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The New Science of Service Innovation: Part 3 Select Research on Technology

Cornell Hospitality Research Summit

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The New Science of Service Innovation: Part 3 Select Research on Technology

Abstract

Select Research on Technology from the 2014 Cornell Hospitality Research Summit

The lodging and service industries have constantly adopted technology solutions over the years, with one caveat. Hoteliers rarely have installed technology before it is sufficiently developed to actually improve operations. This strategy has given rise to the inaccurate impression that the industry is slow to adopt appropriate technology, when the opposite is the case. The Cornell Hospitality Research Summit (CHRS) held in October 2014 was organized to examine service innovation in a new light, focusing on a scientific and disciplined approach to the topic. This report is the third of four that feature expanded summaries of select research on service innovation. This report highlights innovative strategies related to data and technology, including the remarkably uneven influence of various social (and traditional) media on corporate brand value, full-service restaurant customers' mostly favorable reaction to the introduction of tabletop technology, and the hospitality industry's initiatives for providing services for Generation Y.

This report highlights four research presentation on technology from the summit:

- "Traditional vs. Social Media: Effects on Brand Value," by Peter O'Connor and Anatoli Colicev (page 3);
- "Guests' Reactions to Tabletop Technology in Full-service Restaurants," by Alex Susskind, Saqib Awan, Ron Parikh, and Rajat Suri (page 6);
- "Consumer Preferences for U.S. Restaurant-based Technology," Michael White, Ben Lawrence, and Rohit Verma (page 10);
- "Engaging Generation Y Customers in Technology-based Innovation," by Ting Ting Zhang (page 13).

Keywords

Cornell Hospitality Research Summit, service innovation, technology, hotels, social media

Disciplines

Hospitality Administration and Management | Tourism and Travel

Comments

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The New Science of Service Innovation Part 3

Select Research on Technology *from the 2014 Cornell Hospitality Research Summit*

The lodging and service industries have constantly adopted technology solutions over the years, with one caveat. Hoteliers rarely have installed technology before it is sufficiently developed to actually improve operations. This strategy has given rise to the inaccurate impression that the industry is slow to adopt appropriate technology, when the opposite is the case. The Cornell Hospitality Research Summit (CHRS) held in October 2014 was organized to examine service innovation in a new light, focusing on a scientific and disciplined approach to the topic. This report is the third of four that feature expanded summaries of select research on service innovation. This report highlights innovative strategies related to data and technology, including the remarkably uneven influence of various social (and traditional) media on corporate brand value, full-service restaurant customers' mostly favorable reaction to the introduction of tabletop technology, and the hospitality industry's initiatives for providing services for Generation Y.

INTRODUCTION

Technology is the focus of this expanded summary of four select research presentations given in 2014 at the Cornell Hospitality Research Summit (CHRS). The hospitality industry has always incorporated technological innovations that improve operations and distribution. As we contemplate future innovations in technology we turn to mobile platforms as hotel and restaurant customers come to rely on digital concierge services, as well as seeking mobile check-in, online ordering, and seamless connectivity across platforms and devices—all of which travelers and diners increasingly expect to have in place. At the same time, the challenges of legacy systems continue to plague implementation progress in some domains. Connectivity is key as more individuals rely on information delivered through social software from virtual networks. However, the interface between technology and customer service staff members will continue to pose challenges. All in all, technology has become better and smarter, and we can

expect more integrated user experiences. The smartphone is now essential equipment for almost all employees, making it a potential tool for HR training and other workplace uses. So while technology has changed how we book, order, and experience service, key issues remain for blending technology with employee's functions and routines to create the best possible customer experience.

The Need for Organizational Change

In this, the third report from the CHRS14, we explore the impact of social media on brand value, customer reaction to the introduction of various technologies in restaurants, and the technology use profile of Generation Y consumers. Presentation titles and authors from the technology track of the CHRS14 are summarized in an appendix at the end of this report. In the pages to follow we introduce four research presentations addressing technology issues from the summit, as follows:

- “Traditional vs. Social Media: Effects on Brand Value,” by Peter O’Connor and Anatoli Colicev (page 3);
- “Guests’ Reactions to Tabletop Technology in Full-service Restaurants,” by Alex Susskind, Saqib Awan, Ron Parikh, and Rajat Suri (page 6);
- “Consumer Preferences for U.S. Restaurant-based Technology,” Michael White, Ben Lawrence, and Rohit Verma (page 10); and
- “Engaging Generation Y Customers in Technology-based Innovation,” by Ting Ting Zhang (page 13).

Guest Reactions to Restaurant Technologies

Two of these featured presentations on technology explore the impact of various technologies on the delivery of service in restaurants. Over 70 percent of restaurant guests liked using tabletop devices, according to the study, “Guests’ Reactions to Tabletop Technology in Full-service Restaurants,” conducted by Alex Susskind, Saqib Awan, Ron Parikh, and Rajat Suri in 21 full-service casual-dining establishments. A strong finding of this study was that the tabletop device improved the dining experience and elicited intentions to return from the guests surveyed. In a similar study covering a range of customer-facing technologies, titled “Consumer Preferences for U.S. Restaurant-based Technology,” co-chair Rohit Verma and co-authors Ben Lawrence and Michael White found that respondents liked

online table reservations and ordering, along with tableside payment devices, but were less receptive to kiosk-based ordering and phone payment. Both papers were careful to highlight their limitations and, given the mix of findings, more work is clearly needed on this important topic.

The Effects of Social Media

In the initial paper we present here, “Traditional vs. Social Media: Effects on Brand Value,” by Peter O’Connor and Anatoli Colicev consider the effects of social media use by both companies, or brands, and customers, or users. The strongest positive influence on brand value was found for users on YouTube and brands on Facebook, while user actions on Facebook were found to have a negative influence on brand value. Activity on Twitter by either brands or users did not affect brand value. This interesting study raises new questions regarding the positive, negative, and neutral role of different social media channels in supporting brand value. Ting Ting Zhang, the author of the final study in this grouping, “Engaging Generation Y Customers in Technology-based Innovation,” builds a profile of the socially engaged Generation Y guest, and uses examples from Starwood, Marriott, Uber, Mercedes-Benz, and Jibun Bank to link technology and innovation.

The four summaries presented in this report give us a start on the discovery of how best to connect new technologies to customer experiences. From what we see so far, customers are ready and willing to embrace social engagement, new devices, and more tech-centric service.—
Cathy Enz and Rohit Verma, co-chairs

Traditional vs. Social Media:

Effects on Brand Value

Peter O'Connor and Anatoli Colicev

Businesses of all types have jumped onto the social media bandwagon, urging people to like them on Facebook, for instance, or to follow them on Twitter. Despite all that activity, however, there remains no reliable way to measure how media affect the value of a brand—whether traditional or social, independently or collectively. This paper presents a first step in creating a measurement model that gauges which elements of social and traditional media increase or decrease brand value.

Measurement seems like a critical need, since many companies attempt use social media as a marketing medium, even as they struggle to justify the cost. In addition, given the wide variety of channels, marketers seek to know which social media activities specifically have the most effect and should receive priority.

Although researchers have touched on these questions, most studies are limited to a specific social medium or use limited samples and thus cannot be generalized. This study attempts to bridge this research gap by focusing on two key questions: **(1)** How does one measure the effect of social media actions on brand value?; and **(2)** How do social and traditional media affect brand value?

Design and Methodology

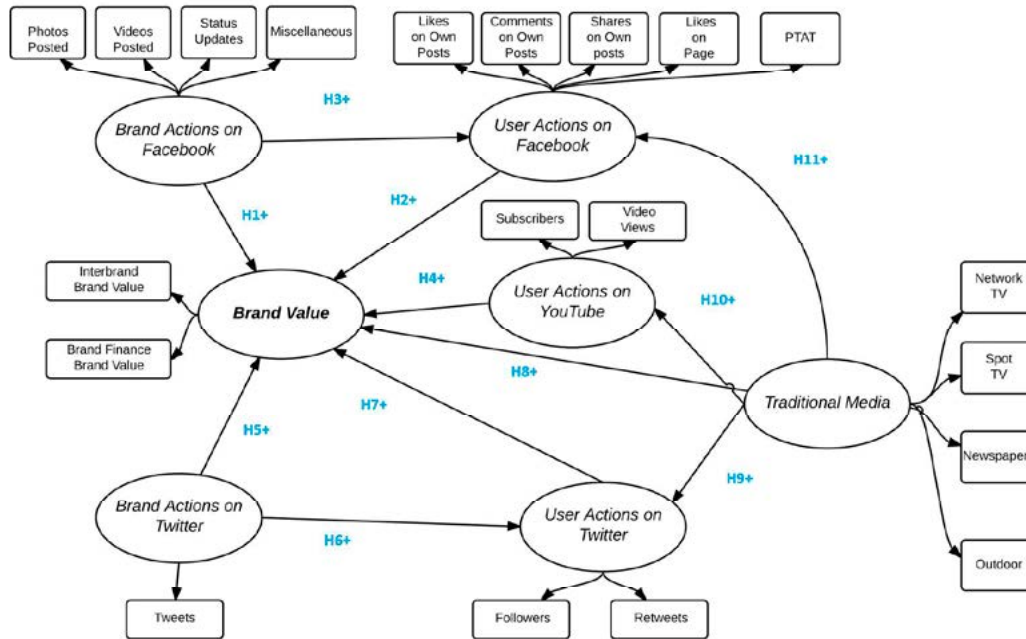
To build a measurement structure, this study draws on other research by dividing social media actions into two categories: brand actions and user actions. Brand actions on each of the three social media tested here (for example, posting a video on

YouTube) can directly drive brand value, but posting also can potentially drive subsequent user actions (for example, reposting that YouTube video to Facebook). Then again, social media users can independently refer to brands that they favor or use.

This study also assesses the value of traditional media expenditures (namely, television, newspaper, and outdoor advertising) for improving brand value. Other studies have shown that traditional media act synergistically and also drive user actions on social media. Exhibit 1, on the next page, depicts the model, which represents a total of eleven hypotheses relating to the effects of social and traditional media on brand value, directly and through stimulating activity on the three social media sites.

Using Partial Least Squares Path Modeling (PLS-PM) to estimate the proposed model, this study assesses the contribution of the different social and traditional media dimensions to the variability of brand value for 87 brands, as measured by the Interbrand value and the Brand Finance value. The 87 brands are drawn from the Interbrand 100 top brands, of which 13 did not participate in social media sites.

Model specification for effects of social media on brand value



Using a set of automated online tools, the study measured brand-related activity on the three largest social media platforms: Facebook, Twitter, and YouTube. To approximate traditional media activity, the study drew brand-level advertisement spending data from the U.K.-based media measurement firm Kantar. Each data point represents cumulative value, so the study operationalized each variable as the year-to-year difference of changes in metrics as they affect brand value. The data were standardized because the variables had different dispersions and measurement units.

Results

Based on these data, actions on Facebook and YouTube influenced brand value, but Twitter feeds did not. Traditional media affected brand value as always, but the effect was indirect for these brands as measured here. To ensure that constructs were well related to their indicators, the researchers examined internal consistency, convergent validity, and discriminant validity, all of which met the required threshold values. Overall, the model showed good internal consistency, and convergent and discriminant validity.

Structural Model

The structural model shown in Exhibit 1, with results in Exhibit 2, explains 47.1 percent of the variance in brand value, which is considered high. As far as driving brand value is concerned, however, not all social media are created equal.

The positive effect on brand value of brand actions on Facebook and user actions on YouTube had strong support (H1 and H4). The data also support the positive association between brand actions on Facebook and user actions on Facebook (H3), but there’s only moderate support for the positive association between brand actions on Twitter and user actions on Twitter (H6). Interestingly, the link of traditional media activity to user actions on YouTube is supported (H10). Even more intriguing was the lack of support for the hypothesized relationship between actions either by users or the brand on Twitter and brand value (H5 and H7). Indeed, although the relationship of these constructs is not significant, the relationship to brand value is negative. Even more remarkable is the significant negative connection of user actions on Facebook with brand value. The analysis also found no significant relationship between traditional media and user actions on Twitter (H10) or user actions on Facebook (H11).

Also not supported is the premise of a strongly significant direct relationship between traditional media and brand value (H8). Collectively, traditional media affect brand value as the sum of weak direct effects and indirect effects through the three social media platforms (notably, YouTube). The total effect of traditional media on brand value amounts to 0.22 at 5-percent significance levels. This is far from a negligible effect, albeit indirect.

Results of structural model tests

Hypothesis	Path	Coefficient	T stat	Signif.	Result
H1	Brand Actions on Facebook-> Brand Value	0.19	2.04	**	Supported
H2	User Actions on Facebook-> Brand Value	-0.21	-2.36	**	Not Supported
H3	Brand Actions on Facebook-> User Actions on Facebook	0.41	3.97	***	Supported
H4	User Actions on YouTube-> Brand Value	0.65	7.84	***	Supported
H5	Brand Actions on Twitter-> Brand Value	-0.06	-0.54	n.s	Not supported
H6	Brand Actions on Twitter-> User Actions on Twitter	0.21	1.97	*	Supported
H7	User Actions on Twitter-> Brand Value	-0.09	-0.80	n.s	Not supported
H8	Traditional Media->Brand Value	0.09	1.08	ns	Not supported
H9	Traditional Media-> User Actions on Twitter	-0.03	-0.26	ns	Not supported
H10	Traditional Media-> User Actions on YouTube	0.18	1.70	*	Supported
H11	Traditional Media-> User Actions on Facebook	-0.05	-0.53	ns	Not supported

Note: Values shown are standardized coefficients. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Implications and Future Research

Marketers are well aware of the potential value of social media, but measurements of the outcomes to justify investments have proved elusive. Looking at the effects on 87 of the top 100 brands, the study finds that only certain social media metrics are associated with a positive change in brand value for the period under study. User actions on YouTube and brand actions on Facebook were found to have the strongest positive influence on brand value, with an increase of one standard deviation in each construct resulting in a brand value increase of 0.69 standard deviations (from YouTube) and 0.29 standard deviations (from Facebook).

In contrast, user actions on Facebook were found to have a strong negative influence on brand value. An increase of one standard deviation in this construct resulted in a decrease of 0.21 standard deviations in the brand value construct. Perhaps it is time for companies to reconsider asking people to like them on Facebook. On the other hand, this may be a backlash, given social media's ability to amplify negative sentiment as it promotes conversation and link sharing. It may also be time for companies to review their Twitter strategy, since neither brand actions on Twitter nor user actions on Twitter significantly affected brand value. A sentiment analysis of brand tweets and user retweets on Twitter could help verify why neither brand actions nor user actions on Twitter affected brand value.

The study found no indication that traditional media directly bring value to brands, although television, newspapers, and outdoor advertising do affect user actions on social media. Thus, the total effect of traditional media on brand value is positive and significant, albeit through indirect channels. The

magnitude of this effect is lower than that of social media, implying that social media are now more effective than traditional media in creating brand value.

The study suggests that brands consider YouTube as a marketing medium, and gauge success by numbers of subscribers and video views. Unlike Facebook, YouTube is highly self-promotional but at the same time conveys factual information about brands. Thus, using YouTube can avoid the apparent backlash effect in relation to Facebook. The study data support the idea of brands being active on Facebook by posting photos, video, and status updates, but being cautious on pushing user reactions. The study also shows that brand actions on a particular platform do influence users' actions on that platform, as in the case of Facebook and Twitter.

In sum, the study indicates that brand social media actions on YouTube and Facebook affect brand value. The finding that social media are of higher importance for brand value than traditional media helps managers to justify spending on social media marketing rather than traditional media channels. The model does have predictive power, allowing managers to deduce the effect of their social media actions on future brand value.

The study's findings are limited to the 87 brands in question and, since these are the top brands, may not represent the effects of social media on all brands. Notwithstanding the fact that Facebook, Twitter, and YouTube are currently the largest social media platforms, further studies might consider other platforms to help increase the reliability of the results. The study also could not collect data on brand actions on YouTube, which might alter the findings. Finally, the study also did not control for the heavy advertising spending by the top 100 brands. ■

Guests' Reactions to Tabletop Technology in Full-service Restaurants

Alex Susskind, Saqib Awan, Ron Parikh, Rajat Suri

The hospitality industry is gradually installing various types of technology to deliver or augment service processes, and such technology has in many cases altered the nature of the guest-employee service interaction. One model that is useful for examining the effects of technology on service is the Customer-Server Exchange (CSE), which is rooted in the Service-Profit Chain. The CSE details the interrelationship between service providers' reactions to organizational standards for service delivery and how these standards are related to staff perceptions of coworkers' and managers' support. With those models as the base, this paper considers two effects of the addition of customer-facing technology in restaurants: namely, the likelihood that a guest will return, and any changes in tip levels resulting from the technology. These two key outcomes are in question because technology adds or expands customer participation in the service experience and could lead to perceptions of less employee involvement.

This paper studied customers' reaction to implementation of tabletop technology in 21 restaurants in a single full-service casual-dining restaurant chain. Until recently, such technology has not typically been used in full-service restaurants, in part due to concerns about customers' reactions to the reduction of contact with and attention from servers. With regard to restaurants as a whole, there is a concern about customer acceptance. A study by the National Restaurant Association found that 37 percent of U.S. consumers reported that technology makes restaurant visits and ordering more complicated. At the same time, technology is expanding into full-service casual-dining restaurant chains such as Applebee's, Chili's, Genghis Grill, and Olive Garden. It seems reasonable to project that guests will become

more accepting of the technology as time goes on, particularly if they see a value to the revised service process.

So, What's in It for Me?

Customer-facing technology must operate in keeping with four principles.

- The technology must be consistent with the brand image;
- Marketing activities that reach customers prior to their experience with the technology must be congruent with their needs and expectations to ensure that the stage is set properly for the adoption and use of the new technology;

- The actual services that are offered via the technology need to be customer-focused; and
- Service quality management processes must be in place to ensure a seamless delivery of service through the new technology.

In sum, companies adopting new technologies need to ensure that all parties understand how those technologies affect the operation and the customer experience.

The study proposes the following four questions to examine how customer-facing technology influences the traditional full-service dining experience:

- **Research Question 1a:** What is the relationship between guests' belief that a tabletop device improves their service experience during a full-service meal and their liking for the tabletop device?
- **Research Question 1b:** What is the relationship between guests' desire to return to the restaurant and their liking for the tabletop device?
- **Research Question 2a:** What is the relationship between guests' belief that the tabletop device improves the service experience during a full-service meal and the tip percentage paid to the server?
- **Research Question 2b:** What is the relationship between guests' desire to return to the restaurant and the tip percentage paid to the server?

Method: Participants and Procedure

The study began with 23,640 point-of-sale transactions from the 21 casual-dining restaurants from July 2014 through September 2014, along with 13,476 email survey responses from restaurant guests who used a tabletop device during their meal. The tabletop device in question allows guests to view menu items, play games, order food and beverage items, and settle the bill. After matching the POS transaction data to guests' email responses, excluding cash transactions and those with no tip on the credit card, the final sample was 1,358.

Dependent variables. To determine how well guests liked the technology, the email survey asked them, "How did the tabletop device improve your dining experience?" Although this was an open-ended question, a pilot test of 306 diners' responses allowed the researchers to assign the answers to one of five categories, as described next. The other key outcome metric was tip percentage relative to total sales measured per transaction, which helped control for the number of guests at each table. Tip percentage was used a proxy for the guest satisfaction with the service experience.

The five response categories were as follows:

- (1) **Did not like the device.** This category included guests who stated that they missed the contact with the service personnel,

the device was in the way on the table, or that the device diminished the service experience. This category of responses indicated that the use of the device diminished their service experience (coded as 1);

- (2) **Device malfunction.** In addition to an actual malfunction, this category included operator issues, such as guests' wanting more information about how the device worked, or complaining about charges for the games, about a lack of connection to the restaurant's loyalty program, or about problems with applying coupons (coded as 2).
- (3) **Neutral.** This category included relatively neutral or mixed responses, such as when guests reported both a positive and negative response to the device (coded as 3).
- (4) **Convenience.** Answers in this category expressed guests' overall positive reaction to the device, citing ease of use, convenience, speed, functionality, control of credit card information, or reduced wait times in placing and receiving orders (coded as 4).
- (5) **Great experience.** This category included those who enjoyed using the device. They said it was fun to use, appreciated the self-service aspect, and found that it enhanced their service experience greatly (coded as 5).

The coders found that a high level of agreement emerged in categorizing the survey responses, supporting the classification scheme developed in the pilot study. The researchers had to examine and reclassify only 41 of the 1,358 responses that the two coders did not completely agree upon.

Independent variables. Participants also responded to questions regarding whether the table device improved their experience and increased or decreased their likelihood to return to the restaurant. With a code of 2, the "Increase" response would have a higher value than the "Decrease" response, which was coded as 1.

Analyses

The statistical analysis included multivariate analysis of variance to test the mean values of guests' liking for the tabletop device and the tip percentage (as the dependent variables) compared to the guests' assessment of whether the tabletop device improved their restaurant experience and whether they intended to return. Independent t-tests were conducted to test the magnitude and significance of the differences uncovered in the dependent variables.

Multivariate analysis results. The multivariate analysis indicated that guests generally liked the tabletop technology, and many reported that it improved their restaurant experience. Those happy guests cited the technology as a reason to return, and they left better tips than those who were not so keen on the technology. The multivariate model further found that guests' reactions to the tabletop device were connected to

Response frequencies for categorical and interval study variables (N = 1,358)

Categories of Likeability	Frequency	Percentage
Did not like	132	9.70
Device malfunction	189	13.90
Neutral	72	5.30
Convenience	868	63.90
Great Experience	97	7.10
Improve Experience	Frequency	Percentage
No	288	21.20
Yes	1070	78.80
Return Intention	Frequency	Percentage
Decrease	233	17.20
Increase	1125	82.80

varying levels of why or how they liked the tabletop device, as well as their tip level. For the effect-on-experience variable, the Hotelling Trace Statistic was significant in the model,¹ as was the return intent variable.² The interaction between effect on experience and return intent was not significant, however.

Between subjects effects: likeability. Restaurant guests' perceptions that the tabletop device improved their experience in the restaurant was significantly related to their liking for the tabletop device.³ The t-test was also significant,⁴ showing that restaurant guests who reported that they liked the device overwhelmingly reported that the tabletop device improved their experience in the restaurant.⁵

Restaurant guests' perceptions that the tabletop device influenced their desire to return to the restaurant were significantly related to their liking for the tabletop device,⁶ showing that guests who reported that they liked the device overwhelmingly reported that the tabletop device influenced their desire to return to the restaurant.⁷

¹ HTS = .48, $p < .001$, with an F statistic of $F(2, 1353) = 32.19$, $p < .001$, $\eta^2 = .05$.

² HTS = .41, $p < .001$, with an F statistic of $F(2, 1353) = 27.71$, $p < .001$, $\eta^2 = .04$.

³ $F[1, 1354] = 63.72$, $p < .001$, $\eta^2 = .05$.

⁴ $t[1356] = -31.42$, $p < .001$.

⁵ $M = 3.83$, $SD = .76$, for "improved," and $M = 2.05$, $SD = 1.13$, for "did not improve."

⁶ $F[1, 1354] = 50.33$, $p < .001$, $\eta^2 = .04$; t-test: $t[1356] = -31.96$, $p < .001$.

⁷ $M = 3.78$, $SD = .81$, for increased intent to return, and $M = 1.84$, $SD = 1.01$, for decreased intention.

Tip percentage. Respondents' perceptions that the tabletop device improved their experience in the restaurant were not significantly related to the tip that they left for their server.⁸ While not significant in the between-subjects model, however, the t-test was significant and showed that restaurant guests tipped their server more when they reported that the tabletop device improved their dining experience.⁹

Restaurant guests' perceptions that the tabletop device influenced their desire to return to the restaurant also were significantly related to the tip that they left for their server.¹⁰ The t-test was also significant, showing that restaurant guests who tipped their servers more overwhelmingly reported that the tabletop device influenced their desire to return to the restaurant.¹¹

Discussion

Over 70 percent of the customers liked using the tabletop device. Approximately 79 percent of customers reported that the tabletop device improved their dining experience, and nearly 83 percent said that they would return to the restaurant as a result of using the device (see Exhibit 3). Likewise, the dependent variables—liking for the device and tip percentage—were positively and significantly correlated with customers' reports of the tabletop devices having a positive effect on their experience in the restaurant and their desire to return to the restaurant. These findings are consistent with the 2014 National Restaurant Association study, where 79 percent of customers reported that technology options increased convenience and 70 percent said that technology options speed up service and improve order accuracy.¹²

Minority report. In the midst of the good news that the large majority of customers found the tabletop devices to be a useful addition to the service experience, however, it's important to note that slightly more than 20 percent of the respondents were not so pleased. This group of customers should not be ignored. In full-service restaurant settings (or any service-based setting) restaurant operators need to be sure that their service staff members determine whether customers are interested in using the technology, offering them the support to do so, and not shaming them if they take a pass.

The study underscores the common-sense principle that the customers who reported that they did not like the tabletop device, either for reasons of affect in the service episode or due to some element of functionality, should be given the option to not use the technology or to discontinue its use at any point during the meal. This will require operators to train their staff to

⁸ $F[1, 1354] = .42$, $p = .52$, $\eta^2 = .00$.

⁹ $t[1356] = -5.18$, $p < .001$; $M = 15.94$, $SD = 7.61$ for "improved," and $M = 13.48$, $SD = 5.28$, for "did not improve."

¹⁰ $F[1, 1354] = 4.38$, $p = .04$, $\eta^2 = .004$.

¹¹ $t[1356] = -6.22$, $p < .001$; $M = 15.97$, $SD = 7.54$, for "increased" and $M = 12.77$, $SD = 4.74$, for "decreased."

¹² NRA, *loc.cit.*

Correlations and descriptive statistics for study variables (N = 1,358)

	M	SD	(1)	(2)	(3)	(4)
(1) Effect on Experience ^a	1.79	.41	-			
(2) Return Intent ^b	1.83	.38	.83***	-		
(3) Likeability	3.45	1.12	.65***	.66***	-	
(4) Tip Percentage	15.42	7.24	.14***	.17***	.09**	-

Notes: ^a "Decrease" was coded as 1, "Increase" was coded as 2; ^b "No" was coded as 1, "Yes" was coded as 2;
 ** Correlation is significant at $p = .01$ level (2-tailed); *** Correlation is significant $p < .001$ level (2-tailed).

monitor each customer transaction to ensure that the customers get the service they expect, regardless of their involvement with the technology.

It may also be that the minority of users who did not like the tabletop technology may warm up to it as they learn more about its use. This learning curve generally occurs with the adoption of technology. Wang, Harris, and Patterson, for instance, found that customers over time will become familiar with customer-facing technology, learn how to use it, see the benefits from it, and become satisfied with it.¹³ Once satisfied with the technology they will use it regularly, as in the case of airline check-in kiosks. Needless to say, the restaurant situation is different from airlines, in part because the service providers are mostly tipped employees. In that vein, servers should be aware that guests who reported a negative experience with the tabletop device left on average a 2-percent lower tip and reported they were less likely to return to the restaurant. Knowing this, both

¹³ Wang, C., Harris, J., Patterson, P. (2013). The roles of habit, self-efficacy, and satisfaction in driving continued use of self-service technologies: A longitudinal study. *Journal of Service Research*, 16(3): 400-414.

managers and their line-level staff again should understand the need to closely monitor customers' progress with technology. That includes working with customers who enjoy using the device, and who as a result left larger gratuities on average and reported an increased desire to return to restaurant.

Limitations and Suggestions for Future Research

This study is limited by the fact that its data comes from a single multiunit restaurant company. Despite the relatively large sample size, one should be cautious in generalizing these findings. They may apply to other full-service restaurants but studies should also examine the effect of technology in other restaurant companies and service-based businesses. Also, due to data limitations, this study could not consider guests' socio-demographics or their evaluation of the food, service, ambience, or servers' reactions to the technology. In conclusion, as customer participation in service experiences and the related use of technology becomes more prevalent in service-based experiences, business owners, their staff, and their customers should continue to learn more about how technology can be used to add value to service experiences. ■

Consumer Preferences for U.S. Restaurant-based Technology

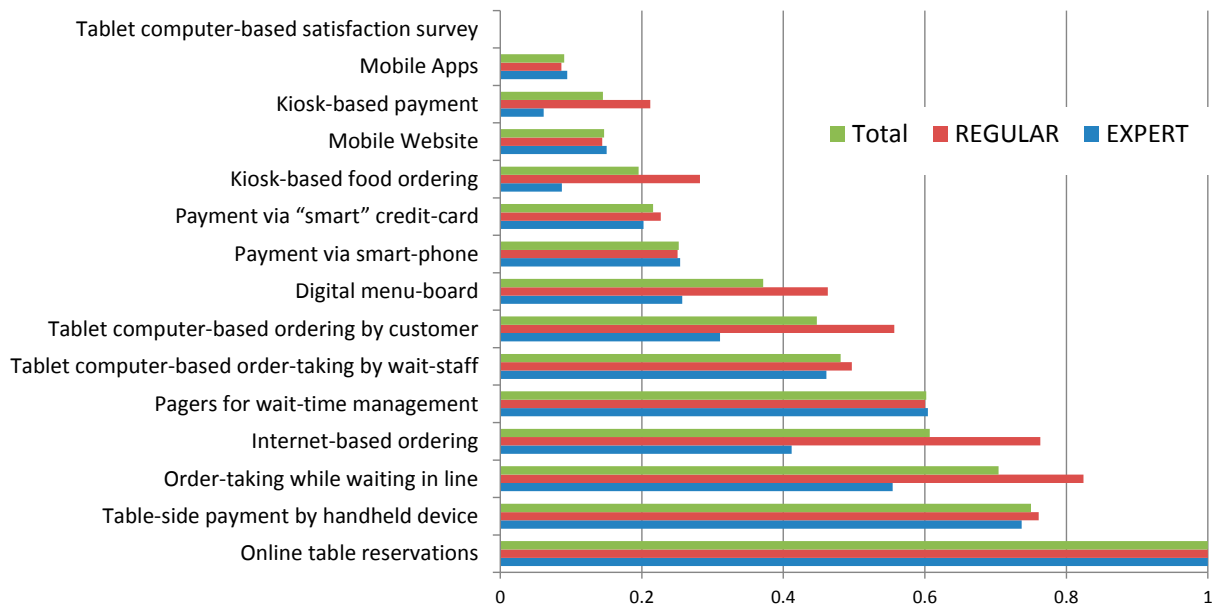
Michael White, Ben Lawrence, Rohit Verma

As is the case with all hospitality firms, restaurants would like to make more use of customer-facing technology, both to improve service and to reduce operating expenses. As just one example, DineEquity, the franchisor for Applebee's and IHOP, committed to putting E la Carte Presto tablets on each table of more than 1,800 Applebee's locations in 2014.¹⁴ DineEquity believes that this investment in tablets would improve ordering efficiency, customer satisfaction, and profitability. Chili's and Olive Garden made similar announcements in 2015. The key to the success of these technology investments is making sure of the proper alignment of operations capabilities to provide superior firm performance.¹⁵ The study described in this paper focuses on the issue of consumer expectations for technology, with a goal of matching those with firms' technological programs. Based on a survey of more than 1,000 restaurant patrons, the study explores the relative importance and utilities of technological features for "expert" customers, who are accustomed to using technology, and "regular" customers, who are less familiar with the systems. Eventually the study will connect those customer preferences with the level of technological innovation in the restaurant industry, since technological innovations must match a restaurant's business strategy.

¹⁴ Alex Konrad, "Applebee's Will Install 100,000 Intel-Backed Tablets Next Year In Record Rollout," *Forbes*, 12/03/2013.

¹⁵ Boyer, Kenneth K, Morgan Swink, and Eve D Rosenzweig (2005), "Operations strategy research in the POMS journal," *Production and Operations Management*, 14 (4), 442-449.

Utility ratings of restaurant technology



Technology investment in the restaurant industry has historically been focused on improving employee productivity and overall efficiency. However, with the advent of mobile technologies and social media, technology is increasingly focusing on marketing and consumer "productivity." This shift in focus requires restaurant companies to spend a greater percentage of their budgets on consumer-facing technology and ensuring that the technology suits customers' needs. Customer-facing technology can include integration with online reservation service providers, such as OpenTable, or with marketers, such as TripAdvisor.

When making these investments, restaurateurs must weigh the potential benefits for their customer base against the potential costs, both financial and operational. Although restaurants may benefit from the implementation of new technologies, an equally important consideration is the appeal and adoption of the technology by the target market. Some customers embrace technology, while for others technology may cause discomfort and decreased satisfaction. Therefore, it is important to understand different customers' preferences for restaurant technologies and to align technology implementation with such preferences. Restaurants need to assess their consumer profile and identify their target market to customize their technology strategy and maximize the return on investment. Age, gender, income, expertise, and technology proclivity (as represented, for instance, by the Technology Readiness Index) all may affect customers' technology preferences.

One study found that convenience, ease of use, and fast service are the most valued features of self-service technologies, at least in casual-dining restaurants.¹⁶ That study also demonstrated that preferences can be influenced by demographic characteristics. Age is one demographic that has been shown to influence technology, with older customers rating promotion as the most important factor when looking for fine-dining restaurants.¹⁷ The Technology Readiness Index (TRI) holds promise in evaluating restaurant consumers' preferences for technology. Lee, Castellanos, and Choi, for instance, found that people with higher TRI have greater intention to use kiosk-type technology.¹⁸

Research Design

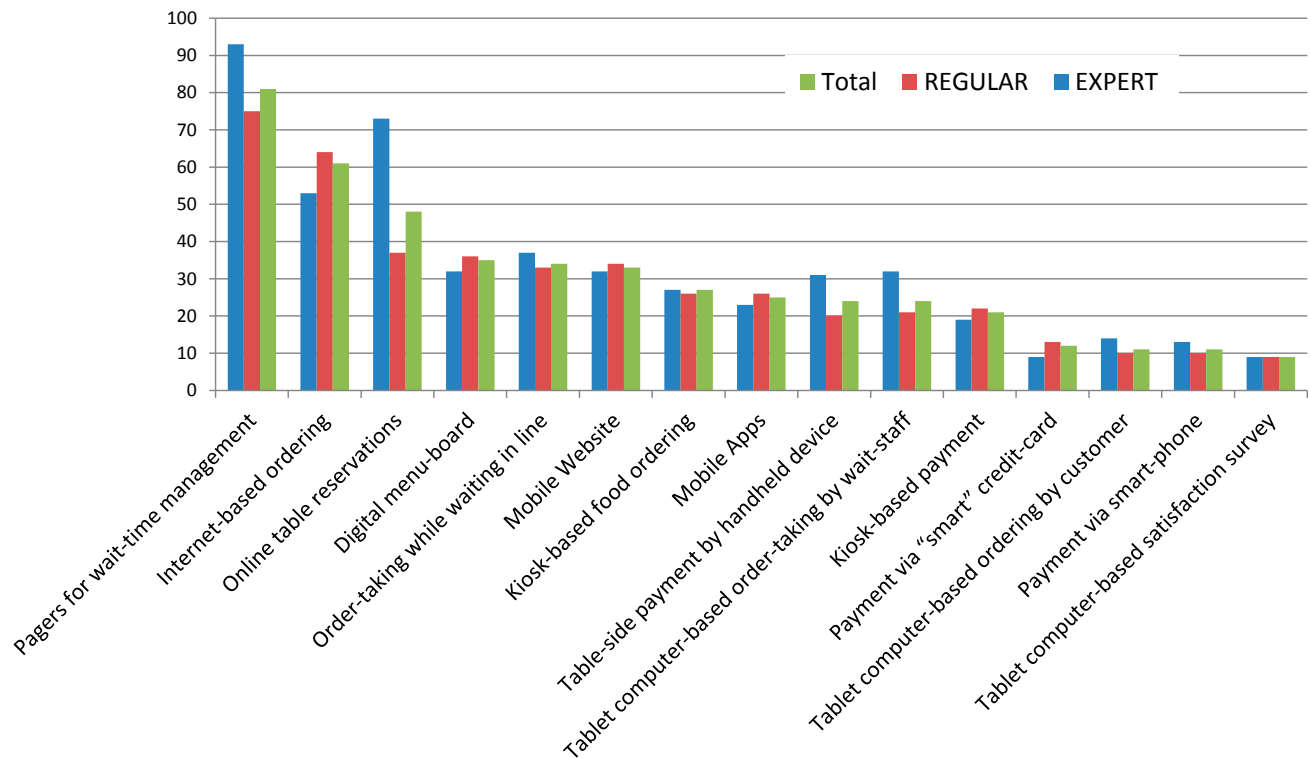
To explore the research questions, the authors developed and administered a survey that contained questions relating to respondents' background, their past use of and experiences with technology-based innovations in restaurants, a discrete choice

¹⁶ Kincaid, Clark S and Seyhmus Baloglu (2006), "An exploratory study on the impact of self-service technology on restaurant operations," *Journal of Foodservice Business Research*, 8 (3), 55–65.

¹⁷ Harrington, Robert J, Michael C Ottenbacher, and KW Kendall (2011), "Fine-dining restaurant selection: Direct and moderating effects of customer attributes," *Journal of Foodservice Business Research*, 14 (3), 272–289.

¹⁸ Lee, Woojin, Cassandra Castellanos, and HS Chris Choi (2012), "The Effect of Technology Readiness on Customers' Attitudes toward Self-Service Technology and Its Adoption; The Empirical Study of US Airline Self-Service Check-In Kiosks," *Journal of Travel & Tourism Marketing*, 29 (8), 731–43.

Percentage of respondents who have used restaurant technologies



experiment, and an abbreviated version of Parasuraman's TRI scale.¹⁹

In addition to demographic questions, the survey asked general questions about the frequency of the respondents' restaurant visits, their spending, and their approaches for choosing a restaurant. The restaurant categories are kiosk or café, quick service, fast casual, casual, upscale casual, and fine dining. The survey asked respondents how often they visit each type of restaurant and how much they typically spend on average per person when they visit each type of restaurant. Then the survey asked how often respondents use different types of information sources when choosing restaurants, including social media, group discount sites, published reviews or online review sites, their own past experiences, recommendations of friends or family, location-based mobile applications, and professional rating sources. The questionnaire asked the respondents to specify

¹⁹ A. Parasuraman, "Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies," *Journal of Service Research*, Vol. 2, No. 4 (May 2000), pp. 307-320.

the web sites and apps they consulted. Then they were asked to indicate which of fifteen different technologies they might have used in recent restaurant visits.

To gain a perspective on guests' technology preferences, a discrete choice experiment asked the respondents to choose their preferred restaurant based on multiple criteria that included several types of technology-based innovations.²⁰ Such experiments allowed the researchers to apply a multinomial logit analysis to identify the relative weights (or utilities) of each alternative.²¹

²⁰ J.J. Louviere and G. Woodworth, "Design and analysis of simulated consumer choice or allocation experiments: an approach based on aggregate data," *Journal of Marketing Research*, 1983, pp. 350-367.

²¹ Liana Victorino, Rohit Verma, Gerhard Plaschka, and Chekitan Dev, "Service Innovation and Customer Choices in the Hospitality Industry," *Managing Service Quality*, Vol. 15, No. 6 (2005), pp. 555-576; Daniel McFadden, "The Choice Theory Approach to Market Research," *Marketing Science*, Vol. 5, No. 4 (Autumn 1986), pp. 275-297; and Verma, R., Pullman, M., and Goo-dale, J. (1999). Designing and positioning services for multicultural markets. *Cornell Hotel and Restaurant Administration Quarterly*, 40(6), 76-87

The abbreviated TRI estimated respondents' technology readiness, using five Likert-type questions about respondents' general perceptions of technology, with responses ranging from strongly disagree to strongly agree. Finally, in the last section of the survey, respondents were asked traditional demographic types of questions such as age and gender.

Data Collection

With the assistance of TripAdvisor, the survey was sent to a randomly selected sample of approximately 3,000 customers drawn from TripAdvisor's vast database of millions of site users. A total of 1,093 useable surveys were returned, for approximately a 33-percent rate. TripAdvisor provided the data directly, making a formal assessment of response bias impossible. Thus, these data must be considered exploratory, although the large response makes this a useful pool of data. Some three-fifths of the respondents were women, and the largest single age range was

25 to 34. Analysis of the data revealed that most respondents had a college degree or above and nearly half of the individuals reported income more than \$100,000 dollars a year.

Results and Discussion

Pending further analysis, this paper presents some of the survey data. As shown in Exhibit 5, respondents gave high marks to the utility of online table reservations and reasonable support to internet ordering, ordering while waiting, and tableside payment devices. Respondents were more reserved about kiosk-based ordering and payment, as well as smart-card and phone payments. Those utility scores may partially reflect the respondents' (lack of) familiarity with a particular technology, as indicated in Exhibit 6. So far, it appears that the old fashioned paper menu is still the favorite, and personal experience and recommendations still trump third-party recommendations, whether online or in traditional media. ■

Engaging Generation Y Customers in Technology-based Innovation

TingTing Zhang

This paper builds a profile of Generation Y, which is generally regarded as people born between 1980 and 1994, now aged 20 to 34 (although various sources give other age ranges). With regard to their technology use, the members of Generation Y are considered to be multi-taskers, use smartphones extensively for social networking, and actively engage in e-commerce and in posting and reading reviews online.²²

²² Bolton, R.N., Parasuraman, A., Hoefnagels, A., Migchels, N., Kabadayi, S., Gruber, T., Loureiro, Y.K., (2013a), "Understanding Generation Y and their use of social media: a review and research agenda", *Journal of Service Management*, Vol. 24 No. 3, pp. 245–267.; Parment, op.cit.; Taylor, S.L. and Cosenza, R.M. (2002), "Profiling later aged female teens: mall shopping behavior and clothing choice", *Journal of Consumer Marketing*, Vol. 19 No. 5, pp. 393–408; and Lester, D.H., Forman, A.M. and Loyd, D. (2006), "Internet shopping and buying behavior of college students", *Services Marketing Quarterly*, Vol. 27 No. 2, pp. 123–138.

As the first generation of people to grow up surrounded by digital devices and extensive connectivity, they have been described as follows:²³

- **Tech-savvy**—confident in using new technology;
- **Socially minded**—constantly involved in social networking and civic minded;
- **Independently dependent**—research before making decisions and value recommendations from others; and
- **Practically motivated**—sensitive to incentives and costs.

The Economics of Generation Y

Academics and practitioners unanimously regard Generation Y as a priority market segment that no business can afford to ignore.²⁴ With more than 75 million members, Generation Y represents the largest population of young people in U.S. history.²⁵ Although this group is strong in both numbers and affluence, its members have also lived through the Great Recession. Deloitte reported that Generation Y boasts a collective income of over \$1.89 trillion and their cumulative earnings are projected to increase by 85 percent within the next 10 years, surpassing those of their Baby Boomer parents by as much as \$500 billion.²⁶ Another reason that Generation Y members attract marketers is that they are an economically robust cohort with \$200 billion in annual expenditures, and their spending increases 31 percent yearly.²⁷ Generation Y usually has positive attitudes toward e-commerce.²⁸ They tend to purchase more than the general population online, and frequently spend money on clothing,

²³ Deloitte. (2010), Deloitte | Why is Gen Y Important? | The Implications of Gen Y Consumers for Banks | Center for Banking Solutions (industry report), available at: www.deloitte.com/view/en_us/us/3418e23a4b101210VgnVCM100000ba42f00aRC RD.htm (viewed 25 October 2014); and Oracle. (2010), Oracle and Efina Announce the Results of Next Generation (Gen Y) Customer Survey (industry report), available at: www.oracle.com/us/corporate/press/175600 (viewed 25 October 2014).

²⁴ Lazarevic, V. (2012), "Encouraging brand loyalty in fickle generation Y consumers", *Young Consumers: Insight and Ideas for Responsible Marketers*, Vol. 13 No. 1, pp. 45–61.

²⁵ Deloitte, *loc.cit.*; Bolton *et al.*, *op.cit.*

²⁶ Deloitte, *loc.cit.*

²⁷ Nusair, K., Bilgihan, A., Okumus, F., Cobanoglu, C. (2013), "Generation Y travelers' commitment to online social network websites", *Tourism Management*, Vol. 35, pp. 13–22; and American Express Business Insights. (2011), "American Express Business Insights and U.S. Travel Association Launch Exclusive 'Destination Insights' Report Series", American Express, available at <http://about.americanexpress.com/news/pr/2011/insights.aspx> (viewed 30 December 2014).

²⁸ Yoon, C., Cole, C.A. and Lee, M.P. (2009), "Consumer decision making and aging: Current knowledge and future directions", *Journal of Consumer Psychology*, Vol. 19 No. 1, pp. 2–16; Siwicki, B. (2014, April 28), "Mobile Commerce - E-commerce and m-commerce: The next five years, Internet Retailer", available at: <http://www.internetretailer.com/commentary/2014/04/28/e-commerce-and-m-commerce-next-five-years> (viewed 17 November 2014).

computer software, books, event tickets, music, flowers, airline tickets, and hotels.²⁹

Given the size and financial power of Generation Y, as well as their proclivity for travel, this cohort is a significant market for the hospitality and services industries. A large proportion of Generation Y's expenditures, estimated at \$136 billion globally, are for food and beverage away from home.³⁰ Indeed, Generation Y eats out more than three times a week, twice the frequency as that of the rest of the population.³¹

Most to the point, this cohort wants to decide when, where, and how brands communicate with them, and they want to be actively engaged with firms by contributing thoughts and ideas to shape the firms' products and services.

As the hospitality industry looks to the future, Generation Y is particularly important, given their interest as consumers of food, beverage and accommodation, and also because of their willingness to share their ideas. Engaging Generation Y as co-creators of market innovations will help hospitality firms stay at the forefront of competition and thrive in the long term.³²

Fusion of Technology and Innovation

In addition to being heard, this cohort wants to be socially engaged with both firms and other customers.³³ While service firms have recognized the extensive purchasing power of Generation Y customers,³⁴ some also have discovered that this group is willing to contribute to the firms' product and service innovations, particularly in connection with technological solutions.³⁵ The innovative mindset of Generation Y consumers clearly underpins the success harnessed by internet-based firms such as Google, Facebook, Twitter, and Zappos.

²⁹ Comegys, C. and Brennan, M.L. (2003), "Students' online shopping behavior: A dual-country perspective", *Journal of Internet Commerce*, Vol. 2 No. 2, pp. 69–87; Valentine, D.B. and Powers, T.L. (2013a), "Online product search and purchase behavior of Generation Y", *Atlantic Marketing Journal*, Vol. 2 No. 1, p. 6.

³⁰ Petrak, N. (2011), "Generation Y: soon-to-be your next best customers", *Adventure Travel*; and Apresley. (2010, May 4), "»Marketing to Generation Y", available at: <http://www.timeforge.com/site/blog/marketing-generation-cash-elusive-demographic/> (viewed 25 October 2014).

³¹ Sheahan, P. (2005), "Generation Y: Thriving and surviving with generation Y at work", available at: <http://hdl.voced.edu.au/10707/88840> (viewed 25 October 2014).

³² For example, Nusair, K., Parsa, H.G., Cobanoglu, C. (2011), "Building a model of commitment for Generation Y: An empirical study on e-travel retailers", *Tourism Management*, Vol. 32 No. 4, pp. 833–843; Lazarevic, V. (2012), "Encouraging brand loyalty in fickle generation Y consumers", *Young Consumers: Insight and Ideas for Responsible Marketers*, Vol. 13 No. 1, pp. 45–61; and Bolton *et al.*, *op.cit.*

³³ Boys, S.K. (2010), "The Millennials Refuse to Be Ignored! An Analysis of How the Obama Administration Furthers the Political Engagement of a New Generation.", *International Journal of Public Participation*, Vol. 4 No. 1, pp. 31–42.

³⁴ Lazarevic, *op.cit.*

³⁵ For example, Bolton *et al.*, *op.cit.*; Sheahan, *op.cit.*; and Nusair *et al.*, *op.cit.*

Innovative Examples

Firms in hospitality and other industries have gained valuable input by engaging customers as co-innovators of products and services.³⁶ The following are five examples of Generation Y–driven innovations: Starwood’s “keyless entry” approach, Marriott and Ikea’s Moxy hotel, Uber and Spotify’s “music on the road” campaign, Mercedes-Benz’s Instagram strategy, and Jibun Bank’s mobile-based “bank anywhere” strategy.

Starwood has announced its investment in developing check-in through mobile technology and to replace room keycards with keyless entry using mobile technology.³⁷ The Starwood group has promised that guests soon would be able to enter their hotel rooms using their smartphones as room keys. Although guests of all ages will appreciate this development, the innovation should particularly boost the firm’s appeal among young, gadget-aware customers.

Marriott Corporation has teamed up with Ikea to develop a new hotel concept named “Moxy” that primarily targets Generation Y consumers. Moxy’s formula is “small, low-cost rooms with grab-and-go food and the feel of a Silicon Valley startup.”³⁸ Marriott plans to open 150 Moxy hotels in the next ten years. Chairman Bill Marriott projects that Generation Y consumers

will constitute more than 60 percent of Marriott’s customer base by 2018.³⁹

Mercedes-Benz recruited contestants to undertake a cross-country excursion in a GLA Sports utility vehicle and to post photos on their Instagram accounts.⁴⁰ Interested fans could follow the competitors through Instagram feeds or via Mercedes-Benz’s other social media pages.

Uber gained considerable buzz when it joined forces with Spotify to enable Uber clients to remotely control the music that plays in the vehicle when it is hired.⁴¹

Japan’s Jibun Bank gained over 500,000 new accounts when it became the first to offer its entire range of banking products and services through mobile channels as their primary contact with customers.⁴² Services included opening an account using a mobile phone and its camera, as well as fund transfers, payments, web-based shopping, and auctions.

These examples represent a snapshot of the continuing fusion of technology and innovation in the hospitality industry and elsewhere. It is clear that hospitality leaders seek ways to adopt technology-based service innovations, and it is equally clear that Generation Y can be part of those innovations. Needless to say, customers are not the only source of innovative ideas, and firms can also look to their employees as co-creators of value, especially since customers and employees already co-create the service experience itself. ■

³⁶ Adner, R. and Kapoor, R. (2010), “Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations,” *Strategic management journal*, Vol. 31 No. 3, pp. 306–333.

³⁷ Chahal, N. and Kumar, M. (2014), “The Impact of Information Communication Technology and Its Application’s usage in Lodging Industry: An Exploratory Study”, available at: <http://ijtmr.com/downloads/J1402%20The%20Impact%20of%20Information%20Communication%20Technology%20and%20its%20Applications%20usage%20in%20Lodging%20Industry-An%20Exploratory%20Study.pdf> (viewed 2 December 2014)

³⁸ Tuttle, B. (2013, March), “Marriott & IKEA Launch a Hotel Brand for Millennials: What Does That Even Mean?”, *Time*, available at: <http://business.time.com/2013/03/08/marriott-ikea-launch-a-hotel-brand-for-millennials-what-does-that-even-mean/> (viewed 30 December 2014).

³⁹ Sorenson, A. (2014, August), “We’re Glad to Have You Here,” available at: <http://online.barrons.com/articles/SB50001424127887324616904580099770163197284>

⁴⁰ McDermott, J. (2014, July 10), “Mercedes-Benz uses Instagram to sell cars to millennials - Digiday”, available at: <http://digiday.com/brands/mercedes-benz-uses-instagram-sell-cars-millennials/> (viewed 30 December 2014).

⁴¹ Rahul. (2014, November), “Uber & Spotify = Music for Your Ride”, *Uber Blog*, available at: <https://blog.uber.com/spotify> (viewed 30 December 2014).

⁴² Mitsubishi, U.F.J. (2011), “Fiscal 2011 Interim Results Databook”, available at: http://www.mufg.jp/english/ir/presentation/backnumber/pdf/databook1109_e.pdf (viewed 2 December 2014).

CHRS Data Presentation Summaries

Grey Ocean Strategy: Service Innovation for a Booming Business

Edgar Keehnen, Career Coach and Lecturer, Course Chair Strategy Development, Hotelschool The Hague

The “grey ocean” strategy refers to developing the right strategies to maximize the opportunities being generated by aging as a key force driving change in the hospitality industry. Based on the psychology of aging, firms can develop a grey ocean strategy by creating, spreading, and realizing an authentic, inspiring value proposition for the mature consumer. This requires an understanding of the psychology of aging and the business implications.

The New Science of Managing and Engaging Next Gen

Vaibhav Garg, Head of Operations & Quality—Platinum Capital Holdings (PCH)—Eriyadu Island Resort & Spa, Maldives

Although many human resources approaches are relatively timeless, an organization should establish systems for developing and assessing the engagement of its Gen Y workforce. The aims of such an approach include enabling and encouraging them to contribute effectively, providing a nurturing and growth-oriented environment with a focus on leadership behaviors, and promoting organizational values and culture. Gen Y managers and organizations can assess, engage, manage, and develop their diverse workforce, to its new employees’ full potential in alignment with the firm’s overall mission, strategy, game plan, and value system, through identified leadership behaviors. These behaviors are required for superior performance in the context of leadership of people at all levels in an organization.

Unveil “Secrets” to Engaging Gen Y Customers: The Fusion of Technology and Innovation

Jay Kandampully, Professor of Service Management, The Ohio State University; Co-authors and presenters: Anil Bilgihan and Tingting (Christina) Zhang

This presentation highlights the combined role of technology and service innovation in providing competitiveness in the hospitality industry. The fusion of technology and service innovation can serve as an engine to nurture relationships with Generation Y customers, to co-create value, and to gain their active loyalty.

How to Drive Business through Mobile

Adam Anderson, Director of Industry Relations, Expedia, Inc
Mobile booking can generate demand strategically, based on an knowledge of traveler booking habits and characteristics. Firms can consider the ROI of developing your own mobile web solution or app experience, as against outsourcing this to partners who can do so efficiently.

Innovator’s Dilemma: The Silent Front Desk

Vikas Bhakta ’13, Founder & Chief Executive Officer, Ve-Go Mobile Apps, Inc.

Recently, mobile has been the center of conversation for the hotel sector, but much of the focus has been on the consumer. Guest-facing mobile solutions must be applied to service processes to produce service innovation and increase operational efficiency. Back-of-house API integration is required to produce seamless guest-facing mobile solutions.

Cyborg Service and the Battle for the Soul of Hospitality

Michael Giebelhausen, Assistant Professor of Marketing, Cornell University, School of Hotel Administration

What would “humanless hospitality” look and feel like? Will we see a “service schism” where hospitality splits into high- and low-touch versions? Can these disparate (tech vs. touch) service experiences exist under a single roof or brand? Alternatively, how might tech and touch be blended together going forward?

New Channels for Booking Rooms: What Do the Data Tell Us About the User Experience?

Rick Garlick, Global Travel and Hospitality Practice Lead, J. D. Power

There are new emerging avenues for making your reservation at a hotel, including social media and hotel branding apps. It’s essential to explore the extent to which guests have grown accustomed to these new reservation methods, and the degree to which they serve as effective vehicles for guest engagement with the brands. While the new reservation channels offer opportunities, there are corresponding challenges as well. For one thing, the guests who are most likely to use these new channels represent a distinctive subset of the guest population.

The Future for Hotel-OTA Relationships

Larry Mogelonsky, Founder and President, LMA Communications Inc.

Successfully navigating our relationships with online travel agencies (OTAs) is a consummate process with no single solution working for every property. The principles examined here allow each hotelier can develop his or her own best practices on how best to approach these digital channels. Hotel companies must drastically adjust their revenue and marketing strategies to sustain their brand presence among contemporary consumers who increasingly use third-party websites for travel research and bookings. However, the more things change, the more they stay the same. Reinvesting in a hotel’s core operations such as guest service, housekeeping, and F&B may also offer a potent solution to mitigate any disruptions caused by shifting consumer behavior.

CHRS Data Presentation Summaries (continued)

The Resurgent Voice Channel—Are You Answering the Call?

Michelle Marquis, Vice President, Marketing and Strategic Initiatives, NAVIS

The increase in mobile use for travel searches has allowed a resurgence of the voice channel, opening new opportunities for creating strong, lifetime relationships with your guests. Hoteliers can rise to the challenge with innovative, data-focused best practices for guest service and outbound selling that exponentially increase revenue. Analyses include call volume, abandonment, agents asking for the reservation, and guest repeat visits. Lead management and after-hours call management can bring as much as a 20-percent increase in hotel revenue

The Impact of Social Media Metrics Including Check-ins, Comments, and Reviews on Restaurant Performance

Michael Lukianoff MMH '00, Founder and President, Czar Capital Inc.; Co-author and presenter: Alexandra Failmezger

Social data are used far and wide by marketers, and insights from these data can inform many decisions offering a window into how consumers view competitors and segments. In this research, we examined how social media can be used to understand competitor sales volume, and when merged with other data sources, help restaurateurs identify potential new locations. Social media have created a deluge of data for experiential brands - from tracking customer activity to detailed accounts of the full hospitality experience, which to date has been used primarily for guest recovery and Internet marketing. The analyses require appropriate social media metrics and benchmarks combined with the right techniques to help restaurateurs target new potential locations (offense) as well as understand competitor intrusion in existing markets (defense)

A Dark Side to Social Media? Preliminary Research on Technology's Impact for Competency in Offline Communication

Jim Houran, Managing Director, AETHOS Consulting Group

Social media have been heralded as an effective means for communication and branding, but recent research reveals unintended and negative consequences. In particular, data from social media can be unreliable, and for some individuals the use of social media is associated with a decreased capacity for face-to-face interpersonal communication. Thus, the increased use of social media at the individual level may erode the hospitality experience by reducing one's opportunity for interpersonal communication.

Assessing the Impact of Social Media on Brand Value

Peter O'Connor, Dean of Academic Programs and Professor of Information Systems, ESSEC Business School; Co-author and presenter: Anatoli Colicev

Social media need to be carefully managed. However, justifying the investment need is challenging, as it's not clear whether doing so is actually beneficial. Examining Facebook, Twitter, and YouTube, this quantitative study focused on establishing how to measure the effect of managing social media, as well as on identifying which actions have a positive effect on brand value. The study found that user actions on YouTube generate the highest positive boost in brand value, and brand actions on Facebook (particularly status updates and posting photos) are also important. In contrast, user actions on Facebook significantly decrease brand value.

The Three A's of Tabletop Technology in Full Service Restaurants: Applications, Advances, Answers

Alex Susskind, Associate Professor, Cornell University, School of Hotel Administration; Co-authors and presenters: Saqib Awan, Ron Parikh, Rajat Suri

Restaurant guests are generally supportive of guest-facing technology, but the equipment does affect the service management process. Looking at traditional models of guest service management, guest-facing technology has the potential to improve the guest experience and restaurant performance.

Not Even Hercules Could Contend against Two—The Impact of Team Presence on Worker Productivity

Tom (Fangyun) Tan, Assistant Professor, Cox Business School, Southern Methodist University

A study how the sales skill levels of the coworkers in the same working group affect those restaurant servers' performance (measured as sales and meal duration) finds that the servers' sales increased with the average skill level of the coworkers at a cost of longer meal duration, when the overall skill level is low. However, their sales performance will decrease after a certain skill-level threshold. For the restaurants in this study, that critical threshold was not being reached. Therefore, the restaurants need to optimize their staffing and scheduling decisions to increase the average skill level of the working group so as to increase the sales. Such staffing decisions must take into account servers' heterogeneous skill levels.

CHRS Data Presentation Summaries (concluded)

Restaurant Industry 2014 and Beyond

B. Hudson Riehle, Senior Vice President—Research & Knowledge Group, National Restaurant Association

In 2014, the restaurant industry will post record sales of \$683 billion and employ 13.5 million individuals. Trends in economics, consumer demographics, labor-force composition, and technology continue to shape the future of food-service markets and their suppliers. The restaurant industry faces a remarkable set of both challenges and opportunities as restaurant operators strive to meet the growing customer demand for food away from home. One key trend: Greater reliance on technology in such a labor-intensive industry will boost productivity and enhance customer retention and loyalty.

Technology-Based Innovations in Restaurants: Contrasting Customer Preferences & Operator Strategies

Michael White MMH '12, Manager, Business Research, National Restaurant Association Solutions, LLC; Co-authors and presenters: Ben Lawrence, Rohit Verma

The goal for owners and operators should be to match capital and operational expenditures on technology that increases service efficiency and effectiveness, improving guest satisfaction and loyalty. The research notes a gap between customer needs and management perceptions of customer needs and preferences, for technology-based innovations in restaurants. The contrast between whatever benefit operators hope to gain when employing technology, and customer-perceived benefit, shows the disconnect in current technology implementations.

How to Avoid Legal Disasters in the Internet Age

Peter Vogel, Partner, Gardere Wynne Sewell, LLP

The internet and information technology (IT) have forever changed the world, including hospitality, travel, and related industries, and as a result there are new legal risks. No business can avoid litigation which means eDiscovery, so protection of electronic records is essential to every business.

Protecting Your (Digital) Assets: Contextual Factors Impacting Your Success

Brett Massimino, Junior Faculty Member in Operations Management, Cornell University, School of Hotel Administration

Protecting the confidentiality of proprietary, digital assets can be challenging- for types ranging from well-codified data and information, all the way through dynamic, knowledge-based digital works. The contextual factors in protecting these valuable but easily transferrable items are often disregarded. They include worker demographics, international issues, worker behaviors (both inside and outside the workplace), and complications involving vendors or subcontractors.

Transforming the Customer Experience through Technology in the Hospitality Industry

Umar Riaz, Managing Director, Accenture; Co-authors and presenters: Kevin Carl, Dinah Laredo

Digital technologies have transformed the shopping and booking experiences in the hospitality industry. The next wave of technologies will do the same for on-property customer experiences. These on-premises technologies present their own particular challenges and opportunities.

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