel less lengthy if guests can be distracted or diverted in some way.

   Disney planners are the masters of managing time waits by giving their guests something to divert them from thinking about the wait. If the line for a particular Walt Disney World Resort attraction has become extraordinarily long and a service failure is imminent, a strolling band or acrobats or some other distraction arrives to entertain and occupy the guests while they wait. For long lines, Universal Orlando Resort spaces television sets throughout the time which show a video or movie. People can watch an interesting program while moving toward the entrance to the attraction.
2. ***Time Spent Waiting to Begin the Service Experience Will Feel Longer Than Time Actually Spent in the Experience Itself.*** Hospitality planners, therefore, try to find ways to minimize how long the wait "feels." Theme parks and other entertainment

attractions may offer pre-attraction features, termed the *preshow*. Preshows make guests feel that they are already in the attraction, though they are mainly still standing in line. For example, people standing in line to get into the Walt Disney's Enchanted Tiki Room Under New Management hear a caged Audio-Animatronics bird telling bad jokes. Time seems to pass more quickly for guests when they are watching a preshow or a preview of the main attraction—almost as if the attraction itself has started.

Some airlines send roving people down long lines waiting to check in, to begin the contact with people and make them feel that someone is finally taking care of them. Avis Rental Car quickly gathers up people at the airport terminal contact point and shuttles them to an off-site facility where the line may be quite long and the wait substantial, but customers feel that Avis is at least doing something to take care of them. This strategy has the additional benefit of getting customers away from competing rental counters. Out at the off-site facility, they will wait longer in line because they cannot simply move to the competitor at the next counter.

Another way to make guests feel as if the experience has begun before it actually does is to use this "pre-experience" time to teach customers what they are supposed to do once they reach the actual event or attraction. The education provided during the wait can improve or enhance the service experience and actually becomes part of the experience. Many customers waiting in a fast-food line use their time to evaluate the menu items to select what they want. If they could walk right up to the counter, they would still need the time to review the menu options; they would then feel awkward about being at the front of a forming line unprepared to be served. For these customers having time to stand in a line is an advantage.

Many restaurants give patrons standing in line a menu to look over while awaiting their table. This gives customers something to do and not only speeds up the ordering process once customers are seated but also gives them the impression that the service experience has begun. Providing a complimentary beverage or snack if the wait is unusually long accomplishes the same purpose. Having a cocktail waitress serve waiting guests generally achieves the same goal and creates an additional revenue source.

3. ***Anxious Waits Feel Longer Than More Relaxed Waits***. If people are afraid of what will happen to them once the service experience begins, the wait will seem longer. If people are sitting in an airplane that is obviously waiting for something to be fixed before it takes off, people may become quite anxious about what is wrong with the plane or what malfunction is holding it up, and the wait will feel long. If you are waiting in a hospital room, perhaps to receive the results of a diagnostic procedure, the wait will seem to drag. Sometimes, organizations want to create a little anxiety. The school principal may let the ill-behaved child waiting for punishment wait a little longer than necessary. Waiting to enter a scary ride at an amusement park can enhance the effect of the ride.
4. ***Waits of Uncertain Length Feel Longer Than Certain Ones***. Anyone who has been at an airport waiting on a flight that is delayed for an unknown reason will know that such a wait feels endless. Waiting without knowing when the delay will be over causes any wait to feel much longer. Let your guests know what to expect. A time estimate can help the customer set a mental clock to let time pass more quickly until that preset time is reached. Telling phone callers how many callers are ahead of them in the phone queue serves the same purpose.

   Norwegian Cruise Lines uses TV monitors throughout their ships to provide information on how full their various restaurants are. These "Restaurant Seating Guides" let guests know in real time how full each dining venue currently is, so they can decide which restaurant to go to with full knowledge of how long the wait, if any, will be.

Disney uses sign boards to tell guests how long before they will enter the attraction from that point in line. Generally, they overestimate the time because guests are always happy when they get to the ride faster than they thought they would but are never happy when they get there later. This is one reason patients want doctors to be on time for scheduled appointments. Once the appointment time is reached, in the patient's mind it is time to be served, and any time spent after that is uncertain and long.

5. ***Unexplained Waits Feel Longer Than Explained Waits***. When you don't know what is holding up the line or causing the delay, the wait will feel longer than if you know the reason. If traffic stops and your view ahead is blocked so you can't see why, the wait will feel longer. If service is delayed, customers want to know why. Effective managers of waits will tell them or provide a visual cue that can explain the wait.

   For example, a line at a restaurant can be structured so customers can see that all the tables are full, or at a bank so one can see that all the tellers are busy. On the other hand, effective managers of queues will ensure that front desk attendants or airline check-in staff doing something other than attending to waiting customers are kept out of sight of customers, so that they do not have to explain why their personnel are not serving customers. Restaurant managers try to keep empty tables out of sight; otherwise people queued up for a meal will think their wait does not have a legitimate explanation, and it will feel long. Restaurant guests do not buy the explanation, "That section is closed."

   One author describes an airline experience that is familiar to many travelers.[9] He boarded a plane in San Francisco heading for Chicago. A broken toilet delayed the departure. The pilot and crew made an announcement about the problem and said that the flight would leave as soon as it was fixed. The pilot and crew gave frequent updates to the passengers and told them that the pilot was seeking permission to leave without one toilet operating. Every twenty minutes the author-passenger received a text message on his cell phone updating the departure time. After an hour of unsuccessful effort to repair the toilet, the pilot announced that he had decided the plane would not fly with only one toilet working. Instead, he told the passengers that they would have to disembark and leave later on another plane. Despite the uncertainty and annoyance over the broken fixture, the passengers were calm and understanding. The writer's seatmate said he found it reassuring that the captain himself had made the final announcement and explained his reasoning.

   If this was the end of this story, it would be an excellent illustration of the value of explaining waits to customers, but the author went on to describe the chaos, anger, and frustration that occurred to these same passengers once they were back inside the terminal where no one would tell them anything and no one seemed to know what to do next. The contrast between the attitudes and reactions of guests who know why the wait is occurring and those who are uninformed is striking and serves as an important lesson to practitioners of guestology: Keep your guests informed as to why a wait is happening and what this means to them.

6. ***Unfair Waits Feel Longer Than Fair Ones***. If customers feel that the queue discipline is consistently followed and fairly used, then the wait seems shorter than it does when people are allowed to get away with cutting in line, or people are served out of the apparent sequence of service order, violating the perceived queue discipline. Good organizations recognize this truth and manage their lines with this knowledge in mind. At times, VIP guests or some other special category of guest requires that the line discipline be broken. Airlines usually have a separate line for customers paying for first-class tickets. Passengers flying coach usually don't object to that special treatment since they know that the first-class passengers are paying for it. For VIPs, sometimes

the layout of waiting lines into twisting maze patterns enables VIPs to be integrated into the line flow so smoothly that those waiting do not usually notice that the discipline has been interrupted. But if they do notice, the airline personnel had better be prepared to hear about it.

When an organization needs to break the queue discipline, it must find some way to communicate a reason for the apparent unfairness that customers will accept after hearing it. Time-honored reasons are "Lady with a baby!" and "Women and children first!" Passengers needing assistance go onto planes first, and nobody minds. No one complains if a disabled person goes to the front of the line. Seating a party of four at a restaurant before seating waiting parties of six or more seldom creates guest complaints or problems for the restaurant; everyone knows that almost all tables are set up for smaller parties and that some juggling must be done to accommodate the larger group.

7. ***Solo Waits Feel Longer Than Group Waits***. Waiting by yourself feels longer than waiting in a group of friends, or even in a group you don't know. Planners recognizing this perceptual issue try to organize their lines in such a way that people are grouped with other people. Under this logic, a double line would feel shorter than a single line, and a line structure that encourages people to interact so they feel like members of a group feels shorter than one in which the people are allowed to stay inside their own personal and highly individual spaces. Planners can arrange the seating in waiting room areas so as to promote interaction and a sense of being part of a group.
8. ***Uncomfortable Waits Feel Longer Than Comfortable Ones***. All hospitality organizations dread seeing guests queued up in the hot sun, rain, or other uncomfortable conditions. Finding a way to keep people comfortable in outdoor queues while they wait to enter an air-conditioned environment is a real managerial challenge. Obviously, such devices as paddle fans, awnings, or artificially created shade can be useful for making the wait feel more comfortable and less lengthy.
9. ***Interesting Waits Are Shorter Than Uninteresting Ones***. We have already said that occupied waits are shorter than unoccupied waits. This principle is true even if the activity in which one is occupied is only "busy work." But if you are occupied in doing something interesting while you wait, the time will seem even shorter. Bank of America found that when they provided television monitors in the bank lobby, customer perceptions of wait times decreased significantly.[10] Restaurants frequently have a bar with entertainment so that guests waiting for a table can have a drink and listen to some music. The time seems to pass more quickly that way.
10. ***Happy Waits Are Shorter Than Sad Ones***. While this goes without saying in most situations, it is part of the perception of the waiting experience. Customers who are having fun, enjoying themselves, and feeling positive about the wait itself and the service experience to come will find the wait to be shorter than those who are unhappy, sullen, or feeling negative about waiting. Planners need to think of ways to keep happy customers happy and make unhappy customers feel better about waiting. Using clowns is one way to turn unhappy children into happy ones. Professional comics warm up their audiences; the comics get them laughing during the wait, to make sure that when the television cameras come on, the guests are ready to have fun and laugh.

The Emotional Wait State

In all these waiting situations and especially the last one, the customer's emotional state will significantly impact the wait for service. Different people react differently to anxiety, uncertainty, discomfort, and other perceptual influences on the waiting time. Planners should keep these different reactions in mind as they structure organizational queues.

Waiting in line can be frustrating and boring. Organizations need to manage the wait to avoid losing customer satisfaction.

Crowds and Clientele

If the waiting line to be managed is large and diverse, then the "typical customer" drives the design of the line and the associated wait. While planners should consider individual differences as much as possible in designing and managing waits, the line for large crowds must be designed to accommodate what the average guest expects when entering the wait process.

If the people in line are a more select clientele with identifiable features, such as a queue at an upscale restaurant or hotel, then variability in treatment of the waiting guests may be possible and even necessary to ensure that the quality of the entire experience, including the wait, meets the guest expectations for that upscale level of service. You want to make the wait enjoyable or at least less irritating, and that is harder to do with a mass-market audience than with a select, known clientele, for reasons other than the size of the crowd.

Waits in Contrast

In all these waiting situations, the contrast effect will also influence the perception of the wait. If a customer has just had a comfortable, totally explained, predictable wait, followed by a subsequent wait that is unpredictable, anxiety producing, and of uncertain length, the second wait will seem longer than if a well-managed wait had not just occurred. Similarly, if a customer has just had a long wait, a short one will feel even shorter in contrast. If the guest has just been waiting where employees were friendly and all servers were busy, that wait will seem shorter than a wait in which employees pay minimal attention to guests and some are engaged in activities other than serving people in line.

The key for planners is to remember that the customer, client, or guest perceives the wait. If the objective data say the average wait at your place should be acceptable to customers or the wait at your company is actually shorter than it is at a competitor's, that doesn't matter to customers who think they have waited too long for your service. Customers have mental clocks in their minds that tell them when the wait is too long or just

right and extremely well managed. Managing the perception is as effective a technique as managing the actual waiting time, and if the organization is particularly good at managing perceptions, it can make even very long waits acceptable and tolerable to customers.

SERVICE VALUE AND THE WAIT

The more value the customer receives or expects to receive from the service, the more patiently the customer will wait. Since the customer defines the value of services rendered, the second major strategy for managing the perception of the wait is to manage the perceived value of the service for which the customer is waiting. This strategy can be implemented before, during, or even after the service is delivered.

Before Service

Before receiving the service, waiting customers can be provided with information (or even with some other service) that will enhance the value of the service that motivated them to enter the queue in the first place. A hotel, for example, can enhance the perceived value of the guest experience by offering guests waiting in line some sparkling water or champagne, or they may be entertained by a chamber-music group. Such thoughtful touches not only distract and occupy the guest, they also add value to the experiences that the hotel and restaurant are selling (and for which the guest must wait in line).

During Service

During the performance of the service itself, its value (to the customer and as defined by the customer) can be enhanced over the customer's expectations by many strategies. The organization will want to employ these strategies in any event, but the idea here is that if the service meets or exceeds expectations when the customer gets it, the wait was worth it.

In addition to providing customers with a service that is beyond their expectations in the first place, some more subtle actions can enhance the value of the service experience or increase the perceived cost of abandoning the wait. Some restaurants believe in hanging signed photographs of celebrities who have eaten in the restaurant; doctors display diplomas from their medical schools to indicate the high quality of their training. These touches tend to encourage the guest or patient to think that the meal or the medical treatment is worth the wait. As a more direct response to the wait, the server could apologize for it, which adds a personal touch that may increase the value of the experience for the guest. Hops Restaurant pursues a philosophy of "whatever-it-takes service," which also applies to those waiting for tables. As part of their strategy for "Lobby Comfort," guests are provided with samples from the menu while waiting for a table.[11] These are all examples of how the value of the service to the customer can be enhanced even as it is being delivered. These enhancements all make the wait seem shorter in retrospect; an excellent service experience diminishes the ill effects of the wait.

After Service

After the service, the value of the experience in the eyes of customers can sometimes be enhanced, so they feel better about having taken the time to wait on the service in the first place. Although advertising is generally used to attract the attention of potential customers, people who have already purchased services are even more attentive to

ads than those who have not. The ads reinforce the wisdom of purchasing the service as well as waiting in line to do so. Of course, ads seen ahead of time can also reduce the effects of the wait while it is in progress; the ads have convinced customers that the experience will be good, so they wait more patiently. A phone call to a customer after the service experience, asking for feedback on it, can enhance the value of the experience and reduce the negative effects of the wait. Once Honda dealers started calling up customers after they left the dealership to ask about the quality of the service experiences, to remain competitive other dealers had to make the calls, too. This type of personal attention after the experience can help compensate for the wait before the experience.

Managing Waits in an Imperfect World

Planning and managing the waiting line are fundamental challenges for managers in the hospitality industry. The service cannot be stockpiled or inventoried, and planners must find the right balance between having enough capacity to fill demand and having so much capacity that some sits idle most of the time. In a perfect world, the flow of customers matches the supply exactly. When one guest leaves the restaurant, another walks in for lunch. When one guest finishes with the concierge, another arrives to ask a question, and so on across the entire range of services offered by organizations. In our less-than-perfect world, getting customers into the service setting and meeting their time expectations require effective queue planning and management. The critical point is to make it visibly clear to guests by everything that everyone in the organization does and says that they respect their customers' time, appreciate their tolerance of any waits, and that the company is doing everything it can to make waits fair, fast, comfortable, and as enjoyable as possible.

LESSONS LEARNED

1. Plan for and manage the guest waits across their entire experience; don't just let them happen.
2. Know how long or whether your guests are willing to wait.
3. Know the arrival rates, queue discipline, and service rates for each wait and use the knowledge to calculate the length of each.
4. Make design-day decisions that best balance the costs of providing capacity with the costs of guest dissatisfaction from waits.
5. Design queues to best meet guest expectations.
6. Know the psychology of managing waiting lines.
7. Use waiting-line models to understand how your queues work.
8. Try to minimize the negative effects of the wait before, during, and after the guest experience.
9. Use virtual waits whenever possible.
10. Find out how much a dissatisfied guest costs you; that will motivate you to manage the wait for your guests more carefully.

REVIEW QUESTIONS

1. "Just about every full-fledged guest experience has at least one wait somewhere within it." True or false?
   A. If false, name some guest experiences that do not involve a wait.
   B. Indicate some common front-of-the-house waits (as opposed to out-of-sight waits such as queued-up food orders) during a typical guest's experience at a casual restaurant such as Chili's, Olive Garden, or Red Lobster. Which ones should be managed, and which ones can be left alone to take care of themselves?
   C. Indicate some common back-of-the-house waits, unseen by the guest, during a typical guest's experience at such a casual restaurant. Which ones should be managed, and which ones can be left alone to take care of themselves?
2. Think of a pleasant or an enjoyable wait you have experienced within a hospitality setting. Think of an unpleasant or annoying wait.
   A. What strategies described in this chapter did the organization's managers use or fail to use that caused your wait to be one kind or the other?
   B. Did the managers employ any strategies not covered in the chapter?
3. What strategies are available to match the capacity of a hospitality organization with the demand for its services? Which strategies work best and under what circumstances?
4. This chapter explained how a theme park might use the design-day concept.
   A. How might the concept be used by a hotel, a restaurant, and an airline?
   B. Is the concept as applicable to those other organizations as to a theme park?
   C. If so, what are the common elements that facilitate applicability? If not, why is that?
5. Give some examples from your own experience of the different queue types shown in Figure 11-1. Did the queue type used seem to fit the situation? Was it readily apparent why the organization chose it? If you have to wait, which line type do you prefer and why?
6. You are the front desk manager of a popular hotel, and you are frustrated by the number of guests you see waiting impatiently in line to check in and check out. Compare the advantages and disadvantages (and the costs and benefits, if you can) of relieving this situation by considering the following alternatives.
   A. Set up and use simulation wheels like those in Figure 11-2.
   B. Use some of the techniques in the chapter for managing the feel of the wait.
   C. Cross-train some employees so they can help out at the front desk during busy times.
7. Some organizations, restaurants in particular, seem to take more interest in managing the wait in positive ways than others. How does an organization decide how much time and effort to place into managing the initial wait for service?
8. Although some academic people make a life's work out of queuing theory, many readers enjoy reading about the "psychological" methods for managing the wait more than they do studying "theory." Which is more important to manage the guest experience in hospitality organizations: the hard numbers of queuing theory or the softer psychological approach?
9. You may have heard someone say, or may have said yourself, "Whichever line I am in, the others always move faster." Can this be true?

ACTIVITIES

1. Find a situation in which a hospitality organization has found a way to control or shift guest demand. Why does the organization employ this strategy? How effective is the strategy? What incentives are offered to guests to encourage them to seek the hospitality service at one time rather than another? How profitable do you think the strategy might be?
2. Study the waiting-line situations (movies, athletic events, fast-food outlets, etc.) in which you find yourself over a period of time. Evaluate how well the lines are being managed. Which line-management strategies described in this chapter might have been used to improve these situations?

ETHICS IN BUSINESS

Generally, people feel that "first come, first served" is fair and that people should not violate the order in a queue. But sometimes exceptions are made. When is it appropriate to make these exceptions? Imagine that you are managing a fine-dining restaurant, several patrons are waiting for tables, and you estimate roughly a forty-five-minute wait. When do you think is it appropriate to allow a newly arriving patron to bypass the line and be seated immediately?

- A Supreme Court justice shows up, and her security detail says that for security reasons, she cannot wait in the lobby, so she must either be seated immediately or will have to leave.
- A famous movie star arrives wanting a table.
- The owner of the company that supplies your alcohol arrives wanting a table.
- Your mother surprises you and comes by wanting a table.
- Your first-grade teacher is in line.
- You recognize one of the authors of this book in line waiting for a table.
- Someone shows up, at the right time, with a reservation.
- Someone shows up fifteen minutes late for a reservation.
- Someone shows up, thirty minutes late for a reservation.
- Someone shows up one hour late for a reservation.

What factors do you consider when making the decision to move someone to the head of the line? Why are some decisions "fair" and others "unfair"? Does a decision have to be fair for you to make the exception?

CASE STUDIES

The Front Desk

Jane Gianini, manager at the Thusly Manor, an upscale inn and golfing resort in the North Carolina mountains, was becoming increasingly concerned about the situation at the front desk. On several occasions during the past week, she walked by the desk and saw a line of waiting guests. Several other times she walked by and saw no guests at all.

The dramatic rise in personal income and tourism during the first part of the new millennium had caused a boom in the number of guests wanting to combine a stay in a fine hotel with some golfing on a beautiful hilly course. But success also brought problems for Thusly Manor, how to handle the increased numbers at the front desk among them. Gianini thought she had controlled the situation by implementing a new staffing procedure. If her calculations were correct, the new procedure should have just about eliminated both the waiting lines and the front desk server down time. Nevertheless, she had seen guests lined up several times, and idle desk agents quite frequently.

When she first analyzed the data, she computed simple averages. To construct her present staffing schedule, she had found out how many guests arrived during each eight-hour shift on average and had divided that number by eight, to arrive at guest load per hour during a shift. She then staffed the front desk accordingly. She pulled the following data for the 8 A.M. to 4 P.M. shift from her files to check on whether she had analyzed it correctly when she had set up her present system.

Type of Service and Percent of Service Time Used

SERVICE TYPE	AVERAGE SERVICE TIME	PERCENT
I. Check-in/check-out	10 minutes	70%
II. Informational/misc. requests	5 minutes	30%

Frequency of Guest Arrivals at Front Desk

AVERAGE TIME BETWEEN ARRIVALS	PERCENT
0 minutes	30%
5 minutes	40%
10 minutes	20%
20 minutes	10%

1. What was wrong with Gianini's original analysis?
2. How should she have analyzed this problem?

Waiting for Gaudeaux

Grand Gaudeaux Cruise Lines specialized in taking passengers on luxury cruises to the Gaudeaux island chain in the Caribbean. Because of its financial success and good reputation in the industry, Grand Gaudeaux had recently been able to expand its passenger capacity by adding two brand-new, large ships to its fleet. The guest-satisfaction measurement team was meeting this morning with Steve Weitzman, CEO of Grand Gaudeaux, to discuss some surprising low guest-satisfaction ratings received from passengers on these two state-of-the-art ships. The company practice was to mail departing guests a survey about a week after their cruise, asking them a variety of questions. The recent data were troubling. Grand Gaudeaux had hoped to delight its guests by providing these new ships; instead, guests were reporting dissatisfaction.

The topic today was the dramatic downturn in the satisfaction scores. Knowing that this meeting was coming up and realizing the CEO's depth of concern, the measurement team had done some further investigation into guest opinions through a variety of means. The most interesting insight was gained from a series of focus groups in which guests from the newer, larger ships had indicated their frustration with the departure routine. It appeared that the larger the ship, the more difficult it was to get everyone ashore after the cruise ended. This long wait tended to give "cruisers" on the two newest ships an unsatisfactory last experience with Grand Gaudeaux Cruise Lines. Because of the "recency effect"—the psychological theory that the most recent events are best remembered and have greatest impact—the passenger problems in departing the ship were overshadowing the many excellent aspects of the cruise experience.

The team recognized some system solutions; for example, the port facility could be retrofitted with larger capacity to accommodate more departing passengers. Such a retrofit would involve significant expenditures. But even if the budget were available to make such improvements over the long run, the guest-satisfaction measurement team realized the acute need to improve the management of the passenger wait experience in the short run. The team knew of Weitzman's personal pride in and high hopes for the new ships. They knew he would want some answers as to what might be done to fix this source of guest dissatisfaction.

If you were on the guest-satisfaction measurement team, what steps would you recommend to Weitzman?

APPENDIX

THE MATHEMATICS OF WAITING LINES

The mathematics are quite simple for a single-channel, single-phase line. An understanding of a few calculations will reveal much about the dynamics of waiting lines.

In the following example, we will use a single-channel line for a hotel's front desk, with one server/agent at the desk. We will calculate the average amount of time that a guest stands in line and stands in the system (time in line plus time being served). In addition, we will determine the idle time of the front desk staff. These figures would be useful to a hotel manager wishing to control the waiting time for guests and to reduce the idle time for service personnel.[12]

These calculations for a single-channel, single-phase line, to illustrate the underlying principles of waiting-line management, can be done manually. However, more complicated line systems requiring more complex formulae should be (and can easily be) analyzed by computer. A standard spreadsheet products such as Excel can be used to perform such waiting-line analysis.

The Single-Channel, Single-Phase Case

The Chelten Hotel has a simple front desk with one service station. Ben Blake, the front-office manager, has been observing the line at the front desk for several weeks. Not wanting guests to wait in line too long, he wishes to calculate the average wait in line for his guests over a one-hour period. He also wants to know how much idle time his servers will have during that hour. Mr. Blake would like them to perform some routine tasks such as sort the mail and enter charges to guest accounts during their idle time.

Blake has compiled the following information for this one-hour period. For this example, we ignore variability and use averages to describe both arrival and service rates for the hotel guests:

The average time it takes to register a guest is four minutes; the hotel can register about fifteen guests per hour. This is the service rate, the units of server capacity per time period.

Ten guests are expected to arrive during the hour. This is the arrival rate.

The formulas use the following symbols:

$$A = \text{arrival rate per hour (10)}$$

$$r = \text{service rate per hour (15)}$$

1. *Average time a guest waits in line:*

$$W_q = A/r(A - r) \quad W_q = 10/15(15 - 10) \quad W_q = 0.133 \text{ hours or } 8 \text{ minutes}$$

W_q means waiting time in the queue before being served. This calculation tells manager Blake that the average wait in the line for a guest is eight minutes. If that wait time is unacceptable to Blake, he may have to add another server.

2. *Average time spent in system:*

$$T_S = 1/(r - A) \quad T_S = 1/(15 - 10) \quad T_S = 0.2 \text{ hours or } 12 \text{ minutes}$$

T_S means the average time a guest waits in the system. This equation tells manager Blake that the average guest spends twelve minutes in the system, including both waiting time and service time.

3. *Average number of guests in line:*

$$L_q = A^2/r(r - A) \quad L_q = 10^2/15(15 - 10) \quad L_q = 1.33 \text{ guests}$$

L_q means the average length of the queue, in number of guests. Knowing that only 1.33 guests are in line at any one time, on average, reveals to Blake that the line's space requirements are minimal.

4. *Percent of time the server is busy:*

$$p = A/r \quad p = 10/15 \quad p = 67\%$$

p means the percentage of time the server is busy. The front desk registration procedure has one or more guests in it—either in line or being served—67 percent of the time, or about forty minutes out of every hour.

5. *Probability that there is no one in the system:*

$$P_0 = 1 - (A/r) \quad P_0 = 1 - (10/15) \quad P_0 = 33\%$$

P_0 means the probability that no one is in the system. This is obviously the inverse of the previous formula. If the wait-plus-registration system has someone in it about forty minutes out of each hour, it is empty for the other twenty minutes. Blake can use this information to assign other tasks to idle servers. Now that Blake has run his calculations, the registration agents can probably look forward to an expanded job description.

ADDITIONAL READINGS

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NOTES

[1]For an interesting example of a ski resort network of waits, see Pullman, M. E., & Thompson, G. M. 2002. Evaluating capacity- and demand-management decisions at a ski resort. *Cornell Hotel and Restaurant Administration Quarterly*, 43 (6), 25–36.

[2]Adapted from Heskett, J. L., Sasser, W. E., Jr., & Hart, C. W. L. 1990. *Service Breakthroughs: Changing the Rules of the Game*. New York: The Free Press, pp. 138–141.

[3]See for example, Hwang, J., & Lambert, C. U. 2008. The interaction of major resources and their influence on waiting times in a multi-stage restaurant. *International Journal of Hospitality Management*, 29, 541–551.

[4]See McGuire, K. A., & Kimes, S. E. 2006. The perceived fairness of waitlist-management techniques for restaurants. *Cornell Hotel and Restaurant Quarterly*, 47 (2), 121–134.

[5]See, for example, Rafaeli, A., Barron, G., & Haber, K. 2002. The effect of queue structure on perceptions. *Journal of Service Research*, 5 (3), 125–139.

[6]Dickson, D., Ford, R. C., & Laval, B. 2005. Managing real and virtual waits in hospitality and service organizations. *Cornell Hotel and Restaurant Administration Quarterly*, 46 (1), 52–68.

[7]Wolfson, B. J. 2000. Disney chief financial officer sees changes raising customer satisfaction. *Orange County Register*, April 11, www.orcegister.com; and Reckard, E. S. 2000. More Disneyland rides to get shortcut system. *Los Angeles Times*, May 26, www.latimes.com

[8]Rafaeli, Barron, & Haber, 2002.

[9]Norman, D. A. 2009. Designing waits that work. *MIT Sloan Management Review*, 50 (4), 23–28.

[10]Thomke, S. 2003. R&D comes to services: Bank of America's pathbreaking experiments. *Harvard Business Review*, 81 (4), 70–79.

[11]Hops Restaurant, Bar & Brewery on tap for Toledo. 2000. *Toledo Business Journal*, 16 (8), 7. Policy is stated on the company's Web site, at http://www.hopsrestaurants.com/home/frame_who.asp, accessed 11/3/09.

[12]Although the following assumptions underlie these formulas, it is not necessary to understand them to follow the discussion: (1) Queue discipline is first-in, first-out; (2) No balking or reneging. Customers must accept service when it is offered, and no one quits or leaves the line; (3) Arrivals are accurately represented by a Poisson statistical distribution; (4) Service times must follow a negative exponential Poisson distribution; (5) Arrivals are independent; (6) Arrival rate does not change over time.