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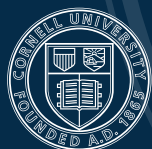
Customer-Facing Payment Technology in the U.S. Restaurant Industry

by Sheryl E. Kimes, Ph.D., and Joel E. Collier, Ph.D.

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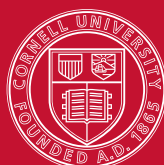
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Customer-Facing Payment Technology in the U.S. Restaurant Industry

by Sheryl E. Kimes and Joel E. Collier

EXECUTIVE SUMMARY

The U.S. restaurant industry has so far been cautious in adopting electronic payment technology for customer use, but a survey of 385 U.S. restaurant operators suggests that this is about to change. Nearly all of the respondents were aware of customer-facing payment technology (CFPT), such as mobile wallets, tabletop boxes, and remote payment mechanisms, and nearly half of them expected to install such equipment in the next year or two. At the time of this survey, however, only one-eighth of the respondents had installed such technology. Potential benefits from allowing customers to pay electronically include faster settlement, less wait-staff time needed, greater security, improved customer satisfaction, reduced labor costs, increased revenue, and access to better customer data. Ironically, security is also considered to be a potential barrier. Other barriers include infrastructure issues, the cost of CFPT devices, the cost of integrating CFPT with existing POS and payment systems, the impact of reduced customer contact, and the fact that the CFPT industry is still highly fragmented. Survey respondents believed they were saving money with the new technology, but they also cautioned that any payment mechanism must synchronize with the POS system.

ABOUT THE AUTHORS



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The authors express their appreciation to *Nation's Restaurant News* and *Restaurant Hospitality*, two Penton divisions, for their assistance in gathering data for this study.

Customer-Facing Payment Technology in the U.S. Restaurant Industry

by Sheryl E. Kimes and Joel E. Collier

Customer-facing payment technology (CFPT), which uses such equipment as smartphones, tablets, and RFIDs, is gradually growing in popularity among both consumers and restaurants. Implementation of this technology can benefit all concerned, yet restaurant operators have been slow to adopt these technologies for check settlement. The National Restaurant Association reports that over half of full-service restaurant customers would use CFPT if it were available, but that less than 5 percent of restaurants have installed such technology.¹ Consumers like CFPT because of its ease, speed, security and control,² while restaurants see the potential for reduced labor costs, increased revenue, and improved customer satisfaction. CFPT has been particularly successful for quick-service and fast-casual restaurants. For example, Starbucks launched its mobile payment service in 2011, and by 2013, 20 percent of its transactions were made using a mobile payment app.³ Juniper Research estimates that the global mobile payment market will grow from US\$170 billion in 2010 to US\$630 billion in 2014,⁴ while Gartner Research estimates that by 2016 the global mobile payment market will encompass 448 million users with a transaction value of US\$617 billion.⁵

¹ National Restaurant Association, "2013 Restaurant Industry Forecast" (Chicago: National Restaurant Association, 2012).

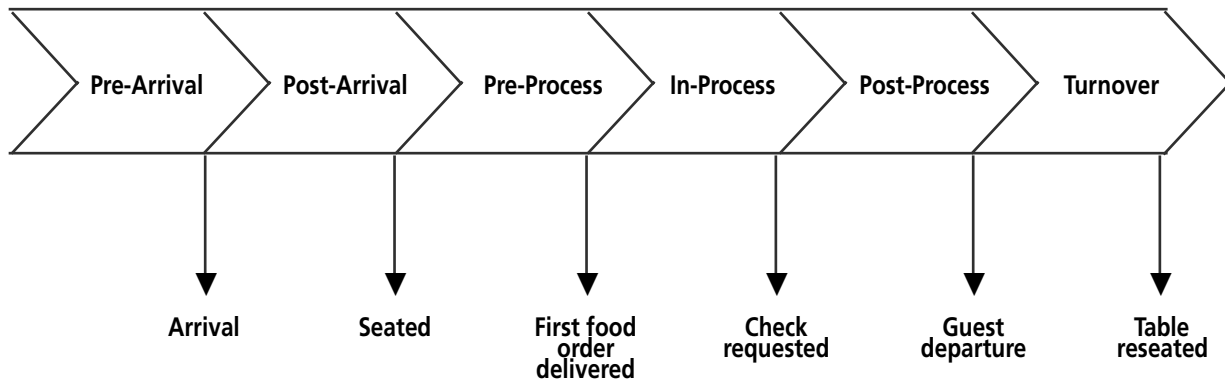
² Michael J. Dixon, Sheryl E. Kimes, and Rohit Verma, "Customer Preferences and Use of Technology-Based Service Innovations in Restaurants," *Cornell Hospitality Report*, Vol. 9, No. 7 (2009), Cornell University Center for Hospitality Research.

³ James Wester, "Starbucks Still Feeling a Buzz From Mobile Payments," *Fastcasual.com*. www.fastcasual.com/article/207367/Starbucks-still-feeling-a-buzz-from-mobile-payments (2013). Last viewed 11/19/2013.

⁴ Suzanne Cluckey, "Mobile Payments 101: Restaurant", *mobilepaymentstoday.com* (2011). Last viewed 11/31/2013. www.mobilepaymentstoday.com/whitepapers/4216/Mobile-Payments-101-Restaurant.

⁵ "Restaurant Technology Goes Full Spectrum," *Hospitality Technology Magazine*, 2013. Last accessed 4/19/2013. hospitalitytechnology.edgl.com/reports/2013-Restaurant-Technology-Study85036.

Stages of dining experience



In consideration of this growing trend, this report reviews the role of payment processes in restaurants, the types of CFPT available, and the potential advantages and disadvantages of using CFPT. Then we consider customer adoption and reaction to payment via CFPT, followed by the results of a study on CFPT usage and attitudes among U.S. restaurant operators. Although a relatively small percentage of restaurants have implemented CFPT, it's clear that this is about to change, and CFPT is set to explode.

The Role of Payment Processes in Restaurants

Before discussing CFPT, it might be useful to revisit the world of restaurant payment. The full-service restaurant payment process has been addressed in previous research,⁶ but it might be helpful to view the payment process in the context of the customer dining experience.⁷ The customer dining experience consists of the following six main components (Exhibit 1):

- **Pre-Arrival:** from when customers decide they want to go to the restaurant until they arrive at the restaurant,
- **Post-Arrival:** from when customers arrive at the restaurant to when they are seated,
- **Pre-Process:** from when customers are seated at the restaurant until they receive their first food order,
- **In-Process:** from when they receive their order until they request payment,
- **Post Process:** from when they request payment until they leave the restaurant, and
- **Table Turnover:** from when customers leave until the table is resealed.

For most customers, the most pleasurable part of their dining experience is the in-process stage when they are enjoying their meal. The other stages of the meal are more utilitarian in nature. The payment process typically occurs during the post-process, but with some online and mobile ordering systems, payment may even occur during the pre-arrival stage.

Payment technology can have a strong influence on meal pacing, particularly for the post-process steps. Studies have been conducted on how long customers think dinner should last⁸ and on the impact of pace on customer satisfaction.⁹ The effect of pace varies depending upon the stage of the meal and the type of restaurant. In casual and upscale casual restaurants, customers prefer a faster pace during the pre-process and post-process stages but a slower pace during the in-process stage. This implies that faster payment processes should lead to improved customer satisfaction. In addition to the potential for improved customer satisfaction, the shorter meal duration from speeding up the payment process can also allow additional guests to be seated in busy periods.¹⁰

⁶ Sheryl E. Kimes and Stephen A. Mutkoski, "The Express Guest Check: Saving Steps with Process Design," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 30, No. 2 (1989), pp. 21-25.

⁷ Sheryl E. Kimes, "The Role of Technology in Restaurant Revenue Management," *Cornell Hospitality Quarterly*, Vol. 49, No. 3 (2008), pp. 297-309.

⁸ Sheryl E. Kimes, Jochen Wirtz and Breffni M. Noone, "How Long Should Dinner Take? Measuring Expected Meal Duration for Restaurant Revenue Management," *Journal of Revenue and Pricing Management*, Vol. 1, No. 3 (2002), pp. 220-233.

⁹ Breffni M. Noone and Sheryl E. Kimes, "Dining Duration and Customer Satisfaction," *Cornell Hospitality Report*, Vol. 5, No. 9 (2005), Center for Hospitality Research; Breffni Noone, Sheryl E. Kimes, Anna Mattila, and Jochen Wirtz, "The Effect of Meal Pace on Customer Satisfaction," *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 48, No. 3 (2007), pp. 231-245.

¹⁰ Noone and Kimes, *op.cit.*; Noone *et al.*, *op.cit.*

European full-service restaurants have used handheld credit card machines for a number of years, but U.S. restaurant operators have been slow to adopt the technology. The transaction with the handheld machine is faster since the server does not have to leave the table, find the POS terminal, wait for other servers to use the terminal, wait for authorization, and then return to the table in the midst of other duties. It also allows the server to spend more time concentrating on guests rather than going off the floor to use a POS terminal.

Types of Customer-facing Payment Technology

There are three basic types of CFPTs: mobile wallets, table-based tablets, and mobile remote payment. At the moment, it appears that the majority of payments made via CFPT will be on-site, using wallets or tablets.¹¹

With mobile wallets, such as the approach used by Starbucks, customers have the option of linking their credit or debit card to a smartphone-based app and then using their smartphone to pay for their transaction. The use of near field communications (NFC) means that the smartphone or mobile device never leaves the customers' hands when they scan their payment. Some mobile wallet apps (e.g., Google Wallet, SquareWallet, Isis) require the customer to tap their smartphone against a specialized reader while others (e.g. MCX, TabbedOut) automatically detect where the customer is and do not require a specialized reader. The National Restaurant Association estimates that about 10 percent of limited-service restaurants offer mobile wallet payment, but that about 30 percent of customers would pay via a mobile wallet if it were available.¹²

Tabletop tablets, which are most commonly seen in family or casual restaurants, are placed where customers are seated and have been quite successful. The tablets provide a variety of services including credit or debit card payment, ordering, entertainment, and information. Some of the major players in this market include Ziosk, E la Carte and eTab. The National Restaurant Association reports that fewer than 5 percent of full-service restaurants offer tablets. However, 52 percent of customers would use this technology if it were available.¹³

Mobile remote payments allow customers the chance to purchase their meal without being physically present at the restaurant. Mobile remote payments frequently occur in conjunction with online and mobile food ordering. Many online and mobile ordering systems allow customers to save their payment information so that they can quickly submit payment once they have verified the accuracy of their order.

Potential Benefits and Concerns about CFPT

While most restaurants have not yet adopted CFPT, restaurateurs believe that such technology will become more prevalent in the future because of the associated speed and enhanced customer satisfaction.¹⁴ As we indicated above, most of the benefits associated with CFPT stem from increased transaction speed. CFPT can reduce the payment transaction time in both limited-service restaurants and in full-service restaurants. American Express has found that contactless payment is 63-percent faster than cash payment and 53-percent faster than the typical credit card payment.¹⁵

Speed is not the only consideration, however. By allowing operators to reduce the number of steps in the payment process, CFPT offers the opportunity to improve customer satisfaction, reduce labor costs, increase revenue, and provide better customer data, as well as offer entertainment options to guests, as we outline here.

1. **Improved customer satisfaction.** As discussed above, faster payment time can improve customer satisfaction, particularly in quick-service and fast-casual restaurants and in casual sit-down restaurants. Approximately two-thirds of restaurant operators believe that CFPT will lead to an improvement in customer satisfaction, a perception that is supported by the research we mentioned earlier which found that a faster post-process experience in casual and upscale casual restaurants leads to improved customer satisfaction.¹⁶ Speed of transaction is also a key driver of customer satisfaction in limited service restaurants.
2. **Labor scheduling.** CFPT has the potential to reduce labor costs because faster payment times also result in less employee time involved with processing payments. This is particularly relevant for casual and upscale casual restaurants in which the multiple steps required for payment can absorb well over ten minutes of a server's time. Alternatively, operators may decide to maintain the same level of labor, but instead have servers focus on providing better customer service and on doing a more effective job with suggestive selling and upselling. This has the potential to lead to increased restaurant revenue and server tips.
3. **Increased revenue.** At certain times of the day, faster transaction time may help restaurant operators increase revenue, particularly those in the quick-service

¹⁴ *Ibid.*

¹⁵ "Contactless Payments: Frequently Asked Questions," Smart Card Alliance (2007); smartcardalliance.org/resources/pdf/Contactless_Payments_FAQ.pdf. Last viewed 4/19/2013.

¹⁶ Noone and Kimes, *op. cit.*; Noone *et al.*, *op. cit.*

¹¹ Cluckey, *op.cit.*

¹² National Restaurant Association, *op.cit.*

¹³ *Ibid.*

and fast-casual segments, since they will be able to serve more customers during peak demand times. The *Hospitality Technology* study found that 73.4 percent of respondents believed that CFPT allowed them to serve guests more quickly.¹⁷ For example, MasterCard has found that CFPT is particularly effective in restaurants that offer drive-through service, and that it reduces the transaction time by 12 to 18 seconds.¹⁸ This may not seem like a significant drop, but in many QSRs, this time reduction could allow the restaurant to be able to serve 20- to 25-percent more customers in the same amount of time—particularly critical when the drive-through lines are long. The potential revenue impact in full-service restaurants will likely be lower because of the longer meal duration, but depending upon the speed improvement, restaurants with high demand would be able to serve more customers in the same amount of time and as a result would be able to increase revenue.

4. **Better customer data.** Some types of CFPT provide improved information regarding customer preferences and buying patterns by integrating with the point-of-sale (POS) system. Some even offer customer satisfaction survey capabilities that tie satisfaction ratings to menu items purchased or to the server. By developing better information on individual customer buying behavior, restaurants can provide more customized service, develop more targeted promotions, and create better customer profiles.
5. **Provide entertainment.** Some of the table-based and tablet systems also provide entertainment options for guests. This is particularly appealing for families with small children, and also potentially provides another revenue source.

Potential Barriers to CFPT

Potential barriers to CFPT adoption include infrastructure issues, the cost of CFPT devices, the cost of integrating CFPT with existing POS and payment systems, security concerns, and the impact of reduced customer contact. In addition, the CFPT industry is still fragmented, and many restaurateurs are unsure of which vendor or technology to select. Let's look at these potential barriers.

¹⁷ *Hospitality Technology*, *op.cit.*

¹⁸ "Frequently Asked Questions: MasterCard PayPass," MasterCard International (2004). www.mastercard.com/us/company/en/docs/Paypass_FAQ.pdf. Last viewed 11/23/2013.

about reductions in transaction fees that may result from widespread adoption of CFPT. Similarly, banks that issue credit cards may be reluctant to absorb the expense of offering chip-enabled credit cards to their customers. This is particularly an issue in the U.S., where chip-enabled credit cards are not yet widely used.

2. **Cost of CFPT.** While CFPT can reduce transaction time and improve customer satisfaction, it still requires investment in hardware and system integration. When using customer-supplied CFPT, restaurants would not have to invest as much in hardware, but would still need to invest in POS integration. If operators decide to offer the hardware, they will need to invest in both the hardware and the POS integration. Operators will need to balance whether the benefits outweigh the costs.
3. **System integration.** Operators would also need to ensure that their CFPT devices are seamlessly integrated with their POS and other payment systems. The integration would likely involve some cost.
4. **Security concerns.** Some restaurants have expressed concern with the security of CFPT information, but CFPT enhances at least one key security issue, since the credit card or smartphone does not leave the customer's hands. Evidence of this is provided by the *Hospitality Technology* survey. Only 18.6 percent of respondents believed that a mobile POS was not a secure payment system, while over half (57.8%) believed that mobile payment would reduce credit card skimming.¹⁹
5. **Reduced interaction with guests.** While some operators may be concerned that CFPT may reduce the amount of time that their employees have direct guest contact, this is probably not an issue, except perhaps for fine-dining restaurants. Most customers in other types of restaurant prefer a relatively fast post-process experience when they are ready to leave. That said, some fine-dining guests also may appreciate the option of using a CFPT as an alternative to traditional payment methods.
6. **Aesthetics.** Some operators, particularly those in the fine-dining segment, may think that the look and feel of some of the CFPTs, particularly the table-based ones, are inconsistent with the décor and ambience of their restaurant.
7. **Disjointed CFPT industry.** As discussed above, the CFPT industry has yet to consolidate, and no dominant players have yet emerged. Because of this, some operators may be reluctant to try CFPT because they are unsure of which vendors will survive and do not want

¹⁹ *Hospitality Technology*, *op.cit.*

to forge an agreement with a CFPT provider that may cease to exist after a few years.

8. **Customer acceptance.** Another possible concern may be related to customer acceptance of CFPT. Other than for fine-dining restaurants, this concern is likely unwarranted, since customers are well acquainted with electronic processes in many areas of their lives. Most like the improved speed, security, and control resulting from mobile payment, and as I discuss next, they would support tableside payment.

Customer Adoption of CFPT

The National Restaurant Association survey that we cited above found that over half of U.S. customers state that they would use a tableside payment option.²⁰ In that context, let's examine the potential benefits to consumers, which include enhanced speed, improved convenience, additional control, and increased security.

1. **Speed.** CFPTs provide a faster post-process experience for customers, and in the case of QSRs, help facilitate a faster service experience. The speed of a self-service transaction has been mentioned numerous times as an important influence on satisfaction, attitudes, and intentions.²¹ Pujari, for instance, found that the number one contributor to self-service satisfaction was improved speed.²² That finding aligns with other studies which showed that customers prefer to have the post-process be as fast as possible in casual and upscale restaurants.²³ Once customers ask for their bill, they are ready to end their service experience and depart.
2. **Convenience.** Related to increased speed, improved convenience is also associated with an increase in satisfaction.²⁴ Some CFPTs, particularly mobile wallets, are much more convenient for customers since they do not have to worry about finding their credit card or making sure they have enough cash. The associated ease reduces the effort that customers have to exert to complete the payment process. The importance of convenience in a

self-service setting, such as technology-based payment, cannot be understated, with research finding that convenience has a strong influence on the evaluation of a self-service experience.²⁵

3. **Increased control.** When customers perceive that they have more control over a service encounter, they are more likely to be satisfied with that encounter.²⁶ Payment by CFPT gives customers more control over how their time is spent and also gives them more control over their credit or debit card. As one operator stated: "Our guests want to be able to have control over their payment method and when they want to leave the restaurant without having to hunt down the server."²⁷
4. **Security.** Credit card security has become a major issue as incidents of credit card fraud have increased.²⁸ As mentioned above, CFPT means that customers retain control of their credit card and payment information during the entire payment process. They do not have to worry about credit card theft or someone putting unauthorized charges on their credit card.

The Restaurant Experience

To find out what restaurant operators think about customer-facing payment technology, we worked with *Nation's Restaurant News* and *Restaurant Hospitality* to distribute an online survey in August 2013 to a sample of their subscribers. A total of 385 restaurateurs participated to tell us about their current payment processes, their awareness of various

²⁰ National Restaurant Association, *op.cit.*

²¹ Pratibha A. Dabholkar, "Consumer Evaluations of New Technology-based Self-service Options: An Investigation of Alternative Models of Service Quality," *International Journal of Research in Marketing*, Vol. 13, No. 1 (1996), pp. 29-51; and Devashish Pujari, "Self-Service with a Smile? Self-service Technology (SST) Encounters among Canadian Business to Business," *International Journal in Service Industry Management*, Vol. 15, No. 2 (2004), pp. 200-219.

²² Pujari, *op.cit.*

²³ Noone and Kimes, *op.cit.*; Noone et al., *op.cit.*

²⁴ Leonard L. Berry, Kathleen Seiders, and Dhruv Grewal, "Understanding Service Convenience," *Journal of Marketing*, Vol. 66, No. 3 (2002), pp. 1-17.

²⁵ Joel E. Collier and Daniel L. Sherrell, "Examining the Influence of Control and Convenience in a Self-service Setting," *Journal of the Academy of Marketing Science*, Vol. 38, No. 4 (2010), pp. 490-509; David Xin Ding, Paul Jen-Hwa Hu, Rohit Verma, and Don G Wardell, "The Impact of Service System Design and Flow Experience on Customer Satisfaction in Online Financial Services," *Journal of Service Research*, Vol. 13, No. 1 (2010), pp. 96-110.

²⁶ James R. Averill, "Personal Control over Aversive Stimuli and Its Relationship to Stress," *Psychological Bulletin*, Vol. 80, No. 4 (1973), pp. 286-303; Michael K. Hui and David K. Tse, "What to Tell Consumers in Waits of Different Lengths: an Integrative Model of Service Evaluation," *Journal of Marketing*, Vol. 60 (April 1996), pp. 81-90; Michael K. Hui and John E. G. Bateson, "Perceived Control and the Effects of Crowding and Consumer Choice on the Service Experience," *Journal of Consumer Research*, Vol. 18 (September 1991), pp. 174-184; Ellen J. Langer, *The Psychology of Control* (Beverly Hills, CA: Sage, 1983).

²⁷ *Hospitality Technology*, *op.cit.*

²⁸ M.P. McQueen, "How to Protect Your Plastic; Recent Thefts of Credit- and Debit-Card Information Highlight Need for Consumer Caution; Beware of Unbranded ATMs," *Wall Street Journal*, 3/15/07, p. D1; Robin Sidel, "In Data Leaks, Culprits are Often Mom, Pop; Credit-Card Industry Tries to Add Safeguards; Honest Errors Occur," *Wall Street Journal*, 9/22/07, p. B1.

Demographic profile ($n = 385$)

Segment		Independent or Chain?	
Quick-Service or Fast-Food	9.1%	Independent	68.1%
Fast-Casual	10.4%	Chain	31.9%
Casual-Dining or Theme	19.8%		
Family	16.8%	Chain Profile	
Upscale Casual-Dining	24.2%	Sales Volume	
Fine-Dining	9.3%	Less than \$1 Million	6.3%
Hotel Foodservice	3.3%	\$1 Million to under \$5 Million	42.0%
Cafeteria or Buffet	1.4%	\$5 Million to under \$10 Million	4.5%
Other	5.8%	\$10 Million to under \$50 Million	18.8%
		\$50 Million to under \$100 Million	7.1%
Independent Profile		\$100 Million to under \$200 Million	4.5%
Sales Volume		\$200 Million or more	17.0%
Less than \$500,000	13.8%		
\$500,000 to under \$1 Million	26.9%	Number of Units	
\$1 Million to under \$5 Million	49.8%	2-5	19.6%
\$5 Million to under \$10 Million	7.5%	6-10	12.5%
\$10 Million or more	2.0%	11-20	12.5%
		21 - 50	14.3%
Average Check per Person		51 - 100	13.4%
Under \$10	7.9%	101 - 300	5.4%
\$10 - \$19.99	37.2%	301 - 600	5.4%
\$20 - \$34.99	34.8%	601 - 1000	5.4%
\$35 - \$49.99	11.9%	More than 1000	11.6%
Over \$50	8.3%		
		Department	
Position		Marketing	4.9%
General manager	24.9%	Operations	34.4%
Assistant manager	3.6%	IT	3.3%
Chef	7.5%	Menu Development/Culinary	1.6%
Kitchen	0.4%	Store Development	3.3%
Server	0.4%	Company Officer	36.1%
Owner	51.8%	Purchasing	0.0%
Other	11.5%	Human Resources	3.3%
		Finance	8.2%
Location		Other	4.9%
Urban area	31.2%		
Suburban area	28.5%		
Small town	31.6%		
Rural	8.7%		

EXHIBIT 3

Payment type by restaurant segment

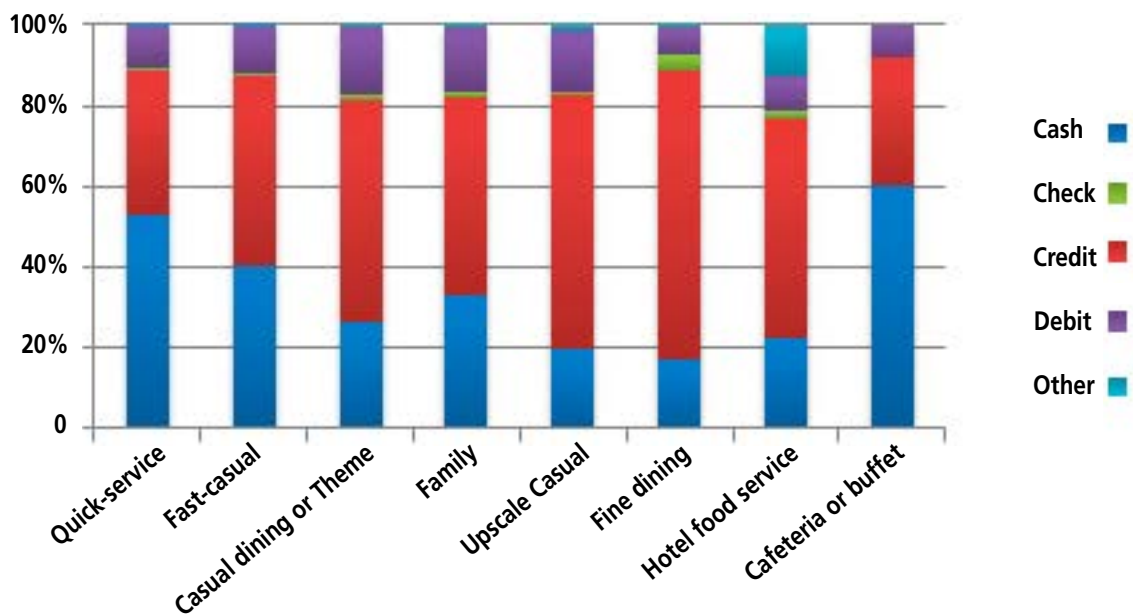
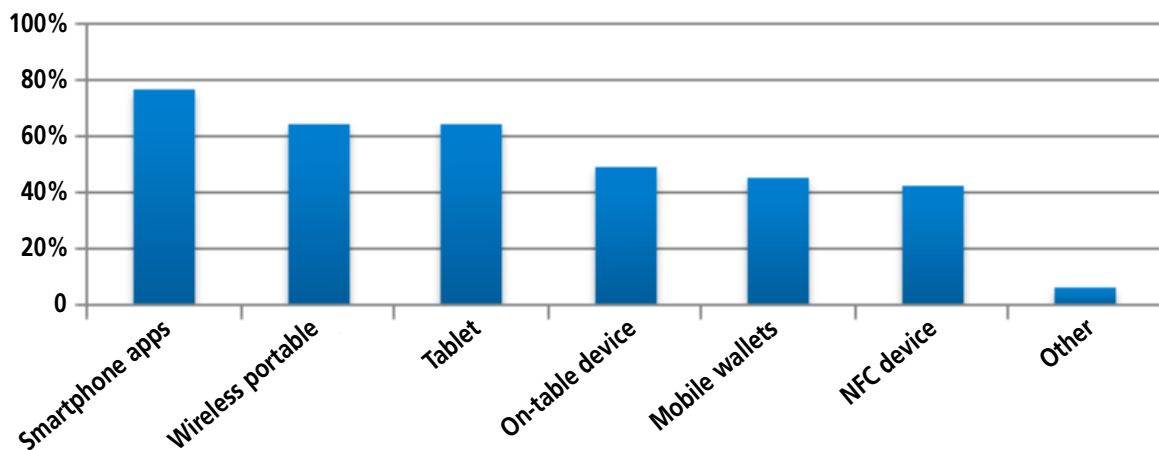


EXHIBIT 4

Awareness of consumer-facing payment technology



CFPTs, and the experience of the respondents who have adopted some sort of CFPT.

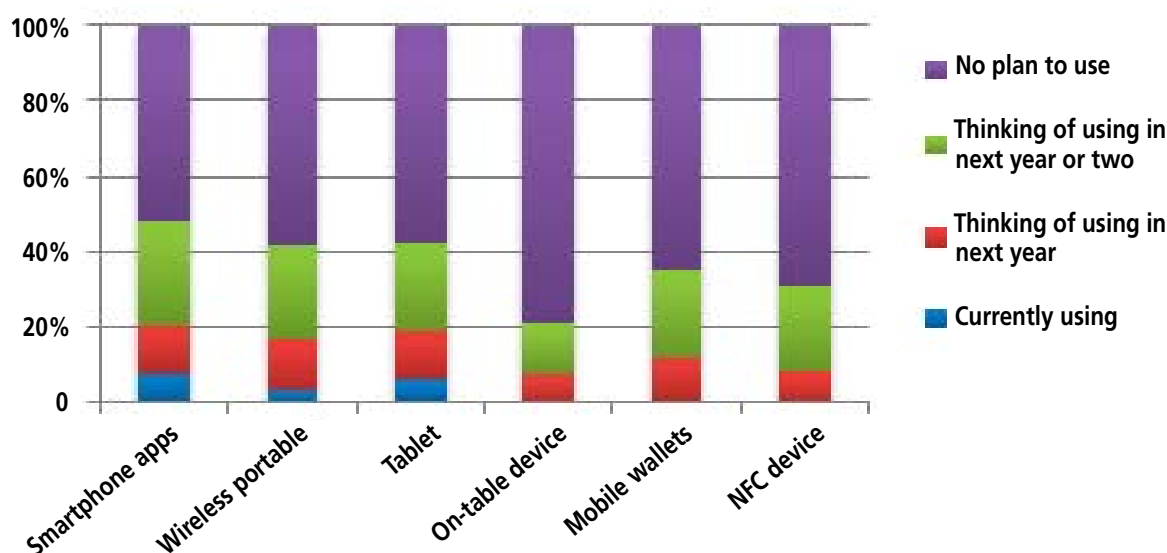
Restaurant Profile

The sample was divided as follows: 21.9 percent of respondents were from upscale-casual restaurants, 19.1 percent from casual restaurants, 16.6 percent from family restaurants, 12.7 percent from fast-casual restaurants, and 6.8 percent were from quick-service restaurants. Just over two-thirds (68.1%) of respondents were from independent

restaurants, and the remainder operated chain restaurants (see Exhibit 2).

About half of the independent restaurants had annual sales of \$1 million to under \$5 million. The majority (70.3%) had average checks per person between \$10 and \$35 (\$10–\$20, 36.1%; \$20–\$35, 34.2%). About a third (31.2%) of respondents were located in urban areas and another third (31.6%) were located in small towns. About half (50.4%) of the respondents owned their restaurant and another 24.8 percent were general managers.

Current and planned technology use



Of the chain restaurant respondents, 44.8 percent were at corporate or franchisor headquarters, 37.6 percent were at the restaurant itself, and 9.6 percent held a regional position. The number of restaurants operated by respondents ranged from two to over 10,000. About a quarter (25.6%) had over 100 restaurants in their chain or franchise organization, while 47.2 percent had fewer than twenty-one units. About half (53.3%) of the respondents had annual revenue of less than \$10 million per year, while 16.7 percent had revenue of over \$200 million per year. About a third (32.4%) of respondents were company officers and another 33.8 percent were involved in operations.

Current Payment Approaches

The large majority (86.5%) of restaurants had a POS system. Overall, the respondents reported that over half (53.8%) of payments were made by credit card, followed by 29.6 percent cash and 12.9 percent debit card (Exhibit 3). By restaurant category, over half of QSR payments were made with cash (53.5%), and buffet restaurants were 60-percent cash.

In terms of timing and location of settlement processes, most respondents from limited service restaurants indicated that their customers paid upon ordering their meal (67.0%). Another 16.5 percent stated that payment was made on receipt of the meal and 15.4 percent upon completion of the meal. The majority (81.8%) of limited service restaurants accepted payment at a cashier, while the remainder did so at the table.

The payment process at limited service restaurants was relatively fast: 67.4 percent of respondents stated that on

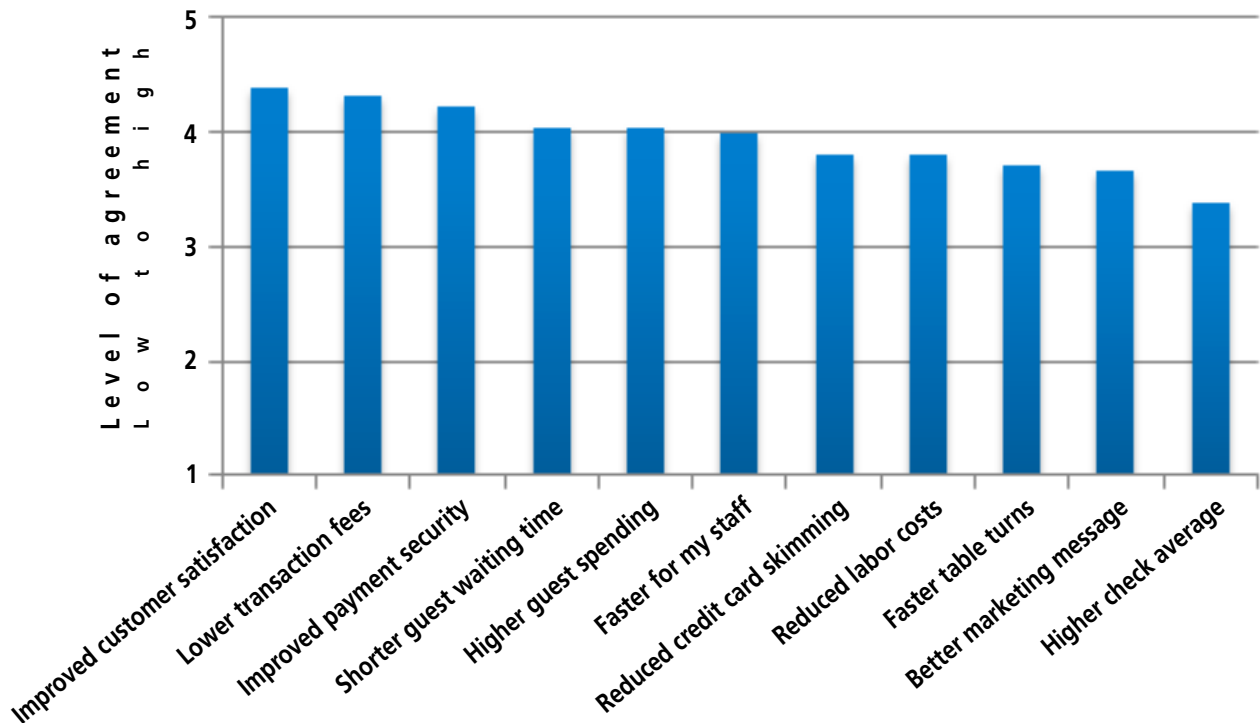
average, their payment process took less than one minute. The large majority (81.9%) of respondents from limited service restaurants indicated that they require a signature for all credit card transactions, while 15.7 percent said that they require a signature only if the transaction was above a certain amount, and 2.3 percent indicated that they did not require a signature.

The majority (76.9%) of respondents from full-service restaurants indicated that their customers paid at the table, but this percentage varied by type of full-service restaurant. Almost all customers (98.9%) in upscale-casual restaurants paid at the table, but that figure fell below half (48.3%) in family restaurants. Not surprisingly, the payment process took longer at full-service restaurants. About half (48.8%) of respondents stated that it took between 1 and 3 minutes for customers to pay their bill, while another 34.9 percent stated that it took between 4 and 6 minutes.

Payment Technology Awareness, Current Use, and Intent to Use

We wanted to ascertain respondents' awareness and use of different CFPTs. Almost all (97.9%) respondents had heard of at least one CFPT. Smartphones (74.3%), tablets (63.4%), and portable credit card readers (61.6%) led the list, but respondents also had some familiarity with on-table self-payment devices (48.3%), mobile wallets (43.9%), and NFC devices (41.3%), as shown in Exhibit 4. Respondents from limited service restaurants were significantly more likely to be familiar with NFC devices, while respondents from chain

Perceived advantages of customer-facing payment technology



restaurants were significantly more likely to be familiar with on-table self-payment devices.

We asked respondents who were aware of CFPTs whether they were actually using the technology or were thinking of adopting it in the next few years. Only one-eighth (12.2% of respondents) were using some sort of CFPT, but another 47.3 percent were thinking of implementing the technology in the next two years. As shown in Exhibit 5, smartphone payment was the most popular option (5.5% in current use; possible use in the next year, 9.9%; possible use in the next year or two, 21.0%). For wireless portable payment card readers, 3.6 percent of respondents said they were in current use, 8.1 percent were thinking of implementing these in the next year, and 14.3 percent in the next year or two. The figures for tablets were: 2.6 percent current use; 8.8 percent thinking of using in the next year; and 16.1 percent in the next year or two. On-table self-payment devices were the least used option (currently using, 0.3%; thinking of using in the next year, 3.6%; thinking of using in the next year or two, 6.5%). Responses did not vary by segment (limited service vs. full service), but respondents from chain restaurants were

significantly more likely to be using or thinking of using on-table self-payment devices.

Respondents noted several anticipated advantages of CFPT, as shown in Exhibit 6. The most important among these are improved customer satisfaction (4.32 on a 5-point scale), lower transaction fees (4.26), and improved payment security (4.16). Shorter guest waiting time (4.00) and higher guest spending (4.02) were also considered to be important.

Respondents from different types of restaurant saw different advantages to CFPTs. Independent restaurants were significantly more likely to consider reduced transaction costs as an advantage, while respondents from chain restaurants were more likely to cite as an advantage the resulting higher guest spending because of targeted marketing. Respondents from full-service restaurants were significantly more likely to rank reduced labor costs and more turns as advantages than respondents from limited-service restaurants.

The cost of technology ranked as the biggest obstacle to the adoption of CFPTs, scoring 4.14 on a five-point scale where 5 = strongly agree (Exhibit 7). Other obstacles included security issues (3.93) and integration with other

EXHIBIT 7

Perceived obstacles to customer-facing payment technology

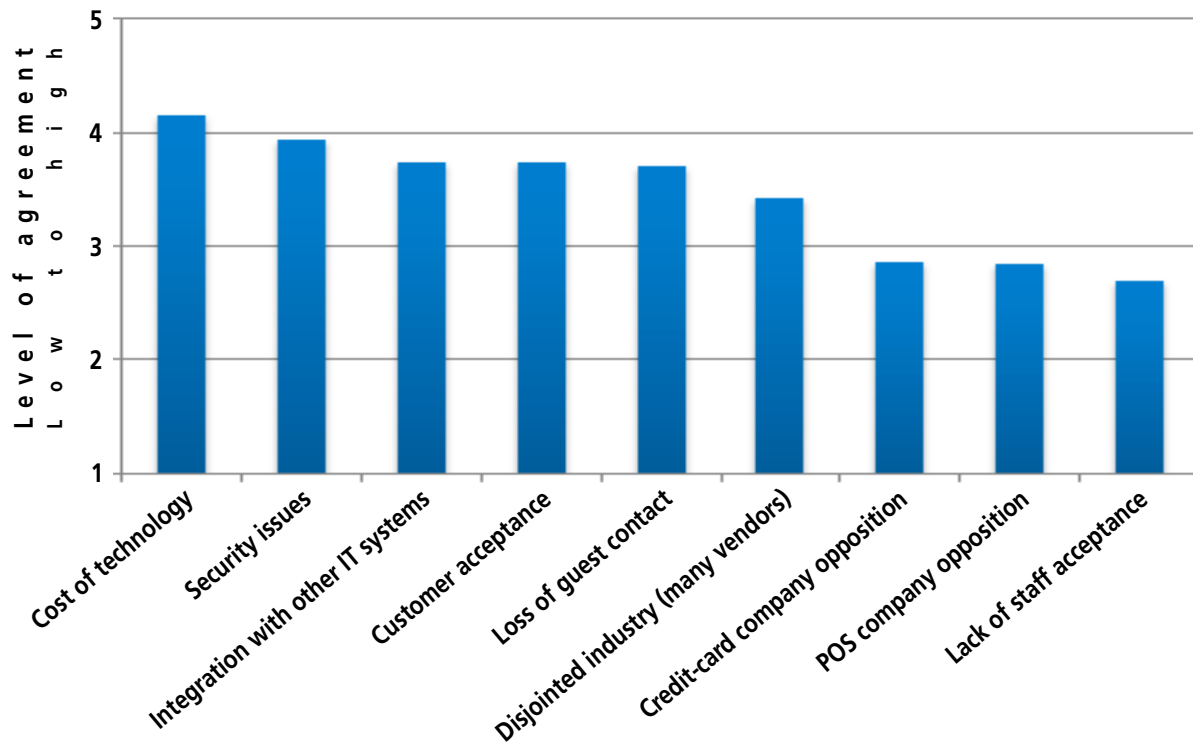
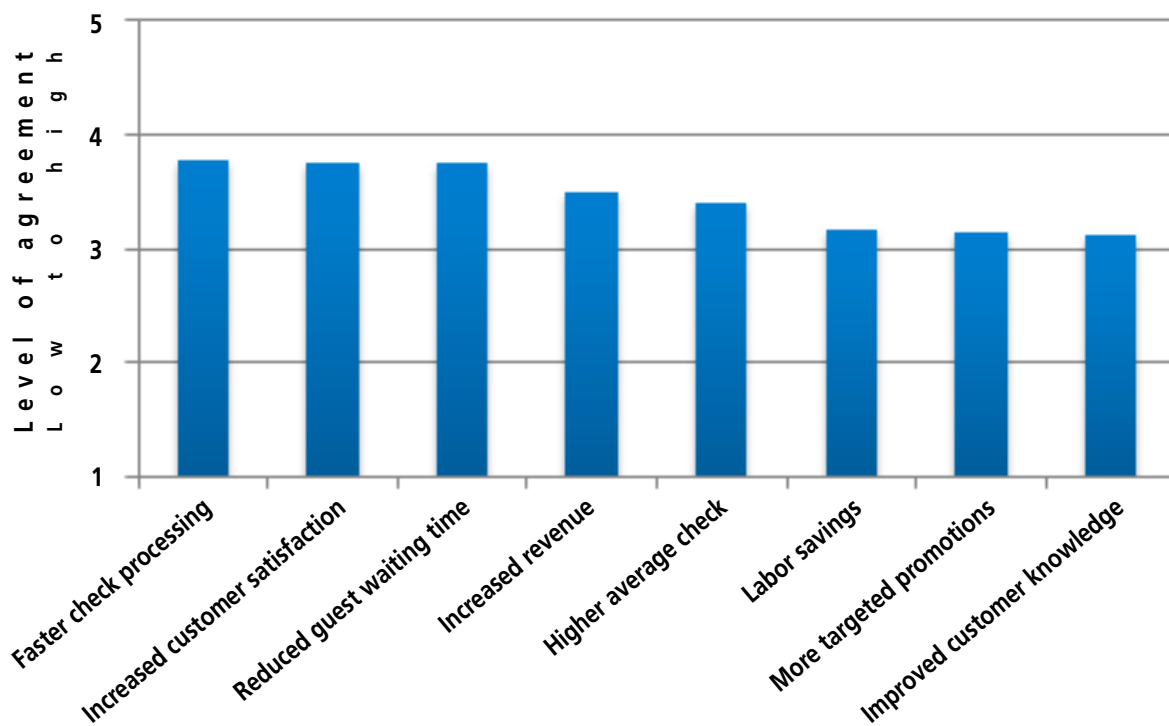
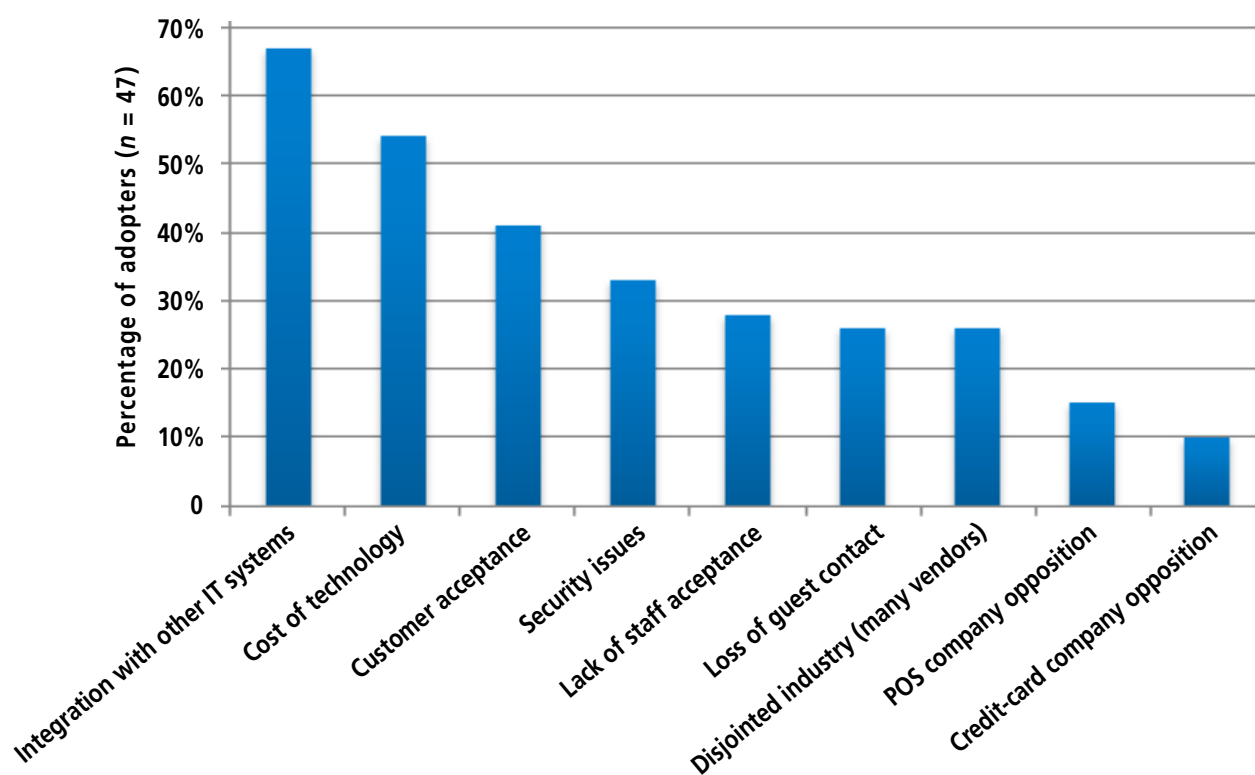


EXHIBIT 8

Benefits experienced with customer-facing payment technology



Obstacles experienced from customer-facing payment technology



IT systems (3.75). Responses did not vary by whether respondents were from a chain or were from an independent restaurant, but did vary by segment. Respondents from full service restaurants were more likely to view the loss of guest contact, the lack of staff acceptance, and lack of customer acceptance as significant obstacles.

The User Experience

The relatively small group of respondents who had installed the technology were significantly more likely to be from limited service restaurants (19.3% of respondents from limited service restaurants were using some sort of payment technology) and from chain restaurants (16.3% of respondents from chain restaurants were using some sort of payment technology). One quarter (25.6%) had been using the technology for over two years and another 28.2 percent had been using the technology for one to two years. As shown in Exhibit 8, the top three benefits that these restaurateurs cited were faster check processing (3.78 of 5), increased customer satisfaction (3.75 of 5), and reduced customer-waiting time (3.75 of 5). As shown in Exhibit 9, the top three obstacles mentioned were integration with other IT systems (56.3%), the cost of the technology (43.8%), and customer acceptance (37.5%).

Implications

Even though only 12.2 percent of respondents to this survey had adopted a CFPT, almost all respondents were aware of CFPTs, and half of them were thinking of adopting a CFPT in the next two years. This strongly suggests that restaurant adoption of CFPT will significantly increase in the near future. Given this fact, it may be useful to look at the experience of current users to see whether some insights can be gleaned from their experiences.

The top three benefits of CFPT, as perceived by both users and non-users were improved customer satisfaction, lower transaction fees, and improved payment security. Even though about half of respondents were thinking of adopting a CFPT in the next few years, this may not have quite as much of an impact on limited service restaurants because over half of QSR transactions are still made with cash. This high proportion of cash payments may indicate that mobile wallet approaches in particular may not have as much potential for QSRs and buffet restaurants unless they adopt some sort of pre-payment or debit payment approach.

Although the top three perceived obstacles to CFPT adoption were the cost of the technology, security issues, and integration with other IT systems, CFPT users were sig-

nificantly less likely to consider the cost and security issues as obstacles than were non-users. This may indicate that the experience with a CFPT leads to the realization that some of the perceived barriers are not as much of an issue as had been anticipated.

System integration is a serious consideration. The importance of POS integration cannot be overstated, given that CFPT adopters indicated that integration with other IT systems was the most important issue that they had faced with CFPT. Presumably, integration will become less of a concern in the future, but still the fact that it was identified as the top problem reinforces the fact that operators should be sure that any type of CFPT under consideration is fully integrated with their other IT systems.

Surprisingly, CFPT adopters rated customer acceptance as one of the top three issues. This is puzzling, given that over half of U.S. customers state that they would use a tableside payment option.²⁹ This finding may indicate a need to provide better customer and employee education on the use of the CFPT and to give guests the option to pay using traditional means if desired. In addition to offering alternative payment options, restaurants must ensure that the CFPT is intuitive and easy to use. In addition, depending on the goal of the CFPT adoption, it may be worthwhile to offer incentives to encourage guests to use the CFPT rather than traditional approaches.

Once employees are on board, they need to be able to clearly explain the technology to guests. At the same time, guests should always be offered more traditional payment options. Research has shown that forced use of a self-service technology such as CFPT leads to customer dissatisfaction with both the technology and with the service provider offering that technology.³⁰

Limitations. As with all research, this study has certain limitations. First of all, the study was survey-based, and so it is possible that non-response bias exists, that respondents may not have answered the questions accurately, or that they might not have understood the intended meaning of the questions. In addition, the respondents were from a convenience sample, so they may not be representative of all U.S. restaurant operators. Finally, the study was only conducted in the U.S., and it is possible that the results would have been different if conducted in other countries.

Future research. The intent of this study was to give a snapshot of current attitudes and usage of CFPT. Given that only one-eighth of respondents in this study had installed CFPT in their restaurants, it would be interesting to do a more in-depth study with CFPT users. This sort of study could provide deeper insights into restaurants' experiences with CFPT, how they use the CFPT, and how they have integrated it into their business. In addition, it would be interesting to obtain a more detailed insight into the percentage of customers who use CFPT and to compare their average checks and tips with those who use traditional payment methods.

While this report has focused on restaurant operators, it would also be interesting to study consumers' use of and attitudes towards CFPT in other businesses. Such a study could provide additional understanding of the perceived benefits of CFPT as well as gain insight into the drivers of satisfaction with CFPT. Finally, it would be interesting and valuable to extend this survey of both restaurant operators and restaurant consumers to other parts of the world.

Conclusion

Almost all of the responding restaurateurs were aware of consumer payment technologies, and about half were considering installing them in the next two years. At the moment a relatively small percentage of restaurants have done so, at least based on the responses to this survey. This strongly suggests that restaurant adoption of CFPT will significantly increase in the near future.

Based on the experience of those early adopters, before adopting a CFPT, restaurant operators should ensure that the technology will be fully integrated with their POS system. They need to dispel incorrect assumptions about the technology and train their employees both on how to use the system themselves and how to help solve any problems that guests may encounter. Any system should be easy for customers to understand and use. Finally, it is essential that a traditional payment option should be available for any customers who choose to use it. ■

²⁹ National Restaurant Association, *op.cit.*

³⁰ Machiel J. Reinders, Pratibha A. Dabholkar, and Ruud T. Frambach, "Consequences of Forcing Consumers to Use Technology-based Self-Service," *Journal of Service Research*. Vol. 11, No. 2 (2008), pp. 107–123.

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