Technology in the Restaurant Industry

LEARNING OBJECTIVES

After reading and studying this chapter, you should be able to:

- Identify the main types of restaurant industry technologies.

- List and describe the main types of software programs.

- Identify factors to consider when choosing technology for a restaurant.

Technology in the Restaurant Industry

Ask any restaurant operator about the alphabet soup known as *ASP*s, WAN, LAN, SAN, VPN, SQL, and *POS*, and you may get a puzzled look or a response that adds to your restaurant technology vocabulary. We have come a long way from the mom-and-pop operators and their proverbial cigar box. Independent operators may not require—or be able to afford—the sophistication of technology that chain operators are using. However, it is hard to overlook the progress in making technology available and affordable for independent restaurants. This chapter examines some of the better-known systems used and identifies their applications in the restaurant industry.

Restaurateurs are becoming more sustainable and reducing food costs by getting back to basics—including clamping down on waste, repurposing trim, costing items carefully, and employing some creativity. Operators also are using more sophisticated menu-engineering techniques and making use of the latest inventory technologies.[1] Most restaurants divide their technology into two parts: back and front of the house. Many systems integrate these so that operators can input and draw on the information from both programs.

BACK-OF-THE-HOUSE TECHNOLOGY

Back-of-the-house, or *back-office*, restaurant technology consists of product management systems for purchasing, managing inventories, *menu management*, controlling labor and other costs, tip reporting, food and beverage cost percentages, human resources, and financial reporting. With the economic trend line showing no signs of reversing direction any time soon, the industry's top chief information officers say they are focusing on technology that will help their companies and franchisees weather the storm.[2]

Data Central by Restaurant Magic is a back office system that is a Web-based centralized reporting and document delivery method enabling operators to be up to date with accurate and timely results like profit and loss information which positively impacts cost management decisions and analysis and the ability to compare performance to budget.[3]

Purchasing and Inventory Control Product management allows managers to track product through each stage of the inventory cycle and to automatically reorder when an item falls below the par stock level. The ingredients for recipes are costed to calculate cost and selling prices. If the purchase price of an item increases, it is easy to enter this information and get the new selling price. Software solutions like ChefTec and ChefTec Plus include options, such as importing purchases from vendors' online ordering systems and comparing vendors' pricing from purchases or bills. Additionally, the software allows restaurants to automate ordering with user-set par levels and generate customized reports detailing purchases, bids, and credits. See Figure 14.1.

Date: 11/6/2010
Time: 10:42 AM

ChefTec

Spinach Pasta Crepes With Mushroom Filling
Culinary Software Services

Categories Cycle 1, Main Course, Pasta/Rice
Tools   French Knife
Locations
Plate/Store

			Prep
Yield	24	ea	**Cook**
Portion	3	ea	**Finish**
Num. Portions	8		**Shelf**

Ingredients			Cost	% of Total
1	lb	Basic Pasta	$0.95	10.6%
0.75	lb	Mushroom Duxelles	$1.41	15.7%
1.5	cups	Velouté Sauce	$1.60	17.9%
1.5	cups	single cream	$0.63	7.0%
5	ea	tomatoes	$2.08	23.2%
1	cup	capers	$2.29	25.5%
			$8.97	

	Single Portion	Entire Recipe
Cost	$1.12	$8.97
Price	$3.44	$27.53
[%]Cost	32.6%	32.6%
Margin	$2.32	$18.56

FIGURE 14.1: ChefTec from Software Solutions for Foodservice Operations has recipe and menu costing, inventory control, and nutritional analysis programs

A new service offered by Sysco called ChefEx is a catalog of products that, due to their uniqueness, perishability, or sales volume, would not typically be warehoused by an operating company. ChefEx allows increased customer product offerings from small artisan producers nationally. Orders are placed in the normal way, and items are drop-shipped directly to the restaurant; they do not go to the warehouse. ChefEx can be found at www.chefex.com.

Inventory Control Back-office systems aid inventory control by quickly recording the inventory and easily allowing new stock to be added. Calculations are done rapidly and monetary tools are given for each item, plus a cumulative total. The software programs prompt when inventory falls below the reorder point. When new menu items are added to the system, they are costed and priced according to the mark-up. With the help of back-office systems, restaurateurs can track "perpetual inventory" if they are interfaced to Point of Sale systems. Perpetual

Date: 11/6/2010
Time: 11:08 AM

Chef Tec

Spinach Pasta Crepes With Mushroom Filling
Culinary Software Services

Author
Categories Cycle 1, Main Course, Pasta/Rice
Tools   French Knife
Locations
Plating

			Prep
Yield	24	ea	Cook
Portion	3	ea	Finish
Num. Portions	8		Shelf

Nutrition Facts

Serving Size 3 ea
Servings Per Container 8

Amount per Serving

Calories 397 Calories from Fat 125

	% Daily Value
Total Fat 14 g	21%
Saturated Fat 6 g	29%
Cholesterol 139 mg	45%
Sodium 105 mg	4%
Total Carbohydrates 55 g	18%
Dietary Fiber 4 g	17%
Protein 13 g	
Vitamin A 22%	Vitamin C 38%
Calcium 7%	Iron 23%

Nutrition Descriptors
Low Sodium

FIGURE 14.1: (*continued*)

Date: 11/6/2010
Time: 11:08 AM

Chef Tec

Spinach Pasta Crepes with Mushroom Filling
Culinary Software Services

Start Date: 4/1/2010   **End Date:** 4/15/2010
Total Sales: $5,342.25
Cost calculated using: Theoretical End

| Meat |

Item	Units	Cost	% Cost
back fat	lb	$4.80	0.1%
bacon fat	lb	$2.98	0.1%
bacon, lean	lb	$5.16	0.1%
bacon, slab	lb	$2.86	0.1%
bacon, sliced	lb	$37.60	0.7%
beef bones	lb	$3.00	0.1%
beef brisket	lb	$4.75	0.1%
beef rib, #109	lb	$35.70	0.7%
beef rib eye, boneless lip on	lb	$559.44	10.5%
beef short loin, boneless, 1X1	lb	$41.65	0.8%
beef top round	lb	$8.89	0.2%
lamb chop, loin	lb	$17.34	0.3%
lamb chop, rib	lb	$224.35	4.2%
lamb shank	lb	$13.76	0.3%
pork butt, boneless	lb	$13.47	0.3%
pork chop, center cut	lb	$78.75	1.5%
pork loin, boneless	lb	$10.49	0.2%
pork loin, smoked	lb	$54.75	1.0%
pork shank	lb	$1.21	
prosciutto	lb	$2.20	
sausage, andouille	lb	$4.80	0.1%
Total Cost:		$1,127.94	
Total Sales:		$5,342.25	
% Food Cost:		21.1%	

FIGURE 14.1: (*continued*)

inventory is the inventory that should be on hand. As an example, let's assume that a restaurant has 100 Coca Cola cans in the beginning of the month and they purchased 100 cans during the month. If the restaurant sold 100 Coca Cola cans, the perpetual inventory for Coca Cola cans is 100 units. When perpetual inventory is compared to physical inventory which is taken usually once a month, the difference can be attributed to waste, theft or shrinkage.

KITCHEN DISPLAY SYSTEMS

Efficient kitchen coordination is also a necessity in guaranteeing guest satisfaction. *Kitchen display systems (KDS)* provide highly visible, real-time information to manage and control kitchen efficiency. Contrary to some beliefs, these systems

are being installed in more upscale restaurants today than in fast- food and casual restaurants.

Fully integrated with point-of-sale (POS) systems, the intuitive, graphical software application is conveniently mounted in the kitchen or food prep area. Visible to the entire kitchen staff, it displays food orders for preparation and monitors the timing of orders for speed of service. When the preparation time for a menu item exceeds the preparation time set by the chef, the color of the order changes indication that this item is taking longer than it should. Obviously, if guests wait more than they should, their satisfaction will decrease. If it takes significantly more time to cook a menu item than it should, not only the color of the item will change in KDS, but also a manager is paged. This provides feedback about the status of each table and captures service times for management reporting. Features of order preparation include color-coded alerts that indicate exceeded prep times; varied order display options; icon displays for VIP, rush orders, or voids; and display functions, such as "all day," "order done," and "order recall." The displays even can play videos and display the image of courses. Watching a video about how to prepare a menu item in KDS will ensure that the menu items prepared in the kitchen will be consistent. Even new kitchen staff can prepare the items based on the standard operating procedures. Obtainable statistics and reporting include service times for each guest check and table, average prep times for different courses at various prep station, and instantaneous reports on kitchen performance. This will also give the restaurant a chance to improve their staff member's efficiency. For example, if it takes Joe 15 minutes to prepare a cheeseburger instead of 9 minutes, the Chef can train Joe to make sure that he prepares the menu item within the time limit.Increased interaction and integration of security and POS systems reduces the impact of employee theft in today's tough economic conditions.[4]

As with table management solutions, certain systems incorporate paging, providing for end-to-end kitchen communication. Whether the restaurant is full, limited, or quick-service servers will have more time to focus on the guests, and managers can be notified if there are any questions or problems in the kitchen that call for immediate attention. This technology helps to get food out of the kitchen faster, eliminates reheats, reduces labor expenses, and builds better guest rapport.

Mike Snow, information technology director for Silver Diner, says, "With KDS we were able to reduce the amount of recooks because modifiers and special instructions are more clearly displayed. Before KDS we did not have an accurate perception of our ticket times. KDS gives you precise data on ticket times and menu item cook times."

Food Costing When calculating the food (and beverage) cost percentage, a hand-held device (personal digital assistant, or *PDA*) can enter the inventory amounts into the system. Bar-code scanning technology is speeding up the inventory-taking process and making it more accurate. When the data are entered into the system, a variance report is generated, and any significant variances are investigated. Technological improvements have made it possible to do a restaurant's food-cost percentage in about one-third of the time it used to take and with more accuracy.

ChefTec

Inventory On-hand
Culinary Software Services

Inventory Date: 4/15/2010

Meat

Item	Cost/Unit	Units	Open	Purchases	Sales	Produced	Used in Production	Theoretical End	Actual End	Actual Usage	Waste	Shrink	Problems
back fat	$0.60 lb		20	25	8			37		45		37	Open amount is theoretical
bacon fat	$0.60 lb		35	35	5			65	7	63		58	Open amount is theoretical
bacon, lean	$2.58 lb		15	15	2			28	2	28		26	Open amount is theoretical
bacon, slab	$2.15 lb		15	15	1			28.67	1	29	33	26.67	Open amount is theoretical
bacon, sliced	$0.80 lb		15	15	47			−17		30		−17	Open amount is theoretical
beef bones	$0.50 lb		30	10	6			34		40		34	Open amount is theoretical
beef brisket	$0.53 lb		64	100	9			155	7	157		148	Open amount is theoretical
beef rib, #109	$7.14 lb		64	50	5			109	1	113		108	Open amount is theoretical
beef ribeye,	$6.66 lb		28	28	84			−28	5	51		−33	Open amount is theoretical
beef shortloin,	$5.95 lb		2	10	7			5	10	2		−5	Open amount is theoretical
beef top round	$1.78 lb		15	47	5			57	5	57		52	Open amount is theoretical
lamb chop, loin	$8.67 lb		22	22	2			42	4	40		38	Open amount is theoretical
lamb chop, rib	$14.96 lb		6	6	15			−3	5	7		−8	Open amount is theoretical
lamb shank	$3.44 lb		34	34	4			64	4	64		60	Open amount is theoretical
pork butt, boneless	$1.05 lb		60	60	3		7.692	107.169	105	15	2.138	2.169	Open amount is theoretical
pork chop, center	$3.75 lb		10	10	21			−1	3	17		−4	Open amount is theoretical
pork loin, boneless	$1.31 lb		40	40	8			72	52	28		20	Open amount is theoretical
pork loin, smoked	$1.05 lb		72	72	52			92	20	124		72	Open amount is theoretical
pork shank	$1.21 lb		30	30	1			59	4	56		55	Open amount is theoretical
prosciutto	$2.20 lb		25	25	1			49	2	48		47	Open amount is theoretical
sausage, andouille	$1.60 lb		25	25	1			47		50		47	Open amount is theoretical
				674	289					1,064		764,839	

FIGURE 14.2: ChefTec's Inventory Control program has a number of features for restaurant operators

Date: 11/6/2010
Time: 11:48 AM

ChefTec

Inventory Extensions Summary
Culinary Software Services

Inventory Date 4/15/2010

Account Category	Extension
Cheese	$169.98
Dairy	$55.55
Dry Good	$79.46
Fish	$93.97
Meat	$338.03
Poultry	$74.11
Produce	$672.56
Total	$1,483.66

FIGURE 14.3: An inventory extensions summary

ChefTec and ChefTec Plus software solutions integrate programs with recipe and menu costing, inventory control, and nutritional analysis capabilities. The recipe and menu costing program can cost, scale, and store an unlimited number of recipes; instantly analyze recipe and menu costs by portion or yield; update prices; change ingredients in every recipe; cost an entire function or catering job; generate accurate catering bids; add videos for preparation and training; and add pictures of plate turnout, or plate layout, for consistency.

The inventory control features can track rising food costs automatically; compare vendor pricing from purchases or bids; enter invoices; generate customized reports on purchases, price variances, bids, and credits; and lists of ingredients in different languages. ChefTec includes a Personal Digital Assistant (PDA) for inventory taking.

Some of the purchasing and ordering features include generating orders: based on par levels; based on lowest price/lowest bid; and for multiple vendors or a single vendor.

The nutritional analysis features a quick and accurate analysis of nutritional values; the ability to add your own specialty items and calculate the nutritional values of these items; and the ability to print a "Nutritional Facts" label.[5]

Menu Management There is a definite link between food costing and menu management. San Diego–based Cambridge Investments, operator of 60 Arby's and five Baja Fresh units, is an example. Cambridge Investments use MenuLink to evaluate managers' produce purchasing, test proposed recipe and pricing changes, and compare actual to expected food usage. The menu management function is used to determine what offers work best, so that coupon building may be directed toward those items. Since MenuLink use began, food costs have dropped 2 percent and labor costs have also dropped.[6]

Recently, MenuLink has developed a new feature for its Back Office Assistant called the Automated Raw Material Transfer. When one store needs to borrow material from another store, a transfer is generated. The feature provides a method by which the receiving store can process the transfer in the same general way as if the materials were purchased from a food vendor that is enabled for electronic ordering and invoicing.[7] Previously these transfers were processed manually. With this new feature, most of the manual processing will be eliminated.

Labor Management *Labor management* systems interface with both front- and back-of-the-house employee working hours, plus they handle human resources information. Labor management systems include a module to monitor applications (which can now be online and paperless), recruitment, personnel information, I-9 status, tax status, availability, and vacation and benefit information. Labor management systems also do the scheduling based on the forecasted volume of business for each meal period, and managers monitor the schedules to control costs. The actual time worked is recorded, the data on tips are entered and later reported per IRS guidelines, the pay scale and the calculation of paychecks are made, and the check is in the mail.

Windows-based labor schedulers make it easier for restaurant operators to stay on top of controllable expenses. TimePro from Commeg Systems (www.commeg .com) has a time, attendance, and scheduling feature. Once the manager completes the schedule, associates cannot clock in more than 10 minutes early or 5 minutes late without a manager's override. This prevents people from coming in early and taking socializing breaks out back. Obviously, schedules are geared toward expected guest counts and sales. It is better to avoid copying a schedule from week to week; by doing so, either the labor budget or the guests will suffer, since no two sales periods are identical. Forecasts are checked against actual performance, and both figures are checked against the ideal for the time period; then the numbers are tweaked for the next forecast. It does take more up-front work, but once done it not only yields savings but also allows managers to focus on things like pleasing guests.

Savvy restaurateurs guesstimate their sales for the next week and 28 days and compare the numbers with the budget, then update the numbers daily. Managers frequently are on a bonus plan, and meeting labor costs is a big part of the program.

Financial Reporting Back- and front-of-the-house systems may interface by transferring data to and from the central server. Profit (or loss) statements, budgets and variances, daily reports, and balance sheets are prepared with the aid of software programs.

The advantage of this technology is that information is provided in real time, enabling operators to make informed decisions quickly. Quicker decisions allow managers to "keep their fingers on the pulse" of the restaurant.

When the back- and front-of-the-house systems are interfaced, it is easier for management to monitor service times, POS food costs, labor costs, and

guest counts. Again, this compilation of information helps managers make more informed decisions.

E-learning Computer-based training, known as *E-learning*, delivered via the Internet or proprietary Internet sites, is expanding knowledge in the workplace. Darden Restaurant managers and hourly paid workers have used it to learn a new software system. About 85 percent of Fortune 1000 companies have significant e-learning initiatives under way. Darden Restaurants, with more than 130,000 employees and 1,200 restaurants nationwide, recently introduced a PeopleSoft software system that employees use to access benefits and other information through Darden's intranet site. Training can now easily take place online with, for example, materials displayed on how each plate should look.

There have been many breakthroughs in training people how to use this type of software. Not too long ago the training process consisted of people being bogged down with long manuals. Today the majority of training can be done online, with the click of a button.

The National Restaurant Association Educational Foundation has several online courses, such as ServSafe Food Safety Training and ServSafe Manager Certification Online Course. There is also the Bar Code—Responsible Alcohol Service Program. All front-of-the-house employees should take the Bar Code and all back-of-the-house employees should take the ServSafe course.

FRONT-OF-THE-HOUSE TECHNOLOGY

Front-of-the-house technology revolves around the point-of-sale system and wireless handheld devices. New technologies include multimedia lobby displays that promote branding and special offers. Self-service kiosks that allow guests to interact and ease host stand congestion. Servers may greet guests with wireless ordering terminals. Wireless payment-processing units are a convenient, efficient and secure way to interact with customers.[8] Another technological advance designed to improve the guest experience is an in-store dashboard displaying vital restaurant statistics.[9] Systems that monitor spending and hardware and software that aid front-of-the-house operations were among the tools foodservice CIOs at the 14th annual International Foodservice Technology Exposition said their departments were using to help their companies cut costs and drive customer traffic.[10]

POS Systems By now, restaurateurs know that having a good point-of-sale system is essential to their business operations. Technological innovation has produced POS systems that are faster, smarter, easier to use, and more reliable.

In today's increasingly competitive restaurant industry, investment in a quality POS system is a standard component of operational costs. The question many owners may have is: "How can I utilize my POS investment to its utmost capability, and what other technology is out there that will help improve operations?" Some of the advantages of POS systems include:

- Elimination of arithmetic errors
- Improved guest check control

- Increased average guest check
- Faster reaction to trends
- Reduced labor costs
- Reduced late charges (if there is a direct interface between a POS and Property Management System in a hotel).

Fortunately, first-rate solutions available today are specifically designed to address these types of objectives. POS systems now work in tandem with applications and tools that enable enhanced management of the total guest experience, table and kitchen operations, back-office systems, business intelligence, and gift and loyalty programs. Furthermore, these individual solutions can be integrated into a complete enterprise solution scalable to fit an independent operation or even a large chain corporation.

The sections that follow highlight some of the latest restaurant technology trends.

The point-of-sale terminal is the workhorse of restaurant operations. It needs to be strong enough to withstand the rigors of daily restaurant use and versatile enough to achieve order-entry and guest-check efficiency.

Restaurant operators are increasingly demanding POS terminals that work within today's conditions while leaving room for expansion or adaptation. Open platform architecture, a leading trend in POS, is giving restaurant operators more flexibility when it comes to choosing operating systems, peripherals, and applications, while improved design is reducing footprint and increasing reliability.

Selecting a POS System Clyde Dishman, hospitality industry vice president of NCR, suggests that because a POS system can cost thousands of dollars, any new restaurant-level system should be pretested in "live" environments. Additionally, because restaurants of all shapes and sizes have varying sets of technology requirements, the system must combine proven hardware with multiple software modules to create flexible and customizable solutions.

NCR's Human Factors Engineering (HFE) team provides the quantitative data for evaluating current store performance levels and user interface designs. HFE concentrates on restaurant performance improvements that allow the restaurant operator to identify areas in which to increase revenues and improve operational efficiency and guest service. HFE has demonstrated the ability to assist the restaurateur in many facets of the business, whether in technology or in purely operational areas, such as work-flow design or ergonomic assessments. The two focus areas of HFE are store performance and user-interface design.

The store performance group measures key store-level metrics to assess productivity at the point of sale, as well as ergonomics and technology, and then compares that to other best-in-class restaurant practices. The resulting quantitative data are used to conduct cost/benefit analysis of recommended solutions.

The second focus area relates to the usability of the system. When a restaurant's employees are not productive and customer-service levels are not up to snuff, such problems often can be traced to the design of the POS interface,

ranging from complicated screen layouts to inappropriately sized buttons and the poor use of colors for different menu items. HFE quantifies productivity levels of an existing system by surveying the needs of front-line restaurant employees to ensure that any recommended solution is easy to use. For example, HFE developed a series of more than 200 guidelines for touch-screen POS applications, which outline the best practices for designing software that improves productivity, reduces training time, and facilitates usability.[11]
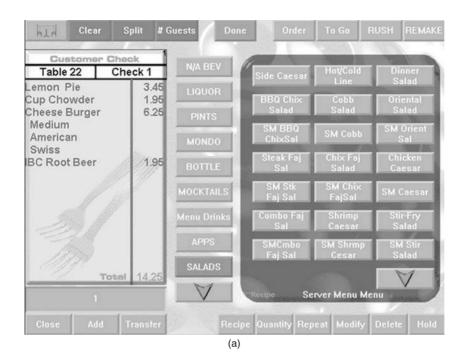
Dishman adds that NCR's Real POS 21 has added a biometric device for fingerprints for restaurant employees. This helps restaurant operators by cutting out the "buddy punching" in timekeeping. It also helps with a manager's override of a void by preventing a manager from giving his or her card to an employee if the manager is busy doing something else. Another good feature of the Real POS 21 is that guests can now also see the display of their order, thus reducing the number of errors and the need to alter the order.

A key element in the installation of any new equipment is how do you operationalize it. Subway put in a self-service kiosk near Vanderbilt University; because it took 30 minutes to get the order, the kiosk was removed.[12]

Aloha has a popular POS with a full-range of restaurant products that includes Aloha Table Service (see Figure 14.4), which offers user-friendly ways of entering orders, managing guest checks, running promotions, and processing payments. The management function has a built-in Event Scheduler that lets managers program events that are automatically activated at a specific time. Special messages can be entered to appear on the screen, keeping staff informed. Managers can also access real-time sales results and reporting features such as product mix reports, employee check-in stats, and server sales.

NCR's Real 70 POS System uses the Microsoft Windows platform and Intel Pentium IV integrated touch screen, magnetic stripe reader, and customer display

Courtesy of NCR Corporation

Aloha's virtual order processing communicates between the kitchen and waitstaff. For example, with the menu availability feature, staff are able to count down selected items or specials as they're ordered so servers never order out-of-stock items. Some of the features of Table Service include intuitive touch-screen interfaces, built-in redundancy, user-customizable screens and screen flow, menu management, integrated customized table floor plan, Microsoft Windows–based performance measurement for servers, open architecture, off-the-shelf nonproprietary hardware, enterprise capabilities, extensive kitchen chit printing options, and simple check- or item-splitting and combining functionality.

Optional packages for Aloha's Table Service also include Aloha credit card, which authorizes, processes, and settles credit card transactions. The
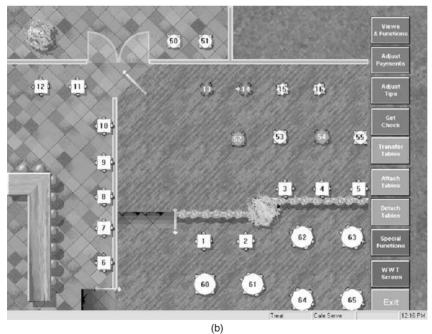
(a)

(b)

FIGURE 14.4: Aloha's popular POS range of restaurant products includes Table Service, which offers several programs to make restaurants more efficient and effective
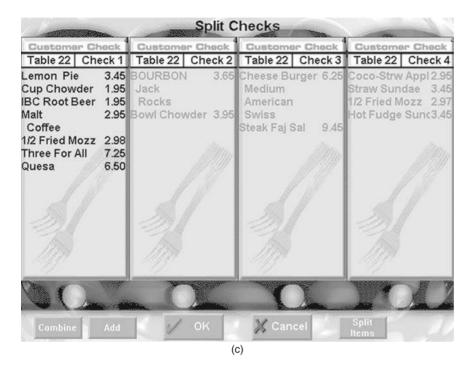
Art provided courtesy of Aloha Technologies

Split Checks

Customer Check		Customer Check		Customer Check		Customer Check	
Table 22	Check 1	Table 22	Check 2	Table 22	Check 3	Table 22	Check 4
Lemon Pie	3.45	BOURBON	3.65	Cheese Burger	6.25	Coco-Strw Appl	2.95
Cup Chowder	1.95	Jack		Medium		Straw Sundae	3.45
IBC Root Beer	1.95	Rocks		American		1/2 Fried Mozz	2.97
Malt	2.95	Bowl Chowder	3.95	Swiss		Hot Fudge Sund	3.45
Coffee				Steak Faj Sal	9.45		
1/2 Fried Mozz	2.98						
Three For All	7.25						
Quesa	6.50						

Combine	Add	✓ OK	✕ Cancel	Split Items

(c)

FIGURE 14.4: (continued)

Aloha Customer Management includes a database to offer loyalty programs and track vital customer information. The Aloha Kitchen Display System gives the flexibility to route orders to video monitors in the kitchen. Having these monitors increases productivity because it eliminates having someone, such as an expeditor, calling out orders to each station.

Table Management

The guest experience begins from the time patrons are greeted until they exit the restaurant. They are consciously and subconsciously forming an opinion about the restaurant during the seating process, throughout their table service, and while taking care of paying the bill. Efficiency, consistency, and accuracy are the key goals in successfully meeting the expectations of guests and at the same time improving speed of service. When this occurs, faster table turns are achieved, resulting in increased revenue and profit.

Highly developed *table management* software allows for meticulous control of this essential restaurant function. Through easy-to-use automation, the restaurant is able to effortlessly handle time-sensitive guest demands associated with reservations and waiting times. The software makes this possible by streamlining the capture and calculation of the data, resulting in a more accurate quote time and final seating time. Common customer preferences including smoking/nonsmoking and table location are also built in to the data capture module.

Table management solutions also incorporate alert features via the use of pagers. With the touch of a button, the hostess can alert guests that their table is ready; the pager vibrates, flashes, or even plays a voice mail message.

Manager alerts also aid in crucial situations like servicing VIPs. When a VIP visits the restaurant, management can be alerted immediately by pager when the table is set and ready to be seated.

Ed Rothenberg, vice president of restaurant development for MICROS Systems, Inc., a leading supplier of information systems to the hospitality and retail industries, says that "table management, wait lists, and reservations have traditionally been a pen-and-paper function. Using technology allows restaurants to do this more accurately using actual data from the POS." He believes the top benefits of this solution are "more accurate quoting of wait times, less room for error in tracking reservations, expanding a restaurant's reach through accepting Web-based reservations, and the capacity for historical tracking of all customer touch points beginning the moment they walk in your restaurant."

PAY AT THE TABLE

More than ever, consumers are concerned about the security risks that go along with credit card usage. The Federal Trade Commission's *Consumer Fraud and Identity Theft Complaint Data* report stated that credit card fraud was the most common form of reported identity theft at 26 percent. With this in mind, the restaurant industry is now following the retail industry by offering consumers the ability to make payments without letting their credit card out of their sight. This option, called pay at the table, is on the forefront of new restaurant technology.

When guests are ready to pay for their meal, a server can provide them a handheld device in which they can verify their bill, swipe their card, include any tip, and print the receipt. Most recently, technology providers have also designed devices that allow the use of debit instead of credit cards, as many consumers prefer to use their secure PIN (personal identification number). The pay-at-the-table solution puts guests in control of the payment process and decreases the risk of skimming. This common scam occurs when a server takes the guest's card for payment and runs it through a device to capture the encoded information off the magnetic strip. The server returns the guest's card, with the guest unaware that the card's data has been stolen and he or she is now susceptible to fraudulent charges.

Pay at the table offers two benefits to guests: more peace of mind concerning security issues, and the ability to leave the restaurant a little sooner, because they don't have to wait for a server to facilitate payment. Not only does this add to the overall guest experience, but it also improves the restaurant's table turns and speed of service. Owners particularly consider the ability to perform debit transactions a financial benefit because they incur lower processing fees.

Adam Greenberg, owner of Potomac Pizza in Gaithersburg, Maryland, recently invested in pay-at-the-table technology. He says, "It'll save the customers time; it'll save the servers time."

ASI has the popular Restaurant Manager POS (see Figure 14.5), with easy-to-use training. This, coupled with the seamless integration between Restaurant

FIGURE 14.5: Aloha's popular POS range of restaurant products includes Table Service, which offers several programs to make restaurants more efficient and effective

Art provided courtesy of Aloha Technologies

Manager and the Write-On Handheld POS system, means that servers simply jot down guests' orders and send them to the kitchen with a tap of their stylus. The Write-On Handheld also gives servers easy access to wine lists, daily specials, and recipes.

Handhelds can provide a number of benefits to restaurants, such as faster table turns, because servers no longer need to record each order twice. Another benefit is reduced errors—servers are reminded to ask for details, like cooking temperature or salad dressing. The handheld system prompts servers to enter orders into the system starting with seat number one and then moving around the table. It makes it easy to track specific items to the corresponding guest, which is especially helpful when a food expediter is needed on a busy night. This function also makes it less complicated to provide split checks—even after the order has been totaled. Yet another feature of handhelds is up-sells; because the entire menu is in the palm of their hand, servers can promote or up-sell items more easily. There's no need to visit a fixed POS station and process the order a second time and no need to check with the kitchen to see if an item is sold out.[13] If an item is sold out, it will be displayed on the device so servers will know instantly.

Restaurant Manager comes with a full complement of peripheral devices that include bar-code scanners, cash draws, coin dispensers, caller ID devices,

customer displays, Debitek card readers, fingerprint readers, kitchen display units, liquor control devices, magnetic strip readers, order confirmation displays, printers, weighing scales, and video tracking monitors.

POS Systems

There are several suppliers of POS. IBM (www.ibm.com) offers Linux servers and Sure POS 700 series for restaurants. The Sure POS 700 open platform applications for both Microsoft Windows and IBM 4690 OS allow for customization of applications, peripherals, and displays; they also drive USB technology for plug-and-play setup and automatic configuration. The Sure POS 700 incorporates an onboard 10/100 ethernet local area network (LAN) to handle both Internet and intranet applications.

Sharp (www.sharpusa.com) has the UP-5900 system, which is also an open platform terminal. Combined with Maitre'D (www.maitredpos.com) Restaurant Management software, it can drive a variety of software modules and interfaces.

NCR (www.ncr.com) offers the 7454 POS Workstation with open PC-based architecture that is certified for MS DOS and Windows for flexibility. It offers full-screen, full-motion video.

Hardware solutions from NCR and its partners include the fully integrated NCR Real POS 70. It combines the reliability of the Microsoft platform and the industry-leading technology of Intel with the innovation of Authen Tec. The Intel Pentium IV-based terminal sports an integrated touch screen, magnetic stripe reader, and customer display. It also features a newly designed motherboard that is based on Intel's standards-based specification. The motherboard, hard disc, and power supply are placed on user-friendly "sleds," allowing for tool-free access and servicing. That means a terminal that needs servicing can be up and running in seconds. NCR will also certify, support, and offer preloaded operating system images on the NCR Real POS 70 for Microsoft Windows 200, XP Pro, NT, and DOS.[14]

NCR's Compris runs on the NCR 7454 hospitality point-of-sale system. The Compris solution includes a flexible POS application, a back-office component for managing restaurant operations, and corporate tools for remote database maintenance and consolidated reporting. The Windows-based Compris WinPOS is easy to use and has an Advanced Manager's workstation that includes Navigation, which allows inventory, operators to configure their interface with daily tasks and user-defined tabs like cash management or view, print, and balance all POS data at the back office. The system also handles food cost control invoices, receipts, transfers, credits, and waste reports. Reporting includes both theoretical and actual usage and variance tracking. Labor includes controlling labor costs, tracking time and wages, generating time cards, and avoiding employees' clocking in too early or clocking out too late. It provides a full complement of reports: daily, weekly, and period labor costs, employee punches, hours worked, and server totals. These data can be extracted from and imported into a payroll system. Schedule Builder generates simple-to-use schedules for each shift, highlights conflicts, and tracks variances.[15]

Micros (www.micros.com) has the Eclipse PC Workstation that combines a small footprint and seams designed to channel liquids off the unit. The Eclipse also supports a number of operating systems, including MSDOS 6.22 and Microsoft Windows, as well as all Micros point-of-sale applications.

POS systems have come down in price and offer the independent restaurateur the convenience of providing information for financials that obviates the need for cash registers and spreadsheets, which are time-consuming and often have to be reformatted and reentered into the accounting journals by bookkeepers or accountants. Today POS systems have credit-card integration and interface with payroll and financial systems. The information is consolidated, and an automated profit-and-loss statement is produced.

Some operators choose a POS for its power beyond the point of sale. These multimedia workstations feature a large hard drive and can run customer promotions or employee training programs when not in use as POS terminals.

NCR's Compris — a flexible POS application that includes a back-office component for managing restaurant operations
Courtesy of NCR Corporation

POS systems facilitate prompt service and control
Courtesy of Micros Systems

For some smaller restaurants, there is the old standby electronic cash register (ECR), which is now offering some of the flexibility of POS. For example, the ECR can be used as a stand-alone unit for a small restaurant.

Wireless POS has been around for a few years, but it is getting better and smaller. How is wireless POS being used in the restaurant business? One example is the general managers at Red Robin, who use their wireless POS as a tool to notify them of a variety of things, from when team members go on overtime, to violations of underage working rules, to birthdays and anniversaries, and of the need to void or comp a guest check.

Some restaurateurs are concerned about the quality of guest contact during the order-taking process and how that might be negatively impacted by a server doing a POS transaction while standing at the table.

Several restaurant-industry technology trends are becoming more prominent. The main one is increased integration of front- and back-office systems. New technology is constantly being introduced. There is new satellite or cable entertainment; age verification units to confirm a guest's age or ferret out fake IDs; and handheld PDAs that function as pagers, data-entry pads, and inventory control devices.

The cost of installing a POS system will depend on the number of stations required. A 125-seat casual dining restaurant could use two or three stations in the dining area, one in the bar, and printers in the kitchen, plus a managers' station. The total cost would be in the $18,000 to $20,000 range.

If you are opening a restaurant and do not have that kind of money, you can start with a simple cash register and work up to a more sophisticated system as your business grows.

Web-Based Enterprise Portals

As technology providers to the restaurant industry continue to produce solutions for front-office operations, they are also building solutions for back-office restaurant operations. The demand for more detailed, accurate, and real-time metrics is an increasingly vital need for restaurant owners. Today's developments in this area have been geared toward Web-based enterprise solutions.

The primary competency of an Internet portal is its centralization of applications, which offers substantial advantages whether the restaurateur owns an independent restaurant or multiple locations. Content-rich portals provide access to simple management tools for areas such as data warehousing, inventory, menu and pricing analysis, and loss prevention. The ability to set up and manage gift cards and point-based loyalty programs with complete reporting is a key feature of this technology. RTIconnect is an in-store food cost, labor scheduling, cash control and sales reporting system. This technology enables use of an Internet platform to control food costs, schedule employees, view sales reports, and much more—with a customizable easy to use interface. Specific areas include:

- Sales reporting
- Cash management

- In-store profit and loss statements
- Labor
- Food costs
- Prep
- Ordering
- Task lists
- POS data[16]

Gift Card and Loyalty Programs

Customer relationship management (CRM) is not new to the restaurant industry; however, the capacity for a single vendor to combine the necessary components into one worthwhile CRM solution is a recent development. With so many different innovative approaches to customer database building, prospecting, loyalty campaigning, and general relationship management, integrated CRM solutions deliver a 360-degree view of the guest's activities. All of the activities are tracked and controlled from a central database, allowing restaurant operators to recognize their guests with the most frequent spending patterns and determine the best technique to attract and measure the expansion of new trial, or less frequent, guests into the core customer base. This type of analysis is instrumental in establishing stored-value gift cards and point-based loyalty programs.

Gift cards are helping to increase restaurant revenue. In fact, they may even represent a larger portion of total sales. Most major chains now sell gift cards; they have become a significant revenue producer in the restaurant industry.

The latest CRM solutions give operators the ability to issue and activate cards with fixed or present values; reload, cash-out, and transfer balances from one card to another; look up gift card accounts by name, ZIP code, and phone number; and centrally manage and control the issuance and redemption of cards system wide.

With point-based loyalty programs, guests can be rewarded by issuing coupons that can be used for subsequent visits; awarding amounts to guest accounts that achieve a certain point level; applying on-the-spot discounts to guest checks; and elevating a guest's status from one program level to another.

Integration is the bottom line. Restaurant operators now have alternatives for merging multiple technology solutions into their overall operations. The most notable benefit to this solution is the ability to work with a single vendor versus several third-party vendors, each with its own technology, service costs, and administrative overhead. Partnering with one vendor contributes to a reduction in staffing requirements, fewer errors, and better intelligence.

Even the finest POS systems require supplementary components to make them more robust, which in turn expands a business's possibilities for growth. By integrating solutions like table management, kitchen display systems, pay at the table, and Web-based enterprise portals, restaurants are more likely to improve customer satisfaction, staff productivity, and operational efficiency. The final result: a positive return on investment.

Guest Services and Web Sites

Restaurant technology has evolved to the point where a restaurant can store and recall guests' preferences for tables, menu items, wines, and servers. Tables may be booked over the Internet at any time by leaving a credit card as a form of deposit to secure the table, especially in large cities at convention times. Hosts can use programs to allocate tables, allowing a certain time—say one and a half hours—before that table is booked again. Guest checks can be split for payment by several people, if need be. Guest bills even come with suggested tip amounts calculated.

Some coffeehouses offer another form of guest services: high-speed Internet access. Starbucks just may be the next place for your meeting. At least when the meeting gets boring, you'll be able to check your e-mail. Other restaurants are using wireless paging to help reduce wait time for guests and loss of pagers for restaurants. When guests give their names to the hostess, they are asked for their cell phone number. This is entered into the "Trinity" system. When the table is ready, a prerecorded message notifies guests. Wireless surveys allow guests to give feedback before they leave the restaurant, and tabletop pagers let guests page their server when they need something.

Restaurant Web sites need an appealing, user-friendly design and functionality, including accessibility and interactivity. When Joe Public is trying to access your site, can it be done without fault? Other features that are helpful are menus, photos of the restaurant, how to get there, parking information, frequently asked questions (FAQs), and secure transaction capability. Among the higher-scoring restaurant Web sites are Red Robin, T.G.I. Friday's, Outback Steakhouse, and Hard Rock Cafe.

Cafe Ba Ba Reeba, Chicago's first tapas restaurant, selected Nextology (www.nextology.com) as its software program because it could take care of a dream list of items. The restaurant has a number of special "reservation required" events, such as cooking classes, wine tastings, and shows, so keeping those up to date was very important. It also needed the ability to list specials, menu changes, and other information of interest of its clientele. It now has a site that enables it to take reservations and receive payment for events online. It can also edit, change, and update information on the fly. Michael Cunningham, the general manager, says that Cafe Ba Ba Reeba could not go with a generic Web site design due to the restaurant's reputation and image. Now his staff is on the phone less and bookings are up.

Restaurant Management Alert Systems

MICROS Alert Manager allows operations to manage by exception. The system monitors conditions and compares them to established standards. Exceptions are immediately identified, and a notice or alert is sent to the pager, PDA, cell phone, or e-mail of those who need to know. The MICROS Alert Manager provides

exciting new integration with the RES products and the on-premise paging and communications solutions made available by JTECH, a MICROS subsidiary.[17]

OTHER RESTAURANT SYSTEMS

1. Push for service:

   Push-for service is a system that a hotel or restaurant with remote areas can use to be notified by guests when they need to order food or beverage items. A great example for a push-for-service system could be in a beach area where guests may not want to leave for security (i.e. they do not want to leave their children by themselves or for convenience reasons). They can simply press a button under their beach umbrella. This will page the servers for that area. The pager will show the push-for-service number (i.e. Umbrella 12). The server can push a button on their pager notifying the other servers that this request has been taken care of. This push-for-service system can increased guest satisfaction and operational profitability.

2. Table Locator Systems:

   With the introduction of the Fast Casual restaurant (the guest orders the food at the counter and the food is brought to the table). Table locator systems can increase speed of service and guest satisfaction. When the guest orders the food at the counter, the cashier would give the guest an electronic card. When the guest picks a table, she/he inserts this card into a slot. This will indicate the table that the guest chose. It will also activate the timing of the order. When the food is ready, the server can see which table the guest is sitting at. When the food is served, the server can insert her/his card into the slot indicating that the food has been delivered. The total time to cook and serve the food is also kept in the system, allowing the restaurant manager to measure the efficiency of the kitchen and service staff.

Summary

This chapter reviews the technology and its applications for front- and back-of-the-house restaurant operations. POS systems and various software programs are discussed.

Key Terms and Concepts

Back-of-the-house technology
E-learning
Kitchen display systems (KDS)
Labor management

Menu management
PDA
POS
Table management

Review Questions

1. How would you decide which is the best POS system and restaurant system for your restaurant?
2. Are handheld devices worth the investment for independent table-service restaurants?

Internet Exercise

Which do you rate as the top three restaurant Web sites, and why?

Endnotes

1. Bret Thorn, "Price controls pay dividends," *Nation's Restaurant News,* New York: May 11, 2009, Vol. 43, Iss. 17, p. 43. ABI/Inform Trade and Industry. September, 2009.
2. Paul Frumkin, "FS/TEC 2009: CIOs say software key to cold, hard cash," *Nation's Restaurant News,* New York: February 23, 2009, Vol. 43, Iss. 7, p. 4. ABI/Inform Trade and Industry. September, 2009.
3. www.restaurantmagic.com. Accessed October 8, 2009.
4. Anonymous, "Food Service Security Sets the Table," *Security*, Troy: June 2009, Vol. 46, Iss. 6, p. 17. ABI/Inform Trade and Industry. September, 2009.
5. Culinary Software Services. www.culinarysoftware.com. September, 2009.
6. Lisa Terry. "Building a Better Menu." Hospitality Technology. www.cbord.com/press/72.pdf. September, 2009.
7. Radiant Systems MenuLink Web site. www.menulink.net. September, 2009.
8. Karen Sammon, "Guest-focused restaurant technologies should always have a spot at the table," *Nation's Restaurant News,* New York: December 10, 2007, Vol. 41, Iss. 49, p. 22. ABI/Inform Trade and Industry. September, 2009.
9. Ibid.
10. Ibid.
11. Clyde Dishman. NCR Corporation. www.ncr.com. September, 2009.
12. Ibid.
13. Restaurant Manager, an ASI Technology, Web site. www.rmpos.com. September, 2009.
14. The author gratefully acknowledges the cooperation and professional courtesy extended by NCR: Clyde Dishman; and Micros Systems: Louise Casamento, Paul Armstrong, and Hope Byers.
15. NCR Corporation brochures.
16. RTI Connect Web site. www.internetrti.com/software/rticonnect/. September, 2009.
17. Micros Web site. www.micros.com/Products/RES/RestaurantOperations/AlertManager.htm. September, 2009.